To: Plan Commission

From: Daniel Ritter, AICP, Community and Economic Development Director
Ronald Mentzer, Community and Economic Development Consultant

Date: February 12, 2026
(**with 2/12/2026 Revised Exhibit B**)

Re: Proposed Seasons at Crest Hill Luxury Multi-Family Apartment Community Planned Unit Development, Subdivision, and Rezoning Application – Plan Commission Case # PUD-26-1-2-1

Project Details

Project:	Seasons at Crest Hill Luxury Multi-Family Apartment Home Community
Applicant:	Fiduciary Real Estate Development, Inc.
Requests:	Rezoning to R-3 Multiple Family, a special use for a combined preliminary/final planned unit development (PUD) project, various PUD waivers, and a preliminary and final plat of subdivision.
Location:	The approximately 16-acre vacant development site is located along the north side of Ryan Drive, approximately 280 feet east of Weber Road and 201 feet south of Renwick Road.

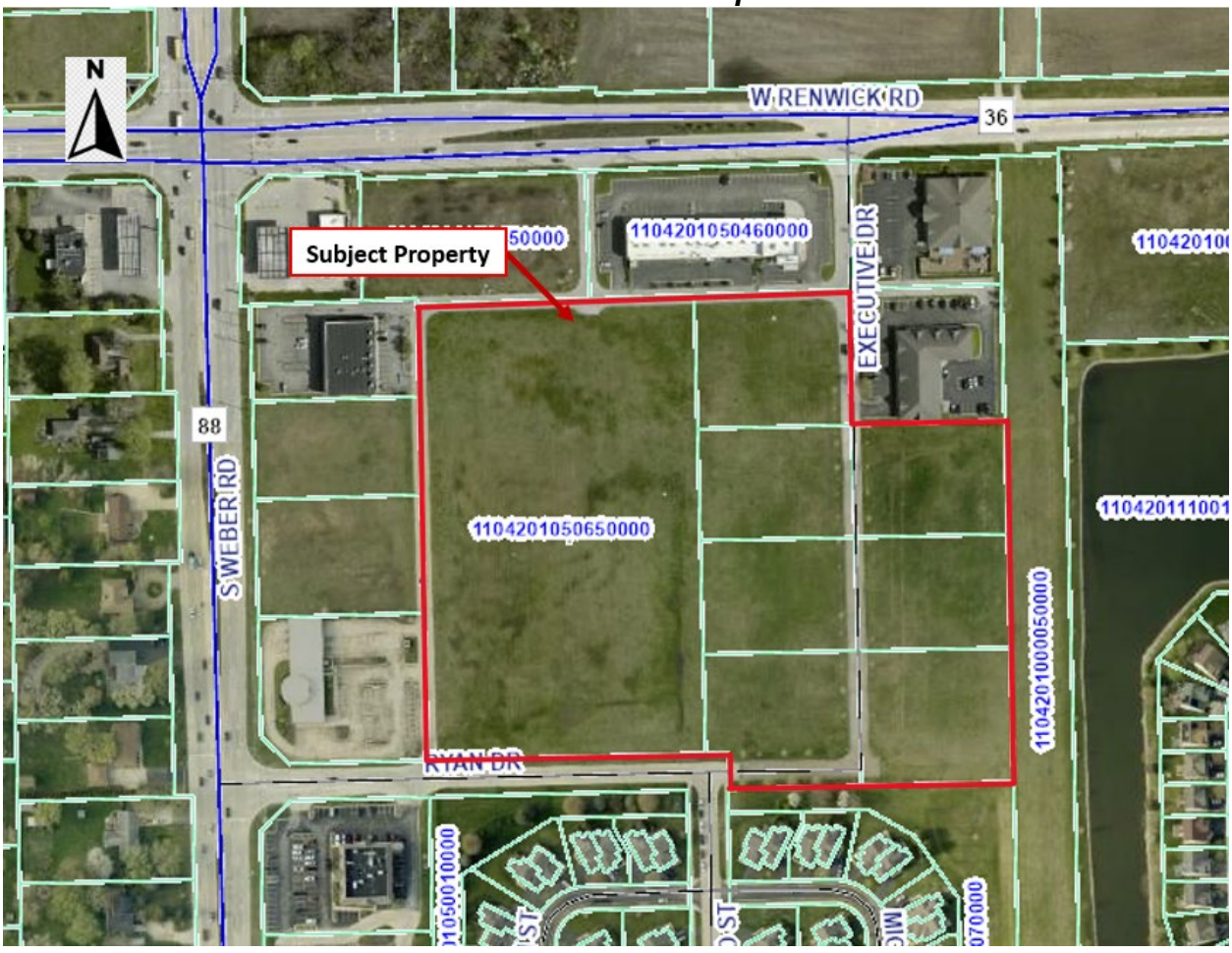
Site Details

Lot Size:	15.81 acres in total
Existing Zoning:	B-3, Business Service District
Proposed Zoning:	R-3, Multiple Family Residence District
Existing Improvements:	Private streets and vacant open-space

Surrounding Zoning and Land Use Summary

	Land Use	Comp Plan	Zoning
Subject Parcel	Vacant commercial lots and private streets	Local Commercial	B-3
North	Vacant commercial lot and a multi-tenant commercial bld.	Local Commercial	B-3
South	Remmington Lakes Duplexes	Single Family Attached.	R-3
East	Open-space/underground gas pipeline	Uninc. Will Co.	A-1
West	Bank, multi-tenant commercial bldg. and vacant commercial lots	Local Commercial	B-3

Site Location Map



PUD Site Plan



APPLICATION MATERIALS

The application materials submitted for this project/case and reviewed by City staff/consultants are listed on attached Exhibit A and have been distributed with this report.

APPLICATION BACKGROUND

For the past year, Community Development Department staff have been in communication with Fiduciary Real Estate Development, Inc. (FRED) representatives regarding its interest in the purchase and development of the approximately 16-acre vacant, B-3 Business Service District zoned property located southeast of the Weber Road/Renwick Road intersection and north of Ryan Drive (the "Site") with a new luxury apartment home community. FRED has been a respected and award-winning developer of high-quality multifamily and mixed-use projects in the Midwest market since 1985. FRED has successfully delivered six similar projects in Illinois, including the Seasons at Romeoville (now marketed as The Bluffs) and Seasons at Plainfield. Collectively, these six projects contain 1,776 units.

In August of 2025, FRED executed purchase agreements with the owners of the Site. In mid-October, FRED submitted a formal application for the City Council's review of the conceptual development plans for a potential 260-unit apartment home community (Seasons at Crest

Hill) on the Site. The City Council reviewed the conceptual plans for this project at its November 17, 2025, regular meeting where the Council expressed unanimous support for the project to move forward through the City's formal approval process.

PROJECT SUMMARY

The Seasons at Crest Hill (the "Project") includes 260 Class A apartment homes in 14, 18-20 unit, two-story apartment buildings, situated around a 5,400 sq. ft.+/- clubhouse/pool complex, 120 enclosed garage parking spaces, and 432 surface parking spaces. Vehicle access to the Project is provided via six access driveways that connect to the existing network of public and private streets that encircle the Site and then to Renwick Road and Weber Road. No new public streets are proposed in the Project.

Buildings will be constructed with high-quality and durable building materials, including fiber cement board siding and trim, a significant amount of brick/masonry, standing seam metal roof accents, and generous amounts of energy-efficient windows and sliding glass patio doors. Each unit will have access to a balcony or a patio. Upgraded interior unit features include designer cabinetry, upgraded stainless steel appliances, in-unit laundry, 9-foot ceilings, quartz countertops, and kitchen islands.

The Project includes 120 one-bedroom, 120 two-bedroom, and 20 three-bedroom units. Projected rental rates for these units range from $1,500 to $2,700 per month.

REQUESTED APPROVALS

FRED has requested the following special zoning and subdivision-related approvals for the Project:

1. **Zoning Map Amendment (Rezoning):** Rezoning the entire site from B-3 Business Service District to R-3 Multiple Family Residence District.
2. **A Combined Preliminary and Final Planned Unit Development (PUD) Special Use**
3. **PUD Waivers from the following Zoning Ordinance Requirements:**
    a. Table 1: Zoning District Standards for Residential Districts
        i. Reduce the minimum lot area requirement from 5,000 sq. ft. per unit to 2,648 sq. ft. per unit.
        ii. Increase the amount of allowed lot coverage from 50% to approximately 70%.
        iii. Reduce the 30 ft. minimum required front/corner side yard and 40 ft. minimum rear yard building setbacks throughout the Project to accommodate the building locations reflected on the application materials listed on Exhibit A.
        iv. Reduce the minimum floor area requirement for one-bedroom apartment units from 800 sq. ft. to an average of approximately 700 sq. ft.
    b. Reduce the 30 ft. required front yard parking setback required by Section 11.5-1 and the parking setbacks required adjacent to a residential district by Section 11.5-3 throughout the Project to accommodate the parking locations reflected on the application materials listed on Exhibit A.

c. Reduce parking requirements of Section 11.8-1 c. from 3.5 parking spaces per unit to 2.12 parking spaces per unit.

d. Reduce the minimum width of parking lot access aisle required between adjacent parking stalls by Section 11.4-1 from 26 ft. to 24 ft.

e. Reduce the percentage of masonry required on individual multi-family residential buildings by Section 8.7-2 as follows:

	% Masonry Required	***% Masonry Provided on 18-Unit Building***	***% Masonry Provided on 20-Unit Building***
Min. % masonry on one façade per building	80%	35% - front facade	33.5% - front facade
Min. % masonry on any wall facing a public or private street	10%	9.5% - garage door facade	7.2%- garage door facade

f. Reduce the minimum width of walking/jogging paths required by Section 10.0-4.7, from 8 feet to 5 feet.

g. Adjust any other Zoning Ordinance or City Code requirements the Community and Economic Development Director deems necessary to construct the project as reflected on the application materials listed on Exhibit A**.**

4. **Preliminary/Final Plat of Subdivision:** The proposed Final Plat of Seasons at Crest Hill Subdivision consolidates the eight existing lots that comprise the Site, vacates existing unnecessary utility easements, and dedicates the new utility easements necessary to accommodate the new infrastructure that will be constructed as part of the Project.

STAFF ANALYSIS AND INPUT ON SPECIFIC PROJECT COMPONENTS

Planned Unit Development Special Use Request

According to Section 10.0-1 of the Zoning Ordinance, *"The purpose of Planned Unit Development regulations is to encourage and allow more creative and imaginative design of land developments than is possible under district zoning regulations. Planned Unit Developments are intended to allow substantial flexibility in planning and designing a proposal. This flexibility often accrues in the form of relief from compliance with conventional zoning ordinance site and design requirements. Ideally, this flexibility results in a development that is better planned, that contains more amenities, and ultimately a development that is more desirable to live in than one produced in accordance with typical zoning ordinance and subdivision controls."*

Overall, staff believes FRED's PUD application documents represent a project design that is more creative and desirable than what is required or allowed under the City's standard Zoning Ordinance requirements and is an excellent representation of a project that satisfies the stated Purpose for PUD special uses.

Section 10.6 of the Zoning Ordinance states “The Plan Commission shall, after the public hearing, set forth to the City Council the reasons for the recommendation, and said recommendation shall set forth with particularity what respects the proposal would be in the public interest, including but not limited to the findings of fact outlined in PUD Section 10.6 and Special Use 12.7-6 of the Zoning Ordinance.

Staff’s recommended draft findings for each of these sections of the Zoning Ordinance are reflected in bold italic font in attached Exhibits B and C. The draft findings can be modified or changed as the Plan Commission deems fit and based on the specific testimony provided at the public hearing.

Based on the draft findings outlined in these Exhibits, staff supports the approval of the requested Preliminary and Final Planned Unit Development for this project.

PUD Waiver Request

The overall design of the Project is rooted in current market demand expectations rather than rigid zoning requirements established decades ago. The requested waivers are necessary to allow the Project to respond to these market realities in a manner that is aesthetically attractive and economically and environmentally responsible. As such, staff supports the approval of all requested PUD waivers. Additional staff input on key waiver requests includes:

Increased Density/Reduced Lot Area per Dwelling Unit: The standard residential density restrictions contained in the City’s Zoning Ordinance do not accommodate the type of high-quality, highly amenitized, modern multifamily developments that continue to be constructed in the communities that surround Crest Hill. Staff strongly supports the approval of waivers from the City’s standard density restrictions to encourage the development of high-quality multi-family projects like the Seasons at Crest Hill.

Reduced Minimum Parking Requirements: Staff believes the City’s current apartment parking requirements are excessive and inconsistent with actual parking needs in modern-day suburban multi-family residential developments. Imposing these antiquated requirements on new projects results in large areas of valuable land being unnecessarily paved over. The additional pavement leads to undesirable environmental impacts and reduces the economic value this type of project produces for the community. Based on staff’s professional experience and research, the proposed parking ratios for this project are reasonable, appropriate, and consistent with the parking demands of similar positioned modern-day, class A, suburban multi-family projects.

Reduced Masonry Requirements on Specific Building Facades: The City’s standard masonry code requirements are somewhat rigid and do not by themselves guarantee a high-quality or attractive building design. While the concept building elevations proposed for the Seasons at Crest Hill project do not meet every aspect of the City’s standard masonry code requirements, they do satisfy the City’s requirement that at least 20% of the total exterior wall area on a building be clad with masonry materials. Furthermore, staff believe the proposed mix of high-quality and durable building façade materials is aesthetically attractive and will age/weather well and look great for decades.

Rezoning Request

Section 12.8-5 of the Zoning Ordinance states the Plan Commission shall make written findings of fact on rezoning proposals and shall submit these findings together with a recommended course of action to the City Council. In its findings, the Plan Commission shall consider the various standards reflected in Exhibit D.

Staff recommends the draft findings identified in bold italic font on Exhibit D. The draft findings can be modified or changed as the Plan Commission deems fit and based on the specific testimony provided at the public hearing. Based on the findings reflected in Exhibit D, staff supports the requested rezoning of the Site from B-3 Business Service District to R-3 Multiple Family Residence District.

Preliminary and Final Plat of Subdivision

Staff supports the approval of the proposed Final Plat of Seasons at Crest Hill Subdivision as it will consolidate numerous existing lots into a single lot designed to support the unified development, ownership, and management of the proposed Seasons at Crest Hill apartment home project. A condition of approval has been added to ensure that it is a requirement of the zoning and PUD that the property remain under a single unified ownership.

Traffic and Vehicular Circulation

FRED prepared and submitted a detailed traffic impact study for the proposed Project. The City's Director of Engineering has reviewed the study and concurs with the following key study conclusions:

1. The existing roadway system that will serve the Project has sufficient reserve capacity to accommodate the traffic that will be generated by the Project.
2. The proposed vehicle access configuration for the Project to connect to the existing right-in/right-out and full access on Weber Road and the existing signalized intersection of Ryan Drive and Weber Road is appropriate and acceptable.
3. Traffic volumes on Ontario Drive will not change as a result of this project, provided the existing traffic signal at Ryan Drive and Weber Road remains in place
4. The future traffic generated by this Project will help satisfy the traffic warrants that justify keeping the Ryan Drive and Weber Road traffic signal in place.

The private streets that surround the Site are currently owned and maintained by the adjacent property owners. In the past, the City Council has expressed concern over the deteriorating conditions and lack of proactive maintenance of these streets. These existing conditions and ongoing City concerns have been discussed with FRED. In the engineering design drawings for the project (Sheet 2), FRED documents its commitment to grind and resurface streets surrounding the Site.

Stormwater Management

The City's Director of Engineering has confirmed that the existing stormwater detention pond network in the Remington Lakes Subdivision was designed and constructed to accept and manage the stormwater runoff volume the Project will generate. As such, no new stormwater detention facilities are proposed or required as part of this Project. This is identical to how stormwater runoff from the new self-storage facility under construction at the southwest corner of Borio and Renwick Road will be handled.

Lockport Township Fire Protection District Input
The Lockport Fire Protection District has reviewed the application documents for the Project and has no objections or requested revisions at this time.

STAFF RECOMMENDATION
Based on the draft findings reflected in this staff report, Staff recommends the Plan Commission provide the following motion to the City Council. This motion may be amended by any Plan Commission member making the motion based upon the findings of the public hearing. Staff recommends that any motion be made in the positive form to correspond with the applicant's request and avoid confusion on the recommendation.

The Plan Commission recommends that the City Council approve the Rezoning, Preliminary and Final PUD Special Use, PUD Waivers, and Final Plat of Subdivision for the Seasons at Crest Hill project as outlined in the February 12, 2026, Plan Commission staff report for Case # PUD-26-1-2-1 and subject to the following conditions and requirements:

1. ***The final plat of subdivision shall satisfy all applicable City ordinance, staff, and City Attorney requirements and shall include all easement provisions required by the City's Director of Engineering.***
2. ***All final engineering plans, related supporting information, and development security for the Project shall be submitted for the Director of Engineering's final approval prior to or in conjunction with the formal building permit application submitted for the Project. Said plans shall be substantially consistent with the application documents submitted for Plan Commission Case #PUD- 26-1-2-1.***
3. ***All final architectural, signage, and landscape plans for the Project shall be submitted for Community Development Department staff final approval prior to or in conjunction with the formal building permit application submitted for the Project. Said plans shall be substantially consistent with the application documents submitted for Plan Commission Case #PUD-26-1-2-1.***
4. ***The two private drives that connect the Project to Renwick Rood shall be included in scope of private streets FRED will mill and resurface. Unless otherwise approved by the City Engineer, all private street resurfacing work shall be completed prior to occupancy of the first building in the Project.***
5. ***Unless otherwise approved as a Major PUD Change by the City Council, the ownership and management of the entire Project shall each be under a single entity. This condition is not intended to prevent the Project owner from engaging the services of a independent qualified property management company to manage day-to-day operations, maintenance activities, and rehabilitation projects in it.***
6. ***A fire hydrant must be located within 100 ft of each building's fire department connection.***
7. ***Unless otherwise approved by the Director of Community and Economic Development as a result of Gas Company feedback, the Applicant shall prepare and submit proper paperwork to Nicor for approval of a sidewalk or multi-use path as shown on the plans prior to issuance of the first structure's building permit. Pathway/sidewalk shall be installed before issuance of the last building's certificate of occupancy. The pathway/sidewalk may require***

minor changes to the approved plan based upon final Nicor and City permit reviews. Notwithstanding anything to the contrary, the Applicant's required construction of the pathway/sidewalk is predicated on the Applicant or the City obtaining approval from Nicor for its construction and said approval shall not require applicant to relocate any existing gas lines.

Exhibit A
Seasons at Crest Hill Apartments Application Materials

Misc. Application Materials

- 1/9/2026 Application for Development/Rezoning, Plat of Subdivision, PUD, and Waivers (Maureen Brown)
- 1/9/2026 Application for Development/Rezoning, Plat of Subdivision, PUD, and Waivers (SAI Bolingbrook, LLC Series D)
- 1/15/2026 Transmittal Letter
- 1/15/2026 Planned Unit Development Project Description
- Undated Community Benefit Statement
- Undated Response to Planned Unit Development Objectives
- Undated Zoning Ordinance Rezoning Approval Criteria Response Letter

Architectural Plans

- 1/14/2026 Site Plan, Floor Plans, Elevations, and 3D Renderings

Engineering/Site Plans

- 10/13/2025 Surrounding Zoning Exhibit
- 1/14/2026 Plat of Vacation
- 1/14/2026 Plat of Subdivision
- 1-22-2026 Traffic Study
- 1/14/2026 Engineer's Opinion of Probable Cost - Letter of Credit
- 1/14/2026 Stormwater Memo
- 1/14/2026 Stormwater Pollution Prevention Plan
- 1/14/2026 Fire Hydrant Coverage Exhibit
- 1/14/2026 Fire Truck Access Exhibit
- 1/14/2026 Title, Civil Plans Sheet 1
- 1/14/2026 Existing Condition and Demolition Plan, Civil Plans Sheet 2
- 1/14/2026 Soil Erosion and Sediment Control Plan, Civil Plans Sheet 3
- 1/14/2026 Soil Erosion and Sediment Control Details, Civil Plans Sheet 4-5
- 1/14/2026 Site Dimensional and Paving Plan – Overall, Civil Plans Sheet 6
- 1/14/2026 Site Dimensional and Paving Plan – NW, NE, West, East, SW, and SE, Civil Plans Sheets 7-12
- 1/14/2026 Grading Plan – Overall, Civil Plans Sheet 13
- 1/14/2026 Grading Plan – NW, NE, West, East, SW, and SE, Civil Plans Sheets 14-19
- 1/14/2026 Typical Building Grading Details (18-Units), Civil Plans Sheet 20
- 1/14/2026 Typical Building Grading Details (20-Units), Civil Plans Sheet 21
- 1/14/2026 Overall Utility Plan, Civil Plans Sheet 22
- 1/14/2026 Utility Plan - NW, NE, West, East, SW, and SE, Civil Plans Sheets 23-28
- 1/14/2026 Sanitary Profiles 1-15, Civil Plans Sheets 29-37
- 1/14/2026 Construction Details, Civil Plans Sheets 38-43
- 1/14/2026 Construction Specifications, Civil Plans Sheet 44

Lighting

- 1/13/2026 Photometric Plan

Landscaping

- 10/9/2025 Existing Vegetation Exhibit Sheet 1
- 1/14/2026 Landscaping Plans Sheets L1-L8

Exhibit B

Seasons at Crest Hill Zoning Ordinance Section 10.6 PUD Findings

(Rev. 2/9/2026)

1. In what respects the proposed plan is consistent with the stated purpose of the Planned Unit Development regulations and with the Objectives stated in Section 10.0-2 herein.
   FRED's PUD application documents represent a project design that is more creative and desirable than what is required or allowed under the City's standard Zoning Ordinance requirements. The specific type of housing proposed and the architectural and site plan design documents for the proposed project clearly represent a project that satisfies the stated Purpose for PUD special uses and the eleven PUD objectives outlined in Section 10.0-2 of the Zoning Ordinance.

2. Unit Development regulations as set forth in Section 10.0-3 herein. The extent to which the proposed plan meets the standards of the Planned
   The application materials and proposed plans for the Seasons at Crest Hill project fully satisfy each of the six PUD standards set forth in Section 10.0-3 of the Zoning Ordinance.

3. The extent to which the proposed plan departs from the zoning and other city regulations otherwise applicable to the subject property, including but not limited to density, dimension, area, bulk, and use, and the reasons why such departures are deemed to be in the public interest.
   The requested PUD waivers to miscellaneous Zoning Ordinance bulk, density, dimensional, and architectural regulations allow the project to advance public interest by integrating attractively designed apartment home buildings, community amenities, and open spaces in a cohesive, pedestrian-friendly layout that diversifies the City's housing stock and promotes efficient use of land and infrastructure in the community. Overall, these waivers allow the Project to effectively respond to current housing preferences and market demand in an economically feasible way.

4. The method by which the proposed plan makes adequate provision for public services, provides adequate control over vehicular traffic, provides for and protects designated common open space, and furthers the amenities of light and air, recreation and visual enjoyment.
   The Project is designed to utilize the existing nearby stormwater management detention ponds that were originally constructed to accommodate the stormwater runoff from the project site. The Project takes full advantage of the existing, well developed, City and County street network surrounding the site and effectively manages the traffic it will generate by interconnecting to that network at multiple, appropriately designed locations. Existing City sanitary sewer and water mains located adjacent to the project site have the capacity to effectively serve the project. Generous landscape areas, walking paths, and outdoor community gathering spaces are distributed throughout the site. Central amenities, including a clubhouse, fitness center, and pool, provide

accessible recreation opportunities for residents while preserving a suburban sense of openness.

5. The relationship and compatibility of the proposed plan to the adjacent properties and neighborhood.
   Planned building materials and architectural details reflect the character of the surrounding community and reinforce a sense of place. Building heights and setbacks have been designed to provide a desirable transition between adjacent single-family neighborhoods and commercial uses. Landscape buffers and carefully thought through building orientation enhance privacy and soften the visual interface between the project and the surrounding neighborhood.

6. The desirability of the proposed plan as regards physical development, tax base and economic well-being of the City.
   The Project will add high quality multifamily residential housing on a relatively large, long-time vacant and unproductive commercially zoned property in the middle of an established mixed-use neighborhood. The Project will provide quality housing options for the growing employment base in Crest Hill and the surrounding area. The Project will generate an estimated $875,00 in new property tax revenue annually. Consumer spending from the future residents in the Project will generate an estimated $24,440,000 in economic to the area.

7. The conformity with City objectives.
   The proposed plan materially advances the goals and objectives outlined in the City's Comprehensive Plan.

Exhibit C

Seasons at Crest Hill Apartments Zoning Ordinance

Section 12.7-6 Special Use Findings

1. That the establishment, maintenance, or operation of the special use will not be detrimental to or endanger the public health, safety, or general welfare.
   The establishment, maintenance, and operation of the proposed special use will not be detrimental to, nor endanger, the public health, safety, or general welfare. The proposed 260-unit community will not be detrimental to or endanger public health, safety, or general welfare. It has been designed using a contemporary suburban approach that incorporates high-quality architecture, sustainable materials, and a well-organized site plan. The project will adhere to all applicable building, fire, and stormwater regulations.

2. That the special use will not be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor substantially diminish and impair property values within the neighborhood.
   The surrounding area contains a mix of commercial and residential uses, and the proposed development is designed to function as an appropriate transition between heavier commercial uses and adjacent single-family neighborhoods.

   Building heights, setbacks, and orientation provide compatibility with surrounding development, while landscape buffers and native plantings soften visual impacts and enhance privacy. The high-quality residential character of the project represents a less intensive and more compatible use than what is permitted under existing commercial zoning and is expected to support, rather than detract from, surrounding property values.

3. That the establishment of the special use will not impede the normal and orderly development and improvement of surrounding property for uses permitted in the district.
   The Site is well suited for multifamily development due to its proximity to major transportation routes, employment centers, and existing suburban infrastructure.

   The project responds to demonstrated demand for modern multifamily housing and aligns with established development patterns in the area. Its design and land use compatibility support coordinated growth and appropriate transitions between existing neighborhoods and commercial corridors.

4. That adequate utilities, access roads, drainage, and/or other necessary facilities have been or are being provided.
   The Site is currently served by municipal water and sanitary sewer systems, and existing City utility plans can support the proposed development. No new roads public road improvements are necessary to support the Project. The existing network of stormwater detention facilities in the Remington

Lakes project are sized and constructed to manage the stormwater that will be generated by the project.

5. That adequate measures have been or will be taken to provide ingress and egress so designed as to minimize traffic congestion in the public streets.
   The internal circulation system provides safe and efficient vehicular movement while prioritizing pedestrian connectivity through internal walkways linking buildings, amenities, and open spaces. Shared parking areas and a pedestrian-friendly layout reduce reliance on individual vehicle trips and support orderly traffic flow both within the site and along adjacent roadways.

6. That special use shall in all other respects conform to the applicable regulations of this Ordinance and other applicable City regulations, except as such regulations may in each instance be modified by the City Council pursuant to the recommendation of the Plan Commission.
   Except as noted in this report and reflected in FRED's application materials, the project will conform with all applicable regulations of the City.

Exhibit D

Seasons at Crest Hill Apartments Zoning Ordinance

Section 12.8-5 Rezoning Findings

1. Whether the uses permitted by the proposed amendment would be appropriate in the area concerned.
   The R-3 District permits multifamily residential uses that are appropriate for the Site and compatible with surrounding land uses. The proposed zoning provides a reasonable transition from existing commercial uses while supporting the City's housing needs.

2. Whether adequate public school facilities and other public services exist or can be created to serve the needs of any additional dwelling units likely to be constructed as a result of such change.
   Adequate public services, including police, fire protection, emergency services, and public works, are available to serve the Site. Existing public school facilities and municipal services have sufficient capacity, and no extraordinary service demands are anticipated.

3. Whether the proposed change is in accord with any existing or proposed plans for providing public water supply and sanitary sewers in the vicinity.
   The City's existing plans for public water and sanitary sewer service in the Community can support the proposed project. The Site is currently served by municipal utilities, which can effectively serve the proposed project.

4. Whether the proposed amendment is likely to result in an increase or decrease in the total zoned residential capacity of the City and the probable effect of such change on the cost of providing public services.

   The amendment will increase the City's residential capacity; however, the development represents an efficient use of land and infrastructure. The anticipated impact on public service costs will be offset by increased tax base and utility revenues the project generates.

5. The amount of vacant land which is currently zoned for similar development in the City or in contiguous areas, and particularly in the vicinity of the area included in the proposed amendment, and any special circumstances which may make part of such vacant land unavailable for development.
   There is very little vacant land in the community zoned for similar development and much of that land is constrained by size, location, infrastructure limitations, or other development restrictions. The Site is well-suited for multifamily use due to its size, access, and availability of utilities.

6. The recent rate at which land is being developed in the proposed district of the City, and particularly in the vicinity of the area included in the proposed amendment.

There has been very limited new development in this general area of the City over the past decade. Recent development trends in Crest Hill and the surrounding area demonstrate continued demand for residential and multifamily housing. The proposed amendment responds to this pattern of growth and demand for modern day multi-family housing.

7. The effect of the proposed amendment upon the growth of existing neighborhoods as envisaged by the Crest Hill Comprehensive Plan.
   The proposed rezoning supports the goals of the Crest Hill Comprehensive Plan by encouraging orderly growth, efficient use of infrastructure, and appropriate transitions between land uses and the adjacent neighborhood.

8. Whether other areas designated for similar development are likely to be so developed if the proposed amendment is adopted, and whether the designation for such future development should be withdrawn from such areas by further amendment of this Ordinance.
   Approval of the proposed amendment is not expected to impede similar development in other areas designated for similar uses, nor does it necessitate changes to existing land use designations elsewhere in the City.

9. If the proposed amendment involves a change from a residential to a nonresidential designation, whether more non-residential land is needed in the proposed location to provide commercial services or employment for the residents of the City.
   The request does not involve a change from residential to non-residential zoning. Sufficient commercially planned and zoned land remains available within the City to accommodate new commercial and employment-generating uses.

10. Existing uses and zoning within the general area of the property in question.
    The surrounding area contains a mix of commercial and residential uses. The proposed R-3 zoning is compatible with existing development patterns and land uses and will act as an effective and desirable transition between the heavier commercial uses along Renwick Road and Weber Road and the Remington Lakes neighborhood.

11. The extent to which property values are diminished by particular zoning restrictions.
    The current B-3 zoning accommodates a wide variety of and potentially intensive commercial uses, which can produce traffic, noise, and other negative impacts to the surrounding area. The proposed rezoning accommodates a high-quality residential project, which upgrades and maintains the existing surrounding private street network. This type of project at this location will not negatively impact surrounding property values and supports the economic viability of existing and future commercial, retail, and restaurant uses near the Site.

12. The extent to which the restriction of property values of the petitioner promotes the health, safety, morals, or general welfare of the public.
    The proposed rezoning promotes public health, safety, and general welfare by diversifying housing opportunities in the community and encouraging efficient use of the limited amount of land available for development in the city.

13. Whether the proposed amendment is the minimum adjustment necessary to allow the reasonable use of the property.
    Despite being zoned for commercial development for approximately two decades, the Site remains vacant. Over that time, the commercial real estate market has evolved to the point where the site is not attractive for the type of coordinated commercial/retail development the City of Crest Hill is seeking to promote in the Weber Road Corridor. The Site's considerable setback from Weber Road and Renwick Road, its adjacency to the established single-family residential neighborhood to the south, and its proximity to the Prairie Bluff Forest Preserve make it an excellent location for a high-quality apartment home community. The proposed rezoning to R-3 represents the minimum adjustment necessary to accommodate the proposed project, which is deemed a reasonable and desirable use of the Site.

Application for Development

For Office Use Only: **Case Number:** PUD-26-1-2-1

Project Name: Seasons at Crest Hill

Owner: Maureen Brown
Correspondence To: FRED-Crest Hill HC, LLC

Street address: [redacted]
Street address: 789 N Water street, Suite 500

City, St., Zip: [redacted]
City, St., Zip: Milwaukee, WI 53202

Phone:
Phone: [redacted]

Email: [redacted]
Email: [redacted]

Property Address:
Street address: SE Corner of Renwick Rd and Weber Rd

City, St., Zip: Crest Hill, IL 60403

PIN: 11-04-20-105-065-0000

Property Information:
Lot Width:

Lot Depth:

Total Area: Approximately 8 acres

*Submit an electronic version of the legal description only in a Word document to:
buildingdepartment@cityofcresthill.com

Existing Zoning: B-3
Existing Land Use: Agriculture / Undeveloped

Requested Zoning: R-3 with PUD
Proposed Land Use: Multi-family Residential

Adjoining Properties Zoning and Uses:
North of Property: Zoning: B-3 Land Use: Retail / Service

South of Property: Zoning: R-3 Land Use: Single Family Attached

East of Property: Zoning: B-3 Land Use: Agriculture / Undeveloped

West of Property: Zoning: B-3 Land Use: Retail / Service

Purpose Statement (intended use and approval sought): Rezoning, Special Use and PUD

Development Request: Please check all that apply and describe:

[X] Rezoning: Rezoning from B-3 Business Service District to R-3 Multiple-Family Residence District

[X] Special Use: _____

[ ] Variance: _____

[X] Planned Unit Development: Preliminary and Final

[ ] Annexation: _____

[X] Plat: Preliminary and Final

[X] Other: Miscellaneous PUD waivers as shown on the plans.

Contact Information – If not yet known, please indicate as TBD. Check those parties in which copies of all correspondences should be forwarded.

[X] Civil Engineer: Jared Placek Phone: [redacted]

Company: Manhard Consulting Email: [redacted]

[ ] Contractor: TBD Phone: _____

Company: _____ Email: _____

[X] Architect: Justin Koeppler Phone: [redacted]

Company: AG Architecture Email: [redacted]

[X] Builder: Tony DeRosa Phone: [redacted]

Company: Fiduciary Real Estate Development, Inc. Email: [redacted]

I agree to be present (in person or by counsel) when the Plan Commission and City Council hear this development request.

_____ 1/12/26

Signature of the Applicant Date

If you (the applicant) are not the owner of record, please provide the owner's signature.

Maureen Brown 1/9/2026

Signature of the Owner Date

Application for Development

For Office Use Only: **Case Number:** PUD-26-1-2-1

Project Name: Seasons at Crest Hill

Owner: SAI Bolingbrook, LLC Series D
Attn: Dipa Patel
Street address: [redacted]
City, St., Zip: [redacted]
Phone:
Email: [redacted]

Correspondence To: FRED-Crest Hill HC, LLC
Street address: 789 N Water St, Suite 500
City, St., Zip: Milwaukee, WI 53202
Phone: [redacted]
Email: [redacted]

Property Address:
Street address: SE Corner of Renwick Rd and Weber Rd
City, St., Zip: Crest Hill, IL 60403
PIN: 11-04-20-105-066-0000, 11-04-20-105-067-0000, 11-04-20-105-068-0000,11-04-20-105-069-0000
11-04-20-105-071-0000, 11-04-20-105-072-0000
11-04-20-105-073-0000

Property Information:
Lot Width:
Lot Depth:
Total Area: Approximately 8 acres

*Submit an electronic version of the legal description only in a Word document to: buildingdepartment@cityofcresthill.com

Existing Zoning: B-3
Existing Land Use: Agriculture / Undeveloped
Requested Zoning: R-3 with PUD
Proposed Land Use: Multi-family Residential

Adjoining Properties Zoning and Uses:
North of Property: Zoning: B-3 Land Use: Retail / Service
South of Property: Zoning: R-3 Land Use: Single Family Attached
East of Property: Zoning: R-3 Land Use: Parks and Open Space
West of Property: Zoning: B-3 Land Use: Retail / Service

Purpose Statement (intended use and approval sought): Rezoning, Special Use and PUD

Development Request: Please check all that apply and describe:

[X] Rezoning: Rezoning from B-3 Business Service District to R-3 Multiple-Family Residence District

[X] Special Use: _____

[ ] Variance: _____

[X] Planned Unit Development: Preliminay and Final

[ ] Annexation: _____

[X] Plat: Preliminary and Final

[X] Other: Miscellaneous PUD waivers as shown on the plans.

Contact Information – If not yet known, please indicate as TBD. Check those parties in which copies of all correspondences should be forwarded.

[X] Civil Engineer: Jared Placek Phone: [redacted]

Company: Manhard Consulting Email: [redacted]

[ ] Contractor: TBD Phone: _____

Company: _____ Email: _____

[X] Architect: Justin Koeppler Phone: [redacted]

Company: AG Architecture Email: [redacted]

[X] Builder: Tony DeRosa Phone: [redacted]

Company: Fiduciary Real Estate Development, Inc. Email: [redacted]

I agree to be present (in person or by counsel) when the Plan Commission and City Council hear this development request.

Signature of the Applicant — Date: 1/12/26

If you (the applicant) are not the owner of record, please provide the owner's signature.

Dipa S. Patel by James Brandt attg in fact — Date: 01/09/2026

Signature of the Owner

FIDUCIARY
REAL ESTATE DEVELOPMENT, INC
789 N. Water Street, Suite 500, Milwaukee, Wisconsin 53202
Phone 414.226.4535 ● Fax 414.226.4523 ● www.fred-inc.com

January 15, 2026

Mr. Dan Ritter
City of Crest Hill
Community and Economic Development Director
20600 City Center Boulevard
Crest Hill, IL 60403

RE: Seasons at Crest Hill – Rezoning, Special Use, and Plan Unit Development Submittal

Dear Mr. Dan Ritter:

We are respectfully requesting to be placed on the February 12, 2026, Plan Commission meeting agenda for rezoning, special use, and planned unit development for the following properties located on the southeast corner of Renwick Road and Weber Road:

- Parcel #11-04-20-105-065-0000, #11-04-20-105-066-0000, #11-04-20-105-067-0000, #11-04-20-105-068-0000, #11-04-20-105-069-0000, #11-04-20-105-071-0000, #11-04-20-105-072-0000, #11-04-20-105-073-0000

Enclosed with this letter please find the following items relating to the above referenced submittal requirements:

1. Two Applications for Development
2. Payment of Fees
    a. Rezoning, Plan Unit Development and Landscaping Plan Review Fee of $8,000
    b. 4.5% of Engineer's Opinion of Probable Cost Letter of $95,839.05
3. Plan Unit Development Submittal – Project Description
4. Written Responses to the City of Crest Hill's Application Requirement and Comment Letter Dated December 2, 2025
5. Community Benefit Letter Addressing 10.0-3
6. Planned Unit Development Objectives Letter Addressing 10.0-2
7. Photometric Plan
8. Engineering Drawings including the following documents:
    a. Civil Engineering Plan Set
    b. Engineer's Opinion of Probable Cost Letter
    c. Landscaping Plans
    d. Plat of Subdivision
    e. Plat of Vacation
    f. Stormwater Memo
    g. Stormwater Pollution Prevention Plan
    h. Existing Vegetation Exhibit
    i. Fire Truck Access Exhibit
    j. Fire Truck/Hydrant Coverage Exhibit
    k. Surrounding Zoning Exhibit
9. Architectural Plans including Renderings

This letter shall serve as our formal request to be placed on the February 12, 2026, Plan Commission meeting agenda for rezoning, special use, and planned unit development.

