



Planning Commission

Larry Fox, Chairperson Summer L. McMullen, Trustee
Michael Mitchell, Vice-Chairperson Sue Grissim, Commissioner
Tom Murphy, Secretary Jim Mayer, Commissioner
Matthew Eckman, Commissioner

Planning Commission Meeting Agenda
Hartland Township Hall
Thursday, April 25, 2024
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 Work Session Only Meeting Minutes of March 14, 2024
6. Call to Public
7. Public Hearing
 - a. Site Plan PD Application #24-003 Redwood Living Planned Development (PD) Phase II – Preliminary PD Site Plan
8. Call to Public
9. Planner's Report
10. Committee Reports
11. Adjournment

HARTLAND TOWNSHIP PLANNING COMMISSION **DRAFT** WORK SESSION

MEETING MINUTES

MARCH 14, 2024– 7:00 PM

1. **Call to Order:** Chair Fox called the Work Session meeting to order at 7:00 p.m.
2. **Pledge of Allegiance:**
3. **Roll Call and Recognition of Visitors:**
Present – Commissioners Eckman, Fox, Grissim, Mayer, McMullen, Mitchell, & Murphy
Absent – None
4. **Approval of the Meeting Agenda:**
A Motion to approve the March 14, 2024, Planning Commission Work Session Meeting Agenda was made by Commissioner Grissim and seconded by Commissioner Eckman. Motion carried unanimously.
5. **Approval of Meeting Minutes:**
 - a. Planning Commission Meeting Minutes of February 22, 2024
A Motion to approve the Planning Commission Meeting Minutes of February 22, 2024, was made by Commissioner Mitchell and seconded by Commissioner Murphy. Motion carried unanimously.
6. **Call to the Public:**
7. **Work Session**
 - a. Discussion of Draft Solar Ordinance.
The Planning Director gave an overview of the last items in the draft ordinance prepared by the Ordinance Review Committee. The Planning Commission discussed the following items:
 - Requirements for an applicant of a commercial solar energy system to provide the following items: insurance, decommissioning bond, financial security, and annual reports.
 - Commissioners provided their final thoughts and questions were addressed on the draft ordinance.
A Motion to initiate an Ordinance Amendment for the solar ordinance was made by Commissioner McMullen and seconded by Commissioner Grissim. A motion carried unanimously.
 - b. Discussion on Accessory Dwelling Units (ADU).
The Planning Director gave an overview of accessory dwelling units. The Planning Director also outlined the current regulations and definitions of a dwelling unit. The Planning Commission discussed the following items:
 - Discussion on how much of an improvement or addition to an existing single family structure without it being classified as a second dwelling unit.

- Discussion on an accessory structure and how much could be improved before it would be classified as a separate dwelling unit.
- Discussion on how accessory dwelling units could provide additional options for affordable housing.

Planning Commission Comments

The Planning Commission discussed the requirements for an application for accessory dwelling unit and directed the Ordinance Review Committee to further research, discuss, and provide a recommendation to the Planning Commission.

8. Call to the Public:

None

9. Planner Report:

10. Committee Reports:

None

11. Adjournment:

A Motion to adjourn was made by Commissioner Mitchell and seconded by Trustee McMullen. Motion carried unanimously. The meeting was adjourned at approximately 8:29 PM.

Hartland Township Planning Commission Meeting Agenda Memorandum

Submitted By: Troy Langer, Planning Director

Subject: Site Plan PD Application #24-003 Redwood Living Planned Development (PD) Phase II – Preliminary PD Site Plan

Date: April 18, 2024

Recommended Action

Move to recommend approval of Site Plan/PD #24-003, the Preliminary Planned Development Site Plan for Redwood Living Planned Development Phase II, as outlined in the staff memorandum dated April 18, 2024.

Approval is subject to the following conditions:

1. The Preliminary Planned Development Site Plan for Redwood Living Planned Development Phase II, SP/PD #24-003, is subject to the approval of the Township Board.
2. Waiver request for the development monument sign to be located off-site is approved.
3. Waiver request for the development monument sign to exceed seven (7) feet in height is approved. The proposed monument sign height is shown as approximately ten (10) feet.
4. The applicant shall adequately address the outstanding items noted in the Planning Department's memorandum, dated April 18, 2024, on the Construction Plan set, subject to an administrative review by Planning staff prior to the issuance of a land use permit.
5. As part of the Final Plan Review, the applicant shall provide a Planned Development (PD) Agreement that includes any applicable ingress-egress access easements and agreements. The applicant, and/or any future owners shall agree to not interfere with or object to any future roadway connection to the south. The documents shall be in a recordable format and shall comply with the requirements of the Township Attorney.
6. Applicant complies with any requirements of the Township Engineering Consultant, Department of Public Works Director, Hartland Deerfield Fire Authority, Michigan Department of Environment, Great Lakes, and Energy (EGLE), and all other government agencies, as applicable.
7. (Any other conditions the Planning Commission deems necessary).

Discussion

Applicant: Redwood Living

Site Description

The proposed planned development (PD) is shown in the northwest portion of Hartland Glen Golf Club. Currently the golf course property is primarily zoned CA (Conservation Agricultural), and other portions are zoned HDR (High Density Residential). The golf course property, addressed as 12400 Highland Road

is west of Pleasant Valley Road, south of Cundy Road, and west of Hartland Glen Lane. The golf course property is approximately 352.69 acres (Parcel ID # 4708-26-100-023).

In 2017, the northern portion of the golf course property and two adjacent properties on Cundy Road, were rezoned to HDR under Rezoning Application #361, however the zoning lines are not defined on the current zoning map. The HDR portion is approximately 73 acres.

Redwood Living PD Phase I occupies approximately 27.14 acres (Parcel ID #4708-26-100-020), in the northeast portion of the former golf course property. This phase consists of thirty (30) single-story, multi-unit apartment buildings, with a total of 148 apartment units. Phase I is currently under construction.

The proposed project, Redwood Living Planned Development Phase II, occupies approximately 29.89 acres of the golf course property, in the northwest part of the golf course (Parcel ID #4708-26-100-023). The two (2) residential developments (Phase I and II) are connected via internal private roadways. Phase II has twenty-eight (28) single-story, multi-unit apartment buildings and a total of 130 apartment units.

The proposed site development plan shows proposed parcel/property lines that delineate the project area. A land division request and application will be reviewed separately.

Existing wetland areas/ponds are shown on the submitted plans.

West of the proposed project area (Phase II), properties are zoned SR (Suburban Residential) and are part of the Handy Maxfield Shores subdivision, with single-family residences on each lot. Properties to the north are zoned CA and are occupied by single-family residences. Three (3) adjacent properties to the south are zoned CA and are occupied by single-family residences (by southwest corner of the subject site). The golf course property to the south is zoned CA or HDR.

Public access to the proposed development is via two (2) private roadways that are part of Redwood Living PD Phase 1. An emergency access road is shown on the south side of the development, for a future connection. An ingress/egress access agreement for this connection will be required as part of the Final Plan Review.

Hartland Glen Golf Course was previously designated as Medium Suburban Density Residential on the 2015 Future Land Use Map (FLUM); however, in 2020-2021, several amendments were made to the FLUM and Comprehensive Development Plan. The amendments were approved by the Township Board on May 18, 2021. One of the areas that was amended is the Hartland Glen Golf Course property, which is now designated as a Special Planning Area (SPA), thus the proposed Redwood Living PD Phase 2 project area is designated as SPA on the amended FLUM.

The 2020-2021 Amended Future Land Use Map designations for properties adjacent to the subject site (29.89-acre site) are as follows:

North: Medium Suburban Density Residential
South: Medium Suburban Density Residential and Special Planning Area
East: Special Planning Area
West: Medium Urban Density Residential

Site History

REZ #361 (2017)

In 2017, approximately 73 acres were rezoned from CA (Conservation Agricultural) to HDR (High Density Residential), under Rezoning Application #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) parcels on Cundy Road, with single-family residences, equating to an additional two (2) acres of land, for a total of 73 acres. The properties on Cundy Road are addressed as 12396 and 12398 Cundy Road. The remaining portion of Hartland Golf Club property was zoned CA at that time.

Site Plan/PD Application #20-008 Redwood Living Planned Development (Phase I) – Concept Plan

The Concept Plan for Redwood Living PD was discussed under Site Plan Application #20-008. The Planning Commission reviewed the project on August 20, 2020, followed up by the Township Board's review at their September 15, 2020 meeting.

Site Plan/PD Application #21-005 Redwood Living Planned Development (Phase I) – Preliminary Planned Development Site Plan

The Preliminary Planned Development Site Plan for Redwood Living PD was reviewed by the Planning Commission under Site Plan Application #21-005. On June 24, 2021, the Planning Commission held a public hearing for the project. Upon review of the project, the Planning Commission requested the applicant revise the plans to address several items that were discussed at the public hearing, prior to the Planning Commission making a recommendation on the project. The Planning Commission reviewed the revised plans at their regular meeting on Thursday, July 22, 2021, and recommended approval of Site Plan/PD Application #21-005.

The Township Board approved Site Plan/PD Application #21-005 at their regular meeting on August 17, 2021. The approved plan for SP PD #21-005 shows thirty (30) single-story, multi-unit apartment buildings, with a total of 148 apartment units and a project area of approximately 27.14 acres. The proposed density is 5.42 dwelling units per acre, and a density bonus was recommended by the Planning Commission.

Site Plan/PD Application #22-003 Redwood Living Planned Development (Phase I) – Final PD Site Plan

At their regular meeting on March 17, 2022, the Planning Commission recommended approval of SP/PD #22-003. The Township Board approved SP PD #22-003 at their regular meeting held on April 5, 2022, and included approval of a density bonus. Approval of SP/PD #22-003 constituted a rezoning of the subject properties associated with Redwood Living PD, from CA and HDR to PD (Planned Development). This also constituted an amendment to the Township zoning map.

Site Plan/PD Application #23-007 Redwood Living Planned Development Phase II – Concept Plan

The Concept Plan for Redwood Living PD Phase II was discussed under SP/PD #23-007. The Concept Plan was reviewed by the Planning Commission on July 27, 2023, and the Township Board on August 15, 2023. The Phase II Concept Plan, approximately 28.71 acres, consists of twenty-seven (27) single story apartment buildings, with a total of 130 dwelling units. Public access to the development is via two (2) private roadways associated with Redwood Living PD Phase I. Emergency access is shown on the south side of the site, as a future connection.

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. Given the requirements for publishing a notice for the planned development, the public hearing has been scheduled for the April 25, 2024 Planning Commission meeting. 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, review of the Planned Development Agreement, and other written documents as applicable.

Overview of the Preliminary Plan and Proposed Use

Under the current proposal, the project area of Phase II is expanded slightly than was proposed in the Concept Plan. This is due to a larger than expected area of poor soils in the north central portion of the site. The project area increased in size from 28.71 acres (Concept Plan) to 29.89 acres for the Preliminary Plan, with additional land acquired along the south boundary line.

Redwood PD Phase II essentially is a continuation of Phase I. Similar to Redwood Living PD Phase I, the target market for this residential development includes empty nesters, seniors, and young professionals; however, the development is not age restricted. The building styles, building materials, and interior layout options are similar to those found in Phase I.

The proposed residential planned development consists of twenty-eight (28), single-story, multi-unit apartment buildings. The Preliminary Plan shows the footprint of each of the twenty-eight (28) apartment buildings and with a total of 130 apartment units.

Following is a summary of Phase I and Phase II:

Phase	Development Area (Acres)	#Apartment Units
Phase I	27.14 acres	148 units
Phase II	29.89 acres	130 units
TOTAL	57.03 acres	278 units

There are two (2) types of apartment buildings: 4-unit and 6-unit. Nineteen (19) buildings are 4-unit buildings. Nine (9) buildings are 6-unit buildings. Three (3) of the 6-unit buildings have extended garages (18 units total), with an extra four (4) feet of garage length to accommodate larger vehicles.

Five (5) different building models are offered, with varying architectural designs and interior layout options. Architectural plans and floor plans have been submitted by the applicant. Each apartment unit has 2 bedrooms, 2 bathrooms, and an attached 2-stall garage. The unit size ranges from 1,300 to 1,600 square feet. The driveway for each unit is a minimum of twenty-five (25) feet long, as measured from the leading edge of the unit to the back of the street or edge of the 5-foot-wide integral sidewalk. The driveway width is eighteen (18) feet. This is to accommodate residents parking two (2) vehicles in the driveway and not

impede the accessible sidewalk along the road. Several driveways are forty (40) feet wide and twenty-five (25) feet in length where two garages are directly adjacent to each other.

The mail kiosk is shown in the northeast portion of the site however a detail drawing of the kiosk is not provided. Parking spaces are adjacent to the kiosk. Twenty-nine (29) guest parking spaces are scattered throughout the development.

Public access to the development is via two (2) private roadways associated with Phase I. Internally the residential units are served by several private roadways. The roadway design is the same as in Phase I, with a concrete travel lane having a width of twenty-two (22) feet plus an integral 5-foot-wide integral, accessible sidewalk, on one side of the roadway, that is scored and stained to delineate it from the travel lane. The total width is twenty-seven (27) feet. A designated road right-of-way easement is not part of the roadway design. Curb and gutter are not part of the roadway design in order to provide an ADA-compliant accessible route and avoid ramps, per the applicant's explanation previously (Phase 1). The private roadways will not meet the private road standards as outlined in Section 5.23 of the Zoning Ordinance.

Three (3) areas are labeled as "Regulated Wetlands", as follows: existing wetland area on the northern portion of the site; one (1) pond on the east; and one (1) pond in the southeast corner. A proposed stormwater management basin is located in the north central area of the site, where poor soils were discovered per the applicant. Per the applicant, construction activities will not occur in wetland areas.

The Open Space Plan states approximately 15.74 acres of the site is open space (52.7% of the PD area), with approximately 8.16 acres designated as usable open space (27.3% of the PD area).

As noted, the project area is approximately 29.89 acres in area. The estimated proposed density is 4.35 dwelling units per acre, using 130 dwelling units. More discussion on density is provided in the next section of this report.

Municipal sewer access is available and an adequate number of REU's (Residential Equivalency Units) are attached to the planned development property. The Public Works Director has provided a review letter dated January 29, 2024.

An off-site monument sign is proposed that is located on a separate parcel of land that is currently under the ownership of Hartland Glen Development LLC. The approximate 1.06 area parcel is zoned CA, and has frontage along Highland Road on the north, Cundy Road on the south, and borders Hartland Glen Lane on the east (Parcel ID #4708-26-100-021). The south property line abuts Redwood Living Phase I. The monument sign drawing shows two (2) sign panels – one for Hartland Glen and one for Redwood Apartment Neighborhoods. Additional discussion about the sign is found in this memorandum.

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 has provided a letter, dated January 4, 2024, that addresses this topic.

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

The proposed project is approximately 29.89 acres in size, of contiguous land, and meets the criteria.

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 development is serviced via existing and proposed private roadways. The applicant states this development will generate a low trip generation as opposed to a higher density use. Public water and sanitary sewer services are proposed via the extension of these services from Redwood PD Phase 1.

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 2020-2021 Comprehensive Plan Amendment and Amendment to the Future Land Use Map, were approved by the Township Board on May 18, 2021. As part of those Amendments, the M-59/Cundy Road/Hartland Glen Golf Course was designated as a Special Planning Area (SPA), which is approximately 385.9 acres in size (Hartland Glen Golf Courses property). The intention of the Planning Commission is to work closely with the landowners in this area to establish the terms of an agreement for a mixed-use Planned Development. The Commission has agreed that the SPA should have a density that is flexible. Overall, the SPA shall have a base density of four (4) dwelling units per acre. However, the Commission agrees that a high density is more desirable in the northern portion of the site while a lower density is more desirable in the southern portion of the site. The surrounding properties in the northern portion of the site are at a much higher density than the surrounding properties along the southern portion of the site. As a result, up to 25% of the density may be increased in the northern portion of the site (up to five (5) dwelling units per acre) if the southern portion of the site is decreased by 25% (up to three (3) units per acre). Overall, the entire site shall remain at four (4) dwelling units per acre.

The Planning Commission has agreed that if the developers of the SPA are able to include certain desirable design features that significantly enhance the appearance and function of the site, additional “bonus” density dwelling units can be awarded to the development as an incentive to promote a high-quality development. However, such a density “bonus” will only be awarded at the discretion of the Township in accordance with established development regulations of the Township and State of Michigan.

Further, the Planning Commission has determined the PD can be created with an environment that encourages pedestrian linkage between activity nodes and resource features. Specific principles were agreed upon for the Special Planning Area in the 2020-2021 Comprehensive Plan Amendment, as listed below.

1. Development within the Special Planning Area shall provide for a variety of housing forms (for example, single family, townhouses, condominium, apartments, and senior housing), along with retail, office, recreation, and entertainment space. *The applicant proposes a residential development that is similar to Redwood PD Phase I in design and intent. Phase II essentially offers the same housing options as Phase I, with twenty-eight (28) single-story apartment buildings, with variations in building façade materials and interior living spaces.*

2. Development within the Special Planning Area shall provide for public facilities and other neighborhood amenities. *The existing public watermain and sanitary sewer in Phase I will be extended to serve Phase II. The design of the PD provides open space areas that can be enjoyed by the entire Redwood Living community (Phase I and II) via internal sidewalks that connect the two developments.*
3. Special Planning Area shall provide pedestrian and vehicular links between land uses and adjacent property (that may not be directly included within this Special Planning Area development). *Vehicular links are provided between Phase I and II via the existing roadways in Phase I. Access to Hartland Glen Lane, is available via Phase I, which allows connections to the Hartland Glen Golf Course facility (clubhouse and parking to the south), Cundy Road, and Highland Road.*

A future vehicular connection is shown on the south side of the development (Phase II). Pedestrian access is provided via the 5-foot-wide integral sidewalks that occur in Phase I and II in the Redwood community. Phase I has a 5-foot-wide concrete sidewalk along the west side of Hartland Glen Lane, which extends to Cundy Road at the north terminus and to Hartland Glen Golf Course facilities at the south. These connections allow residents in Phase II to have pedestrian access to Highland Road and Hartland Glen Lane.

4. Special Planning Area shall also coordinate with the Township's goal of creating walkable pathways to the Township settlements and other public and private facilities. *Redwood Living PD Phase II provides an internal system of sidewalks with connections to sidewalks in Phase I. As noted above, additional pedestrian access is possible to adjacent walkways and facilities within the Phase I development.*
 5. Developments shall be developed in harmonious coexistence with pre-existing historical and natural features within the Township. *The intent of the PD is to retain the existing natural features such as the wetland and pond areas. The site will follow the existing topography and existing drainage patterns will be maintained.*
 6. Special Planning Area shall include landscape, streetscape, traffic and architectural solutions that are superior in design and visually enhancing the local community with sensitivity to the existing historic features in the Township. *The apartment buildings are single-story which are in keeping with the surrounding neighborhoods and less impactful than the allowed 35-foot building height in other residential zoning categories. The proposed landscape plan provides buffering along the borders of the PD and internal to the site. Street trees and planting areas around each apartment unit are also provided.*
- 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.*

Redwood Living will be the only owner of the PD parcel (Phase II). Redwood Living will construct the entire development, maintain the development, and manage the development after it is completed and filled with occupants.

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 of the site shall be consistent with the uses specified for the parcel on the Township’s Comprehensive Plan for Future Land Uses.*

The subject area for the planned development project is designated as Special Planning Area (SPA) on the 2020-2021 Amended Future Land Use Map, for the M-59/Cundy Road/Hartland Glen Golf Course area. Per the 2020-2021 Comprehensive Plan Amendment, this SPA would be developed as a planned development with a density that is flexible, with regards to the north and south portions of the SPA. A high density is envisioned for the northern portion of the Hartland Glen Golf Course property, up to five (5) dwelling units per acre, with a potential for a bonus density. The project area is located in the north portion of the SPA where a higher density is desired, thus is consistent with the FLUM.

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

Per the 2020-2021 Comprehensive Plan Amendment and Amended FLUM, the SPA is to have a base density of four (4) dwelling units per acre but allows for a higher density in the northern portion of the site, up to five (5) dwelling units per acre, and the southern portion of the site to have up to three (3) dwelling units per acre. Overall, the entire site is to remain at four (4) dwelling units per acre.

The Preliminary Plan proposes 130 dwelling units with a density of 4.35 dwelling units per acre. This is consistent with the 2020-2021 Comprehensive Plan Amendment and Amended FLUM, with the allowance for up to five (5) dwelling units per acre on the northern portion of the Special Planning Area.

The following is a chart that summarizes the density for the Special Planning Area:

Development	Area (Acres)	Density	# Dwelling Units
Phase I	27.14 acres	5.45 DU/Acre	148 units
Phase II	29.89 acres	4.35 DU/Acre	130 units
Hartland Glen Golf Course	352.69 acres	3.85 DU/Acre	1,361 units*
TOTAL	409.72 acres	4 DU/Acre – Overall density	1,639 units*

*This does not include a bonus density that could be permitted in a planned development.

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 its sole discretion shall have the ability to approve such density increase up to forty (40%) percent subsequent to an affirmative recommendation from the Planning Commission. In this case the planned development land area could accommodate up to 150 dwelling units (29.89 acres x 5 dwelling units per acre), in accordance with the Comprehensive Plan. The planned development plan could include up to 210 dwelling units (150+ 60 additional dwellings) if a maximum bonus (40% increase) were awarded by the Planning Commission and Township Board. The proposed development has 130 dwelling units and a density bonus is not being considered for this development.

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. A Pattern Book was not provided.

4. **Minimum Yard Requirements.** The minimum yard requirements are noted in the chart below per Section 3.1.18.C.vi.a. (for building setbacks):

Yard Location	Minimum PD Standard	Proposed setback*	Complies Yes/No
Along perimeter adjacent to public road	50 ft.	NA (PD is not adjacent to a public road)	NA
Along perimeter, but not adjacent to a road (N, S, E, W) property lines	40 ft.	58 ft. (north) 31.7 ft. (south) 17 ft. (east) 256.9 ft. (west)	Yes No No Yes
Along an internal collector or local road	40 ft.	25 ft.-measured from bldg. to edge of roadway or integral sidewalk	No

* As measured from property line to closest point of building

Sheet C200 lists the proposed yard setbacks as follows: front (15) feet, side (15 feet), and rear (15). Sheet C201 shows the south property as a 15-foot side yard. Sheet C202 shows a 15-foot front yard. In order to be consistent with the yard setbacks for Redwood Living Phase I, the setbacks for Phase II should be as follows: front yard setback should be eliminated; rear yard setback of 25 feet should be along the south property line; and side yard setback of 15 feet should be along all other boundaries of the property. The revisions should be shown on the Construction Plan Set.

5. **Distances Between Buildings.** Spacing requirements for buildings in a planned development are outlined in Section 3.1.18.C.vi.b.3. *Residential buildings containing more than one unit (including: apartments; townhouses; and other attached dwellings) shall conform to the spacing requirements set forth in Section 3.1.7 (MDR – Medium Density Residential).*

Per Section 3.1.7 (MDR), the required setbacks are as follows: front yard (30 feet); side yard (10 feet); and rear yard (25 feet). These standards are somewhat difficult to apply in this development as the buildings are not on individual parcels nor are individual building envelopes proposed. Sheet C200 provides proposed dimensional standards for building separation.

The following chart lists the proposed standards and closest distance between buildings for each category.

<u>Proposed Building Separation Standards</u>	<u>Closest Distance between Buildings on Plan</u>
Side to Side: 20 feet	20.0 feet
Side to Rear: 20 feet	27.1 feet
Rear to Rear: 20 feet	27.0 feet

Based on the plans, the buildings are placed to comply with the building separation standards as proposed by the applicant. Regarding the front yard setback, there are no dedicated right-of-way or easement lines for any of the internal roadways. In this case, the edge of the roadway or integral sidewalk serves as the front lot line, as was applied in Redwood Living Phase I. The residential structures in Phase II are located a minimum of twenty-five (25) feet from the edge of the roadway or integral sidewalk.

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

The one-story buildings comply with this regulation. The mean building height is approximately twelve (12) feet.

7. **Parking and Loading.** *Planned Developments shall comply with the parking and loading requirements specified in Section 5.8, Off-Street Parking requirements, and Section 5.9, Loading Space Requirements of the Zoning Ordinance.*

Parking requirements are listed in Section 5.8.4.H (Table of Minimum Parking Space Requirements). For the category, Residential, Family, two (2) parking spaces are required for each dwelling unit, plus one (1) additional space for each four (4) dwellings. In this case, with 130 units, thirty-three (33) additional parking spaces are required ($130 \div 4 = 33$), beyond the required two (2) spaces per dwelling unit.

Each apartment unit has an attached 2-stall garage, plus a 25-foot-long, 18-foot-wide driveway, which could potentially accommodate up to two (2) additional vehicles. In some instances, driveways are forty (40) feet wide and twenty-five (25) long where two garages are adjacent to each other. Parking is not permitted on the street, except in designated parking areas. A total of twenty-nine (29) parking spaces are provided within the development, scattered throughout. One (1) barrier-free parking space (van accessible) is provided by the mail kiosk. The guest parking spaces are shown as ten (10) feet wide by twenty (20) feet in length and meet the Ordinance standards. The proposed number of additional parking spaces is deficient by four (4) spaces, based on the Ordinance standards.

8. **Landscaping.** *Landscaping requirements are provided in Section 3.1.18.C.vi.e. These are considered minimum design standards, typically for a commercial or office development.*

A more detailed review of the landscaping is provided in this memorandum using applicable landscape standards outlined in Section 5.11 (Landscaping and Screening).

9. **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.*

Per this section of the Zoning ordinance (Section 3.1.18.C.vi.f.), the planned development shall provide open space consistent with the previous zoning designation for the site, at a minimum. Currently the site is zoned HDR (High Density Residential). In HDR, the open space requirement is a minimum of 35%, for a single-family detached dwelling. The proposed plan states the open space is 52% of the site, and thus would comply.

Section 3.15 of the Zoning Ordinance states residential condominium developments (in several zoning district classifications) should provide a minimum of 25% open space, with a minimum of 10% of the total land area to be usable open space (“usable open space” is defined as land area suitable for active recreation). For the proposed development consisting of 29.89 acres, this would equate to a minimum of 7.47 acres of open space, with a minimum of 2.98 acres of usable open space (10%).

The Open Space Plan (Sheet C203) states the proposed open space area is approximately 15.74 acres, or 52.6% of the PD, as shown as striped areas on the plan. Sheet C200 states approximately 8.16 acres are dedicated as usable open space, or 27.3% of the site. Those areas include the integral sidewalks (0.45 acres)

and common open space (7.71 acres). The Common Open Space areas are defined by a dashed line on Sheet C203. Wetland areas and the stormwater management area are not counted as open space on the plan.

10. **Natural Features.** *Consistent with the stated intentions for creation of these regulations, 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.*

An Alta survey is provided which shows existing features of the site. Historically the site has functioned as a golf course. Three (3) existing wetland areas/ponds are shown. The applicant states these features will remain undisturbed. The intention is to utilize the existing topography without the need for major earthwork changes, with some exceptions for the construction of the stormwater management basin. Existing drainage patterns will be maintained and treated in accordance with County and State regulations, per the applicant.

11. **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.*

A 5-foot-wide integral sidewalk is shown on one side of each private road within the development. The sidewalks connect to those found in Redwood Living PD Phase I.

Requirements for Preliminary Review (Section 3.1.18.E.ii)

The following is a summary of items that have not been addressed in the previous review as part of the Design Standards section.

1. Traffic Impacts.

The proposed planned development is directly accessed via private roadways in Redwood Living PD Phase I. The roadways in Phase I connect to Hartland Glen Lane on the east. Hartland Glen Lane intersects with Cundy Road, which terminates at Highland Road.

A traffic generation memo, dated December 21, 2023, prepared by Colliers Engineering and Design, provides a summary of trip generations studies that were completed for seven (7) other Redwood developments, three (3) sites in Ohio and four (4) in Michigan. Based on the data, the site-generated vehicle trips do not meet the minimum threshold (50 peak hour directional trips) to require a traffic impact analysis or further study. The conclusion presented in the memo, is that the proposed project would have no significant traffic impact and the change in traffic volume in the adjacent road network would not be discernable or require further study. A Trip Generation Study completed by CESO Inc., dated May 2019 was also submitted. Trip generation data was analyzed from four (4) similarly sized Redwood developments.

2. Fiscal Impacts.

The applicant has provided a response to this topic in the document dated January 4, 2024.

3. Vehicular Circulation.

As noted, the site is accessed at two (2) points via private roadways from Phase I of Redwood Living. Concrete private roadways provide internal circulation within the Planned Development. A construction detail of the roadway is shown on Sheet C700. The travel lane width is twenty-two (22) feet plus there is an integral 5-foot-wide integral sidewalk on one side of the roadway, for a total road width of twenty-seven (27) feet. The integral sidewalk is scored and stained to delineate it from the travel lane. Curb and gutter

are not provided. The private roadways will not meet the private road standards as outlined in Section 5.23 of the Zoning Ordinance.

Per the applicant this type of roadway design is appropriate for the PD as the internal roads handle low traffic volumes, a posted speed limit of 12 MPH is required by Redwood, and on-street parking is not allowed by Redwood.

On the south side of the site, a street stub is shown (26-foot wide) and labeled as emergency access, future connection. The intent is to provide a vehicular connection to future development(s) to the south on land currently owned by Hartland Glen Development LLC. As shown, the stub street/future connection stops short of the south property line of Redwood Living Phase II. The plans shall be revised to show the street (future connection) being extended to the south property line of the phase II development, on the Construction Plan Set.

Ingress-egress access easements and agreements will be required as part of the Final PD documents. The applicant, and/or any future owners shall agree to not interfere with or object to any future roadway connection to the south.

4. Landscaping (Section 5.11).

Applicable sections of Section 5.11 (Updated Landscaping and Screening standards) will be applied to the PD, as outlined below. The landscape plans are prepared by a Registered Landscape Architect and are signed.

A. Landscaping Adjacent to Road (Sec. 5.11.5.A.ii.) –

- Required – Street trees to be provided and maintained at one (1) tree per 35 feet of frontage. Street trees to be located in a 4-foot minimum wide lawn strip between road and sidewalk. When this is not feasible, trees to be planted no further than 15 feet from the edge of pavement or back of curb unless otherwise approved by Planning Commission. Required canopy tree size is a minimum 3-inch caliper tree at the time of planting.
- Proposed – 1 canopy tree per unit, planted in front of each unit, with some exceptions but not at a standard interval; street tree placed between approximately 10 feet and 15 feet from the edge of the pavement (travel lane) or edge of integral sidewalk. Proposed canopy tree size is 3” caliper.
- Meets Requirement? – **TBD**
- Comment – **Tree spacing varies due to driveway width (double driveway is 40 feet wide) and driveway locations. Additional street trees could be added to approach compliance with spacing and number of trees. Planning Commission to determine if the proposed street tree plan is acceptable.**

Based on prior discussions about street tree placement, the Planning Commission strongly prefers street trees to be planted no further than 15 feet from the edge of pavement or back of curb, even if the tree is planted within a utility easement. Deviations are to be approved by the Planning Commission.

B. Buffering or Screening (Sec. 5.11.2.G.i.) – Screening between Land Uses (north, south, and west property lines where abutting single-family zoned properties: CA and SR zoned)

- Required – Landscape buffer shall be provided to create a year-round visual screen at least eight (8) feet in height along all adjoining boundaries of a non-residential use or a residential use of higher density and abutting a single family residential zoned property. Evergreen trees to be planted in a staggered or clustered pattern with varying tree heights.

- Proposed – plantings are shown between the apartment buildings and subject property lines. Plant materials include a mix of a variety of deciduous/canopy trees, evergreen trees/tall junipers, and ornamental trees.
- Meets Requirement? – **TBD; the proposed screening is a mix of canopy trees, evergreen trees, and ornamental trees, and not totally comprised of evergreen trees as required; proposed evergreen trees are not staggered or clustered.**
- Comment – **Planning Commission to determine if the proposed planting plan meets the intent of the screening requirement.**

C. 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 must be planted for every 50 lineal feet of basin perimeter measured along top of bank elevation. Pond Perimeter - approx. 905 lineal ft. (per statement on plan). EQUATES TO: 18 canopy or evergreen trees. Side slopes of detention pond not to exceed 1 foot vertical for every 4 feet horizontal.
- Proposed – 25 trees (8 deciduous trees and 17 evergreen trees); 13 ornamental trees, and total of 96 large evergreen and deciduous shrubs
- Meets Requirement? – **TBD** – plan does not show the top of bank elevation of the detention pond, thus staff could not confirm the stated pond perimeter or required plant material. The Updated Landscaping and Screening Standards were not used. Plan complies with standards used by applicant. Information on side slopes of detention pond was not provided.
- Comment – **Applicant to provide information on pond perimeter (lineal feet) and side slopes of the detention pond on the Construction Plan Set.**

D. Apartment Unit Landscaping

Section 5.11 does not provide landscape standards for apartment buildings. Foundation planting plans for each building model are provided in the plan set on Sheet L1.3 (Typical Foundation Planting). All planted areas will be maintained by Redwood. Irrigation is provided for all front lawns and a minimum of ten (10) feet surrounding the sides and rear of each building. A planting plan for the mail kiosk is shown on Sheet L1.1.

Other comments

Plant sizes

Sheet L1.0 has a Plant Schedule for all plant materials. The required height for an evergreen tree at the time of planting is eight (8) feet and several evergreen trees are less than eight (8) feet in the chart. The plant schedule shall be revised on the Construction Plan set for the height of all evergreen trees (Norway Spruce, Black Hills Spruce, and Eastern White Pine).

Mulch products

Street trees are to be landscaped with hardwood mulch. Landscape beds around the apartment buildings will have washed river rock (native gravel mulch as stated on plans) in the front, side and rear landscape beds. This is a deviation from the Zoning Ordinance requirement to use shredded hardwood mulch; however, the same material was approved as part of Redwood Living Phase I. At that time the applicant noted that the river rock is used to protect the siding from damage caused by mowers and landscaping equipment. The Planning Commission can review the proposed use of washed river rock (native gravel mulch) as a substitute for shredded hardwood mulch and determine if this is acceptable.

Proposed landscape berms on west side of site

Sheet C300 contains a note in two locations, on the west side of the site, stating “approximate location of landscaping berm if excess soils are found during construction”. Details on the berms and landscape materials were not provided but will be required on the Construction Plan set. Potentially the landscape berms could provide screening on the west side of the development. In the event the berm is not constructed, and excess soil is to be deposited or spread elsewhere (on-site or off-site), the applicant shall provide all applicable details prior to any movement of soil. Should soil be spread near a wetland area, separate reviews, approvals, and permits may be required from the Michigan Department of Environment, Great Lakes, and Energy (EGLE).

Shared Off-site Monument Sign

An off-site monument sign is proposed on a separate parcel of land, owned by Hartland Glen Development LLC (Parcel ID #4708-26-100-021). The approximate 1.06 acre parcel is zoned CA, and has frontage along Highland Road on the north, Cundy Road on the south, and the east property line is adjacent to Hartland Glen Lane. Historically, an older wooden pole sign existed on the parcel, for Hartland Glen Golf Course. That sign has been removed and replaced with a temporary sign for Hartland Glen Golf Course. An off-site monument sign is not permitted per the Zoning Ordinance. The applicant submitted a waiver request to permit the off-site sign, for the Planning Commission’s consideration.

The monument sign is comprised of a masonry base that matches façade materials found on the buildings in Redwood I and II. The upper portion of the sign consists of two panel signs, one for Redwood Apartment Neighborhoods and another panel that states Hartland Glen. Per the applicant, the monument sign provides wayfinding to the Redwood developments and Hartland Glen, having visibility on Highland Road.

The total height of the monument sign is approximately ten (10) feet, which exceeds the maximum allowed height of seven (7) feet for a monument sign. It should be noted that 10-foot-tall monument signs have been permitted in the Hartland Marketplace/Walmart PD, as part of the PD request. A 16-foot-tall monument sign was approved for the Hartland Towne Square PD, at the corner of Hartland Road and Highland Road, although the sign has not been constructed. The applicant has provided a waiver request for the sign height for the Planning Commission to consider.

The overall square footage of the sign (area above the masonry base) is approximately 64 square feet, which complies with the zoning standards.

5. Architecture/Building Materials (Sec. 5.24)

Architectural standards for façade materials are not provided in Section 5.24 for multiple family buildings. A facade materials summary is provided on Sheet A4.6 and A4.11. The same façade materials are being used as those for Phase I. Generally, the façade materials for each building style include Celect Cellular Composite horizontal siding; vinyl shakes; glass; and stone veneer. The proposed exterior colors for the siding and shakes are earthtones, of tan, khaki, russet, and light green tones, as are being used for Phase I

There are five (5) main building styles: Breezewood; Forestwood; Willowood; Meadowood; and Capewood. The single-story buildings are comprised of multiple apartment units as follows: 4-unit (19 buildings) and 6-unit (9 buildings). Three of the 6-unit buildings have an extended garage for each apartment unit, to allow for larger vehicles. This occurs in the Forestwood and Meadowood building options.

Variation in the architecture is offered with the option of a screened-in rear porch, front porch, sunroom, roof dormers, and varying roof profiles. Outdoor patio areas on the rear side of the building are offered for some of the models. Building “L” has a high-profile roof line. There are several floor plan options depending on the building model.

A separate document was submitted that outlines the building materials and percentages of building materials. For this staff memorandum, staff did not outline those in the memorandum; however, they are in a separate document as an attachment.

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 January 29, 2024.

Hartland Township Engineer’s Review (SDA)

The Township Engineer (SDA) has reviewed the Preliminary PD plans and recommends approval subject to items being addressed in the letter dated February 2, 2024.

Hartland Deerfield Fire Authority Review

The Hartland Deerfield Fire Authority reviewed the plans and had no comments at this time.

Attachments:

1. DPW Review Letter 01.29.2024 – PDF version
2. Township Engineer (SDA) Review Letter 02.02.2024 – PDF version
3. Narrative & Impact Analysis 01.04.2024 – PDF version
4. Applicant’s Response Letter 02.23.2024 – PDF version
5. Redwood Phase II Trip Generation Memo 12.21.2023 – PDF version
6. General Development Schedule – PDF version
7. Unit Exterior Material Calculations – PDF version
8. Redwood Phase II Color Site Plan – PDF version
9. Monument Sign Exhibit – PDF version
10. Site Plan for Monument Sign – PDF version
11. Waiver request for off-site monument sign – PDF version
12. Communication – PDF version
13. Cover Sheet with RLA Stamp – PDF version
14. Redwood Phase II Site Plans dated 01.03.2024 – PDF version

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DEPARTMENT OF PUBLIC WORKS

Scott Hable, Public Works Director
2655 Clark Road
Hartland MI 48353
Phone: (810) 632-7498

TO: Planning Department
DATE: 1/29/2024
DEVELOPMENT NAME: Redwood Phase 2
PIN#: 12400 Highland Road

REVIEW TYPE: Site Plan

Municipal Sewer and Water access is available for the proposed site plan. 91 Water and Sewer REU's are required for this development and must be acquired prior to obtaining a land use permit from the township. Currently there are no REU's on this parcel for the development, if obtained from the current property owner that is acceptable. If the REU's must be purchased from the Township, please see the attached chart below:

	Sewer REUs	Water REUs
Owned	0	0
Required	91	91
REU Difference	91	91
Cost Each	\$9,439.20	\$6,829.67
Total Due Each	\$858,967.20	\$621,499.97
TOTAL REU COST	\$1,480,467.17	

Subsequently Public Works would like to see the basis of the design and capacity for the lift station on the southeast side of the property to ensure the station can handle its capacity. This lift station must meet the Livingston County standards for the design as well.

Public Works approves the above plans subject to applicant securing the required number of REUs and the inclusion of the following details on site and construction plans:

1. Water service lead location, size and materials including fittings.
2. Sanitary sewer material and sizes and connection detail sheet.
3. Monitoring manhole for sewer connection and location if required
4. Utility easements noted as public.
5. A note that all existing utility infrastructure within the development envelope is required to be upgraded to the current design and engineering standards.

Prior to interior construction , applicant will be required to purchase a water meter from the Township.

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

Scott Hable,
Public Works Director

February 2, 2024

Troy Langer
Hartland Township Panning Director
2655 Clark Road
Hartland, Michigan 48353

Re: Redwood Living Phase 2 – Site Plan Review #1
SDA Review No. HL23-105

Dear Troy:

We have received the site plan submittal for the above referenced project prepared by Colliers dated January 3, 2024 and received by our office on January 22, 2024. The plans were reviewed in accordance with the Site Plan Review Checklist, Current Design and Engineering Standards, Standard Details, and Code of Ordinances and the following comments are our observations.

Recommendation

Approval of the Site Plan is NOT recommended until the following items are addressed.

Comments:

The comments contained in this letter must be addressed prior to resubmittal.

Project Summary

- Construction of single-family condominiums at 12400 Highland Road, south of Cundy Road and west of Hartland Glen Lane. Phase 2 is an extension from Phase 1 with 130 rental units. Site access would be provided via private roadways through Phase 1 of Redwood Living. The site is approximately 29.90 acres (Listed as 28.71 acres with Parcel ID 4708-26-100-023 during concept review).
- Water service would be provided by an extension of the 8-inch diameter water main serving Redwood Hartland Phase 1 apartments. 10 additional hydrants are proposed on-site.
- Sanitary sewer service would be provided by an extension from the existing 8-inch sanitary sewer serving Phase 1.
- Storm water would be collected by a single storm sewer collection system and discharged to an on-site detention basin, out letting to regulated wetlands.

General

1. Provide a copy of Lot Split. Include Parcel ID with description on drawing X100.
2. Drawing C200: Offset distances listed in zoning information on Drawing X100 and in PD regulation table 3.1.18.C.vi.aof the township ordinances are not met. Approval from the planning department will be required for design variance.
3. Include circulation plan showing the minimum radii are met for a fire truck to traverse the site.
4. Include elevations and floor plans for all proposed buildings. Buildings L and F are currently shown in the plans.
5. Drawing C701: Old design standard details included in plan. Current Design and Engineering Standards available via link: (<https://www.hartlandtwp.com/planning/page/hartland-township-design-and-engineering-standards>)
6. Drawing L2.0: Landscaping shall not be proposed within utility easements.

These comments are to assist in plan preparation in anticipation of your engineering review submittal and are not required at this time for site plan approval:

1. Drawing C000: Include emails with project contacts.
2. Provide wetland delineation report.
3. Drawings must be sealed by a licensed engineer.

Water Main

1. Drawing C400: Water main easement shall follow centerline of utility.

Sanitary Sewer

These comments are to assist in plan preparation in anticipation of your engineering review submittal and are not required at this time for site plan approval:

1. Drawing C400: Easement missing from sanitary sewer northeast of building A extending into Phase 1.

Storm Drainage

These comments are to assist in plan preparation in anticipation of your engineering review submittal and are not required at this time for site plan approval:

1. Drawing C300: Surface water discharging directly to wetlands along north portion of property. All effort shall be made to capture storm runoff and direct to detention area.

Site Paving

1. The proposed roads appear to be narrower than the required LCRC required width, however we are not in receipt of the PUD Agreement to confirm if this has already been agreed upon. The previously approved Redwood Living Phase 1 construction plans show proposed 22' wide roadways. When the potential number of units or parcels served is twenty-five (25) or greater, proposed private roads must be constructed consistent with public road requirements of the Livingston County Road Commission (LCRC). LCRC states that "A minimum residential roadway surface width shall not be less than thirty feet. This dimension will be measured from either, shoulder hinge point to shoulder hinge point, or from face of curb to face of curb. Open ditch section roadways will have a minimum of twenty - two feet of pavement width and a gravel or paved shoulder width of four feet on either side of the pavement."

Flood Plain

The 100-year flood plain does not appear to traverse the property.

Off-Site Easements

Any off-site utility easements anticipated must be executed prior to final approval of the plans. If you have note already done so, drafts of the easements must be submitted to our office for review and shall be approved prior to executing the easements.

Permits Required

Based on those improvements depicted on the plans, the following permits may be required and will need to be provided to the Township once available. Any changes to the approved site plan from the following agencies that impact the design may require reapproval.

Hartland Township:

1. All necessary easements including water main and sanitary sewer. Easements must be on Hartland Township Standard Easement document and include a sketch. A current title policy for ownership verification shall be provided with all executed easement submittals, if applicable.
2. A Land Use Permit.
3. Storm Water Agreement (drainage system is to be owned and properly maintained by the Condominium and not publicly maintained).
4. Maintenance bond and insurance for the water main to be dedicated to the township.

Livingston County:

1. Copy of LCDC approval and permit for grading, sanitary sewer.
2. Copy of a Soil Erosion and Sedimentation permit from Livingston County Drain Commissioner.

Michigan Department of Environment, Great Lakes, and Energy (EGLE):

1. MDEGLE Permit for all water main installation.
2. MDEGLE Permit for all public sanitary sewer installation.
3. NPDES Notice of Coverage Documentation.
4. MDEGLE Minor Permit for all proposed work impacting the state-regulated wetlands.

The following must be submitted with the Revised Site Plan:

A letter from either the applicant or the applicant's engineer must be submitted with the Site Plan highlighting the changes made to the plans addressing each of the comments listed above and indicating the revised sheets involved. Please be aware that additional comments may arise with the submittal of the requested revisions and/or additional information. The comments are not to be construed as approvals and are not necessarily conclusive. The final engineering plans for this development are to be prepared in accordance with the Current Design and Engineering Standards, Standard Details, and Code of Ordinances.

If you have any questions regarding this letter, please contact Mark Collins or John Brady at (248) 844-5400 with any questions.

Sincerely,

SPALDING DEDECKER



Mark Collins, PE
Municipal Project Manager



John Brady, PE
Engineer

cc: Troy Langer, Planning Director



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(248) 930-2123 P.

Mr. Troy Langer
Hartland Township
2655 Clark Road
Hartland, MI 48353
(810) 632-7498

January 4, 2024

RE: Application for Preliminary Plan Review
Redwood Living Phase II; Part of Parcel 08-26-100-023

Dear Mr. Langer,

On behalf of Redwood Living, I am submitting our Phase II project for preliminary plan review in accordance with the Hartland Township planned development section in the zoning ordinance. Sections from the PD section in the zoning ordinance are described below with responses in bold. You'll note that our submittal mirrors much of what was provided in Phase I with updates as necessary.

Intent:

- 1) A choice of living environments by allowing a variety of housing and building types and permitting an increased density per acre or a reduction in lot dimensions, yards, building setbacks, and area requirements. Redwood offers a unique living experience of single-story, attached units, private garages, and zero maintenance. This is a low to medium density neighborhood that offers varying unit and building types.
- 2) A more useful pattern of open space and recreation areas and, if permitted as part of the project, more convenience in the location of accessory commercial uses and services accessory to the recreation uses. Redwood's proposed site plan offers connectivity throughout the site via an integral sidewalk along the internal private streets which will connect to the Phase I neighborhood and its infrastructure.
- 3) A development pattern which preserves and utilizes natural topography and geologic features, scenic vistas, trees and other vegetation, and prevents the disruption of natural drainage patterns. The site will follow the existing topography

without the need for major earthwork changes. The existing drainage patterns will be maintained and treated in accordance with County and State regulations. Redwood's Phase II site plan was developed in accordance with due diligence investigations which avoids regulated wetlands and a large area of poor soils which was discovered in our geotechnical investigation. We have been able to maintain a large swath of land which can be left as a undeveloped natural buffer between the Phase II project and the residential single-family homes to the north and west.

- 4) A more efficient use of land than is generally achieved through conventional development resulting in substantial savings through shorter utilities and streets. Redwood will utilize private streets which eliminates any maintenance via taxpayer expense. Redwood's Phase I development resulted in a significant extension of the public water system, which Phase II and this area of the Township will utilize without new taxpayer expense. In addition, Redwood Phase I in conjunction with the owners of Hartland Glen Golf Course constructed a lift station with sufficient capacity for this Phase II development.

- 5) A development pattern in harmony with the Goals and Objectives of the Hartland Township Comprehensive Plan. A second phase to the Redwood Neighborhood supports the overall goal for "well-planned, low intensity, safe, balanced and pleasant residential neighborhoods in the Township." A continuation of our Redwood development offers a unique housing type without being too dissimilar from our neighbors and other developments in the Township in terms of looks, density and scale. This proposal clusters density supporting open space objectives and allows for housing diversity to occur within a Planned Development. In our initial Phase I approval process it was noted that it was important for density in this area to be concentrated on the north side of this large parcel, allowing for an organized and balanced range of development to occur. We are continuing in this design by expanding our Phase I neighborhood to the west.

The 2020-2021 Comprehensive Plan update notes that the residential population of Hartland Township is comprised of over 50% 1-2 person households and almost 60% of the population of the Township is made up of households without minor children. Redwood's unit design and layout serves this population well.



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Additionally, Redwood aligns with the Township's residential goals in the comprehensive plan by providing paved pedestrian linkages via sidewalks throughout the neighborhood and to Phase I and streets lined with trees. Redwood's neighborhoods typically attract an age-in-place resident which aligns with the goal of providing housing for people of all ages and keeps the residents within Hartland Township. Redwood Neighborhoods also have high maintenance standards which comply with Hartland Township's Comprehensive Residential Policy goals. While Redwood is a multi-family use, the density associated with our neighborhood is low to medium which aligns with the goal of having this type of development with access to Township sanitary sewer. Finally, Redwood meets the goal of improving Township services to match growth by providing a housing type that is currently under-represented in the Township.

Eligibility:

Recognizable Benefits. The Planned Development 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. By pursuing a planned development, Redwood has the ability to propose private streets in lieu of public roads which would create difficult building setbacks, more paving, and additional maintenance at taxpayer expense. In addition, with a Planned Development Redwood is able to cluster density, leaving larger areas of natural open space. Finally, we have provided an impact analysis offering additional community benefit that will be provided by our development.

Minimum Size. The zoning ordinance for minimum size details PD districts that are around 20 or less acres. Redwood complies with this as we are proposing a PD of approximately 29.89 acres.

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. This development utilizes private roads for access and generates a low trip generation as opposed to a higher density use. This development will use the public infrastructure that was designed and built to in conjunction with the Redwood Phase I development. In addition, the lift station proposed



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in Phase I was designed to accommodate a possible Phase II development and further development of the Hartland Glen Golf Course.

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. While the future land use map calls for medium suburban density residential, Redwood meets nearly all of the same standards required in said district. Redwood matches the use with respect to residential, it is a similar density at 4.34 units per AC which is less than the density proposed on Phase I and Redwood is a single-story community which is less impactful than the allowed 35' building height in the SR district. In addition, it was noted in the Phase I application that this area is considered a special planning area in the 2020-2021 Comprehensive Plan Amendment allowing up to 4 units of density per AC overall and a desire to place more density to the north allowing for 5 units per acre of density and 3 units per acre in the southern portion of the overall parcel. We believe that similarly to the Phase I project, this Phase II project will prove compatible with the comprehensive plan and help Hartland Township achieve several of the goals of this plan.

The 2020-2021 Plan Amendment speaks to this special planning area calling for a variety of housing, which Redwood will continue to provide as our proposed single-story apartment homes are different than the other housing than is anticipated to be built on the remainder of the Hartland Glen Parcel. In addition, it is compatible with the current use of the golf course and club house. Redwood's development will connect with the Phase I infrastructure and sidewalk systems put in place. There is also a proposed stub to the south of this development anticipating possible future connection to the development. We feel our development will also be harmonious with the existing area and a continuation of our previously approved design and landscaping will further enhance the local community of Hartland Township.

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 this Ordinance. Redwood, as a single owner, will own the entire parcel, construct, maintain, and manage the proposed



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neighborhood. This remains the same for Phase II as it will be owned and/or controlled by a single entity.

Additional Details:

As noted above, much of the submittal package detail will mirror the Phase I proposal and design. We wanted to clarify a few items in this package that differ and/or confirm items that we provided in Phase I.

- This development will propose the same upgraded siding as Phase I (Celect)* as shown on the attached architectural/floorplans. Samples are on file with the Township.
- This development will include the same stone as proposed in Phase I provided by the new vendor (Provia* vs. Prestige Stone Products) as shown on the attached architectural/floorplans. Samples are on file with the Township.
- This development includes a number of units with an extended garage. This is a new offering from Redwood and was not available for Phase I so we do not have an architectural rendering of it yet showing the upgraded siding. The unit is the same as the corresponding non-extended garage unit with the only difference being a garage that is 4 feet longer than our traditional garage to accommodate larger vehicles. These units will still maintain 25' setback driveway length from the back of pavement to maintain accessibility.
- The road section proposed remains the same as in Phase I and will continue from the stubs provided.
- A separate mail kiosk area provided for residents in Phase II that meets the new USPS regulations for accessibility.
- An offsite shared sign servicing the entire Hartland Glen Golf Course area is proposed and included with this package. It is intended to replace the current sign advertising Hartland Glen Golf Course. We would value the opportunity to discuss this sign with the Planning Commission as it is designed to service approximately 385 acres of land on M-59 for the current/future users of this area. We understand, if approved, we would be required to secure an easement with Hartland Glen.

Thank you very much,
Emily Engelhart
Director of Acquisitions

*if an unforeseen and unexpected vendor issue arises Redwood will contact the Planning Department to confirm any proposed material change is acceptable and it will be the same or better quality and design.



7007 E. Pleasant
Valley Rd.
Independence, OH
44131
(248) 930-2123 P.

Hartland Updated Impact Analysis – Redwood Neighborhood Phase II

After an extensive review of our Phase I project, similar projects in our portfolio, and the Hartland market we have assembled some data on the economic impact that we feel an additional Redwood Neighborhood will have in Hartland Township.

Property Tax Impact:

Our plan currently proposes a 130-unit additional Neighborhood that will be contiguous with our 148-unit Phase I Neighborhood which is currently under construction. We project that property taxes for each residence will amount to approximately \$3,200.00 per unit or \$416,000.00 annually for the entire Phase II project, once complete.

Local School Impact:

While we are able to offer estimates based on historical data throughout our portfolio; Redwood Apartment Neighborhoods complies with all Fair Housing Administration guidelines and is not an age restricted property thus we cannot provide any concrete data on the ages of our residents for a specific project. However, due to a number of factors including our apartment home layout, neighborhood design, and pricing we have found that our Redwood Neighborhoods often appeal to empty nesters, seniors, and working professionals. After looking at data on our 150+ existing Neighborhoods; we have estimated that 80-90% of our residents are empty nesters, leaving approximately 10-20% residents with school aged children (primarily those who would attend K-8). Again, this number will vary as we will rent to any applicant who qualifies – however – we provide it as a baseline calculation to help assess impact on the schools. Using this baseline and assuming an average of 10-20% we have estimated that our Hartland Neighborhood could have approximately 13-26 children in the 130-unit project. Based on this projection, it is unlikely that our Redwood Neighborhood will greatly impact the Hartland School System.

Community and Business Impact:

As all our Redwood Apartment Homes have 2 bedrooms and 2 bathrooms, we have been able to calculate our occupancy average to be about 1.89 adults living in each unit. Using this calculation, we would expect an average of 245 adult residents to live at the Hartland Redwood Neighborhood Phase II. An addition of 240+ individuals to this area will help support local commercial business and add vibrancy to the growing eastern part of the Township.

In addition, more Redwood Apartment Neighborhood homes in Hartland will bring opportunities for local trades to participate in construction as well as local businesses including landscaping/snow services as well as further employment opportunities for staff



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that work on-site at a Redwood Neighborhood. We have heard from several businesses, including Hartland Glen Golf Course, that their dining business has seen a boost from just the employees who are working on the site development and construction. We would expect this to continue with Phase II.

Finally, Redwood's expanding presence in this area of the Township will likely create opportunities for housing filtration to occur. We find that many of our residents are already living and working in the areas we build new neighborhoods, and they are seeking this type of housing alternative. When a Redwood neighborhood opens, it allows them the possibility of remaining in their area as they now have the opportunity to downsize or move, thus allowing new residents to move. In this challenging housing market, the addition of new non-single family residential options can be beneficial to the community as a whole in providing flexibility and choice.

Mr. Troy Langer
Hartland Township
2655 Clark Road
Hartland, MI 48353
(810) 632-7498

February 23, 2024

RE: Preliminary Plan Review – Comment Response Letter
Redwood Living Phase 2; Parcel 4708-26-100-023

Dear Mr. Langer,

We have reviewed the comments provided by the Township Planning Department, Township Department of Public Works, Township Engineering Consultant (Spalding DeDecker), and Township Fire Department. Our responses are provided below in bold along with the original comments. Based on conversations with Township staff, revised plans have not been prepared at this time in order to capture further comments or recommendations from the Township Planning Commission. We acknowledge that revised plans will need to be provided at the next submittal.

In addition to this comment response letter, we've included the following items prior to our meeting with the Township Planning Commission:

- Two (2) full size copies of the Landscaping cover sheet with the seal of a State of Michigan registered landscape architect
- Ten (10) 11x17 copies of the plan set (*All plans remain as submitted with the only updates being the Landscape Plans Cover Sheet, and Updated Overall Site Plan*)
- Exhibit of the offsite shared monument sign detail
- Exhibit of the offsite shared monument sign plan with setbacks

Hartland Township Planning Department

1. Landscape plans must be signed by a registered Landscape Architect in the State of Michigan. **Plans now contain the seal of the registered State of Michigan landscape architect. Please see cover sheet of landscaping plans.**
2. Revise southern property line setback as a 25-foot rear building setback line. Delete front yard setback. **Southern property line will now be shown as a rear setback. The current site plan is providing a minimum 31-foot setback along this boundary. Front yard setback has been removed.**
3. Detention pond side slopes shall not exceed one (1) foot vertical for every four (4) feet horizontal. Show side slopes on plans. **Pond will not exceed one on four sides slopes as required. Plans will be updated to include slope information.**
4. Show top of bank and state lineal feet to be used in formula for tree requirements. **Landscape and Civil plans will be revised to include this information.**
5. Revise applicable trees to have tree height at planting be 8-feet. **Acknowledged.**
6. Combination of trees and shrubs not required around pond as part of new landscaping ordinance. **Acknowledged.**

7. Provide a landscape buffer behind buildings R, T, and W to create a visual screen at least 8-feet in height. Buffer can include combination of landscape berm and plant material and/or decorative screen walls. The intent is to provide year-round visual screen. **Acknowledged.**
8. Add shade trees as noted on the plans, in front of building A, B, M, P, Q, S, Y, and DD. **Acknowledged. Trees will be added wherever possible (i.e. not within utility easement areas). If unable to be added due to physical/easement constraints, substitute locations will be suggested.**

Hartland Township Department of Public Works

1. Currently there are no REU's on this parcel for the development, if obtained from the current property owner that is acceptable. **REU's for this development are to be allocated under an agreement with the current property owner.**
2. Public Works approves the above plans subject to applicant securing the required number of REUs and the inclusion of the following details on site and construction plans:
 - a. Water service lead location, size and materials including fittings.
 - b. Sanitary sewer material and sizes and connection detail sheet.
 - c. Monitoring manhole for sewer connection and location if required
 - d. Utility easements noted as public.
 - e. A note that all existing utility infrastructure within the development envelope is required to be upgraded to the current design and engineering standards. **All of the required information noted above will be included on the construction plans.**

Hartland Township Fire Department

1. **Fire has reviewed the plans and has no comments.**

Hartland Township Engineering Consultant (Spalding DeDecker)

1. Provide a copy of Lot Split. Include Parcel ID with description on drawing X100. **Lot split will be completed prior to construction. Copy will be provided once it is available.**
2. Drawing C200: Offset distances listed in zoning information on Drawing X100 and in PD regulation table 3.1.18.C.vi.a of the township ordinances are not met. Approval from the planning department will be required for design variance. **Acknowledged. Proposed setbacks are the same distances as phase 1 of the Redwood Hartland PUD immediately adjacent to phase 2.**
3. Include circulation plan showing the minimum radii are met for a fire truck to traverse the site. **A circulation plan can be provided, however, the minimum radii on the proposed site is 25-foot and minimum lane width for travel is 27-feet. These widths and radii match phase 1 of Redwood Hartland.**
4. Include elevations and floor plans for all proposed buildings. Buildings L and F are currently shown in the plans. **Elevations and floor plans match phase 1 of the Redwood Hartland PUD**
5. Drawing C701: Old design standard details included in plan. Current Design and Engineering Standards available via link: (<https://www.hartlandtwp.com/planning/page/hartland-township-design-and-engineering-standards>) **Construction plans will be revised to include the latest engineering details and standards.**

6. Drawing L2.0: Landscaping shall not be proposed within utility easements. **Landscaping plans will be revised to place plantings outside of utility easements.**
7. These comments are to assist in plan preparation in anticipation of your engineering review submittal and are not required at this time for site plan approval:
 - a. Drawing C000: Include emails with project contacts. **Acknowledged.**
 - b. Provide wetland delineation report. **Report submitted to Township planning. No wetlands will be impacted by development.**
 - c. Drawings must be sealed by a licensed engineer. **Plans will be signed and sealed by a licensed State of Michigan engineer.**
8. Drawing C400: Water main easement shall follow centerline of utility. **Construction plans will provide more detail on easements.**
9. Drawing C400: Easement missing from sanitary sewer northeast of building A extending into Phase 1. **Acknowledged. Construction plans will provide more detail on easements.**
10. Drawing C300: Surface water discharging directly to wetlands along north portion of property. All effort shall be made to capture storm runoff and direct to detention area. **Acknowledged. Construction plans will provide more detail on storm drainage.**
11. The proposed roads appear to be narrower than the required LCRC required width, however we are not in receipt of the PUD Agreement to confirm if this has already been agreed upon. The previously approved Redwood Living Phase 1 construction plans show proposed 22' wide roadways. When the potential number of units or parcels served is twenty-five (25) or greater, proposed private roads must be constructed consistent with public road requirements of the Livingston County Road Commission (LCRC). LCRC states that "A minimum residential roadway surface width shall not be less than thirty feet. This dimension will be measured from either, shoulder hinge point to shoulder hinge point, or from face of curb to face of curb. Open ditch section roadways will have a minimum of twenty - two feet of pavement width and a gravel or paved shoulder width of four feet on either side of the pavement." **Acknowledged. Internal private access aisles are proposed to match phase 1 of the Redwood Hartland PUD.**

Hartland Township

12. All necessary easements including water main and sanitary sewer. Easements must be on Hartland Township Standard Easement document and include a sketch. A current title policy for ownership verification shall be provided with all executed easement submittals, if applicable. **Acknowledged.**
13. A Land Use Permit. **Acknowledged.**
14. Storm Water Agreement (drainage system is to be owned and properly maintained by the Condominium and not publicly maintained). **Acknowledged. This is a development under one owner which will not be subdivided.**
15. Maintenance bond and insurance for the water main to be dedicated to the township. **Acknowledged.**

Livingston County Drain Commissioner

16. Copy of LCDC approval and permit for grading, sanitary sewer. **Acknowledged.**

17. Copy of a Soil Erosion and Sedimentation permit from Livingston County Drain Commissioner. **Acknowledged.**

EGLE

18. MDEGLE Permit for all water main installation. **Acknowledged.**
19. MDEGLE Permit for all public sanitary sewer installation. **Acknowledged.**
20. NPDES Notice of Coverage Documentation. **Acknowledged.**
21. MDEGLE Minor Permit for all proposed work impacting the state-regulated wetlands. **Acknowledged.**

Should you have any questions about the enclosed material or if you require any additional information, feel free to contact me by phone at (517) 827-8681 or e-mail at ian.graham@collierseng.com or Emily Engelhart at (248) 930-2123 or e-mail at eengelhart@byredwood.com.

Sincerely,



Ian Graham, PE
Enclosures

cc: Emily Engelhart, Redwood (via E-mail)

Memorandum

To: Ms. Emily Engelhart
From: Steve Russo, PE
Date: December 21, 2023
Subject: Hartland Township Redwood Phase II Trip Generation Memo

Introduction

This memorandum presents an evaluation of traffic generation for Phase II of the proposed Redwood development in Hartland Township, Livingston County, Michigan. The subject site is located on the south side of Highland Road (M-59) and Cundy Road approximately $\frac{3}{4}$ mile west of Pleasant Valley Road / Fenton Road and was previously occupied by the Hartland Glen Golf Course. Phase I of the development constructed 146 single-story residential units with site access provided via two driveways to Hartland Glen Lane which provides unsignalized access to M-59. Phase II will construct an additional 130 residential units with internal connections to the existing Phase I development. No new external access drives are proposed as part of the Phase II development plans. Additionally, Hartland Glen Lane is a private roadway, whereby existing access is provided via an easement and agreement with Hartland Glen Development, LLC. No access drives are provided to roadways under the jurisdiction of the Michigan Department of Transportation (MDOT) or Livingston County Road Commission (LCRC).

Site Trip Generation

The number of AM and PM peak hour vehicle trips that will be generated by the proposed Phase II of the residential development was forecast based on the rates and equations published by ITE in *Trip Generation, 11th Edition*, as well as trip generation studies completed for other Redwood developments. ITE publishes average trip generation rates for a wide variety of land uses, as well as regression equations for some. For some land uses, both rates and equations are available, and selection of the appropriate method was based on the guidelines outlined in the ITE Trip Generation Manual.

The characteristics of a Redwood development are not explicitly reflected by the land use categories published by ITE. With attached rental homes and a majority of residents over the age of 55, this development will generate less trips than a typical multifamily development. Two separate trip generation studies have previously been performed for Redwood developments: one by CESO, Inc. in 2019, and one by Oxbow Engineering in 2010. The CESO study included four sites in Michigan, and the Oxbow study included three sites in Ohio, and were completed consistent with ITE recommended practice. Data from the two studies were combined to calculate a trip generation rate specific to Redwood developments based on the seven sites surveyed. These results indicate

that a Redwood development can be expected to generate 0.33 trips per unit during the AM peak hour and 0.43 trips per unit during the PM peak hour as summarized in **Table 1**.

Table 1: Redwood Site Trip Generation

Location	Dwelling Units	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Brownstown Township, MI	115	9	32	41	34	20	54
Canton Township, MI	93	4	22	26	29	10	39
Commerce Township, MI	98	7	24	31	24	14	38
Shelby Township, MI	140	8	38	46	35	21	56
Findley, OH	84	6	33	39	31	13	44
Akron, OH	95	4	19	23	22	10	32
Wooster, OH	158	11	43	54	50	25	75
Total	783	49	211	260	225	113	338
Average Trip Rates		19%	81%	0.33	67%	33%	0.43

Comparison with the most similar ITE land use categories indicates that the trip making characteristics of a Redwood development are between that of an attached senior housing development and low-rise multifamily uses. Based on this comparison, the trip generation data specific to Redwood was determined to be valid and most appropriate for use as it represents conditions specific to the proposed development. The results of the trip generation forecast, and comparison are summarized in **Table 2**.

Table 2: Redwood Site Trip Generation

Land Use	ITE Code	Amount	Units	Average Daily Traffic	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Attached Senior Housing	252	130	Dwelling Units	401	9	17	26	18	15	33
Multifamily Low-Rise	220	130	Dwelling Units	909	15	48	63	48	28	76
Redwood		130	Dwelling Units	800	8	35	43	38	18	56

According to 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) to require traffic impact analysis or further study. Furthermore, this project would result in only an approximate 2% increase in traffic volumes on M-59 during the peak hours as summarized in **Table 3**. 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 or require further study.

Table 3: M-59 Proportional Impact

Peak Hour	2022 Volumes	Site Generated	% Increase
AM	2,044	43	2.06%
PM	2,224	56	2.46%

Please direct any questions regarding this memorandum to Colliers Engineering & Design.

Attached: Redwood Trip Generation Studies
M-59 Traffic Volumes

TRIP GENERATION RATES SUMMARY

for

THE TRAILS AT MONTVILLE

	<i>A.M. PEAK</i>			<i>P.M. PEAK</i>		
	<i>Trip Rate</i>	<i>Enter</i>	<i>Exit</i>	<i>Trip Rate</i>	<i>Enter</i>	<i>Exit</i>
<i>Findley - Hunters Crossing 84 Units</i>	.46	15%	85%	.52	70%	30%
<i>Akron - Village of Northampton 95 Units</i>	.24	17%	83%	.34	69%	31%
<i>Wooster - Milltown Point 158 Units</i>	.34	20%	80%	.47	67%	33%

Average AM Rate: 0.35 **17% Enter**
83% Exit

Average PM Rate: 0.44 **69% Enter**
31% Exit

**HUNTERS CROSSING
(Findley)
February 2, 2010**

TIME	IN	OUT
7:00 - 7:15	2	6
7:15 - 7:30	3	6
7:30 - 7:45	1	9
7:45 - 8:00	0	12
8:00 - 8:15	1	4
8:15 - 8:30	1	3
8:30 - 8:45	1	5
8:45 - 9:00	2	2

PEAK HOUR: 7:00 - 8:00

TIME	IN	OUT
4:00 - 4:15	7	7
4:15 - 4:30	3	2
4:30 - 4:45	2	2
4:45 - 5:00	5	2
5:00 - 5:15	10	4
5:15 - 5:30	4	3
5:30 - 5:45	12	4
5:45 - 6:00	3	2

PEAK HOUR: 4:45 - 5:45

FINDLEY: HUNTERS CROSSING

	<i>IN</i>	<i>OUT</i>	<i>TOTAL</i>
<i>A.M. PEAK</i> <i>7:00 - 8:00</i>	6	33	39
<i>P.M. PEAK</i> <i>4:45 - 5:45</i>	31	13	44

TRIP GENERATION DETERMINATION:

A.M. Peak: $\frac{39 \text{ Trip Ends}}{84 \text{ Units}} = 0.46 \text{ Trip Ends/Unit}$

$\frac{6 \text{ Enter}}{39 \text{ Total}} = 15\% \text{ Enter}$

$\frac{33 \text{ Exit}}{39 \text{ Total}} = 85\% \text{ Exit}$

P.M. Peak: $\frac{44 \text{ Trip Ends}}{84 \text{ Units}} = 0.52 \text{ Trip Ends/Unit}$

$\frac{31 \text{ Enter}}{44 \text{ Total}} = 70\% \text{ Enter}$

$\frac{13 \text{ Exit}}{44 \text{ Total}} = 30\% \text{ Exit}$

**VILLAGE OF NORTHAMPTON
(Akron)
February 3, 2010**

TIME	IN	OUT
7:00 - 7:15	1	5
7:15 - 7:30	0	6
7:30 - 7:45	0	3
7:45 - 8:00	1	5
8:00 - 8:15	3	5
8:15 - 8:30	1	3
8:30 - 8:45	0	3
8:45 - 9:00	0	4

PEAK HOUR: 7:15 - 8:15

TIME	IN	OUT
4:00 - 4:15	4	1
4:15 - 4:30	3	1
4:30 - 4:45	4	1
4:45 - 5:00	2	4
5:00 - 5:15	6	1
5:15 - 5:30	6	4
5:30 - 5:45	6	3
5:45 - 6:00	4	2

PEAK HOUR: 5:00 - 6:00

AKRON: VILLAGE OF NORTHAMPTON

	<i>IN</i>	<i>OUT</i>	<i>TOTAL</i>
<i>A.M. PEAK</i> <i>7:15 - 8:15</i>	4	19	23
<i>P.M. PEAK</i> <i>5:00 - 6:00</i>	22	10	32

TRIP GENERATION DETERMINATION:

A.M. Peak: $\frac{23 \text{ Trip Ends}}{95 \text{ Units}} = 0.24 \text{ Trip Ends/Unit}$

$\frac{4 \text{ Enter}}{23 \text{ Total}} = 17\% \text{ Enter}$

$\frac{19 \text{ Exit}}{23 \text{ Total}} = 83\% \text{ Exit}$

P.M. Peak: $\frac{32 \text{ Trip Ends}}{95 \text{ Units}} = 0.34 \text{ Trip Ends/Unit}$

$\frac{22 \text{ Enter}}{32 \text{ Total}} = 69\% \text{ Enter}$

$\frac{10 \text{ Exit}}{32 \text{ Total}} = 31\% \text{ Exit}$

**MILLTOWN POINT
(Wooster)
February 4, 2010**

TIME	IN	OUT
7:00 - 7:15	3	9
7:15 - 7:30	0	11
7:30 - 7:45	0	12
7:45 - 8:00	5	13
8:00 - 8:15	2	8
8:15 - 8:30	4	10
8:30 - 8:45	1	5
8:45 - 9:00	2	1

PEAK HOUR: 7:30 - 8:30

TIME	IN	OUT
4:00 - 4:15	8	9
4:15 - 4:30	9	5
4:30 - 4:45	8	1
4:45 - 5:00	5	8
5:00 - 5:15	12	3
5:15 - 5:30	12	4
5:30 - 5:45	14	11
5:45 - 6:00	12	7

PEAK HOUR: 5:00 - 6:00

WOOSTER: MILLTOWN POINT

	<i>IN</i>	<i>OUT</i>	<i>TOTAL</i>
<i>A.M. PEAK</i> <i>7:30 - 8:30</i>	11	43	54
<i>P.M. PEAK</i> <i>5:00 - 6:00</i>	50	25	75

TRIP GENERATION DETERMINATION:

A.M. Peak: $\frac{54 \text{ Trip Ends}}{158 \text{ Units}} = 0.34 \text{ Trip Ends/Unit}$

$\frac{11 \text{ Enter}}{54 \text{ Total}} = 20\% \text{ Enter}$

$\frac{43 \text{ Exit}}{54 \text{ Total}} = 80\% \text{ Exit}$

P.M. Peak: $\frac{75 \text{ Trip Ends}}{158 \text{ Units}} = 0.47 \text{ Trip Ends/Unit}$

$\frac{50 \text{ Enter}}{75 \text{ Total}} = 67\% \text{ Enter}$

$\frac{25 \text{ Exit}}{75 \text{ Total}} = 33\% \text{ Exit}$

TRIP GENERATION STUDY

Prepared for:
Redwood USA, LLC.
7510 East Pleasant Valley Road
Independence, OH 44131

Prepared by:
CESO, Inc.
13060 Old US 27, Suite D
Dewitt, MI 48820
(517) 622-3000

May 2019

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1. Introduction

1.1. Purpose

The purpose of this report is to determine the trip generation data for a typical Redwood development. Currently, trip generation data must be obtained from the 10th Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual.

Four (4) sites were selected within the state of Michigan (see Figure 1). These sites were relatively similar in size and design. Trip generation data was obtained at the selected sites according to guidelines set forth in the ITE Trip Generation Manual.

The following sections of this report discuss the methodology in determining the trip generation data for a typical Redwood development.

1.2. Study Procedure

In order to determine the trip generation data for a typical Redwood development, the following steps were taken:

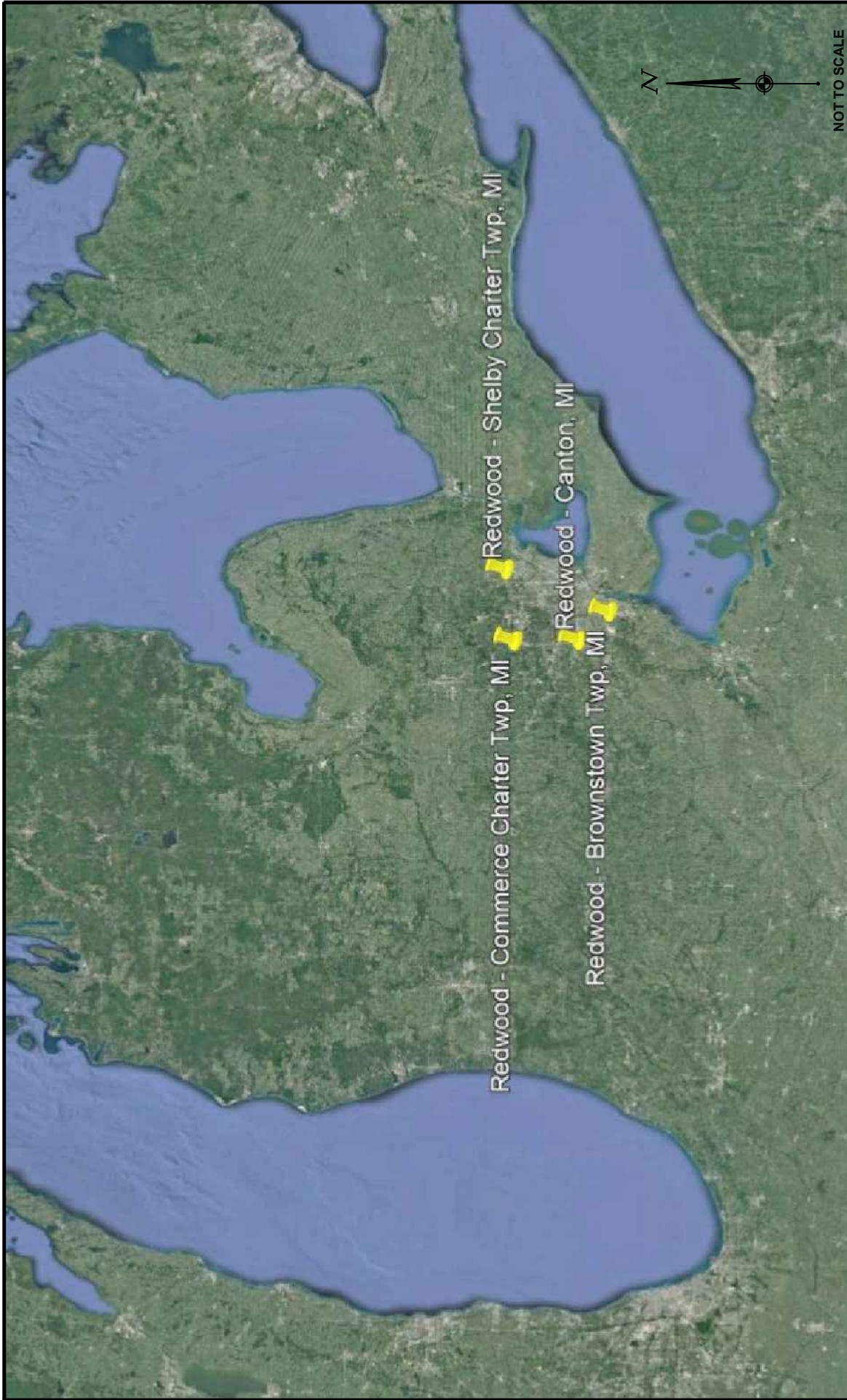
1. Four (4) similar Redwood developments were chosen within the state of Michigan to be included in this analysis.
2. Manual driveway counts were conducted by Gewalt Hamilton Associates, Inc. at each of the selected sites during a typical weekday (Tuesday, Wednesday, Thursday) during the following AM, Mid-Day, and PM Peak Hour time frames: 7:00 AM – 9:00 AM, 11:00 AM – 1:00 PM, and 4:00 – 6:00 PM.
3. Summarize the data to determine inbound and outbound trips at each access driveway for each study location.
4. Determine the average trip rate for each study location based on a weighted average trip rate.
5. Perform a regression analysis for each study location to determine the percent of variance in the number of trips associated with the variance in the size of the independent variable.
6. Summarize the trip rates for each site individually and summarize trip rates of all six (6) study locations together.

1.3. References

This report utilizes information provided by the following sources:

1. Trip Generation Manual. 10th ed. Washington, DC: Institute of Transportation Engineers, 2017.

○ ○ ○ ○ ○



NOT TO SCALE

FIGURE 1	
DATE:	05/10/2019
JOB NO.:	786452-01
DESIGN:	TMC
DRAWN:	TMC
CHECKED:	REM
PAGE:	4

STUDY LOCATIONS

REDWOOD TRIP GENERATION STUDY



2. Definition of Terms

The following is a summary of the terms that are used in the study. These terms are defined in order to explain the data analysis and results obtained from this study. These terms were taken from Chapter 3 of the 10th Edition of the ITE Trip Generation Manual.

Average Trip Rate

The average trip rate is the weighted average of the number of vehicle or person trips entering or exiting a development site per one unit of the independent variable (e.g., trip ends per occupied dwelling unit or employee) using a site's driveway(s). The weighted average rate is calculated by summing all trips or trip ends and all independent variable units where paired data are available, and then dividing the sum of the trip ends by the sum of the independent variable units. The weighted average rate is used rather than the average of the individual rates because of the variance within each data set or generating unit. Data sets with a large variance will over-influence the average rate if they are not weighted. The data plot includes a dashed line corresponding to the weighted average rate, extending between the lowest and highest independent variable values for data points.

Average Trip Rate for the Peak Hour of the Adjacent Street Traffic

The average trip rate for the peak hour of the adjacent street traffic is the one-hour weighted average vehicle trip generation rate at the site between 7 AM and 9 AM, 11 AM and 1 PM, and 4 PM and 6 PM, when the combination of its traffic and the traffic on the adjacent street is the highest. If the adjacent street traffic volumes are unknown, the average trip rate for the peak hour of the adjacent street represents the highest hourly vehicle trip ends generated by the site during the traditional commuting peak periods of 7 AM to 9 AM, 11 AM to 1 PM, and 4 PM to 6 PM.

AM, Mid-Day, and PM Peak Hour Volume of Adjacent Street Traffic

The AM, Mid-Day, and PM peak hour volume of adjacent street traffic is the highest hourly volume of traffic on the adjacent street during the AM, Mid-Day, and PM, respectively.

Average Trip Rate for the Peak Hour of the Generator

The average trip rate for the peak hour of the generator is the weighted average vehicle trip generation rate during the hour of highest volume of traffic entering and exiting the site during the AM, the Mid-Day, or the PM hours. It may or may not coincide in time or volume with the trip rate for the peak hour of the adjacent street traffic. The trip rate for the peak hour of the generator will be equal to or greater than the trip rate for the peak hour between 7 AM and 9 AM, 11 AM and 1 PM, or between 4 PM and 6 PM.

Dwelling Unit

A residential location such as a house, apartment, condominium, townhouse, mobile home, or manufactured home in which people may live. An occupied dwelling unit is a dwelling unit in which people currently live.

Independent Variable

An independent variable is a physical, measurable, or predictable unit describing the study site or generator that can be used to predict the value of the dependent variable (trip ends). Some examples of independent variables used in this book are GFA (gross floor area), employees, seats, and dwelling units.

Trip or Trip End

A trip or trip end is a single or one direction vehicle movement with either the origin or the destination (exiting or entering) inside a study site. For trip generation purposes, the total trip ends for a land use over a given period of time are the total of all trips entering plus all trips exiting a site during a designated time period.

3. Data Collection

3.1. Site Characteristics

Data was collected at four (4) similar sites within the state of Michigan. The following is a summary of each site in terms of dwelling units.

**Table 1
Site Characteristics**

Redwood Location	Size	Unit
Brownstown Township, MI – Red Hawk Landing	115	Dwelling Units
Canton, MI – Enclave at Brownstown	93	Dwelling Units
Commerce Charter Township, MI – Four Seasons	98	Dwelling Units
Shelby Charter Township, MI – River Birch Bend	140	Dwelling Units

These study sites range in size from 93 dwelling units to 140 dwelling units.

3.2. Summary of Count Data

Manual counts were conducted at each of the above listed study locations during the following time periods:

- Weekday AM Peak Hour (7:00 AM – 9:00 AM)
- Weekday Mid-Day Peak Hour (11:00 AM – 1:00 PM)
- Weekday PM Peak Hour (4:00 PM – 6:00 PM)

These counts focused on collecting the inbound and outbound volumes at each driveway for each study location. Traffic Count Data Sheets for each of the four (4) study locations can be found in Appendix A through Appendix D.

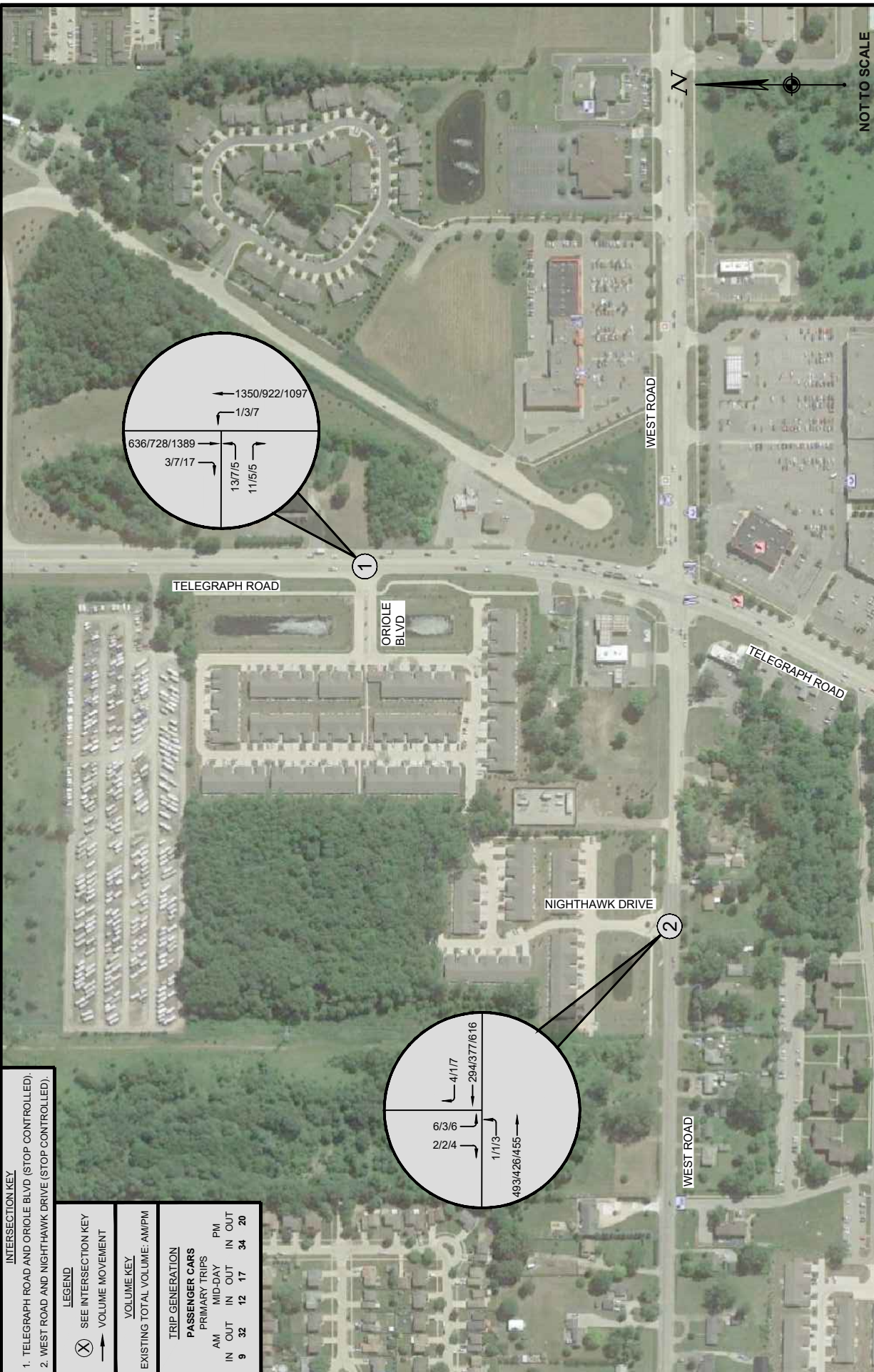
Table 2 summarizes the inbound and outbound volumes for the following peak time periods.

- Weekday – AM Peak Hour of Adjacent Street Traffic
- Weekday – Mid-Day Peak Hour of Adjacent Street Traffic
- Weekday – PM Peak Hour of Adjacent Street Traffic

**Table 2
Summary of Driveway Volumes (Inbound & Outbound)
During Peak Hour Time Periods**

Location	Size	Unit	Total Generated Trips								
			Weekday AM Peak Hour			Weekday Mid-Day Peak Hour			Weekday PM Peak Hour		
			Trips			Trips			Trips		
			Tot	In	Out	Tot	In	Out	Tot	In	Out
Brownstown Township, MI	115	Dwelling Units	41	9	32	29	12	17	54	34	20
<i>Entering (%) / Exiting (%)</i>			100%	22%	78%	100%	41%	59%	100%	63%	37%
Canton, MI	93	Dwelling Units	26	4	22	26	8	18	39	29	10
<i>Entering (%) / Exiting (%)</i>			100%	15%	85%	100%	31%	69%	100%	74%	26%
Commerce Charter Township, MI	98	Dwelling Units	31	7	24	46	20	26	38	24	14
<i>Entering (%) / Exiting (%)</i>			100%	23%	77%	100%	43%	57%	100%	63%	37%
Shelby Charter Township, MI	140	Dwelling Units	46	8	38	49	25	24	56	35	21
<i>Entering (%) / Exiting (%)</i>			100%	17%	83%	100%	51%	49%	100%	63%	37%
<i>Total Average Rate</i>											

The Weekday AM, Mid-Day, and PM inbound and outbound traffic volumes for each of the four (4) locations are illustrated on Figures 2-5 of the report.



NOT TO SCALE

FIGURE 2

DATE:	05/10/2019
JOB NO.:	756452-01
DESIGN:	TMC
DRAWN:	TMC
CHECKED:	REM
PAGE:	8

EXISTING WEEKDAY PEAK HOUR TRAFFIC VOLUMES (YEAR 2019) - TOTAL VOLUMES

REDWOOD TRIP GENERATION STUDY

BROWNSTOWN TOWNSHIP
WAYNE COUNTY, MICHIGAN



INTERSECTION KEY
 1. HAGGERTY ROAD AND MONUMENT BLVD (STOP CONTROLLED).

LEGEND
 (X) SEE INTERSECTION KEY
 → VOLUME MOVEMENT

VOLUME KEY
 EXISTING TOTAL VOLUME: AM/PM

TRIP GENERATION	
PASSENGER CARS	
PRIMARY TRIPS	
AM	PM
IN	OUT
4	22
8	18
29	10



NOT TO SCALE

FIGURE 3	
DATE:	05/10/2019
JOB NO.:	756452-01
DESIGN:	TMC
DRAWN:	TMC
CHECKED:	REM
PAGE:	9

EXISTING WEEKDAY PEAK HOUR TRAFFIC VOLUMES (YEAR 2019) - TOTAL VOLUMES

REDWOOD TRIP GENERATION STUDY

WAYNE COUNTY, MICHIGAN

CANTON



- INTERSECTION KEY**
1. UNION LAKE ROAD AND GROVE STREET/GROVE ROAD (STOP CONTROLLED).
 2. GROVE STREET AND WENDY'S DRIVEWAY (STOP CONTROLLED).

- LEGEND**
- SEE INTERSECTION KEY
 - VOLUME MOVEMENT
 - BALANCED VOLUME

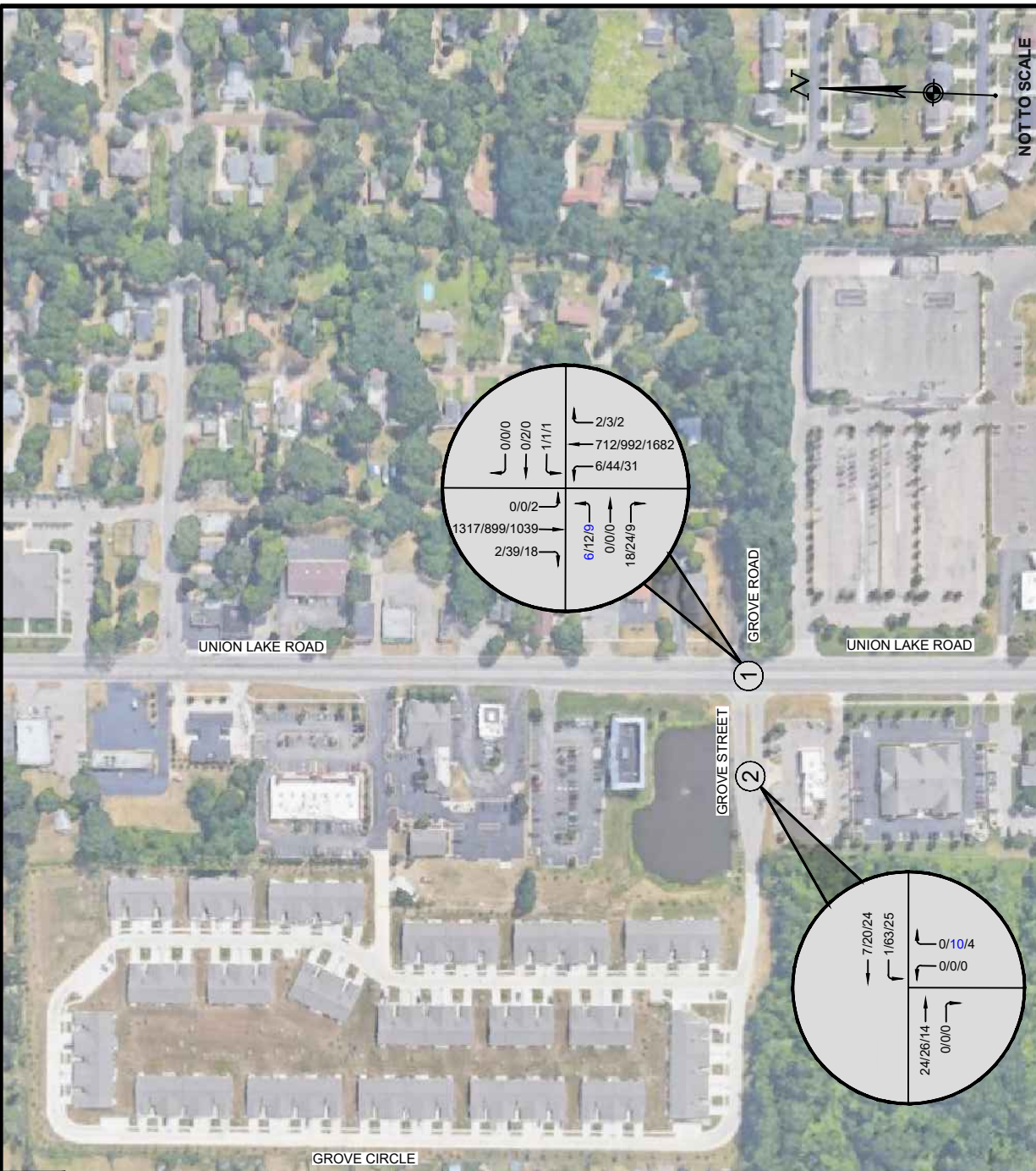
VOLUME KEY
EXISTING TOTAL VOLUME: AM/PM

TRIP GENERATION

PASSENGER CARS

PRIMARY TRIPS

AM	MID-DAY	PM
IN	OUT	IN
OUT	IN	OUT
7	24	20
26	24	14



NOT TO SCALE

FIGURE 4

DATE:	05/10/2019
JOB NO.:	756452-01
DESIGN:	TMC
DRAWN:	TMC
CHECKED:	REM
PAGE:	10

EXISTING WEEKDAY PEAK HOUR TRAFFIC VOLUMES (YEAR 2019) - TOTAL VOLUMES

REDWOOD TRIP GENERATION STUDY

OAKLAND COUNTY, MICHIGAN

COMMERCE CHARTER TOWNSHIP



INTERSECTION KEY
 1. LAKESIDE BLVD AND BEACON DRIVE (STOP CONTROLLED).