Should you have any comments or questions, I can be reached at (262) 366-4376. I appreciate your assistance and look forward to speaking with you soon.

Regards,

Fiduciary Real Estate Development, Inc.



Anthony DeRosa

FIDUCIARY
REAL ESTATE DEVELOPMENT, INC

PLAN UNIT DEVELOPMENT SUBMITTAL

Seasons
AT CREST HILL

JANUARY 15, 2026



OUR COMMITMENT TO CREST HILL'S FUTURE

On behalf of Fiduciary Real Estate Development, Inc. (FRED), we are pleased to submit our final design for a new luxury multifamily residential community in Crest Hill. FRED has successfully delivered similar communities in nearby suburbs including Seasons at Romeoville (now known as The Bluffs) and Seasons at Plainfield, both of which have achieved strong occupancy, top-of-market rents, and attracted high-quality residents. **The success of those projects highlights the strength of our development approach and demonstrates the pent-up demand for modern, amenity-rich rental housing in this part of Will County.**

Unlike Romeoville and Plainfield, Crest Hill has not seen new apartment development in decades, leaving residents with few options for high-quality rental living. The limited supply of modern multifamily housing, combined with ongoing population and job growth in the region, has created a significant need for housing of this type. By bringing forward 260 thoughtfully designed apartment homes, **this project will fill a critical gap in the market and ensure Crest Hill can compete with surrounding communities in attracting new residents and investment.**

Our two-story buildings, designed with 18–20 apartment homes each, deliver a human-scaled neighborhood feel while offering the amenities and finishes today's renters expect from direct-access garages and private entries to a resort-style pool, clubhouse, and fitness center. The community will serve as a natural fit within the Weber Road corridor, offering residents walkable access to services, easy interstate connectivity, and proximity to major employers.

FRED is committed to building best in class communities, ensuring they remain vibrant for years to come. We view this proposal not only as an investment in housing but as an investment in Crest Hill's continued vitality, competitiveness, and quality of life.

Tony DeRosa

VP of Development
Fiduciary Real Estate Development

A TEAM OF TRUSTED
DEVELOPMENT LEADERS



TONY DEROSA, VP OF DEVELOPMENT

Tony is a Vice President and project principal with Fiduciary. Tony is responsible for leading the company's growing development team including all aspects of the firm's development activities, from sourcing opportunities to working closely with lenders, architects and contractors. Over the course of his career, Tony has been involved in more than $1B of real estate development transactions.



DAVID FERRELL, DIRECTOR OF DEVELOPMENT

David is the Director of Development as well as a project principal at Fiduciary. David is responsible for ensuring the team's new development projects are a success through managing all aspects of the development process including municipal approvals, design, financing and project execution.



ASHLEY HEIDORN, DEVELOPMENT COORDINATOR

Ashley is a Development Coordinator with Fiduciary. Ashley is responsible for working with architects, engineers, contractors, and municipalities to develop efficient and well thought out developments while considering local code requirements.

AG ARCHITECTURE
Bright Vision. Bold Communities.

Manhard CONSULTING

OUR COMPANY

FIDUCIARY REAL ESTATE DEVELOPMENT, INC

Since 1985, FRED has been a leader in the multifamily market.

250+	3	35+
EMPLOYEES	STATES	COMMUNITIES

- Fiduciary Real Estate Development, Inc. (FRED) is an experienced developer and investor in commercial real estate focusing on multifamily and mixed use projects.
- Founded in 1985, FRED's proven track record of successful investment management has grown the business into one of Wisconsin's largest real estate companies. The company owns and manages more than 9,000 market rate apartments, with an owned portfolio conservatively valued at over $2.1 billion.

AWARD WINNING EXCELLENCE

20X WINNER OF "PROPERTY OF THE YEAR"

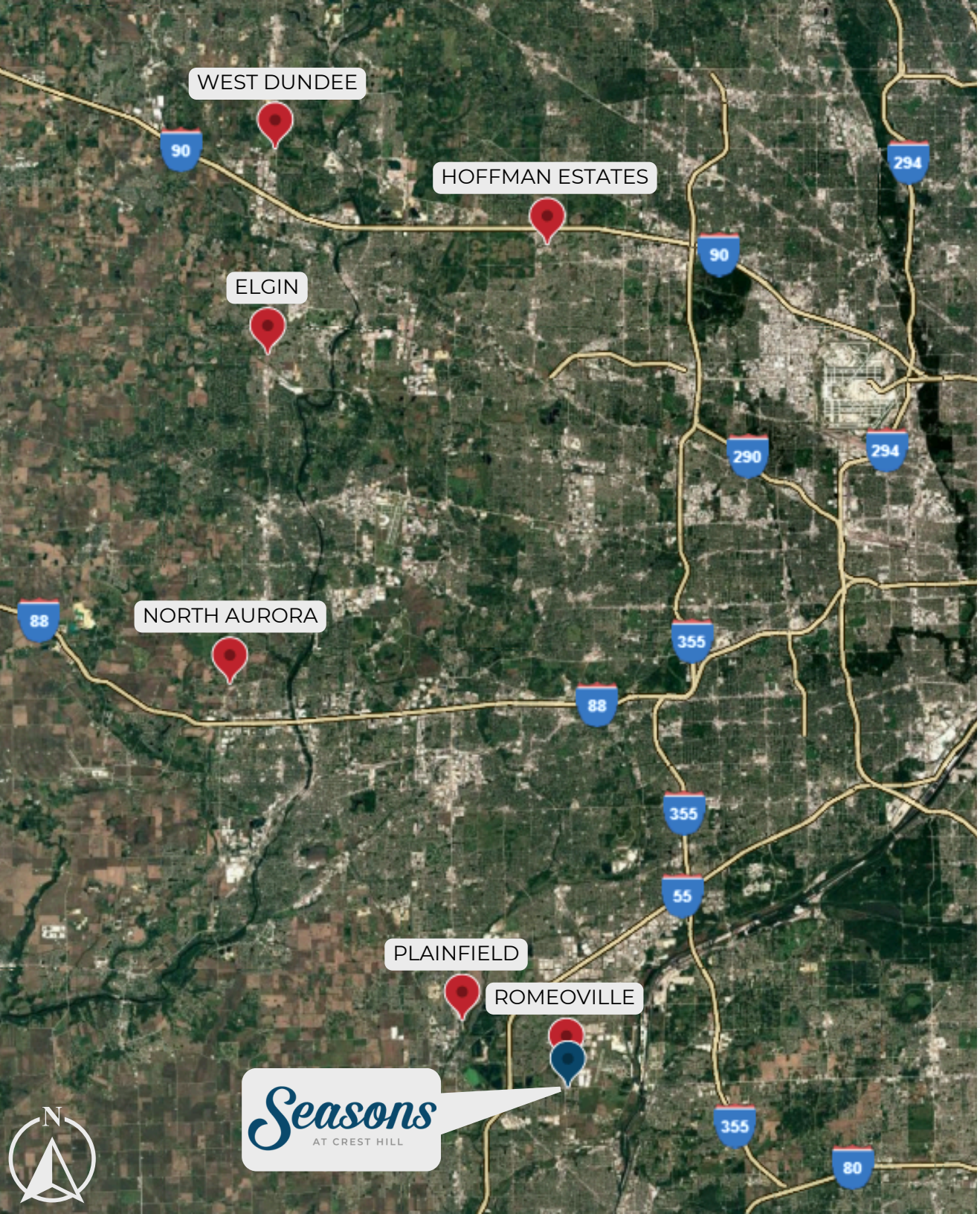
8X WINNER OF "NEW CONSTRUCTION OF THE YEAR"

6X WINNER OF "REGIONAL / MANAGER OF THE YEAR"









ILLINOIS MARKET OVERVIEW

WEST DUNDEE	380 Units
HOFFMAN ESTATES	296 Units
ELGIN	280 Units
NORTH AURORA	260 Units
PLAINFIELD	320 Units
ROMEOVILLE	240 Units
TOTAL 1,776 UNITS	

DEVELOPMENT HIGHLIGHTS

Delivering a vibrant, upscale residential community tailored to modern living

STRATEGIC SITE POSITIONING

- Future Land Use: While The Crest Hill Comprehensive Plan designates this site for future commercial and is zoned for B-3 Business Service District, the significant decline in commercial demand, accelerated by the rise of e-commerce and of remote work, has diminished the viability of new commercial development at this location.
- Strategic Fit: **Multifamily development aligns with city goals to intensify key corridors and leverage existing infrastructure rather than promote sprawl.**
- Walkability & Green Space: Site plan emphasizes pedestrian connectivity, open space, and neighborhood-style design.
- Addresses Housing Gaps: Provides modern rental options not currently available in Crest Hill, where **no new apartments have been built in decades.**
- Buffering Land Uses: Serves as a transition between commercial/industrial areas and single-family neighborhoods, improving corridor compatibility.
- Supports Local Economy: **Attracts and houses employees from Crest Hill's growing employment base while generating new tax revenue and consumer spending.**

LUXURY MARKET RATE MULTIFAMILY LIVING

- Luxury multifamily housing with a Class A amenity package
- Condo quality construction and level of finishes
- Significant pent-up demand for this type of luxury multifamily housing
- Two-story buildings with 18-20 apartment homes per building
- Private entries with direct access garages (for select apartment homes), as well as detached garages available



DESIGNED FOR WELLNESS
BUILT FOR CREST HILL'S FUTURE

Our team is committed to delivering a community that aligns with the City of Crest Hill's long-term goals for sustainability, resilience, and responsible growth. The Comprehensive Plan emphasizes efficient use of infrastructure, thoughtful land use, and preservation of community character, principles that guide our approach. The proposed Planned Unit Development is intentionally designed to minimize the need for new public infrastructure, thereby limiting long-term maintenance and replacement obligations for the City. The project will largely utilize existing roadway, utility, and municipal service networks, with only minimal, targeted improvements required to support the development. As a result, the development will generate new property and sales tax revenue for the City while imposing minimal future demand on General Fund resources, representing a fiscally responsible and sustainable land use outcome compared to conventional zoning alternatives.

HIGH-EFFICIENCY BUILDING SYSTEMS

- Energy Star rated appliances standard in every unit
- Energy efficient HVAC equipment and programmable thermostats
- Low-flow plumbing fixtures throughout
- LED lighting throughout interior and exterior spaces
- High-performance windows and tight building envelope to reduce energy loss
- Durable cladding across exterior to ensure longevity and reduced maintenance

SUSTAINABLE SITE DESIGN

- Native landscaping to minimize irrigation demand
- Stormwater management best practices
- Select EV charging stations to support the growing adoption of electric vehicles

RESIDENT HEALTH & WELL-BEING

- Smoke free community
- Low-VOC paints
- Maximized natural daylighting in common areas
- Design emphasis on walkability and open space to foster community wellness



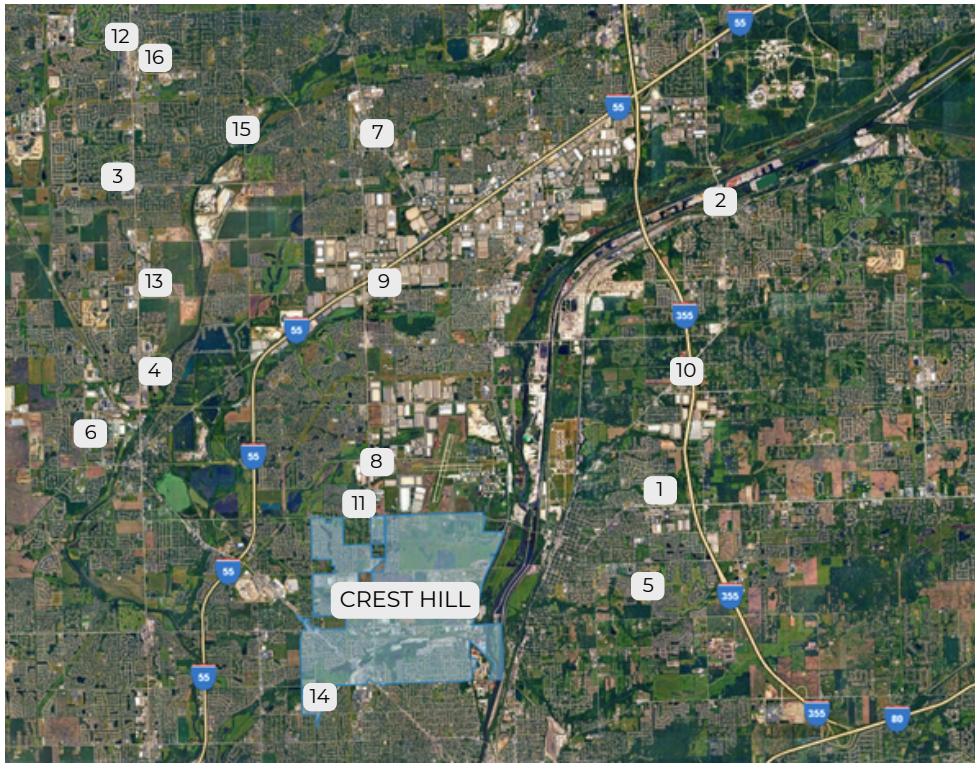
CREST HILL
AN UNDERSERVED MARKET

LIMITED HOUSING DIVERSITY AND NEW SUPPLY

- Current housing stock is predominantly single-family
- Lack of direct entry townhome and stacked-flat style rentals
- Aging Rental Stock: The majority of Crest Hill's apartments date back to the **1970s–1980s**, with no modern Class A properties available

STRONG MARKET DEMAND

- Crest Hill's population increased roughly 48% since 2000, indicating periods of strong growth historically, however over the last decade has declined by approximately 5.2%.
  - Without new modern multifamily supply, prospective renters will likely seek options in surrounding suburbs with newer product
- **A balanced multifamily market is often defined around 94% occupancy; in the broader surrounding market area, occupancy rates range from 96–98%, reflecting tight conditions (i.e. supply constraints)**
  - Supply Gap: With population and employment growth outpacing new housing construction, supply is not keeping up with demand, creating an opportunity for this 260-unit community
- **This proposed development will elevate Crest Hill's rental offerings with top-tier design, finishes, and amenities, helping retain demand and strengthen the local housing market**
- **New multifamily housing in Crest Hill is essential to sustaining commercial enterprise because it expands the local customer base and drives demand for retail, dining, and service businesses**



	COMMUNITY	UNIT COUNT	YEAR BUILT	OCCUPANCY
1	Springs at Lockport *(Lockport)*	320	2024	Pre-Lease
2	Marbella *(Lemont)*	78	2024	96.2%
3	The Belvedere *(Naperville)*	212	2024	95.3%
4	Seasons at Plainfield *(Plainfield)*	320	2023	98.1%
5	Redwood Townhomes *(Lockport)*	112	2022	98.2%
6	Sixteen30 *(Plainfield)*	284	2021	97.9%
7	Springs at Lily Cache Creek *(Bolingbrook)*	320	2021	97.2%
8	The Bluffs *(Romeoville)*	240	2021	95.0%
9	Village Place *(Romeoville)*	216	2020	97.7%
10	Highland Ridge *(Lockport)*	240	2019	99.2%
11	Springs at Weber Road (Romeoville)	292	2017	96.6%
12	Tapestry *(Naperville)*	298	2014	97.3%
13	Enclave at 127th *(Plainfield)*	340	2013	97.4%
14	**Sutton Place *(Crest Hill)***	**183**	**2003**	**99.5%**
15	River Run *(Naperville)*	206	2003	96.1%
16	Glenmuir *(Naperville)*	321	2000	97.5%
	Total (Excluding Pre-Lease)	**3,662**	**2016**	**97.3%**

Communities shown in **BOLD** lie within the City of Crest Hill's municipal boundaries.

MARKET DEMAND

- Pent up demand for a unique type of new, Class A apartment homes
- Growing demand for alternatives to single family homes
- Multifamily housing options in the local submarket are older communities with dated finishes and amenities

TARGET DEMOGRAPHICS

- Demographic looking for modern suburban communities to call home
- Empty nesters/baby boomers, young professionals and many of those that are “choosing” to rent
- Typical resident employment: healthcare, finance, retail, insurance, real estate, technology, police/fire, management, government, education, service industries, retirees
- Area employers

UNIQUE COMMUNITY

- Development will cater to those not looking to live in the typical 3 or 4 story building with common corridors
- Private, direct entries creating more of a condo or townhome type feel
- Retail access and recreational amenities make this location along the Weber Road corridor a very attractive option for a Class A development



PROPOSED DEVELOPMENT
CREST HILL-LUXURY MULTIFAMILY DEVELOPMENT



15.81
TOTAL ACRES

260
APARTMENT HOMES

3
PROPOSED ACCESS POINTS



SITE STATISTICS

MULTIFAMILY

TWO STORY WALKUP BUILDINGS WITH 18 UNIT AND 20 UNIT CONFIGURATIONS ALONG WITH A CLUBHOUSE AND POOL

UNIT MIX

ONE BEDROOM	120
TWO BEDROOM	120
THREE BEDROOM	20
TOTAL UNIT COUNT	260

BUILDING AREAS

20 UNIT:	24,147 SQFT
18 UNIT:	21,274 SQFT
CLUBHOUSE:	5,384 SQFT
GARAGE:	2,100 SQFT
MAINTENANCE:	550 SQFT

RESIDENTIAL MASONRY PERCENTAGE

20 UNIT:	26%
18 UNIT:	20%
AVERAGE MASONRY PROVIDED	23%

TOTAL RESIDENTIAL SITE AREA:	15.814 ACRES
UNITS / ACRE:	16.44

PARKING

SITE STALLS:	401 (1.54 STALLS/UNIT)
ENCLOSED STALLS:	120 (0.46 STALLS/UNIT)
CLUBHOUSE STALLS:	15
PARALLEL STALLS:	16
TOTAL STALLS	552 (2. 12 STALLS/UNIT)

SITE AREA	688,857.84 SQFT
GREENSPACE	207,766.0 SQFT
EXISTING IMPERVIOUS ROADS	46868.2 SQFT
TOTAL IMPERVIOUS AREA	481,091.84 SQFT
FAR	.46
LOT COVERAGE	4.35%

0 10 40' 120' 200'

15.81
TOTAL ACRES

260
APARTMENT HOMES

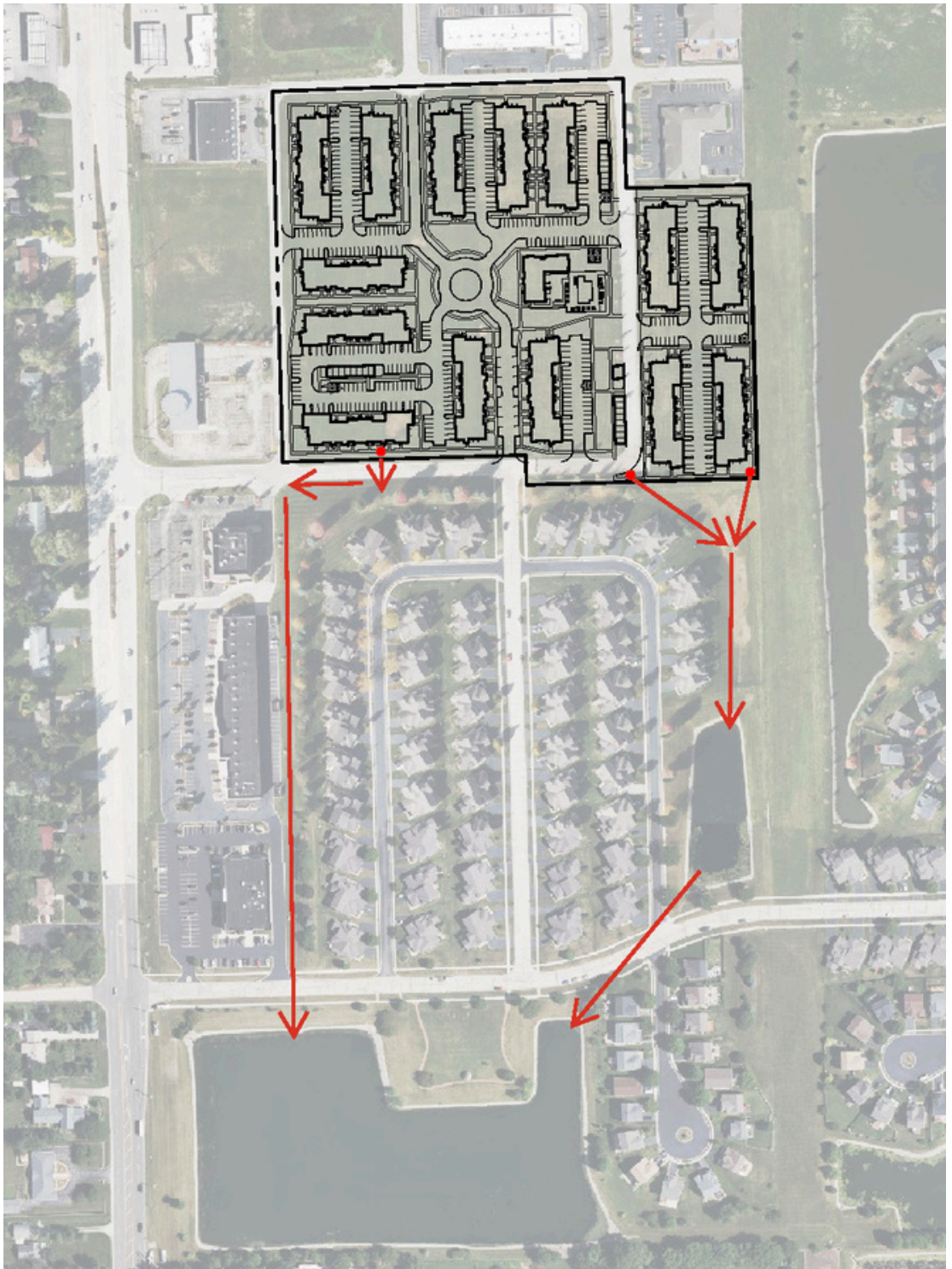
3
PROPOSED ACCESS POINTS

Average Unit Sizes

1 Bedroom - 704 Square Feet
2 Bedroom - 1,199 Square Feet
3 Bedroom - 1,548 Square Feet

STORMWATER MANAGEMENT

- The subject property was originally incorporated into the regional stormwater master plan, which was developed several years ago to guide long-term infrastructure and drainage strategies across the area. This arrangement not only aligns with the original design intent but also ensures compliance with regional stormwater management standards and helps streamline development on the site.
  - This detention is provided in the Remington Lakes development stormwater detention system through existing infrastructure provided by the Preliminary Plat prepared by Cemcon, LTD as part of Stormwater Easement, Management, Operation and Maintenance Declaration document No. R2002147634
  - No additional offsite stormwater improvements are required to implement the proposed development plan.
- **The proposed development plan has less total impervious area than the original preliminary plan put together as part of the Crest Hill Business Center Plan.**
- Included is a depiction of the route that the stormwater will flow upon collection from the on-site stormwater system into the existing Remington Lakes stormwater management system.



CREST HILL BUSINESS CENTER ROAD MAINTENANCE

- The subject property is governed by the Crest Hill Business Center (CHBC) Maintenance Agreement recorded as document No. R2005144740
- The subject property is also governed by the Equimax Plat of Subdivision (Equimax) recorded as document No. R2007117350
  - Each lot owner identified below of CHBC is responsible for their prorata share of the costs of maintaining the roadway shaded in red
  - Each lot owner identified below of Equimax is responsible for their prorata share of the costs of maintaining the roadway shaded in yellow
  - The roadway area shaded in blue is dedicated public ROW that is maintained by the City of Crest Hill
- The administration of these maintenance agreements is currently being run by Margaret Stoch of Advanced Wellness and Therapy Center located at 16009 Executive Drive (Within Lot 9 of Equimax)



LUXURY
CLUBHOUSE



CLUBHOUSE
POOL



ARCHITECTURAL EXCELLENCE

MATERIAL QUALITY AND DURABILITY

- The design utilizes high-quality fiber cement siding and panels (James Hardie), which are a significant upgrade over vinyl siding. Fiber cement is recognized for its durability, fire resistance, and low maintenance, outperforming vinyl in longevity and aesthetic appeal.
- Brick Accents: While the masonry percentage is below the code minimum, brick is still used strategically on the most visible portions, providing a premium look and reinforcing the sense of permanence.
- Metal Roof Accents: Standing seam metal roofs are incorporated, adding strong visual interest.
- This project not only meets but exceeds the intent of the zoning code by delivering a visually compelling, durable, and high-value community asset.

ARCHITECTURAL ARTICULATION AND DESIGN FEATURES

- Varied Rooflines and Gables: The buildings feature multiple gables and roof pitches, breaking up massing and creating a visually dynamic streetscape.
- Decorative Brackets: Decorative brackets add architectural detail and richness, elevating the design above typical multifamily standards.
- Board and Batten Treatments: Vertical fiber cement panels with battens at 16" O.C. provide texture and shadow, enhancing the facade's depth and interest.
- Color Palette: The use of contrasting color palettes (Arctic White, Iron Grey) and fiber cement trims creates a sophisticated, modern aesthetic.



ARCHITECTURAL EXCELLENCE

ENHANCED CURB APPEAL AND NEIGHBORHOOD VALUE

- Artist Renderings: The provided renderings demonstrate a cohesive, attractive community with strong curb appeal, landscaping, and pedestrian-friendly site planning.
- Community Identity: Monument signage, clubhouse, and outdoor amenity designs reinforce a sense of place and community, contributing to Crest Hill's long-term vision.

CODE INTENT AND PRECEDENT

- Vinyl Siding is Permitted: The zoning code allows vinyl siding, which is a lower-tier material. By using fiber cement, the project exceeds the minimum standard for exterior cladding.
- Design Integrity: The overall design integrity, articulation, and material selection fulfill the spirit of the code, ensuring lasting value, aesthetic quality, and neighborhood compatibility.

SUSTAINABILITY AND MAINTENANCE

- Low Maintenance: Fiber cement and metal roofing require less maintenance and have longer lifespans than vinyl or even some masonry products.
- Energy Efficiency: The design supports energy efficiency through high-performance materials and thoughtful detailing.

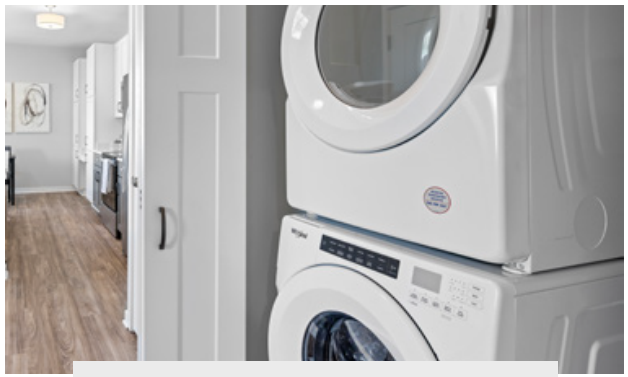


IN-DEMAND SINGLE FAMILY FEATURES

- Direct-Access Garages Available
- Patios/Balconies for all Apartment Homes
- Private Entrances
- Primary Suites w/ Walk-In Closets
- Stainless Steel Appliances



SPACIOUS LIVING ROOMS



IN-UNIT FULL SIZE WASHER/DRYER



UPGRADED KITCHENS

INSPIRING INTERIORS

- Upgraded stainless steel appliances
- Designer cabinetry
- Large windows
- Open concept floor plans
- In-unit full size washer / dryer
- Walk-in closets for primary bedrooms
- Balconies & patios
- 9’ ceilings
- Designer plank flooring in kitchens, living rooms & bathrooms
- Quartz countertops & islands



DEVELOPMENT **DETAILS**

Current Zoning	B-3 Business Service District
Proposed Zoning	• R-3 Multiple-Family Residence District • Special Use for a Planned Unit Development (PUD)
Expected School Age Residents	We would expect to see a range of 10-14 school age residents per 100 units within the development. (based upon averages across 2,000 similar style units within Fiduciary Real Estate Development's portfolio) • Some of the expected school age residents will likely be already within the school district • Typically more school aged residents live in 3 bedroom units which the proposed plan incorporates only 20 total 3 bedroom units (approximately 7% of the total units)
Residential Parking	Parking will be provided through a mix of building-attached garages containing eight attached garages per building, detached garages, along with surface parking. Code Required Parking Ratio: Minimum 3 spaces per apartment home including 1 guest space per 2 apartment homes Code required spaces: 780 spaces for the apartment homes plus 130 guest spaces Proposed Project Parking Plan: • Parking Ratio: 2.12 spaces per apartment home • 552 total spaces • 120 enclosed garages • Garage Ratio: .46 garage spaces per apartment home The proposed parking ratio, both enclosed and surface, is consistent with the demands across our portfolio of approximately 2,000 similar units and building types. Our typical property parking ratio is between 1.75 - 2.25 parking spaces per apartment home.
Proposed Connection to Prairie Bluff Preserve	Pedestrian walkways that flow throughout the development and a proposed sidewalk connection (subject to Nicor easement approval) to Renwick Road to provide connection to Prairie Bluff Preserve providing residents with access to a significant recreational amenity.
Proposed Market Rate Rents	Ranging from $1,500 - $2,700
Significant Increment in Assessed Property Value	• Current Property Assessed Value: $445,598 • 2024 Property Taxes: $35,598 • Significant property tax increment of approximately $875,000
Economic Benefit from Additional Consumer Spending	Estimated $24,440,000 economic benefit from additional consumer spending from residents over ten years • Economic Benefit = ($94,000 Median Household Income) * (10% New Consumer Spending) * (260 Units) * (10 Years)
Estimated Impact Fee Revenue	Approximately $2,100,000 in water and sewer connection fees



FIDUCIARY
REAL ESTATE DEVELOPMENT, INC

APPENDIX A

ESTIMATED PROPERTY ASSESMENT & TAX DETAIL

Assesment / Unit	$43,000
Units	260
Total Assesed Value	$11,180,000

TAXING BODY	2024 MILL RATE	AMOUNT
FOREST PRESERVE	0.0874	$9,771
COMM MENTAL HLTH BRD	0.0263	$2,940
LOCKPT TWP TOWN FUNDS	0.0993	$11,102
LOCKPT TWP ROAD FUNDS	0.0527	$5,892
LOCKPORT FIRE DIST	1.0753	$120,219
SCHOOL DISTRICT 88-A	2.9656	$331,554
HIGH SCHOOL DIST 205	1.788	$199,898
COMM COLLEGE DIST 525	0.2687	$30,041
CITY OF CREST HILL	0.5208	$58,225
CITY CREST HILL RD BR	0.0452	$5,053
LOCKPORT PARK DIST	0.3849	$43,032
WHITE OAK LIBRARY DIS	0.2435	$27,223
WILL COUNTY	0.5145	$57,521
TOTAL	8.0722	$902,472

APPENDIX B

ESTIMATED ADDITIONAL SCHOOL-AGE RESIDENTS

	DISTRICT 88A	DISTRICT 205
1 Bedroom	1	0
2 Bedroom	11	5
3 Bedroom	6	4
TOTAL	18	9

ESTIMATED COST OF ADDITIONAL STUDENT ENROLLMENT

	DISTRICT 88A	DISTRICT 205
Cost Per Additional Student	$18,335	$19,395
Estimated Additional School-Age Residents	18	9
TOTAL	$330,030	$174,555

ESTIMATED SURPLUS

	DISTRICT 88A	DISTRICT 205
Estimated Property Tax Revenue	$331,554	$199,898
Estimated Cost of Additional Student Enrollment	$330,030	$174,555
TOTAL	$1,524	$25,343

APPENDIX C

Construction Schedule		
Building	**Start Date**	**Completion Date**
Site Work	6/18/2026	
Clubhouse		4/1/2027
Building 1		5/1/2027
Building 2		6/1/2027
Building 3		7/1/2027
Building 4		8/1/2027
Building 5		9/1/2027
Building 6		10/1/2027
Building 7		11/1/2027
Building 8		12/1/2027
Building 9		1/1/2028
Building 10		2/1/2028
Building 11		3/1/2028
Building 12		4/1/2028
Building 13		5/1/2028
Building 14		6/1/2028

APPENDIX D

TRACY CROSS & ASSOCIATES, INC.
REAL ESTATE MARKET ANALYSIS

EXECUTIVE MEMORANDUM: RENTAL APARTMENT DEMAND SUMMARY
--- SEASONS AT CREST HILL ---
CREST HILL, ILLINOIS

TO: Mr. Tony DeRosa / Fiduciary Real Estate Development, Inc.

FROM: Ms. HollyAnn Eageny / Tracy Cross & Associates, Inc.

DATE: January 13, 2026

At the request of Fiduciary Real Estate Development, Tracy Cross & Associates, Inc. was retained to assess the market potential for residential development in Crest Hill, Illinois addressing a 15.8-acre assemblage aligning Ryan Drive immediately east of Weber Road and south of Renwick Road. This memorandum summarizes market demand for lifestyle market rate apartment development within the subject property based upon pertinent demographic, residential construction economic and competitive market characteristics and their likely influence upon future apartment development within the subject site.

GEOGRAPHIC DELINEATION: THE RYAN DRIVE PROPERTY
-- CREST HILL, ILLINOIS --



Source: Fiduciary Real Estate Development and Google Maps

1375 E. WOODFIELD ROAD, SUITE 520
SCHAUMBURG, IL 60173
847.925.5400 / info@tcrossinc.com
www.tcrossinc.com

THE SUBJECT PROPERTY

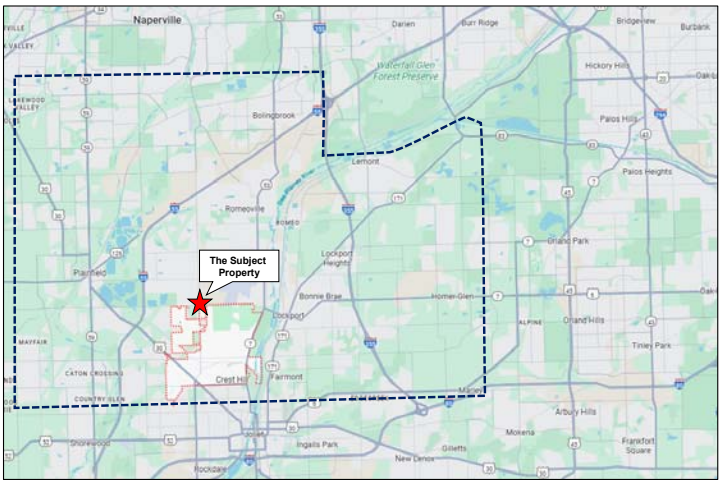
The subject property consists of a 15.8-acre assemblage aligning Ryan Drive, immediately east of Weber Road and south of Renwick Road in the far northwest quadrant of the city of Crest Hill. Representing an infill parcel within mixed-use commercial area, the property is relatively flat with limited vegetation. The immediate Weber/Renwick Road area represents a principal commercial and employment corridor of the city, host to numerous grocery/pharmacy, banking facilities, national and regional retailers and casual and fast-food eateries within the many retail centers aligning Weber Road such as Walmart Supercenter, Aldi, Blaine's Farm & Fleet, Petco, TJ Maxx which are all within one mile of the subject site. The subject site is also within a five-mile drive of the many business parks/logistics centers oriented along the Interstate 55/Interstate 80 highway system.

MARKET SUPPORT

Seasons at Crest Hill is viewed as a excellent development opportunity for Fiduciary Real Estate Development based upon the overall strength of the region's apartment sector and the property's location proximate to significant concentrations of employment, healthcare, and in-place ancillary shopping and services, along with convenient access to regional transportation systems. This conclusion also considers the expectation of *measured* regional economic growth during the 2025-2030 forecast period, along with sustaining demand for rental apartment construction in the marketplace through the forecast period and beyond. Market fundamentals supporting this conclusion are summarized in the following paragraphs:

- ❑ For purposes of this analysis, the *Crest Hill Market Area* is defined as the townships of DuPage, Homer, Lemont, Lockport, Plainfield and Wheatland in southwest suburban Cook and northern Will counties, Illinois. *Generally* extending south from 95th Street to Black Road and west from Will-Cook Road to County Line Road, this market area forms a homogeneous component of the southwest suburban region defined by its dependence upon like sources of employment, commuting patterns established along the I-55/355, I-80, US 6, US30, US 45, US 52, and IL 53/59/83/171 highway systems; socio-economic similarities in demographic and household composition; and the alignment of newer apartment developments which will serve as a source of competitive influence.

GEOGRAPHIC DELINEATION: THE CREST HILL MARKET AREA



Source: Google Maps & Tracy Cross & Associates, Inc.

- ❑ The property is also within a 30.0-minute commuting distance of some 1.11 million private sector jobs in suburban Cook, DuPage and Will counties, accounting for roughly 47.0 percent of all *suburban* private sector jobs in the six-county metro region. These include, of course, the I-80/57 Corridor extending east to the Indiana State line as well as the I-55/355 Corridor; extending north/northeast through the I-88 Technology and Research Corridor and to Chicago Midway Airport, the I-294/US 45 Corridor; and IL 59 53, and 83 corridors serving southwest suburban Cook,

DuPage and northern Will counties. The property is also within a 20.0 minute drive of several regional medical campuses and associated diagnostic and outpatient facilities. These medical campuses, together with school district and public administrations also represent significant sources of local employment. Hence, our favorable conclusion considers the expectation of tangible yet reserved regional recovery through 2030 in concert with anticipated introduction of Seasons at Crest Hill beginning in 2027 or later.