LEGEND
 (X) SEE INTERSECTION KEY
 → VOLUME MOVEMENT

VOLUME KEY
 EXISTING TOTAL VOLUME: AM/PM

TRIP GENERATION

PASSENGER CARS		PRIMARY TRIPS		MID-DAY		PM	
IN	OUT	IN	OUT	IN	OUT	IN	OUT
8	38	25	24	35	21		

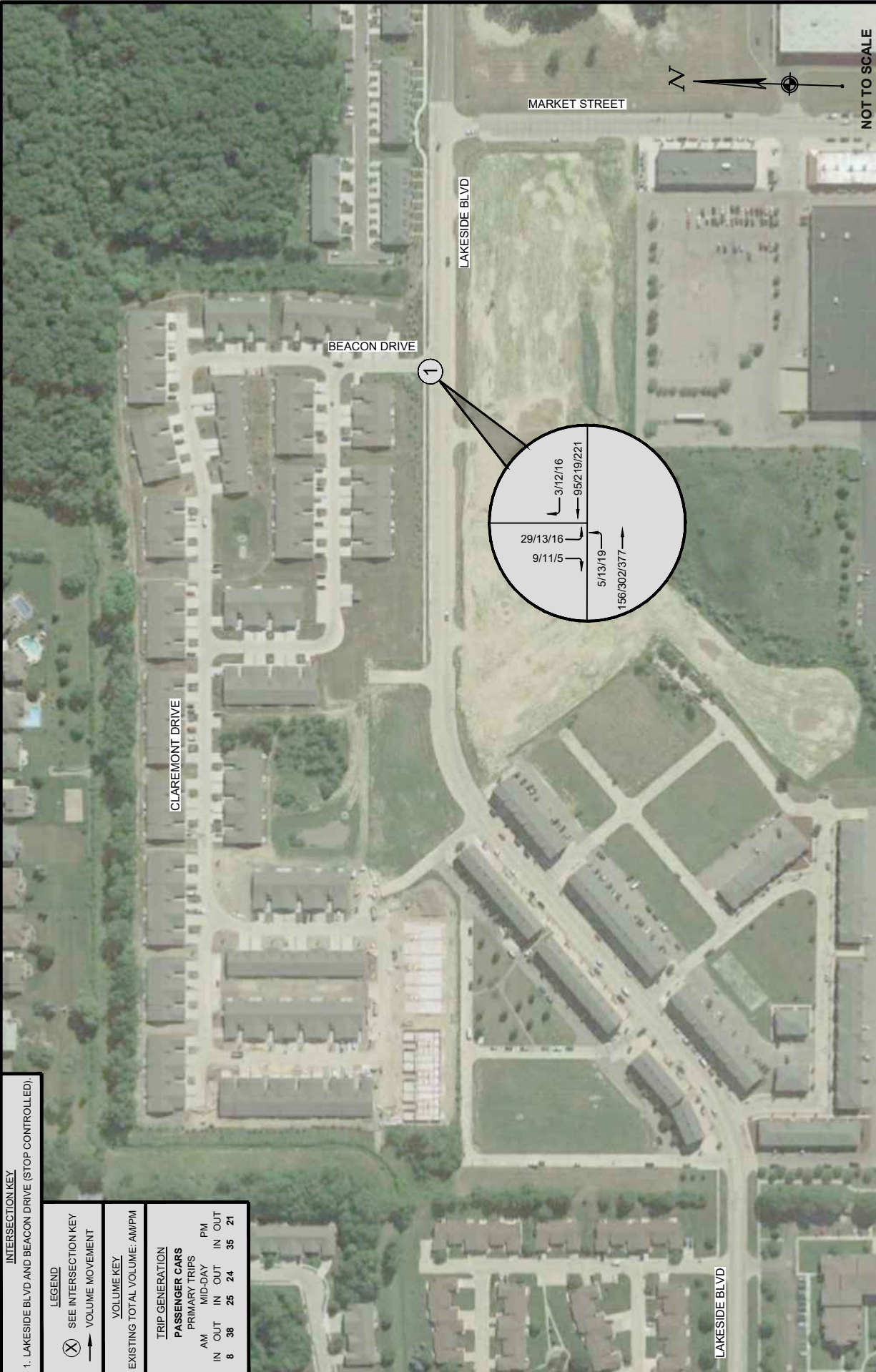


FIGURE 5

DATE:	05/10/2019
JOB NO.:	756452-01
DESIGN:	TMC
DRAWN:	TMC
CHECKED:	REM
PAGE:	11

EXISTING WEEKDAY PEAK HOUR TRAFFIC VOLUMES (YEAR 2019) - TOTAL VOLUMES

REDWOOD TRIP GENERATION STUDY

SHELBY CHARTER TOWNSHIP

MACOMB COUNTY, MICHIGAN



4. Data Analysis

4.1. Reported Statistics

Each of the four (4) study locations were analyzed to determine the weighted average trip rate and regression analysis. The following is a discussion of each of the above reported statistics and how they were obtained:

4.1a. Average Trip Rate (Weighted)

The average trip generation rates shown in this study were calculated on the basis of a weighted average trip rate. As with the ITE Trip Generation Manual, 10th Edition, the weighted average trip rate was used rather than the average of the individual rates because of the variance found within each data set. Sites with a large variance from the mean would have over-influenced the average rate had they not been weighted. Table 3 summarizes the average trip rate for each study.

4.1b. Regression Analysis

This analysis examined the independent variable and the number of trips in order to generate a regression curve, a regression equation, and a coefficient of determination (R^2) for each time period. According to the information found in the ITE Trip Generation Manual, 10th Edition, “the coefficient of determination is defined as the percent of the variance in the number of trips associated with the variance in the size of the independent variable. If the R^2 value is 0.75, then 75 percent of the variance in the number of trips is accounted for by the variance in the size of the independent variable.”

Table 3
Summary of Average Trip During Peak Hour Time Periods

Location	Dwelling Units	Weekday AM Peak Hour of Adjacent Street Traffic	Weekday Mid-Day Peak Hour of Adjacent Street Traffic	Weekday PM Peak Hour of Adjacent Street Traffic
Brownstown Township, MI	115	0.36	0.25	0.47
Canton, MI	93	0.28	0.28	0.42
Commerce Charter Township, MI	98	0.32	0.47	0.39
Shelby Charter Township, MI	140	0.33	0.35	0.40
Average Trip Rate		0.32	0.34	0.42

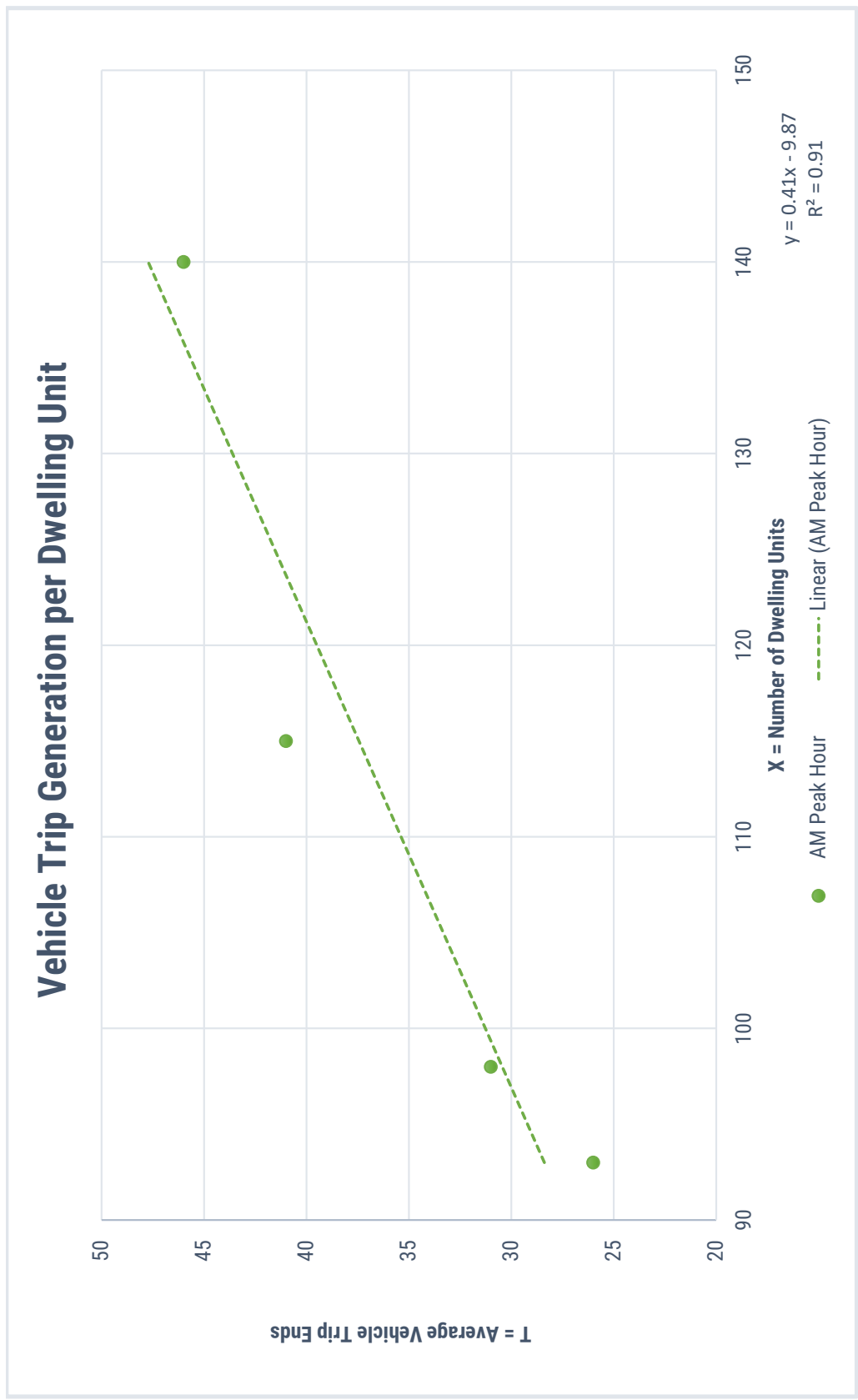
Table 4
Summary of Average Trip Rate (Weighted) During Peak Hour Time Periods

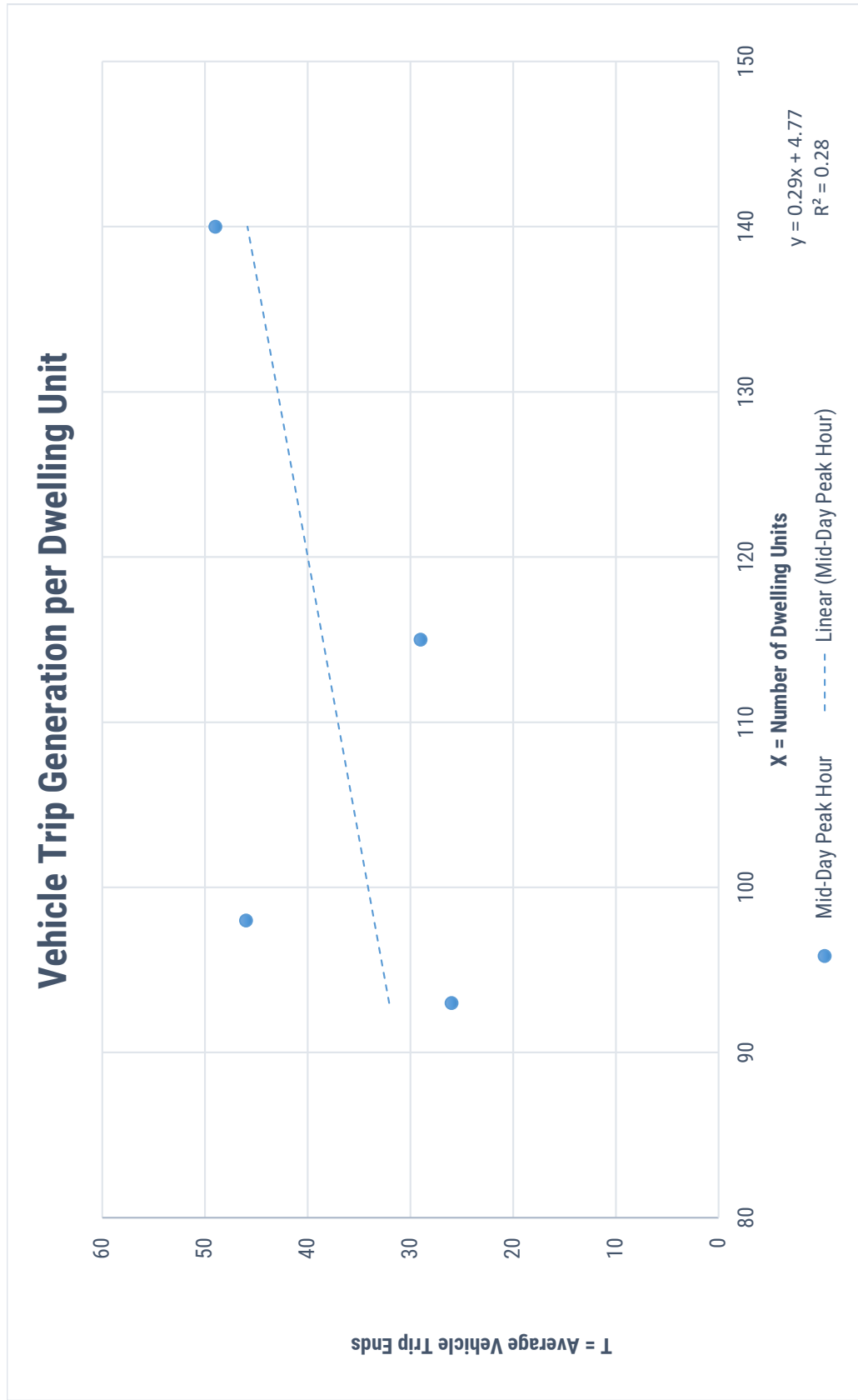
Location	Dwelling Units	Weekday AM Peak Hour of Adjacent Street Traffic	Weekday Mid-Day Peak Hour of Adjacent Street Traffic	Weekday PM Peak Hour of Adjacent Street Traffic
Brownstown Township, MI	115	41	29	54
Canton, MI	93	26	26	39
Commerce Charter Township, MI	98	31	46	38
Shelby Charter Township, MI	140	46	49	56
Total Trips		144	150	187
Average Trip Rate		0.32	0.34	0.42

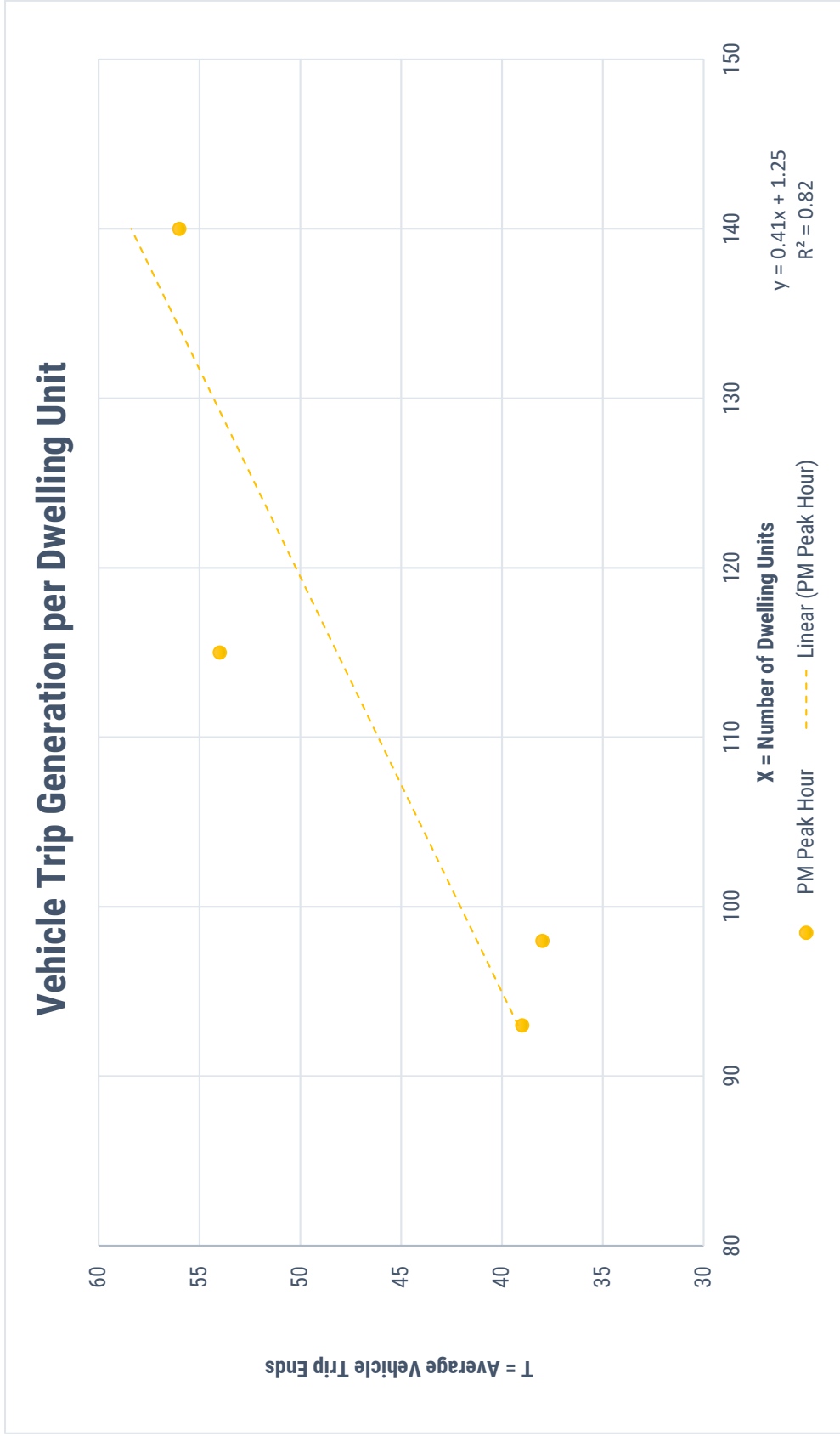
4.2. Data Plots

Each of the four (4) study locations were converted into data plots. Data plots provide a display of the variance within the data base. The data points represented on the plots are not trip generation rates; rather, they are the observed number of trips, plotted against the size of the independent variable (dwelling units). Data plots have been made for each of the four (4) study locations (illustrated on Figures 6-8) for the following time periods:

- Weekday – AM Peak Hour of Adjacent Street Traffic
- Weekday – Mid-Day Peak Hour of Adjacent Street Traffic
- Weekday – PM Peak Hour of Adjacent Street Traffic







Volume Count Report

LOCATION INFO	
Location ID	47-0998
Type	SPOT
Funct'l Class	3
Located On	M 59
Loc On Alias	M 59
WEST OF	Fenton Rd
Direction	2-WAY
County	Livingston
Community	Hartland Twp - Livingston
MPO ID	
HPMS ID	
Agency	MDOT

INTERVAL:15-MIN					
Time	15-min Interval				Hourly Count
	1st	2nd	3rd	4th	
0:00-1:00	50	24	28	28	130
1:00-2:00	16	14	16	16	62
2:00-3:00	10	19	15	15	59
3:00-4:00	16	26	21	20	83
4:00-5:00	31	37	49	58	175
5:00-6:00	109	143	197	205	654
6:00-7:00	264	329	434	468	1,495
7:00-8:00	444	534	513	525	2,016
8:00-9:00	472	505	519	482	1,978
9:00-10:00	419	462	417	423	1,721
10:00-11:00	347	409	417	436	1,609
11:00-12:00	413	400	442	488	1,743
12:00-13:00	451	473	454	417	1,795
13:00-14:00	480	477	556	457	1,970
14:00-15:00	543	465	493	518	2,019
15:00-16:00	484	551	497	498	2,030
16:00-17:00	545	537	555	553	2,190
17:00-18:00	541	575	549	501	2,166
18:00-19:00	455	445	435	374	1,709
19:00-20:00	331	312	311	282	1,236
20:00-21:00	268	265	282	203	1,018
21:00-22:00	186	210	165	120	681
22:00-23:00	140	108	97	58	403
23:00-24:00	66	60	67	37	230
Total					29,172
AADT					22,074
AM Peak					07:15-08:15 2,044
PM Peak					16:30-17:30 2,224

COUNT DATA INFO	
Count Status	Accepted
Holiday	No
Start Date	Wed 4/13/2022
End Date	Thu 4/14/2022
Start Time	1:00:00 PM
End Time	1:00:00 PM
Direction	2-WAY
Notes	
Station	XC38809 6155
Study	
Speed Limit	
Description	
Sensor Type	Axle/Tube
Source	CombineVolumeCountsIncremental
Latitude,Longitude	

Volume Count Report

LOCATION INFO	
Location ID	47-0998_EB
Type	SPOT
Funct'l Class	3
Located On	M 59
Loc On Alias	M 59
WEST OF	Fenton Rd
Direction	EB
County	Livingston
Community	Hartland Twp - Livingston
MPO ID	
HPMS ID	
Agency	MDOT

COUNT DATA INFO	
Count Status	Accepted
Holiday	No
Start Date	Wed 4/13/2022
End Date	Thu 4/14/2022
Start Time	1:00:00 PM
End Time	1:00:00 PM
Direction	
Notes	
Station	010117-0005296
Study	
Speed Limit	
Description	
Sensor Type	Axle/Tube
Source	
Latitude,Longitude	

INTERVAL:15-MIN					
Time	15-min Interval				Hourly Count
	1st	2nd	3rd	4th	
0:00-1:00	28	12	17	20	77
1:00-2:00	9	8	6	4	27
2:00-3:00	6	5	4	10	25
3:00-4:00	11	8	7	7	33
4:00-5:00	13	19	24	25	81
5:00-6:00	47	63	101	109	320
6:00-7:00	135	194	236	231	796
7:00-8:00	218	296	260	302	1,076
8:00-9:00	265	263	281	302	1,111
9:00-10:00	232	240	228	224	924
10:00-11:00	173	205	204	217	799
11:00-12:00	219	203	222	220	864
12:00-13:00	241	236	230	229	936
13:00-14:00	272	283	344	250	1,149
14:00-15:00	282	226	266	267	1,041
15:00-16:00	258	298	275	279	1,110
16:00-17:00	336	321	343	347	1,347
17:00-18:00	315	370	313	270	1,268
18:00-19:00	262	262	258	208	990
19:00-20:00	200	182	167	149	698
20:00-21:00	141	148	154	126	569
21:00-22:00	108	128	94	77	407
22:00-23:00	82	64	61	34	241
23:00-24:00	37	42	43	16	138
Total					16,027
AM Peak	07:15-08:15				1,123
PM Peak	16:30-17:30				1,375

Volume Count Report

LOCATION INFO	
Location ID	47-0998_WB
Type	SPOT
Funct'l Class	3
Located On	M 59
Loc On Alias	M 59
WEST OF	Fenton Rd
Direction	WB
County	Livingston
Community	Hartland Twp - Livingston
MPO ID	
HPMS ID	
Agency	MDOT

COUNT DATA INFO	
Count Status	Accepted
Holiday	No
Start Date	Wed 4/13/2022
End Date	Thu 4/14/2022
Start Time	1:00:00 PM
End Time	1:00:00 PM
Direction	
Notes	
Station	XC38809 6155
Study	
Speed Limit	
Description	
Sensor Type	Axle/Tube
Source	
Latitude,Longitude	

INTERVAL:15-MIN					
Time	15-min Interval				Hourly Count
	1st	2nd	3rd	4th	
0:00-1:00	22	12	11	8	53
1:00-2:00	7	6	10	12	35
2:00-3:00	4	14	11	5	34
3:00-4:00	5	18	14	13	50
4:00-5:00	18	18	25	33	94
5:00-6:00	62	80	96	96	334
6:00-7:00	129	135	198	237	699
7:00-8:00	226	238	253	223	940
8:00-9:00	207	242	238	180	867
9:00-10:00	187	222	189	199	797
10:00-11:00	174	204	213	219	810
11:00-12:00	194	197	220	268	879
12:00-13:00	210	237	224	188	859
13:00-14:00	208	194	212	207	821
14:00-15:00	261	239	227	251	978
15:00-16:00	226	253	222	219	920
16:00-17:00	209	216	212	206	843
17:00-18:00	226	205	236	231	898
18:00-19:00	193	183	177	166	719
19:00-20:00	131	130	144	133	538
20:00-21:00	127	117	128	77	449
21:00-22:00	78	82	71	43	274
22:00-23:00	58	44	36	24	162
23:00-24:00	29	18	24	21	92
Total					13,145
AM Peak					06:45-07:45 954
PM Peak					14:00-15:00 978

SOIL EROSION/SEDIMENTATION CONTROL OPERATION TIME SCHEDULE

	JUNE				JULY				AUGUST				SEPTEMBER				OCTOBER				NOVEMBER				DECEMBER				JANUARY				FEBRUARY				MARCH				APRIL				MAY			
CONSTRUCTION SEQUENCE	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
TEMPORARY CONSTRUCTION EXITS	■																																															
TEMPORARY CONTROL MEASURES	■	■	■																																													
SITE DEMOLITION																																																
SEDIMENT CONTROL BASIN(S)/TRAP(S)					■	■	■	■																																								
STRIP & STOCKPILE TOPSOIL									■	■	■	■																																				
ROUGH GRADING													■	■	■	■																																
STORM FACILITIES																	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
SITE CONSTRUCTION																																																
FINISH GRADING																																																
PERMANENT CONTROL STRUCTURES																																																
LANDSCAPING/SEED/FINAL STABILIZATION																																																

Redwood Hartland Highland Road

Exterior material calculations	Façade	Material	Coverage Gross	Window Gross	Coverage Net	Material coverage
						percentage %
Forestwood	Front	Siding	154	30	124	92%
		Stone	10.5		10.5	8%
		Total			134.5	100%
	Rear	Siding	178.5	30	148.5	100%
Meadowood	Front	Siding	101.5	30	71.5	87%
		Stone	10.5		10.5	13%
		Total			82	100%
	Side STD	Siding	766	30	736	99.7%
		Stone	2.25		2.25	0.3%
		Total			738.25	100.0%
	Side HP	Siding	633	60	573	80.9%
Stone		135.3		135.3	19.1%	
	Total			708.30	100.0%	
	Rear	Siding	178.5	30	148.5	100%
Capewood	Front	Siding	182	60	122	74%
		Stone	42		42	26%
		Total			164	100%
	Side STD	Siding	760.5	66	694.5	99.4%
		Stone	4.5		4.5	0.6%
		Total			699.00	100.0%
	Side HP	Siding	617.65	96	521.65	78.4%
Stone		144		144	21.6%	
	Total			665.65	100.0%	
	Rear	Siding	301.5	55	246.5	100%

Willowood Mid	Front	Siding	201.25	30	171.25	95%
		Stone	9		9	5%
				Total	180.25	100%
	Rear	Siding	247.3	55	192.3	100%
Willowood End	Front	Siding	201.25	30	171.25	95%
		Stone	9		9	5%
				Total	180.25	100%
	Side STD	Siding	665	66	599	99.6%
		Stone	2.25		2.25	0.4%
				Total	601.25	100.0%
	Side HP	Siding	550.7	96	454.7	79.6%
		Stone	116.6		116.6	20.4%
				Total	571.30	100.0%
	Rear	Siding	247.3	55	192.3	100%
Breezewood Mid	Front	Siding	129.75	17.5	112.25	93%
		Stone	8		8	7%
				Total	120.25	100%
	Rear	Siding	224	75	149	100%
Breezewood End	Front	Siding	129.9	17.5	112.4	93%
		Stone	8		8	7%
				Total	120.4	100%
	Side STD	Siding	890	36.7	853.3	99.7%
		Stone	2.25		2.25	0.3%
				Total	855.55	100.0%
	Side HP	Siding	733.7	36.7	697	81.5%
		Stone	158.6		158.6	18.5%
				Total	855.60	100.0%
	Rear	Siding	224	75	149	100%
Breezewood Sunroom	Front	Siding	233.75	60	173.75	80%
		Stone	42.85		42.85	20%
				Total	216.6	100%
	Side STD	Siding	824.8	66	758.8	99.4%
		Stone	4.5		4.5	0.6%
			Total	763.30	100.0%	
	Side HP	Siding	678.2	66	612.2	80.2%
		Stone	150.7		150.7	19.8%
				Total	762.90	100.0%
	Rear	Siding	301.5	55	246.5	100%

SITE DATA:

PARCEL: 08-26-100-023

ZONING: SITE* - CA, CONSERVATION AGRICULTURAL
 NORTH - CA, CONSERVATION AGRICULTURAL
 WEST - SR, SUBURBAN RESIDENTIAL
 EAST - PUD, PLANNED UNIT DEVELOPEMNT
 SOUTH - CA, CONSERVATION AGRICULTURAL
 * - PROJECT WILL REZONE TO A PLANNED UNIT DEVELOPMENT

PROPOSED AREA: 29.89 ACRES

BUILDING SETBACK: FRONT - 50' (60' FROM CUNDY ROAD)
 SIDE - 15'
 REAR - 25'

UNIT DENSITY: 4.35 UNITS PER ACRE PROPOSED
 28 BUILDINGS

PARKING: 30 GUEST PARKING SPACES

DRIVE LINEAL FOOTAGE: ±3,770'

LIMITS OF DISTURBANCE: ±21.7 ACRES

ROAD SECTION: 27' (11' LANE + 11' LANE + 5' SIDEWALK)

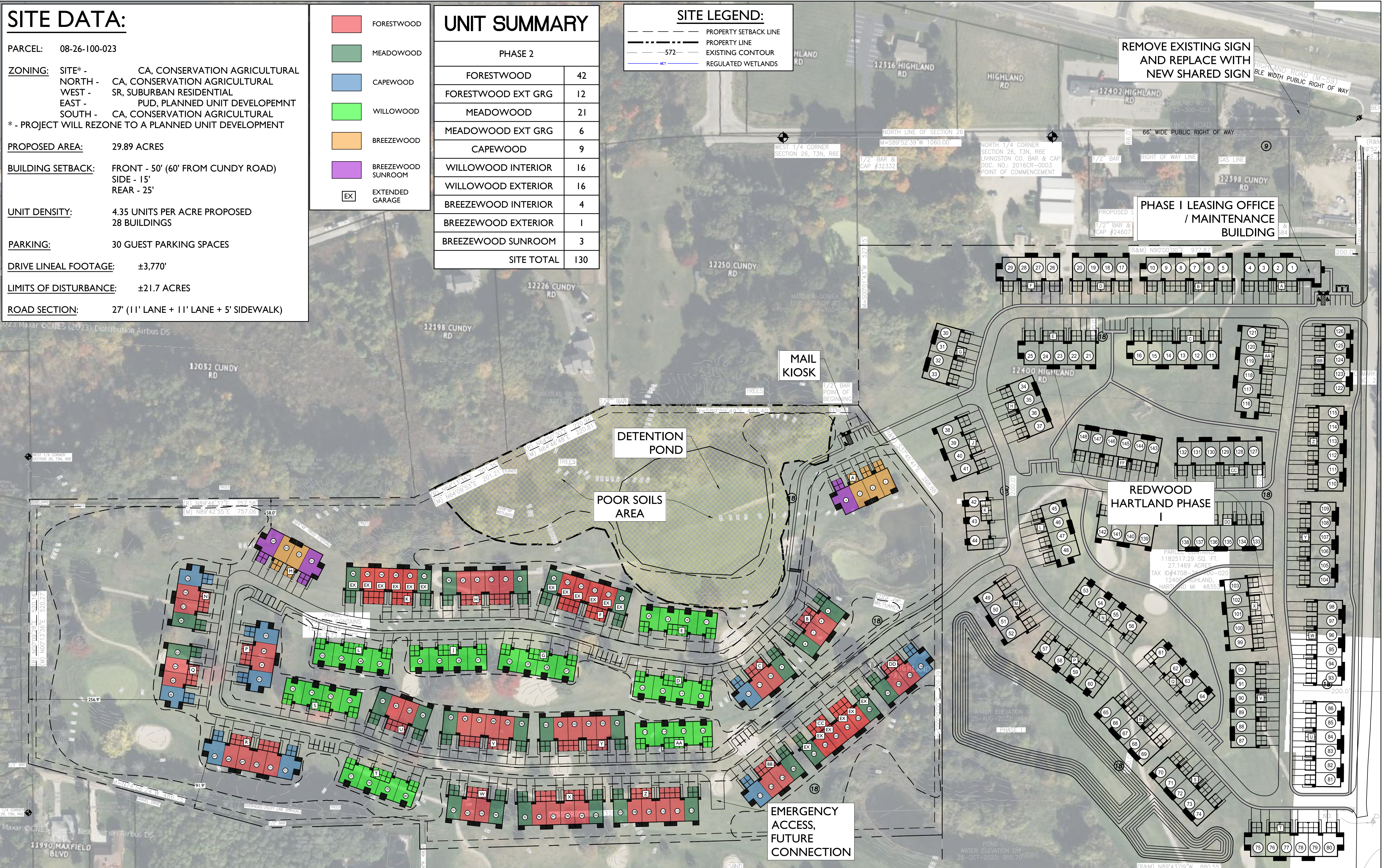
	FORESTWOOD
	MEADOWWOOD
	CAPEWOOD
	WILLOWOOD
	BREEZEWOOD
	BREEZEWOOD SUNROOM
	EXTENDED GARAGE

UNIT SUMMARY

PHASE 2	
FORESTWOOD	42
FORESTWOOD EXT GRG	12
MEADOWWOOD	21
MEADOWWOOD EXT GRG	6
CAPEWOOD	9
WILLOWOOD INTERIOR	16
WILLOWOOD EXTERIOR	16
BREEZEWOOD INTERIOR	4
BREEZEWOOD EXTERIOR	1
BREEZEWOOD SUNROOM	3
SITE TOTAL	130

SITE LEGEND:

- PROPERTY SETBACK LINE
- PROPERTY LINE
- EXISTING CONTOUR
- REGULATED WETLANDS



REMOVE EXISTING SIGN AND REPLACE WITH NEW SHARED SIGN

PHASE I LEASING OFFICE / MAINTENANCE BUILDING

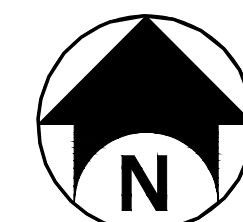
MAIL KIOSK

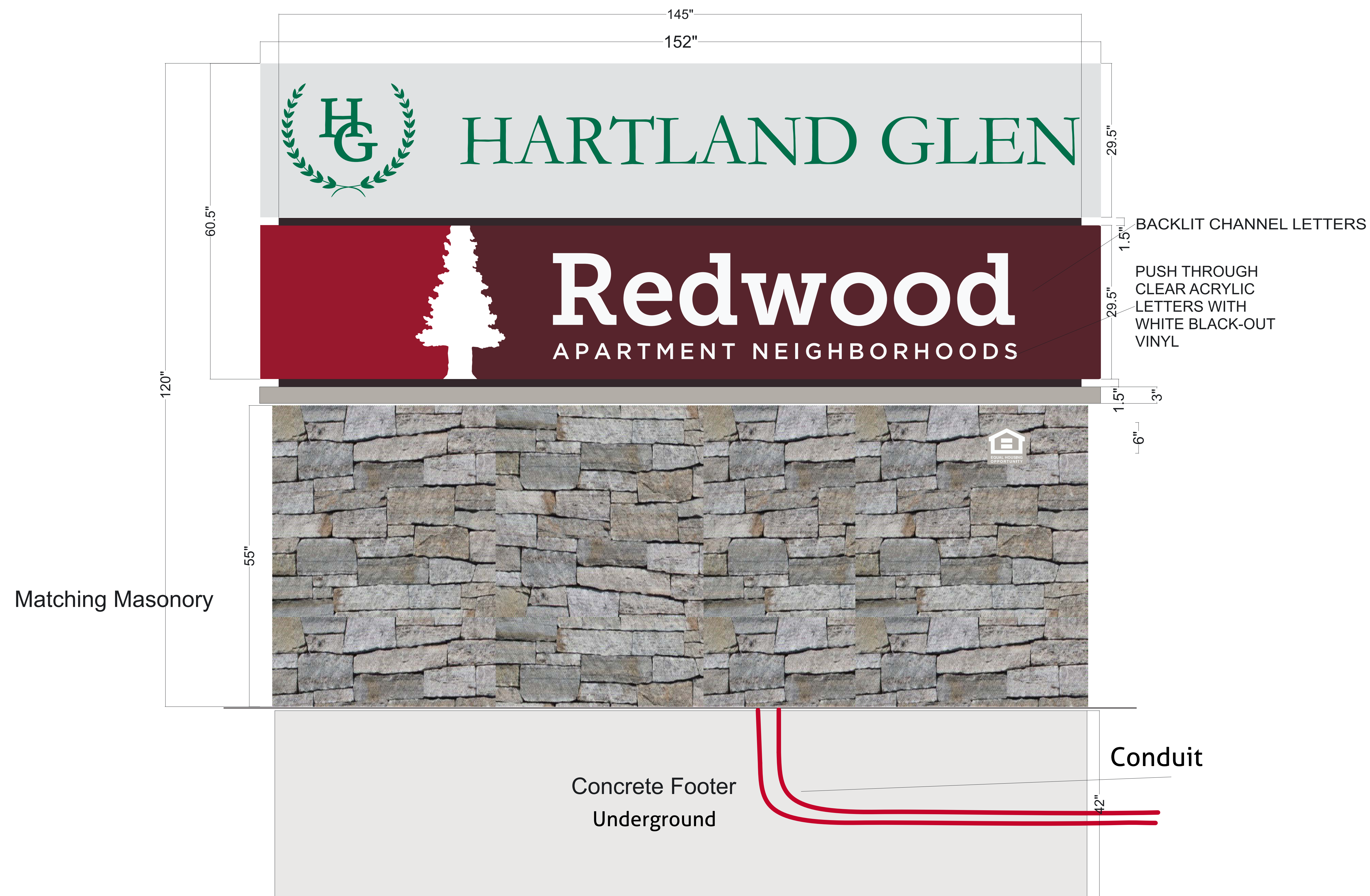
DETENTION POND

POOR SOILS AREA

REDWOOD HARTLAND PHASE I

EMERGENCY ACCESS, FUTURE CONNECTION





Total Square Footage of the sign area is 63.86 sqf

Please verify that all artwork, sizes, colors, spelling and grammar are correct. Once approved, the artwork is final and will be printed as pictured. The design shown is the property of A Sign Above, Inc. No transmittal or disclosure shall be made to any person, firm, or corporation without prior written consent.



asa
a sign above
8982 Dutton Drive
Twinsburg, Ohio 44087
Phone: (330) 425-7832
Cell: (216) 337-2201
Email: jerryasignabove@yahoo.com

Client:

**REDWOOD
MANAGEMENT**

File Name:

Proof Date:

PLEASE CHECK ONE OF THE FOLLOWING:

Approved	Approved With Changes	Revise & Resubmit

Signature:

X _____

Date of Approval:



Engineering & Design

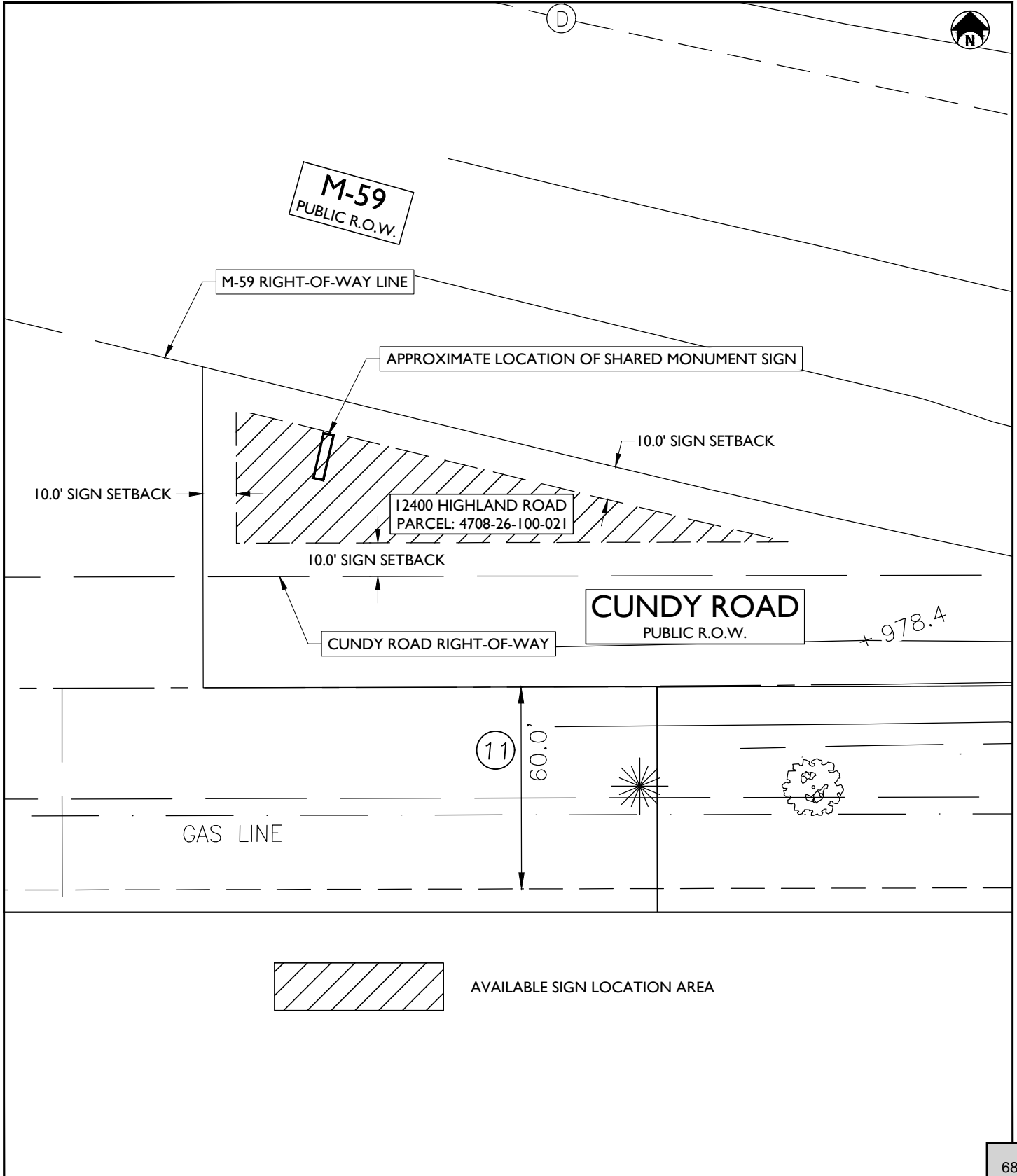
DRAWING TITLE:

REDWOOD HARTLAND PHASE 2 - SHARED MONUMENT SIGN EXHIBIT

BY: I. GRAHAM, PE

DATE: 2/21/2024

SCALE: 1"=40'



April 15, 2024

Re: Combined Waiver Request for Offsite Signage and Height Limitations related to SP PD application #24-003 for Redwood Phase II

Combined Waiver Request for Offsite Signage and Exceeding Maximum Height

To the members of the Hartland Township Planning Commission, Township Board, and Staff:

I am writing to respectfully request a waiver for offsite signage and a waiver to exceed the maximum height of 7 feet for signage, as outlined in the Hartland Township, MI Zoning ordinance, for the SP PD application #24-003 for the Redwood Apartment Neighborhoods Phase II development.

As part of our development, we believe offsite signage at an adequate size is essential to inform the public and potential residents about this project as well as our Phase I Neighborhood and the Hartland Glen Golf Course Property. The submitted proposed signage is a shared monument sign between Redwood Apartment Neighborhoods and Hartland Glen Golf Course, the other current owner/user of this Property. We are including this request with our Planned Development application as it is our understanding that the only way off-site signage can be considered in the Township is in conjunction with a Planned Development approval process.

The location of this offsite sign is on a 1.07 AC parcel 4708-26-100-021 that fronts on M-59 and is owned by Hartland Glen Development, LLC the owners of the Hartland Glen Golf Course property. The general sign location is further detailed in the sign exhibit that was included with our application and Hartland Glen Development, LLC has agreed to work with Redwood on providing an easement for the replacement of their existing sign with a new shared monument sign. The sign will meet all setback requirements.

In considering our request, we wanted to bring attention to a few factors that we feel are relevant. Firstly, the Hartland Glen Golf Course property is one of the larger parcels in the Township consisting of over 350 AC and will be represented primarily by this sign. Secondly, while the vast acreage does not technically front on M-59, the location of the proposed sign is adjacent to the Phase I Redwood parcel (which was split from the Hartland Glen Golf Course parcel during Phase I). This property has over 300' of frontage on M-59 and is currently serving as the location for the existing Hartland Glen Golf Course sign. Thirdly, M-59 is a large freeway with limited traffic signals and higher speed limits

which necessitates signage that is visible and easily identifiable from a distance. Finally, when comparing this request with other PD's/large developments that may have similar precedent in the Township our request does not include multiple directional and/or entrance signs as the primary access to our development is from Hartland Glen Ln. near M-59.

Therefore, we propose to exceed the maximum height restriction to ensure the visibility and effectiveness of the signage in guiding visitors and potential residents to our community. We understand the importance of adhering to zoning regulations and want to assure the Township that the proposed signage will be designed with careful consideration for aesthetics and community impact. Our goal is to create signage that harmonizes with the surrounding environment while fulfilling its functional purpose. As you can see from the proposed signage exhibit that was submitted with our application, we believe this sign meets the other requirements in the zoning ordinance. We would also ask that if this sign needs to be amended in the future that there is an ability to do so without the need for a minor/major PD amendment (i.e. via the Sign Permit Process) so long as the proposed amended sign is in compliance with the Zoning Ordinance Sign Regulations and/or the waivers obtained in this PD application.

We kindly request your favorable consideration of this combined waiver request for offsite signage and to exceed the maximum height for signage for the Redwood Apartment Neighborhoods Phase II development and Hartland Glen Golf Course. Thank you for your attention to this matter.

Sincerely,

A handwritten signature in cursive script that reads "Emily Engelhart".

Emily Engelhart
Director of Acquisitions
Redwood Apartment Neighborhoods
eengelhart@byredwood.com / (248) 930-2123 (c)

RECEIVED

APR 10 2024

HARTLAND TOWNSHIP

April 10, 2024

RE: Preliminary Site Plan for a proposed Planned Development Application
Redwood Living Planned Development Phase II
Site Plan/PD Application #24-003

To: Hartland Township Planning Commission

I live directly behind Hartland Glen Golf Course on the non maintained portion of Lone Tree Rd.