- Steady employment will continue to foster measured rates of household growth through the 2030 forecast period. For example, 2020 Census estimates of household growth carried forward to 2025 reveal that the Crest Hill Market Area supports a 2025 household base of 128,882, reflecting the addition of 772 households yearly since 2010. Market Area household additions are expected to maintain momentum during the 2025-2030 forecast period cast at an annual average of 666 households. Reflecting its mature, generally built-out character, the city of Crest Hill experienced household additions averaging 32 yearly during the 2010-2025 period, accounting for a modest 4.2 percent of total market area household growth. While statistics must be viewed in context, Census estimates suggest that household formations during the 2025-2030 forecast period will modestly accelerate to an annual average of 44 yearly, increasing the city's capture share to 6.6 percent *before factoring the potential impact of redevelopment of under-utilized properties* such as the subject site. Notably, Census statistics also indicate that roughly 15.3 percent or 19,658 resident market area households are identified as *renters,* lending support to introduction of the proposed development during the 2026-2027 period.

POPULATION AND HOUSEHOLD TRENDS:
-- THE CREST HILL MARKET AREA[1] --

Area	2010	2020	2025 (Est.)	2030 (Proj.)	Average Annual Change 2010 - 2020	Average Annual Change 2020 - 2025	Average Annual Change 2025 - 2030
Population							
The Crest Hill Market Area	369,723	380,721	384,543	392,047	+1,100	+764	+1,501
City of Crest Hill	20,427	20,459	20,928	21,482	+3	+94	+111
Percent of Market Area	5.5	5.4	5.4	5.5	---	---	---
Households							
The Crest Hill Market Area	117,304	126,288	128,882	132,211	+898	+519	+666
City of Crest Hill	7,057	7,440	7,543	7,765	+38	+21	+44
Percent of Market Area	6.0	5.9	5.9	5.9	---	---	---

[1] Defined as DuPage, Homer, Lemont, Lockport, Plainfield and Wheatland townships in southwestern Cook and Will counties, IL.

Source: U.S. Bureau of the Census Bureau: Census 2010 and 2020; Environics Analytics; and Tracy Cross & Associates, Inc.

❑ The proposed development is also consistent with demographic profiles and socio-economic characteristics of market area residents. Estimates of household composition reveal that at least two-thirds of resident market area households, and three-quarters of those in the city of Crest Hill, represent households without children under the age of 18, primarily consisting of persons living alone or in two-person arrangements, with the balance representing family households, consistent with the unit types proposed for the Seasons at Crest Hill Apartments. Importantly, not only is there a sizeable base of existing households across all profile renter/lifestyle age categories of 25 to 74 years of age, but these profile age cohorts are expected to continue to advance proportionately over the forecast period.

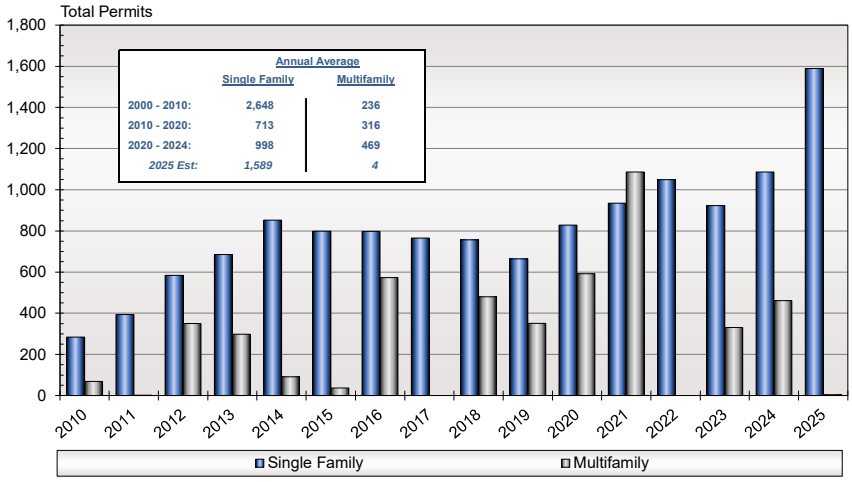
HOUSEHOLD GROWTH PROJECTIONS BY AGE GROUP
-- THE CREST HILL MARKET AREA --

	Crest Hill Market Area		City of Crest Hill	
Age Range	2025	2030	2025	2030
Under 35	16,252	17,194	1,185	1,130
35-44	24,109	21,746	1,207	1,193
45-54	28,766	27,195	1,203	1,173
55-64	26,791	27,256	1,282	1,309
65-74	19,339	22,275	1,302	1,385
75 and over	13,625	16,545	1,364	1,575
Total	***128,882***	***132,211***	***7,543***	***7,765***

Source: Environics Analytics and Tracy Cross & Associates, Inc.

❑ Lending support to apartment development within the Ryan Drive property, until recently there had been only limited market rate apartment construction in the Crest Hill Market Area over the last three-plus decades. Rather, new suburban multifamily development remained concentrated in the many established first- and second-ring rail line municipalities situated at least 15.0 to 20+ miles northeast/northwest of Crest Hill, largely reflecting accelerated condominium development along with a modicum of senior housing forms within the many near suburban rail-line municipalities and/or aligning the west suburban I-88 Corridor. As graphically depicted and detailed on **Exhibit** 1, the market area as a whole has accounted for *less than 10.0 percent of total suburban multifamily construction over the last 24 years*. Between 2010 and 2020, for example, multifamily rental development in the market area averaged 316 units yearly, advancing to an annual average of 469 units during the more recent 2020-2024 timeframe with development concentrated in the municipalities of Lockport, Romeoville and Plainfield. In fact, there has been no meaningful market rate multifamily construction in Crest Hill in more than two decades, with the city averaging a mere 22 units annually since 2000, suggesting strong localized measures of market constraint and pent-up demand for quality market rate rental alternatives which can appeal across multiple consumer segments and *enable local employers to*

RESIDENTIAL PERMIT TRENDS: THE CREST HILL MARKET AREA
2010 – AUGUST 2025



Source: U.S. Department of Commerce, Bureau of the Census: *C-40 Construction Reports*

attract and retain a skilled workforce. This factor *alone* lends support to development of Seasons at Crest Hill beginning in 2027 or later.

- Support for the Seasons at Crest Hill is also based upon the overall strength of Chicago's suburban apartment sector. For example, during the 2010-2024 timeframe, suburban net absorption among Class A developments (i.e., market rate developments built in 2000 or later) averaged 2,200 units annually, with absorption over the last four years accelerating to an annual pace of 3,493. Notably, the 4,382 Class A units absorbed in 2021 represented *the highest annual net level recorded in the suburban region* since our firm began trending in 1995. Net absorption in the Southwestern Corridor (which includes the Crest Hill Market Area) averaged 229 units yearly during the 2010-2024 timeframe, accounting for 10.4 percent of annual net suburban absorption. More to the point, since 2020, net absorption levels in the Southwestern Corridor accelerated to an annual average of 472 units, establishing a peak volume of 518 units in 2023. Absorption levels are largely attributed to increased occupancies among established developments, coupled with a modicum of construction of late. Momentum continued through the 3rd Quarter 2025 period, with net year-over-year absorption of 319 units in this more localized suburban area (again) suggesting continued measures of pent-up demand.

ABSORPTION TRENDS: UNITS BUILT IN 2000 OR LATER
-- SOUTHWESTERN CORRIDOR --

Time Period	Annual Average (In Units)
2010 - 2024:	**229**
2010 - 2020:	**132**
2020 - 2024:	**472**
YTD 3rd Quarter 2025:	**319**

Source: Tracy Cross & Associates, Inc.

- Also lending support to development of Seasons at Crest Hill, estimates suggest that a similar pattern among *stabilized* Class A developments throughout the overall suburban region. For example, vacancies among stabilized suburban developments stood at a generally tight 4.1 percent at the close of the 3rd Quarter 2025, levels below the average 4.5 percent stabilized vacancy rate noted at the close of 2023.

MULTIFAMILY VACANCY SUMMARY
STABILIZED APARTMENT COMMUNITIES: SUBURBAN CHICAGO REGION
-- 3RD QUARTER 2025 --

Market Area	Vacancy Rate (Percent of Stabilized Units)
Suburban Vacancy Rate	***4.1***
Northern Corridor	4.8
Northwestern Corridor	3.1
Western Corridor	4.0
Southern Corridor	3.9
Southwestern Corridor	***3.6***

Source: Tracy Cross & Associates, Inc.

- Market factors point to steady market rate rental construction requirements during the 2025-2030 forecast period. Specifically, the defined Crest Hill Market Area could support construction of 390 market rate rental units annually (or 1,950 units through 2030) without creating market weakness. This new construction requirement balances Census estimates of household growth over the five-year forecast period with anticipated phased implementation of mixed-use and/or infill redevelopment initiatives, construction trends over the past two-plus decades, a vacancy allowance to allow for market filtering, along with a measure of replacement demand. This derived new construction requirement is sufficient to support development of the proposed Seasons at Crest Hill Apartments over the five-year forecast period.

ANNUAL MARKET RATE RENTAL CONSTRUCTION REQUIREMENT: 2025 - 2030
-- THE CREST HILL MARKET AREA --

Attribute	Number
Expected Annual Household Growth	666
Expected Annual Renter Household Growth @ 48.0 Percent of Total[1]	320
Annual Vacancy Requirement to Maintain Balance in the Market[2]	25
Annual Replacement Demand @ 0.18 Percent of 2025 Rental Inventory	45
Derived Annual Market Rate Construction Requirement	***390***
(Derived Potential Market Rate Rental Construction Requirement through 2030) [3]	*1,950*

(1) Determined by applying the expected percentage of new renter households to the expected number of new household additions from 2025 through 2030.
(2) A balanced marketplace generally requires vacancies in the range of 5.0 to 6.0 percent; represents annualized estimate applied to total market area renter households over the five-year forecast period.
(3) Excludes designated student, senior and low income/public housing forms.

Source: Tracy Cross & Associates, Inc.

- Moreover, new market rate rental construction requirements *could potentially double* during any given year if supply were made available and competitive rents are maintained (again) on the basis of supply constraints and levels of pent-up demand. It is unlikely, however, that market rate rental construction requirements will be met as, in the whole of the Southwestern Corridor, only two (2) rental projects and a potential collective 810 units have been approved. These include Cullinan Properties' *View at Rock Run Collection* (570 units) in far southwest Joliet where an initial phase of 264 units is now under construction in anticipation of lease reservations commencing in late-Spring 2026; together with the 240-unit *The Hamptons at Shorewood Town Center* in Shorewood which has been approved since 2023 but no timeline for construction has been announced.

GENERAL LIMITING CONDITIONS

Tracy Cross & Associates, Inc. has made extensive efforts to confirm the accuracy and timeliness of the information contained in this study. Such information was compiled from a variety of sources, including interviews with developers and their agents, government officials, and other third parties. Although Tracy Cross & Associates, Inc. believes all information in this study is correct, it does not warrant the accuracy of such information and assumes no responsibility for inaccuracies in the information provided by third parties.

Conclusions and recommendations established in this analysis represent a professional opinion and are based upon forecasts into the future which could be significantly altered by outside occurrences. These include, among others, the possible interplay of unforeseen social, economic, physical/environmental, and governmental actions. In this regard, Tracy Cross & Associates, Inc., its owners, and its employees shall be held harmless of changes in conditions that may materially result from these occurrences.

Community Benefit Statement

The PUD process enables a cohesive architectural vision across the entire development. Requested waivers related to masonry percentages, building setbacks, parking setbacks, and reduced parking counts allow buildings to be designed with appropriate massing, articulation, and materials while maintaining visual interest and durability.

These waivers do not diminish project quality; rather, they allow design flexibility that results in better building orientation, improved pedestrian experience, and more efficient land use. The reduction in parking requirements reflects contemporary parking demand and reduces excessive pavement, thereby increasing landscaped areas and improving stormwater performance.

Response to Crest Hill10.0-3 REVIEW STANDARDS FOR PLANNED UNIT DEVELOPMENTS The Planned Unit Development must meet the following standards:

1. COMPREHENSIVE PLAN A Planned Unit Development must conform with the objectives of the Comprehensive Plan of Crest Hill.

> FRED Response: The proposed PUD is consistent with the goals and objectives of the City of Crest Hill Comprehensive Plan, which encourages well-planned growth, efficient use of land and infrastructure, and high-quality residential development. The project advances these goals by concentrating residential density in a thoughtfully designed layout, reducing land consumption, and promoting a cohesive development pattern. By using the PUD process, the development can better respond to site-specific conditions and Comprehensive Plan policies than a rigid, lot-by-lot zoning approach.

2. SIZE AND OWNERSHIP The site of the Planned Unit Development must be under single ownership and/or unified control.

> FRED Response: The site is under single ownership and unified control, enabling comprehensive planning and long-term management of the property. This unified control ensures consistent architectural standards, coordinated infrastructure, and high-quality maintenance of buildings, parking areas, and common open spaces. In contrast, conventional zoning could allow piecemeal development with less predictability and fewer assurances regarding long-term quality and compatibility.

3. COMPATIBILITY AND USES The uses permitted in a Planned Unit Development must be of a type and so located as to exercise no undue detrimental influence upon surrounding properties. Planned Unit Developments shall provide for a variety of types of housing to ensure residential stability within the community.

FRED Response: The PUD has been designed to be compatible with surrounding land uses through careful building placement, massing, setbacks, and buffering. While the development seeks waivers for increased residential density and the maximum number of units per building, the overall site design mitigates potential impacts through internal orientation, enhanced landscaping, and coordinated circulation.

The residential program supports a variety of housing opportunities that contribute to residential stability within the community. By allowing flexibility in unit mix and modest reductions in minimum one-bedroom unit size, the PUD responds to market demand while still delivering high-quality, functional living spaces. This flexibility would not be achievable under conventional zoning without sacrificing design quality or site efficiency.

4. NEED The Planned Unit Development must be of a character and contain such uses that are needed in the area of the proposed project.

FRED Response: The proposed PUD addresses a demonstrated need for well-designed, modern residential housing in Crest Hill. The project offers new housing opportunities that support the local workforce, diversify the City's housing stock, and strengthen the local tax base. The increased density permitted through the PUD allows the site to meet this need efficiently while still maintaining appropriate scale and compatibility with surrounding development.

5. PRESERVATION The plans shall protect and preserve natural vegetation, respect natural topographic and geologic conditions, and refrain from adversely affecting flooding, soil, drainage, and other natural conditions.

FRED Response: A key benefit of the PUD approach is its ability to respect and preserve natural site features. The site plan has been designed to work with existing topography and drainage patterns, minimizing unnecessary grading and reducing impacts to soil and natural systems. Natural vegetation is preserved where feasible,

and new landscaping is incorporated to enhance environmental performance and visual character.

By allowing flexibility in setbacks and building placement, the PUD avoids environmentally disruptive layouts that could result from strict conventional zoning requirements. The result is a development that better protects natural conditions, manages stormwater responsibly, and reduces long-term environmental impacts.

6. OPEN SPACE The Planned Unit Developments that include a residential component, must provide adequate common open space.

FRED Response: The PUD provides meaningful common open space that is centrally located, accessible, and usable by residents. Rather than relying on fragmented or leftover open areas that may result from conventional zoning, the development intentionally organizes open space as a community amenity.

While a waiver is requested to allow reduced path widths within common open space areas, these paths are designed to function safely and comfortably for residents while preserving more green space overall. This design approach prioritizes landscape, usability, and environmental quality over strictly dimensional standards, resulting in a more attractive and functional open space network.

In summary, the proposed Planned Unit Development satisfies each of the standards set forth in Section 10.0-3 and provides clear benefits that exceed those achievable through conventional zoning. The PUD enables efficient land use, preservation of natural features, meaningful common open space, housing diversity, and cohesive architectural design, all of which serve the long-term interests of the City of Crest Hill and its residents.

Response to Crest Hill Zoning Ordinance 10.0-2 Planned Unit Development Objectives

Below is our statement of how the Seasons at Crest Hill complies with the objectives for Planned Unit Developments as stated in Section 10.0-2:

1. To allow for the design of developments that are architecturally and environmentally innovative, and that achieve better utilization of land than is possible through strict application of standard zoning and subdivision controls.

    Response: The proposed 260-unit community utilizes a contemporary suburban design approach that combines high-quality architecture, sustainable materials, and a thoughtfully organized site plan. Building massing, orientation, and exterior detailing create visual interest and reflect a modern interpretation of traditional neighborhood character.

2. To encourage land development that, to the greatest extent possible, preserves natural vegetation, respects natural topographic and geologic conditions, and refrains from adversely affecting flooding, soil, drainage, and other natural ecological conditions.

    Response: Site planning has been informed by the property's natural contours and drainage patterns and minimizing grading. Landscape design incorporates native plantings while maintaining an attractive suburban setting.

3. To combine and coordinate architectural styles, building forms, and structural/visual relationships within an environment that allows mixing of different land uses in an innovative and functionally efficient manner.

    Response: The development integrates residential buildings, community amenities, and open spaces in a cohesive, pedestrian-friendly layout. Internal walkways connect residents to shared amenities and adjacent neighborhoods, supporting both convenience and a sense of community.

4. To provide for abundant, accessible, and properly located public open and recreation space, private open and recreation space, schools, and other public and private facilities.

    Response: Generous landscaped areas, walking paths, and outdoor gathering spaces are distributed throughout the site. Central amenities such as a clubhouse, fitness center and pool, provide accessible recreation opportunities for residents while preserving a suburban sense of openness.

5. To promote the efficient use of land resulting in networks of utilities, streets, and other infrastructure features that maximize the allocation of fiscal and natural resources

    Response: The project's density and compact building arrangement promote efficient use of suburban land and infrastructure. The layout supports cost-effective utility and roadway

extensions, while shared parking areas and pedestrian connections reduce reliance on individual vehicle trips.

6. To enable land developments to be completely compatible and congruous with adjacent and nearby land developments.

Response: Building heights and setbacks have been designed to provide an appropriate transition to nearby single-family neighborhoods and commercial uses. Landscape buffers and carefully thought through building orientation enhance privacy and soften the visual interface between differing land uses.

7. To ensure that development occurs at proper locations, away from environmentally sensitive areas, and on land physically suited to construction.

Response: The site is well suited for multifamily development given its proximity to major transportation routes, employment centers, and existing suburban infrastructure. The project avoids environmentally sensitive areas and is located on land physically appropriate for construction.

8. To allow unique and unusual land uses to be planned for and located in a manner that ensures harmony with the surrounding community.

Response: This community adds a multifamily residential component to a mixed-use suburban context in a manner that complements surrounding land uses. The design introduces a variety of housing options while maintaining the area's established suburban character.

9. To create a method for the permanent preservation of historic buildings and/or landmarks.

Response: No historic structures are present on the site. However, the project incorporates contextual materials and architectural details that reflect the character of the surrounding community, reinforcing a sense of place.

10. To provide for a variety of housing types.

Response: The development offers a new modern, high-end type of housing within the community with a range of unit sizes, from one bedroom to three bedroom residences, to accommodate diverse household types ranging from young professionals to empty-nesters within a single, well-planned community.

11. To provide a development that does not endanger the public health, welfare, or safety.

Response: The project prioritizes resident safety and comfort through compliant access design, clear pedestrian circulation, adequate lighting, and adherence to all applicable building, fire, and stormwater regulations. Walkable connections and access to open space further support active and healthy living.

FIDUCIARY
REAL ESTATE DEVELOPMENT, INC
789 North Water Street, Suite 500, Milwaukee, WI 53202

Zoning Ordinance Rezoning Approval Criteria Response Letter

1. Whether the uses permitted by the proposed amendment would be appropriate in the area concerned.

The R-3 District permits multifamily residential uses that are appropriate for the subject property and compatible with surrounding land uses. The proposed zoning provides a reasonable transition from existing commercial uses while supporting the City's housing needs.

2. Whether adequate public school facilities and other public services exist or can be created to serve the needs of any additional dwelling units likely to be constructed as a result of such change.

Adequate public services, including police, fire protection, emergency services, and public works, are available to serve the proposed development. Existing public school facilities and municipal services have sufficient capacity, and no extraordinary service demands are anticipated.

3. Whether the proposed change is in accord with any existing or proposed plans for providing public water supply and sanitary sewers in the vicinity.

The proposed amendment is consistent with existing plans for public water and sanitary sewer service. The site is currently served by municipal utilities, which can adequately accommodate the proposed development.

4. Whether the proposed amendment is likely to result in an increase or decrease in the total zoned residential capacity of the City and the probable effect of such change on the cost of providing public services.

The amendment may increase the City's residential capacity; however, the development represents an efficient use of land and infrastructure. The anticipated impact on public service costs is reasonable and offset by increased tax base and utility revenues.

5. The amount of vacant land which is currently zoned for similar development in the City or in contiguous areas, and particularly in the vicinity of the area included in the proposed amendment, and any special circumstances which may make part of such vacant land unavailable for development.

While other land may be zoned for similar development, much of it is constrained by location, infrastructure limitations, or other development restrictions. The subject property is well-suited for multifamily use due to its size, access, and availability of utilities.

6. The recent rate at which land is being developed in the proposed district of the City, and particularly in the vicinity of the area included in the proposed amendment.

Recent development trends in Crest Hill and the surrounding area demonstrate continued demand for residential and multifamily housing. The proposed amendment is consistent with this pattern of growth.

7. The effect of the proposed amendment upon the growth of existing neighborhoods as envisaged by the Crest Hill Comprehensive Plan.

The proposed rezoning supports the goals of the Crest Hill Comprehensive Plan by encouraging orderly growth, efficient use of infrastructure, and appropriate transitions between land uses.

8. Whether other areas designated for similar development are likely to be so developed if the proposed amendment is adopted, and whether the designation for such future development should be withdrawn from such areas by further amendment of this Ordinance.

Approval of the proposed amendment is not expected to impede development in other areas designated for similar uses, nor does it necessitate changes to existing land use designations elsewhere in the City.

9. If the proposed amendment involves a change from a residential to a nonresidential designation, whether more non-residential land is needed in the proposed location to provide commercial services or employment for the residents of the City.

The request does not involve a change from residential to non-residential zoning. Sufficient land remains available within the City to accommodate commercial and employment-generating uses.

10. Existing uses and zoning within the general area of the property in question.

The surrounding area contains a mix of commercial and residential uses. The proposed R-3 zoning is compatible with existing development patterns and land uses.

11. The extent to which property values are diminished by particular zoning restrictions.

The current B-3 zoning limits the reasonable use of the property and may negatively affect its value. The proposed amendment allows development consistent with market conditions and surrounding uses.

12. The extent to which the restriction of property values of the petitioner promotes the health, safety, morals, or general welfare of the public.

The proposed rezoning promotes the public health, safety, and general welfare by enabling appropriate residential development, supporting housing needs, and encouraging efficient land use.

13. Whether the proposed amendment is the minimum adjustment necessary to allow the reasonable use of the property.

The proposed rezoning to R-3 represents the minimum adjustment necessary to allow reasonable use of the property while maintaining compatibility with the surrounding area and City plans.



SEASONS AT CREST HILL

Crest Hill, Illinois

DEVELOPER

FIDUCIARY REAL ESTATE DEVELOPMENT
789 N. Water Street #500
Milwaukee, WI 53202
P: 414-226-4535

ARCHITECT

AG Architecture
1414 Underwood Ave. #301
Wauwatosa, WI 53213
P: 414-431-3131

CIVIL ENGINEER

ATWELL, LLC.
1 Overlook Point, Suite 290
Lincolnshire, IL 60069
P: 847-634-5550

PUD SUBMISSION

P 252101
JANUARY 14, 2026
REV. FEBRUARY 2ND,2026

AG ARCHITECTURE
Bright Vision. Bold Communities.



SITE STATISTICS

MULTIFAMILY

TWO STORY WALKUP BUILDINGS WITH 18 UNIT AND 20 UNIT CONFIGURATIONS ALONG WITH A CLUBHOUSE AND POOL

UNIT MIX

ONE BEDROOM	120
TWO BEDROOM	120
THREE BEDROOM	20
TOTAL UNIT COUNT	260

BUILDING AREAS

20 UNIT:	24,147 SQFT
18 UNIT:	21,274 SQFT
CLUBHOUSE:	5,384 SQFT
GARAGE:	2,100 SQFT
MAINTENANCE:	550 SQFT

RESIDENTIAL MASONRY PERCENTAGE

20 UNIT:	21.2%
18 UNIT:	20.05%

TOTAL RESIDENTIAL SITE AREA:	15.814 ACRES
UNITS / ACRE:	16.44

PARKING

SITE STALLS:	401 (1.54 STALLS/UNIT)
ENCLOSED STALLS:	120 (0.46 STALLS/UNIT)
CLUBHOUSE STALLS:	15
PARALLEL STALLS:	16
TOTAL STALLS	552 (2. 12 STALLS/UNIT)

ONSITE TRIBUTARY AREA

DRAINAGE AREA	15.81 ACRES
IMPERVIOUS AREA	11 ACRES
PERVIOUS AREA	4.81 ACRES
FAR	.46
LOT COVERAGE	70%

0 10 40' 120' 200'

Crest Hill, Illinois

SEASONS AT CREST HILL | COLORED SITE PLAN

ARCHITECTURE



GREY COLOR PALETTE

IRON GREY

WHITE COLOR PALETTE

ARCTIC WHITE

0 10 40' 120' 200'

Crest Hill, Illinois

SEASONS AT CREST HILL | COLORED SITE PLAN

ARCHITECTURE

Crest Hill, IL | RENDERINGS ARE ARTISTS REPRESENTATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY

SEASONS AT CREST HILL | LANDSCAPE CIRCLE

FIDUCIARY REAL ESTATE DEVELOPMENT, INC

ARCHITECTURE

Crest Hill, IL | RENDERINGS ARE ARTISTS REPRESENTATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY

SEASONS AT CREST HILL | POOL AMENITIES

FIDUCIARY REAL ESTATE DEVELOPMENT, INC

ARCHITECTURE

Crest Hill, IL | RENDERINGS ARE ARTISTS REPRESENTATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY

SEASONS AT CREST HILL | 18 - UNIT BUILDING WHITE COLOR PALETTE

FIDUCIARY REAL ESTATE DEVELOPMENT, INC

ARCHITECTURE

Crest Hill, IL | RENDERINGS ARE ARTISTS REPRESENTATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY

SEASONS AT CREST HILL | 18 - UNIT BUILDING WHITE COLOR PALETTE GARAGES

FIDUCIARY REAL ESTATE DEVELOPMENT, INC

ARCHITECTURE



Crest Hill, IL | RENDERINGS ARE ARTISTS REPRESENTATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY

SEASONS AT CREST HILL | 18 - UNIT BUILDING GRAY COLOR PALETTE

FIDUCIARY REAL ESTATE DEVELOPMENT, INC

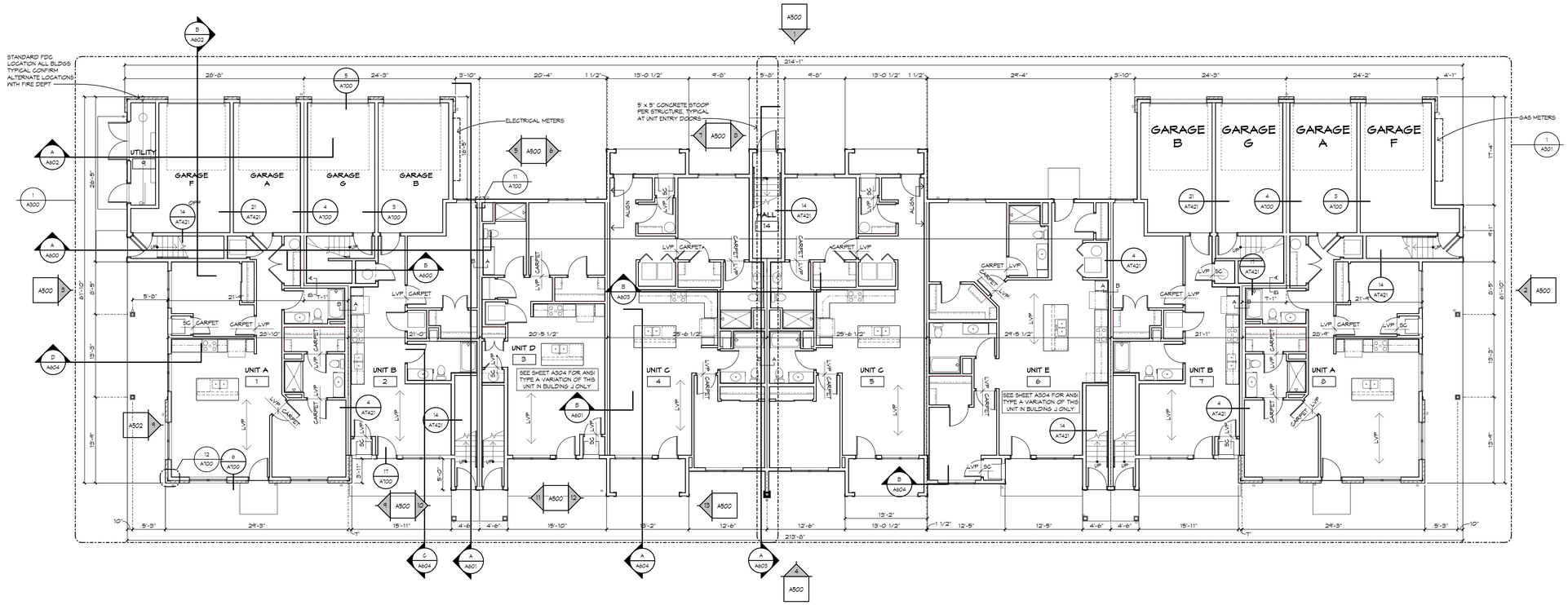
ARCHITECTURE

Crest Hill, IL | RENDERINGS ARE ARTISTS REPRESENTATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY

SEASONS AT CREST HILL | 20 - UNIT BUILDING GRAY COLOR PALETTE

FIDUCIARY REAL ESTATE DEVELOPMENT, INC

ARCHITECTURE



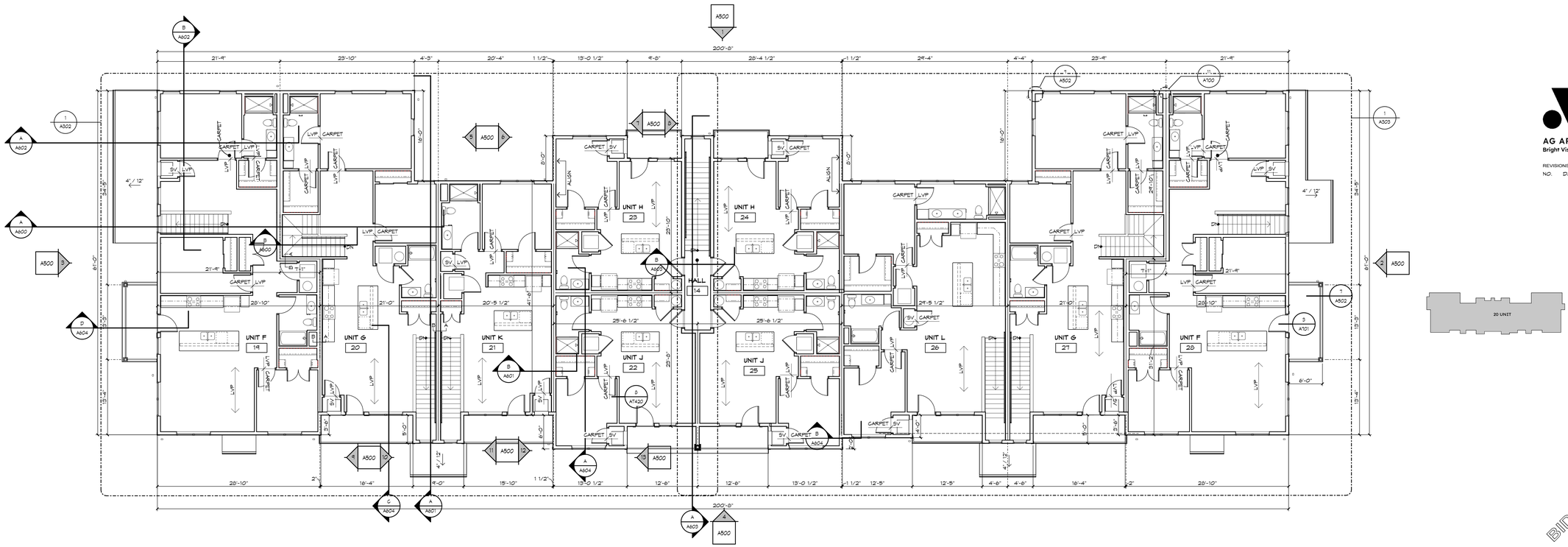
SHEET PRINTED ON:
SHEET SIZE: 24"x36"
FILE PATH:
Autodesk Docs://2024-01 FRED Cary IL-2024-01 FRED Cary IL_Arch_18 Unit 8525.rvt

Crest Hill, Illinois | RENDERINGS ARE ARTISTS REPRESENTATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY

SEASONS AT CREST HILL | 18 - UNIT BUILDING FIRST FLOOR PLAN

FIDUCIARY REAL ESTATE DEVELOPMENT, INC

ARCHITECTURE



AG ARCHITECTURE
Bright Vision. Bold Communities.

REVISIONS
NO. DATE DESCRIPTION

BID SET
NOT FOR CONSTRUCTION

THIS DRAWING, ITS DESIGN CONCEPT AND ITS DETAIL ARE THE SOLE PROPERTY OF AG ARCHITECTURE, INC. AND SHALL NOT BE COPIED IN ANY FORM OR MANNER WITHOUT WRITTEN AUTHORIZATION OF ITS DESIGNER/CREATOR

SHEET PRINTED ON:
USER: Kristen Kaiser
FILE PATH:
Autodesk Docs://2501 FIDEI Cary IL/2501 FIDEI Cary IL_Kristen.Kaiser@ag-ltd.com.rvt

Crest Hill, Illinois | RENDERINGS ARE ARTISTS REPRESENTATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY

SEASONS AT CREST HILL | 18 - UNIT BUILDING SECOND FLOOR PLAN

FIDUCIARY REAL ESTATE DEVELOPMENT, INC
AG ARCHITECTURE

MATERIAL LEGEND

A - ASPHALT SHINGLE
B - BRICK - GLEN GERY - ANTIQUE WHITE - MODULAR
FC1 - FIBER CEMENT SIDING - IRON GREY - LAP SIDING 6" EXPOSURE
FC2 - FIBER CEMENT SIDING - IRON GREY - LAP SIDING 4" EXPOSURE
FC3 - FIBER CEMENT SIDING - ARCTIC WHITE - LAP SIDING 6" EXPOSURE
FC4 - FIBER CEMENT SIDING - ARCTIC WHITE - LAP SIDING 4" EXPOSURE
FP1 - FIBER CEMENT PANEL - ARCTIC WHITE - BOARD AND BATTEN 16" O.C.
FP2 - FIBER CEMENT PANEL - ARCTIC WHITE - SMOOTH
FP3 - FIBER CEMENT PANEL - IRON GREY - BOARD AND BATTEN 16" O.C.
M - METAL ROOF - STANDING SEAM

COLOR LEGEND:

GREY COLOR PALETTE:
BUILDINGS C, D, E, G, H, M, N
FC1 - IRON GREY
FC2 - IRON GREY
FC3 - IRON GREY - BATTENS TO MATCH
FP1 - ARCTIC WHITE - BATTENS TO MATCH
FP2 - ARCTIC WHITE

FIBER CEMENT TRIM - ARCTIC WHITE
FIBER CEMENT COLUMN TRIM AND PANEL TO BE ARCTIC WHITE

WHITE COLOR PALETTE:
BUILDINGS A, B, F, I, J, K, L
FC1 - ARCTIC WHITE
FC2 - ARCTIC WHITE
FP1 - ARCTIC WHITE - BATTENS TO MATCH
FP2 - ARCTIC WHITE

FIBER CEMENT TRIM - MIDNIGHT BLACK
FIBER CEMENT COLUMN TRIM AND PANEL TO BE ARCTIC WHITE

MASONRY CALCULATIONS:

	BRICK AREA/OVERALL FACADE*
FRONT ELEVATION	878 sqft / 2519 sqft = 35%
GARAGE ELEVATION	265 sqft / 2776 sqft = 9.5%
SIDE 1	214 sqft / 839 sqft = 25.5%
SIDE 2	140 sqft / 926 sqft = 15%
AVERAGE	1,497 sqft /7,060 sqft = 21.2%

*OVERALL FACADE CALCULATION EXCLUDES WINDOWS AND DOORS

HIGH QUALITY MATERIAL



B
GLEN GERY - ANTIQUE WHITE

PRIMARY COLOR 1



FP1, FP2
JAMES HARDIE ARCTIC WHITE

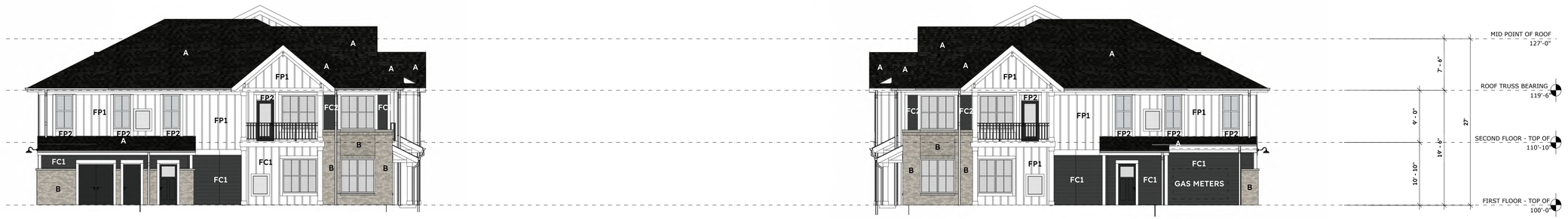
PRIMARY COLOR 2



FC1, FC2
JAMES HARDIE IRON GREY



FRONT ELEVATION 4 / A500
Scale: 1/8"=1'



SIDE ELEVATION 3 / A500
Scale: 1/8"=1'

SIDE ELEVATION 2 / A500
Scale: 1/8"=1'



BACK ELEVATION 1 / A500
Scale: 1/8"=1'

Crest Hill, Illinois | RENDERINGS ARE ARTISTS REPRESENTATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY

SEASONS AT CREST HILL | 18-UNIT ELEVATIONS - GREY COLOR PALETTE

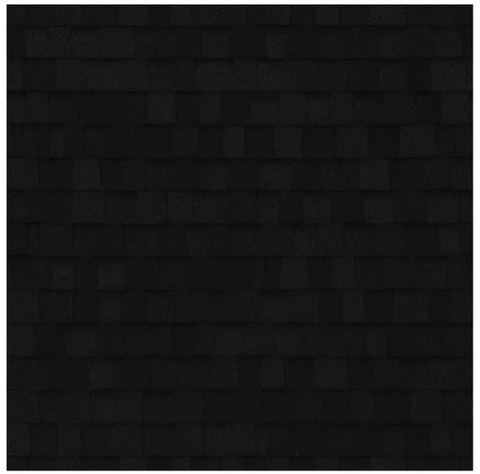
FIDUCIARY REAL ESTATE DEVELOPMENT, INC
ARCHITECTURE

SEASONS AT CREST HILL | 18 UNIT BUILDING - DARK

EXTERIOR MATERIAL PALETTE

CREST HILL | **ILLINOIS**

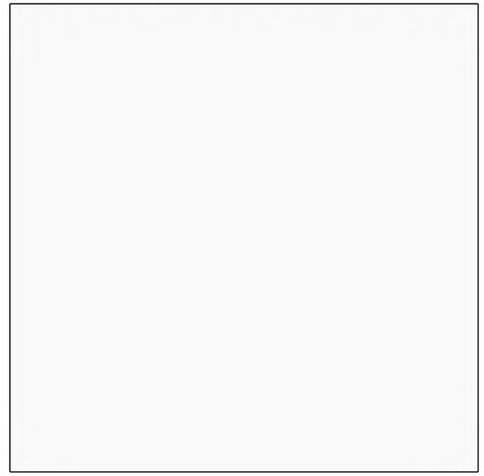
SHINGLES
ASPHALT | **CHARCOAL - A**



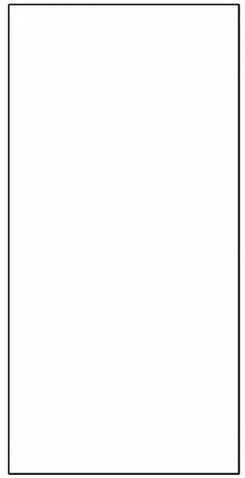
FIBER CEMENT LAP SIDING
CEDARMILL | **IRON GRAY - FC1, FC2**



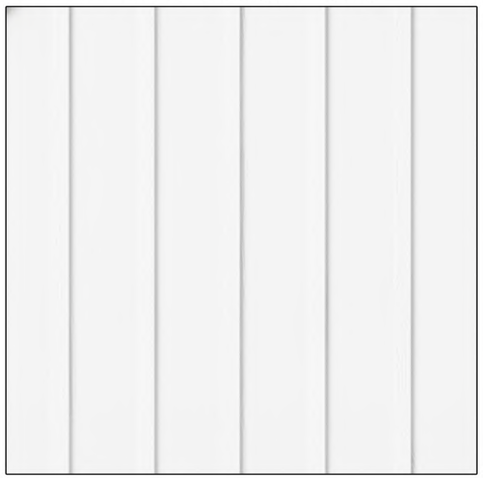
FIBER CEMENT TRIM
SMOOTH | **ARCTIC WHITE - FP2**



WINDOWS
WHITE



FIBER CEMENT BOARD & BATTEN
SMOOTH | **ARCTIC WHITE - FP1**



BRICK
GLEN GERY ANTIQUE WHITE - B



DOORS
COLOR MATCHED | **IRON GRAY**



CAST STONE - TBDTBDTBD
LIMESTONE



FIDUCIARY REAL ESTATE DEVELOPMENT, INC

ARCHITECTURE

MATERIAL LEGEND

A - ASPHALT SHINGLE
B - BRICK - GLEN GERY - ANTIQUE WHITE - MODULAR
FC1 - FIBER CEMENT SIDING - IRON GREY - LAP SIDING 6" EXPOSURE
FC2 - FIBER CEMENT SIDING - IRON GREY - LAP SIDING 4" EXPOSURE
FC3 - FIBER CEMENT SIDING - ARCTIC WHITE - LAP SIDING 6" EXPOSURE
FC4 - FIBER CEMENT SIDING - ARCTIC WHITE - LAP SIDING 4" EXPOSURE
FP1 - FIBER CEMENT PANEL - ARCTIC WHITE - BOARD AND BATTEN 16" O.C.
FP2 - FIBER CEMENT PANEL - ARCTIC WHITE - SMOOTH
FP3 - FIBER CEMENT PANEL - IRON GREY - BOARD AND BATTEN 16" O.C.
M - METAL ROOF - STANDING SEAM

COLOR LEGEND:

GREY COLOR PALETTE:
BUILDINGS C, D, E, G, H, M, N
FC1 - IRON GREY
FC2 - IRON GREY
FC3 - IRON GREY - BATTENS TO MATCH
FP1 - ARCTIC WHITE - BATTENS TO MATCH
FP2 - ARCTIC WHITE

FIBER CEMENT TRIM - ARCTIC WHITE
FIBER CEMENT COLUMN TRIM AND PANEL TO BE ARCTIC WHITE

WHITE COLOR PALETTE:
BUILDINGS A, B, F, I, J, K, L
FC1 - ARCTIC WHITE
FC2 - ARCTIC WHITE
FP1 - ARCTIC WHITE - BATTENS TO MATCH
FP2 - ARCTIC WHITE

FIBER CEMENT TRIM - MIDNIGHT BLACK
FIBER CEMENT COLUMN TRIM AND PANEL TO BE ARCTIC WHITE

MASONRY CALCULATIONS:

	BRICK AREA / OVERALL FACADE*
FRONT ELEVATION	878 sqft / 2519 sqft = 35%
GARAGE ELEVATION	265 sqft / 2776 sqft = 9.5%
SIDE 1	214 sqft / 839 sqft = 25.5%
SIDE 2	140 sqft / 926 sqft = 15%
AVERAGE	1,497 sqft / 7,060 sqft = 21.2%

*OVERALL FACADE CALCULATION EXCLUDES WINDOWS AND DOORS

HIGH QUALITY MATERIAL
B
GLEN GERY - ANTIQUE WHITE

PRIMARY COLOR 1
FP1, FP2
JAMES HARDIE ARCTIC WHITE

PRIMARY COLOR 2
FC3, FC4
JAMES HARDIE ARCTIC WHITE



FRONT ELEVATION
Scale: 1/8"=1'
4 / A500



SIDE ELEVATION
Scale: 1/8"=1'
3 / A500



SIDE ELEVATION
Scale: 1/8"=1'
2 / A500



BACK ELEVATION
Scale: 1/8"=1'
1 / A500

Crest Hill, Illinois | RENDERINGS ARE ARTISTS REPRESENTATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY

SEASONS AT CREST HILL | 18-UNIT ELEVATIONS - WHITE COLOR PALETTE

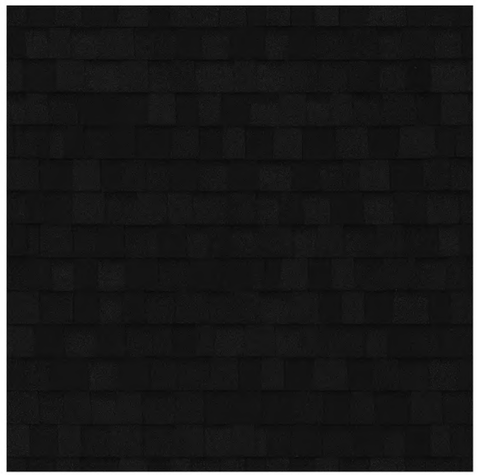
FIDUCIARY REAL ESTATE DEVELOPMENT, INC
ARCHITECTURE

SEASONS AT CREST HILL | 18 UNIT BUILDING - LIGHT

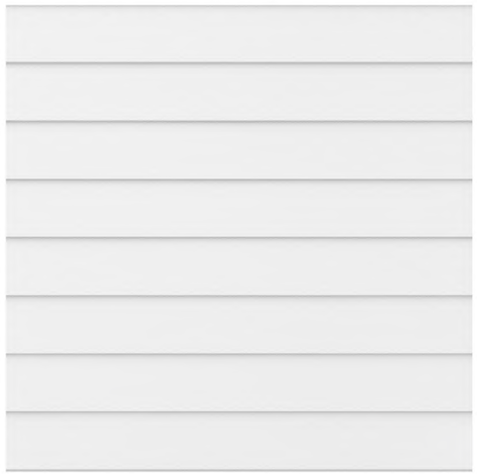
EXTERIOR MATERIAL PALETTE

CREST HILL | **ILLINOIS**

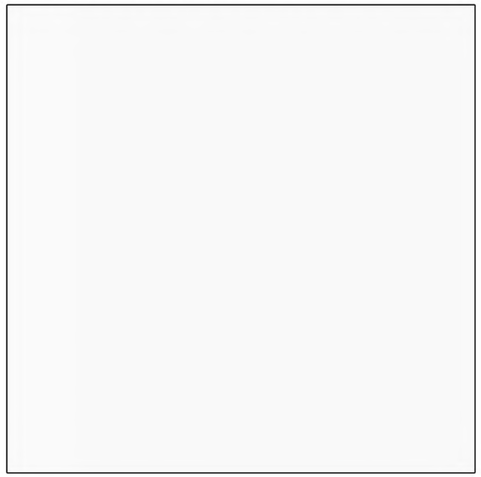
SHINGLES
ASPHALT | **CHARCOAL - A**



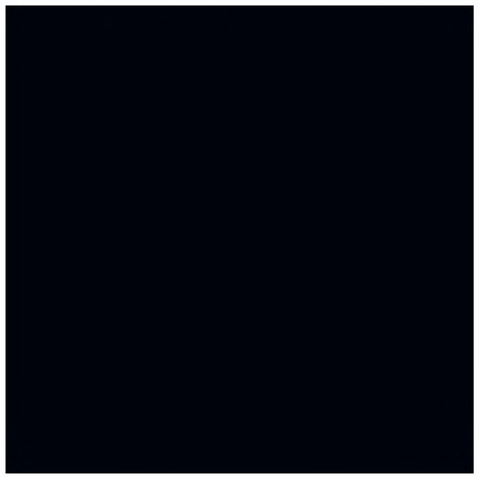
FIBER CEMENT LAP SIDING
CEDARMILL | **ARCTIC WHITE - FC3, FC4**



FIBER CEMENT TRIM
SMOOTH | **ARCTIC WHITE - FP2**



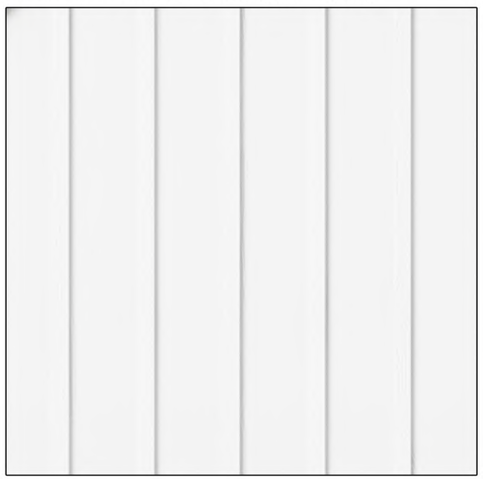
FIBER CEMENT TRIM
SMOOTH | **MIDNIGHT BLACK**



WINDOWS
BLACK



FIBER CEMENT BOARD & BATTEN
SMOOTH | **ARCTIC WHITE - FP1**



BRICK
GLEN GERY ANTIQUE WHITE - B



DOORS
COLOR MATCHED | **IRON GRAY**

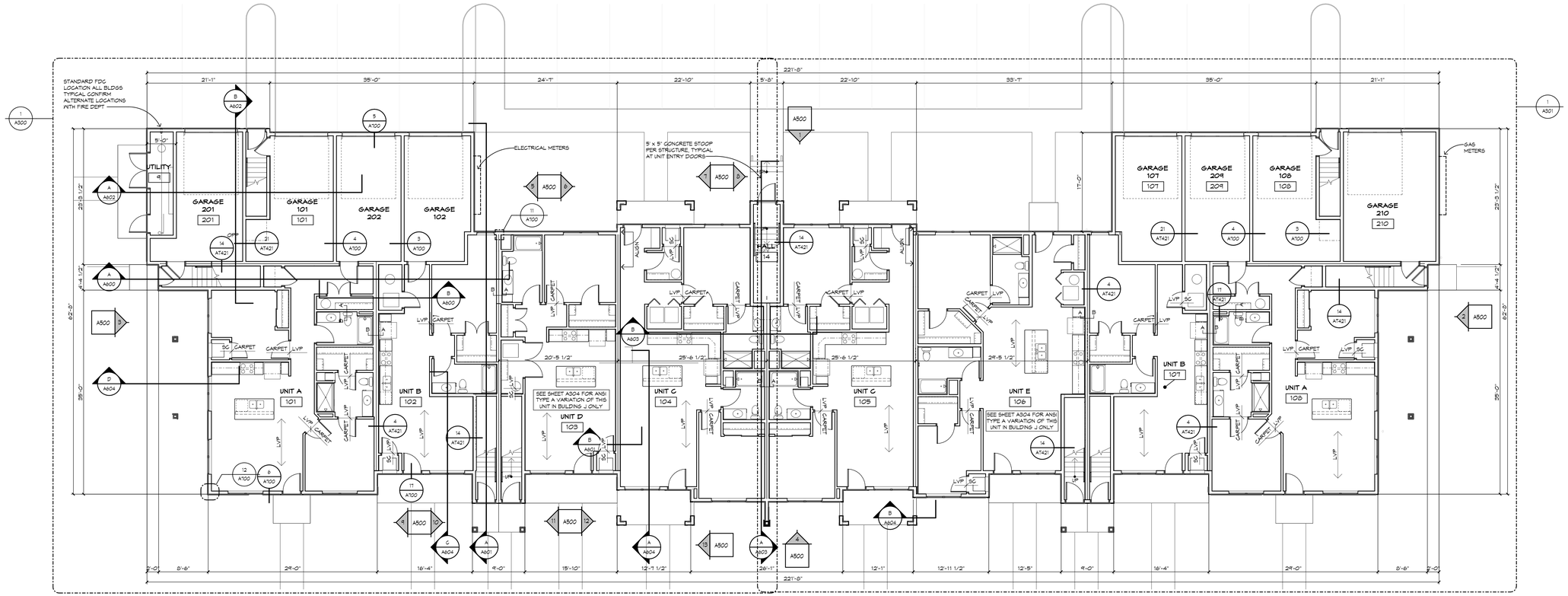


CAST STONE - TBDTBDTBD
LIMESTONE



FIDUCIARY
REAL ESTATE DEVELOPMENT, INC

ARCHITECTURE



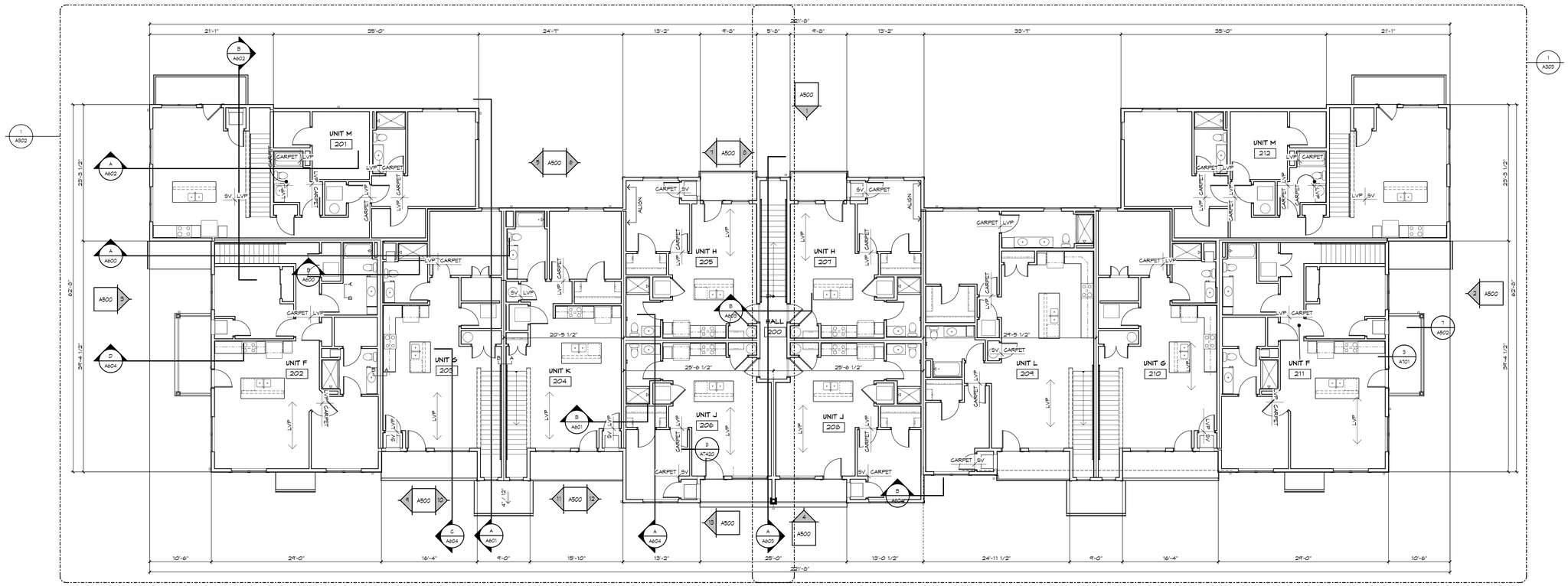
SHEET PRINTED ON: 9/27/2021 4:57:39 AM
FILE PATH: Autodesk Docs://2129(1) FRED Gurnee/2129(1) FRED Gurnee BL Arch 20 Unit R25.rvt

Crest Hill, Illinois | RENDERINGS ARE ARTISTS REPRESENTATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY

SEASONS AT CREST HILL | 20 - UNIT BUILDING FIRST FLOOR PLAN

FIDUCIARY REAL ESTATE DEVELOPMENT, INC

ARCHITECTURE



SHEET PRINTED ON:
3/27/2023 8:54 AM
FILE PATH:
Autodesk Docs://25901 FRED Gurnee/25901 FRED Gurnee-L Arch 20 Unit R25.rvt

Crest Hill, Illinois | RENDERINGS ARE ARTISTS REPRESENTATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY

SEASONS AT CREST HILL | 20 - UNIT BUILDING SECOND FLOOR PLAN

FIDUCIARY REAL ESTATE DEVELOPMENT, INC

ARCHITECTURE

MATERIAL LEGEND

A - ASPHALT SHINGLE
B - BRICK - GLEN GERY - ANTIQUE WHITE - MODULAR
FC1 - FIBER CEMENT SIDING - IRON GREY - LAP SIDING 6" EXPOSURE
FC2 - FIBER CEMENT SIDING - IRON GREY - LAP SIDING 4" EXPOSURE
FC3 - FIBER CEMENT SIDING - ARCTIC WHITE - LAP SIDING 6" EXPOSURE
FC4 - FIBER CEMENT SIDING - ARCTIC WHITE - LAP SIDING 4" EXPOSURE
FP1 - FIBER CEMENT PANEL - ARCTIC WHITE - BOARD AND BATTEN 16" O.C.
FP2 - FIBER CEMENT PANEL - ARCTIC WHITE - SMOOTH
FP3 - FIBER CEMENT PANEL - IRON GREY - BOARD AND BATTEN 16" O.C.
M - METAL ROOF - STANDING SEAM

COLOR LEGEND:

GREY COLOR PALETTE:
BUILDINGS C, D, E, G, H, M, N
FC1 - IRON GREY
FC2 - IRON GREY
FC3 - IRON GREY - BATTENS TO MATCH
FP1 - ARCTIC WHITE - BATTENS TO MATCH
FP2 - ARCTIC WHITE

FIBER CEMENT TRIM - ARCTIC WHITE
FIBER CEMENT COLUMN TRIM AND PANEL TO BE ARCTIC WHITE

WHITE COLOR PALETTE:
BUILDINGS A, B, F, I, J, K, L
FC1 - ARCTIC WHITE
FC2 - ARCTIC WHITE
FP1 - ARCTIC WHITE - BATTENS TO MATCH
FP2 - ARCTIC WHITE

FIBER CEMENT TRIM - MIDNIGHT BLACK
FIBER CEMENT COLUMN TRIM AND PANEL TO BE ARCTIC WHITE

MASONRY CALCULATIONS:

	BRICK AREA / OVERALL FACADE*
FRONT ELEVATION	856 sqft / 2446 sqft = 33.5%
GARAGE ELEVATION	225 sqft / 3029 sqft = 7.2%
SIDE 1	178 sqft / 852 sqft = 20.3%
SIDE 2	178 sqft / 852 sqft = 20.3%
AVERAGE	1,437 sqft / 7,179 sqft = 20.0%

*OVERALL FACADE CALCULATION EXCLUDES WINDOWS AND DOORS

HIGH QUALITY MATERIAL



B
GLEN GERY - ANTIQUE WHITE

PRIMARY COLOR 1



FP1, FP2
JAMES HARDIE ARCTIC WHITE

PRIMARY COLOR 2



FC1, FC2,
JAMES HARDIE IRON GREY



FRONT ELEVATION — Scale: 1/8"=1' — 4 / A500



SIDE ELEVATION — Scale: 1/8"=1' — 3 / A500



SIDE ELEVATION — Scale: 1/8"=1' — 2 / A500



BACK ELEVATION — Scale: 1/8"=1' — 1 / A500

Crest Hill, Illinois | RENDERINGS ARE ARTISTS REPRESENTATIONS SHOWN FOR ILLUSTRATION PURPOSES ONLY

SEASONS AT CREST HILL | 20-UNIT ELEVATIONS - GREY COLOR PALETTE

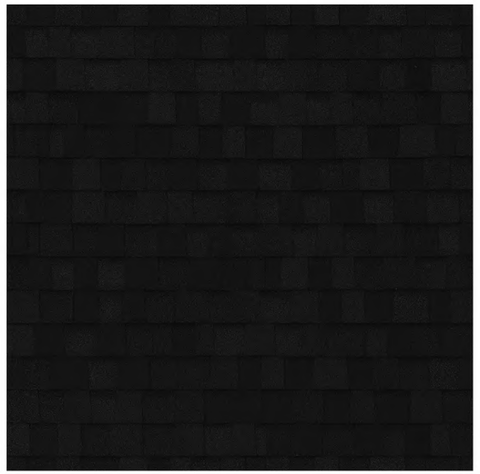
ARCHITECTURE

SEASONS AT CREST HILL | 20 UNIT BUILDING

EXTERIOR MATERIAL PALETTE

CREST HILL | **ILLINOIS**

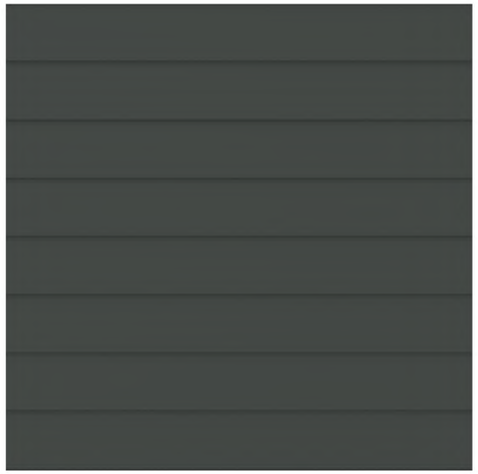
SHINGLES
ASPHALT | **CHARCOAL - A**



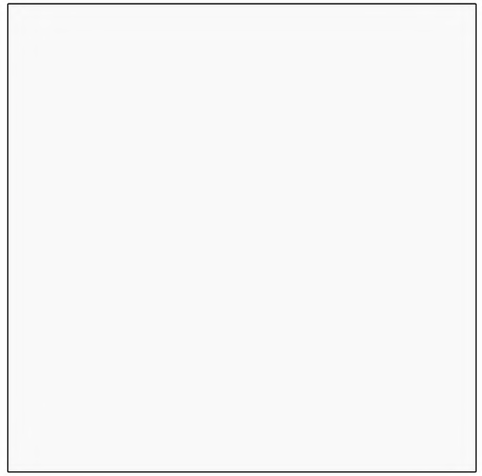
FIBER CEMENT BOARD & BATTEN
SMOOTH | **IRON GRAY - FP3**



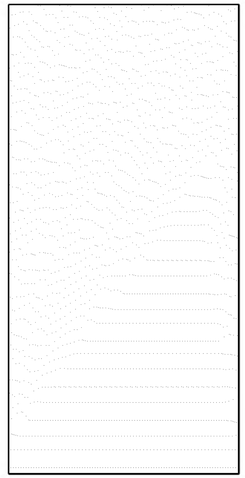
FIBER CEMENT LAP SIDING
CEDARMILL | **IRON GRAY - FC1, FC2**



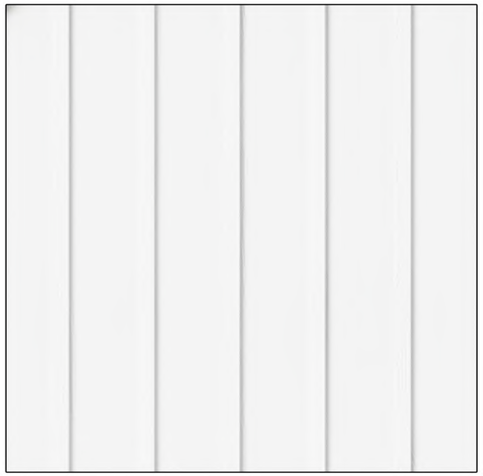
FIBER CEMENT TRIM
SMOOTH | **ARCTIC WHITE - FP2**



WINDOWS
WHITE



FIBER CEMENT BOARD & BATTEN
SMOOTH | **ARCTIC WHITE - FP1**



BRICK
GLEN GERY ANTIQUE WHITE - B



DOORS
COLOR MATCHED | **IRON GRAY**

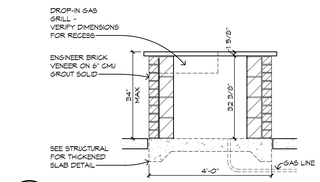


CAST STONE - TBDTBDTBD
LIMESTONE

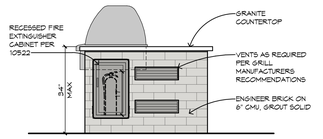


FIDUCIARY
REAL ESTATE DEVELOPMENT, INC

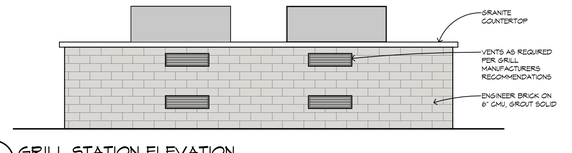
ARCHITECTURE



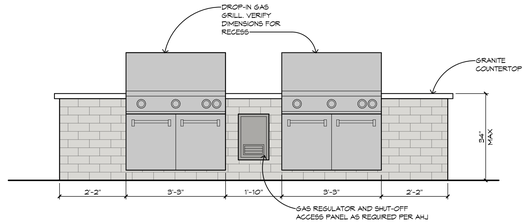
6 A230 GRILL STATION SECTION



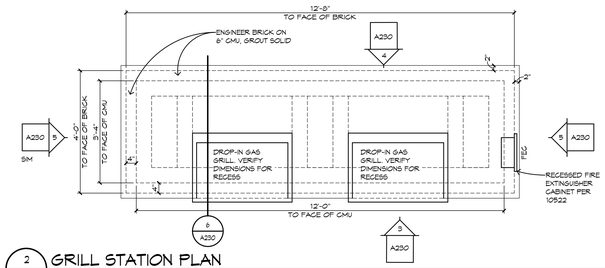
5 A230 GRILL STATION ELEVATION



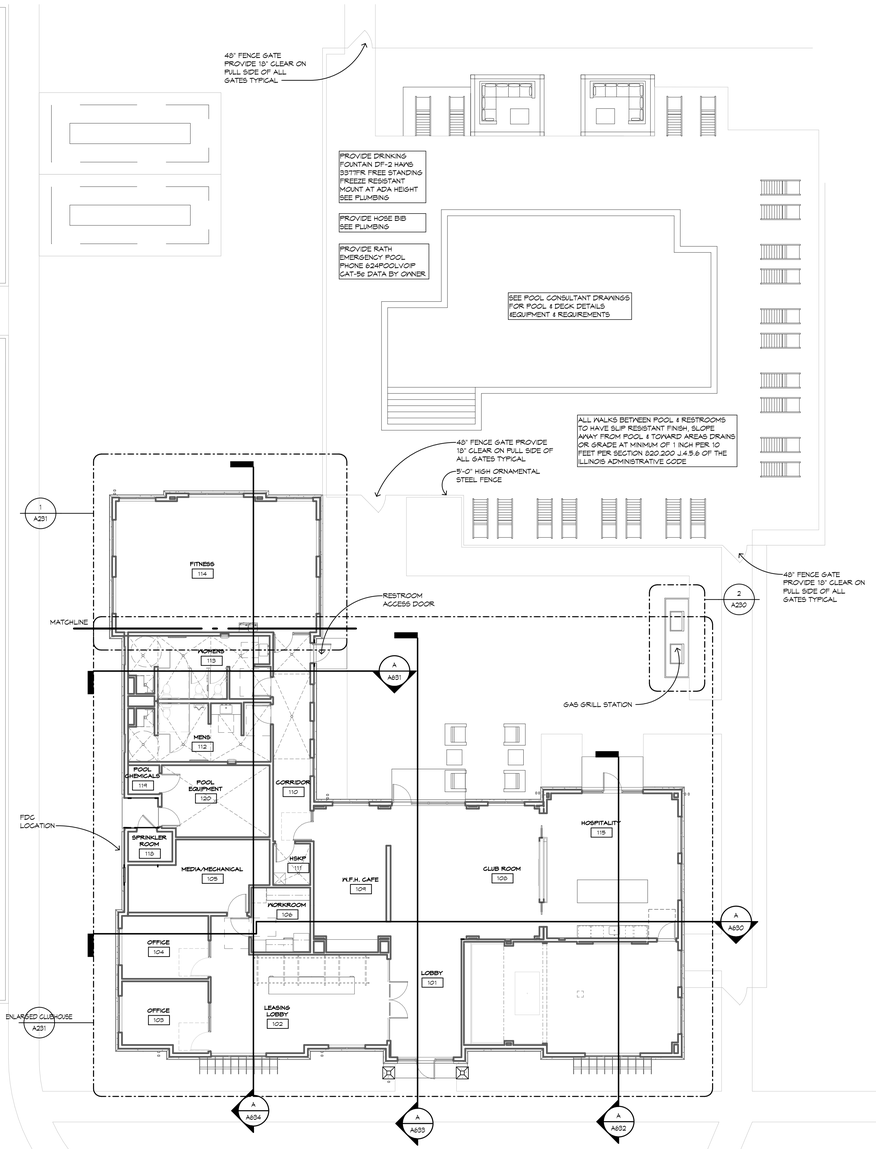
4 A230 GRILL STATION ELEVATION



3 A230 GRILL STATION ELEVATION



2 A230 GRILL STATION PLAN



Seasons at Crest Hill
CLUBHOUSE
Crest Hill IL 60403

AG ARCHITECTURE
Bright Vision. Bold Communities.

REVISIONS

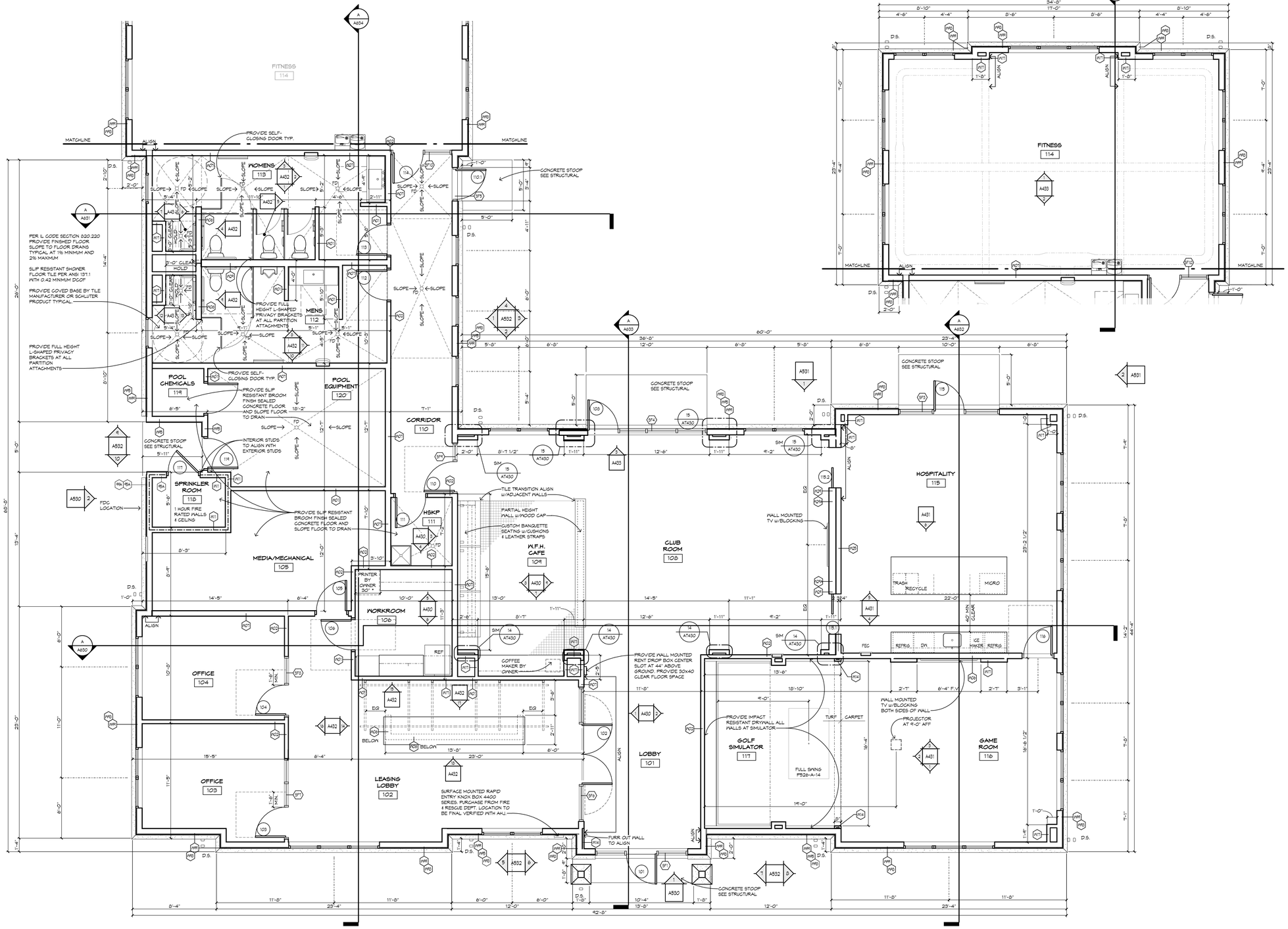
NO.	DATE	DESCRIPTION

THIS DRAWING, ITS DESIGN CONCEPT AND ITS DETAIL ARE THE SOLE PROPERTY OF AG ARCHITECTURE, INC AND SHALL NOT BE COPIED IN ANY FORM OR MANNER WITHOUT WRITTEN AUTHORIZATION OF ITS DESIGNER/CREATOR

DATE
14 JANUARY 2026
PROJECT
252101
SHEET NO.
A230
CLUBHOUSE

1" = 10'-0" OVERALL SITE AND FLOOR PLAN

SHEET PRINTED ON:
LAST SAVED ON:
FILE PATH:
Autodesk Docs://252101 FRED Crest Hill/252101 FRED Crest Hill SL Arch Clubhouse R25.rvt



FLOOR PLAN GENERAL NOTES

DIMENSIONS AT EXTERIOR WALLS ARE TO FACE OF BRICK OR SHEATHING. ALIGN WITH FOUNDATION WALL BELOW.

ALL OTHER DIMENSIONS ARE TO FACE OF STUD.

VERIFY ALL ROUGH AND MASONRY OPENINGS (M.O.) WITH APPROVED SHOP DRAWINGS.

FIELD VERIFY ALL TOPS, MIRRORS AND CABINETRY DIMENSIONS.

VERIFY WALL CONSTRUCTION WITH WALL TYPES.

COORDINATE WALL AND FLOOR CERAMIC TILE PATTERN WITH OWNER.

COORDINATE LOCATION OF KNOX BOX & RENT DROP BOX W/OWNER / AHJ / FIRE DEPARTMENT AS REQUIRED. INSTALL AT ACCESSIBLE HEIGHTS PER SHEET AT431.

PROVIDE FINISHED FLOOR SLOPE TO FLOOR DRAINS TYPICAL 1% MINIMUM AND 2% MAXIMUM

6'-6" * — DIMENSIONS SHOWN AS ROUGH OPENINGS FOR SPECIFIC PRODUCTS BASED ON CURRENT INFORMATION AVAILABLE AT TIME OF DRAWING PREPARATION. CONTRACTOR TO VERIFY AS APPROPRIATE.

6'-6" ** — PLUS OR MINUS - FOR REFERENCE ONLY.

WALL TYPES	SHEET AT330
DOOR SCHEDULE	SHEET AT130
WINDOW & STOREFRONT SCHEDULE	SHEET A830
INTERIOR FINISH & MOUNTING HEIGHT SCHEDULE	SHEET AT431 & SPEC

FEC FIRE EXTINGUISHER WITH RECESSED CABINET PER SECTION 10522 SEE DETAIL 15/AT430

AED AUTOMATED EXTERNAL DEFIBRILLATOR AND CABINET WITH AUDIBLE ALARM
PHILIPS HEARTSTART ONSITE AED
SEMI-RECESSED AED CABINET WITH AUDIBLE ALARM
1805R3-1 aeduniverse.com
SEE DETAIL 15/AT430 SIM

FURNITURE LAYOUT IS FOR GENERAL REFERENCE ONLY. OWNER TO SELECT FURNITURE.

Seasons at Crest Hill
CLUBHOUSE
Crest Hill IL 60403

AG ARCHITECTURE
Bright Vision. Bold Communities.