I feel as if I am sitting on a powder keg where my way of life is being affected by others desire to make money. The people behind these Developments will not have their daily lives nor property values challenged by the expansion of these proposed plans. We've been on this property since 1978. Granted, my home is not a high tax revenue for you and is certainly not comparable to these large developments. However, the long time residents of Hartland are entitled to the life they chose many years ago. Not to mention, putting a large population within a 1/2 mile of my home creates a security issue and takes away from the overall property value.

I attempted to review current projects that are underway in Hartland Township however, information on the Hartland Township website does not appear to be updated past 2023.

I can see the current projects along M59, east of US23 and I have to wonder how they are going to be filled with people. Some of these builds seem redundant. How many Senior Living facilities are needed within a 1 mile stretch? Similarly, how many single family homes and apartment buildings are needed within the same proximity? From what I could understand, Newberry Place is still on the table which in itself is a small village.

Hartland Township is reliant upon Livingston County Sheriff and Michigan State Police for services. Due to the high density dwelling, the additional people residing within these areas will possibly result in the need for a different type of Law Enforcement. Is this burden going to fall on the current Homeowners? Clearly the additional headcounts will result in additional services needed for the School district as well, again falling on the current taxpayers.

I choose not to come to the meeting to discuss this. I do not like speaking in public and frankly I really don't believe that anything I or anyone else will say will change the mind of the Township because it all comes down to what is going to bring in the most revenue dollars for the Township. I can't really see where these additional dollars are being spent within the Township, but the approval of these requests are certainly making someone rich.

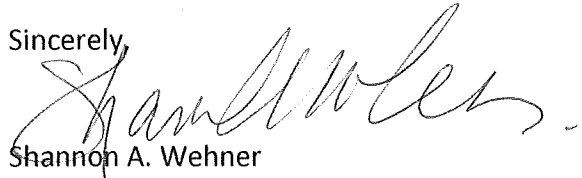
I have already seen an influx of displaced wildlife on my property. Every night, there are coyotes outside my home coming within feet of my house.

I am certain that until all of Hartland Glen is completely developed, I will continue to

get these letters. I just hope that by the time it gets to my property, that I am dead and it won't be a concern for me.

I submit this letter with respect for anyone to control what goes on within their property and life, however, I believe that the others should be considered if it affects them. It should not be about money.

Sincerely,

A handwritten signature in cursive script, appearing to read "Shannon A. Wehner".

Shannon A. Wehner
12780 Lone Tree Rd
Hartland MI 48353

Redwood Hartland Glen Lane P2

Hartland Township, Michigan

DATE: December 22, 2023

Landscape Plans

PROJECT NO. 23051

SHEET INDEX

L1.0	OVERALL REFERENCE PLAN
L1.1	EAST LANDSCAPE PLAN
L1.2	WEST LANDSCAPE PLAN
L1.3	TYPICAL FOUNDATION PLANTING
L1.0	SEED & SOD PLAN
SD1.0	SITE DETAILS

PREPARED FOR



Redwood Living
7007 East Pleasant Valley Road
Independence, Ohio 44131

PREPARED BY



Columbus
100 Northwoods Blvd
Suite A
Columbus, Ohio 43235
p 614.255.3399

Cincinnati
20 Village Square
Floor 3
Cincinnati, Ohio 45246
p 614.360.3066

PODdesign.net

VICINITY MAP



NOT TO SCALE



DEVELOPMENT PLANS FOR PROPOSED REDWOOD LIVING RESIDENTIAL DEVELOPMENT HARTLAND GLEN LANE HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN (T3N, R6E)

PROJECT CONTACTS

OWNER
 REDWOOD LIVING
 7007 EAST PLEASANT VALLEY ROAD
 INDEPENDENCE, OH 44131
 EMILY ENGELHART
 (216) 401-6885

CIVIL ENGINEER
 COLLIERS ENGINEERING AND DESIGN
 7050 W SAGINAW HWY
 LANSING, MI 48917
 IAN GRAHAM, P.E.
 (517) 272-9835

UTILITY AND JURISDICTIONAL CONTACTS

PLANNING AND ZONING
 HARTLAND TOWNSHIP
 2655 CLARK ROAD
 HARTLAND, MI 48353
 TROY LANGER
 (810) 632-7498

WATER
 HARTLAND TOWNSHIP
 2655 CLARK ROAD
 HARTLAND, MI 48353
 MICHAEL LUCE
 (810) 632-7498

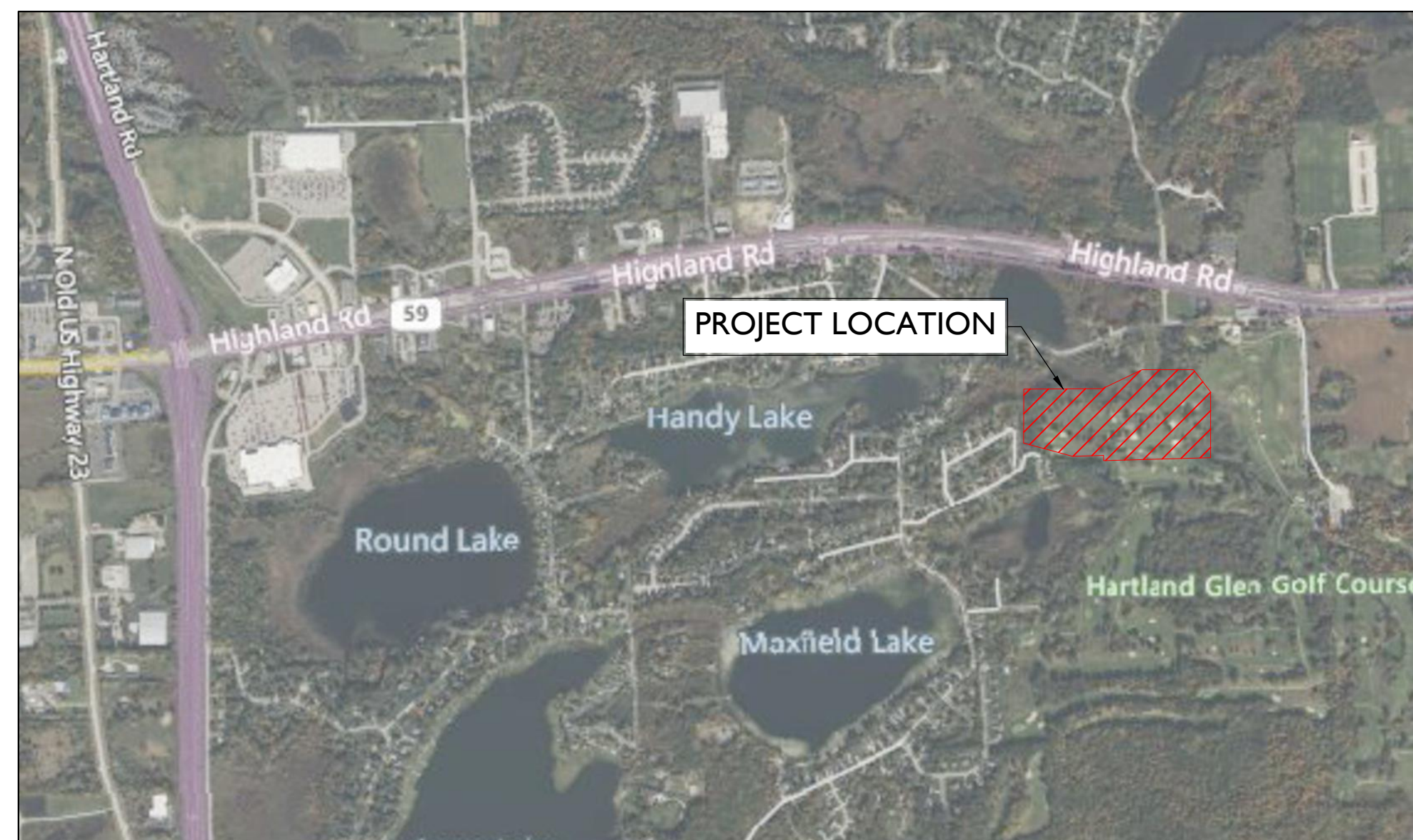
SANITARY SEWER
 LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE
 2300 EAST GRAND RIVER AVE, SUITE 105
 HOWELL, MI 48843
 FRANK ERVIN
 (517) 546-0040

STORM WATER, AND SOIL EROSION AND SEDIMENTATION CONTROL
 LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE
 2300 EAST GRAND RIVER AVE, SUITE 105
 HOWELL, MI 48843
 KEN RECKER
 (517) 546-0040

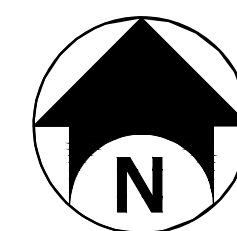
ROADS & ENTRANCE
 LIVINGSTON COUNTY ROAD COMMISSION
 3535 GRAND OAKS DRIVE
 HOWELL, MI 48843
 (517) 546-4250

GAS
 CONSUMERS ENERGY
 1 ENERGY PLAZA
 JACKSON, MI 49201
 (800) 477-5050

ELECTRIC
 DTE
 3751 GREENFIELD ROAD
 MELVINDALE, MI 48122
 SEBASTIAN SARKISSIAN
 (313) 235-4420




SITE LOCATION MAP
4" = 1 MILE



LIVINGSTON COUNTY
 DRAIN COMMISSIONER
 ACCEPTED FOR PERMITTING AND CONSTRUCTION
 PLANS ACCEPTED FOR CONSTRUCTION BY:

 BRIAN JONCKHEERE, DRAIN COMMISSIONER
 DATE: _____

SHEET INDEX		
INCLUDED	SHEET NUMBER	SHEET TITLE
•	C000	COVER SHEET
•	X100	ALTA-TOPOGRAPHIC SURVEY
•	C200	OVERALL SITE PLAN
•	C201	WEST SITE PLAN
•	C202	EAST SITE PLAN
•	C203	OPEN SPACE PLAN
•	C300	OVERALL GRADING PLAN
•	C400	OVERALL UTILITY PLAN
•	C700	SITE DETAILS
•	C701	HARTLAND TOWNSHIP WATER DETAILS
•	C702	LIVINGSTON CO SANITARY DETAILS
•	L1.0	OVERALL REFERENCE PLAN
•	L1.1	EAST LANDSCAPE PLAN
•	L1.2	WEST LANDSCAPE PLAN
•	L1.3	TYPICAL FOUNDATION PLANTING
•	L2.0	SEED & SOD PLAN
•	SD1.0	SITE DETAILS
•	T1.0	TITLE SHEET - FORESTWOOD MEADOWOOD CAPEWOOD
•	A2.33	OVERALL FLOOR PLAN - CAPEWOOD, FORESTWOOD, MEADOWOOD
•	A4.6	EXTERIOR ELEVATIONS - CAPEWOOD, FORESTWOOD, MEADOWOOD
•	T1.0	TITLE SHEET - BREEZEWOOD, BREEZEWOOD SUNROOM
•	A2.36	OVERALL FLOOR PLAN - BREEZEWOOD, BREEZEWOOD SUNROOM
•	A4.11	EXTERIOR ELEVATIONS - BREEZEWOOD, BREEZEWOOD SUNROOM




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Engineering & Design

www.colliersengineering.com

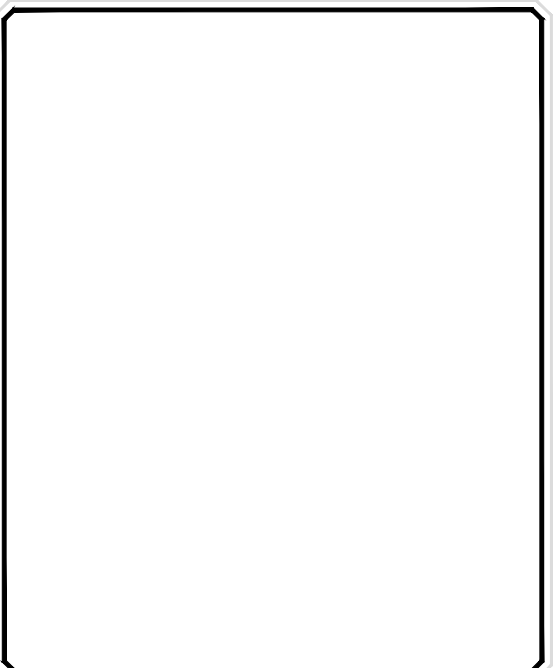
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Formerly Known as  **BERGMANN**


 **PROTECT YOURSELF**
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE

FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM


REV	DATE	DRAWN BY	DESCRIPTION
		GRAHAM	PRELIMINARY PLAN REVIEW



REDWOOD LIVING
 7007 EAST PLEASANT VALLEY ROAD
 INDEPENDENCE, OH 44131



HARTLAND GLEN LANE
 HARTLAND, MI 48353



Colliers
Engineering & Design

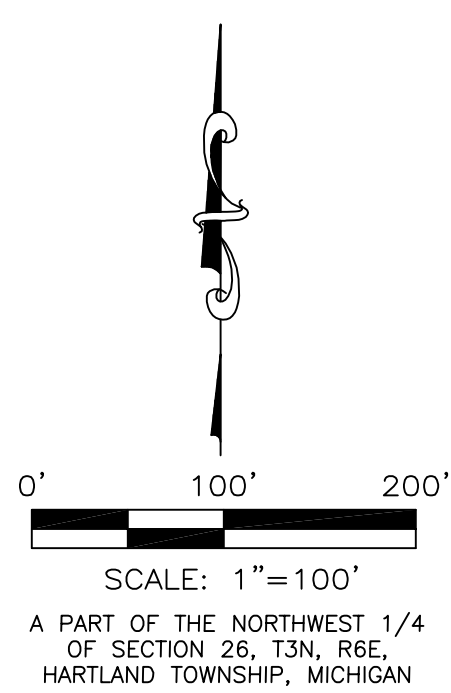
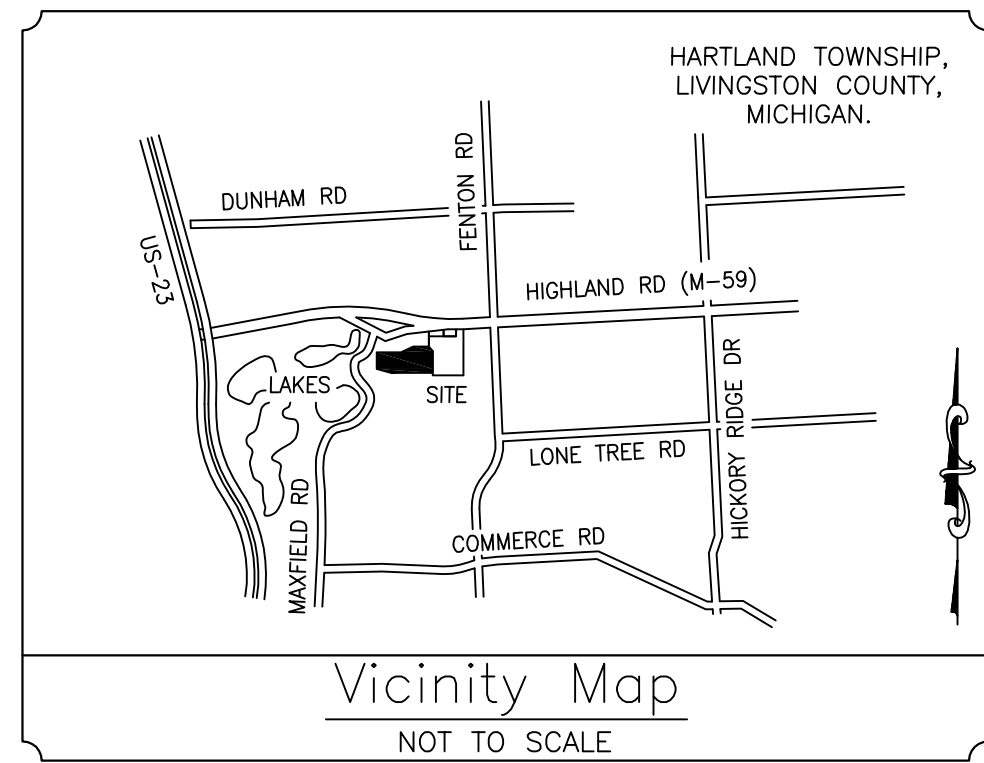
GRAND RAPIDS (BA)
 560 5th St. NW
 Suite 305
 Grand Rapids, MI 49504
 Phone: 616.827.4270
 COLLIERS ENGINEERING & DESIGN CT, P.C.

SCALE: AS SHOWN	DATE: 01/01/24	DRAWN BY: I. GRAHAM, PE	CHECKED BY: I. GRAHAM, PE
PROJECT NUMBER: 23008151	DRAWING NAME: C000 COVER SHEET		

SHEET TITLE:
COVER SHEET

SHEET NUMBER:
C000

0112410.DWG:1:DWG:PICTURES/CONSTRUCTION/COVER SHEET AND COVER SHEET BY: I. GRAHAM



GENERAL NOTES

- 1) NO EVIDENCE OF EARTH MOVING OR BUILDING CONSTRUCTION/ADDITIONS WERE OBSERVED WHILE CONDUCTING THE FIELD WORK. (ITEM 16, TABLE A).
- 2) NO EVIDENCE OF PROPOSED STREET RIGHT OF WAY LINE CHANGES WERE PROVIDED BY THE CONTROLLING JURISDICTION. (ITEM 17, TABLE A).
- 3) THERE IS NO OBSERVABLE EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS. (ITEM 17, TABLE A).
- 4) THIS PARCEL HAS INDIRECT ACCESS TO CUNDY ROAD THROUGH PHASE I OF THE DEVELOPMENT.
- 5) THIS SURVEY MAP CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF THE SURVEY.
- 6) THERE ARE NO DISCREPANCIES BETWEEN THE BOUNDARY LINES OF THE PROPERTY AS SHOWN ON THIS SURVEY MAP AND AS DESCRIBED IN THE LEGAL DESCRIPTION PRESENTED IN THE TITLE COMMITMENT.
- 7) THE BOUNDARY LINE DIMENSIONS AS SHOWN ON THIS SURVEY MAP FORM A MATHEMATICALLY CLOSED FIGURE WITHIN +/-0.1 FOOT.
- 8) THE BOUNDARY LINES OF THE PROPERTY ARE CONTIGUOUS WITH THE BOUNDARY LINES OF ALL ADJOINING STREETS, HIGHWAYS, RIGHTS OF WAY AND EASEMENTS, PUBLIC OR PRIVATE, AS DESCRIBED IN THEIR MOST RECENT RESPECTIVE LEGAL DESCRIPTIONS OF RECORD.
- 9) EXCEPT AS OTHERWISE NOTED BELOW, IF THE PROPERTY CONSISTS OF TWO OR MORE PARCELS, THERE ARE NO GAPS OR GORES BETWEEN SAID PARCELS.
- 10) M-59 (HIGHLAND ROAD) IS ±1150 FEET NORTHEAST OF THE NORTHEAST CORNER OF SUBJECT PARCEL. (ITEM 14, TABLE A).
- 11) THERE WAS VISIBLE WETLAND FLAGGING ON THIS PARCEL AT THE TIME OF SURVEY. THE OBSERVED FLAGGED WETLAND AREAS ARE SHOWN HEREON (ITEM 18, TABLE A).
- 12) EASEMENTS AND EXCEPTIONS SHOWN WERE PROVIDED BY THE TITLE INSURANCE COMPANY, NO RESEARCH HAS BEEN CONDUCTED BY GEODETIC DESIGNS INC. TO IDENTIFY ANY ADDITIONAL EASEMENTS THAT MAY AFFECT THIS PARCEL.

DESCRIPTION

A parcel of land situated in the Northwest one-quarter of Section 26, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan, being more particularly described as follows:
 Commencing at a Livingston County pipe and cap at the North one-quarter corner of said Section 26, as recorded in document number 2016CR-0003, Livingston County records,
 thence S89°52'39"W, 1060.00 feet along the North line of said Section 26,
 thence S00°01'43"W, 527.15 feet to a 1/2" steel bar at the point of beginning of the following described parcel,
 thence S37°45'41"E, 268.88 feet,
 thence S00°00'00"E, 633.59 feet,
 thence S88°26'36"W, 1028.38 feet,
 thence N00°07'24"W, 50.02 feet,
 thence S88°26'36"W, 300.00 feet,
 thence N74°56'24"W, 486.75 feet to a 1/2" steel bar,
 thence N00°13'36"E, 520.27 feet to a 3/4" iron pipe,
 thence N89°42'55"E, 757.06 feet,
 thence N64°09'53"E, 201.21 feet,
 thence N64°46'48"E, 220.81 feet to a 1/2" steel bar,
 thence S89°59'49"E, 493.40 feet to the Point of Beginning.

Easement Parcel
 Together with the rights and easements as created, limited and defined in Pump Station Easement Agreement recorded as Instrument No. 2022R-026580, Livingston County Records.
 The property described and shown hereon is the same property as described in Stewart Title Guaranty Company commitment number 47-23895856-SCM, dated Oct 31, 2023.

NOTES CORRESPONDING TO SCHEDULE B

- ⑧ Terms, conditions and provisions contained in, and easement(s) created by, Drainage Agreement recorded in Liber 1124, Page 572, Livingston County Records, this does not affect this parcel and is not shown hereon.
- ⑨ Temporary Wastewater Treatment System and Access Easement granted to Forestbrook Hills Condominium Association recorded in Liber 2625, Page 242, Livingston County Records, this does not affect this parcel and is not shown hereon.
- ⑩ Permanent Drainage and Access Easement granted to Forestbrook Hills Condominium Association recorded in Liber 2625, Page 245, Livingston County Records, this does not affect this parcel and is not shown hereon.
- ⑪ Terms, conditions and provisions contained in, and easement(s) created by, Redwood Planned Development Agreement recorded as Instrument No. 2022R-026576, Livingston County Records, the easements listed within do not affect this parcel and are not shown hereon.
- ⑫ Terms, conditions and provisions contained in, and easement(s) created by, Easement Agreement recorded as Instrument No. 2022R-026579, Livingston County Records, the easement listed within this document does not affect this parcel and is not shown hereon.
- ⑬ Terms, conditions and provisions contained in, and easement(s) created by, Pump Station Easement Agreement recorded as Instrument No. 2022R-026580, Livingston County Records, the easement listed within this document does not affect this parcel and is not shown hereon.
- ⑭ Terms, conditions and provisions contained in, and easement(s) created by, Easement Agreement recorded as Instrument No. 2023R-008039, Livingston County Records, this does benefit this parcel and is shown hereon.

STATEMENT OF POSSIBLE ENCROACHMENTS

NO VISIBLE ENCROACHMENTS AT THE TIME OF SURVEY

ZONING INFORMATION

According to a zoning letter from Hartland Township, the subject property is zoned Planned Development (PD) and is subject to the following conditions:

- Setbacks:
 Along perimeter and adjacent to a public road: 50 feet
 Along perimeter and not adjacent to a public road: 40 feet
 Maximum Building Height: 35 feet
- Parking Requirements:
 Depends on use, current use is vacant parcel.
- Parking Spaces:
 There are no parking spaces on this parcel.

BENCHMARKS

ELEVATIONS ARE DERIVED FROM GPS OBSERVATIONS REFERENCING GEOID18 TO DETERMINE ELEVATIONS IN THE NAVD88 VERTICAL DATUM.

BENCHMARK NO 2
 "MAG" NAIL IN THE WEST SIDE OF A UTILITY POLE.
 NORTHING: 413547.5
 EASTING: 13300311.4
 ELEVATION: 972.59 (NAVD88 DATUM).

BENCHMARK NO 3
 BENCH TIE IN THE EAST SIDE OF A UTILITY POLE.
 NORTHING: 414090.6
 EASTING: 13300274.2
 ELEVATION: 983.26 (NAVD88 DATUM).

LEGEND

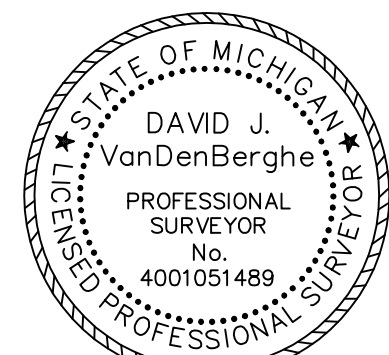
- | | | |
|-----------------------|-------------------------------|-----------------------|
| Power Pole | Flag Pole | Storm Manhole |
| Power Pole w/Light | Sign (As Noted) | Storm Catchbasin |
| Light Pole | Well Head | Deciduous Tree |
| Telephone Pole | Satellite Dish | Coniferous Tree |
| Guy Wire | Tower | Sanitary Manhole |
| Transformer | Water Valve | Sanitary Clean Out |
| Electric Manhole | Fire Hydrant | Gas Valve |
| Telephone Manhole | Water Manhole | Gas Manhole |
| Telephone Pedestal | Water Meter Pit | Gas Meter |
| Electric Meter | Water Meter | Gas Marker |
| Cable Box | Indicates Handicapped Parking | Section Corner |
| Air Conditioner Unit | Parking Count | Set 5/8" Bar & Cap |
| Easement Identifier | | Found Corner Monument |
| Distance not to scale | | Monitoring Well |

ABBREVIATIONS

R = RECORDED T-N = TOWN - NORTH AVE. = AVENUE
 M = MEASURED R-E = RANGE - EAST BLVD. = BOULEVARD
 C = CALCULATED SQ. FT. = SQUARE FEET CT. = COURT
 N = NORTH NE = NORTHEAST RD. = ROAD
 E = EAST SE = SOUTHEAST ST. = STREET
 S = SOUTH SW = SOUTHWEST PID = PARCEL AND
 W = WEST NW = NORTHWEST OWNER IDENTIFICATION

SURVEYOR'S CERTIFICATION

TO: Stewart Title Guaranty Company; and Redwood Hartland Highland Road M1 P1 LLC, an Ohio limited liability company:
 This is to certify that this map or plot and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 2, 3, 4, 5, 6a, 6b, 7a, 7b, 7c, 8, 9, 10, 11, 13, 14, 16, 17, 18 and 19 of Table A thereof. The fieldwork was completed on August 25, 2023.



David J. VanDenBerghe
 DAVID J. VANDENBERGHE
 PROFESSIONAL SURVEYOR #4001051489

Registration No. 4001051489
 Within the State of Michigan

BEARING BASIS

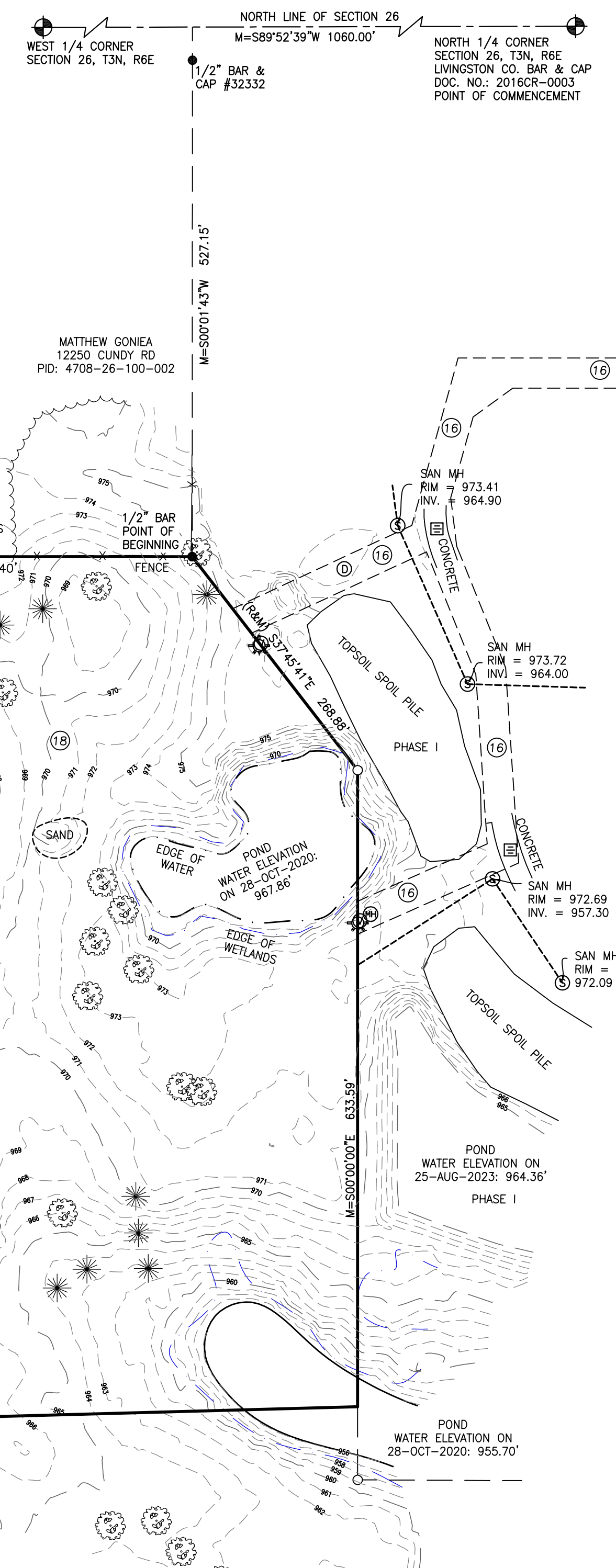
BEARINGS ARE BASED ON THE NORTH & SOUTH 1/4 LINE OF SECTION 26 RECORDED AS BEARING SOUTH 00°35'39" WEST.

FLOOD NOTE

BY GRAPHIC PLOTTING ONLY, THIS PARCEL IS LOCATED IN ZONE X OF THE FLOOD INSURANCE RATE MAP NUMBER 26093C0239DE WHICH BEARS AN EFFECTIVE DATE OF 09-17-2008 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.
 AN ELEVATION CERTIFICATE MAY BE REQUIRED TO VERIFY THIS DETERMINATION OR APPLY FOR A VARIANCE FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

UNDERGROUND UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD OBSERVATIONS AND/OR EXISTING DRAWINGS AS PROVIDED BY THE FACILITY OWNER. THE UNDERGROUND UTILITIES SHOWN MAY NOT COMPRISE ALL SUCH UTILITIES ON OR NEAR THE SURVEYED PARCEL, EITHER IN SERVICE OR ABANDONED. THE LOCATION OF BURIED UTILITIES ARE SHOWN TO INDICATE THAT A UTILITY EXISTS, BUT MAY REQUIRE SUB-SURFACE INVESTIGATION TO DETERMINE THE EXACT LOCATION.



"ALTA / NSPS LAND TITLE SURVEY"

PREPARED BY:

GEODETIC DESIGNS, INC.
 2300 N. GRAND RIVER AVE.
 LANSING, MI 48906
 PHONE: (517) 908-0008
 FAX: (517) 908-0009
 WWW.GEODETICDESIGNS.COM

MARK	DATE	REVISION	BY	REVIEWER

Colliers Engineering & Design

12400 Highland Road
 Hartland Township, MI
 Phase II

SCALE: 1" = 100'	
DATE: August 25, 2023	
DRAWN BY: JJC	SHEET 1 OF 1
CHECKED BY: DJV	JOB NUMBER: S161-2020

WEST 1/4 CORNER
SECTION 26, T3N, R6E

1/2" BAR &
CAP #32332

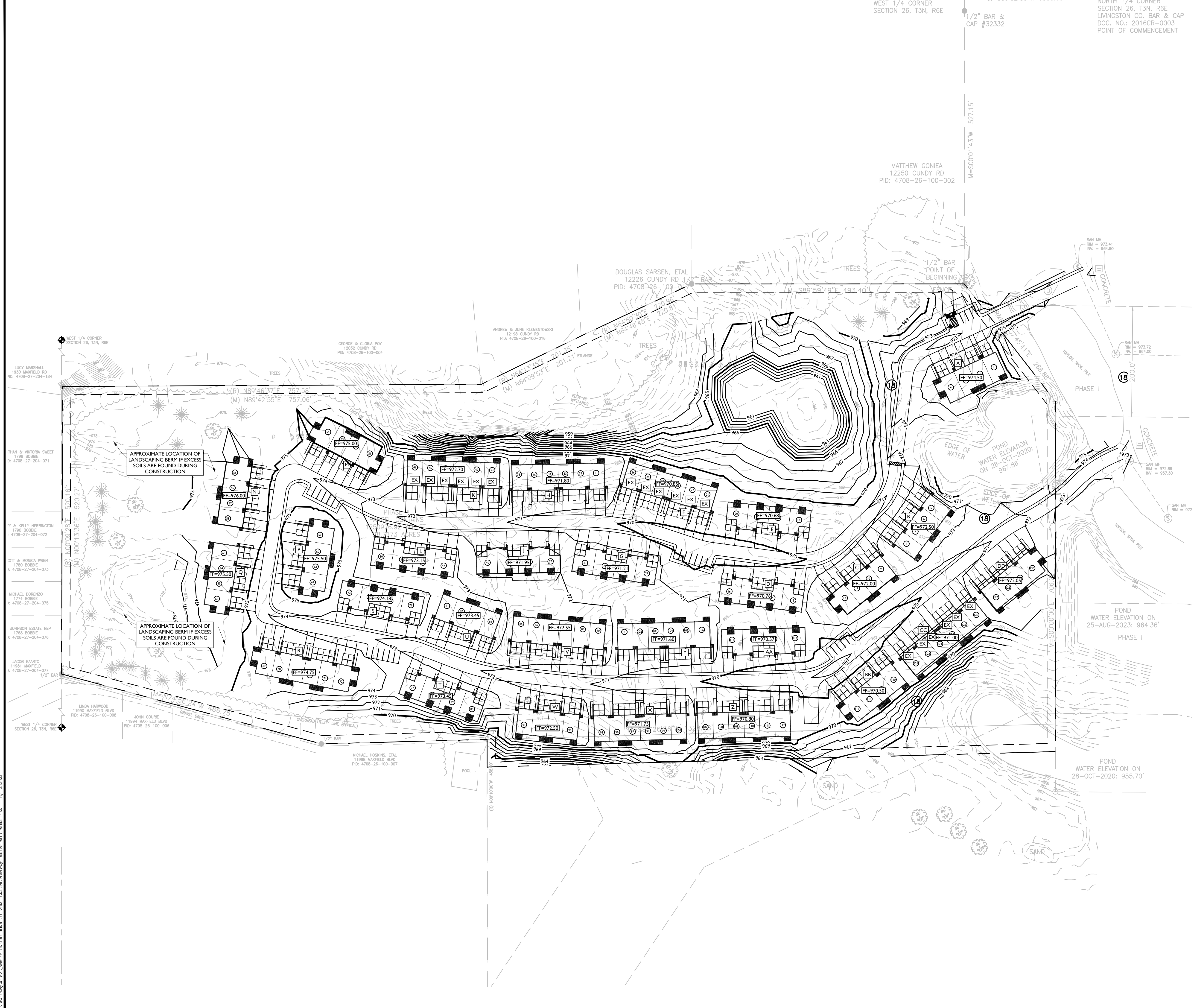
NORTH 1/4 CORNER
SECTION 26, T3N, R6E
LIVINGSTON CO. BAR & CAP
DOC. NO.: 2016CR-0003
POINT OF COMMENCEMENT

GRADING NOTES

- REFER TO EROSION AND SEDIMENT CONTROL PLAN FOR REQUIRED EROSION AND SEDIMENT CONTROL MEASURES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND REMOVAL OF TEMPORARY SEDIMENTATION CONTROLS. EROSION CONTROL MEASURES SHALL NOT BE REMOVED BEFORE VEGETATION HAS OCCURRED COMPLETELY.
- ALL SILT FENCE TO BE REPLACED WHENEVER THEY BECOME CLOGGED OR INOPERABLE AND SHALL BE REPLACED AT A MINIMUM OF EVERY 3 MONTHS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATION OF TOPSOIL TO ALL DISTURBED AREAS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN EROSION CONTROL MEASURES AT ALL TIMES.
- SILT FENCE, JUTE MESH, AND/OR EROSION CONTROL BLANKETS WILL BE USED ON STEEP SLOPES AND WHERE NECESSARY TO CONTROL EROSION AND SILTATION OF EXISTING DRAINAGE SYSTEMS AS ORDERED BY THE ENGINEER OR SPECIFIED ON PLANS.
- THE CONTRACTOR SHALL DESIGNATE A MEMBER OF HIS/FIR FIRM TO BE RESPONSIBLE TO MONITOR EROSION CONTROL. EROSION CONTROL STRUCTURES, TREE PROTECTION AND PRESERVATION THROUGHOUT CONSTRUCTION.
- ALL DISTURBED AREAS SHALL BE PROTECTED FROM EROSION EITHER BY MULCH OR TEMPORARY SEEDING WITHIN 2 WEEKS OF DISTURBANCE.
- ALL SITE GRADING MUST BE PERFORMED TO INSURE POSITIVE DRAINAGE ACROSS THE ENTIRE SITE, THROUGHOUT THE PERIOD OF CONSTRUCTION AND AFTER PROJECT COMPLETION.
- ALL SEDIMENTATION AND SOIL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED PRIOR TO THE COMMENCEMENT OF SITE GRADING AND MUST CONFORM TO PART 91 OF ACT 451 OF THE PUBLIC ACTS OF 1994 AS AMENDED. ALL APPLICABLE PERMITS SHALL BE OBTAINED BEFORE IMPLEMENTING THESE MEASURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE SEDIMENTATION AND SOIL EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION.
- IN GENERAL, EARTHWORK AND PAVEMENT CONSTRUCTION SHOULD BE PERFORMED IN ACCORDANCE WITH THE LATEST MIDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION UNLESS OTHERWISE NOTED.
- REMOVE ANY EXISTING TOPSOIL, ORGANIC SOILS, UNSUITABLE FILL, VEGETATION, TREES OR OTHER DELETERIOUS MATERIALS TO EXPOSE THE SUBGRADE SOIL. TREE ROOTS SHOULD BE COMPLETELY REMOVED.
- EXCAVATE TO THE DEPTH OF THE FINAL SUBGRADE ELEVATION TO ALLOW FOR GRADE CHANGES AND THE PLACEMENT OF THE RECOMMENDED PAVEMENT SYSTEM.
- ON SITE FILL MATERIAL CAN BE USED IF THE SPECIFIED COMPACTION REQUIREMENTS CAN BE ACHIEVED. IF ON SITE MATERIAL IS USED, IT SHOULD BE CLEAN AND FREE OF FROZEN SOIL, ORGANICS, OR OTHER DELETERIOUS MATERIALS.
- THE FINAL SUBGRADE SHOULD BE THOROUGHLY PROOFROLLED USING A LOADED TANDEN AXLE TRUCK UNDER THE OBSERVATION OF GEOTECHNICAL/PAVEMENT ENGINEER. LOOSE OR YIELDING AREAS THAT CANNOT BE MECHANICALLY STABILIZED SHOULD BE REMOVED AND REPLACED WITH ENGINEERED FILL OR AS DICTATED BY FIELD CONDITIONS.
- THE AGGREGATE BASE SHOULD BE COMPACTED TO ACHIEVE A MINIMUM OF 95 PERCENT OF THE MAXIMUM MODIFIED PROCTOR DRY DENSITY. THE BASE AND SUBGRADE COMPACTION SHOULD EXTEND A MINIMUM OF 12 INCHES BEYOND THE PAVED EDGE OR BACK OF CURB.

GRADING LEGEND:

- 75 — PROPOSED MAJOR CONTOUR
- 76 — PROPOSED MINOR CONTOUR
- x TC=78.01 PROPOSED TOP OF CURB / BOTTOM OF CURB ELEVATION
- BC=77.51
- x TW/BW=152.50 PROPOSED TOP OF WALL / BOTTOM OF WALL
- x 77.73 PROPOSED SPOT ELEVATION
- x EG=77.73 EXISTING ELEVATION
- x HP=77.73 PROPOSED HIGH POINT ELEVATION
- x TG=77.73 PROPOSED TOP OF GRATE ELEVATION
- x FF=77.73 FINISHED FLOOR ELEVATION
- 2.5% PROPOSED SLOPE
- - - 72 - - - EXISTING CONTOUR
- - - RIDGE LINE



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REV.	DATE	DRAWN BY	DESCRIPTION
01/02/24		GRAHAM	PRELIMINARY PLAN REVIEW

REDWOOD LIVING
7007 EAST PLEASANT VALLEY ROAD
INDEPENDENCE, OH 44131

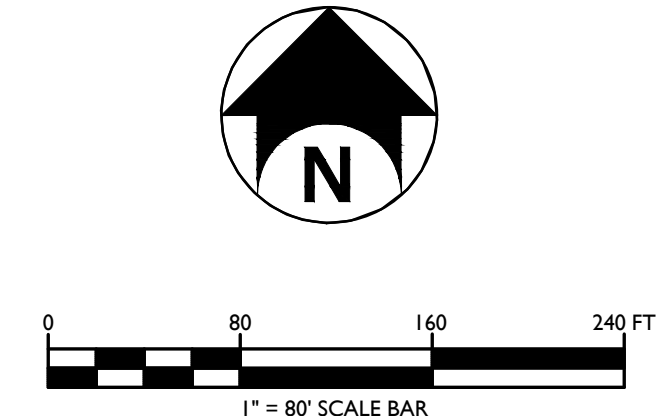
Redwood
APARTMENT NEIGHBORHOODS

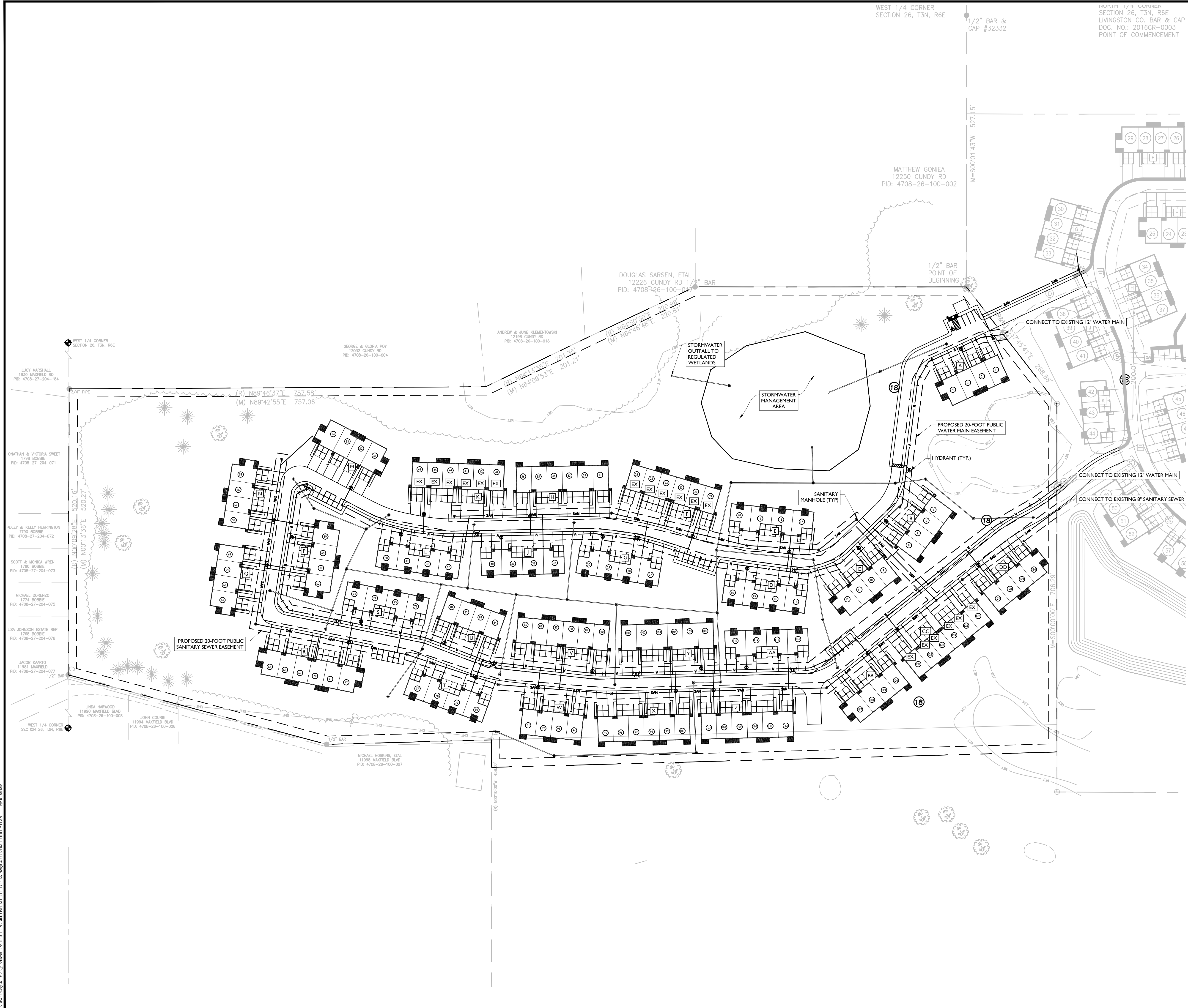
HARTLAND GLEN LANE
HARTLAND, MI 48353

Colliers
Engineering & Design

GRAND RAPIDS (BA)
560 5th St. NW
Suite 305
Grand Rapids, MI 49504
Phone: 616.827.4270
COLLIERS ENGINEERING & DESIGN CT, P.C.