REVISIONS

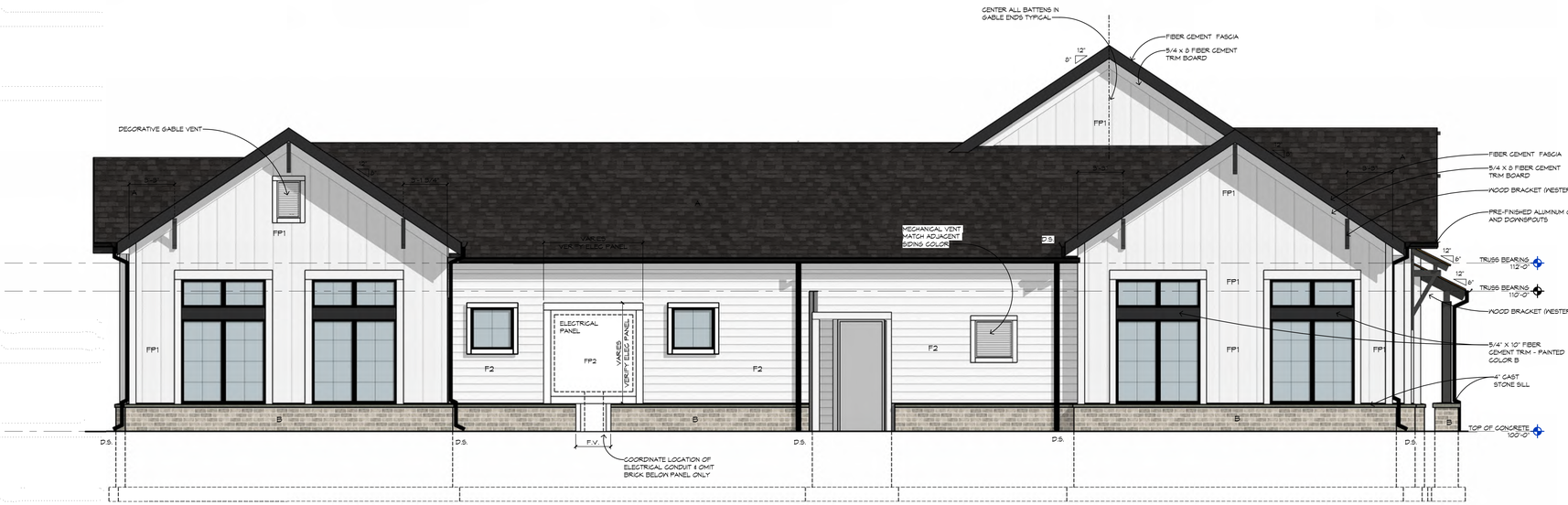
NO.	DATE	DESCRIPTION

THIS DRAWING, ITS DESIGN CONCEPT AND ITS DETAIL ARE THE SOLE PROPERTY OF AG ARCHITECTURE, INC. AND SHALL NOT BE COPIED IN ANY FORM OR MANNER WITHOUT WRITTEN AUTHORIZATION OF ITS DESIGNER/CREATOR

DATE
14 JANUARY 2026
PROJECT
252101
SHEET NO.

1/4" FLOOR PLAN A231 CLUBHOUSE

SHEET PRINTED ON:
1/13/2026 10:08:49 AM
FILE PATH:
AG\2025 DWGS\252101 FRED Crest Hill IL Arch Clubhouse R25.rvt



2 A530 NORTH ELEVATION



1 A530 EAST ELEVATION

EXTERIOR ELEVATION GENERAL NOTES

1. PROVIDE CONCRETE SPLASH BLOCKS AT ALL DOWNSPOUTS WHICH SPILL ONTO GRADE
2. ALL CONDUIT, METERS, VENTS, ETC. TO BE PAINTED TO MATCH ADJACENT SURFACE.
3. GUTTERS AND DOWNSPOUTS ARE PREFINISHED ALUMINUM - BLACK FINISH
4. SEE SHEET A532 FOR WINDOW AND STOREFRONT SCHEDULE - BLACK FINISH
5. ALL FIELD PAINTED FASCIAS TO BE COLOR B - TRIGORN BLACK SW 6258
6. FIBER CEMENT TRIM TO BE COLOR A - ARGTIC WHITE UNLESS NOTED OTHERWISE

EXTERIOR ELEVATION KEY NOTES:

MR	STANDING SEAM METAL ROOF - COLOR BLACK
A	THREE DIMENSIONAL ASPHALT SHINGLES - COLOR GAF CHARCOAL
B	BRICK - COLOR GLEN GEHRY ANTIQUE WHITE
F2	FIBER CEMENT LAP SIDING WITH 6" EXPOSURE - COLOR A - ARGTIC WHITE
FP1	VERTICAL FIBER CEMENT PANEL & BATTENS AT 16" O.C. - COLOR A - ARGTIC WHITE
FP2	SMOOTH FIBER CEMENT PANEL - COLOR A - ARGTIC WHITE
FP3	SMOOTH FIBER CEMENT PANEL - COLOR B - TRIGORN BLACK SW 6258

Seasons at Crest Hill

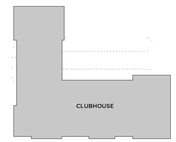
CLUBHOUSE

Crest Hill IL 60403

AG ARCHITECTURE
Bright Vision. Bold Communities.

REVISIONS

NO.	DATE	DESCRIPTION



THIS DRAWING, ITS DESIGN CONCEPT AND ITS DETAIL ARE THE SOLE PROPERTY OF AG ARCHITECTURE, INC. AND SHALL NOT BE COPIED IN ANY FORM OR MANNER WITHOUT WRITTEN AUTHORIZATION OF ITS DESIGNER/CREATOR

DATE
14 JANUARY 2026

PROJECT
252101

SHEET NO.

1/4" EXTERIOR ELEVATIONS A530 CLUBHOUSE

SHEET PRINTED ON:
1/20/2026 2:09:08 PM
FILE PATH:
Autodesk Docs://252101 FRED Crest Hill IL Arch Clubhouse R25.rvt

EXTERIOR ELEVATION GENERAL NOTES

1. PROVIDE CONCRETE SPLASH BLOCKS AT ALL DOWNSPOUTS WHICH SPILL ONTO GRADE.
2. ALL CONDUIT, METERS, VENTS, ETC. TO BE PAINTED TO MATCH ADJACENT SURFACE.
3. GUTTERS AND DOWNSPOUTS ARE PREFINISHED ALUMNUM - BLACK FINISH
4. SEE SHEET A532 FOR WINDOW AND STOREFRONT SCHEDULE - BLACK FINISH
5. ALL FIELD PAINTED FASCIAS TO BE COLOR B - TRIGORN BLACK SW 6258
6. FIBER CEMENT TRIM TO BE COLOR A - ARCTIC WHITE UNLESS NOTED OTHERWISE

EXTERIOR ELEVATION KEY NOTES:

MR	STANDING SEAM METAL ROOF - COLOR BLACK
A	THREE DIMENSIONAL ASPHALT SHINGLES - COLOR GAF CHARCOAL
B	BRICK - COLOR GLEN GERRY ANTIQUE WHITE
F2	FIBER CEMENT LAP SIDING WITH 6" EXPOSURE - COLOR A - ARCTIC WHITE
FP1	VERTICAL FIBER CEMENT PANEL & BATTENS AT 16" O.C. - COLOR A - ARCTIC WHITE
FP2	SMOOTH FIBER CEMENT PANEL - COLOR A - ARCTIC WHITE
FP3	SMOOTH FIBER CEMENT PANEL - COLOR B - TRIGORN BLACK SW 6258



2 A531 SOUTH ELEVATION



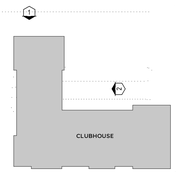
1 A531 WEST ELEVATION

Seasons at Crest Hill
CLUBHOUSE
Crest Hill IL 60403

AG ARCHITECTURE
Bright Vision. Bold Communities.

REVISIONS

NO.	DATE	DESCRIPTION



THIS DRAWING, ITS DESIGN CONCEPT AND ITS DETAIL ARE THE SOLE PROPERTY OF AG ARCHITECTURE, INC. AND SHALL NOT BE COPIED IN ANY FORM OR MANNER WITHOUT WRITTEN AUTHORIZATION OF ITS DESIGNER/CREATOR

DATE
14 JANUARY 2026
PROJECT
252101
SHEET NO.

1/4" EXTERIOR ELEVATIONS A531
CLUBHOUSE

SHEET PRINTED ON:
1/14/2026 2:00:47 PM
FILE PATH:
Autodesk Docs://252101 FRED Crest Hill/252101 FRED Crest Hill IL Arch Clubhouse R25.rvt

EXTERIOR ELEVATION GENERAL NOTES

EXTERIOR ELEVATION KEY NOTES:

A	THREE DIMENSIONAL ASPHALT SHINGLES - GAF; COLOR - CHARCOAL
B	BRICK - COLOR GLEN GERRY ANTIQUE WHITE
F2	FIBER CEMENT SIDING WITH 6" EXPOSURE - IRON GREY
FP1	VERTICAL FIBER CEMENT PANEL BATTENS AT 16" O.C. - ARCTIC WHITE

COLOR LEGEND
FIBER CEMENT TRIM TO BE ARCTIC WHITE UNLESS NOTED OTHERWISE
FIBER CEMENT COLUMN TRIM AND PANEL TO BE ARCTIC WHITE

GENERAL NOTES

DIMENSIONS AT EXTERIOR WALLS ARE TO FACE OF BRICK OR SHEATHING. ALIGN WITH FOUNDATION WALL BELOW.

PROVIDE CONCRETE SPLASH AT ALL DOWNSPOUTS THAT ARE NOT CONNECTED TO STORM SEWER.

ALL CONDUIT, METERS, VENTS ECT. TO BE PAINTED TO MATCH ADJACENT SURFACE.

SEE DOOR SCHEDULE SHEET AT120

SEE WALL TYPE SHEET AT300

GUTTERS AND DOWNSPOUTS TO BE PREFINISHED ALUMINUM.

ICE AND WATER SHIELD TO EXTEND HORIZONTALLY 24" MIN. INSIDE THE INTERIOR FACE OF THE EXTERIOR WALL TYP.

R.V. - RIDGE VENT

D.S. - DOWNSPOUT

INDICATES ICE AND WATER SHIELD

6'-6" * DIMENSIONS SHOWN AS ROUGH OPENINGS FOR SPECIFIC PRODUCTS BASED ON CURRENT INFORMATION AVAILABLE AT TIME OF DRAWING PREPARATION. CONTRACTOR TO VERIFY AS APPROPRIATE.

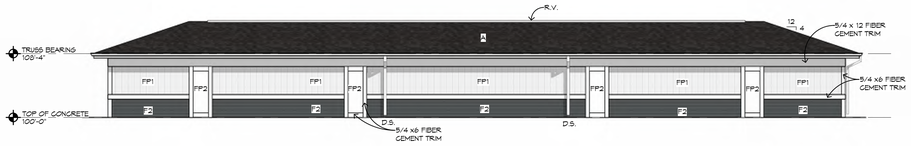
6'-6" ** PLUS OR MINUS - FOR REFERENCE ONLY.

DOOR NOTES

G.1 G.2 9'-0 x 7'-0 INSULATED SECTIONAL OVERHEAD GARAGE DOOR

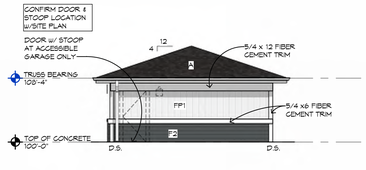
U UA 3'-0 x 6'-8 INSULATED FIBERGLASS ENTRY DOOR AND FRAME

C 3'-0 x 6'-8 WOOD DOOR AND FRAME



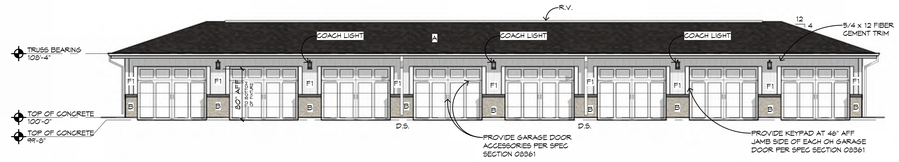
8 CAR GARAGE REAR ELEVATION

9 / 6230 — 1/8" = 1'-0" TYPICAL



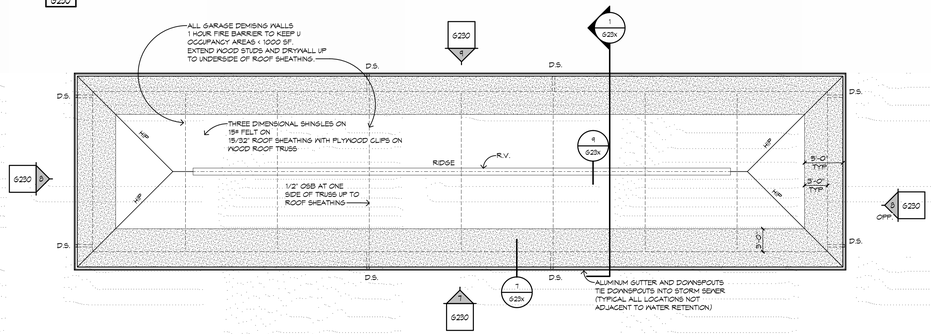
8 CAR GARAGE SIDE ELEVATION

8 / 6230 — 1/8" = 1'-0" TYPICAL



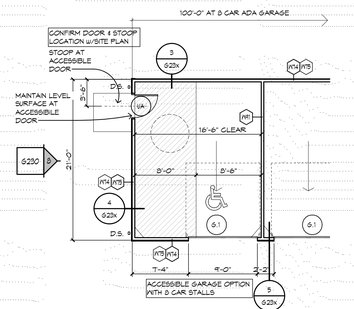
8 CAR GARAGE FRONT ELEVATION

7 / 6230 — 1/8" = 1'-0" TYPICAL



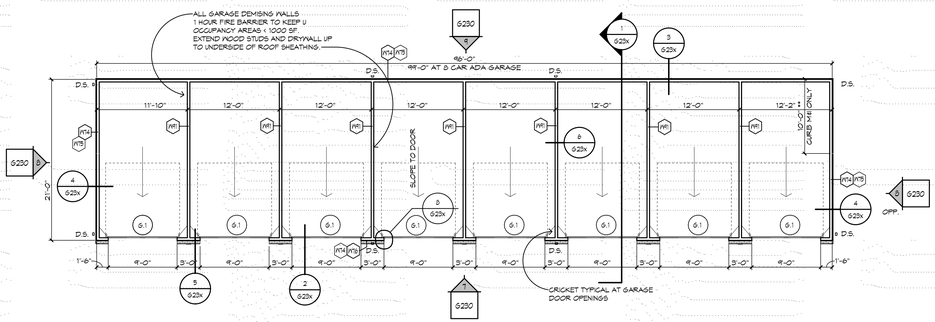
8 CAR GARAGE ROOF PLAN

5 / 6230 — 1/8" = 1'-0" TYPICAL



8 CAR GARAGE PARTIAL FLOOR PLAN

2 / 6230 — 1/8" = 1'-0" ACCESSIBLE



8 CAR GARAGE FLOOR PLAN

1 / 6230 — 1/8" = 1'-0" TYPICAL

SHEET PRINTED ON:
5/30/2025 11:07:13 AM
FILE PATH:
Autodesk Docs://252101 FRED Crest Hill/252101 FRED Crest Hill Arch SW Structural_R25.rvt

Seasons at Crest Hill

SITE STRUCTURES
CREST HILL, ILLINOIS

AG ARCHITECTURE
Bright Vision. Bold Communities.

REVISIONS

NO.	DATE	DESCRIPTION

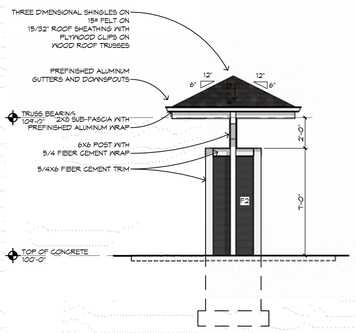
THIS DRAWING, ITS DESIGN CONCEPT AND ITS DETAIL ARE THE SOLE PROPERTY OF AG ARCHITECTURE, INC AND SHALL NOT BE COPIED IN ANY FORM OR MANNER WITHOUT WRITTEN AUTHORIZATION OF ITS DESIGNER/CREATOR

DATE
04 JUNE 2025

PROJECT
252101

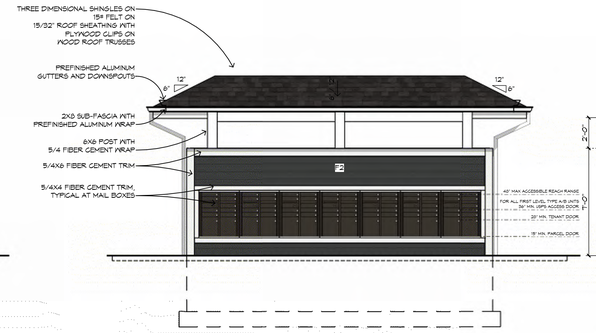
SHEET NO.

SITE DETAILS G230



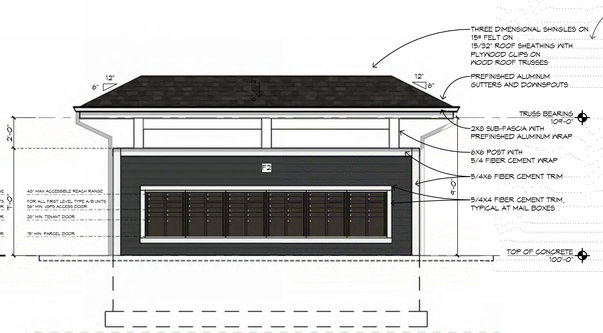
MAIL ELEVATION

13 / G231 — 1/4" = 1'-0"



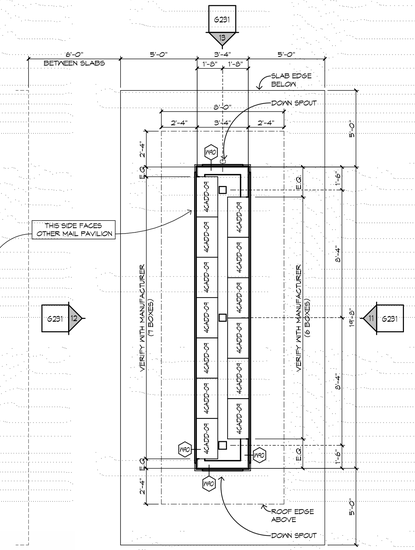
MAIL PAVILION ELEVATION

12 / G231 — 1/4" = 1'-0"



MAIL PAVILION ELEVATION

11 / G231 — 1/4" = 1'-0"



MAIL PAVILION PLAN

10 / G231

TRASH ENCLOSURE GENERAL NOTES:

DIMENSIONS AT EXTERIOR WALLS ARE TO FACE OF BRICK OR SHEATHING. ALIGN WITH FOUNDATION WALL BELOW.

VERIFY ALL ROUGH AND MASONRY OPENINGS (M.O.) WITH APPROVED SHOP DRAWINGS.

SEE SHEET G230 FOR EXTERIOR ELEVATION GENERAL NOTES & COLOR KEY.

6'-6" * — DIMENSIONS SHOWN AS ROUGH OPENINGS FOR SPECIFIC PRODUCTS BASED ON CURRENT INFORMATION AVAILABLE AT TIME OF DRAWING PREPARATION. CONTRACTOR TO VERIFY AS APPROPRIATE.

6'-6" ** — PLUS OR MINUS - FOR REFERENCE ONLY.

EXTERIOR ELEVATION GENERAL NOTES

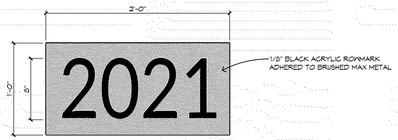
EXTERIOR ELEVATION KEY NOTES:

A	THREE DIMENSIONAL ASPHALT SHINGLES - GAF: COLOR - CHARCOAL
B	BRICK - COLOR GLEN GERRY ANTIQUE WHITE
F2	FIBER CEMENT SIDING WITH 6" EXPOSURE - IRON GREY
FP1	VERTICAL FIBER CEMENT PANEL BATTENS AT 16" O.C. - ARCTIC WHITE

COLOR LEGEND
FIBER CEMENT TRIM TO BE ARCTIC WHITE UNLESS NOTED OTHERWISE
FIBER CEMENT COLUMN TRIM AND PANEL TO BE ARCTIC WHITE

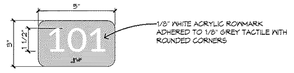
GARAGE ID SIGNAGE

8 / G231 — 1 1/2" = 1'-0"



BUILDING ID/ADDRESS SIGNAGE

9 / G231 — 1 1/2" = 1'-0"



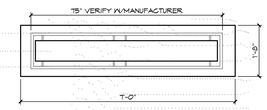
DOOR ID SIGNAGE

7 / G231 — 3" = 1'-0"

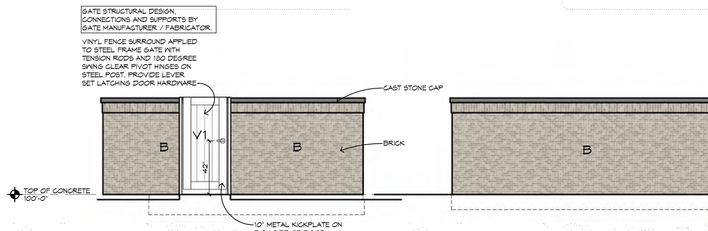


MONUMENT SIGN - B

6 / G231 — 1/2" = 1'-0" ELEVATION

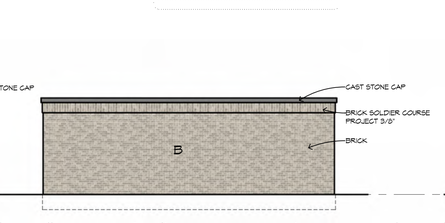


MONUMENT SIGN B



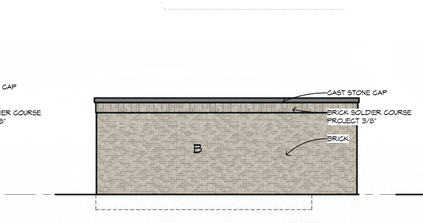
TRASH ENCLOSURE SIDE ELEVATION

4 / G231



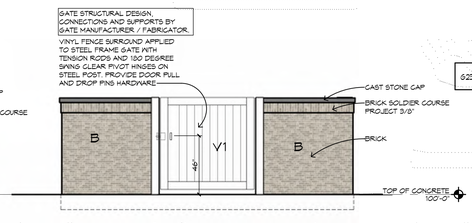
TRASH ENCLOSURE REAR ELEVATION

3 / G231



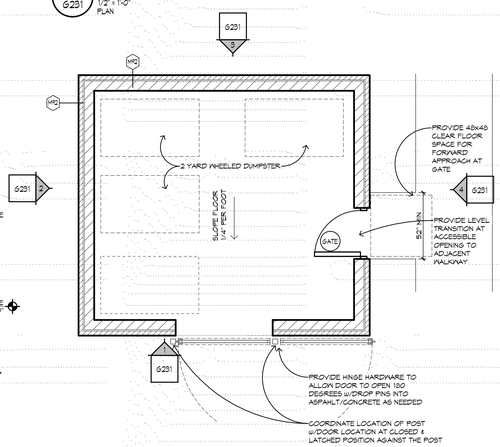
TRASH ENCLOSURE SIDE ELEVATION

2 / G231



TRASH ENCLOSURE FRONT ELEVATION

1 / G231



MONUMENT SIGN - A AND B

5 / G231 — 1/2" = 1'-0" PLAN

Seasons at Crest Hill

SITE STRUCTURES

CREST HILL, ILLINOIS

AG ARCHITECTURE
Bright Vision. Bold Communities.

REVISIONS

NO.	DATE	DESCRIPTION

THIS DRAWING, ITS DESIGN CONCEPT AND ITS DETAIL ARE THE SOLE PROPERTY OF AG ARCHITECTURE, INC. AND SHALL NOT BE COPIED IN ANY FORM OR MANNER WITHOUT WRITTEN AUTHORIZATION OF ITS DESIGNER/CREATOR

DATE
10 October 2025

PROJECT
252101

SHEET NO.

SITE DETAILS G231

SHEET PRINTED ON:
10/9/2025 11:08:14 AM
FILE PATH:
Autodesk Docs://252101 FRED Crest Hill/252101 FRED Crest Hill Arch Site Structures_R25.rvt

EXTERIOR ELEVATION GENERAL NOTES

EXTERIOR ELEVATION KEY NOTES:

A THREE DIMENSIONAL ASPHALT SHINGLES - GAF: COLOR - CHARCOAL

B BRICK - COLOR GLEN GERRY ANTIQUE WHITE

F2 FIBER CEMENT SIDING WITH 8" EXPOSURE - IRON GREY

FP1 VERTICAL FIBER CEMENT PANEL BATTENS AT 16" O.C. - ARCTIC WHITE

COLOR LEGEND:
FIBER CEMENT TRIM TO BE ARCTIC WHITE UNLESS NOTED OTHERWISE
FIBER CEMENT COLUMN TRIM AND PANEL TO BE ARCTIC WHITE

Seasons at Crest Hill

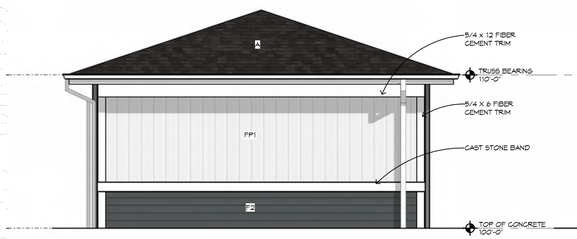
SITE STRUCTURES
CREST HILL, ILLINOIS

5 / 6232 MAINTENANCE GARAGE SIDE ELEVATION

1/4" = 1'-0" SEE SHEET G230 FOR MATERIAL LEGEND AND COLORS

4 / 6232 MAINTENANCE GARAGE BACK ELEVATION

1/4" = 1'-0" SEE SHEET G230 FOR MATERIAL LEGEND AND COLORS



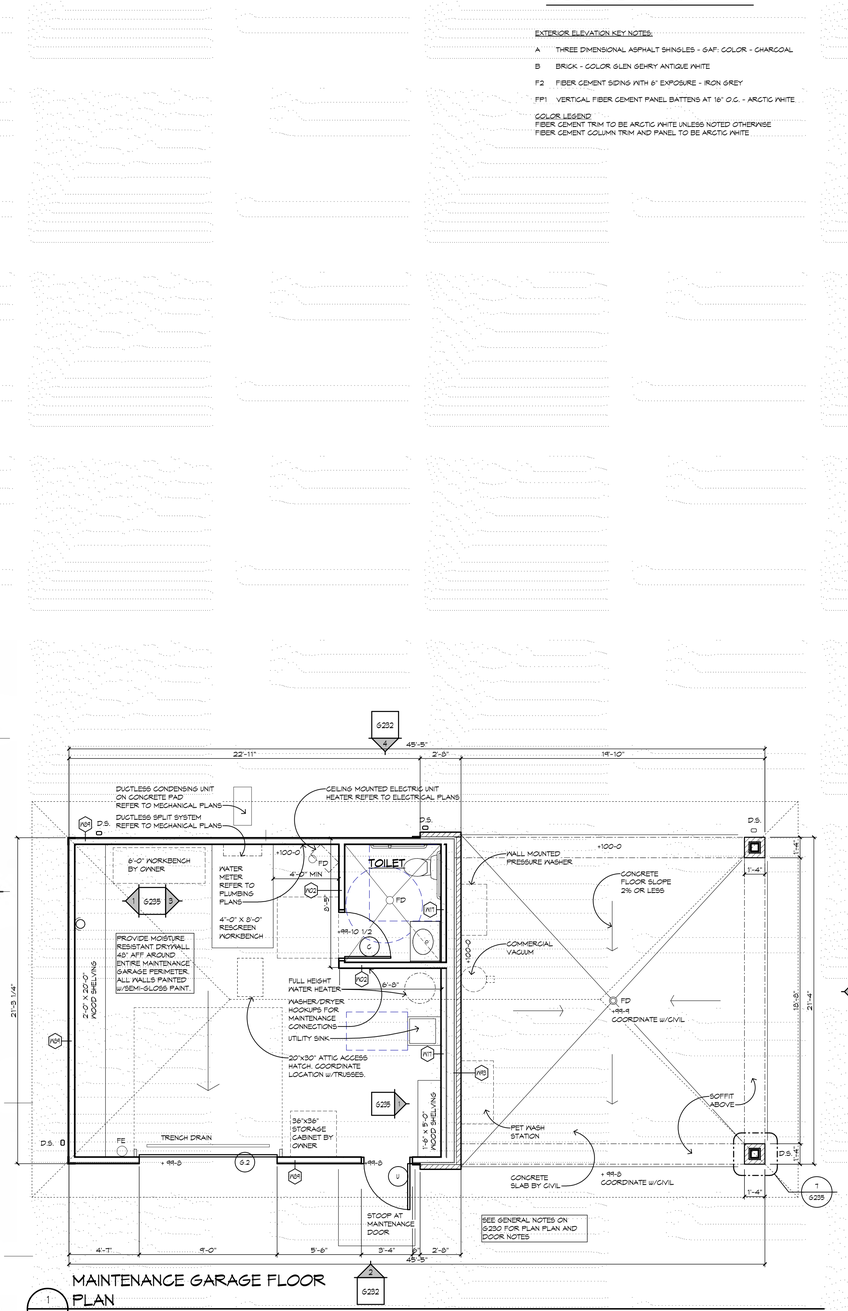
3 / 6232 MAINTENANCE GARAGE SIDE ELEVATION

1/4" = 1'-0" SEE SHEET G230 FOR MATERIAL LEGEND AND COLORS



2 / 6232 MAINTENANCE GARAGE FRONT ELEVATION

1/4" = 1'-0" SEE SHEET G230 FOR MATERIAL LEGEND AND COLORS



1 / 6232 MAINTENANCE GARAGE FLOOR PLAN

1/4" = 1'-0"

AG ARCHITECTURE
Bright Vision. Bold Communities.

REVISIONS

NO.	DATE	DESCRIPTION

THIS DRAWING, ITS DESIGN CONCEPT AND ITS DETAIL ARE THE SOLE PROPERTY OF AG ARCHITECTURE, INC. AND SHALL NOT BE COPIED IN ANY FORM OR MANNER WITHOUT WRITTEN AUTHORIZATION OF ITS DESIGNER/CREATOR

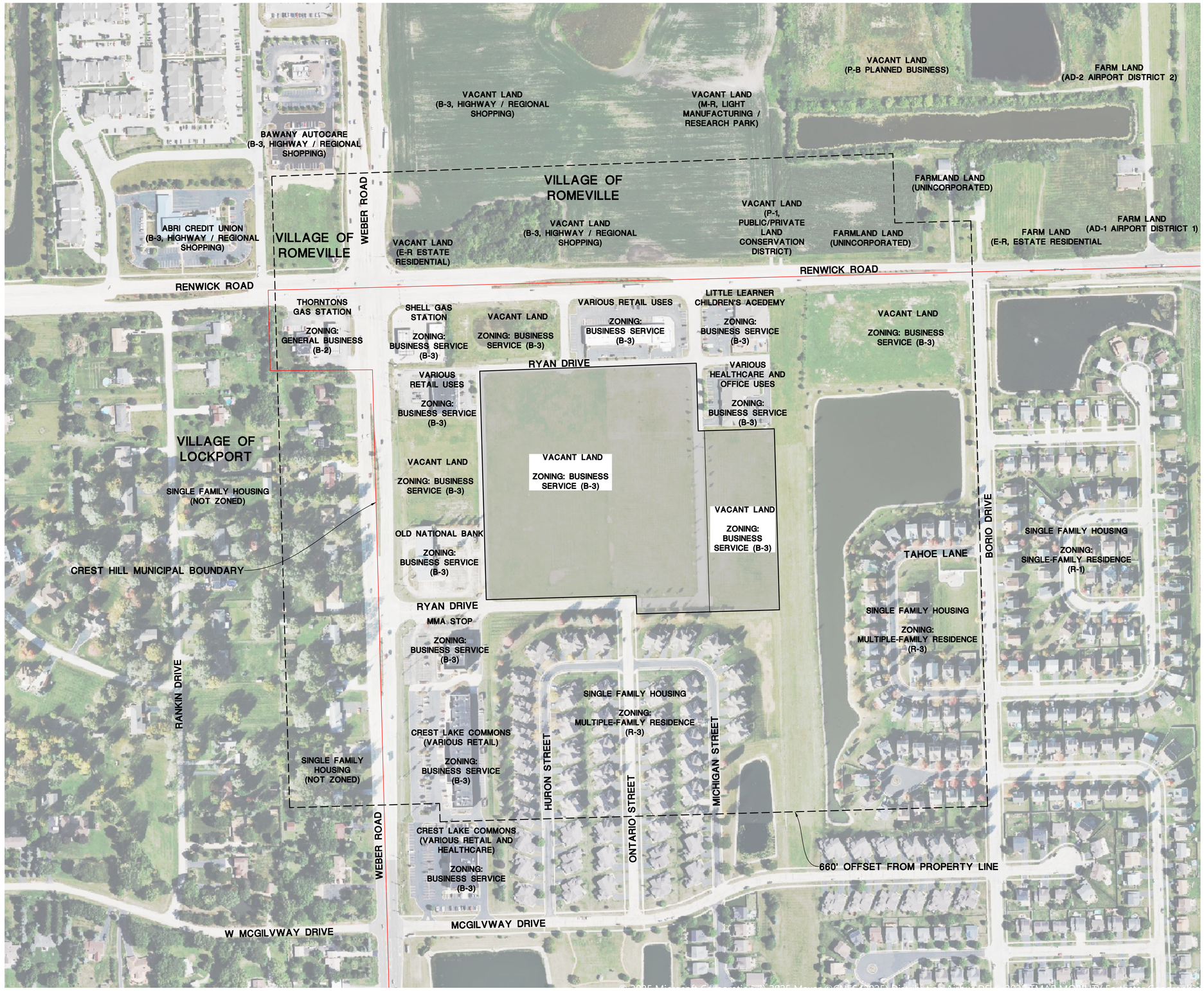
DATE
04 JUNE 2025

PROJECT
252101

SHEET NO.

SITE DETAILS G232
SITE

SHEET PRINTED ON:
SUN, 05 OCTOBER 2025
FILE PATH:
Autodesk Docs://252101 FRED Crest Hill/252101 FRED Crest Hill Arch Shr Structural_R24.rvt



N

0 75 150 300

SCALE: 1"=150'

DRAWN BY	REVISIONS	DATE
####		####

Manhard CONSULTING

One Parkview Plaza, Suite 2800 Lincoln Mall, IL 60563 phone 630.307.3000 fax 630.307.3001
Civil Engineers • Surveyors • Water Resource Engineers • Structural Engineers • Mechanical Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL

CITY OF CREST HILL

SURROUNDING ZONING EXHIBIT

PROJ. MGR.:	JSE
PROJ. ASSOC.:	MSL
DRAWN BY:	GAW
DATE:	10-13-25
SCALE:	1"=150'

SHEET

EXB.

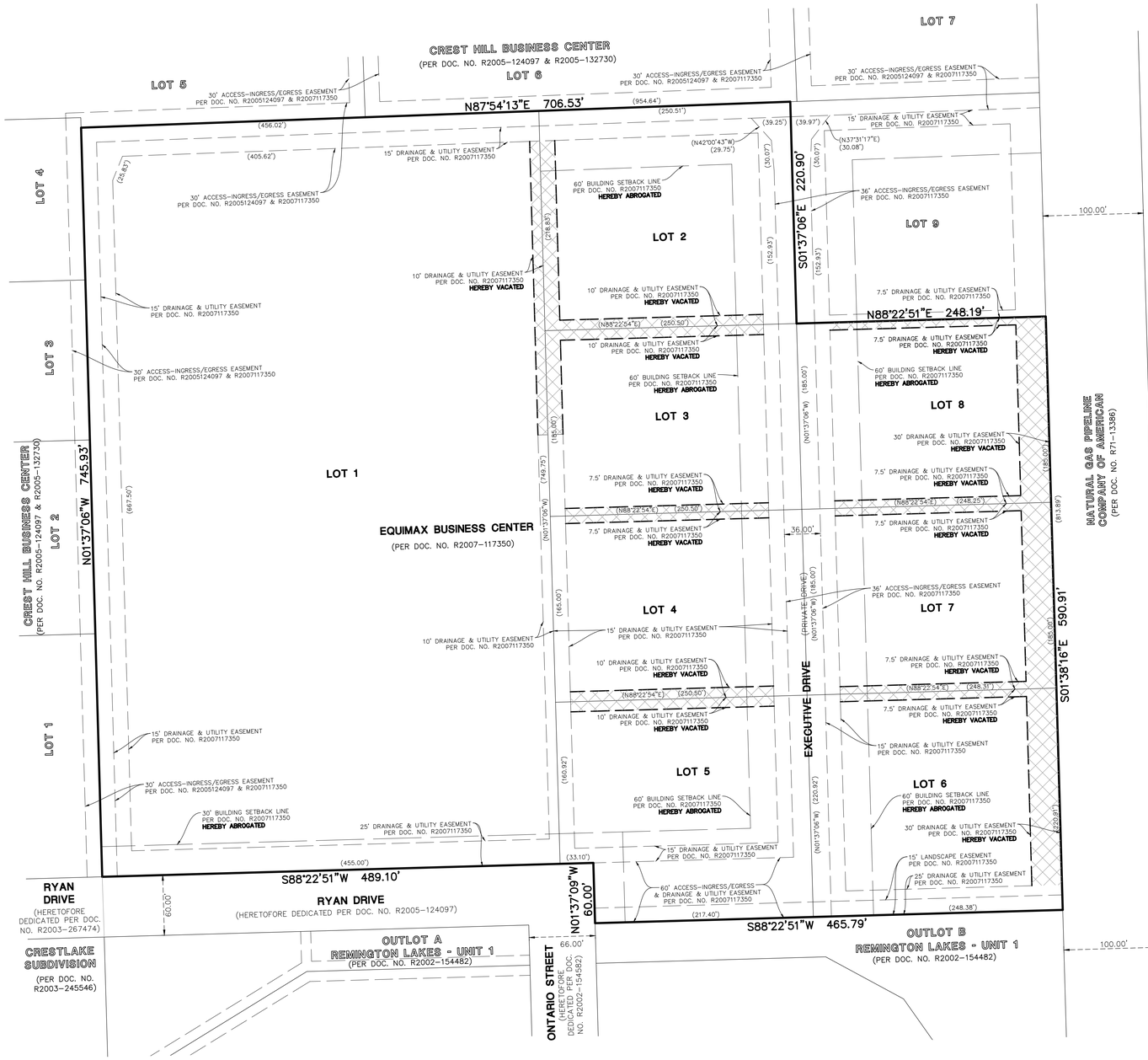
FRD.GUIL01

© 2025 MANHARD CONSULTING, ALL RIGHTS RESERVED

October 13, 2025 - 13:33 Dwg Name: P:\Projects\01\Civil\Eng\Preliminary\Exhibits\Eng\SURROUNDING ZONING EXHIBIT.dwg Updated By: jhastilowski

PLAT OF VACATION

BEING A SUBDIVISION OF PART OF THE NORTHWEST QUARTER OF SECTION 20, TOWNSHIP 36 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN WILL COUNTY, ILLINOIS



OWNER'S CERTIFICATE (LOT 1)

THIS IS TO CERTIFY THAT _____ IS THE LEGAL OWNER OF THE LAND DESCRIBED ON THE ATTACHED PLAT, AND HAS CAUSED SAID PROPERTY TO BE SURVEYED AND PLATTED FOR THE PURPOSE OF VACATING CERTAIN EASEMENTS AND DEDICATIONS AS SHOWN HEREON.

DATED THIS _____ DAY OF _____, A.D., 20___.

BY: _____

_____
PRINTED NAME AND TITLE

OWNER'S NAME AND ADDRESS
_____
_____
_____

ATTEST: _____

_____
PRINTED NAME AND TITLE

NOTARY PUBLIC (LOT 1)

STATE OF ILLINOIS)
)S.S.
COUNTY OF _____)

I, _____,
A NOTARY PUBLIC IN AND FOR THE COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT

_____AND _____
WHO IS PERSONALLY KNOWN TO ME TO BE THE SAME WHOSE NAME IS SUBSCRIBED TO THE FOREGOING CERTIFICATE, APPEARED BEFORE ME THIS DAY IN PERSON AND ACKNOWLEDGED THAT THEY DID SIGN AND DELIVER THIS ANNEXED PLAT AS A FREE AND VOLUNTARY ACT FOR THE PURPOSES THEREIN SET FORTH.

GIVEN UNDER MY HAND AND NOTORIAL SEAL THIS _____ DAY OF _____, A.D., 20___.

_____
NOTARY PUBLIC

OWNER'S CERTIFICATE (LOT 2-8)

THIS IS TO CERTIFY THAT _____ IS THE LEGAL OWNER OF THE LAND DESCRIBED ON THE ATTACHED PLAT, AND HAS CAUSED SAID PROPERTY TO BE SURVEYED AND PLATTED FOR THE PURPOSE OF VACATING CERTAIN EASEMENTS AND DEDICATIONS AS SHOWN HEREON.

DATED THIS _____ DAY OF _____, A.D., 20___.

BY: _____

_____
PRINTED NAME AND TITLE

OWNER'S NAME AND ADDRESS
_____
_____
_____

ATTEST: _____

_____
PRINTED NAME AND TITLE

NOTARY PUBLIC (LOT 2-8)

STATE OF ILLINOIS)
)S.S.
COUNTY OF _____)

I, _____,
A NOTARY PUBLIC IN AND FOR THE COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT

_____AND _____
WHO IS PERSONALLY KNOWN TO ME TO BE THE SAME WHOSE NAME IS SUBSCRIBED TO THE FOREGOING CERTIFICATE, APPEARED BEFORE ME THIS DAY IN PERSON AND ACKNOWLEDGED THAT THEY DID SIGN AND DELIVER THIS ANNEXED PLAT AS A FREE AND VOLUNTARY ACT FOR THE PURPOSES THEREIN SET FORTH.

GIVEN UNDER MY HAND AND NOTORIAL SEAL THIS _____ DAY OF _____, A.D., 20___.

_____
NOTARY PUBLIC

VACATION OF EASEMENT APPROVED AND ACCEPTED THE APPROVING

AUTHORITIES ON SIGNING THIS DOCUMENT HEREBY RELEASE AND CONSENT TO THE RELEASE, VACATION AND ABROGATION OF THE EASEMENTS AS GRANTED BY DOCUMENT R2007117350. (SHOWN HEREON)

ACCEPTED: _____ DATE: _____
NORTHERN ILLINOIS GAS COMPANY

_____
PRINTED NAME AND TITLE

ACCEPTED: _____ DATE: _____
AT&T (SBC, AMERITECH, ILLINOIS BELL)

_____
PRINTED NAME AND TITLE

ACCEPTED: _____ DATE: _____
COMCAST CABLE COMPANY

_____
PRINTED NAME AND TITLE

ACCEPTED: _____ DATE: _____
COMMONWEALTH EDISON

_____
PRINTED NAME AND TITLE

ACCEPTED: _____ DATE: _____
CITY OF CREST HILL

_____
PRINTED NAME AND TITLE

RECORDER'S CERTIFICATE

STATE OF ILLINOIS)
) SS
COUNTY OF WILL)

THIS INSTRUMENT FILED FOR RECORDER'S OFFICE OF WILL COUNTY, ILLINOIS,

ON THIS _____ DAY OF _____, 20___, A.D., AT _____ O'CLOCK _____.

AND RECORDED AS DOCUMENT NUMBER _____

_____
WILL COUNTY RECORDER

CREST HILL CITY CLERK

STATE OF ILLINOIS)
) SS
COUNTY OF WILL)

APPROVED BY THE CITY OF CREST HILL, WILL COUNTY, ILLINOIS AT

MEETING HELD _____ DAY OF _____, 20___, A.D.

_____
CITY CLERK

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

BASIS OF BEARINGS

COORDINATES AND BEARINGS ARE BASED UPON THE ILLINOIS STATE PLANE COORDINATE SYSTEM, EAST ZONE (NAD 83), ADJUSTED TO GROUND VALUES, AS ESTABLISHED BY A REAL-TIME KINEMATIC (RTK) GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) UTILIZING THE TRIMBLE VRS NOW NETWORK.

GRANTOR'S LEGAL DESCRIPTION

LOT 1 IN EQUIMAX BUSINESS CENTER, BEING A RESUBDIVISION OF LOT 8 IN CREST HILL BUSINESS CENTER, BEING A SUBDIVISION OF PART OF THE NORTHWEST QUARTER OF SECTION 20, TOWNSHIP 36 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT THEREOF RECORDED AS DOCUMENT R2007117350, IN WILL COUNTY, ILLINOIS;

ALSO,

LOTS 2, 3, 4, 5, 6, 7 AND 8 IN EQUIMAX BUSINESS CENTER, BEING A RESUBDIVISION OF PART OF THE NORTHWEST QUARTER OF SECTION 20, TOWNSHIP 36 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT THEREOF RECORDED AS DOCUMENT R2007117350, IN WILL COUNTY, ILLINOIS.

SURVEY PREPARED FOR

FIDUCIARY REAL ESTATE DEVELOPMENT, INC.
789 NORTH WATER STREET, SUITE 500
MILWAUKEE, WISCONSIN 53202

SUBMITTED BY/RETURN TO:

FRED-CREST HILL HC, LLC
789 NORTH WATER STREET, SUITE 500
MILWAUKEE, WISCONSIN 53202

CURRENT P.I.N.

11-04-20-105-065-0000 (LOT 1)
11-04-20-105-066-0000 (LOT 2)
11-04-20-105-067-0000 (LOT 3)
11-04-20-105-068-0000 (LOT 4)
11-04-20-105-069-0000 (LOT 5)
11-04-20-105-073-0000 (LOT 6)
11-04-20-105-072-0000 (LOT 7)
11-04-20-105-071-0000 (LOT 8)

PROPERTY ADDRESS

VACANT RYAN DRIVE, CREST HILL, IL 60403
VACANT EXECUTIVE DRIVE, CREST HILL, IL 60403

PROPERTY AREA

LOT AREA = 688,840 SQUARE FEET (15.814 ACRES)

TOTAL AREA = 688,840 SQUARE FEET (15.814 ACRES)

SURVEYOR'S NOTES

1. DISTANCES ARE MARKED IN FEET AND DECIMAL PLACES THEREOF. NO DIMENSION SHALL BE ASSUMED BY SCALE MEASUREMENT HEREON. DISTANCES AND/OR BEARINGS SHOWN IN PARENTHESIS (456.67') ARE RECORD OR DEED VALUES, NOT FIELD MEASURED.
2. THE PROPERTY SHOWN HEREON MAY BE SUBJECT TO MATTERS OF TITLE, WHICH MAY BE REVEALED BY A CURRENT TITLE REPORT. EASEMENTS, SETBACKS AND OTHER RESTRICTIONS WHICH MAY BE FOUND IN A CURRENT TITLE REPORT, LOCAL ORDINANCES, DEEDS OR OTHER INSTRUMENTS OF RECORD MAY NOT BE SHOWN.
3. THIS SURVEY WAS PREPARED FOR FIDUCIARY REAL ESTATE DEVELOPMENT, INC. AND IS BASED ON A FIELD WORK COMPLETED ON SEPTEMBER 23, 2025.
4. MANHARD CONSULTING, LTD. IS A PROFESSIONAL DESIGN FIRM, REGISTRATION NUMBER 184003350, EXPIRES APRIL 30, 2025.

SURVEYOR'S CERTIFICATE

STATE OF ILLINOIS)
) SS
COUNTY OF DUPAGE)

THIS IS TO CERTIFY THAT WE, MANHARD CONSULTING LTD., HAVE SURVEYED THE ABOVE DESCRIBED PROPERTY AND THIS PLAT WAS PREPARED FOR THE PURPOSE OF VACATING A CERTAIN ROAD DEDICATION SHOWN HEREON, AND THAT THE PLAT DRAWN HEREON IS A TRUE AND CORRECT REPRESENTATION OF SAID PROPERTY.

GIVEN UNDER MY HAND AND SEAL THIS 15TH DAY OF JANUARY, A.D., 2025.

FOR REVIEW ONLY

ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 4017
LICENSE EXPIRES: NOVEMBER 30, 2026

DESIGN FIRM PROFESSIONAL REGISTRATION NO. 184003350
EXPIRES APRIL 30, 2027

PROFESSIONAL LAND SURVEYOR
CHRISTOPHER J. SALAZAR
035-004017
LOMBARD
IL
STATE OF ILLINOIS

DATE	REVISIONS	DRAWN BY
01/15/26	REVISED PER CLIENT COMMENTS	NAL

Manhard CONSULTING
333 East Butterfield Road, Suite 600, Lombard, IL 60148 ph 630.691.8200 fax 630.691.8686 manhard.com
Civil Engineers • Water Resource Engineers • Structural Engineers • Mechanical Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
PLAT OF VACATION

PROJ. MGR.:	CJS
PROJ. ASSOC.:	CJS
DRAWN BY:	NAL
DATE:	09/23/25
SCALE:	1" = 60'

SHEET 1 OF 1

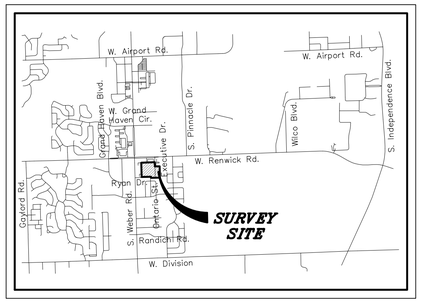
FRDCRIL01

© 2025 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 15, 2026 - 15:40 Dwg Name: \\mch4s-nas\Projects-VA\Fidz\003\dwg\Surv\Final Drawings\Plat of Vacation\FRDCRIL01-PV.dwg Updated By: NJachowicz

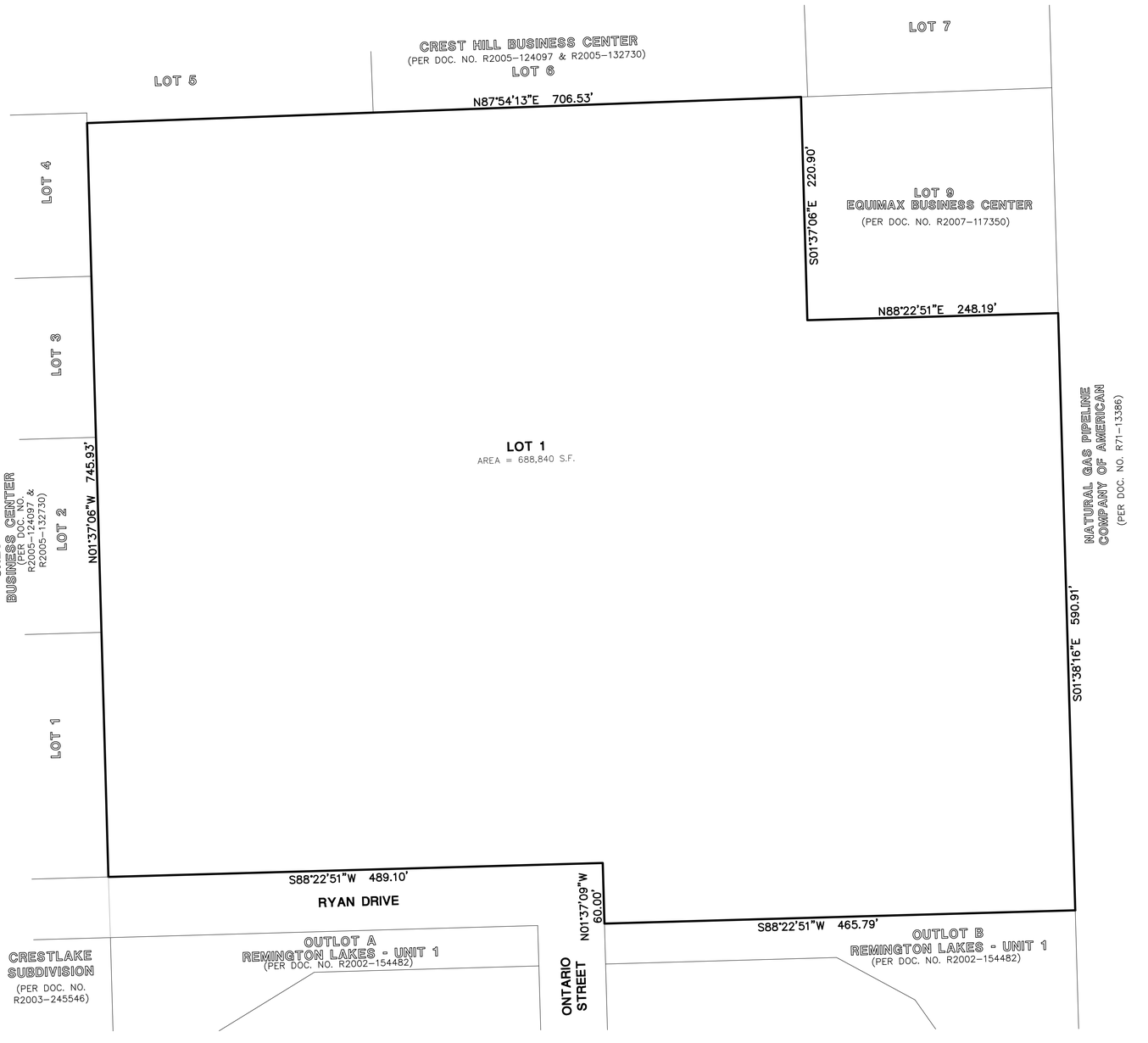
FINAL PLAT
OF
SEASONS AT CREST HILL SUBDIVISION

BEING A SUBDIVISION OF PART OF THE NORTHWEST QUARTER OF SECTION 20, TOWNSHIP 36 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN WILL COUNTY, ILLINOIS



LOCATION MAP

NOT TO SCALE



GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

BASIS OF BEARINGS

COORDINATES AND BEARINGS ARE BASED UPON THE ILLINOIS STATE PLANE COORDINATE SYSTEM, EAST ZONE (NAD 83), ADJUSTED TO GROUND VALUES, AS ESTABLISHED BY A REAL-TIME KINEMATIC (RTK) GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) UTILIZING THE TRIMBLE VRS NOW NETWORK.

SURVEY PREPARED FOR

FIDUCIARY REAL ESTATE DEVELOPMENT, INC.
789 NORTH WATER STREET, SUITE 500
MILWAUKEE, WISCONSIN 53202

SUBMITTED BY/RETURN TO:

FRED-CREST HILL HC, LLC
789 NORTH WATER STREET, SUITE 500
MILWAUKEE, WISCONSIN 53202

CURRENT P.I.N.

11-04-20-105-065-0000 (LOT 1)
11-04-20-105-066-0000 (LOT 2)
11-04-20-105-067-0000 (LOT 3)
11-04-20-105-068-0000 (LOT 4)
11-04-20-105-069-0000 (LOT 5)
11-04-20-105-073-0000 (LOT 6)
11-04-20-105-072-0000 (LOT 7)
11-04-20-105-071-0000 (LOT 8)

PROPERTY ADDRESS

VACANT RYAN DRIVE, CREST HILL, IL 60403
VACANT EXECUTIVE DRIVE, CREST HILL, IL 60403

PROPERTY AREA

LOT AREA = 688,840 SQUARE FEET (15.814 ACRES)

TOTAL AREA = 688,840 SQUARE FEET (15.814 ACRES)

SURVEYOR'S NOTES

1. DISTANCES ARE MARKED IN FEET AND DECIMAL PLACES THEREOF. NO DIMENSION SHALL BE ASSUMED BY SCALE MEASUREMENT HEREON. DISTANCES AND/OR BEARINGS SHOWN IN PARENTHESIS (456.67') ARE RECORD OR DEED VALUES.)
2. THIS SUBDIVISION MAY BE SUBJECT TO MATTERS OF TITLE, WHICH MAY BE REVEALED BY A CURRENT TITLE REPORT. PRE-EXISTING EASEMENTS, SETBACKS AND OTHER RESTRICTIONS WHICH MAY BE FOUND IN A CURRENT TITLE REPORT, LOCAL ORDINANCES, DEEDS OR OTHER INSTRUMENTS OF RECORD MAY NOT BE SHOWN.
3. MONUMENTS SHALL BE SET AT ALL PROPERTY CORNERS AND POINTS OF GEOMETRIC CHANGE IN ACCORDANCE WITH 765 ILCS 205/1 UPON THE RECORDATION OF THE FINAL PLAT OF SUBDIVISION. UNLESS OTHERWISE NOTED, MONUMENTS SET ARE 5/8" DIAMETER BY 24" LONG REBARS.
4. THIS PROFESSIONAL SERVICE CONFORMS TO THE CURRENT ILLINOIS MINIMUM STANDARDS FOR A SUBDIVISION SURVEY. MANHARD CONSULTING, LTD. IS A PROFESSIONAL DESIGN FIRM, REGISTRATION NUMBER 184003350, EXPIRES APRIL 30, 2027.

SHEET INDEX

SHEET 1	COVER PAGE, SURVEYOR NOTES, LOCATION MAP AND PROPERTY AREA TABLE
SHEET 2	EXISTING BOUNDARY AND EASEMENT INFORMATION
SHEET 3	PROPOSED LOT & EASEMENT GEOMETRY
SHEET 4	CERTIFICATES

DATE	REVISIONS	DRAWN BY
01/15/26	REVISED PER CLIENT COMMENTS	NAL

Manhard CONSULTING
333 East Butterfield Road, Suite 600, Lombard, IL 60148 ph 630.591.8000 fx 630.591.8585 manhard.com
Civil Engineers • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
FINAL PLAT OF SUBDIVISION

PROJ. MGR.:	CJS
PROJ. ASSOC.:	CJS
DRAWN BY:	NAL
DATE:	09/23/25
SCALE:	1" = 60'

SHEET 1 OF 4

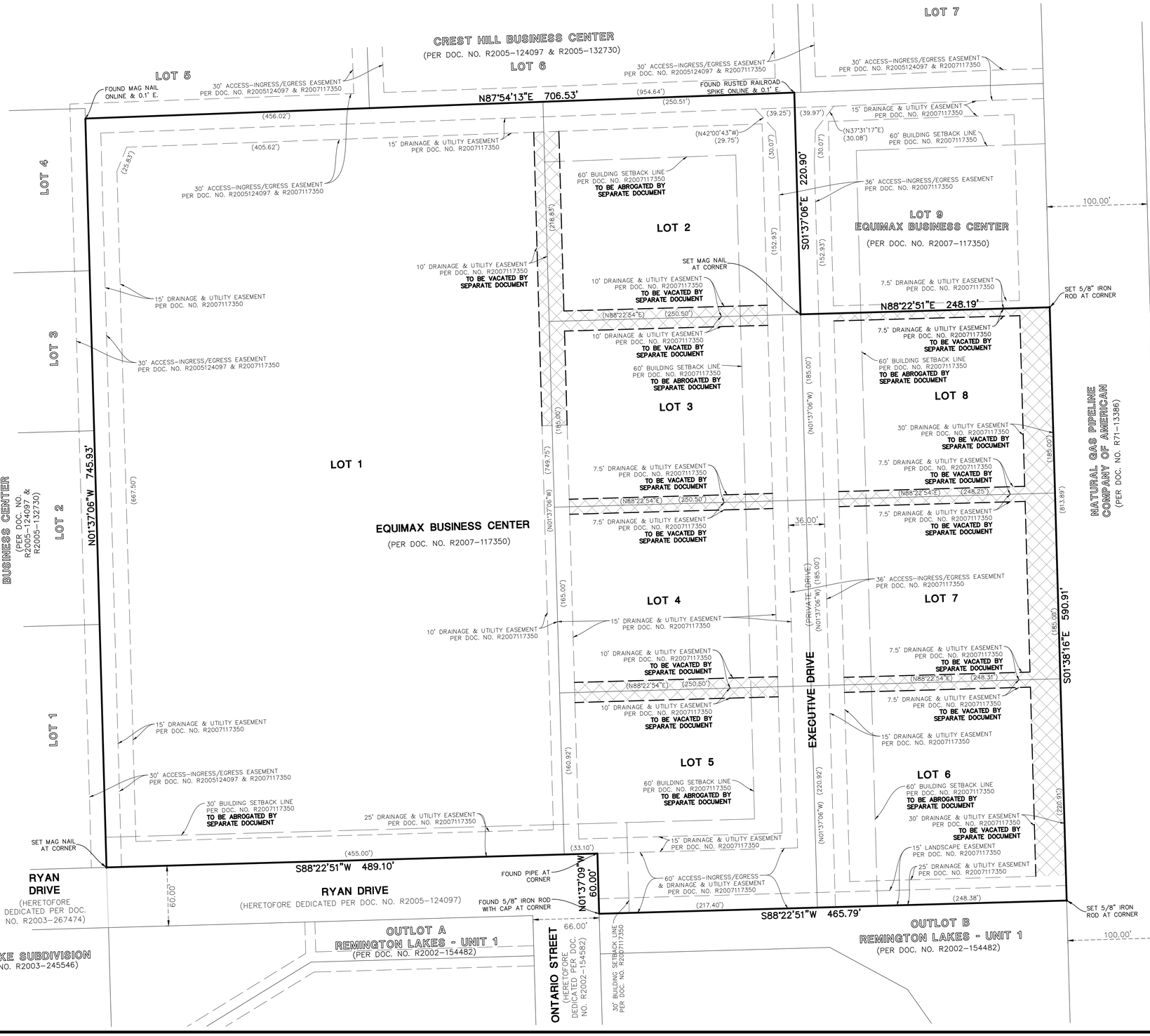
FRDCRIL01

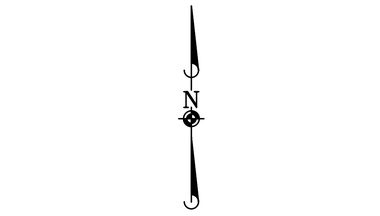
© 2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

January 15, 2026 - 15:40 Dwg Name: \\mcl-do-cas\Projects-Vol\frdcr001\dwg\Surv\Final Drawings\Plat of Subdivision\Final Plat\01-FRDCRIL01_PS.dwg Updated By: NLechowicz

FINAL PLAT
OF
SEASONS AT CREST HILL SUBDIVISION

BEING A SUBDIVISION OF PART OF THE NORTHWEST QUARTER OF SECTION 20, TOWNSHIP 36 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN WILL COUNTY, ILLINOIS





DATE	REVISIONS	DRAWN BY
01/15/26	REVISED PER CLIENT COMMENTS	NAL

Manhard CONSULTING
333 East Butterfield Road, Suite 600, Lombard, IL 60148 ph 630.691.8200 fx 630.691.8585 manhard.com
Civil Engineers • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
FINAL PLAT OF SUBDIVISION

PROJ. MGR.:	CJS
PROJ. ASSOC.:	CJS
DRAWN BY:	NAL
DATE:	09/23/25
SCALE:	1" = 50'

SHEET 2 OF 4

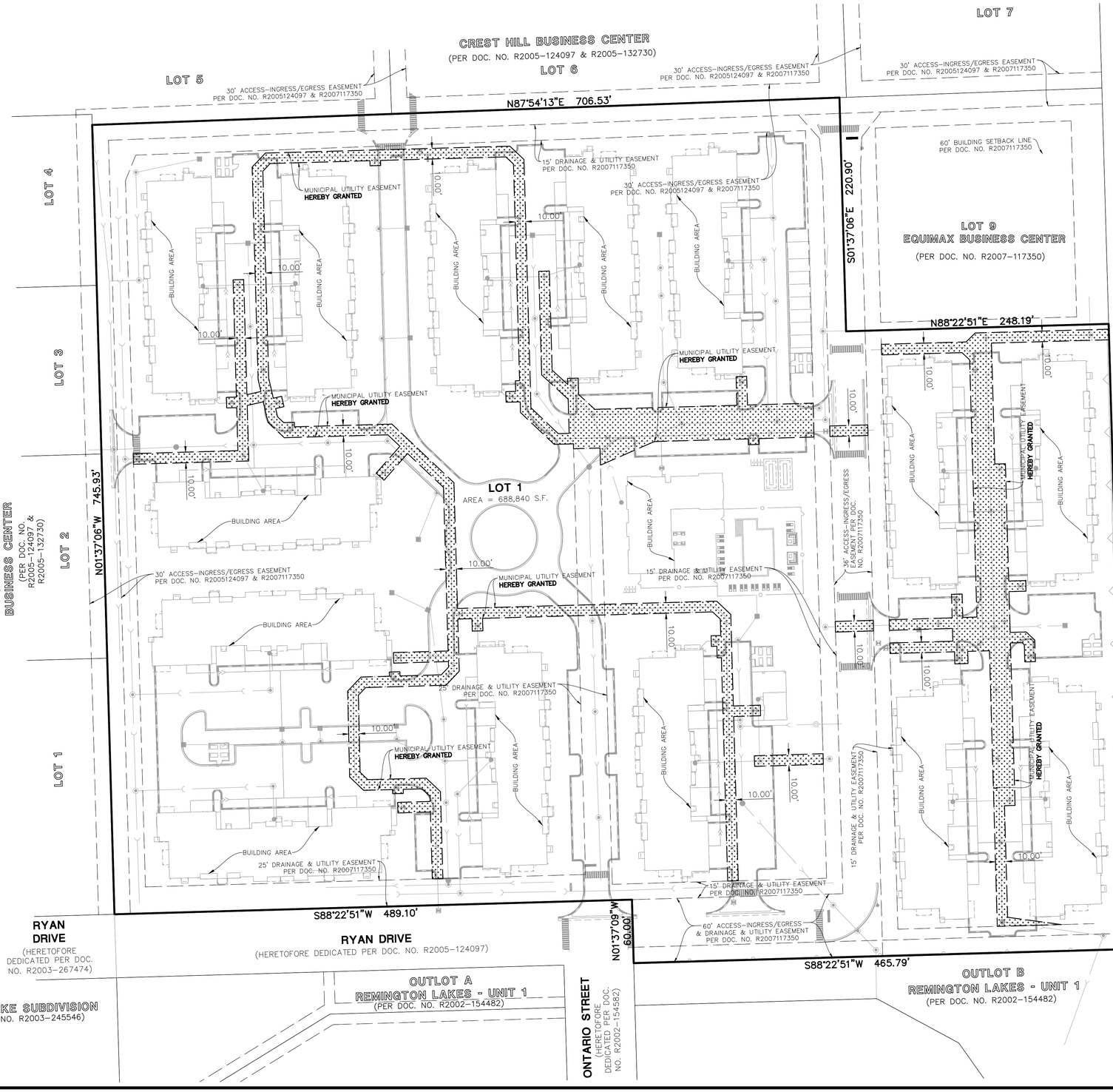
FRDCRIL01

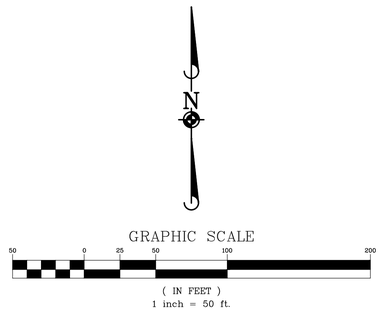
© 2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

January 15, 2026 - 14:48 Dwg Name: \\mchb-nas\Projects-VeW\Frdcril01\dwg\Surv\Final Drawings\Plat of Subdivision\Final Plat\02-FRDCRIL01.PS.dwg Updated By: Nlachowicz

FINAL PLAT
OF
SEASONS AT CREST HILL SUBDIVISION

BEING A SUBDIVISION OF PART OF THE NORTHWEST QUARTER OF SECTION 20, TOWNSHIP 36 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN WILL COUNTY, ILLINOIS





PROPOSED EASEMENTS

A PUBLIC UTILITY EASEMENT IS HEREBY GRANTED OVER ALL OF LOT 1 EXCEPT WITH BUILDING AREAS.

DATE	REVISIONS	DRAWN BY
01/15/26	REVISED PER CLIENT COMMENTS	NAL

Manhard CONSULTING
333 East Butterfield Road, Suite 600, Lombard, IL 60148 ph 630.591.8000 fx 630.591.8585 manhard.com
Civil Engineers • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
FINAL PLAT OF SUBDIVISION

PROJ. MGR.:	CJS
PROJ. ASSOC.:	CJS
DRAWN BY:	NAL
DATE:	09/23/25
SCALE:	1" = 50'

SHEET 3 OF 4

FRDCRIL01

©2025MANHARD CONSULTING, ALL RIGHTS RESERVED

January 15, 2026 - 15:14 Dwg Name: \\ncd-ho-as1\Projects-VA\Fred\01\dwg\Surv\Final Drawings\Plat of Subdivision\Final Plat\03-FRDCRIL01-PS.dwg Updated By: Nzechowicz

FINAL PLAT
OF
SEASONS AT CREST HILL SUBDIVISION

BEING A SUBDIVISION OF PART OF THE NORTHWEST QUARTER OF SECTION 20, TOWNSHIP 36 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN WILL COUNTY, ILLINOIS

OWNER'S CERTIFICATE (LOT 1)

THIS IS TO CERTIFY THAT _____ IS THE LEGAL OWNER OF THE LAND DESCRIBED ON THE ATTACHED PLAT, AND HAS CAUSED SAID PROPERTY TO BE SURVEYED AND PLATTED FOR THE PURPOSE OF VACATING CERTAIN EASEMENTS AND DEDICATIONS AS SHOWN HEREON.

DATED THIS _____ DAY OF _____, A.D., 20___.

BY: _____ OWNER'S NAME AND ADDRESS

_____ _____

_____ _____

PRINTED NAME AND TITLE

ATTEST: _____

_____

PRINTED NAME AND TITLE

NOTARY PUBLIC (LOT 1)

STATE OF ILLINOIS)
)S.S.
COUNTY OF _____)

I, _____
A NOTARY PUBLIC IN AND FOR THE COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT

_____AND _____
WHO IS PERSONALLY KNOWN TO ME TO BE THE SAME WHOSE NAME IS SUBSCRIBED TO THE FOREGOING CERTIFICATE, APPEARED BEFORE ME THIS DAY IN PERSON AND ACKNOWLEDGED THAT THEY DID SIGN AND DELIVER THIS ANNEXED PLAT AS A FREE AND VOLUNTARY ACT FOR THE PURPOSES THEREIN SET FORTH.

GIVEN UNDER MY HAND AND NOTORIAL SEAL THIS _____ DAY OF _____, A.D., 20___.

_____
NOTARY PUBLIC

OWNER'S CERTIFICATE (LOT 2-8)

THIS IS TO CERTIFY THAT _____ IS THE LEGAL OWNER OF THE LAND DESCRIBED ON THE ATTACHED PLAT, AND HAS CAUSED SAID PROPERTY TO BE SURVEYED AND PLATTED FOR THE PURPOSE OF VACATING CERTAIN EASEMENTS AND DEDICATIONS AS SHOWN HEREON.

DATED THIS _____ DAY OF _____, A.D., 20___.

BY: _____ OWNER'S NAME AND ADDRESS

_____ _____

_____ _____

PRINTED NAME AND TITLE

ATTEST: _____

_____

PRINTED NAME AND TITLE

NOTARY PUBLIC (LOT 2-8)

STATE OF ILLINOIS)
)S.S.
COUNTY OF _____)

I, _____
A NOTARY PUBLIC IN AND FOR THE COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT

_____AND _____
WHO IS PERSONALLY KNOWN TO ME TO BE THE SAME WHOSE NAME IS SUBSCRIBED TO THE FOREGOING CERTIFICATE, APPEARED BEFORE ME THIS DAY IN PERSON AND ACKNOWLEDGED THAT THEY DID SIGN AND DELIVER THIS ANNEXED PLAT AS A FREE AND VOLUNTARY ACT FOR THE PURPOSES THEREIN SET FORTH.

GIVEN UNDER MY HAND AND NOTORIAL SEAL THIS _____ DAY OF _____, A.D., 20___.

_____
NOTARY PUBLIC

CREST HILL PLAN COMMISSION

STATE OF ILLINOIS)
) SS
COUNTY OF WILL)

APPROVED BY THE CREST HILL PLAN COMMISSION AT A MEETING HELD ON

THE _____ DAY OF _____, 20____ A.D.

_____
CHAIRMAN

_____
SECRETARY

CREST HILL CITY COUNCIL

STATE OF ILLINOIS)
) SS
COUNTY OF WILL)

APPROVED BY THE CREST HILL CITY COUNCIL AT A MEETING HELD ON

THE _____ DAY OF _____, 20____ A.D.

_____
MAYOR

_____
CLERK

SURFACE WATER STATEMENT

STATE OF ILLINOIS)
) SS
COUNTY OF DuPAGE)

TO THE BEST OF OUR KNOWLEDGE AND BELIEF THE DRAINAGE OF SURFACE WATERS WILL NOT BE CHANGED BY THE CONSTRUCTION OF SUCH SUBDIVISION OR ANY PART THEREOF, OR, THAT IF SUCH SURFACE WATER DRAINAGE WILL BE CHANGED, REASONABLE PROVISION HAS BEEN MADE FOR COLLECTION AND DIVERSION OF SUCH SURFACE WATERS INTO PUBLIC AREAS, OR DRAINS WHICH THE SUBDIVIDER HAS A RIGHT TO USE, AND THAT SUCH SURFACE WATERS WILL BE PLANNED FOR IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRACTICES SO AS TO REDUCE THE LIKELIHOOD OF DAMAGE TO THE ADJOINING PROPERTY BECAUSE OF THE CONSTRUCTION OF THE SUBDIVISION.

DATED THIS _____ DAY OF _____, _____.

_____
ILLINOIS LICENSED PROFESSIONAL ENGINEER NO. _____
LICENSE EXPIRES: _____

_____
OWNER OR ATTORNEY

MUNICIPAL UTILITY EASEMENT (MUE):

MUNICIPAL UTILITY EASEMENT (MUE): AN EASEMENT FOR SERVING THE SUBDIVISION AND OTHER PROPERTY WITH DOMESTIC WATER, SANITARY SEWER AND STORM WATER DRAINAGE IS HEREBY RESERVED FOR AND GRANTED TO THE CITY OF CREST HILL, ILLINOIS, THEIR SUCCESSORS AND ASSIGNS, TO INSTALL, OPERATE, MAINTAIN, RELOCATE, RENEW AND REMOVE FACILITIES USED IN CONNECTION WITH SEWER AND WATER MAINS, IN, UNDER, ACROSS, ALONG, AND UPON THE SURFACE OF THE PROPERTY SHOWN ON THE PLAT WITHIN THE AREAS MARKED AS "MUNICIPAL UTILITY EASEMENT" (M.U.E.) AND THOSE PARTS DESIGNATED ON THE PLAT AS DEDICATED FOR PUBLIC STREET, TOGETHER WITH THE RIGHT TO CUT, TRIM, OR REMOVE TREES, BUSHES, AND ROOTS AS MAY BE REASONABLY REQUIRED INCIDENT TO THE RIGHTS HEREIN GIVEN, AND THE RIGHT TO ENTER UPON THE PROPERTY FOR ALL SUCH PURPOSES.

EACH INDIVIDUAL ENTITY OR OTHER PARTY ACCEPTING TITLE TO ALL OR ANY PART OF THE MUNICIPAL UTILITY EASEMENT (MUE) SHALL CONCLUSIVELY BE DEEMED TO HAVE COVENANTED AND AGREED, JOINTLY AND SEVERALLY, TO MAINTAIN THE SURFACE OF THE PORTION OF THE MUNICIPAL UTILITY EASEMENT WHICH IS LOCATED ON SUCH PARTY'S PROPERTY SO THAT IT IS IN GOOD CONDITION FOR ITS INTENDED PURPOSE AS A MUNICIPAL UTILITY EASEMENT (WHICH MAINTENANCE SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO, THE REGULAR SEEDING, WATERING AND MOWING OF ALL LAWNS). NO TITLEHOLDER OF ANY PART OR PORTION OF THE MUNICIPAL UTILITY EASEMENT(OR ANY PARTY ACTING ON BEHALF OF THE TITLEHOLDER) SHALL:

i. INSTALL, CONSTRUCT, ERECT, PLACE OR PLANT ANY BUILDING, STRUCTURES, IMPROVEMENTS OR VEGETATION (OTHER THAN GRASS OR APPROVED PLANTINGS) UPON THE MUNICIPAL UTILITY EASEMENT, INCLUDING, BUT NOT LIMITED TO FENCES, WALLS, PATIOS, SHEDS, POSTS, TREES, PLANTS OR SHRUBBERY, EXCEPT AS SHOWN ON THE APPROVED LANDSCAPE PLAN, OR

ii. ALTER, MODIFY OR CHANGE IN ANY WAY THE TOPOGRAPHY OR ELEVATIONS OF THE MUNICIPAL UTILITY EASEMENT.

SAID EASEMENTS MAY BE USED FOR DRIVEWAYS AND PARKING. HOWEVER, THE GRADE OF THE SUBDIVIDED PROPERTY SHALL NOT BE ALTERED IN ANY MANNER SO AS TO INTERFERE WITH THE PROPER OPERATION AND MAINTENANCE THEREOF, OR WITH THE SURFACE DRAINAGE THEREON. THE PROPERTY OWNER AND OR THE PROPERTY OWNER ASSOCIATION ARE COMPLETELY RESPONSIBLE FOR LANDSCAPE AND/OR PAVING RESTORATION, SHOULD MAINTENANCE OF THE UTILITY BE REQUIRED.