SCALE: AS SHOWN	DATE: 01/01/24	DRAWN BY: GRAHAM, PE	CHECKED BY: P.FURTAW
PROJECT NUMBER: 23008151	DRAWING NAME: C300 OVERALL GRADING PLAN		
SHEET TITLE: OVERALL GRADING PLAN			
SHEET NUMBER: C300			

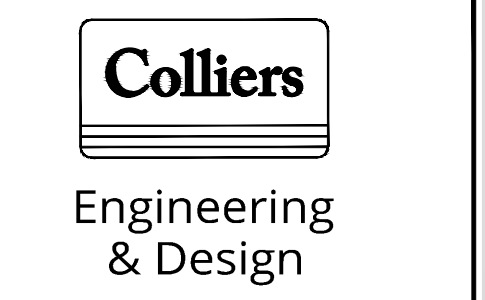
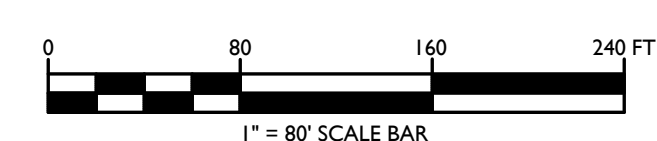
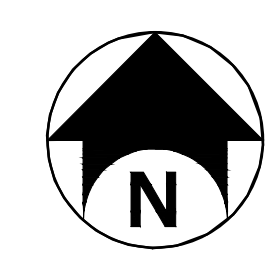
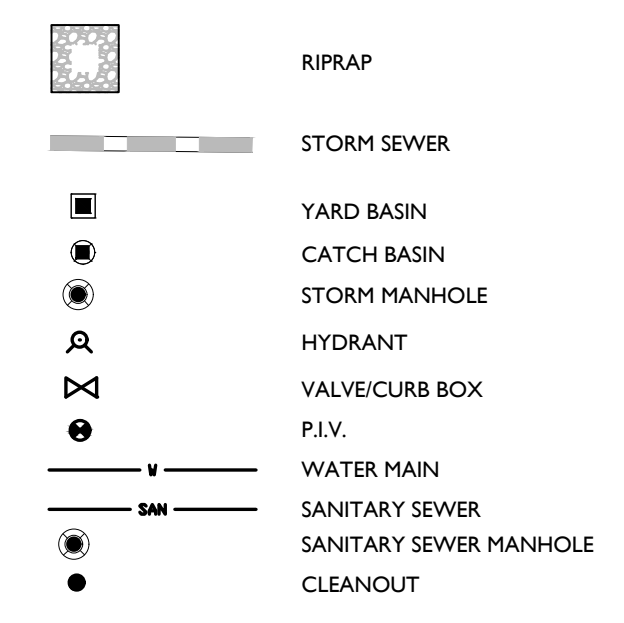




UTILITY NOTES:

1. ALL WORKMANSHIP, MATERIALS, AND CONSTRUCTION PRACTICES SHALL CONFORM TO THE REQUIREMENTS OF HARTLAND TOWNSHIP, LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE OR THE AGENCY HAVING JURISDICTION OVER THE APPLICABLE UTILITY.
2. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING UTILITY DURING CONSTRUCTION AT NO COST TO THE OWNER.
3. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
4. CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE.
5. IN THE EVENT OF A VERTICAL CONFLICT BETWEEN WATERLINES, SANITARY LINES, STORM LINES AND GAS LINES (EXISTING AND PROPOSED), THE CONTRACTOR SHALL NOTIFY THE ENGINEER AS SOON AS THE CONFLICT IS DISCOVERED.
6. TOPS OF EXISTING UTILITY STRUCTURES SHALL BE ADJUSTED TO FINISHED GRADE.
7. EXISTING UTILITIES SHALL BE VERIFIED IN FIELD PRIOR TO INSTALLATION OF ANY NEW LINES.
8. CONTRACTOR IS RESPONSIBLE FOR COMPLYING TO THE CONSTRUCTION REQUIREMENTS OF THE UTILITY OWNERS.
9. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
10. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS.
11. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ACTUAL LOCATION AND ELEVATIONS OF ALL UTILITY ENTRANCES TO INCLUDE SANITARY SEWER, LATERALS, DOMESTIC AND FIRE PROTECTION WATER SERVICE, ELECTRICAL, TELEPHONE, AND GAS SERVICE. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES, IN SUCH A MANNER AS TO AVOID CONFLICTS AND ASSURE PROPER DEPTHS ARE ACHIEVED AS WELL AS COORDINATING WITH UTILITY REQUIREMENTS AS TO LOCATION AND SCHEDULING FOR TIE-INS/CONNECTORS PRIOR TO CONNECTING TO EXISTING UTILITIES.
12. THE CONTRACTOR SHALL CONDUCT ALL REQUIRED TESTS TO THE SATISFACTION OF THE RESPECTIVE UTILITY COMPANIES AND THE OWNER'S INSPECTING AUTHORITIES.
13. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST STANDARDS OF OSHA DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL USE SUPPORT SYSTEMS, SLOPING, BENCHING, AND OTHER MEANS OF PROTECTION. THIS TO INCLUDE BUT NOT LIMITED TO ACCESS AND EGRESS FROM ALL EXCAVATION AND TRENCHING. CONTRACTOR IS RESPONSIBLE TO COMPLY WITH PERFORMANCE CRITERIA FOR OSHA.
14. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PIPE SIZES AND INVERTS ELEVATIONS BEFORE ORDERING MANHOLE AND CATCH BASIN STRUCTURES.
15. ALL UTILITIES BELOW PAVED AREAS SHALL BE BACKFILLED WITH 100% GRANULAR MATERIAL (OR APPROVED OTHER) AND COMPACTED TO 95% OF ITS MAXIMUM UNIT WEIGHT.
16. ALL RIM ELEVATIONS IN OUTLAWN AREAS ARE APPROXIMATE ONLY AND SHALL BE ADJUSTED BY THE CONTRACTOR AFTER FINAL GRADES ARE ESTABLISHED.

UTILITY LEGEND:



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REV.	DATE	DESCRIPTION
01/01/24	GRAHAM	PRELIMINARY PLAN REVIEW

REDWOOD LIVING
7007 EAST PLEASANT VALLEY ROAD
INDEPENDENCE, OH 44131



HARTLAND GLEN LANE
HARTLAND, MI 48353

Colliers GRAND RAPIDS (BA)
560 5th St. NW Suite 305
Grand Rapids, MI 49504
Phone: 616.827.4270
COLLIERS ENGINEERING & DESIGN CT., P.C.

SCALE: AS SHOWN	DATE: 01/01/24	DRAWN BY: GRAHAM, PE	CHECKED BY: P.FURTAW
PROJECT NUMBER: 23008151	DRAWING NAME: C400 OVERALL UTILITY PLAN		

SHEET TITLE: OVERALL UTILITY PLAN

SHEET NUMBER: C400

TIME - 16/JUL/2011 08:47
 PER - TEL - JAMES@hrcinc.com
 CUB - TEL - JAMES@hrcinc.com
 QUEL - V:\projects\hrc\2007\08\20070820\DWG\CWm.dwg
 DESIGN FILE - V:\projects\hrc\2007\08\20070820\DWG\CWm.dwg
 USER NAME - james



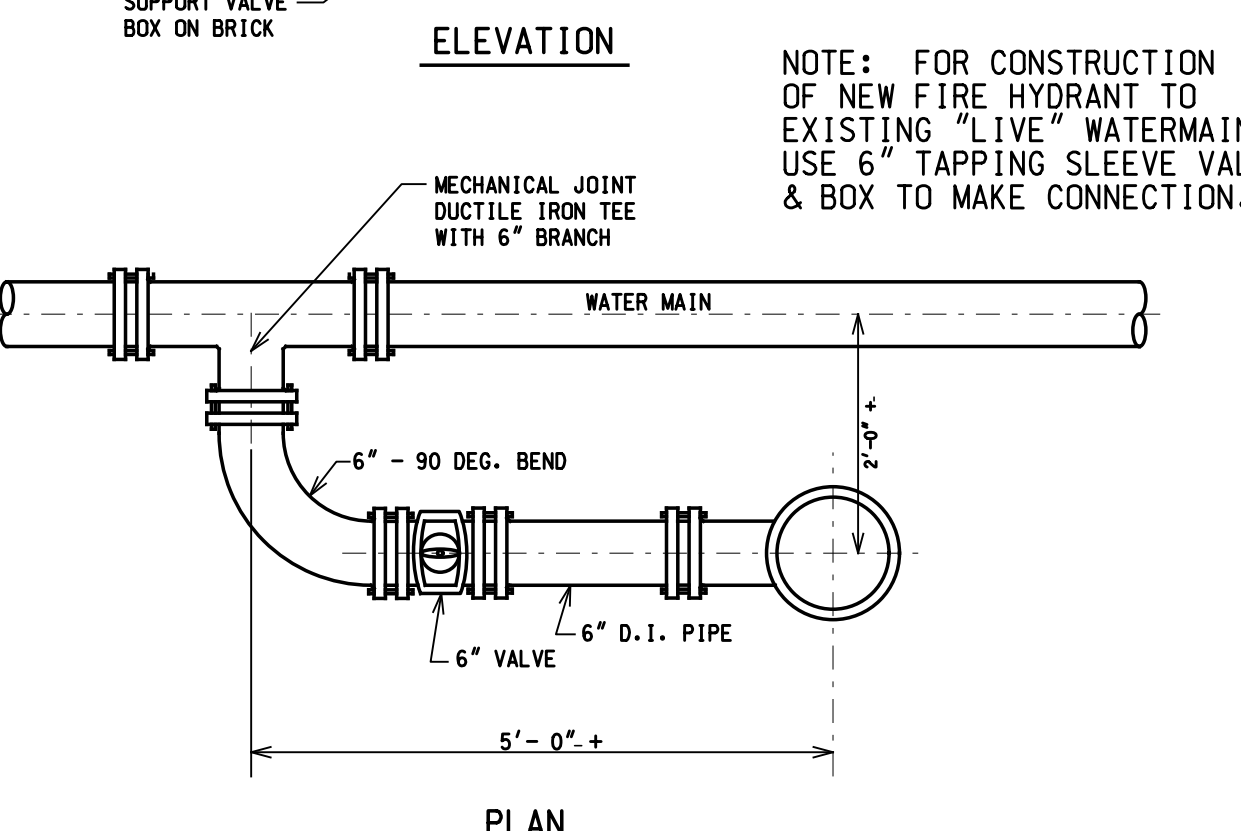
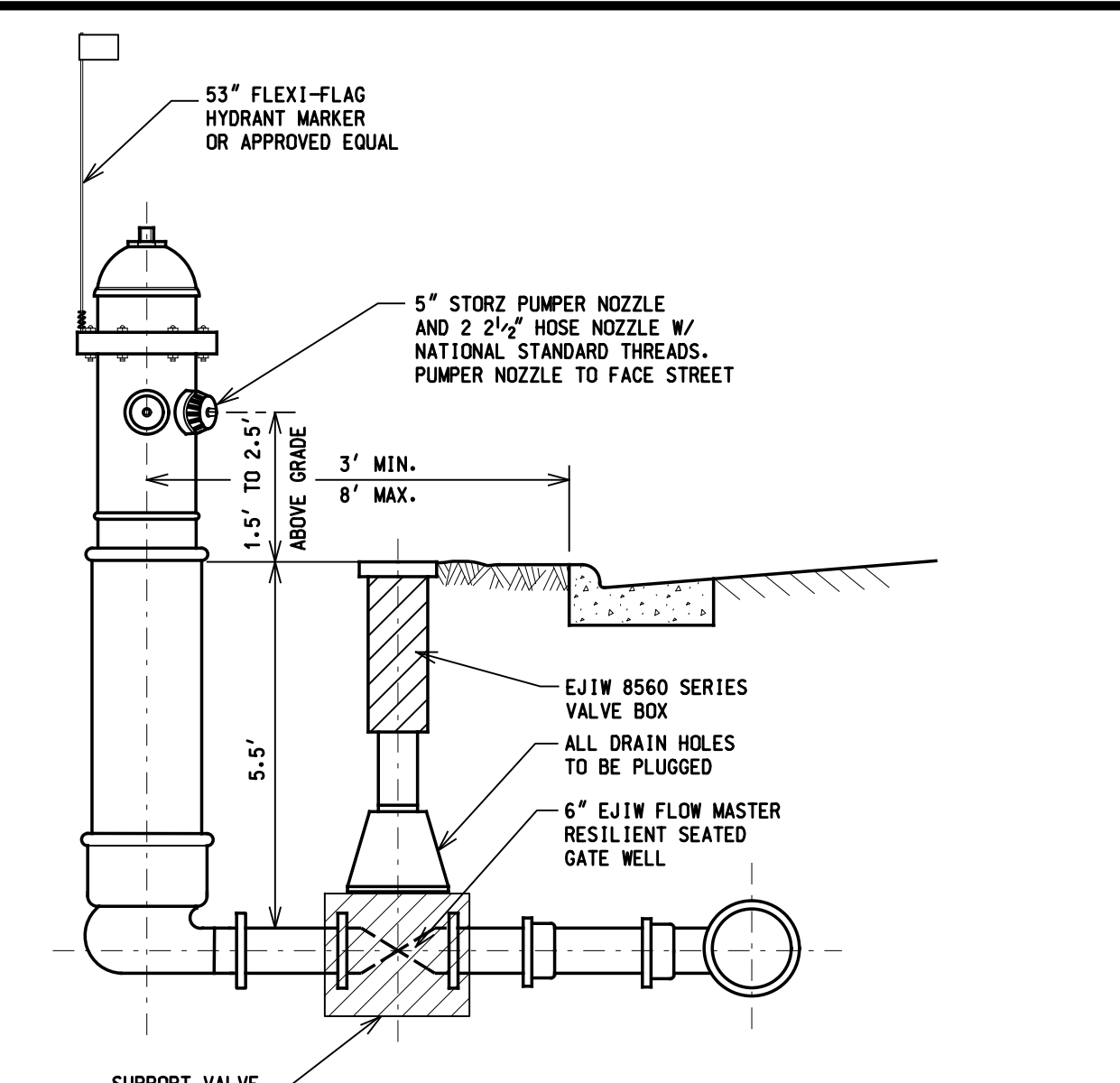
HRC
 HUBBELL, ROTH & CLARK, INC.
 Consulting Engineers
 105 W. GRAND RIVER AVE.
 HOWELL, MICHIGAN 48843
 PHONE: (248) 454-6300
 DIRECT PHONE: (517) 552-9199
 FAX: (517) 552-0099
 WEB SITE: http://www.hrc-engr.com

6-16-11	UPDATED HYDRANT MODEL
11-18-08	ADOPTED BY TOWNSHIP BOARD
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	J. REC
CHECKED	J. HEINTZ
APPROVED	J. BOOTH
V:\200708\20070820\DWG\CWm.dwg	

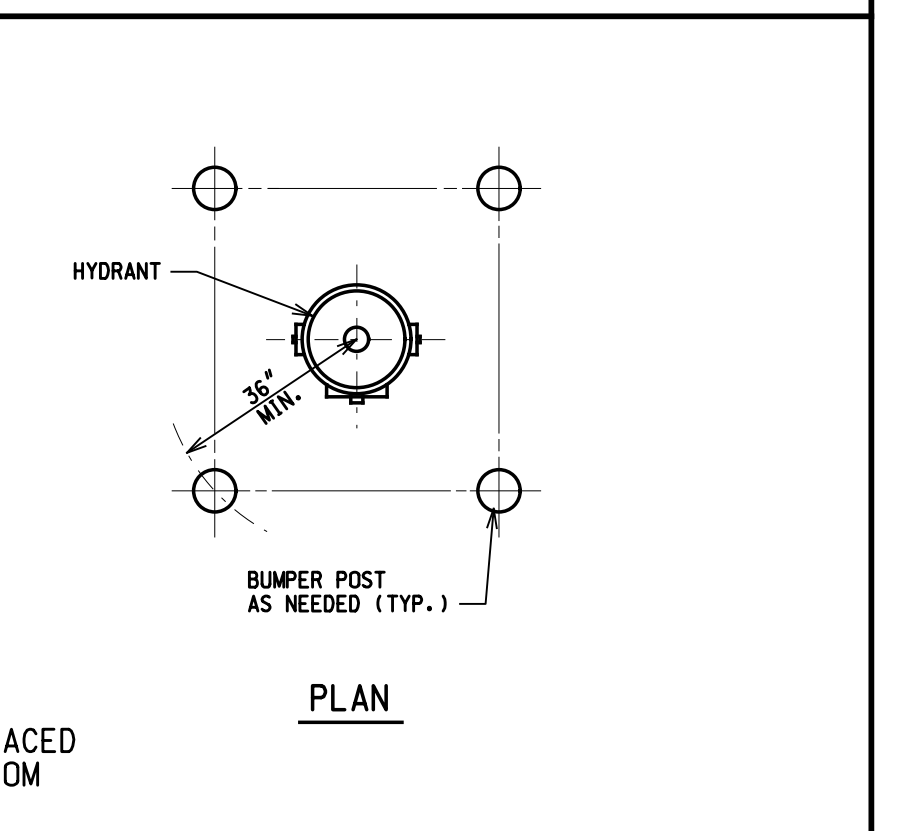
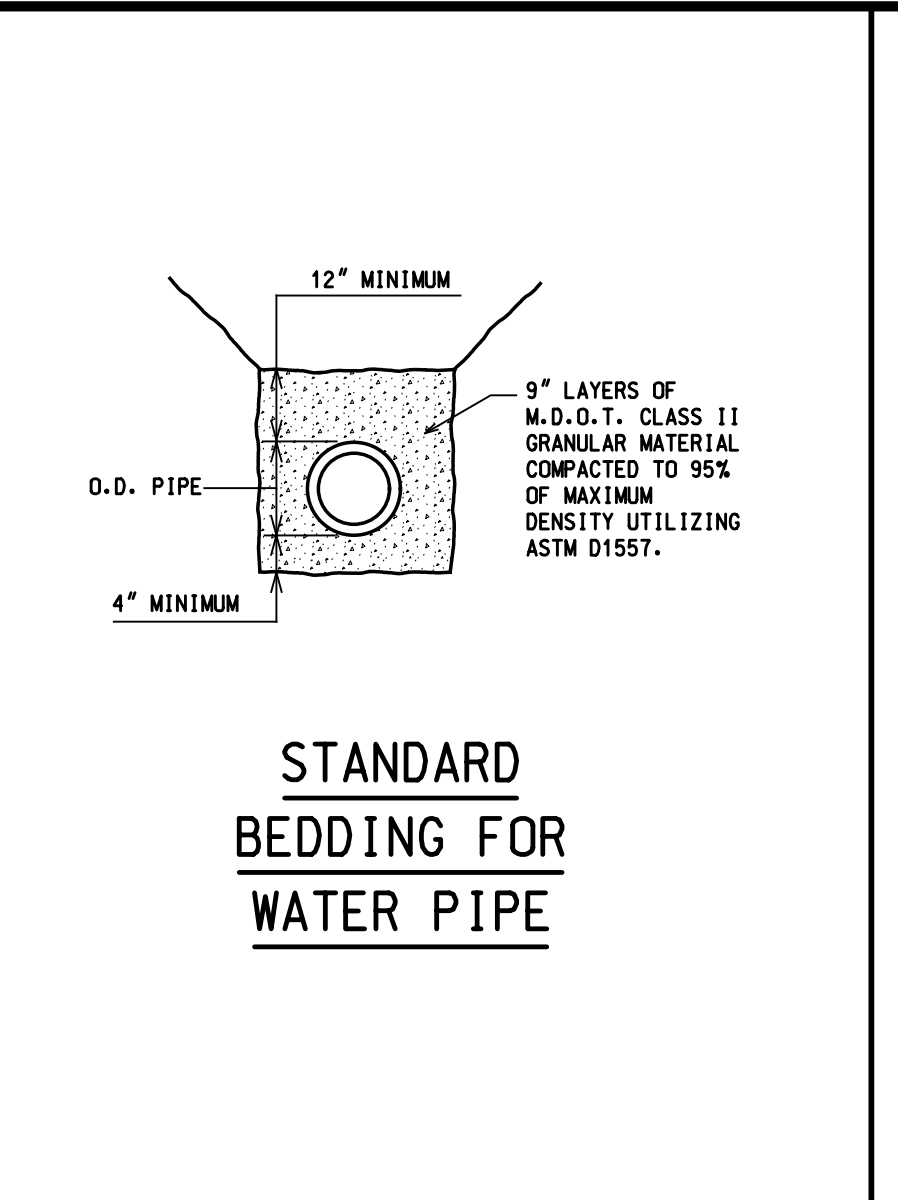
HARTLAND TOWNSHIP
STANDARD CONSTRUCTION DETAILS

WATER MAIN STANDARDS

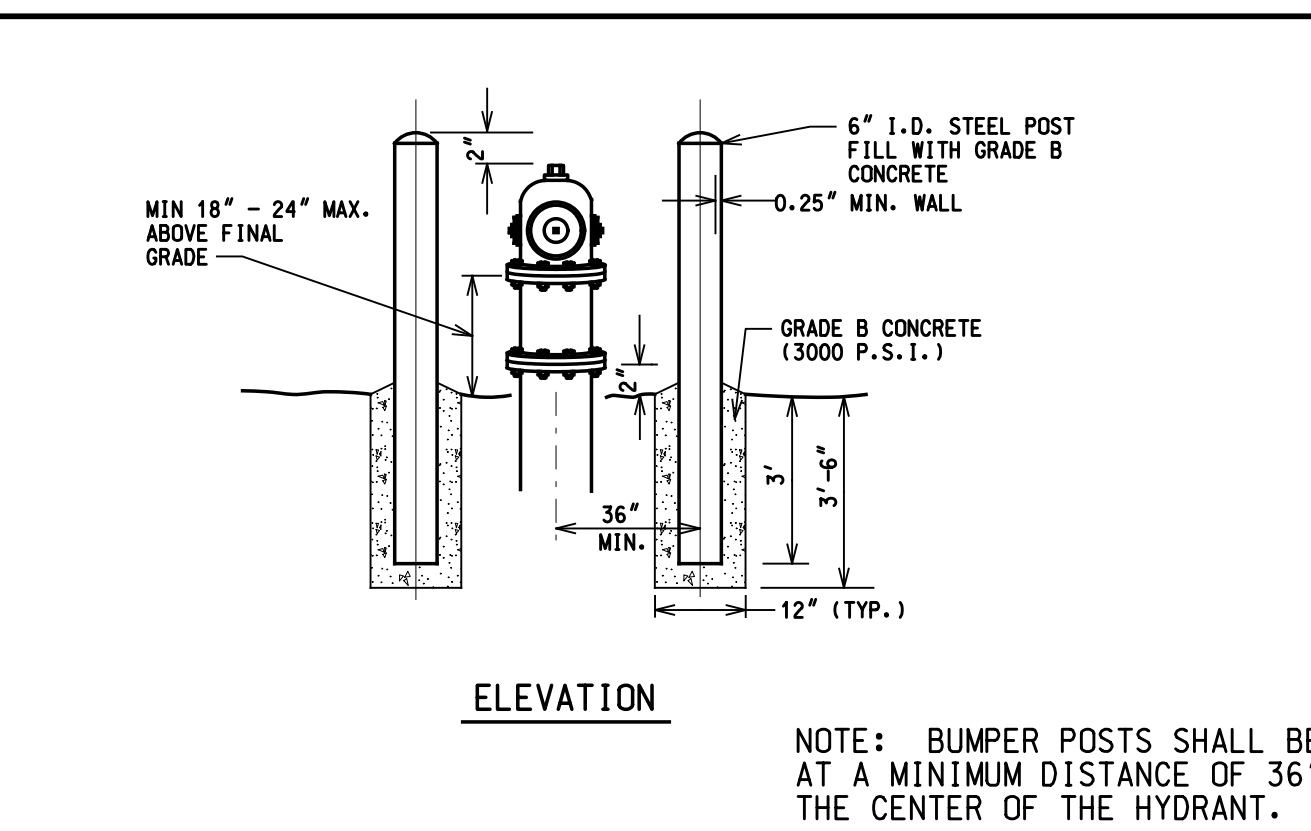
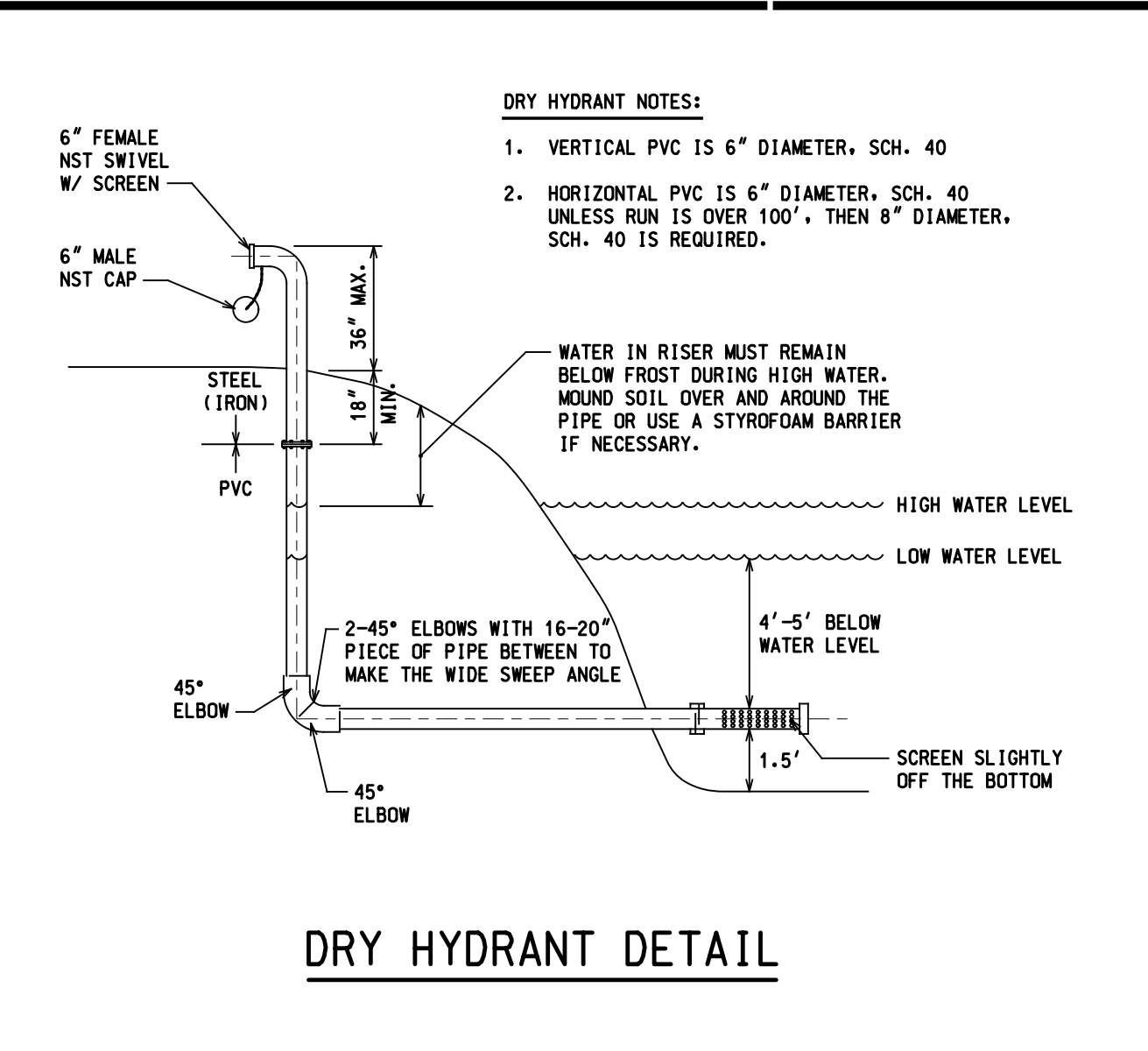
HRC JOB NO.	SCALE
20070878	NONE
DATE	SHEET NO.
JULY 2008	1



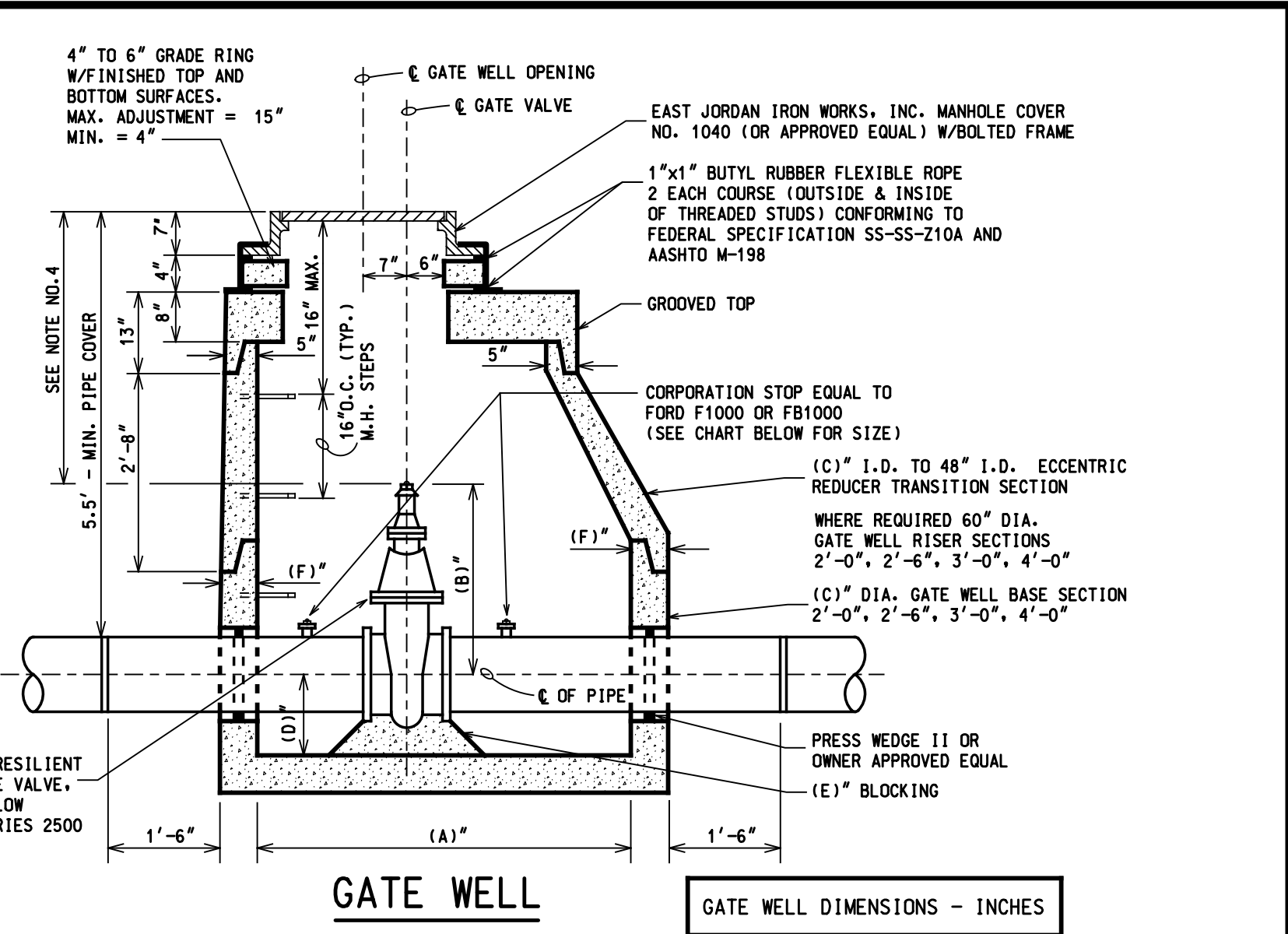
"L" HYDRANT CONNECTION



FIRE HYDRANT GUARD POSTS DETAIL



DRY HYDRANT DETAIL

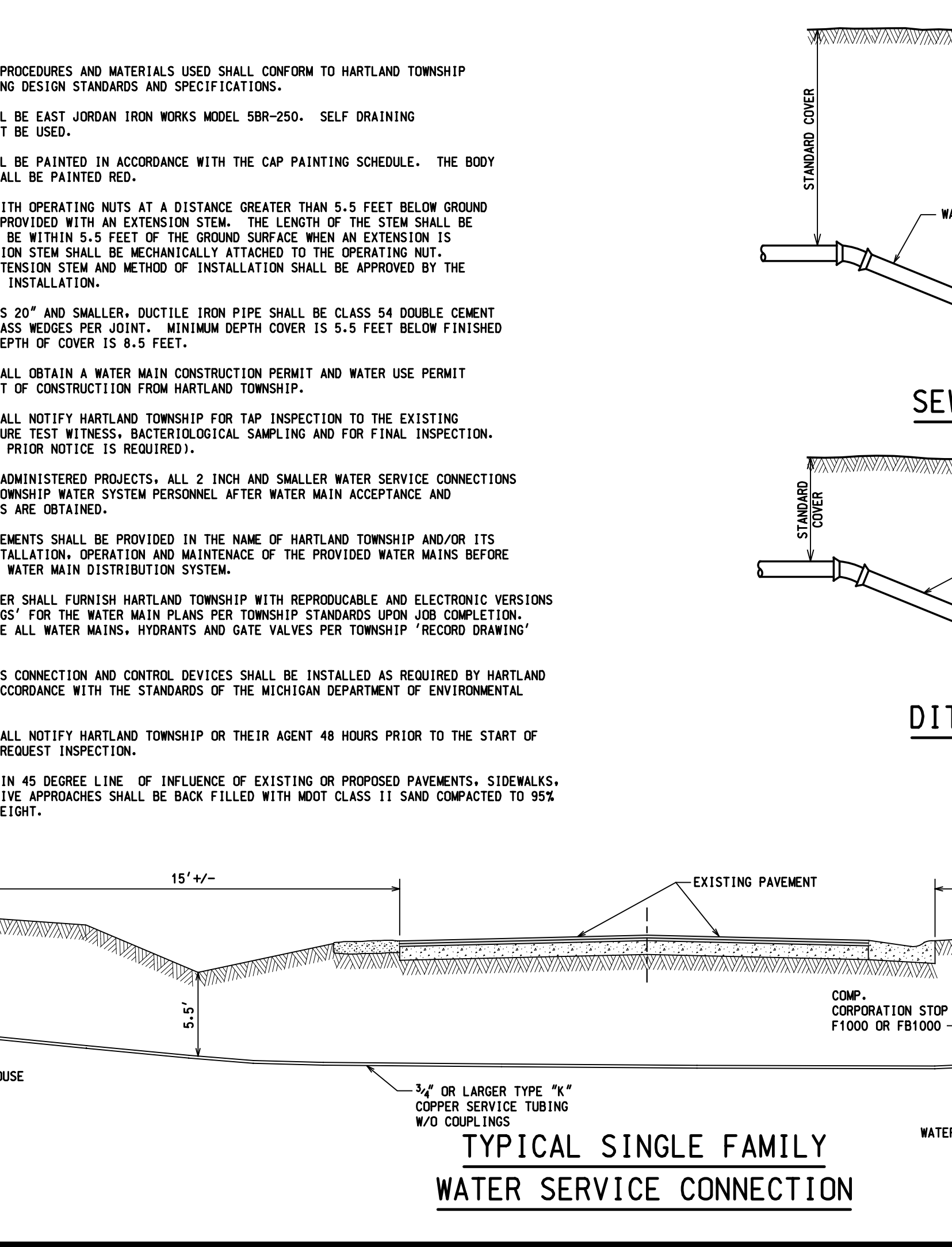


GATE WELL DIMENSIONS - INCHES

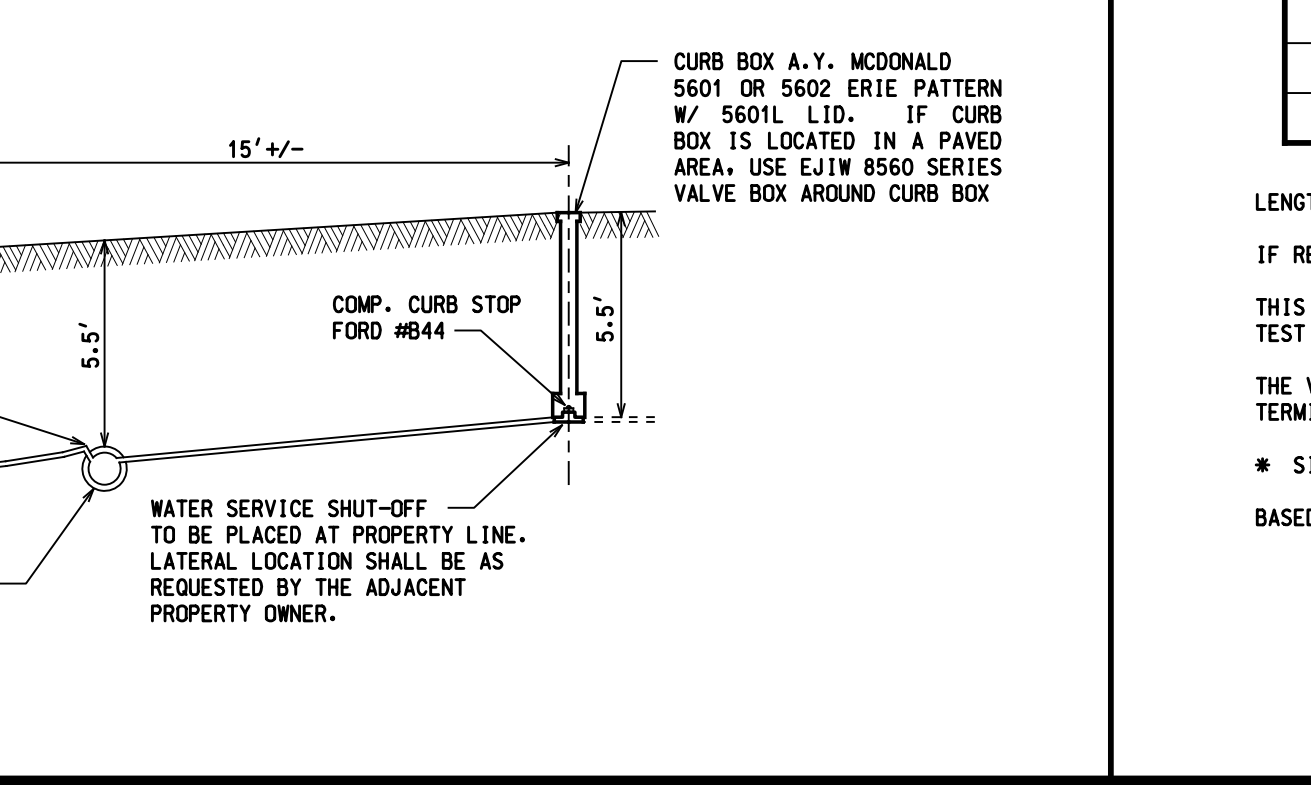
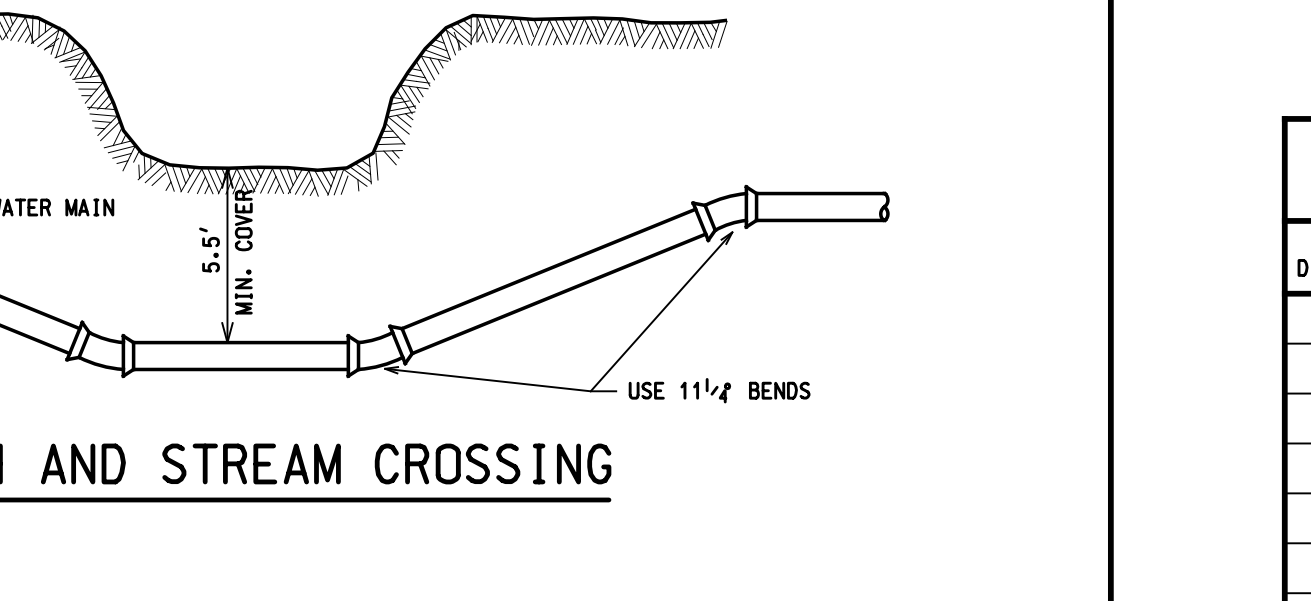
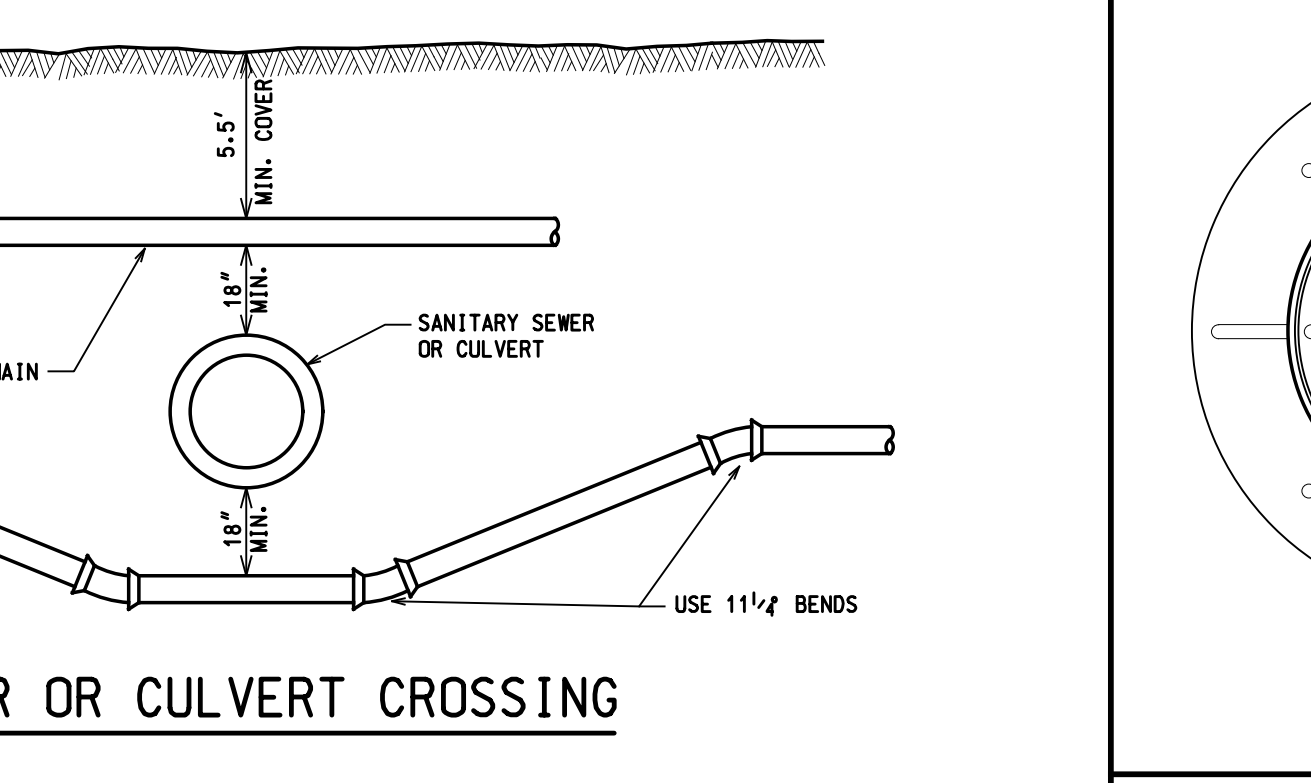
DIM.	GATE WELL SIZES			
	6" & 8"	12"	16"	20"
A	5'-0"	5'-0"	6'-0"	6'-0"
B	23"	31"	40"	43"
C	60"	60"	72"	72"
D	9 1/2"	13"	15"	17"
E	3"	4"	4"	4"
F	6"	6"	7"	7"

CORPORATION STOP	
MAIN DIA.	CORPORATION SIZE
8" - 12"	1"
16" - 20"	2" W/SADDLE

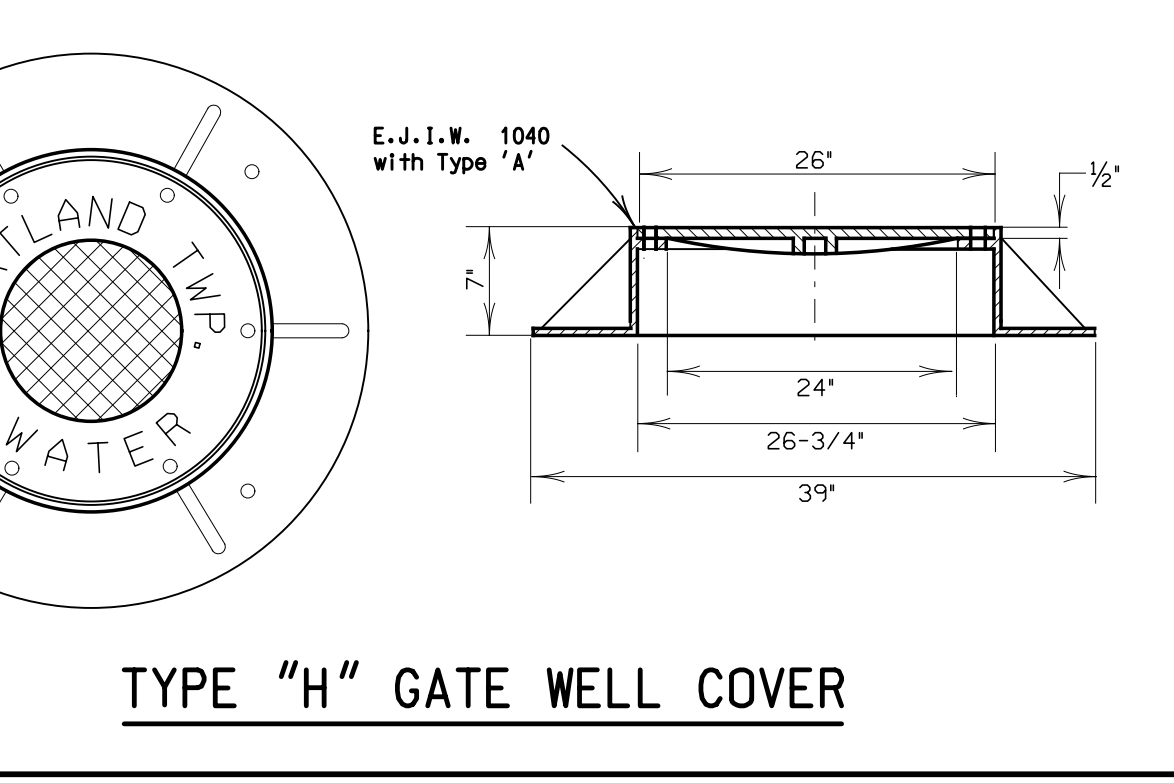
GATE WELL (A - A)



TYPICAL SINGLE FAMILY WATER SERVICE CONNECTION



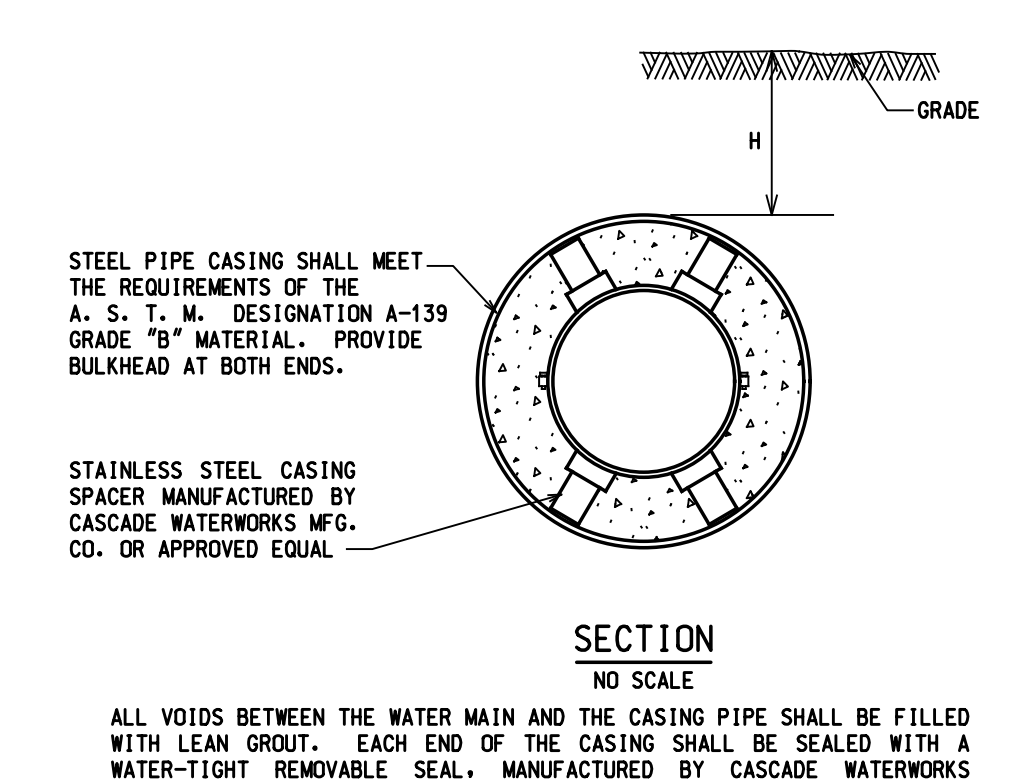
TYPICAL SINGLE FAMILY WATER SERVICE CONNECTION



PIPE RESTRAINT SCHEDULE
GROUND BURIED PRESSURE PIPE - DUCTILE IRON

PIPE DIAMETER	TEES, 90° BENDS		45° BENDS		22 1/2° BENDS		11 1/4° BENDS		DEAD ENDS	REDUCERS (ONE SIZE REDUCTION)*		REDUCERS (TWO SIZE REDUCTION)*	
	4	11	5	2	1	28	2	41		21	49	81	96
4	11	5	2	1	28	2	41	21	49	81	96	117	132
6	16	7	3	2	41	21	49	81	96	117	132	153	174
8	21	9	4	2	52	21	49	81	96	117	132	153	174
12	30	12	6	3	75	40	81	96	117	132	153	174	195
16	38	16	8	4	97	41	81	96	117	132	153	174	195
20	46	19	9	5	118	42	81	96	117	132	153	174	195
24	54	22	11	5	139	42	81	96	117	132	153	174	195
30	65	27	13	6	169	59	81	96	117	132	153	174	195
36	75	31	15	7	197	59	81	96	117	132	153	174	195

LENGTHS OF PIPE RESTRAINT ARE GIVEN IN FEET.
 IF REQUIRED PIPE DIAMETER IS NOT LISTED IN THIS TABLE, THE NEXT LARGEST PIPE DIAMETER SHALL BE USED.
 THIS TABLE IS BASED ON A TEST PRESSURE OF 180 PSI (OPERATING PRESSURE PLUS WATER HAMMER). FOR OTHER TEST PRESSURES, ALL VALUES TO BE INCREASED OR DECREASED PROPORTIONALLY.
 THE VALUES PROVIDED FOR RESTRAINT LENGTH ARE IN EACH DIRECTION FROM THE POINT OF DEFLECTION OR TERMINATION EXCEPT FOR TEES, AT WHICH ONLY THE BRANCH IN THE DIRECTION OF THE STEM.
 * SIZE REDUCTION IS BASED UPON THE PIPE DIAMETER SHOWN IN THIS TABLE.
 BASED UPON: INTERNAL PRESSURE: 180
 PIPE DEPTH: 5
 BEDDING CLASS: TYPE 4
 SOIL TYPE: GOOD SAND
 SAFETY FACTOR: 2



ALLOWABLE HEIGHT OF COVER (H.) IN FT., FOR STEEL CASING

WALL THICKNESS (IN.)	STEEL CASING OUTSIDE DIAMETER (IN.)											
	12	14	16	18	20	24	28	30	36	42	48	54
1/4	39	30	24	21	19	17	16	15	14	13	12	11
5/16	50	50	39	31	27	21	19	18	16	15	14	13
3/8	50	50	50	48	39	28	23	21	18	17	16	15
1/2	50	50	50	50	50	39	29	27	22	21	20	19
5/8	50	50	50	50	50	50	39	34	26	21	20	19
3/4	50	50	50	50	50	50	50	44	31	25	24	23
7/8	50	50	50	50	50	50	50	50	39	30	29	28
1	50	50	50	50	50	50	50	50	48	38	37	36

TYPICAL TUNNEL CASING DETAIL
 NOTES:
 1. CASING PIPE JOINTS TO BE FULLY WELDED AROUND THE CIRCUMFERENCE BY A CERTIFIED WELDER.
 2. THE DIAMETER OF THE BORE CASING SHALL BE A MINIMUM OF 8" LARGER THAN THE WATER MAIN TO ACCOMMODATE STAINLESS STEEL CASING SPACER.
 3. A 4" MIN. DIA. PVC GROUT FILL TUBE SHALL BE INSTALLED AT EACH END OF THE CASING. FLOWABLE FILL SHALL BE INSERTED FROM ONE END UNTIL ALL AIR IS REMOVED FROM CASING.