THE CITY OF CREST HILL IS RESPONSIBLE FOR REPAIRING WATER SERVICES BETWEEN THE WATER MAIN, TO AND INCLUDING THE BUFFALO BOX. THE PROPERTY OWNER AND/OR THE PROPERTY OWNER'S ASSOCIATION ARE RESPONSIBLE FOR THE RESTORATION OF THE SURFACE AFTER ANY SUCH WATER SERVICE REPAIR. ONLY PERPENDICULAR CROSSINGS OF THE M.U.E. ARE PERMITTED BY PUBLIC UTILITIES. THE M.U.E.'S ARE EXCLUSIVE OF THE BLANKET EASEMENT.

RECORDER'S CERTIFICATE

STATE OF ILLINOIS)
) SS
COUNTY OF WILL)

THIS INSTRUMENT FILED FOR RECORDER'S OFFICE OF WILL COUNTY, ILLINOIS,

ON THIS _____ DAY OF _____, 20____, A.D., AT _____ O'CLOCK _____.

AND RECORDED AS DOCUMENT NUMBER _____

_____
WILL COUNTY RECORDER

COUNTY CLERK'S CERTIFICATE

STATE OF ILLINOIS)
) SS
COUNTY OF WILL)

I, _____ COUNTY CLERK IN WILL COUNTY, ILLINOIS DO HEREBY CERTIFY THAT THERE ARE NO DELINQUENT GENERAL TAXES, NO UNPAID CURRENT GENERAL TAXES, NO UNPAID FORFEITED TAXES, AND NO REDEEMABLE TAX AGAINST ANY OF THE LAND INCLUDED IN THE ANNEXED PLAT.

I FURTHER CERTIFY THAT I HAVE RECEIVED ALL STATUTORY FEES IN CONNECTION WITH THE ANNEXED PLAT.

GIVEN UNDER MY HAND AND SEAL OF THE COUNTY AT _____, ILLINOIS,

THIS ___ DAY OF _____, A.D. 20__.

_____
WILL COUNTY CLERK

TAX MAPPING CERTIFICATE

STATE OF ILLINOIS)
) SS
COUNTY OF WILL)

I, _____, DIRECTOR OF THE TAX MAPPING AND PLATTING OFFICE, DO HEREBY CERTIFY THAT I HAVE CHECKED THE PROPERTY DESCRIPTION ON THIS PLAT AGAINST AVAILABLE COUNTY RECORDS AND FIND SAID DESCRIPTION TO BE TRUE AND CORRECT.

THE PROPERTY HEREIN DESCRIBED IS LOCATED ON TAX MAP _____ AND IDENTIFIED AS PERMANENT REAL ESTATE TAX INDEX NUMBER(S);

_____

DATED THIS ___ DAY OF _____, A.D. 20__.

_____
DIRECTOR

PERMISSION TO RECORD

STATE OF ILLINOIS)
)SS
COUNTY OF WILL)

I, CHRISTOPHER J SALAZAR, AN ILLINOIS PROFESSIONAL LAND SURVEYOR, HEREBY GRANT PERMISSION A REPRESENTATIVE OF THE CITY OF CREST HILL TO RECORD THIS PLAT ON OR BEFORE MAY 31, 2026. THE REPRESENTATIVE SHALL PROVIDE THIS SURVEYOR WITH A RECORDED COPY OF THIS PLAT.

DATED THIS _____ DAY OF _____, A.D. 20____.

_____
ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 035-004017
LICENSE EXPIRES NOVEMBER 30, 2026

PROFESSIONAL LAND SURVEYOR
CHRISTOPHER J. SALAZAR
035-004017
LOMBARD
IL
STATE OF ILLINOIS

SURVEYORS CERTIFICATE

STATE OF ILLINOIS)
)SS
COUNTY OF DUPAGE)

THIS IS TO DECLARE THAT THE PROPERTY DESCRIBED HEREON WAS SURVEYED AND SUBDIVIDED BY MANHARD CONSULTING, LTD., UNDER THE SUPERVISION OF AN ILLINOIS PROFESSIONAL LAND SURVEYOR AND THAT THE PLAT HEREON DRAWN IS A CORRECT REPRESENTATION OF SAID SURVEY AND SUBDIVISION:

LOT 1 IN EQUIMAX BUSINESS CENTER, BEING A RESUBDIVISION OF LOT 8 IN CREST HILL BUSINESS CENTER, BEING A SUBDIVISION OF PART OF THE NORTHWEST QUARTER OF SECTION 20, TOWNSHIP 36 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT THEREOF RECORDED AS DOCUMENT R2007117350, IN WILL COUNTY, ILLINOIS;

ALSO,

LOTS 2, 3, 4, 5, 6, 7 AND 8 IN EQUIMAX BUSINESS CENTER, BEING A RESUBDIVISION OF PART OF THE NORTHWEST QUARTER OF SECTION 20, TOWNSHIP 36 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT THEREOF RECORDED AS DOCUMENT R2007117350, IN WILL COUNTY, ILLINOIS.

SUBDIVIDED PROPERTY CONTAINS 15.814 ACRES, MORE OR LESS AND ALL DISTANCES ARE SHOWN IN FEET AND DECIMAL PARTS THEREOF.

THIS IS ALSO TO DECLARE THAT THE PROPERTY AS DESCRIBED ON THE ANNEXED PLAT LIES WITHIN THE CORPORATE LIMITS OF CREST HILL, WILL COUNTY, ILLINOIS WHICH HAS ADOPTED A CITY PLAN AND IS EXERCISING THE SPECIAL POWER AUTHORIZED BY 65 ILCS 5, SECTION 11-12-6.

5/8" DIAMETER BY 24" LONG IRON RODS WILL BE SET AT ALL SUBDIVISION CORNERS, LOT CORNERS, POINTS OF CURVATURE AND POINTS OF TANGENCY IN COMPLIANCE WITH ILLINOIS STATUTES AND APPLICABLE ORDINANCES, UNLESS OTHERWISE NOTED.

THIS IS ALSO TO DECLARE THAT THE FEDERAL EMERGENCY MANAGEMENT AGENCY FIRM COMMUNITY PANEL NUMBERS 17197C0153G & 17197C0155G WITH AN EFFECTIVE DATE OF FEBRUARY 15, 2019 INDICATES THAT THE ABOVE DESCRIBED PROPERTY LIES WITHIN AREAS DESIGNATED AS ZONE "X". ZONE "X" IS DEFINED AS AREAS OF MINIMAL FLOOD HAZARD PER THE FLOOD INSURANCE RATE MAPS. THIS MAP DOES NOT NECESSARILY SHOW ALL AREAS SUBJECT TO FLOODING IN THE COMMUNITY OR ALL PLANIMETRIC FEATURES OUTSIDE SPECIAL FLOOD HAZARD AREAS. THIS DOES NOT GUARANTEE THAT THE SURVEYED PROPERTY WILL OR WILL NOT FLOOD. APPROXIMATE LOCATIONS OF FLOOD ZONES HAVE BEEN SHOWN HEREON BASED ON THE CURRENT FLOOD INSURANCE RATE MAPS.

GIVEN UNDER MY HAND AND SEAL THIS 15TH DAY OF JANUARY, A.D. 2026.

FOR REVIEW ONLY

_____
ILLINOIS PROFESSIONAL LAND SURVEYOR NO. 035-004017
LICENSE EXPIRES NOVEMBER 30, 2026

DESIGN FIRM PROFESSIONAL REGISTRATION
NO. 184003350-EXPIRES APRIL 30, 2027

THIS PROFESSIONAL SERVICE CONFORMS TO THE CURRENT ILLINOIS MINIMUM STANDARDS FOR A BOUNDARY SURVEY.

DATE OF FIELD SURVEY: SEPTEMBER 23, 2025

PROFESSIONAL LAND SURVEYOR
CHRISTOPHER J. SALAZAR
035-004017
LOMBARD
IL
STATE OF ILLINOIS

DATE	REVISIONS	DRAWN BY
01/15/26	REVISED PER CLIENT COMMENTS	NAL

Manhard CONSULTING
333 East Butterfield Road, Suite 600, Lombard, IL 60148 ph 630.691.8585 manhard.com
Civil Engineers • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
FINAL PLAT OF SUBDIVISION

PROJ. MGR.:	CJS
PROJ. ASSOC.:	CJS
DRAWN BY:	NAL
DATE:	09/23/25
SCALE:	N.T.S.

SHEET 4 OF 4

FRDCRIL01

©2026MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

January 15, 2026 - 15:14 Dwg Name: \\mcl-ba-nas\Projects-Vol1\Frdcril01\Dwg\Surv\Final Drawings\Plat of Subdivision\Final Plat\04-FRDCRIL01-PS.dwg Updated By: NUrchowicz

Traffic Impact Study
Proposed Residential Development

Crest Hill, Illinois



Prepared For:

FIDUCIARY
REAL ESTATE DEVELOPMENT, INC

KLOA
Kenig, Lindgren, O'Hara, Aboona, Inc.

January 22, 2026

1. Introduction

This report summarizes the methodologies, results, and findings of a traffic impact study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for a proposed residential development to be located in Crest Hill, Illinois. The site is located in the southeast quadrant of the intersection of Weber Road and Renwick Road and is proposed to contain apartment buildings with 260 residential units. Vehicle parking will be accommodated via 439 surface parking spaces and 120 enclosed parking spaces. Access to the residential development will be provided via six access drives that will connect to the internal private roads serving the site area that connect to the surrounding street network through the following existing access roads: (1) a right-in/right-out (RIRO) access drive off Renwick Road, (2) a full-movement access drive off Renwick Road, and (3) a full-movement signalized access drive off Weber Road.

The purpose of this study was to examine existing traffic conditions to establish a base condition, assess the impact that the proposed development would have on traffic conditions in the area, and determine if any roadway and/or traffic control improvements are needed to accommodate the traffic generated by the proposed residential development. **Figure 1** shows the location of the site in relation to the area roadway system. **Figure 2** shows an aerial view of the site.

The sections of this report present the following:

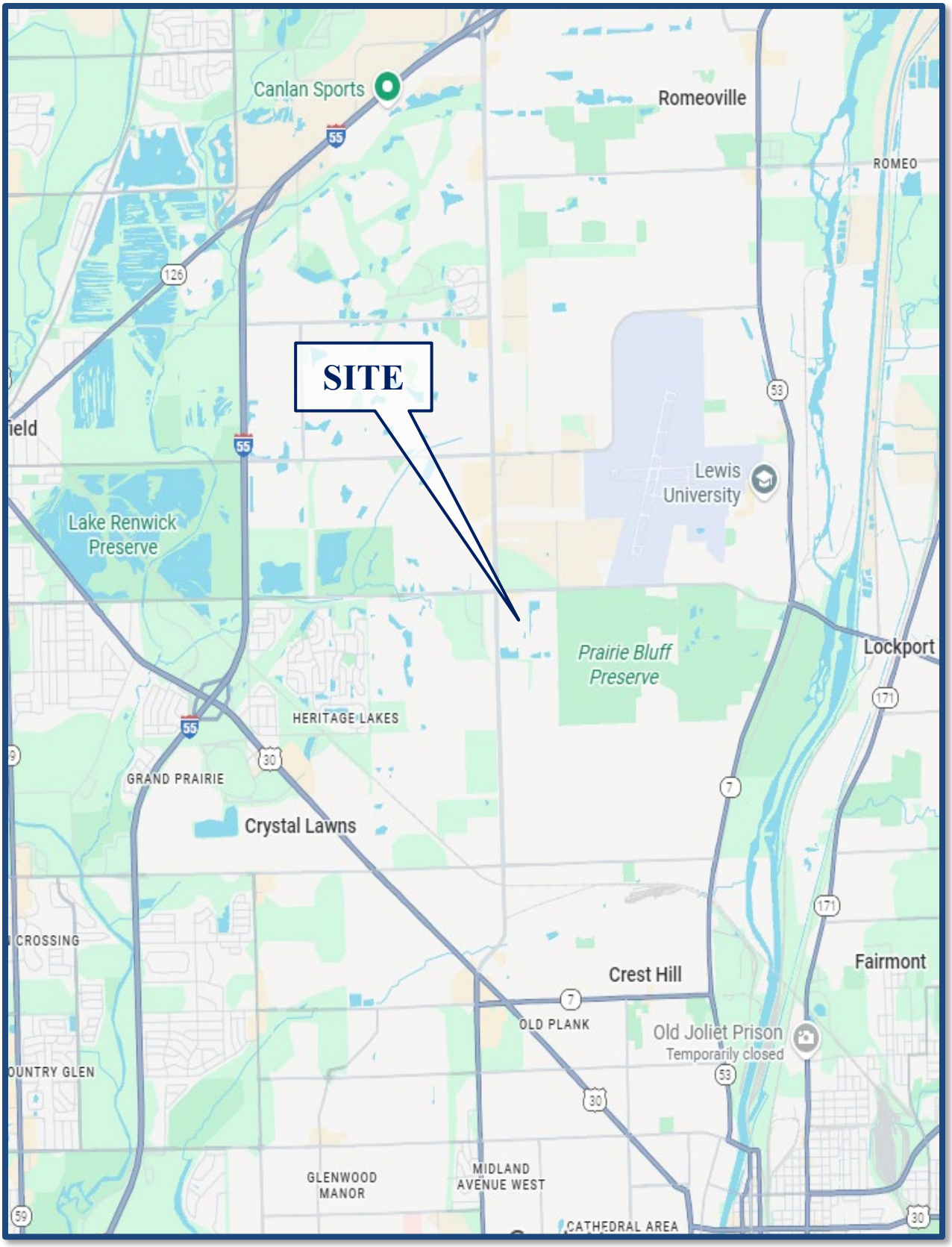
- Existing roadway conditions
- A description of the proposed development
- Directional distribution of development-generated traffic
- Vehicle trip generation for the proposed development
- Future traffic conditions, including access to the development
- Traffic analyses for the weekday morning and weekday evening peak hours
- Signal warrant evaluation for the intersection of Weber Road with Ryan Drive
- Recommendations with respect to adequacy of the site access and adjacent roadway system

Traffic capacity analyses were conducted for the weekday morning and weekday evening peak hours for the following conditions:

1. Existing Conditions – Analyzes the capacity of the existing roadway system using existing peak hour traffic volumes in the surrounding area.

2. Year 2032 No-Build Conditions – Analyzes the capacity of the existing roadway system using the existing peak hour traffic volumes increased by an ambient area growth factor not attributable to any particular development.

3. Year 2032 Total Projected Conditions – Analyzes the capacity of the future roadway system using the projected traffic volumes that include the existing traffic volumes, ambient area growth not attributable to any particular development, and the traffic estimated to be generated by the full buildout of the proposed development.



Site Location **Figure 1**



Aerial View of Site **Figure 2**

2. Existing Conditions

The following provides a description of the geographical location of the site, physical characteristics of the area roadway system including lane usage and traffic control devices, and existing peak hour traffic volumes.

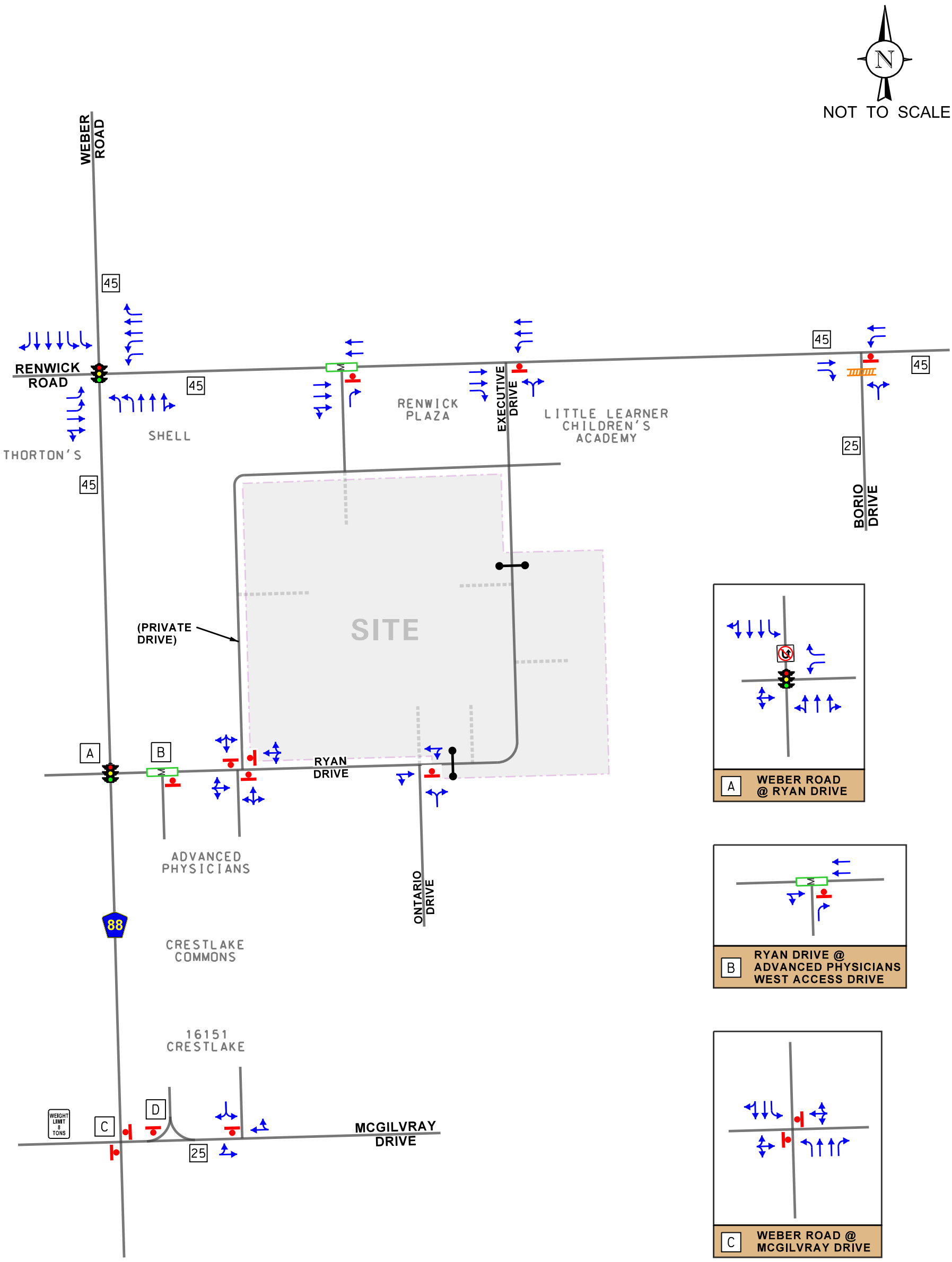
Site Location

The site is located in the southeast quadrant of the intersection of Renwick Road with Weber Road in Crest Hill, Illinois. The site is bound by commercials and vacant out lots on the west and north, Ryan Drive on the south and a water detention pond on the easter of the site. Land uses in the vicinity of the site consists of a mix of single-family detached, single-family attached and retail/commercial.

Existing Roadway System Characteristics

The characteristics of the existing roadways near the development are described below and illustrated in **Figure 3**.

Weber Road is a north-south other principal arterial roadway that provides three travel lanes in each direction just north of McGilvray Drive and two travel lanes in each direction just south of Ryan Drive. At its signalized intersection with Renwick Road, Weber Road provides two left-turn lanes, two through lanes and a shared through/right-turn lane on the northbound approach and two left-turn lanes, three through lanes and an exclusive right-turn lane on the southbound approach. At its signalized intersection with Ryan Drive, Weber Road provides a shared left-turn/through lane, a through lane, and shared through/right-turn lane on the northbound approach and an exclusive left-turn lane, two through lanes and a shared through/right turn lane on the southbound approach. Furthermore, southbound U-turns are not permitted at this intersection. At its unsignalized intersection with McGilvray Drive, Weber Road provides an exclusive left-turn lane, two through lanes, and an exclusive right-turn lane on the northbound approach and an exclusive left-turn lane, a through lane and a shared through/right-turn lane on the southbound approach. Weber Road is under the jurisdiction of Will County Division of Transportation (WCDOT), is classified by IDOT as a Strategic Regional Arterial (SRA), has a posted speed limit of 45 miles per hour, carries an Annual Average Daily Traffic (AADT) volume of 33,900 vehicles (IDOT 2023) north of Renwick Road and an AADT volume of 24,500 vehicles (IDOT 2023) south of Renwick Road.



RESIDENTIAL DEVELOPMENT
CREST HILL, ILLINOIS

EXISTING ROADWAY CHARACTERISTICS

KLOA
Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 25-380 Figure: 3

Renwick Road is an east-west other principal arterial roadway that generally provides two travel lanes in each direction. Exceptions include the eastbound segment between Weber Road and Executive Drive, which provides three travel lanes, and a segment approximately 350 feet east of Executive Drive, which provides one travel lane in each direction. At its signalized intersection with Weber Road, Renwick Road provides two left-turn lanes, a through lane and a shared through/right-turn lane on the eastbound approach and two left-turn lanes, two through lanes and an exclusive right-turn lane on the westbound approach. At its unsignalized intersection with Executive Drive, Renwick Road provides two through lanes and an exclusive right-turn lane on the eastbound approach and an exclusive left-turn lane and two through lanes on the westbound approach. At its unsignalized intersection with Borio Drive, Renwick Road provides a through lane and an exclusive right-turn lane on the eastbound approach and an exclusive left-turn lane and a through lane on the westbound approach. Renwick Road is under the jurisdiction of WCDOT, has a posted speed limit of 45 miles per hour, carries an Annual Average Daily Traffic (AADT) volume of 17,900 vehicles (IDOT 2023) west of Weber Road and an AADT volume of 13,800 vehicles (IDOT 2023) east of Weber Road.

Ryan Drive is an east-west local roadway that provides one travel lane in each direction. At its signalized intersection with Weber Road, Ryan Drive provides a shared left-turn/through/right-turn lane on the eastbound approach and an exclusive left-turn lane and an exclusive right-turn lane on the westbound approach. At its unsignalized intersection with Ontario Street, Ryan Drive provides a shared through/right-turn lane on the eastbound approach and a shared left-turn/through lane on the westbound approach. It is important to note that Ryan Drive east of Ontario Street is currently blocked with concrete barricades that will be eliminated with the proposed development.

Borio Drive is a north-south is a minor collector roadway that provides one travel lane in each direction. At its unsignalized intersection with Renwick Road, Borio Drive provides a shared left-turn/right-turn lane on the northbound approach that operates under stop sign control. Borio Drive provides a high visibility crosswalk on the south leg of this intersection. Borio Drive is under the jurisdiction of the City of Crest Hill, carries an AADT volume of 1,150 vehicles (IDOT 2023), and has a posted speed limit of 25 miles per hour.

McGilvray Drive is an east-west local roadway that provides one travel lane in each direction. At its unsignalized intersection with Weber Road, McGilvray Drive provides a shared left-turn/through/right-turn lane on both approaches that operate under stop sign control. McGilvray Drive is under the jurisdiction of the City of Crest Hill and has a posted speed limit of 25 miles per hour east of Weber Road.

Executive Drive is a north-south local roadway that provides one travel lane in each direction. At its unsignalized intersection with Renwick Road, Executive Drive provides a shared left-turn/right-turn lane on the northbound approach that operates under stop sign control. Executive Drive is under the jurisdiction of the City of Crest Hill.

Ontario Street is a north-south local roadway that provides one travel lane in each direction. At its unsignalized intersection with Ryan Drive, Ontario Street provides a shared left-turn/right-turn lane on the northbound approach that operates under stop sign control. Ontario Street is under the jurisdiction of the City of Crest Hill.

Existing Traffic Volumes

In order to determine current traffic conditions in the vicinity of the site, KLOA, Inc. conducted peak period traffic counts using Miovision Scout Video Collection Units during the morning (7:00 A.M. to 9:00 A.M.) and evening (4:00 P.M. to 6:00 P.M.) peak periods at the following intersections:

- Renwick Road with Weber Road (Tuesday, January 6, 2026)
- Renwick Road with N-S Access Road (Tuesday, January 6, 2026)
- Renwick Road with Executive Drive (Wednesday, January 7, 2026)
- Weber Road with Ryan Drive (Tuesday, January 6, 2026)
- Ryan Drive with Advanced Physicians Access Drive (west) (Tuesday, January 6, 2026)
- Ryan Drive with Advanced Physicians Access Drive (east) (Tuesday, January 6, 2026)
- Ryan Drive with Ontario Street (Tuesday, January 6, 2026)
- Renwick Road with Borio Drive (Tuesday, January 6, 2026)
- McGilvray Drive with Weber Road (Tuesday, January 6, 2026)
- McGilvray Drive with Crest Lake Access Drive (west) (Tuesday, January 6, 2026)
- McGilvray Drive with Crest Lake Access Drive (east) (Tuesday, January 6, 2026)

The results of the traffic counts show that the peak hours of traffic generally occurred between 7:15 A.M. and 8:15 A.M. during the weekday morning peak period and between 4:00 P.M and 5:00 P.M. during the weekday evening peak period. The existing peak hour vehicle traffic volumes are shown in **Figure 4**. Copies of the traffic count summary sheets are included in the Appendix.

NOT TO SCALE

WEBER ROAD

RENWICK ROAD

112 (369)
677 (1042)
140 (166)

92 (136)
252 (484)
69 (156)

257 (259)
399 (272)
50 (68)

52 (134)
815 (790)
77 (61)

615 (485)
1 (14)

413 (776)

4 (9)

603 (478)
16 (16)

403 (759)
13 (15)

EXECUTIVE DRIVE

10 (17)
9 (13)

599 (459)
13 (32)

398 (754)
14 (46)

18 (20)
46 (22)

BORIO DRIVE

SITE

(PRIVATE DRIVE)

A

B

4 (32)
2 (9)
1 (5)

7 (4)
10 (5)
0 (0)

RYAN DRIVE

14 (20)
2 (9)
4 (6)

1 (47)
1 (1)
0 (1)

3 (15)

17 (9)

ONTARIO DRIVE

ADVANCED PHYSICIANS

0 (0)
783 (1209)
13 (57)

9 (49)
0 (0)
6 (35)

0 (0)
0 (0)
0 (0)

0 (0)
935 (936)
16 (25)

A WEBER ROAD @ RYAN DRIVE

15 (84)

20 (28)
9 (54)

0 (7)

B RYAN DRIVE @ ADVANCED PHYSICIANS WEST ACCESS DRIVE

CRESTLAKE

C

D

0 (7)
0 (7)

1 (4)
32 (33)

MCGILVRAY DRIVE

17 (27)
19 (61)

88

2 (9)
769 (1192)
18 (43)

23 (36)
0 (0)
16 (29)

1 (2)
0 (0)
7 (7)

3 (10)
927 (923)
18 (45)

C WEBER ROAD @ MCGILVRAY DRIVE

7 (25)

0 (0)
32 (40)

36 (88)

D MCGILVRAY DRIVE @ CRESTLAKE EAST ACCESS

LEGEND

00 - AM PEAK HOUR (7:15-8:15 AM)

(00) - PM PEAK HOUR (4:00-5:00 PM)

RESIDENTIAL DEVELOPMENT
CREST HILL, ILLINOIS

EXISTING TRAFFIC VOLUMES

KLOA
Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 25-380 Figure: 4

Crash Data Summary

KLOA, Inc. obtained crash data[1] from IDOT for the most recent past five years available (2020 to 2024) for the intersections within the study area. **Tables 1** through **5** show the summary of the crash data at the intersections within the study area. Furthermore, no fatalities were reported at the intersections during the reviewed period.

Table 1
RENWICK ROAD WITH WEBER ROAD – CRASH SUMMARY

Year	Type of Crash								Severity		
	A	HO	O	RE	S	T	Other	Total	PD	I	F
2020	0	0	0	3	0	3	0	6	3	4	0
2021	1	0	0	12	3	2	0	18	15	3	0
2022	2	0	0	6	1	6	0	15	9	8	0
2023	3	0	1	7	1	6	0	18	15	4	0
2024	1	0	0	5	0	5	0	11	9	2	0
Total	**7**	**0**	**1**	**33**	**5**	**22**	**0**	**68**	**51**	**21**	**0**
Avg	**1.4**	**0**	**<1.0**	**6.6**	**1**	**4.4**	**0**	**13.6**	**10.2**	**4.2**	**0**

A – Angle; HO – Head On; O – Object; RE – Rear End; S – Sideswipe; T – Turning
PD – Property Damage; I – Injury; F - Fatal

[1] IDOT DISCLAIMER: The motor vehicle crash data referenced herein was provided by the Illinois Department of Transportation. Any conclusions drawn from analysis of the aforementioned data are the sole responsibility of the data recipient(s).

Table 2
WEBER ROAD WITH RYAN DRIVE – CRASH SUMMARY

Year	Type of Crash								Severity		
	A	HO	O	RE	S	T	Other	Total	PD	I	F
2020	0	0	0	1	0	0	0	1	0	2	0
2021	0	0	0	0	0	0	0	0	0	0	0
2022	0	0	0	1	0	1	0	2	1	1	0
2023	0	0	0	0	0	0	0	0	0	0	0
2024	0	0	0	1	0	1	0	2	2	0	0
Total	**0**	**0**	**0**	**3**	**0**	**2**	**0**	**5**	**3**	**3**	**0**
Avg	**0**	**0**	**0**	**<1.0**	**0**	**<1.0**	**0**	**1**	**<1.0**	**<1.0**	**0**

A – Angle; HO – Head On; O – Object; RE – Rear End; S – Sideswipe; T – Turning
PD – Property Damage; I – Injury; F - Fatal

Table 3
RENWICK ROAD WITH EXECUTIVE DRIVE – CRASH SUMMARY

Year	Type of Crash								Severity		
	A	HO	O	RE	S	T	Other	Total	PD	I	F
2020	0	0	0	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	1	0	1	1	0	0
2022	0	0	0	0	0	0	0	0	0	0	0
2023	0	0	0	0	0	0	0	0	0	0	0
2024	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**0**	**0**
Avg	**0**	**0**	**0**	**0**	**0**	**<1.0**	**0**	**<1.0**	**<1.0**	**0**	**0**

A – Angle; HO – Head On; O – Object; RE – Rear End; S – Sideswipe; T – Turning
PD – Property Damage; I – Injury; F - Fatal

Table 4
RENWICK ROAD WITH BORIO DRIVE – CRASH SUMMARY

Year	Type of Crash								Severity		
	A	HO	O	RE	S	T	Other	Total	PD	I	F
2020	0	0	0	0	0	1	0	1	1	0	0
2021	0	0	0	1	0	1	0	2	1	1	0
2022	0	0	0	1	0	0	0	1	0	1	0
2023	0	0	0	0	0	1	0	1	0	1	0
2024	0	0	1	0	0	0	0	1	1	0	0
Total	**0**	**0**	**1**	**2**	**0**	**3**	**0**	**6**	**3**	**3**	**0**
Avg	**0**	**0**	**<1.0**	**<1.0**	**0**	**<1.0**	**0**	**1.2**	**<1.0**	**<1.0**	**0**

A – Angle; HO – Head On; O – Object; RE – Rear End; S – Sideswipe; T – Turning
PD – Property Damage; I – Injury; F - Fatal

Table 5
WEBER ROAD WITH MCGILVRAY DRIVE – CRASH SUMMARY

Year	Type of Crash								Severity		
	A	HO	O	RE	S	T	Other	Total	PD	I	F
2020	0	0	0	0	0	0	0	0	0	0	0
2021	0	0	1	0	0	1	0	2	2	0	0
2022	0	0	0	0	0	1	0	1	1	0	0
2023	1	0	0	0	1	2	0	4	2	3	0
2024	0	0	0	0	0	1	0	1	1	0	0
Total	**1**	**0**	**1**	**0**	**1**	**5**	**0**	**8**	**6**	**3**	**0**
Avg	**<1.0**	**0**	**<1.0**	**0**	**<1.0**	**1**	**0**	**1.6**	**1.2**	**<1.0**	**0**

A – Angle; HO – Head On; O – Object; RE – Rear End; S – Sideswipe; T – Turning
PD – Property Damage; I – Injury; F - Fatal

3. Traffic Characteristics of the Proposed Development

To properly evaluate future traffic conditions, it was necessary to determine the traffic characteristics of the proposed development, including the directional distribution and volumes of traffic that it will generate.

Proposed Site and Development Plan

As proposed, the development will contain 260 residential units, 439 surface parking spaces and 120 enclosed parking spaces. Access to the residential development will be provided via six access drives that will connect to the internal private roads and subsequently connect to the surrounding street network through the following existing access roads:

- An existing RIRO access road that is located on the south side of Renwick Road approximately 635 feet east of Weber Road. This access road provides one inbound lane and one outbound lane with outbound movements under stop sign control.

- An existing full-movement access road located on the south side of Renwick Road approximately 930 feet west of Borio Drive. This access road provides one inbound lane and one outbound lane with outbound movements under stop sign control.

- An existing signalized full-movement access road located on the east side of Weber Road approximately 1,060 feet south of Renwick Road. This access road provides one inbound lane and two outbound lanes.

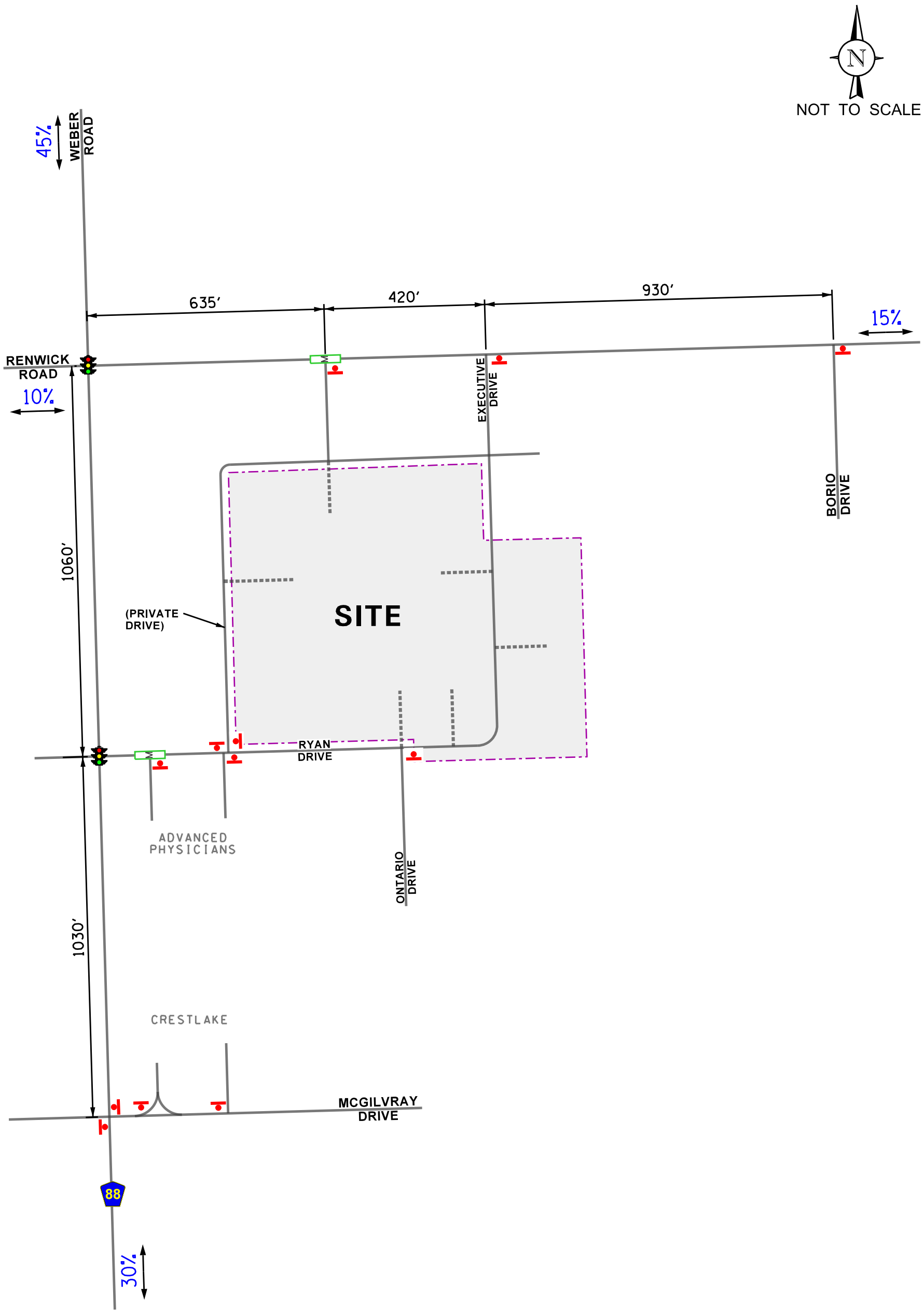
As part of the proposed plan, internal pedestrian sidewalks and high-visibility crosswalks will be provided at key intersections within the development to enhance pedestrian safety when accessing the pool, clubhouse area, and surrounding outlot commercial developments.

Additionally, it is important to note that there are two locations with concrete barricades with one located approximately 50 feet east of Ontario Street and another one located approximately 545 feet south of Renwick Road. These barricades will be removed to provide full access between the development and the internal access roads that connect to the street network.

A copy of the proposed site plan and geometrics plan is included in the Appendix.

Directional Distribution

The directions from which residents of the residential development will approach and depart the site were estimated based on existing travel patterns, as determined from the traffic counts. **Figure 5** illustrates the directional distribution of the development-generated traffic.



LEGEND

00% - PERCENT DISTRIBUTION

00' - DISTANCE IN FEET

RESIDENTIAL DEVELOPMENT
CREST HILL, ILLINOIS

DIRECTIONAL DISTRIBUTION

KLOA
Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 25-380 Figure: 5

Peak Hour Traffic Volumes

The number of peak hour trips estimated to be generated by the proposed development was based on vehicle trip generation rates contained in *Trip Generation Manual*, 12th Edition, published by the Institute of Transportation Engineers (ITE). The "Multifamily Housing (Low-Rise)" (Land-Use Code 220) rate was used for the proposed development. **Table 6** shows the estimated vehicle trip generation for the weekday morning and weekday evening peak hours as well as daily traffic.