TYPICAL WATER MAIN TUNNEL CASING DETAIL

GENERAL NOTES:
 1. ALL CONSTRUCTION PROCEDURES AND MATERIALS USED SHALL CONFORM TO HARTLAND TOWNSHIP CURRENT ENGINEERING DESIGN STANDARDS AND SPECIFICATIONS.
 2. ALL HYDRANTS SHALL BE EAST JORDAN IRON WORKS MODEL 5BR-250. SELF DRAINING HYDRANTS SHALL NOT BE USED.
 3. ALL HYDRANTS SHALL BE PAINTED IN ACCORDANCE WITH THE CAP PAINTING SCHEDULE. THE BODY OF THE HYDRANT SHALL BE PAINTED RED.
 4. ALL GATE VALVES WITH OPERATING NUTS AT A DISTANCE GREATER THAN 5.5 FEET BELOW GROUND SURFACE SHALL BE PROVIDED WITH AN EXTENSION STEM. THE LENGTH OF THE STEM SHALL BE SUCH THAT IT WILL BE WITHIN 5.5 FEET OF THE GROUND SURFACE WHEN AN EXTENSION IS USED. THE EXTENSION STEM SHALL BE MECHANICALLY ATTACHED TO THE OPERATING NUT. DETAILS OF THE EXTENSION STEM AND METHOD OF INSTALLATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
 5. FOR PIPE DIAMETERS 20" AND SMALLER, DUCTILE IRON PIPE SHALL BE CLASS 54 DOUBLE CEMENT LINED WITH TWO BRASS WEDGES PER JOINT. MINIMUM DEPTH COVER IS 5.5 FEET BELOW FINISHED GRADE. MAXIMUM DEPTH OF COVER IS 8.5 FEET.
 6. THE CONTRACTOR SHALL OBTAIN A WATER MAIN CONSTRUCTION PERMIT AND WATER USE PERMIT PRIOR TO THE START OF CONSTRUCTION FROM HARTLAND TOWNSHIP.
 7. THE CONTRACTOR SHALL NOTIFY HARTLAND TOWNSHIP FOR TAP INSPECTION TO THE EXISTING WATER MAIN. PRESSURE TEST WITNESS, BACTERIOLOGICAL SAMPLING AND FOR FINAL INSPECTION. (MINIMUM 48 HOURS PRIOR NOTICE IS REQUIRED).
 8. FOR NON TOWNSHIP ADMINISTERED PROJECTS, ALL 2 INCH AND SMALLER WATER SERVICE CONNECTIONS ARE MADE BY THE TOWNSHIP WATER SYSTEM PERSONNEL AFTER WATER MAIN ACCEPTANCE AND APPLICABLE PERMITS ARE OBTAINED.
 9. ALL NECESSARY EASEMENTS SHALL BE PROVIDED IN THE NAME OF HARTLAND TOWNSHIP AND/OR ITS AGENT FOR THE INSTALLATION, OPERATION AND MAINTENANCE OF THE PROVIDED WATER MAINS BEFORE ACCEPTANCE OF THE WATER MAIN DISTRIBUTION SYSTEM.
 10. THE DESIGN ENGINEER SHALL FURNISH HARTLAND TOWNSHIP WITH REPRODUCIBLE AND ELECTRONIC VERSIONS OF "RECORD DRAWINGS" FOR THE WATER MAIN PLANS PER TOWNSHIP STANDARDS UPON JOB COMPLETION. PLANS SHALL LOCATE ALL WATER MAINS, HYDRANTS AND GATE VALVES PER TOWNSHIP "RECORD DRAWING" STANDARDS.
 11. ALL REQUIRED CROSS CONNECTION AND CONTROL DEVICES SHALL BE INSTALLED AS REQUIRED BY HARTLAND TOWNSHIP AND IN ACCORDANCE WITH THE STANDARDS OF THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY.
 12. THE CONTRACTOR SHALL NOTIFY HARTLAND TOWNSHIP OR THEIR AGENT 48 HOURS PRIOR TO THE START OF CONSTRUCTION AND REQUEST INSPECTION.
 13. ALL TRENCHES WITHIN 45 DEGREE LINE OF INFLUENCE OF EXISTING OR PROPOSED PAVEMENTS, SIDEWALKS, BIKE PATHS AND DRIVE APPROACHES SHALL BE BACK FILLED WITH MDT CLASS II SAND COMPACTED TO 95% OF MAXIMUM UNIT WEIGHT.

PLANT LIST:						
QTY.	BOTANICAL NAME	COMMON NAME	SIZE	COND.	COMMENTS	
DECIDUOUS TREES						
30	AC RU	<i>Acer rubrum</i> 'October Glory'	October Glory Maple	3" cal.	B&B	As Shown
24	AM GR	<i>Amelanchier x grandiflora</i> 'Autumn Brilliance'	Autumn Brilliance Serviceberry	6'-7' ht., multistem	B&B	As Shown
23	BE PO	<i>Betula populifolia</i> 'Whitespire'	Whitespire Birch	12' multi-stem	B&B	As Shown
32	CE CA	<i>Cercis canadensis</i>	Eastern Redbud	1.5" cal.	B&B	As Shown
25	GL TR	<i>Gleditsia tricanthos</i> f. <i>inermis</i> 'Skycole'	Skyline Honeylocust	3" cal.	B&B	As Shown
21	LI ST	<i>Liquidambar styraciflua</i>	American Sweetgum	3" cal.	B&B	As Shown
28	MA VI	<i>Magnolia virginiana</i> 'Moonglow'	Moonglow Sweetbay/Magnolia	6'-7' ht., multistem	B&B	As Shown
3	ME GL	<i>Metasequoia glyptostroboides</i>	Dawn Redwood	3" cal.	B&B	As Shown
45	PL AC	<i>Platanus x acerifolia</i> 'Exclamation!'	Exclamation! London Planetree	3" cal.	B&B	As Shown
21	QU AL	<i>Quercus alba</i>	White Oak	3" cal.	B&B	As Shown
24	TA DI	<i>Taxodium distichum</i>	Bald Cypress	3" cal.	B&B	As Shown
31	TI AM	<i>Tilia americana</i> 'Redmond'	Redmond Linden	3" cal.	B&B	As Shown
12	UL PA	<i>Ulmus parvifolia</i>	Lacebark Elm	3" cal.	B&B	As Shown
EVERGREEN TREES						
54	JU VI	<i>Juniperus virginiana</i>	Eastern Red Cedar	5' ht.	B&B	As Shown
29	PI AB	<i>Picea abies</i>	Norway Spruce	7' ht.	B&B	As Shown
49	PI GL	<i>Picea glauca</i> 'Densata'	Black Hills Spruce	5' ht.	B&B	As Shown
38	PI ST	<i>Pinus strobus</i>	Eastern White Pine	7' ht.	B&B	As Shown
SHRUBS						
35	CO SE	<i>Cornus sericea</i> 'Bailei'	Redosier Dogwood	36" ht	B&B	As Shown
14	IL GL	<i>Ilex glabra</i> 'Densa'	Dense Compact Inkberry	24" spread	Cont.	As Shown
22	JU CH	<i>Juniperus chinensis</i> 'Sea Green'	Sea Green Juniper	24" spread	Cont.	As Shown
41	VI JU	<i>Viburnum x juddii</i>	Judd Viburnum	36" ht	B&B	As Shown
PERENNIALS AND ORNAMENTAL GRASSES						
10	PE HA	<i>Pennisetum a.</i> 'Hameln'	Dwarf Fountain Grass	#1	cont.	As Shown

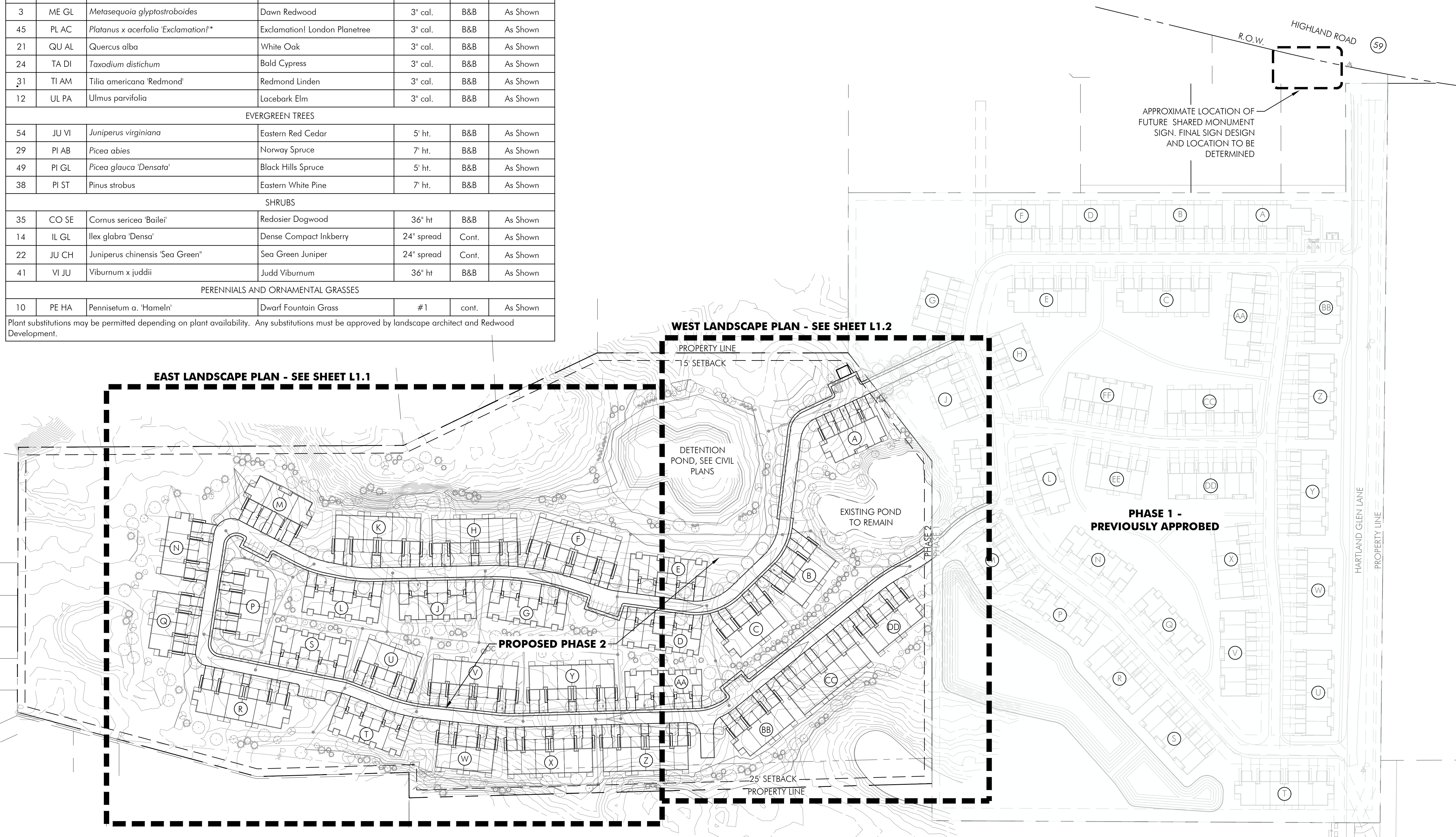
Plant substitutions may be permitted depending on plant availability. Any substitutions must be approved by landscape architect and Redwood Development.

ZONING REQUIREMENTS

H iv. DETENTION/RETENTION AREAS SHALL HAVE A MINIMUM OF ONE CANOPY OR EVERGREEN TREE WITH TEN MEDIUM SHRUBS, OR SIX LARGE SHRUBS OR SIX ORNAMENTAL TREES FOR EVERY 50 LF OF POND PERIMETER .

POND PERIMETER: 905 LF
 REQUIRED: $905 / 50 = 18$ CANOPY OR EVERGREEN TREES
 PROVIDED: 8 CANOPY TREES & 17 EVERGREEN TREES

REQUIRED: $(905 / 50) * 6 = 109$ COMBINED ORNAMENTAL TREES AND LARGE SHRUBS
 PROVIDED: 13 ORNAMENTAL TREES & 96 LARGE EVERGREEN AND DECIDUOUS SHRUBS



Overall Reference Plan
 SCALE: 1" = 100'



Columbus
 100 Northwoods Blvd, Ste A
 Columbus, Ohio 43235
 p 614.255.3399

Cincinnati
 20 Village Square
 Floor 3
 Cincinnati, Ohio 45246
 p 614.360.3066

PODdesign.net

Project Name
Redwood
Hartland Glen
Lane MI
 Hartland Township, MI

Prepared For

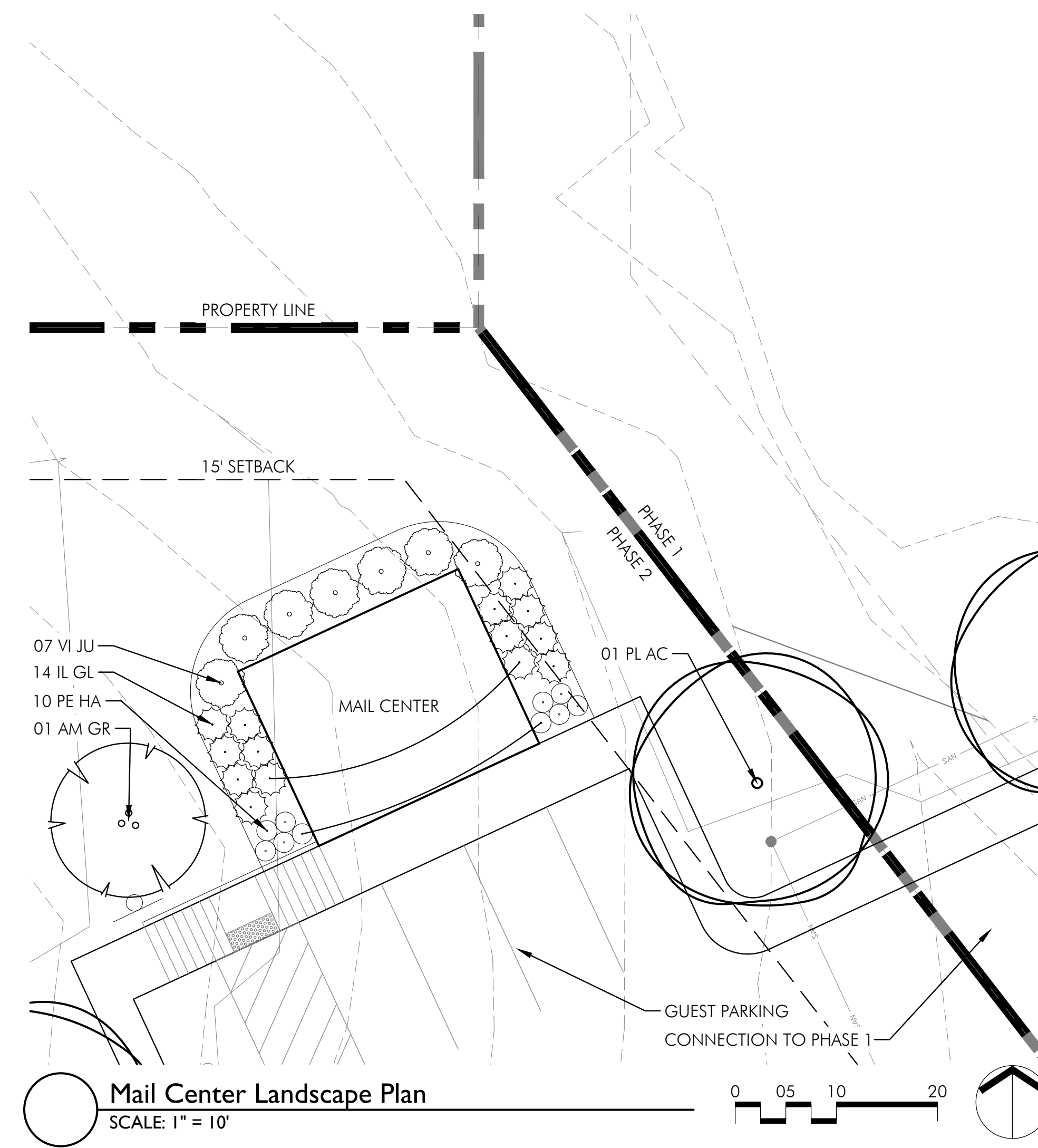
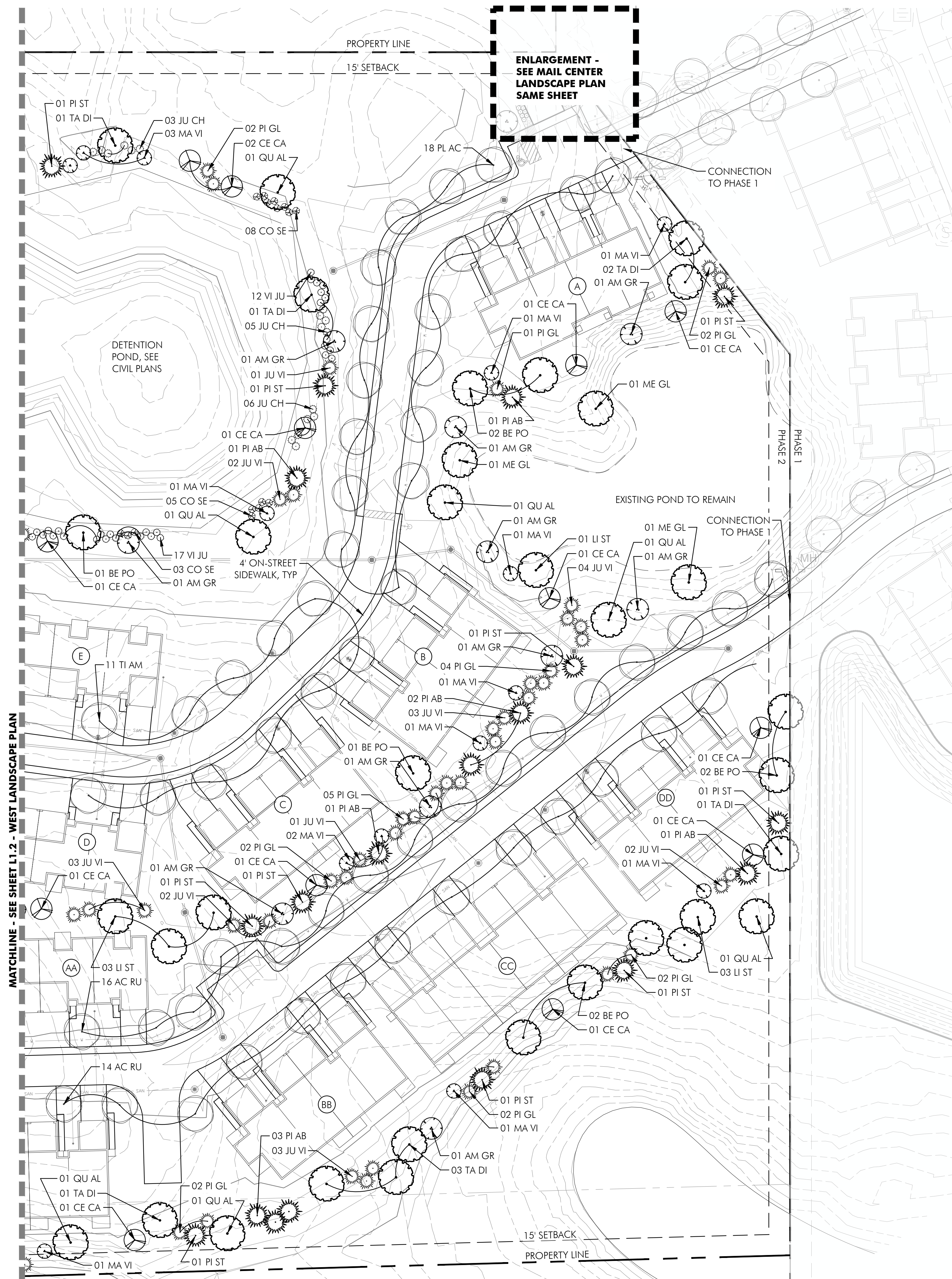
 Redwood Living
 7007 East Pleasant Valley Road
 Independence, OH 44131

Project Info
 Project # 23051
 Date 12/22/2023
 By SO, TF
 Scale As Noted

Revisions

Sheet Title
OVERALL
REFERENCE
PLAN

Sheet #
L1.0



East Landscape Plan
SCALE: 1" = 40'

Mail Center Landscape Plan
SCALE: 1" = 10'



Columbus
100 Northwoods Blvd, Ste A
Columbus, Ohio 43235
p 614.255.3399

Cincinnati
20 Village Square
Floor 3
Cincinnati, Ohio 45246
p 614.360.3066

PODdesign.net

Project Name
**Redwood
Hartland Glen
Lane MI**
Hartland Township, MI

Prepared For
Redwood
APARTMENT NEIGHBORHOODS
Redwood Living
7007 East Pleasant Valley Road
Independence, OH 44131

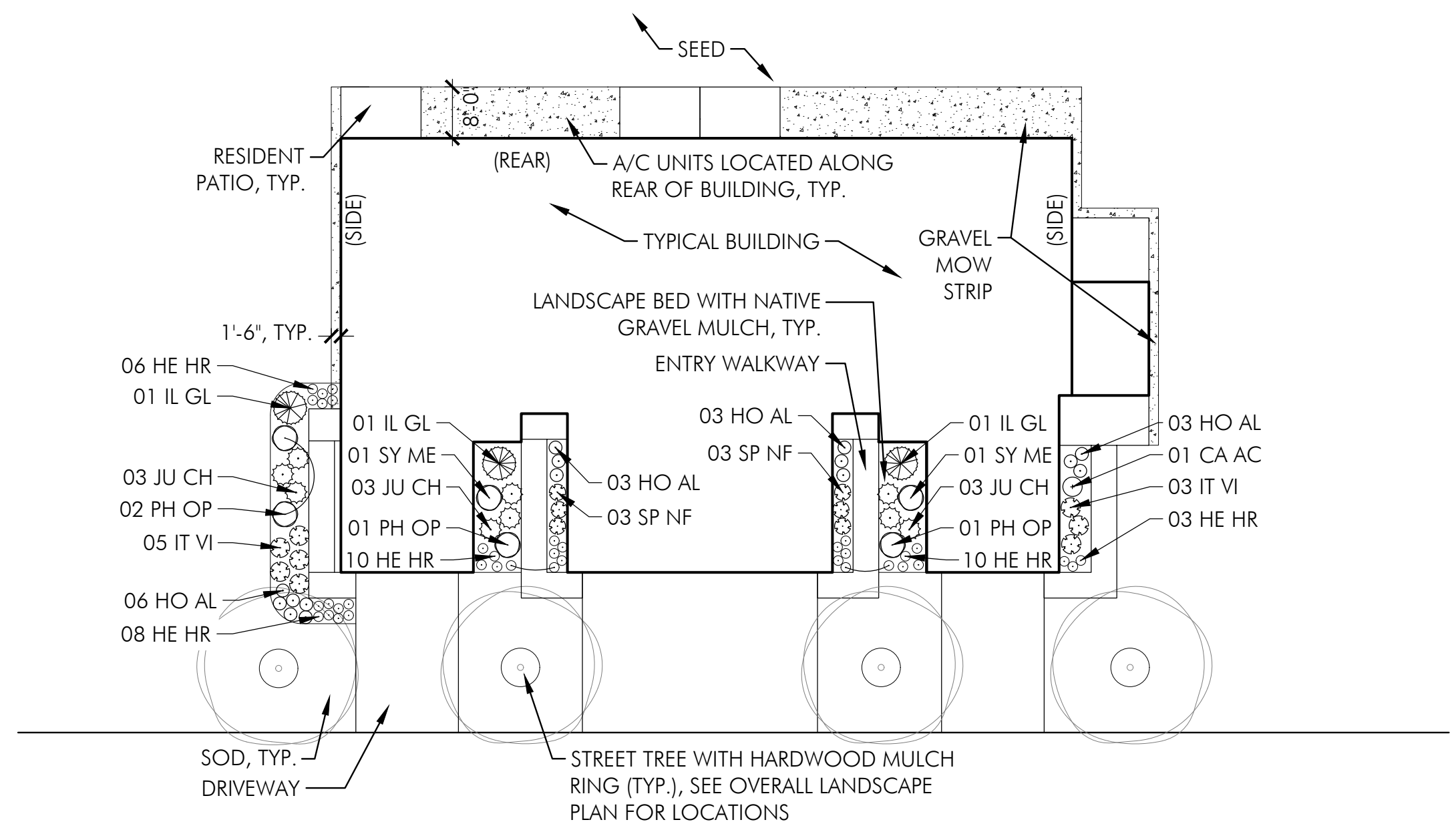
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Project #	23051
Date	12/22/2023
By	SO, TF
Scale	As Noted

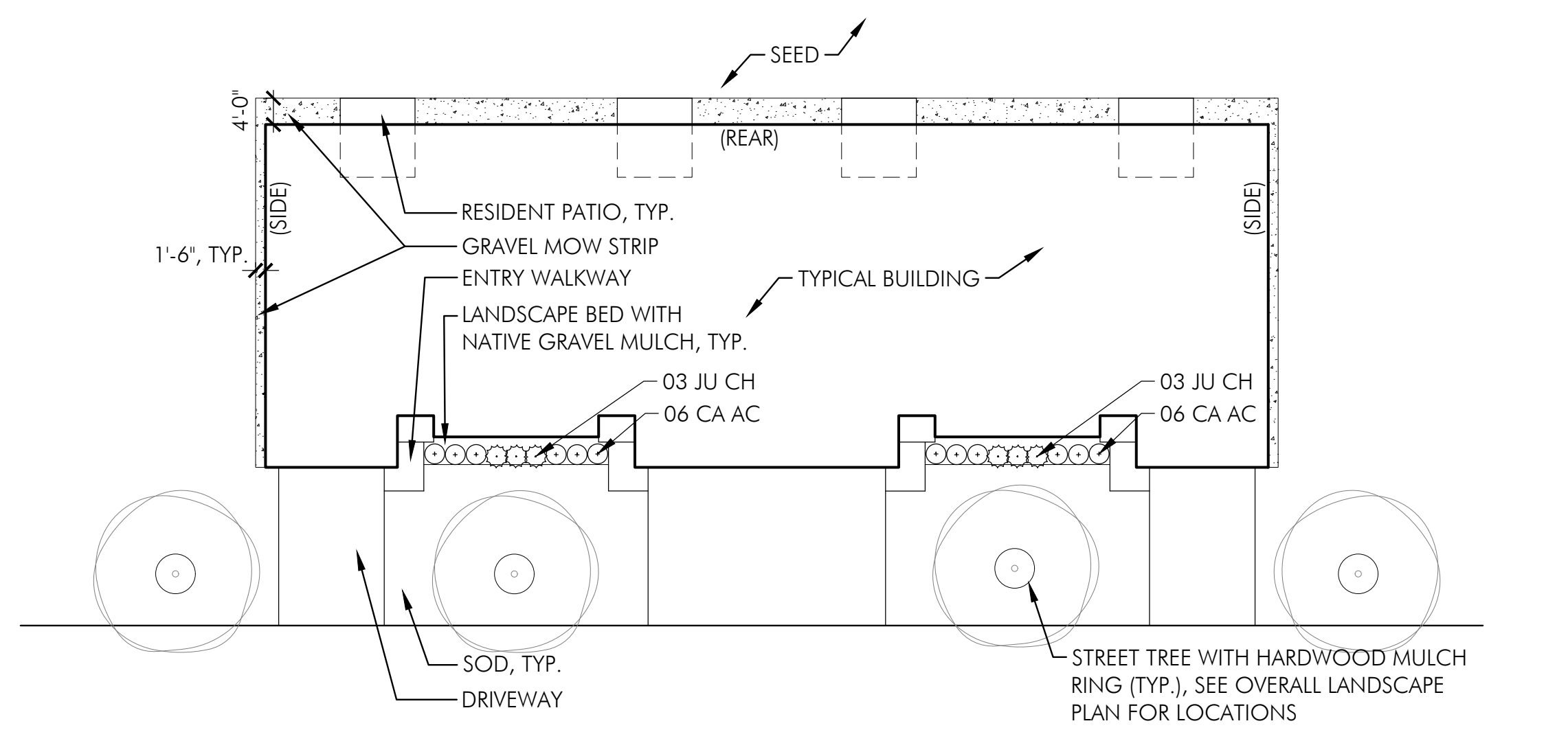
Revisions

Sheet Title
**EAST
LANDSCAPE
PLAN**

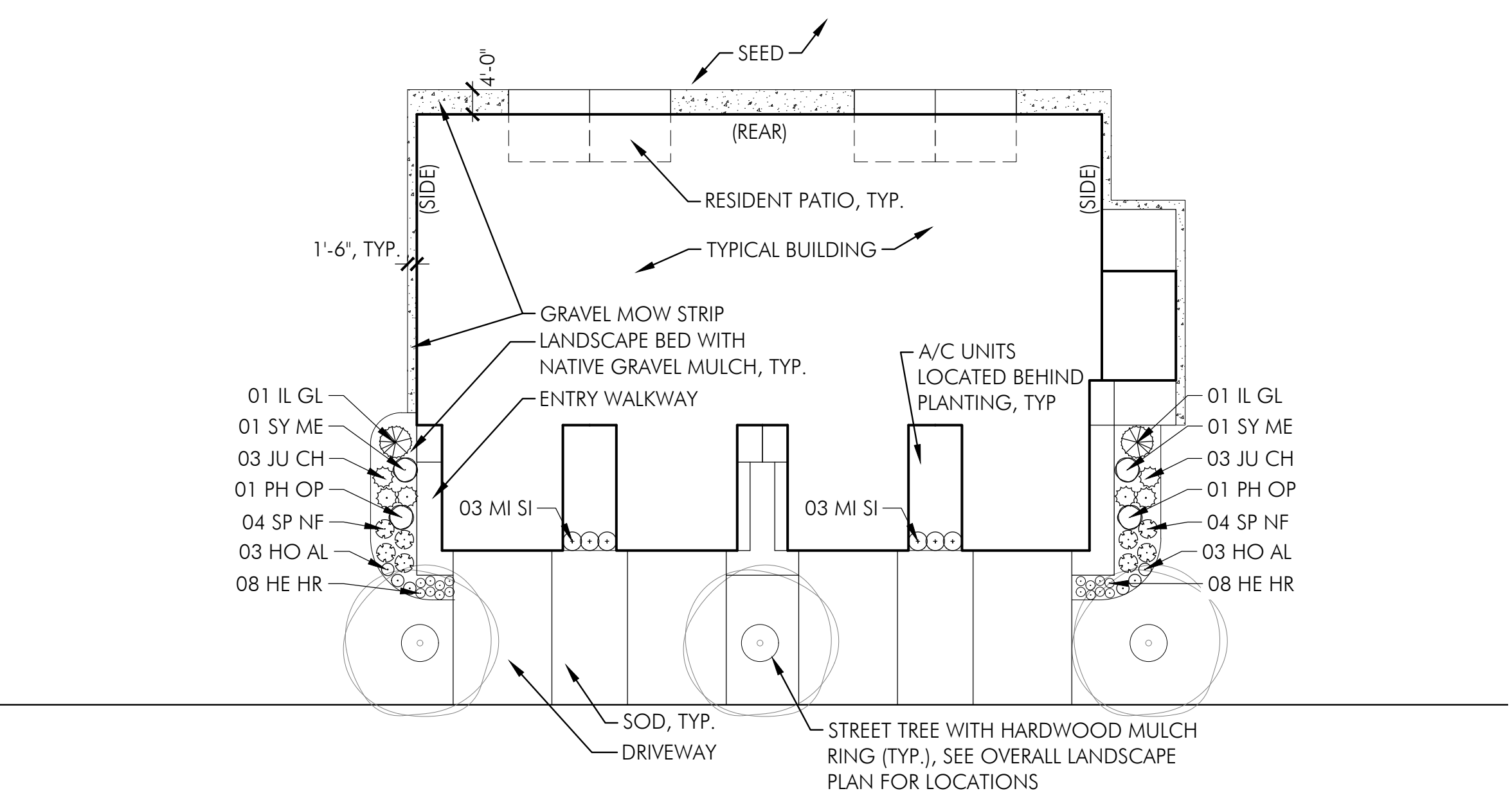
Sheet #
L1.1



1 Meadowood/Forestwood/Capewood Foundation Planting - Buildings: B, C, F, H, K, N, P, Q, R, U, V, W, X, Y, Z, BB, CC, DD
SCALE: 1" = 20'



2 Willowood Foundation Planting - Buildings: D, E, G, J, L, S, T, & AA
SCALE: 1" = 20'



3 Breezewood Foundation Planting - Buildings: A & M
SCALE: 1" = 20'

PLANT LIST: MEADOWOOD/FORESTWOOD/CAPEWOOD BUILDING - 4 UNIT						
QTY.	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	COND.	SPACING
SHRUBS						
3	IL GL	<i>Ilex glabra</i> 'Densa'	Densa Compact Inkberry	18" hgt.	Cont.	As Shown
8	IT VI	<i>Itea virginiana</i>	Virginia Sweetspire	18" hgt.	Cont.	As Shown
9	JU CH	<i>Juniperus chinensis</i> 'Nicks Compact'	Nicks Compact Juniper	18" hgt.	Cont.	As Shown
4	PH OP	<i>Physocarpus opulifolius</i> 'Little Devil'	Little Devil Ninebark	18" hgt.	Cont.	As Shown
6	SP NF	<i>Spiraea</i> x 'Neon Flash'	Neon Flash Spirea	18" hgt.	Cont.	As Shown
2	SY ME	<i>Syringa meyeri</i>	Palabin Lilac	30" hgt.	Cont.	As Shown
PERENNIALS & ORNAMENTAL GRASSES						
1	CA AC	<i>Calamagrostis</i> x <i>acutiflora</i> 'Karl Foerster'	Karl Foerster Feather Reed Grass	2 gal.	Cont.	As Shown
37	HE HR	<i>Hemerocallis</i> 'Happy Returns'	Happy Returns Daylily	1 gal.	Cont.	As Shown
15	HO AL	<i>Hosta</i> 'Fortunei Albamarginata'	Variiegated Hosta	1 gal.	Cont.	As Shown

**Plant substitutions may be permitted depending on plant availability. Any substitutions must be approved by Redwood and landscape architect

PLANT LIST: WILLOWOOD BUILDING - 4 UNIT						
QTY.	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	COND.	SPACING
SHRUBS						
6	JU CH	<i>Juniperus chinensis</i> 'Nicks Compact'	Nicks Compact Juniper	18" hgt.	Cont.	As Shown
PERENNIALS & ORNAMENTAL GRASSES						
12	CA AC	<i>Calamagrostis</i> x <i>acutiflora</i> 'Karl Foerster'	Karl Foerster Feather Reed Grass	2 gal.	Cont.	As Shown

**Plant substitutions may be permitted depending on plant availability. Any substitutions must be approved by Redwood and landscape architect

PLANT LIST: BREEZEWOOD BUILDING W/ SUNROOM - 4 UNIT						
QTY.	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	COND.	SPACING
SHRUBS						
2	IL GL	<i>Ilex glabra</i> 'Densa'	Densa Compact Inkberry	18" hgt.	Cont.	As Shown
6	JU CH	<i>Juniperus chinensis</i> 'Nicks Compact'	Nicks Compact Juniper	18" hgt.	Cont.	As Shown
2	PH OP	<i>Physocarpus opulifolius</i> 'Little Devil'	Little Devil Ninebark	18" hgt.	Cont.	As Shown
8	SP NF	<i>Spiraea</i> x 'Neon Flash'	Neon Flash Spirea	18" hgt.	Cont.	As Shown
2	SY ME	<i>Syringa meyeri</i>	Palabin Lilac	30" hgt.	Cont.	As Shown
PERENNIALS & ORNAMENTAL GRASSES						
16	HE HR	<i>Hemerocallis</i> 'Happy Returns'	Happy Returns Daylily	1 gal.	Cont.	As Shown
6	HO AL	<i>Hosta</i> 'Albomarginata'	'Albomarginata' Hosta	1 gal.	Cont.	As Shown
6	MI SI	<i>Miscanthus sinensis</i> 'Gracillimus'	Maiden Grass	1 gal.	Cont.	As Shown

**Plant substitutions may be permitted depending on plant availability. Any substitutions must be approved by Redwood and landscape architect



Columbus
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Columbus, Ohio 43235
p 614.255.3399

Cincinnati
20 Village Square
Floor 3
Cincinnati, Ohio 45246
p 614.360.3066

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Project Name
**Redwood
Hartland Glen
Lane MI**
Hartland Township, MI



Redwood Living
7007 East Pleasant Valley Road
Independence, OH 44131

Project Info

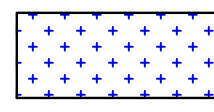
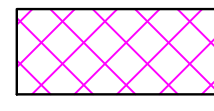

Project # 23051
Date 12/22/2023
By SO, TF
Scale As Noted

Revisions

Sheet Title
**TYPICAL
FOUNDATION
PLANTING**

Sheet #
L1.3

LEGEND

-  SEED (LOW MOW/NO MOW) AREA - SEE DETAILS THIS SHEET ±537,700, sf (±12.3 ac)
-  SEED (TURF) AREA ±115,430 sf (±2.6 ac)
-  SOD AREA ±78,670 sf (±1.8 ac)

SPECIFICATIONS

- SOD**
- SOD SPECIFICATIONS TO BE PROVIDED FOR OWNER APPROVAL PRIOR TO INSTALLATION
- SEED (TURF)**
- SEED SPECIFICATIONS TO BE PROVIDED FOR OWNER APPROVAL PRIOR TO INSTALLATION

LOW MOW / NO MOW SEED (SEE TABLE THIS SHEET)

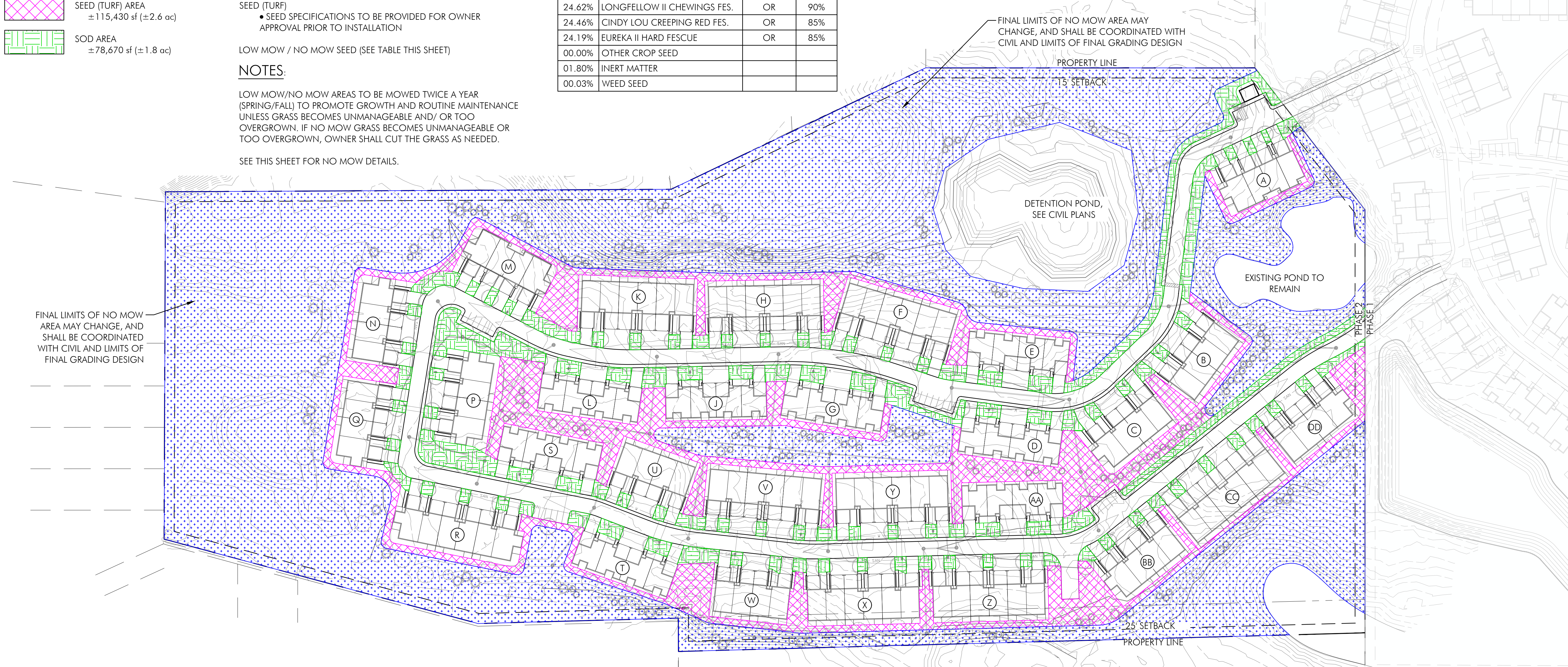
NOTES:

LOW MOW/NO MOW AREAS TO BE MOWED TWICE A YEAR (SPRING/FALL) TO PROMOTE GROWTH AND ROUTINE MAINTENANCE UNLESS GRASS BECOMES UNMANAGEABLE AND/ OR TOO OVERGROWN. IF NO MOW GRASS BECOMES UNMANAGEABLE OR TOO OVERGROWN, OWNER SHALL CUT THE GRASS AS NEEDED.

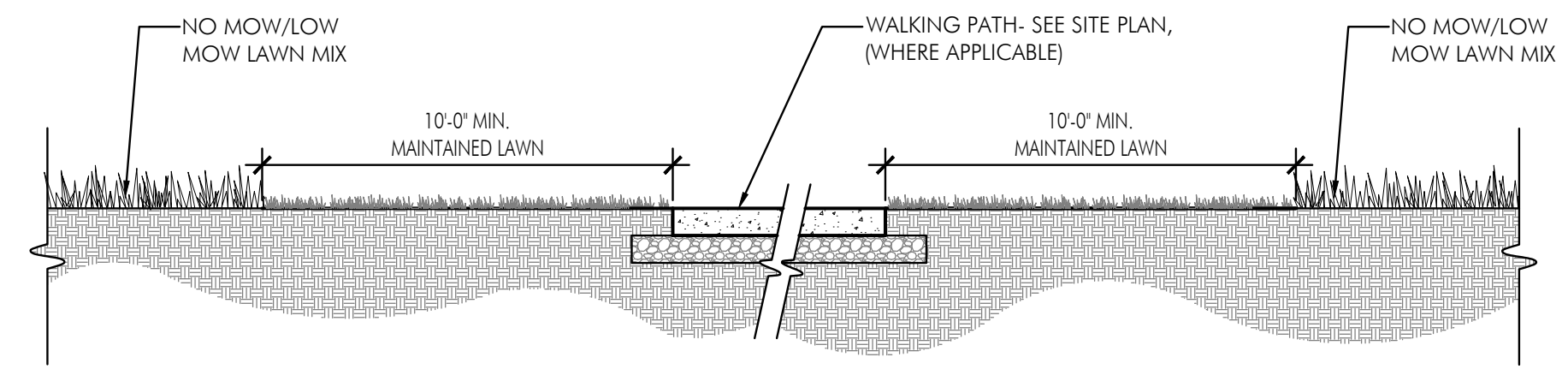
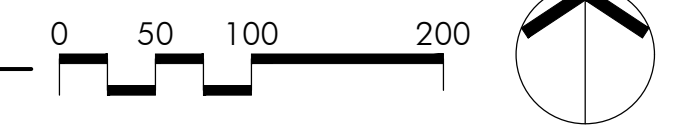
SEE THIS SHEET FOR NO MOW DETAILS.

NO MOW / LOW MOW SEED MIX

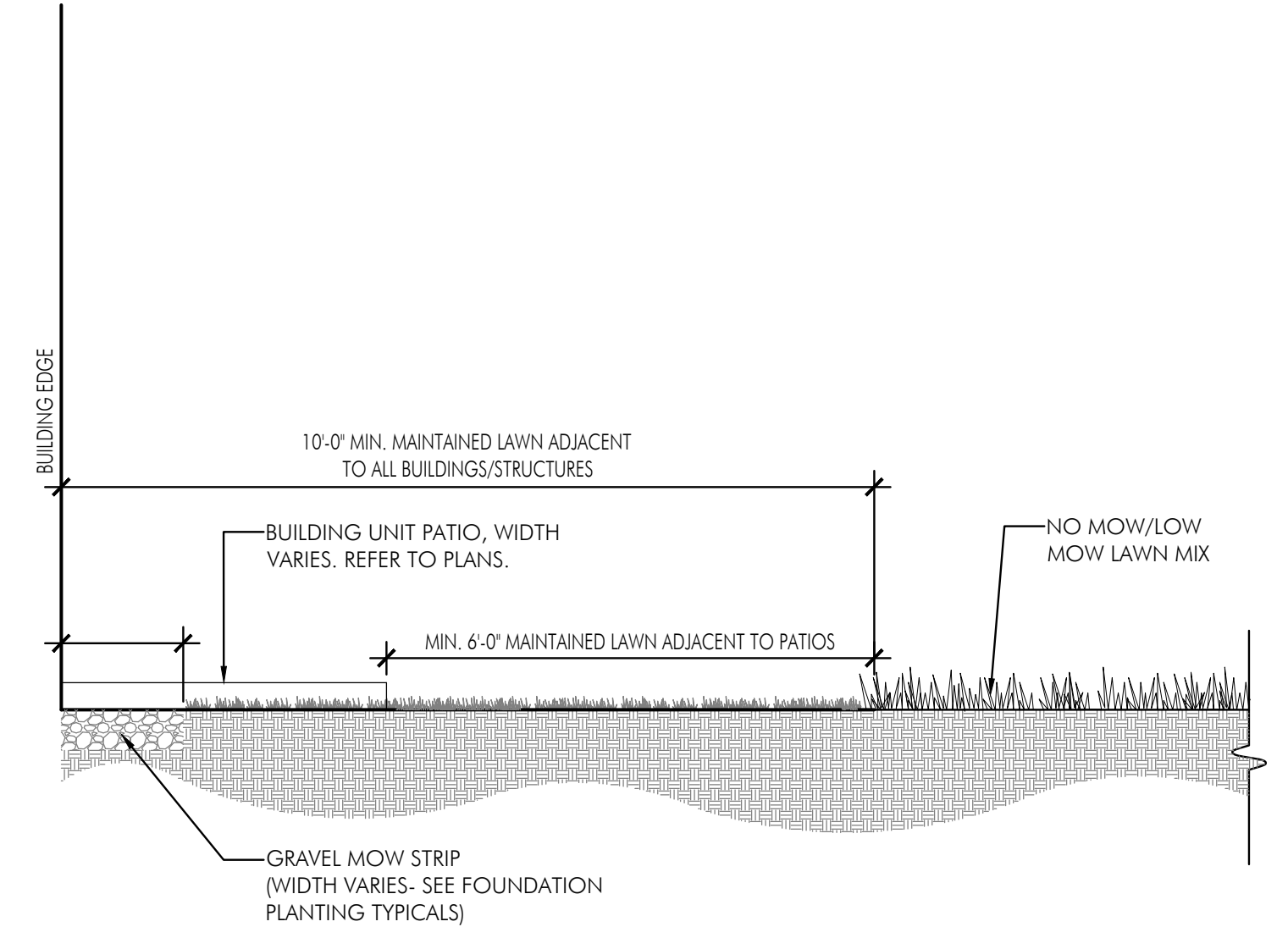
% PURE	SEED VARIETY	ORIGIN	GERM
24.91%	QUATRO SHEEPS FESCUE	OR	90%
24.62%	LONGFELLOW II CHEWINGS FES.	OR	90%
24.46%	CINDY LOU CREEPING RED FES.	OR	85%
24.19%	EUREKA II HARD FESCUE	OR	85%
00.00%	OTHER CROP SEED		
01.80%	INERT MATTER		
00.03%	WEED SEED		



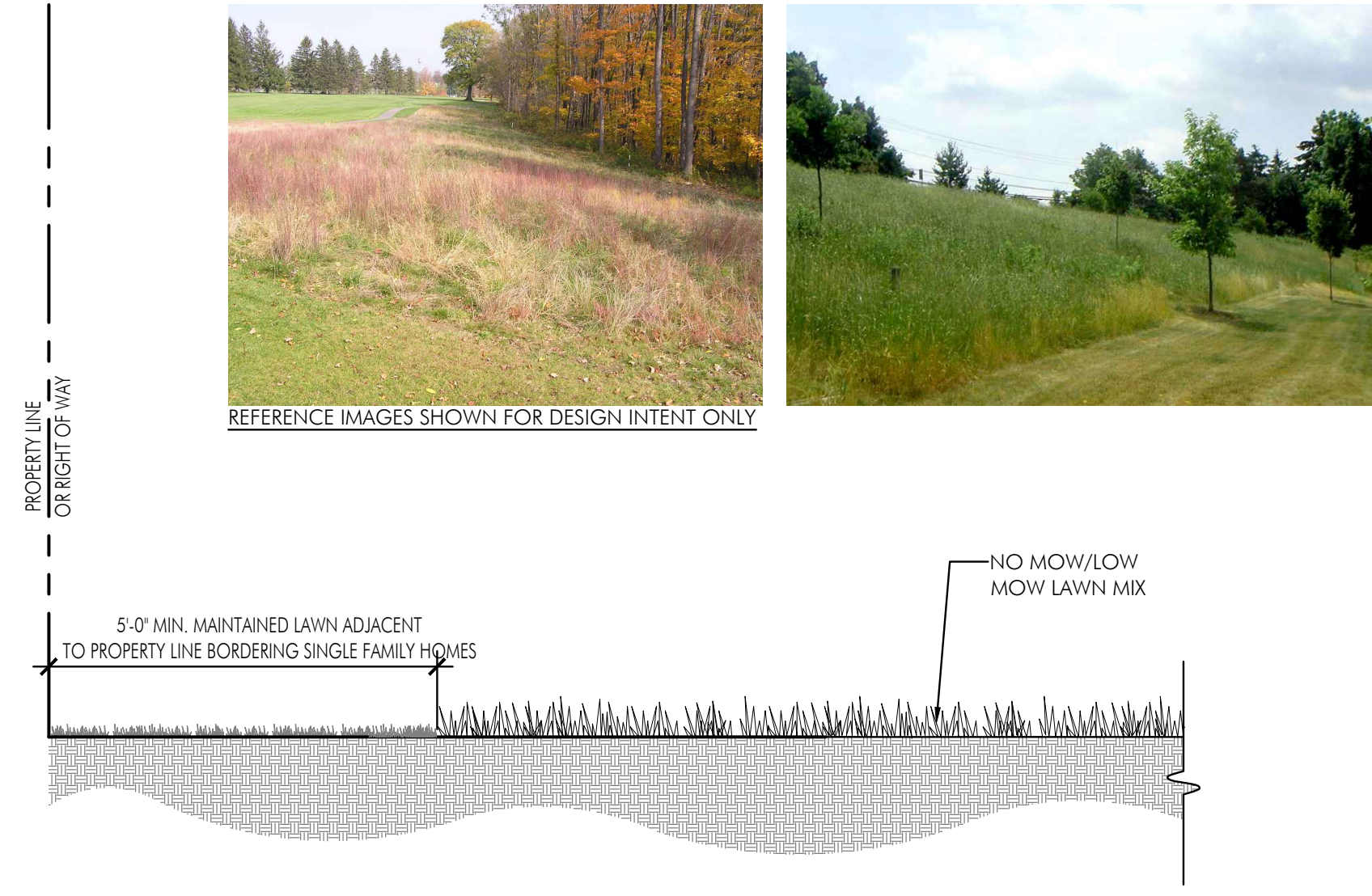
Seed & Sod Plan
SCALE: 1" = 100'



Typical Low Mow/No Mow Lawn Adjacent to Walking Paths/Sidewalks
1/2" = 1'-0"



Typical Low Mow/No Mow Lawn Treatment Adjacent to Buildings/Structures
1/2" = 1'-0"



Typical Low Mow/No Mow Lawn Treatment Adjacent to Property Line or ROW
1/2" = 1'-0"



Columbus
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Columbus, Ohio 43235
p 614.255.3399

Cincinnati
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Floor 3
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Project Name
**Redwood
Hartland Glen
Lane MI**
Hartland Township, MI

Prepared For

Redwood Living
7007 East Pleasant Valley Road
Independence, OH 44131

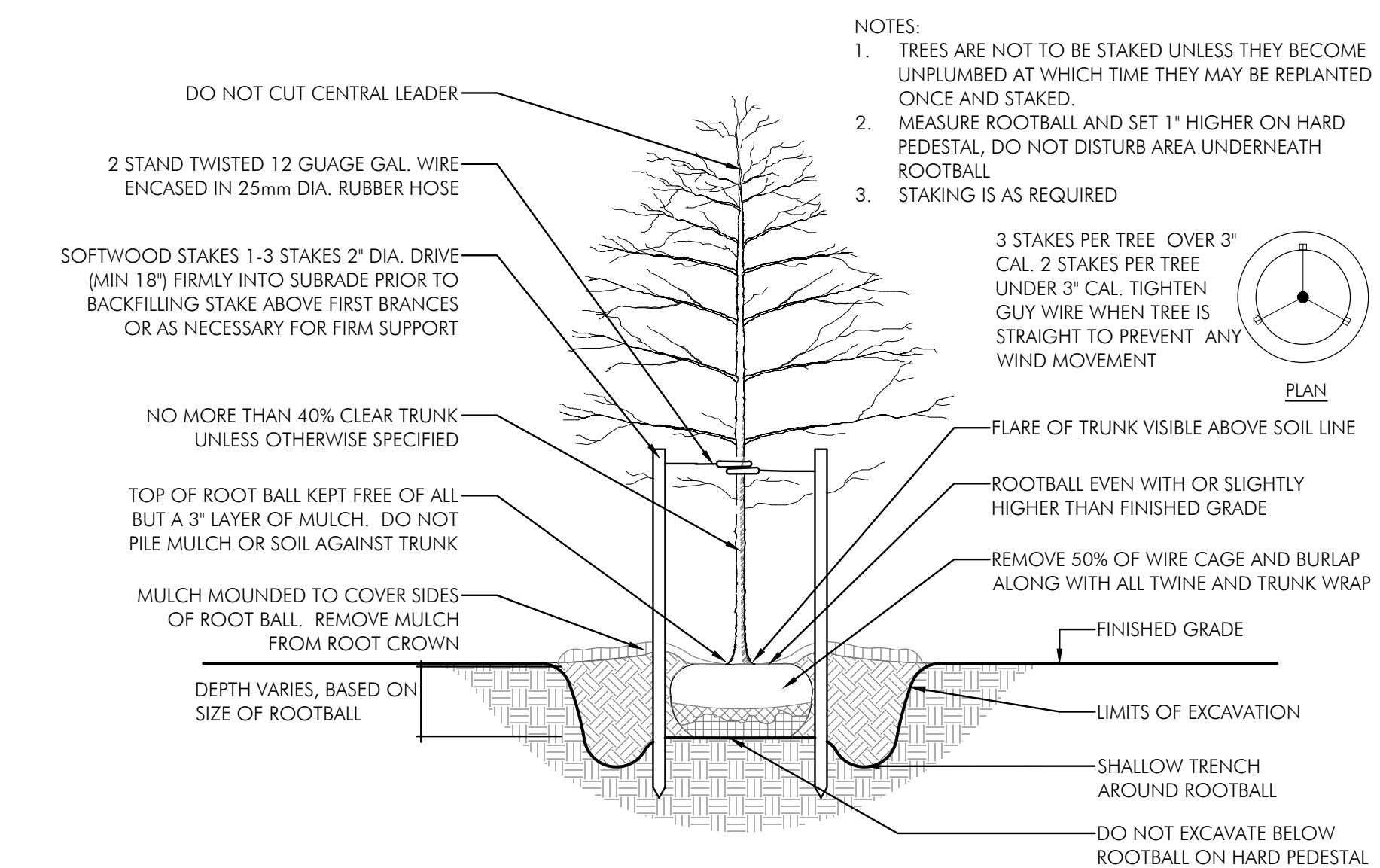
Project Info

Project #	23051
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Scale	As Noted

Revisions

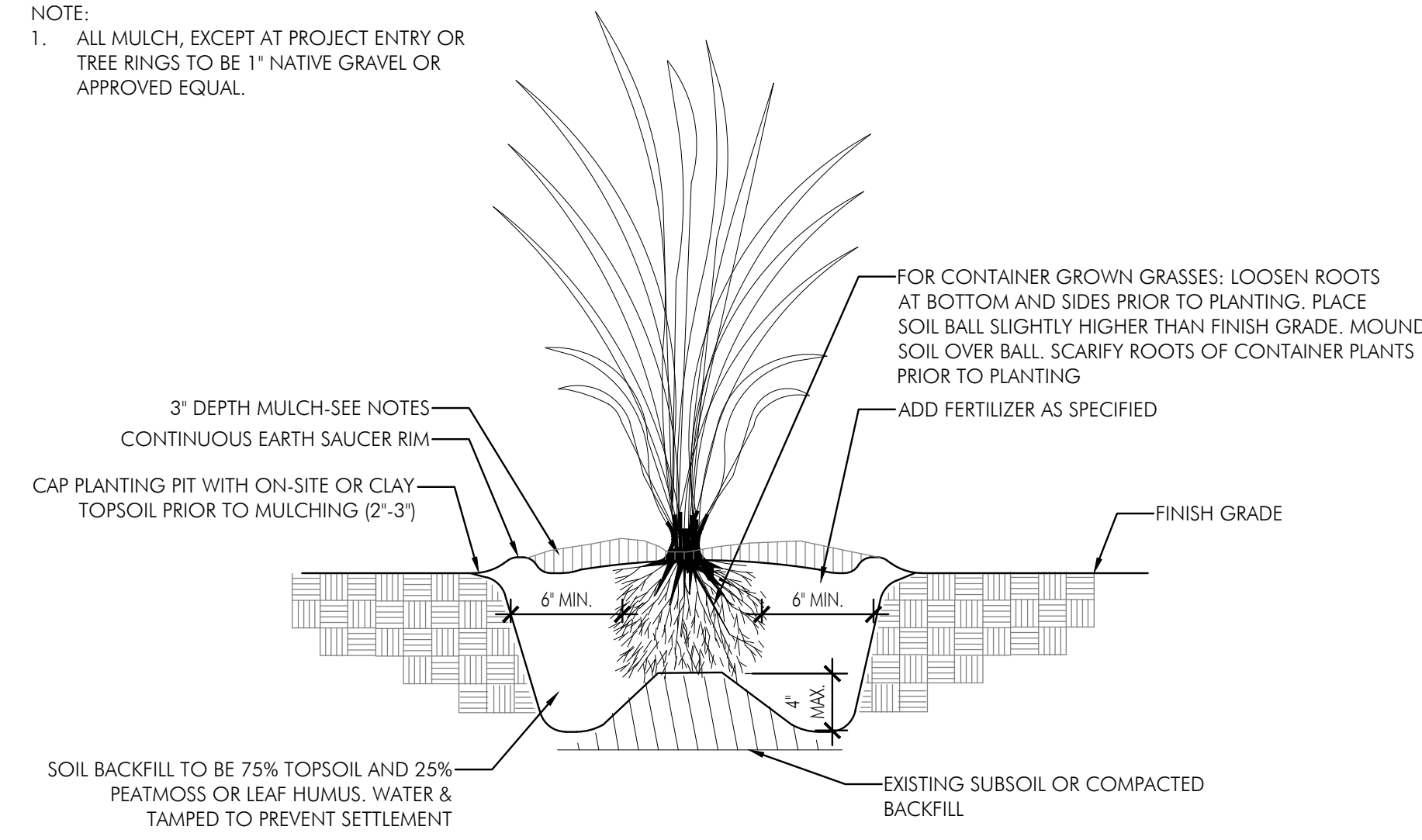
Sheet Title
**SEED & SOD
PLAN**

Sheet #
L2.0



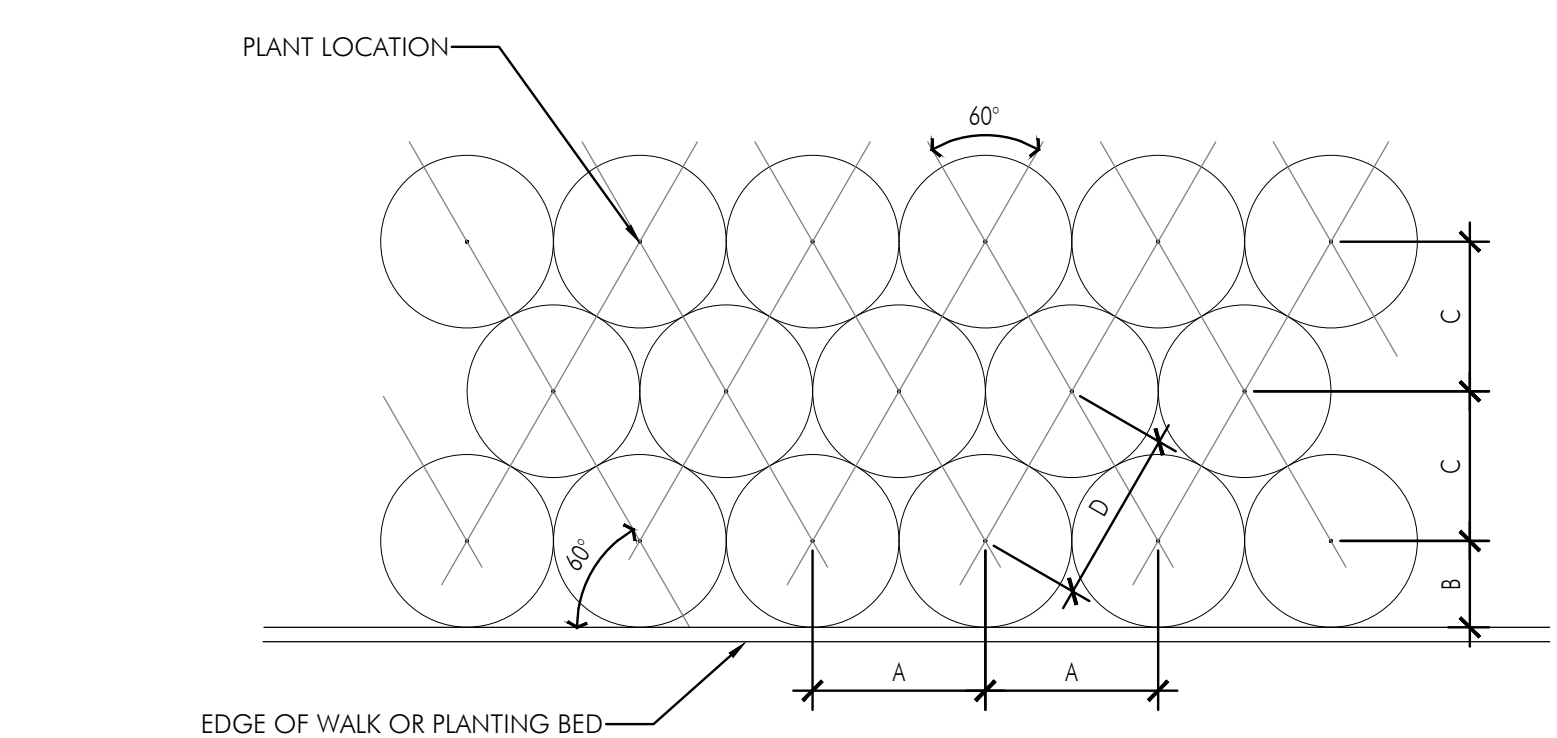
1 Tree Planting
N.T.S.

NOTE:
1. ALL MULCH, EXCEPT AT PROJECT ENTRY OR TREE RINGS TO BE 1" NATIVE GRAVEL OR APPROVED EQUAL.



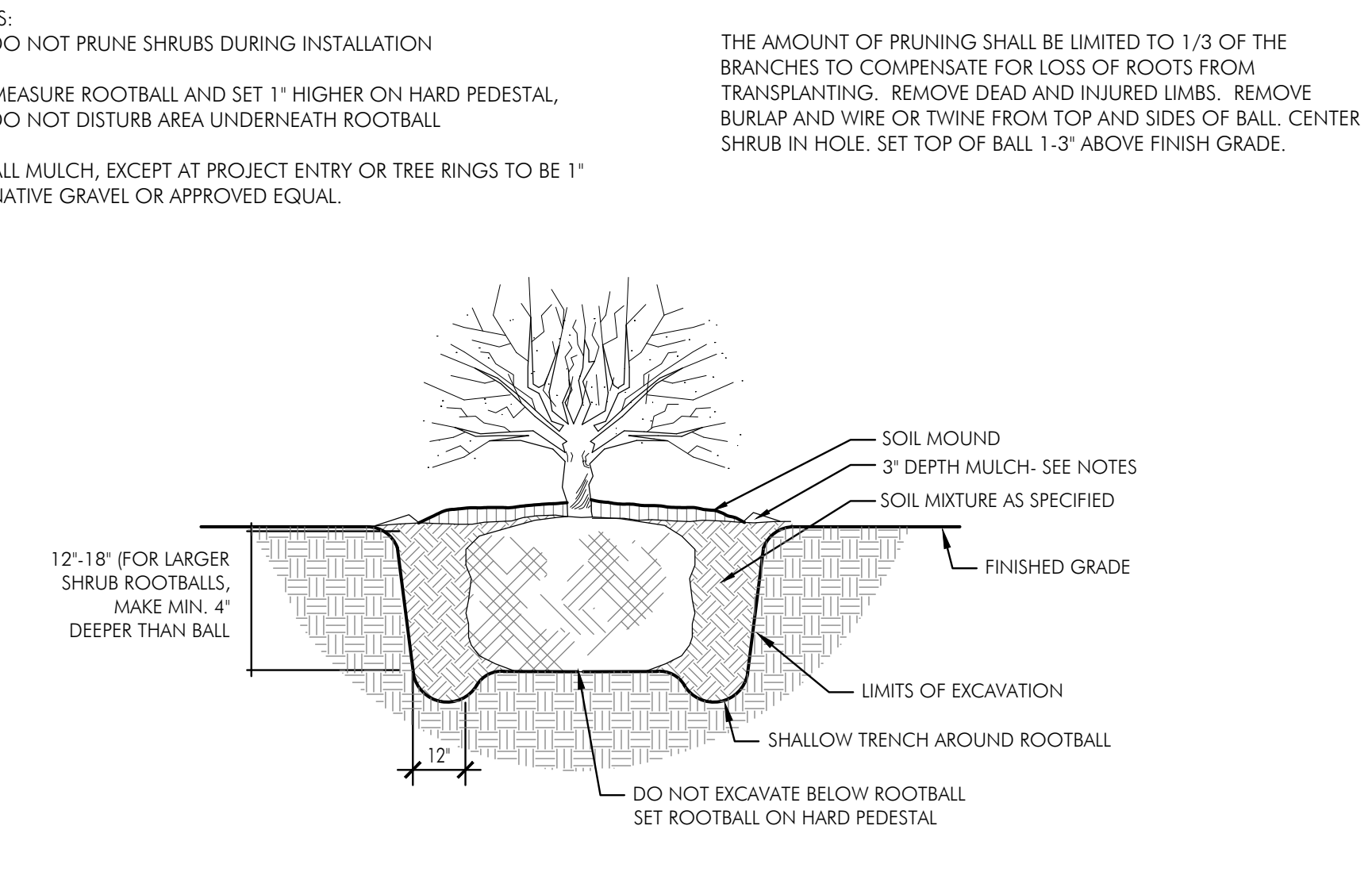
2 Evergreen Planting
1"=1'-0"

SPACING	A	B	C	D	A=
12"	12"	6"	10"	12"	SPACING
18"	18"	8"	15"	18"	SP/2
24"	24"	10"	20"	24"	SP/1.2
36"	36"	18"	31"	36"	SPACING
48"	48"	21"	41"	48"	



3 Shrub Planting
N.T.S.

NOTE:
1. ALL MULCH, EXCEPT AT PROJECT ENTRY OR TREE RINGS TO BE 1" NATIVE GRAVEL OR APPROVED EQUAL.



4 Grass Planting
1 1/2"=1'-0"

5 Perennial Spacing
N.T.S.

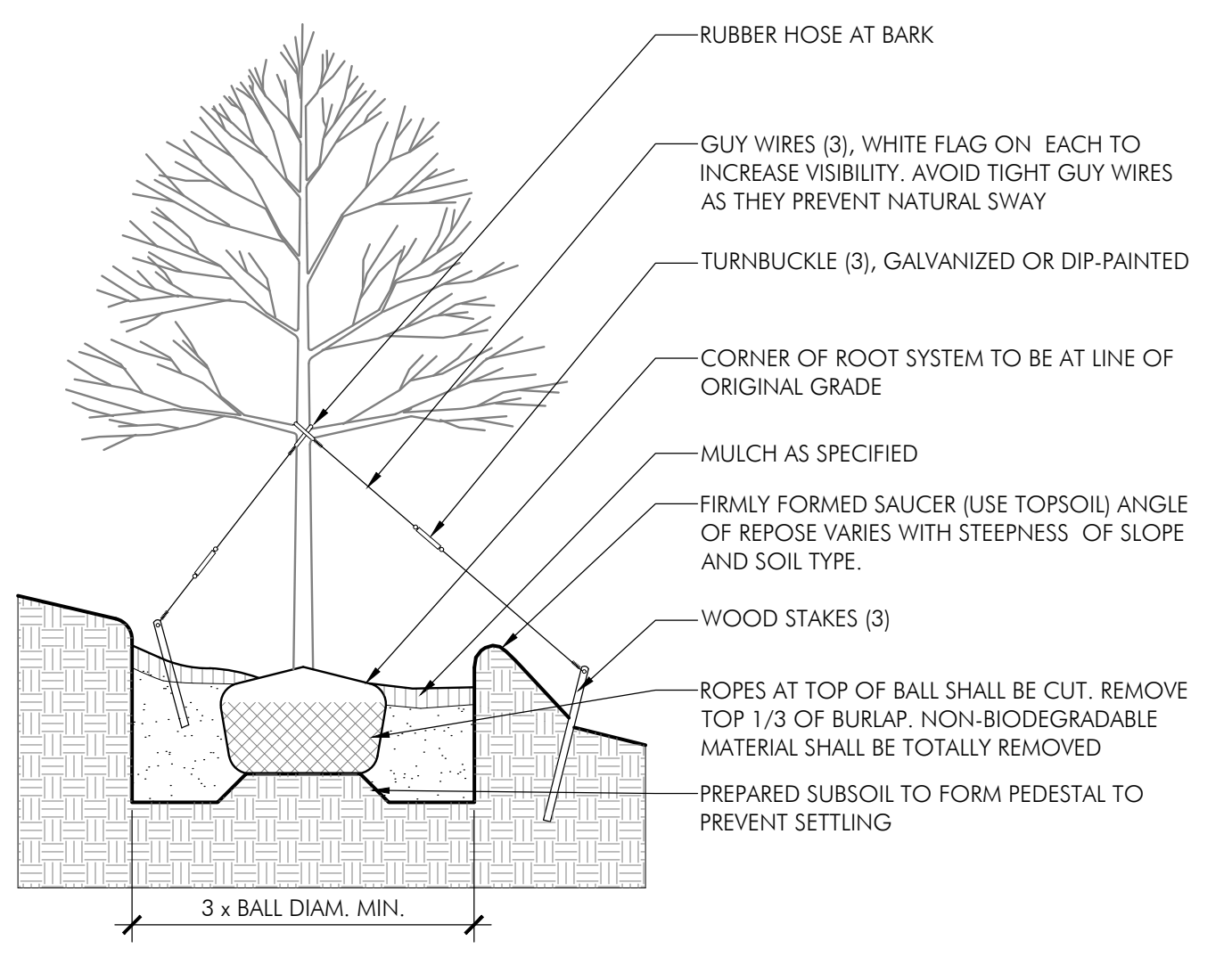
PLANT INSTALLATION NOTES

- CONTRACTOR SHALL VERIFY WITH THE OWNER AND UTILITY COMPANIES THE LOCATIONS OF THE EXISTING UTILITIES PRIOR TO STARTING WORK. CALL THE MICHIGAN UTILITIES PROTECTION SERVICE AT (800) 482-7171. CONTRACTOR TO REPAIR ALL DAMAGES TO EXISTING UTILITIES, CURBS, PAVEMENTS, ETC. RESULTING FROM LANDSCAPE INSTALLATIONS WHICH OCCUR DURING THE CONSTRUCTION OF THE PROJECT.
- PLANT MATERIAL SHALL BE FURNISHED IN THE QUANTITIES AND/OR SPACING AS SHOWN OR NOTED. IN CASE OF DISCREPANCIES BETWEEN THE PLAN AND THE PLANT LIST, THE PLAN SHALL DICTATE.
- CONTRACTOR SHALL VERIFY SIZES AND LOCATIONS OF ALL SITE ELEMENTS AND IMMEDIATELY INFORM THE OWNER AND DESIGN CONSULTANT OF ANY DISCREPANCY BETWEEN THE DRAWINGS AND/OR SPECIFICATIONS AND ACTUAL CONDITIONS. NO WORK SHALL BE DONE IN ANY AREA WHERE THERE IS A DISCREPANCY WITHOUT OWNER'S APPROVAL.
- CONTACT THE OWNER TO REQUEST ELECTRONIC FILES FOR LAYOUT AND STAKING.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FINISH GRADING IN THE PROJECT REQUIRED TO PROVIDE A PROPER SEED, SOD AND PLANTING BED.
- CONTRACTOR SHALL PROVIDE THE FOLLOWING SOIL AMENDMENTS:
SOIL AMENDMENT: TOP GRADE SITE MANAGEMENT CONTRACTORS COMPOST (OR EQUAL)
3407 58TH STREET
HAMILTON, MI 49419
269-751-8898
PERENNIAL BED AREAS: SPREAD 3" OF ORGANIC COMPOST OVER NEW LANDSCAPE AREAS AND INCORPORATE INTO THE TOP 8" OF THE SOIL BY MECHANICAL TILLER.
TREES AND SHRUBS: MIX 30% ORGANIC COMPOST TO 70% EXISTING SOIL FROM PLANT PIT EXCAVATION. IF EXCAVATED SOIL IS NOT SUITABLE,

- SUPPLEMENT WITH IMPORTED TOPSOIL.
- ALL PLANT MATERIAL TO MEET OR EXCEED AMERICAN STANDARD FOR NURSERY STOCK, 2014 EDITION, AS SET FORTH BY AMERICAN ASSOCIATION OF NURSERYMEN.
 - ALL PLANT MATERIALS SUBJECT TO INSPECTION PRIOR, DURING AND AFTER INSTALLATION. ANY PLANT NOT MEETING THE REQUIREMENTS WILL BE CAUSE FOR REJECTION BY THE OWNER. ALL REJECTED PLANTS SHALL BE IMMEDIATELY REMOVED AND DISPOSED OF BY THE CONTRACTOR AND THE REPLACEMENT MATERIAL SHALL BE PROVIDED.
 - ALL SUBSTITUTIONS AND PLANT CHANGES MUST BE APPROVED BY THE OWNER AND DESIGN CONSULTANT PRIOR TO ANY ACTION TAKEN. TREES SHALL BE PROTECTED AND HANDLED CAREFULLY AT ALL TIMES DURING TRANSPORT & HANDLING TO PREVENT DRYING OF TREE OR ROOT BALL BY WINDS AND TO PREVENT ANY DAMAGE OR BREAKAGE OF THE ROOT BALL. BARK SHALL BE PROTECTED FROM BRUISING OR ABRASION.
 - WATER TREES IMMEDIATELY AFTER PLANTING AND CONTINUE TO WATER UNTIL FINAL ACCEPTANCE BY THE OWNER. USE OF 'GATOR BAGS' (OR EQUAL) IN NON-IRRIGATED AREAS IS ACCEPTABLE AND SHOULD BE CHECKED/FILLED WEEKLY.
 - PLANT LOCATIONS AND BEDS SHALL BE LOCATED BY CONTRACTOR AND APPROVED BY OWNER AND DESIGN CONSULTANT BY PRIOR TO PLANT INSTALLATION.
 - BED LINE TO BE 18" FROM BASE OF PLANT MATERIAL UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
 - ALL SHRUB AND BED AREAS, EXCEPT AT PROJECT ENTRY TO BE MULCHED WITH 3" DEPTH MIN. NO. 34 WASHED RIVERROCK OVER WEED BARRIER FABRIC. DECIDUOUS TREES IN LAWN AREAS SHALL BE MULCHED WITH A 3' DIAMETER TREE RING USING 3" SHREDDED HARDWOOD BARK MULCH. DO NOT MOUND MULCH AROUND TREE ROOT COLLAR. SUBMIT SAMPLE TO OWNER FOR APPROVAL.
 - ALL AREAS OUTSIDE OF PLANTING BEDS SHALL BE SODDED AS SHOWN AND

- NOTED.
- ALL SEEDED AREAS TO BE INSTALLED WITH HYDROSEED MIXTURE PER SEED SUPPLIER AND MANUFACTURERS SPECIFICATIONS.
 - ALL SLOPES IN EXCESS OF 3:1 (H:V) TO BE HYDROSEEDDED AND MATTED WITH NAG S75 MINIMUM WITH ROLLS ORIENTED DOWN SLOPE AND STAKED TO MANUFACTURERS RECOMMENDATIONS.
 - FINISHED TURF (SOD) TO BE FLUSH WITH TOP OF ADJACENT CURB OR WALK. COORDINATE WITH OWNER IN FIELD AS REQUIRED.
 - THE CONTRACTOR SHALL GUARANTEE ALL TREES, SHRUBS AND GROUND COVERS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE. REPLACE MATERIAL WITHIN SEVEN (7) DAYS OF NOTIFICATION OF THE OWNER.
 - PERFORM CLEANING DURING INSTALLATION OF LANDSCAPE WORK AND UPON COMPLETION. REMOVE FROM SITE ALL EXCESS LANDSCAPE RELATED MATERIAL, SOIL DEBRIS AND EQUIPMENT. REPAIR DAMAGE RESULTING FROM LANDSCAPING OPERATIONS. SWEEP AND HOSE DOWN PAVED SURFACES AFFECTED BY LANDSCAPING OPERATIONS. ALL HARD SURFACES INCLUDING BUILDINGS, PAVEMENTS, SIGNS, A/C UNITS AND FENCES SHALL HAVE HYDROSEED OVERSPRAY REMOVED BY LANDSCAPE CONTRACTOR AS PART OF THEIR CLEANUP. COORDINATE WITH OWNER AND OTHER CONTRACTORS FOR FINAL CLEANUP PRIOR TO CLEANING.
 - MAINTENANCE: THE LANDSCAPE CONTRACTOR SHALL MAINTAIN THE COMPLETED LANDSCAPE AND IRRIGATION SYSTEMS UNTIL THE DATE OF FINAL ACCEPTANCE.
 - MOWING - MINIMUM ONCE PER WEEK.
 - TRIMMING - SHRUBS, TREES, AND GROUND COVERS MINIMUM TWO TIMES PER YEAR OR AS REQUIRED.
 - FERTILIZING - APPLY FERTILIZER AT A RATE EQUAL TO 1 LB. OF ACTUAL NITROGEN/1000 S.F. IN THE SPRING AND FALL TO ALL TURF AND PLANTINGS.
 - BED EDGING - EDGE ALL BEDS BY HAND, SPADE AT LEAST TWO TIMES PER YEAR AND TOP-MULCH AS NEEDED WITH NO. 34 RIVER STONE IN FALL AND SPRING.

7 Tree Planting on a Slope
N.T.S.



REDWOOD HARTLAND HIGHLAND ROAD PHASE 1

BUILDING: F

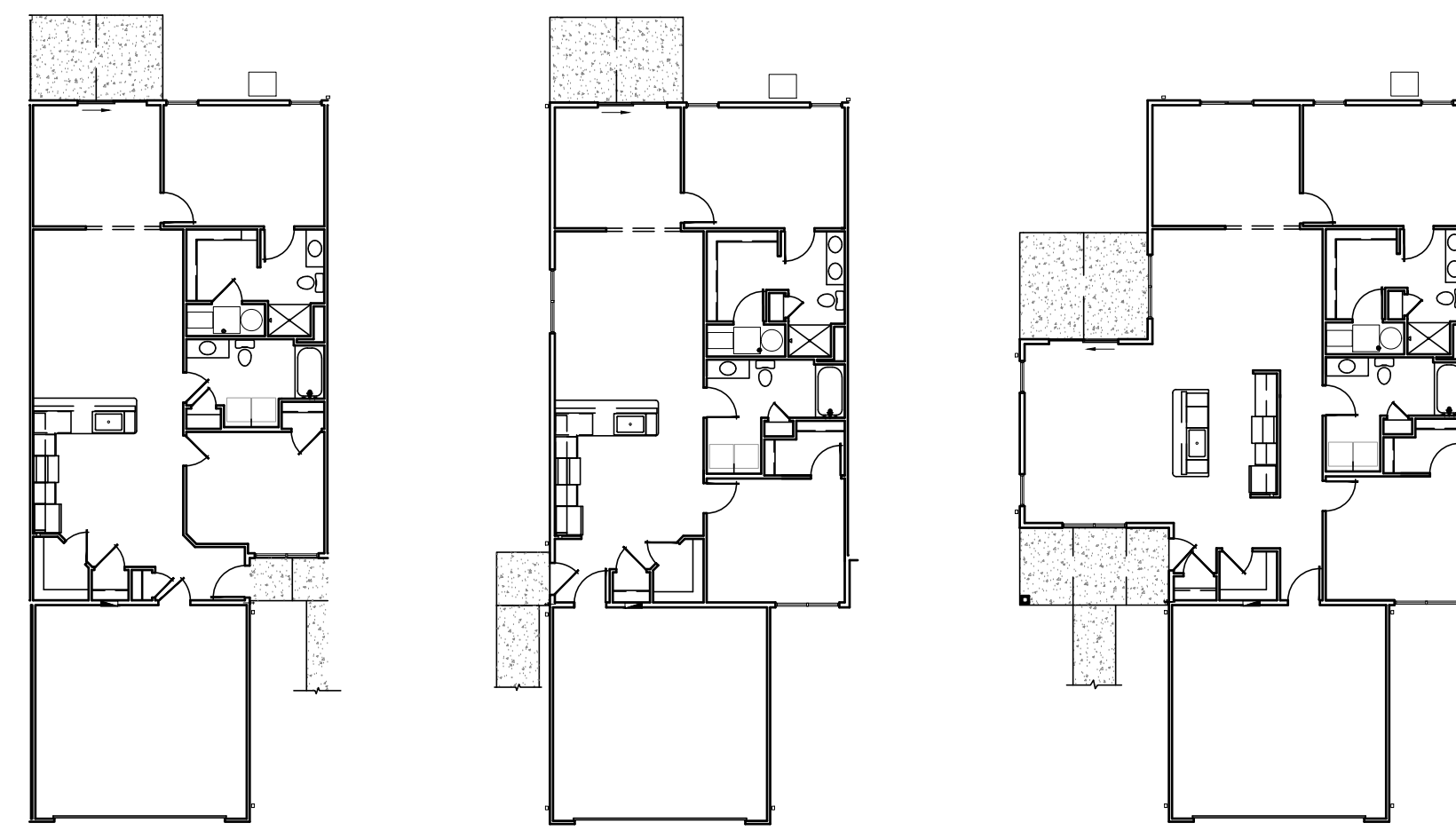
12400 HIGHLAND ROAD
 HARTLAND (TWP.), MICHIGAN 4835
 PROJECT NO.: 22921
 P.P.N.: 4708-26-100-019

JOB CODE: mi076

FEBRUARY 24, 2023



NOTE: RENDERING DOES NOT DEPICT ACTUAL EXTERIOR FINISH MATERIALS, OR SPECIFIC PROJECT BUILDING



FORESTWOOD
SCALE: 1/16" = 1'-0"

MEADOWOOD
SCALE: 1/16" = 1'-0"

CAPEWOOD
SCALE: 1/16" = 1'-0"

MATERIAL NOTE:

- ALL MATERIALS MUST BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.

BIDDING PRECAUTIONS

- PRIOR TO SUBMITTING PROPOSALS, BIDDERS SHALL EXAMINE DRAWINGS AND SPECIFICATIONS AND CONDUCT A PERSONAL EXAMINATION OF THE SITE AND BECOME AWARE OF ALL EXISTING CONDITIONS AND LIMITATIONS AFFECTING THE WORK AND THEIR PROPOSAL.

PLANS EXAMINER NOTE

- THE FOLLOWING PLANS ARE TO BE REVIEWED UNDER THE MICHIGAN RESIDENTIAL CODE PER SECTION 101.2 (EXCEPTION) OF THE 2015 MICHIGAN BUILDING CODE.

GENERAL NOTES

- TO BE CONSTRUCTED UNDER LOCAL BUILDING INSPECTION DEPT. MATERIALS AND CONSTRUCTION FOR SEWERAGE AND HIGHWAY IMPROVEMENTS TO MEET LOCAL CODES. BUILDING MATERIALS AND CONSTRUCTION TO MEET LOCAL CODES AND THE INTERNATIONAL BUILDING CODE. ALL PROPER PERMITS MUST BE OBTAINED FOR ALL CONSTRUCTION WORK (WHICH HAS BEEN APPROVED BY PROPER DEPARTMENTS) PRIOR TO ANY CONSTRUCTION. ALL CONTRACTORS, INCLUDING GENERAL HVAC, ELECTRICAL AND PLUMBING MUST BE LICENSED TO DO WORK WITHIN THE GOVERNING MUNICIPALITY.
- CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, GRADES, ETC. PRIOR TO ANY CONSTRUCTION AND SHALL REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ARCHITECT FOR CLARIFICATION OR RESOLUTION.
- ALL DIMENSIONS ARE CLEAR DISTANCE FROM FACE OF STUD TO FACE OF STUD AND/OR MASONRY WALL(S), UNLESS NOTED OTHERWISE.
- PROVIDE BEHIND WALL REINFORCING AND BLOCKING AS REQUIRED FOR ATTACHMENT OF MILLWORK, CASEWORK, TOILET ACCESS, ETC.
- THESE DESIGNS AND ALL ITEMS DEPICTED HEREIN, WHETHER IN WRITING OR GRAPHICALLY, AS INSTRUMENTS OF PROFESSIONAL SERVICE, MAY NOT BE ALTERED OR CHANGED, IN ANY WAY, WITHOUT THE PRIOR KNOWLEDGE AND WRITTEN CONSENT OF THE ARCHITECT. ANY CHANGE MADE WITHOUT THE ARCHITECT'S WRITTEN APPROVAL WILL VOID ALL SUCH DOCUMENTS AND INSTRUMENTS AND THE ARCHITECT WILL NOT BE PERSONALLY LIABLE FOR ANY DAMAGE, HARM OR LOSS CAUSED THEREBY.
- THE VARIOUS DRAWINGS COMPRISING THIS SET OF DRAWINGS ARE INTERDEPENDENT AND MUST BE USED JOINTLY TO EXECUTE THE WORK.
- ALL STUD WALLS NOT BUILT TO DECK ABOVE SHALL BE BRACED AS REQUIRED FOR LATERAL SUPPORT.



DRAWING INDEX

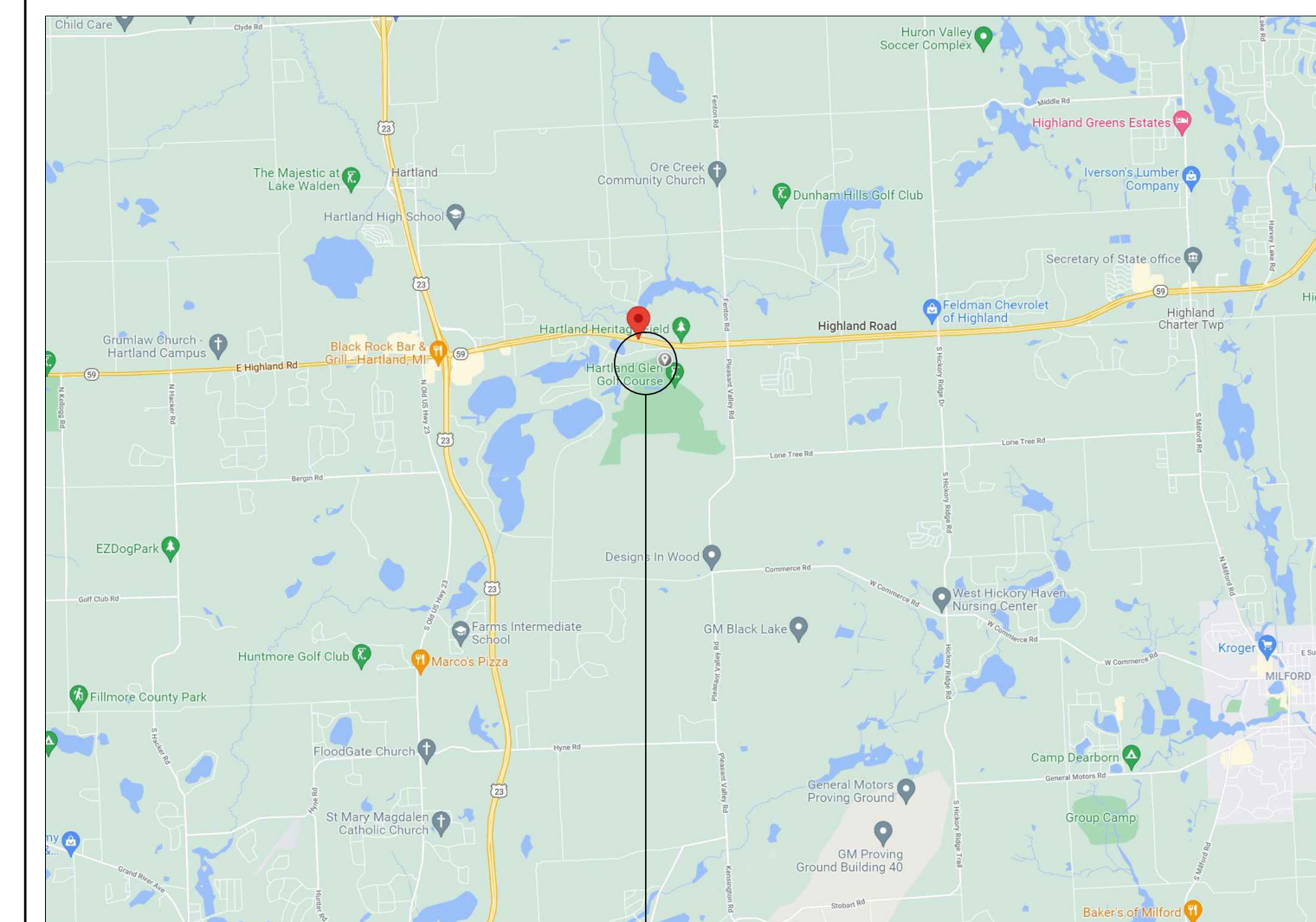
SEE SHEET T1.1 FOR DRAWING INDEX

BUILDING INFORMATION AND ADDRESSES

SEE SHEET T1.1 FOR BUILDING INFORMATION AND ADDRESSES

UNIQUE FEATURES OF PROJECT

- REDWOOD 2021 STANDARD ELEVATION MATERIALS OTHER THAN SIDING AND CORNER TRIM.
- 7" CLAPBOARD 'CELECT' CELLULAR COMPOSITE HORIZONTAL SIDING.
- CELLULAR PVC CORNER TRIM.
- 2HR SEPARATION WALLS BETWEEN EACH UNIT.
- 6" FOUNDATION EXPOSURE, GRADE TO BE 6" BELOW SILL PLATE.



VICINITY MAP
SCALE: N.T.S.



7007 EAST PLEASANT VALLEY ROAD
 INDEPENDENCE, OHIO 44131
 prakoci@byRedwood.com
 CONTACT: PAT RAKOCI

P.: 330.590.0194

ARCHITECT

MANN PARSONS GRAY ARCHITECTS
 3660 EMBASSY PARKWAY
 FAIRLAWN, OHIO 44333
 james@mpg-architects.com
 CONTACT: JAMES KEYS



P. 330.666.5770

REDWOOD CONSTRUCTION
 7007 EAST PLEASANT VALLEY ROAD
 INDEPENDENCE, OHIO 44131
 sschlabach@byRedwood.com
 CONTACT: STEVE SCHLABACH



P.: 614.745.7591

BERGMANN ASSOCIATES
 17050 WEST SAGINAW HIGHWAY - SUITE 200
 LANSING, MICHIGAN 48917
 igrham@bergmannpc.com
 CONTACT: IAN GRAHAM



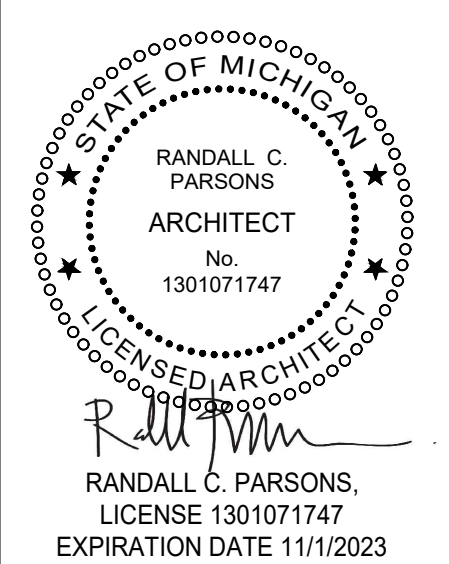
P.: 517.827.8681

CODE DATA

APPLICABLE CODES:	(ALL RESIDENTIAL UNITS) M.R.C. (MICHIGAN RESIDENTIAL CODE) 2015
	(LEASING OFFICE) M.B.C. (MICHIGAN BUILDING CODE) 2015
	NATIONAL ELECTRIC CODE (NEC) 2020
	MICHIGAN MECHANICAL CODE (MMC) 2015
	MICHIGAN PLUMBING CODE (MPC) 2015

NOTE!

ALL MATERIALS AND/OR PRODUCTS SELECTED FOR THIS PROJECT MUST BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS, DETAILS, AND REFERENCES. THESE REQUIREMENTS TAKE PRECEDENCE OVER THE DRAWINGS AND THE MATERIALS NOTED.



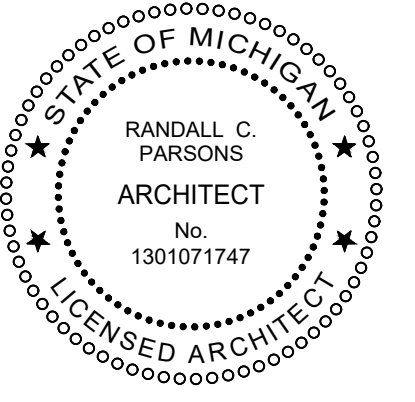
phone 330.666.5770
 fax 330.666.8812
 3660 Embassy Parkway
 Fairlawn, OH 44333
 mpg-architects.com



TITLE SHEET
 PROJECT #: 22921
 DATE: FEBRUARY 24, 2023
 REDWOOD HARTLAND HIGHLAND ROAD PH 1
 12400 HIGHLAND ROAD
 HARTLAND (TWP.), MICHIGAN 4835



T1.0
1 OF 2

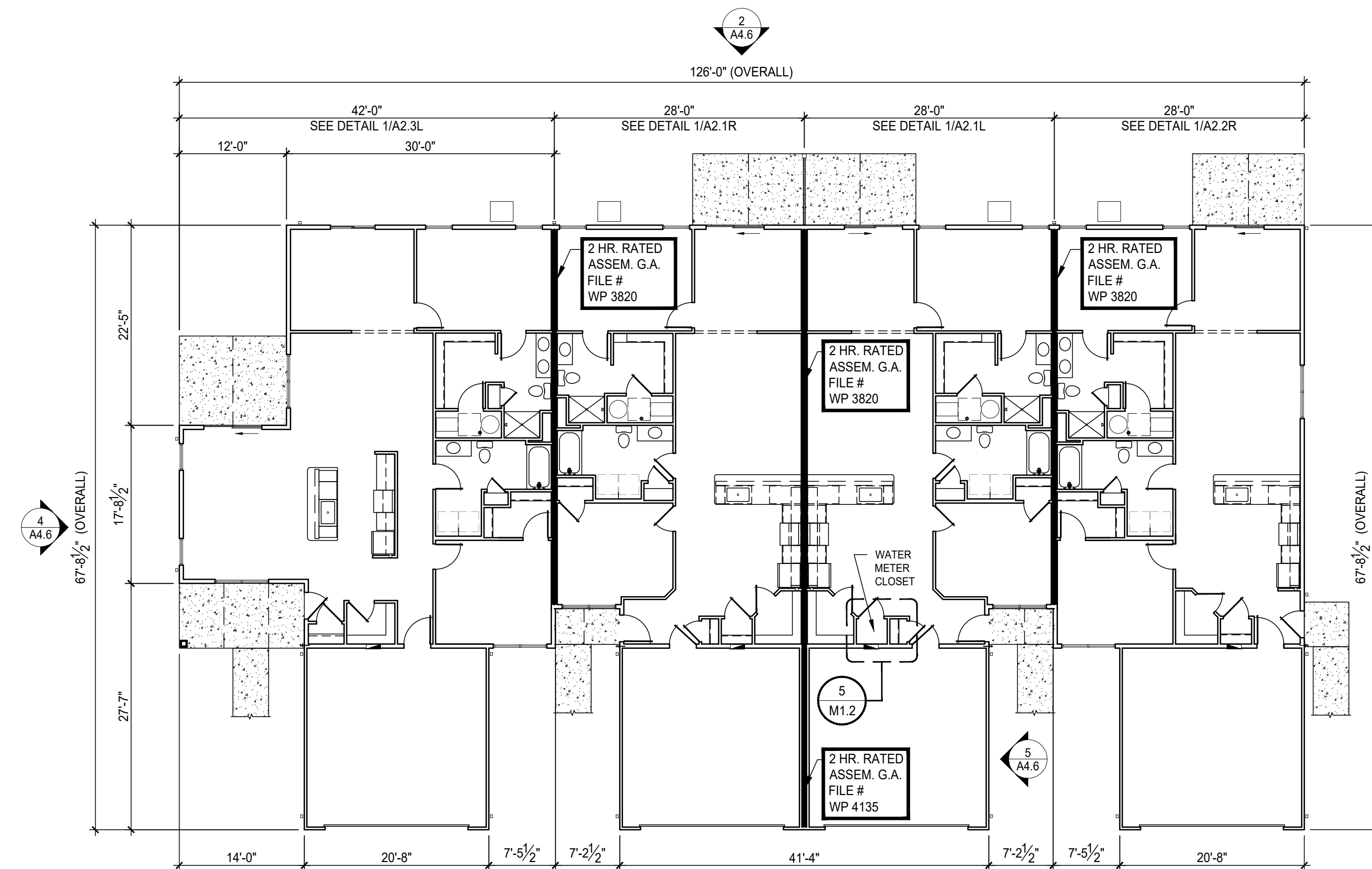


REVISIONS

phone 330.666.5770
 fax 330.666.8812
 3660 Embassy Parkway
 Fairlawn, OH 44333

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Extended Garage Footprint is the same with the exception of the garage being 4' longer to accommodate large vehicles



OVERALL FLOOR PLAN
 SCALE : 3/32" = 1'-0"
 BUILDING: F

GENERAL NOTES:

- REFER TO ENLARGED FLOOR PLANS FOR INTERIOR ROOM DIMENSIONS AND OTHER SPECIFIC INFORMATION.
- SEE SHEET SERIES A6.X FOR DOOR AND WINDOW SCHEDULES.
- CONTRACTOR SHALL PROVIDE ALL WALL BOXES, ETC. AS REQUIRED FOR ROUGH-IN CONDITIONS. TELEPHONE AND T.V. PREWIRE TO BE COMPLETED BEFORE INSTALLATION OF GYPSUM WALLBOARD.
- ALL GRAB BAR BLOCKING FOR FUTURE GRAB BARS AT HANDICAP BATHS MUST BE ABLE TO RESIST A FULL FORCE OF 250 LBS. EXERTED AT ANY POINT IN ANY DIRECTION ON FUTURE GRAB BARS. BLOCKING AT TUBS AND SHOWERS IS TO BE FACTORY INSTALLED.
- ALL DIMENSIONS ARE TO FACE OF STUD UNLESS OTHERWISE NOTED.
- FOR INTERIOR FINISHES FOR WALLS AND CEILINGS REFER TO FLAME AND SMOKE INDEX RATING ON SHEET SERIES A6.X.
- PRIMARY ENTRY DOORS SHALL HAVE "0" CLEARANCE THRESHOLDS TO MEET ALL ANSI REQUIREMENTS
- ALL EXPOSED EXTERIOR WOOD SHALL BE PRESSURE TREATED. SEE FRAMING PLANS & WALL SECTIONS FOR MORE INFORMATION.

NOTES:

- ALL SINGLE STORY UNITS MUST MEET FAIR HOUSING ACT ACCESSIBILITY GUIDELINES FOR ADAPTABILITY.
- ALL UNITS ARE TYPE 'B' DWELLING UNITS AS PER ANSI A117.1-2009, SECTION 1004.

NOTES:

REFER TO ENLARGED FLOOR PLAN SHEETS TO SEE CORRESPONDING PLANS FOR LABELED UNITS.

OVERALL FLOOR PLAN - BLDG.: F

PROJECT #: 22921 DATE: FEBRUARY 24, 2023

REDWOOD HARTLAND HIGHLAND MI P1

12400 HIGHLAND ROAD
 HARTLAND (TWP.), MICHIGAN 48353



A2.33
 11 OF 25

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EXTERIOR ELEVATIONS - BLDG.: F

DATE: FEBRUARY 24, 2023

PROJECT #: 22921

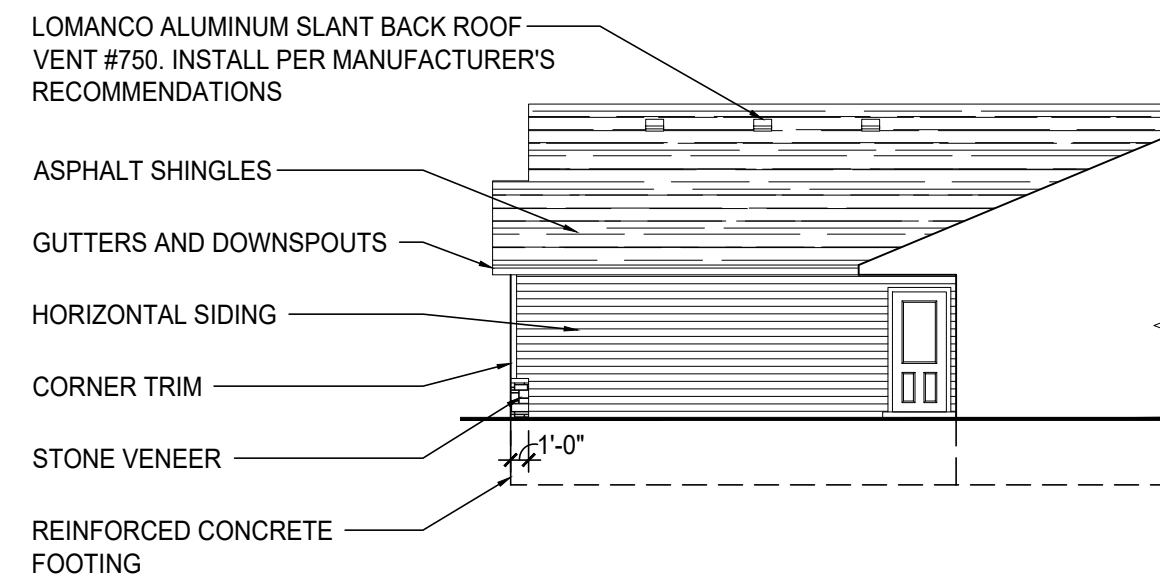
REDWOOD HARTLAND HIGHLAND MI P1



12400 HIGHLAND ROAD
 HARTLAND (TWP.), MICHIGAN 48353

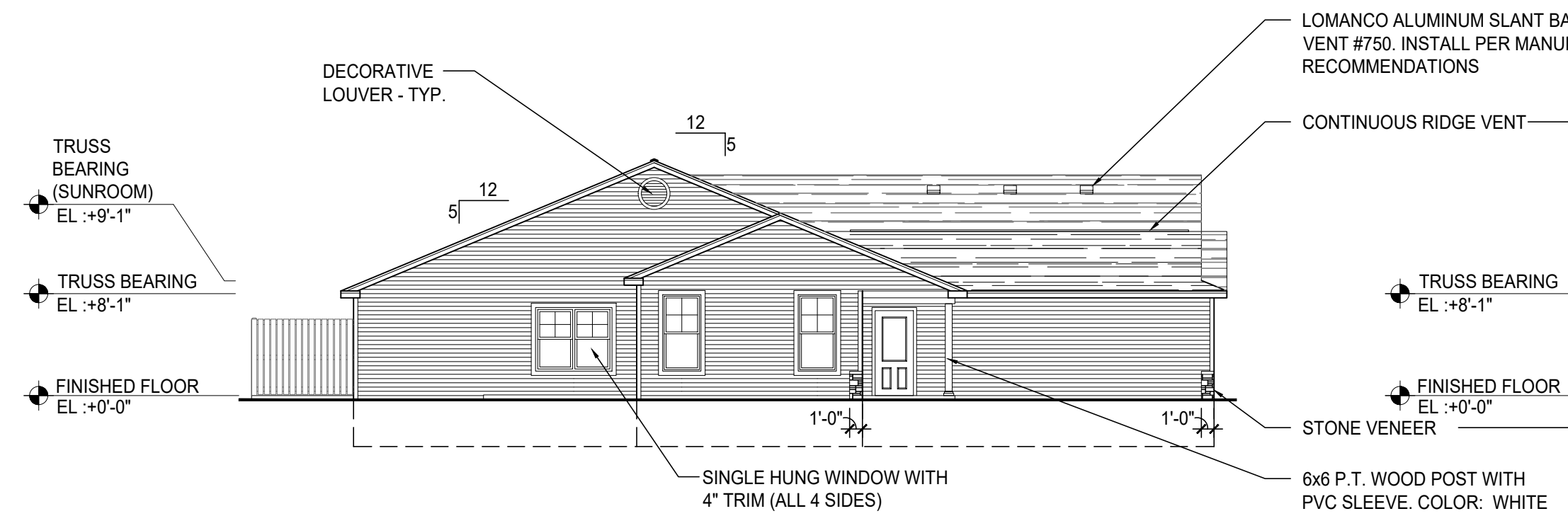
A4.6
 16 OF 25

NOTE:
 DO NOT INSTALL ANY
 VENTS OR PROVIDE ANY
 ROOF PENETRATIONS
 WITHIN FIRE RATED
 SHEATHING AREA 4'-0"
 EACH SIDE OF FIRE RATED
 WALL ASSEMBLIES.

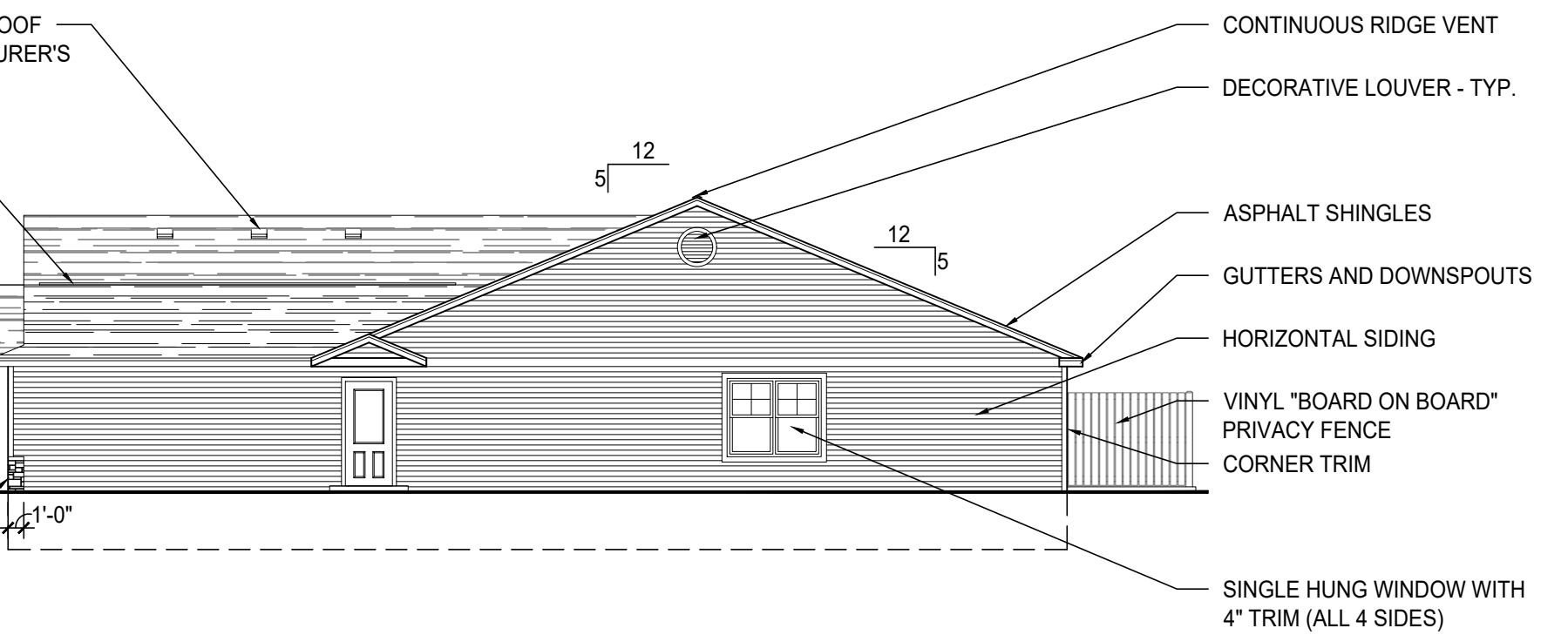


5 PARTIAL SIDE ELEVATION
 SCALE: 3/32" = 1'-0"
 BLDG: F

NOTE:
 DO NOT INSTALL ANY
 VENTS OR PROVIDE ANY
 ROOF PENETRATIONS
 WITHIN FIRE RATED
 SHEATHING AREA 4'-0"
 EACH SIDE OF FIRE RATED
 WALL ASSEMBLIES.

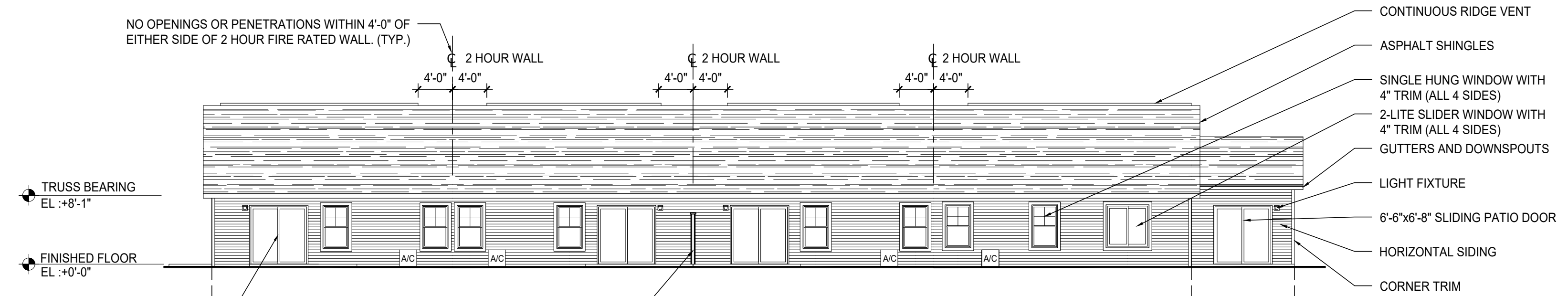


4 STANDARD SIDE ELEVATION
 SCALE: 3/32" = 1'-0"
 BLDG: F



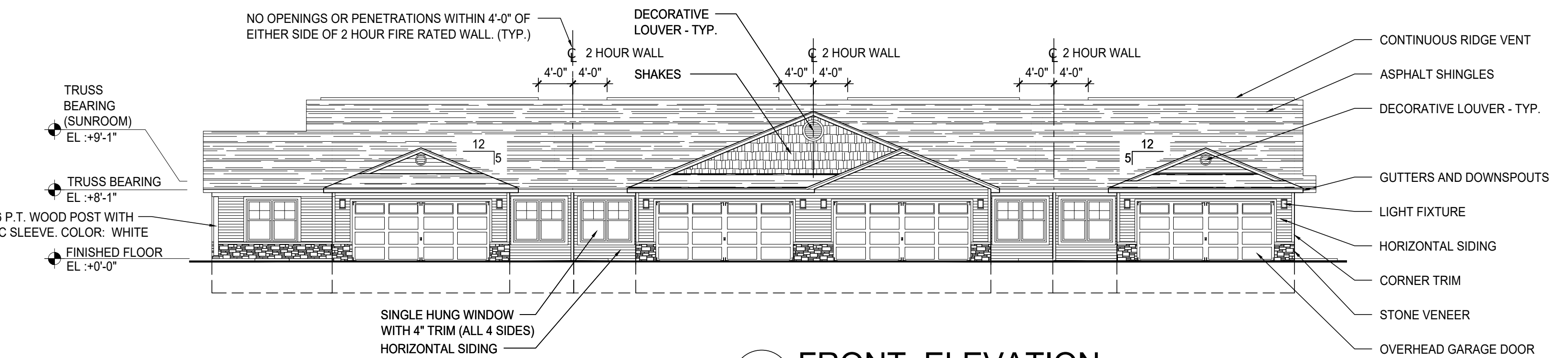
3 STANDARD SIDE ELEVATION
 SCALE: 3/32" = 1'-0"
 BLDG: F

NO OPENINGS OR PENETRATIONS WITHIN 4'-0" OF EITHER SIDE OF 2 HOUR FIRE RATED WALL. (TYP.)



2 REAR ELEVATION
 SCALE: 3/32" = 1'-0"
 BLDG: F

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.



1 FRONT ELEVATION
 SCALE: 3/32" = 1'-0"
 BLDG: F

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	7" CLAPBOARD CELECT CELLULAR COMPOSITE	VARIES
SHAKES	VINYL	VARIES
CORNER TRIM	CELLULAR PVC TRIM	WHITE
STONE VENEER	PRESTIGE PROVIA	OHIO SOUTHERN LIMESTONE
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.

REDWOOD HARTLAND HIGHLAND ROAD PHASE 1

BUILDING: L

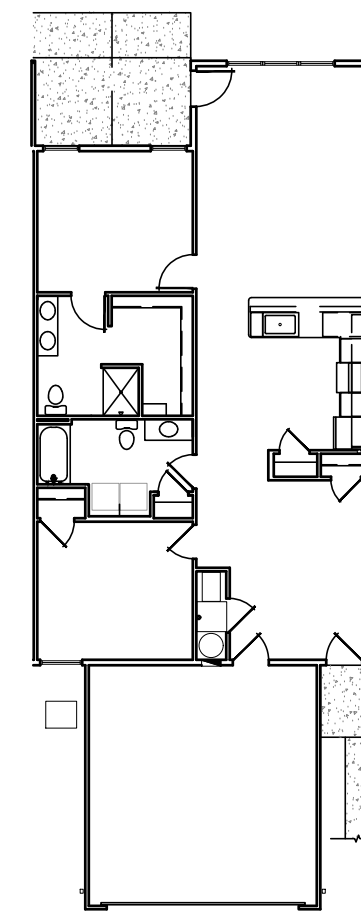
12400 HIGHLAND ROAD
HARTLAND (TWP.), MICHIGAN 4835
PROJECT NO.: 22921
P.P.N.: 4708-26-100-019

JOB CODE: mi076

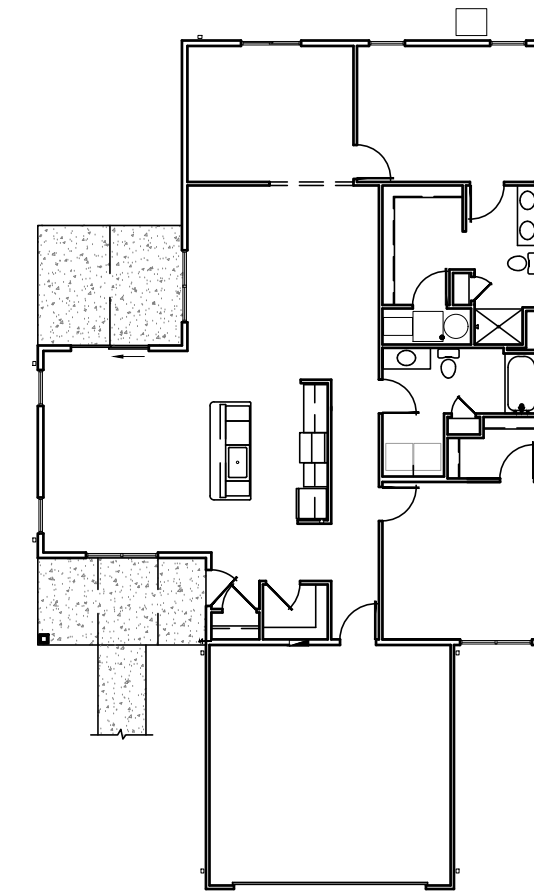
MARCH 3, 2023



NOTE: RENDERING DOES NOT DEPICT ACTUAL EXTERIOR FINISH MATERIALS, OR SPECIFIC PROJECT BUILDING



BREEZEWOOD
SCALE: 1/16" = 1'-0"



BREEZEWOOD SUNROOM
SCALE: 1/16" = 1'-0"

MATERIAL NOTE:

- ALL MATERIALS MUST BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.

BIDDING PRECAUTIONS

- PRIOR TO SUBMITTING PROPOSALS, BIDDERS SHALL EXAMINE DRAWINGS AND SPECIFICATIONS AND CONDUCT A PERSONAL EXAMINATION OF THE SITE AND BECOME AWARE OF ALL EXISTING CONDITIONS AND LIMITATIONS AFFECTING THE WORK AND THEIR PROPOSAL.

PLANS EXAMINER NOTE

- THE FOLLOWING PLANS ARE TO BE REVIEWED UNDER THE MICHIGAN RESIDENTIAL CODE PER SECTION 101.2 (EXCEPTION) OF THE 2015 MICHIGAN BUILDING CODE.

GENERAL NOTES

- TO BE CONSTRUCTED UNDER LOCAL BUILDING INSPECTION DEPT. MATERIALS AND CONSTRUCTION FOR SEWERAGE AND HIGHWAY IMPROVEMENTS TO MEET LOCAL CODES. BUILDING MATERIALS AND CONSTRUCTION TO MEET LOCAL CODES AND THE INTERNATIONAL BUILDING CODE. ALL PROPER PERMITS MUST BE OBTAINED FOR ALL CONSTRUCTION WORK (WHICH HAS BEEN APPROVED BY PROPER DEPARTMENTS) PRIOR TO ANY CONSTRUCTION. ALL CONTRACTORS, INCLUDING GENERAL HVAC, ELECTRICAL AND PLUMBING MUST BE LICENSED TO DO WORK WITHIN THE GOVERNING MUNICIPALITY.
- CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, GRADES, ETC. PRIOR TO ANY CONSTRUCTION AND SHALL REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ARCHITECT FOR CLARIFICATION OR RESOLUTION.
- ALL DIMENSIONS ARE CLEAR DISTANCE FROM FACE OF STUD TO FACE OF STUD AND/OR MASONRY WALL(S), UNLESS NOTED OTHERWISE.
- PROVIDE BEHIND WALL REINFORCING AND BLOCKING AS REQUIRED FOR ATTACHMENT OF MILLWORK, CASEWORK, TOILET ACCESS, ETC.
- THESE DESIGNS AND ALL ITEMS DEPICTED HEREIN, WHETHER IN WRITING OR GRAPHICALLY, AS INSTRUMENTS OF PROFESSIONAL SERVICE, MAY NOT BE ALTERED OR CHANGED, IN ANY WAY, WITHOUT THE PRIOR KNOWLEDGE AND WRITTEN CONSENT OF THE ARCHITECT. ANY CHANGE MADE WITHOUT THE ARCHITECT'S WRITTEN APPROVAL WILL VOID ALL SUCH DOCUMENTS AND INSTRUMENTS AND THE ARCHITECT WILL NOT BE PERSONALLY LIABLE FOR ANY DAMAGE, HARM OR LOSS CAUSED THEREBY.
- THE VARIOUS DRAWINGS COMPRISING THIS SET OF DRAWINGS ARE INTERDEPENDENT AND MUST BE USED JOINTLY TO EXECUTE THE WORK.
- ALL STUD WALLS NOT BUILT TO DECK ABOVE SHALL BE BRACED AS REQUIRED FOR LATERAL SUPPORT.



DRAWING INDEX

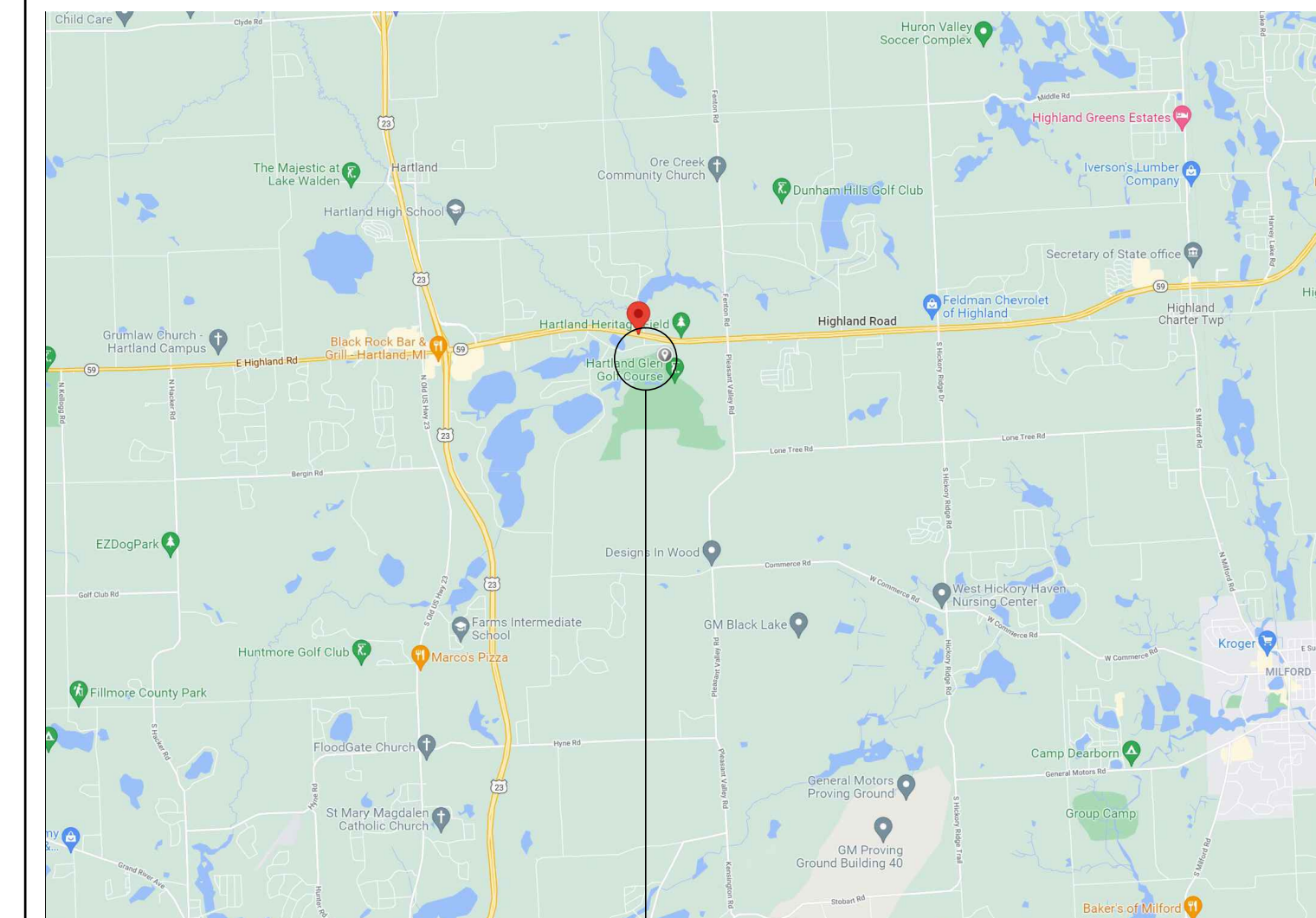
SEE SHEET T1.1 FOR DRAWING INDEX

BUILDING INFORMATION AND ADDRESSES

SEE SHEET T1.1 FOR BUILDING INFORMATION AND ADDRESSES

UNIQUE FEATURES OF PROJECT

- REDWOOD 2021 STANDARD ELEVATION MATERIALS OTHER THAN SIDING AND CORNER TRIM.
- 7" CLAPBOARD 'CELECT' CELLULAR COMPOSITE HORIZONTAL SIDING.
- CELLULAR PVC CORNER TRIM.
- 2HR SEPARATION WALLS BETWEEN EACH UNIT.
- 6" FOUNDATION EXPOSURE, GRADE TO BE 6" BELOW SILL PLATE.



VICINITY MAP
SCALE: N.T.S.



7007 EAST PLEASANT VALLEY ROAD
INDEPENDENCE, OHIO 44131
prakoci@byRedwood.com
CONTACT: PAT RAKOCI

P.: 330.590.0194

ARCHITECT

MANN PARSONS GRAY ARCHITECTS
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CONTACT: JAMES KEYS



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CONTACT: IAN GRAHAM

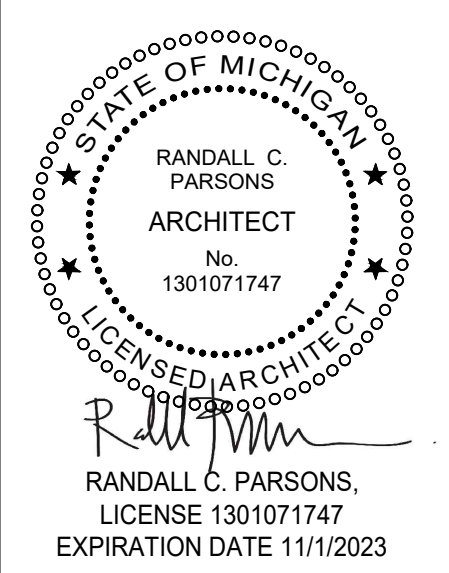
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CODE DATA

APPLICABLE CODES:	(ALL RESIDENTIAL UNITS) M.R.C. (MICHIGAN RESIDENTIAL CODE) 2015
	(LEASING OFFICE) M.B.C. (MICHIGAN BUILDING CODE) 2015
	NATIONAL ELECTRIC CODE (NEC) 2020
	MICHIGAN MECHANICAL CODE (MMC) 2015
	MICHIGAN PLUMBING CODE (MPC) 2015

NOTE!

ALL MATERIALS AND/OR PRODUCTS SELECTED FOR THIS PROJECT MUST BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS, DETAILS, AND REFERENCES. THESE REQUIREMENTS TAKE PRECEDENCE OVER THE DRAWINGS AND THE MATERIALS NOTED.



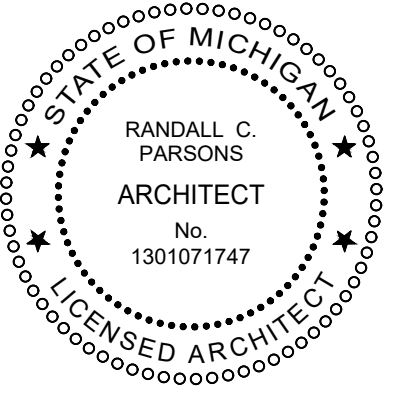
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3660 Embassy Parkway
Fairlawn, OH 44333
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TITLE SHEET
PROJECT #: 22921
DATE: MARCH 3, 2023
REDWOOD HARTLAND HIGHLAND ROAD PH 1
12400 HIGHLAND ROAD
HARTLAND (TWP.), MICHIGAN 4835



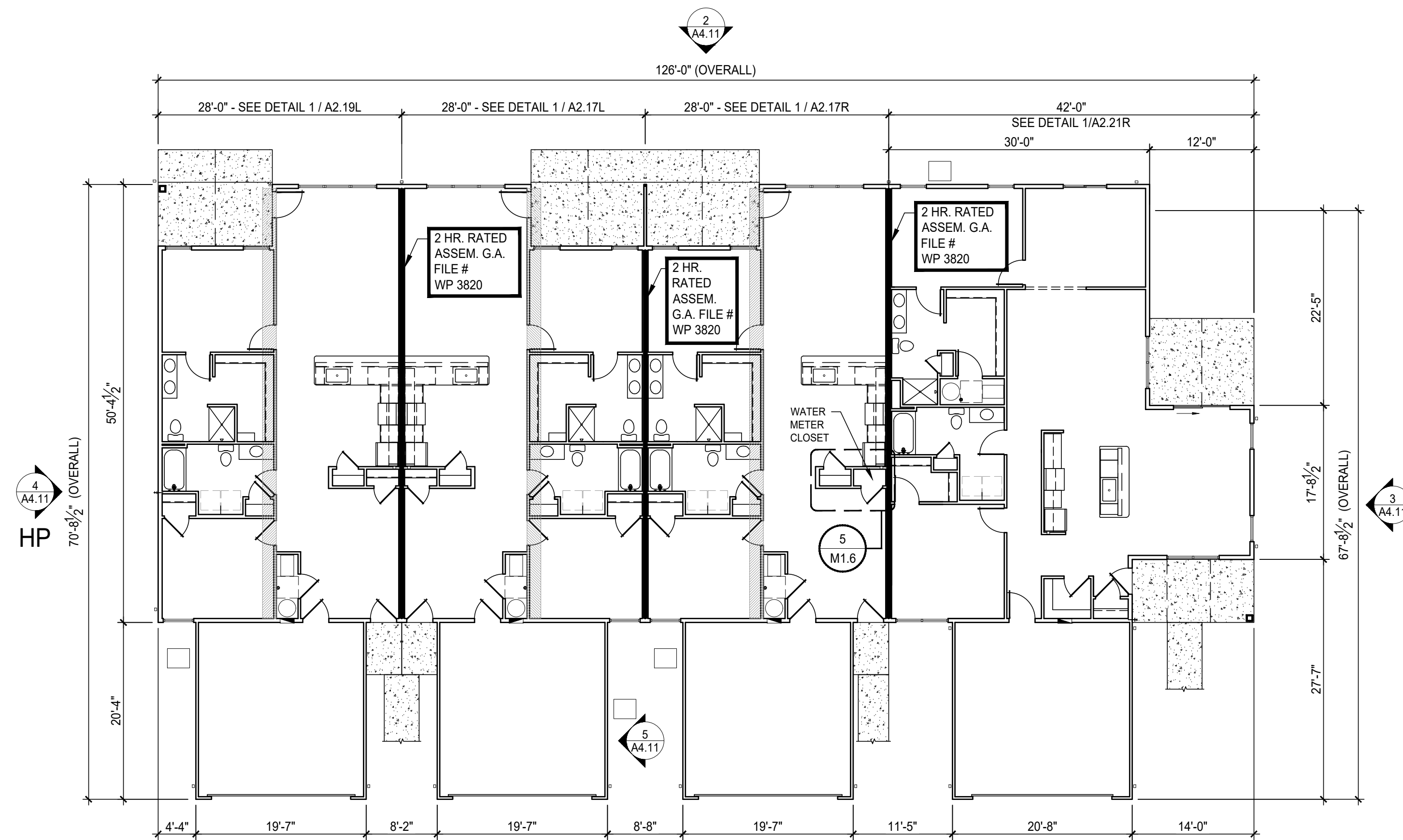
T1.0
1 OF 2



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OVERALL FLOOR PLAN
 SCALE : 3/32" = 1'-0" BUILDING: L

GENERAL NOTES:

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NOTES:

REFER TO ENLARGED FLOOR PLAN SHEETS TO SEE CORRESPONDING PLANS FOR LABELED UNITS.

NOTE:

STAGGER ADJACENT A/C UNITS TO PROVIDE FOR SUFFICIENT ACCESS AROUND EACH.

HP

HP - HIGH PROFILE SIDE ELEVATION. SEE EXTERIOR ELEVATION SHEETS FOR MORE INFORMATION.

OVERALL FLOOR PLAN - BLDG.: L

DATE: MARCH 3, 2023

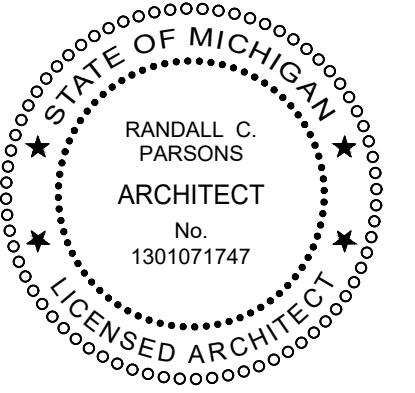
PROJECT #: 22921

REDWOOD HARTLAND HIGHLAND MI P1

12400 HIGHLAND ROAD
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A2.36
 11 OF 23



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EXTERIOR ELEVATIONS - BLDG.: L

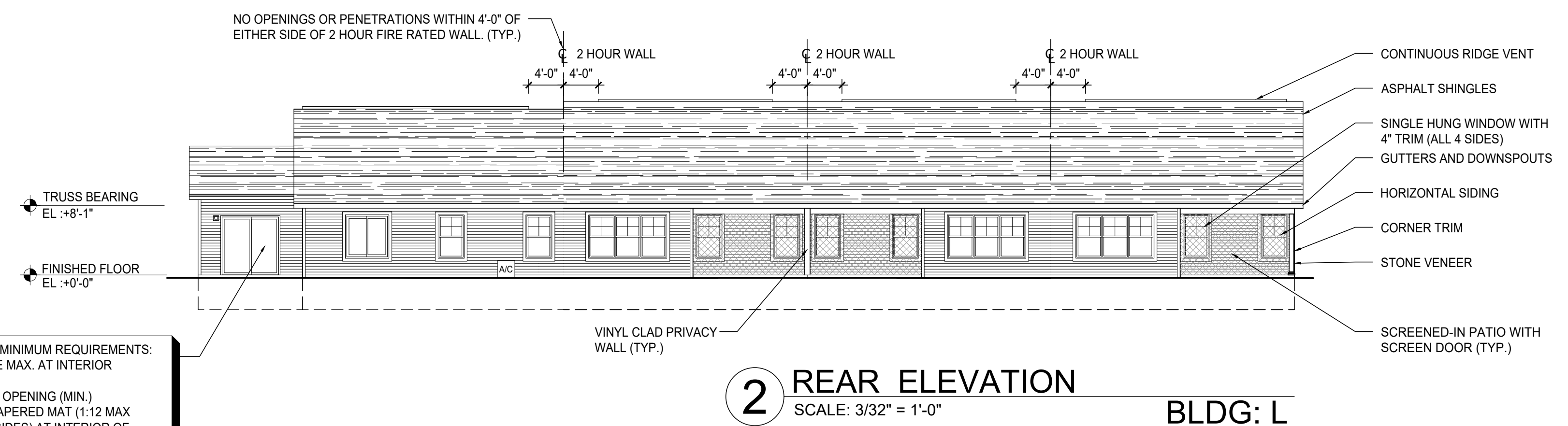
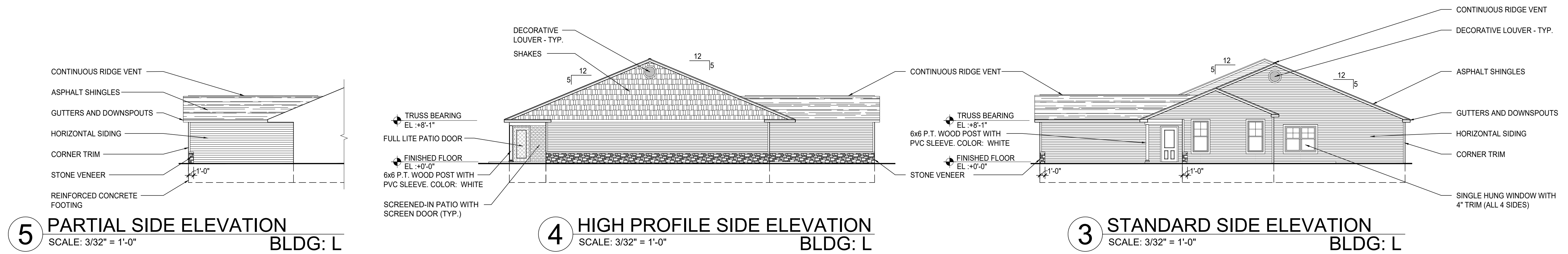
DATE: MARCH 3, 2023

PROJECT # : 22921
 REDWOOD HARTLAND HIGHLAND MI P1



12400 HIGHLAND ROAD
 HARTLAND (TWP.), MICHIGAN 48353

A4.11
 15 OF 23



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.

ITEM:	MATERIAL / STYLE:	COLOR:
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GUTTERS AND DOWNSPOUTS	PREFINISHED ALUMINUM	WHITE
HORIZONTAL SIDING	7" CLAPBOARD CELECT CELLULAR COMPOSITE	VARIES
SHAKES	VINYL	VARIES
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STONE VENEER	PRESTIGE PROVIA	OHIO WHITE VEIN
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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.