Table 6
SITE-GENERATED TRIP ESTIMATES

ITE Land-Use Code	Type/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Daily Trips		
		In	Out	Total	In	Out	Total	In	Out	Total
220	Multifamily Housing - Low-Rise (260 units)	25	79	104	82	50	132	792	792	1,584

4. Projected Traffic Conditions

The total projected traffic volumes include the existing traffic volumes, increase in background traffic due to growth, and the traffic estimated to be generated by the proposed development.

Development Traffic Assignment

The estimated weekday morning and weekday evening peak hour traffic volumes that will be generated by the proposed development were assigned to the roadway system in accordance with the previously described directional distribution (Figure 5). **Figure 6** illustrates the development traffic assignments.

Background (No-Build) Traffic Conditions

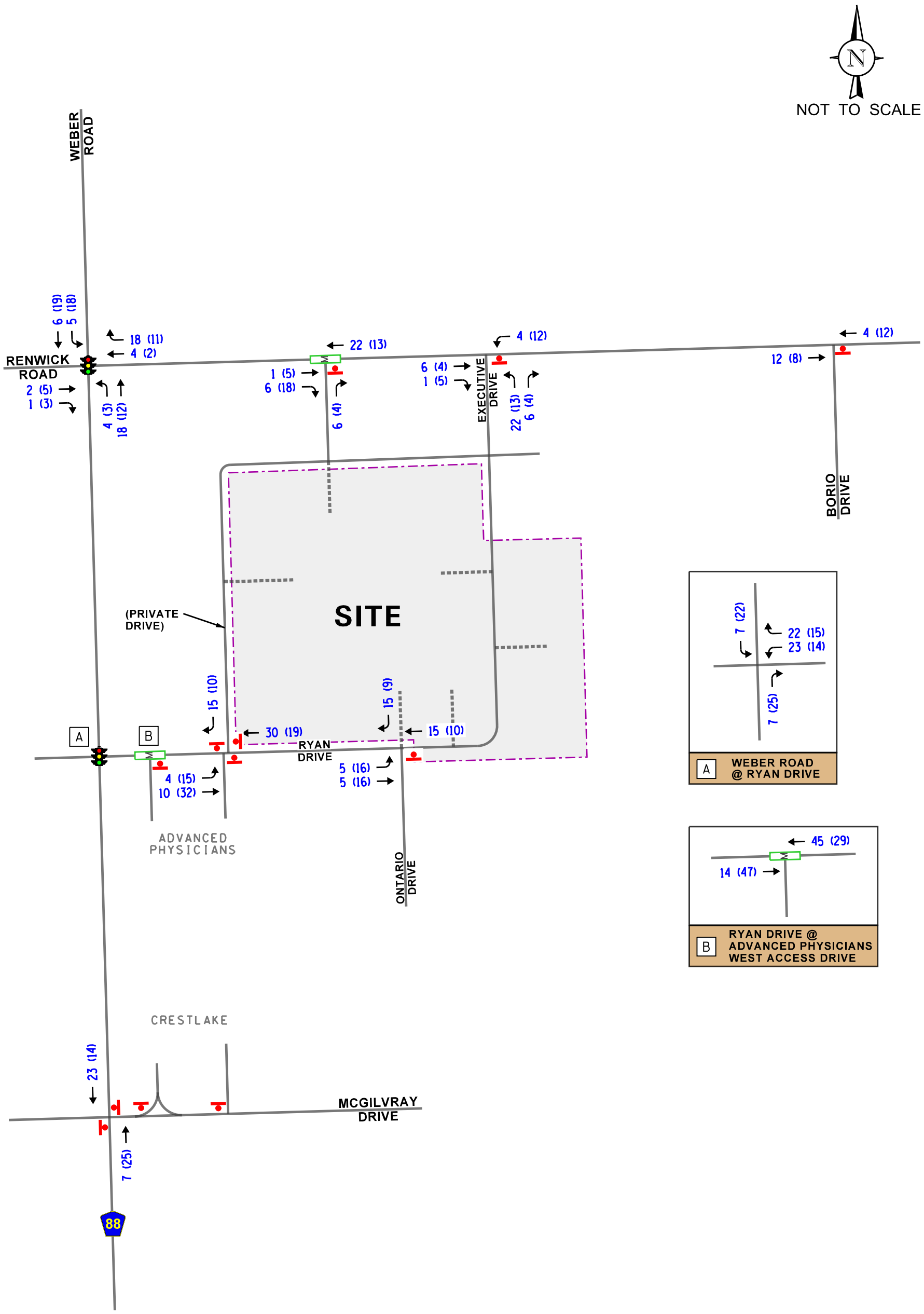
The existing traffic volumes (Figure 4) were increased by a regional growth factor to account for the increase in existing traffic related to regional growth in the area (i.e., not attributable to any particular planned development). Based on 2050 Average Daily Traffic (ADT) projections provided by the Chicago Metropolitan Agency for Planning (CMAP), the existing traffic volumes were increased by an annually compounded growth rate of .66 percent for six years (i.e. one-year buildout plus five years) totaling approximately four percent to represent Year 2032 no-build conditions. The Year 2032 no-build traffic volumes are illustrated in **Figure 7**.

Other Area Developments

To account for the traffic to be generated by the other future developments in the area, the traffic impact study also included development of the two vacant commercial outlot parcels adjacent to the site. Vehicle trips were estimated for two outlot totaling 3.97 acres were estimated using ITE trip rates and added to the street network.

Year 2032 Total Projected Traffic Volumes

The new development-generated traffic (Figure 6) was added to the Year 2032 no-build traffic volumes (Figure 7) to determine the Year 2032 total projected traffic volumes, as illustrated in **Figure 8.**



LEGEND

00 - AM PEAK HOUR (7:15-8:15 AM)

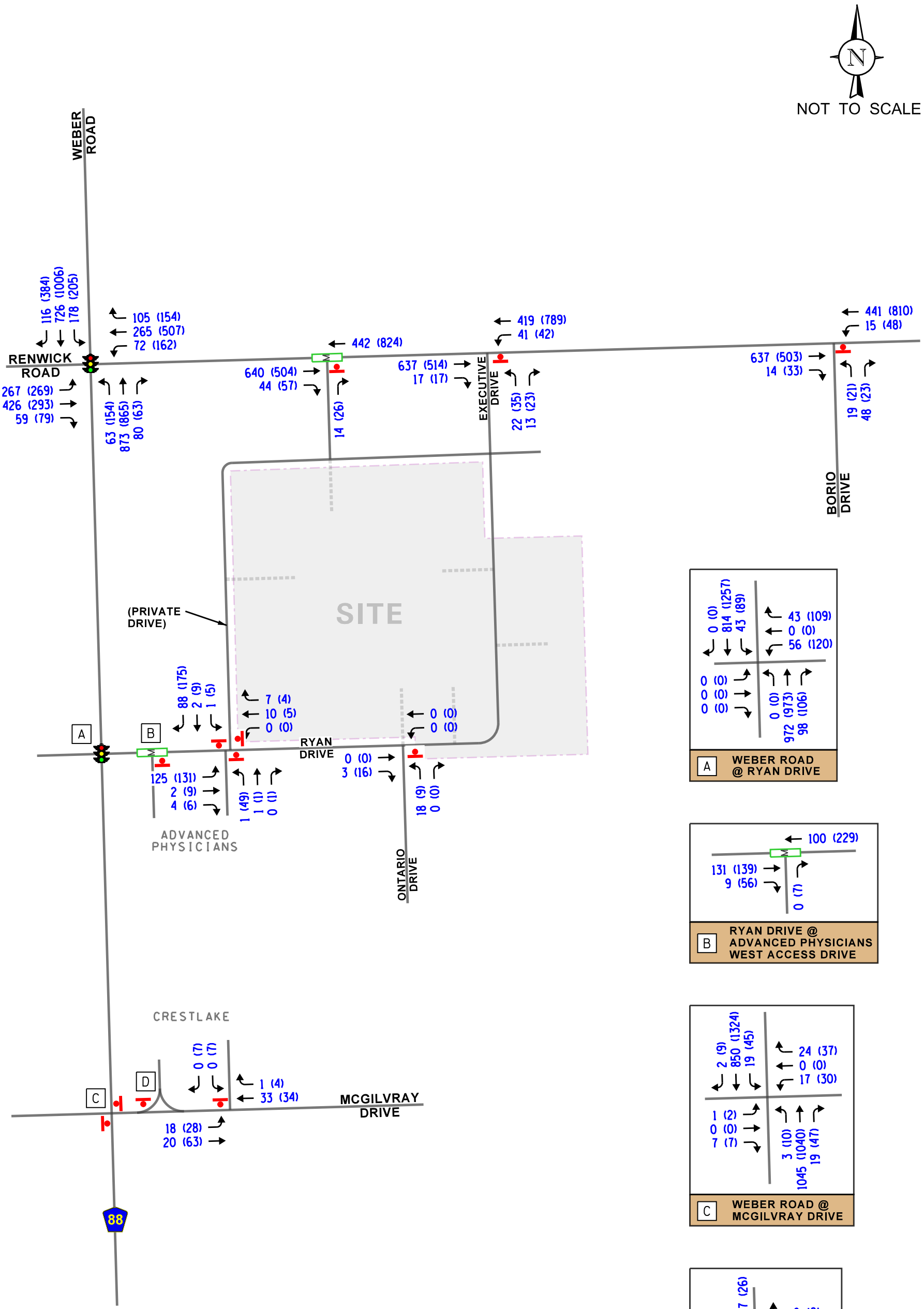
(00) - PM PEAK HOUR (4:00-5:00 PM)

RESIDENTIAL DEVELOPMENT
CREST HILL, ILLINOIS

SITE-GENERATED TRAFFIC VOLUMES

KLOA
Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 25-380 Figure: 6



LEGEND

00 - AM PEAK HOUR (7:15-8:15 AM)

(00) - PM PEAK HOUR (4:00-5:00 PM)

RESIDENTIAL DEVELOPMENT
CREST HILL, ILLINOIS

YEAR 2032 NO-BUILD TRAFFIC VOLUMES

KLOA
Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 25-380 Figure: 7

NOT TO SCALE

WEBER ROAD

RENWICK ROAD

EXECUTIVE DRIVE

BORIO DRIVE

SITE

(PRIVATE DRIVE)

RYAN DRIVE

ONTARIO DRIVE

ADVANCED PHYSICIANS

CRESTLAKE

MCGILVRAY DRIVE

88

A

B

C

D

116 (384)
732 (1125)
183 (223)
123 (165)
269 (509)
72 (162)
267 (269)
428 (298)
60 (82)
67 (157)
891 (877)
80 (63)
464 (837)
641 (509)
50 (75)
20 (30)
419 (789)
45 (54)
643 (518)
18 (22)
44 (48)
19 (27)
445 (822)
15 (48)
649 (511)
14 (33)
19 (21)
48 (23)
103 (185)
2 (9)
1 (5)
7 (4)
40 (24)
0 (0)
129 (146)
12 (41)
4 (6)
1 (49)
1 (1)
0 (1)
15 (9)
0 (0)
0 (0)
0 (0)
15 (10)
0 (0)
5 (16)
5 (16)
3 (16)
18 (9)
0 (0)
0 (0)
0 (0)
0 (0)
814 (1257)
50 (111)
65 (124)
0 (0)
79 (134)
0 (0)
0 (0)
0 (0)
0 (0)
972 (973)
105 (131)
145 (258)
145 (186)
9 (56)
0 (7)
2 (9)
873 (1338)
19 (45)
24 (37)
0 (0)
17 (30)
1 (2)
0 (0)
7 (7)
3 (10)
1052 (1065)
19 (47)
0 (0)
0 (0)
7 (26)
0 (0)
33 (42)
37 (92)
1 (4)
33 (34)
18 (28)
20 (63)

A WEBER ROAD @ RYAN DRIVE

B RYAN DRIVE @ ADVANCED PHYSICIANS WEST ACCESS DRIVE

C WEBER ROAD @ MCGILVRAY DRIVE

D MCGILVRAY DRIVE @ CRESTLAKE EAST ACCESS

LEGEND

00 - AM PEAK HOUR (7:15-8:15 AM)

(00) - PM PEAK HOUR (4:00-5:00 PM)

RESIDENTIAL DEVELOPMENT
CREST HILL, ILLINOIS

YEAR 2032 TOTAL TRAFFIC VOLUMES

KLOA
Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 25-380 Figure: 8

5. Traffic Signal Warrant Analysis

A traffic signal warrant analysis was performed for the intersection of Weber Road with Ryan Drive based on the Federal Highway Administration's *Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD), 2009. The traffic signal requires that one or more of the nine signal warrants outlined in the *Manual on Uniform Traffic Control Devices* (MUTCD 2009) are met. However, as shown in **Figure 9**, Weber Road is classified as an SRA route and as such, SRA traffic signal warrant requirements established by the Illinois Department of Transportation (IDOT) were utilized. This criterion only takes into consideration traffic volume Warrant 1 (Eight-Hour Vehicular Volume).

Warrant 1, Eight-Hour Vehicular Volume states that the Minimum Vehicular Volume, Condition A, is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal. The Interruption of Continuous Traffic, Condition B, is intended for application at locations where Condition A is not satisfied and where the traffic volumes on a major street are so heavy that traffic on the minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.

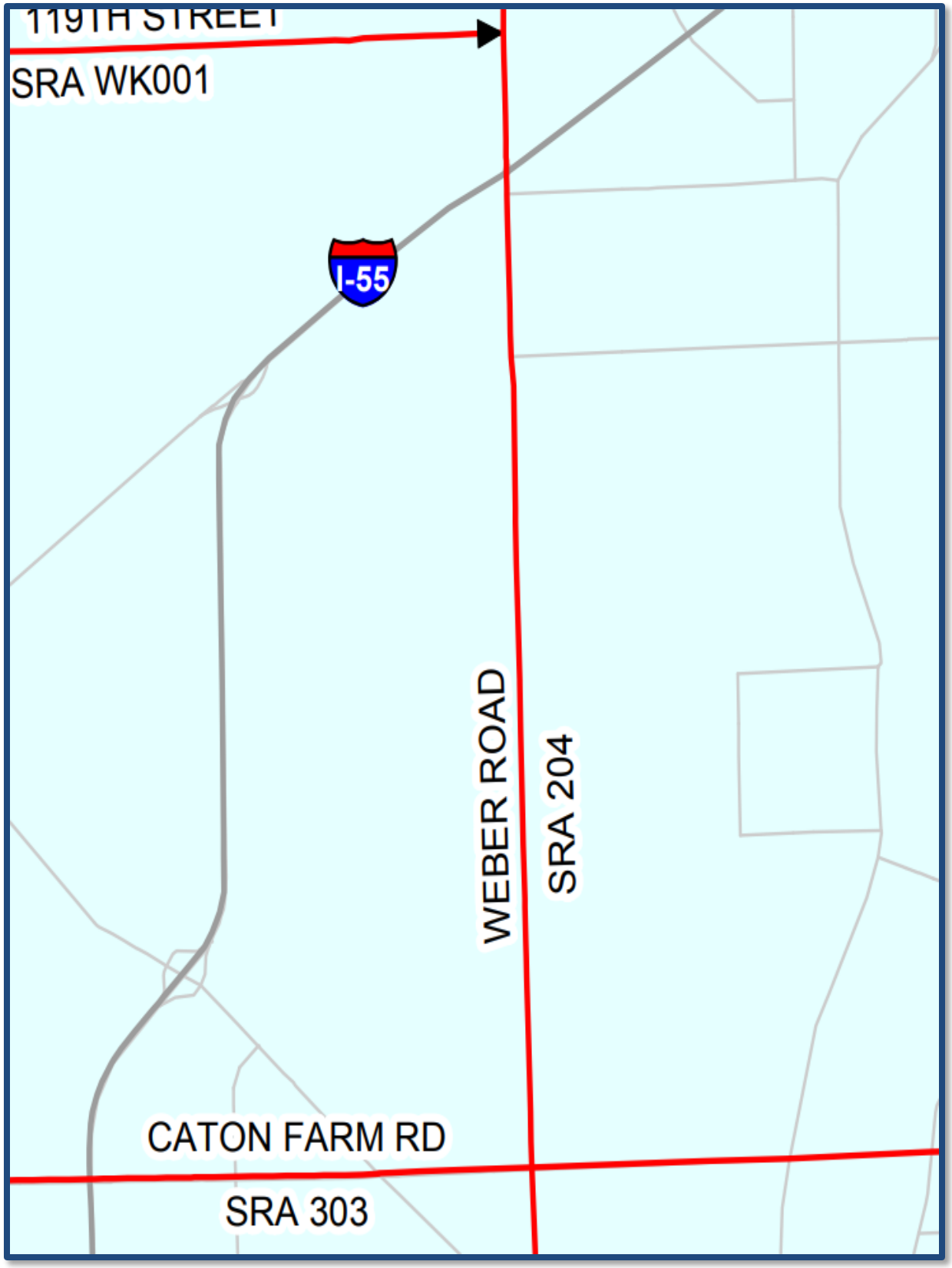
Given that Weber Road provides three lane approaches at this intersection, the required vehicles per hour on the major street is 600 (total of both approaches) and the required vehicles per hour on the minor street (one direction only) is 200 for Condition A. For Condition B, the required number of vehicles per hour on the major street is 900 (total of both approaches) and the required number of vehicles per hour on the minor street (one direction only) is 100.

However, for SRA routes, the requirements on the minor street for Condition B shall be increased from 100 vehicles per hour to 150 for a two-lane minor approach. Furthermore, based on IDOT's guidelines, the right-turn volume from the minor approach will be reduced between 70 - 75 percent.

To determine if a traffic signal will be warranted under Year 2032 total projected conditions at the intersection of Weber Road with Ryan Drive, the following was taken into consideration:

- 13-hour traffic counts conducted at the intersection of Weber Road with Ryan Drive
- Hourly traffic volumes projected to be generated by the subject development.
- The anticipated regional background growth
- Hourly traffic volumes projected to be generated by the two vacant commercial outlot parcels adjacent to the site

Table 7 summarizes the 13-hour traffic counts for the intersection of Weber Road with Ryan Drive to reflect IDOT's required right-turn reduction for total projected traffic conditions.



Strategic Regional Arterial Map **Figure 9**

Table 7
WEBER ROAD WITH RYAN DRIVE – PROJECTED
13-HOUR TRAFFIC VOLUMES – WITH IDOT SRA CRITERIA

Time	Weber Road		Ryan Drive (Westbound)			Major Approach Total	Minor Approach Volume	Minimums Met?	
	NB Total	SB Total	L	R	Adj. Right			Condition A	Condition B
6:00 AM	914	506	16	23	6	1420	22	NO	NO
7:00 AM	1076	863	79	65	20	1939	99	NO	NO
8:00 AM	751	873	48	36	9	1624	57	NO	NO
9:00 AM	715	707	55	53	13	1422	68	NO	NO
10:00 AM	721	673	74	79	20	1394	94	NO	NO
11:00 AM	861	753	109	95	24	1614	133	NO	NO
12:00 PM	906	879	120	100	25	1785	145	NO	NO
1:00 PM	1003	1024	110	101	30	2027	140	NO	NO
2:00 PM	1030	1158	112	100	30	2188	142	NO	NO
3:00 PM	1137	1244	112	101	30	2381	142	NO	NO
4:00 PM	1103	1366	133	122	37	2469	170	NO	YES
5:00 PM	1108	1118	133	126	38	2226	171	NO	YES
6:00 PM	791	956	113	113	38	1747	141	NO	NO

Warrant 1A requires a major approach volume of 600 vehicles and a minor approach volume of 200 vehicles.
Warrant 1B requires a major approach volume of 900 vehicles and a minor approach volume of 150 vehicles (increased per IDOT requirements for SRA Routes).
L – Left, T – Through, R – Right, NB – Northbound, SB – Southbound

As can be seen from Table 7, when the conservative IDOT SRA traffic signal warrant criteria is applied to the traffic volumes at the intersection of Weber Road with Ryan Drive, a traffic signal will not be warranted at the intersection, when only two hours are met under total projected conditions, whereas eight hours are required to meet the warrant. However, as can be seen from Table 8, six other hours are within approximately 10 percent (17 vehicles or less) of warranting the six additional hours needed to meet the conservatively high IDOT SRA warrant criteria.

However, when the requirements for the minor street for Condition B are not increased from 100 vehicles per hour and as can be seen from Table 7, a traffic signal will be warranted for eight hours based on Condition B as can be seen in Table 8.

It should be noted that when taking into consideration that the speed on Weber Road is 45 miles per hour and by applying the MUTCD 70 percent criteria for a non-SRA route, the minor approach volume to warrant the traffic signal is 70 vehicles. The projected traffic volumes for the eight previously identified hours are approximately double this minimum volume threshold.

Additionally, it is important to note that the projected traffic volumes include the existing bank located in the northeast quadrant of the intersection of Weber Road and Ryan Drive that currently operates as a 24-hour ATM-only facility. A redevelopment of this parcel could result in the provision of a more traffic intensive land use, pushing the projected traffic volumes over the SRA minimum thresholds which are already close to being met.

Overall, maintaining a signal at this intersection, is imperative to ensure safe/protected full access to the proposed development via Weber Road, limiting the impact of the development on the area roadway network, as well as to accommodate existing land uses, the subject development, and redevelopment opportunities for the commercial outlot parcels.

Table 8
WEBER ROAD WITH RYAN DRIVE – PROJECTED
13-HOUR TRAFFIC VOLUMES – WITHOUT IDOT SRA CRITERIA

Time	Weber Road		Ryan Drive (Westbound)			Major Approach Total	Highest Minor Approach Volume	Minimums Met?	
	NB Total	SB Total	L	R	Adj. Right			Condition A	Condition B
6:00 AM	914	506	16	23	6	1420	22	NO	NO
7:00 AM	1076	863	79	65	20	1939	99	NO	NO
8:00 AM	751	873	48	36	9	1624	57	NO	NO
9:00 AM	715	707	55	53	13	1422	68	NO	NO
10:00 AM	721	673	74	79	20	1394	94	NO	NO
11:00 AM	861	753	109	95	24	1614	133	NO	YES
12:00 PM	906	879	120	100	25	1785	145	NO	YES
1:00 PM	1003	1024	110	101	30	2027	140	NO	YES
2:00 PM	1030	1158	112	100	30	2188	142	NO	YES
3:00 PM	1137	1244	112	101	30	2381	142	NO	YES
4:00 PM	1103	1366	133	122	37	2469	170	NO	YES
5:00 PM	1108	1118	133	126	38	2226	171	NO	YES
6:00 PM	791	956	113	113	38	1747	141	NO	YES

Warrant 1A requires a major approach volume of 600 vehicles and a minor approach volume of 200 vehicles.
Warrant 1B requires a major approach volume of 900 vehicles and a minor approach volume of 100 vehicles
L – Left, T – Through, R – Right, NB – Northbound, SB – Southbound

6. Traffic Analysis and Recommendations

The following provides an evaluation conducted for the weekday morning and weekday evening peak hours. The analysis includes conducting capacity analyses to determine how well the roadway system and access roads are projected to operate and whether any roadway improvements or modifications are required.

Traffic Analyses

Capacity analyses were performed for the included intersections in the study area for the weekday morning and weekday evening peak hours for the existing, Year 2032 no-build, and Year 2032 total projected conditions.

The traffic analyses were performed using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual* (HCM), 7th Edition and using Synchro/SimTraffic 12 analysis software. The analysis for the traffic-signal controlled intersections were accomplished using actual cycle lengths and phasings to determine the average overall vehicle delay and levels of services.

The analyses for the unsignalized intersections determine the average control delay to vehicles at an intersection. Control delay is the elapsed time from a vehicle joining the queue at a stop sign (including the time required to decelerate to a stop) until its departure from the stop sign and resumption of free-flow speed. The methodology analyzes each intersection approach controlled by a stop sign and considers traffic volumes on all approaches and lane characteristics.

The ability of an intersection to accommodate traffic flow is expressed in terms of level of service, which is assigned a letter from A to F based on the average control delay experienced by vehicles passing through the intersection. The *Highway Capacity Manual* definitions for levels of service and the corresponding control delay for signalized intersections and unsignalized intersections are included in the Appendix of this report.

A summary of the traffic analysis results showing the level of service and delay (measured in seconds) for the intersections under the existing, 2032 no-build conditions, and Year 2032 total projected conditions are shown in **Tables 9** through **13**. Copies of the capacity analysis summary sheets are included in the Appendix. A discussion of each of the intersections follows.

Table 9
CAPACITY ANALYSIS RESULTS – RENWICK ROAD WITH WEBER ROAD – SIGNALIZED

	Peak Hour	Eastbound		Westbound			Northbound		Southbound			Overall
		L	T/R	L	T/R		L	T/R	L	T	R	
Existing Conditions	Weekday Morning	E 56.7	D 43.2	E 60.6	D 48.8	B 12.6	E 59.3	C 26.0	E 60.9	C 21.2	A 2.1	C 33.8
		D – 48.1		D – 42.7			C – 27.8		C – 24.9			
	Weekday Evening	E 57.1	D 38.1	E 61.1	D 47.9	B 13.3	E 62.2	C 28.5	E 63.3	C 29.5	B 12.6	D 35.7
		D – 46.3		D – 44.5			C – 33.1		C – 29.1			
No-Build Conditions	Weekday Morning	E 56.5	D 43.5	E 60.6	D 48.8	B 14.6	E 59.5	C 27.5	E 6..7	C 22.1	A 2.2	C 34.9
		D – 48.1		D – 42.5			C – 29.5		C – 27.1			
	Weekday Evening	E 58.1	D 38.7	E 61.2	D 47.9	B 17.0	E 64.5	C 29.6	E 67.7	C 30.4	B 13.9	D 37.0
		D – 46.8		D – 44.7			C – 34.6		C – 31.1			
Projected Conditions	Weekday Morning	E 57.2	D 43.4	E 60.6	D 48.3	B 16.7	E 59.6	C 27.7	E 64.6	C 22.3	A 2.3	D 35.0
		D – 48.3		D – 41.9			C – 29.7		C – 27.6			
	Weekday Evening	E 58.8	D 39.1	E 61.8	D 47.9	B 17.9	E 64.8	C 29.8	E 68.8	C 30.3	B 13.9	D 37.3
		D – 47.2		D – 44.7			C – 34.8		C – 31.6			

Letter denotes Level of Service L – Left Turn R – Right Turn
Delay is measured in seconds. T – Through

Table 10
CAPACITY ANALYSIS RESULTS – WEBER ROAD WITH RYAN DRIVE – SIGNALIZED

	Peak Hour	Eastbound	Westbound		Northbound	Southbound		Overall
		L/T/R	L	R	L/T/R	L	T/R	
Existing Conditions	Weekday Morning	--	E 71.2	A 0.8	A – 1.7	A 0.8	A 0.7	A 1.5
			C – 27.2			A – 0.7		
	Weekday Evening	--	E 77.3	A 6.3	A – 3.7	A 1.8	A 1.8	A 3.8
			D – 36.0			A – 1.8		
No-Build Conditions	Weekday Morning	--	E 79.5	A 2.8	A – 4.2	A 2.1	A 1.9	A 5.3
			D – 46.2			A – 1.9		
	Weekday Evening	--	F 86.8	B 15.6	A – 6.4	A 3.7	A 3.5	A 8.9
			D – 52.9			A – 3.5		
Projected Conditions	Weekday Morning	--	F 80.6	A 9.1	A – 5.1	A 2.6	A 2.5	A 7.0
			D – 48.4			A – 2.5		
	Weekday Evening	--	F 84.3	B 14.5	A – 7.1	A 4.7	A 3.9	A 9.7
			D – 50.8			A – 4.0		

Letter denotes Level of Service L – Left Turn R – Right Turn
Delay is measured in seconds. T – Through

Table 11
CAPACITY ANALYSIS RESULTS – EXISTING CONDITIONS – UNSIGNALIZED

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Renwick Road with N-S Access Road[2]				
• Northbound Approach	B	11.9	B	11.1
Renwick with Executive Drive[2]				
• Northbound Approach	B	12.7	B	12.8
• Westbound Left Turn	A	8.9	A	8.5
Renwick Road with Borio Drive[2]				
• Northbound Approach	B	14.7	C	15.7
• Westbound Left Turn	A	8.9	A	8.6
Ryan Drive with Advanced Physicians Access Drive (West)[2]				
• Northbound Approach	--	--	A	8.7
Ryan Drive with Advanced Physicians Access Drive (East)/N-S Private Road [1]				
• ICU	A	17.8%	A	24.7%
Ryan Drive with Ontario Street[2]				
• Northbound Approach	A	8.7	A	8.7
• Westbound Left Turn	--	--	--	--
Weber Road with McGilvray Drive[2]				
• Eastbound Approach	B	12.4	C	19.2
• Westbound Approach	C	18.1	C	24.1
• Northbound Left Turn	A	9.4	B	11.7
• Southbound Left Turn	B	10.5	B	10.8
McGilvray Drive with Crest Lake Access Drive (West)[2]				
• Southbound Approach	A	8.5	A	8.6
McGilvray Drive with Crest Lake Access Drive (East)[2]				
• Southbound Approach	--	--	A	9.1
• Eastbound Left Turn	A	7.3	A	7.3

LOS = Level of Service
Delay is measured in seconds.
1 – Intersection Capacity Utilization (ICU)
2 – Two-way stop control

Table 12
CAPACITY ANALYSIS RESULTS – NO-BUILD CONDITIONS – UNSIGNALIZED

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Renwick Road with N-S Access Road[2]				
• Northbound Approach	B	12.5	B	11.6
Renwick with Executive Drive[2]				
• Northbound Approach	B	14.1	B	14.3
• Westbound Left Turn	A	9.2	A	8.8
Renwick Road with Borio Drive[2]				
• Northbound Approach	C	15.5	C	16.8
• Westbound Left Turn	A	9.0	A	8.8
Ryan Drive with Advanced Physicians Access Drive (West)[2]				
• Northbound Approach	--	--	A	9.4
Ryan Drive with Advanced Physicians Access Drive (East)/N-S Private Road [1]				
• ICU	A	26.2%		
Ryan Drive with Ontario Street[2]				
• Northbound Approach	A	8.7	A	8.7
• Westbound Left Turn	--	--	--	--
Weber Road with McGilvray Drive[2]				
• Eastbound Approach	B	13.0	C	21.9
• Westbound Approach	C	20.7	D	29.2
• Northbound Left Turn	A	9.7	B	12.6
• Southbound Left Turn	B	11.2	B	11.5
McGilvray Drive with Crest Lake Access Drive (West)[2]				
• Southbound Approach	A	8.5	A	8.6
McGilvray Drive with Crest Lake Access Drive (East)[2]				
• Southbound Approach	--	--	A	9.1
• Eastbound Left Turn	A	7.3	A	7.3

LOS = Level of Service
Delay is measured in seconds.
1 – Intersection Capacity Utilization (ICU)
2 – Two-way stop control

Table 13
CAPACITY ANALYSIS RESULTS – PROJECTED CONDITIONS – UNSIGNALIZED

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Renwick Road with N-S Access Road[2]				
• Northbound Approach	B	12.6	B	11.8
Renwick with Executive Drive[2]				
• Northbound Approach	C	15.2	C	15.3
• Westbound Left Turn	A	9.2	A	8.9
Renwick Road with Borio Drive[2]				
• Northbound Approach	C	15.7	C	17.0
• Westbound Left Turn	A	9.1	A	8.8
Ryan Drive with Advanced Physicians Access Drive (West)[2]				
• Northbound Approach	--	--	A	9.8
Ryan Drive with Advanced Physicians Access Drive (East)/N-S Private Road [1]				
• ICU	A	27.9%	A	42.8%
Ryan Drive with Ontario Street[2]				
• Northbound Approach	A	9.0	A	9.2
• Southbound Approach	A	8.5	A	8.4
• Eastbound Left Turn	A	7.3	A	7.3
• Westbound Left Turn	--	--	--	--
Weber Road with McGilvray Drive[2]				
• Eastbound Approach	B	13.2	C	22.3
• Westbound Approach	C	20.9	D	30.3
• Northbound Left Turn	A	9.8	B	12.7
• Southbound Left Turn	B	11.2	B	11.7
McGilvray Drive with Crest Lake Access Drive (West)[2]				
• Southbound Approach	A	8.5	A	8.6

LOS = Level of Service
Delay is measured in seconds.
1 – Intersection Capacity Utilization (ICU)
2 – Two-way stop control

Table 13 (continued)
CAPACITY ANALYSIS RESULTS – PROJECTED CONDITIONS – UNSIGNALIZED

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
McGilvray Drive with Crest Lake Access Drive (East)[2]				
• Southbound Approach	--	--	A	9.1
• Eastbound Left Turn	A	7.3	A	7.3

LOS = Level of Service
Delay is measured in seconds.
1 – Intersection Capacity Utilization (ICU)
2 – Two-way stop control

Discussion and Recommendations

The following summarizes how the intersections are projected to operate and identifies any roadway and traffic control improvements necessary to accommodate the development-generated traffic.

Renwick Road with Weber Road

The results of the capacity analysis indicate that overall, this intersection currently operates at an overall Level of Service (LOS) C during the weekday morning peak hour and LOS D during weekday evening peak hour. All approaches and critical movements currently operate at LOS E or better during the peak hours. Under Year 2032 no-build and total projected conditions this intersection is projected to operate as follows:

- Under Year 2032 no-build conditions this intersection overall, approaches and critical movements are projected to continue to operate at the same LOS as existing conditions.

- Under Year 2032 total projected conditions, this intersection is projected to operate at an overall LOS D during the weekday morning and weekday evening peak hours.

- Under Year 2032 total projected conditions, all approaches and critical movements are projected to continue to operate at the same LOS as existing and no-build conditions.

- It is important to note that traffic estimated to be generated by the proposed development only results in less than two percent increase in the traffic traversing the intersection.

As such, this intersection has adequate reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway improvements or traffic control adjustments will be required.

Weber Road with Ryan Drive

The results of the capacity analysis indicate that overall, this intersection currently operates at an overall LOS A during the weekday morning and weekday evening peak hours. All approaches and critical movements currently operate at LOS E or better during the peak hours. Under Year 2032 no-build and total projected conditions this intersection is projected to operate as follows:

- Under Year 2032 no-build and total projected conditions, this intersection is projected to continue to operate at the same overall LOS as existing conditions.

- Under Year 2032 no-build and total projected conditions, all approaches are projected to continue to operate at the same LOS as existing conditions, except for the westbound approach during the weekday morning peak hour which is projected to operate at LOS D. It is important to note that this increase in delay is partially due to the future retail background developments.

- Under Year 2032 no-build and total projected conditions, the westbound left turn movement is projected to operate at LOS F, and the westbound right turn movement is projected to operate at LOS B during the weekday evening peak hour. It is important to note that the volume to capacity (v/c) ratio for the westbound left turning movement will be less than one with a maximum 95th percentile queue length of approximately 270 feet which will extend to but not beyond the N-S private road.

- Under Year 2032 total projected conditions, the maximum 95th percentile queue length for the southbound left turn movement will be approximately 26 feet which can be accommodated by the provided storage length of 310 feet.

- It is important to note that traffic estimated to be generated by the proposed development only results in less than three percent increase in the traffic traversing the intersection.

As such, this intersection has adequate reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway improvements will be required.

Renwick Road with N-S Access Road

The results of the capacity analysis indicate that the northbound approach at this RIRO access road currently operates at LOS B during the weekday morning and weekday evening peak hours. Under Year 2032 no-build and total projected conditions this intersection is projected to continue to operate at the same LOS as existing conditions. As such, this intersection has adequate reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway improvements or traffic control adjustments will be required.

Renwick Road with Executive Drive

The results of the capacity analysis indicate that the northbound approach currently operates at LOS B during the weekday morning and weekday evening peak hours. Furthermore, the westbound left turn movement onto Executive Drive currently operates at LOS A during both peak hours. Under Year 2032 no-build and total projected conditions the northbound approach and the westbound left turn movement are projected to continue to operate at the same LOS as existing conditions. Furthermore, the maximum 95th percentile queue for the westbound left turn movement will be one to two vehicles with a v/c ratio of less than one, which can be accommodated by the existing 280 feet of storage. As such, this intersection has adequate reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway improvements or traffic control adjustments will be required.

Renwick Road with Borio Drive

The results of the capacity analysis indicate that the northbound approach currently operates at LOS B during the weekday morning peak hour and LOS C during the weekday evening peak hour. Furthermore, the westbound left turn movement onto Borio Drive currently operates at LOS A during both peak hours. Under Year 2032 no-build and total projected conditions the northbound approach is projected to operate at LOS C during both peak hour and the westbound left turn movement is projected to continue to operate at the same LOS as existing conditions. As such, this intersection has adequate reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway improvements or traffic control adjustments will be required.

Ryan Drive with Advanced Physicians Access Drive (west)

The results of the capacity analysis indicate that the northbound approach at this RIRO access drive currently operates at LOS A during the weekday morning and weekday evening peak hours. Under Year 2032 no-build and total projected conditions this intersection is projected to continue to operate at the same LOS as existing conditions. As such, this intersection has adequate reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway improvements or traffic control adjustments will be required.

Ryan Drive with Advanced Physicians Access Drive(east)/N-S Private Road

As this intersection is atypical with the eastbound approach uncontrolled and the southbound, northbound and westbound approaches being under stop sign control, the intersection was evaluated using the Intersection Capacity Utilization (ICU) method. The results of the capacity analysis indicate that the intersection currently operates at ICU A with minimal queues during the weekday morning and weekday evening peak hours. Under Year 2032 no-build and total projected conditions this intersection is projected to continue to operate at ICU A during the peak hours. As such, this intersection has adequate reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway improvements or traffic control adjustments will be required.

Ryan Drive with Ontario Street

As mentioned previously the east leg of this intersection is blocked by concrete barricades located approximately 50 feet east of Ontario Street. Therefore, the results of the capacity analysis indicate that the northbound approach currently operates at LOS A during the weekday morning and weekday evening peak hours. Under Year 2032 no-build this intersection and without the removal of the concrete barricades the northbound approach is projected to continue to operate at the same LOS as existing conditions.

As part of the proposed plan the development will create the north leg (access drive) at this intersection and the concrete barricades will be removed to provide full access between the development and the internal access roads that connect to the street network.

Under Year 2032 total projected conditions and the removal of the concrete barricades from east leg of the intersection, the northbound and southbound approaches are projected to operate at LOS A during both peak hours. Furthermore, the westbound and eastbound left turn movements are projected to operate at LOS A during both peak hours. As such, this intersection has adequate reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway improvements or traffic control adjustments will be required.

McGilvray Drive with Crest Lake Access Drive (west)

The results of the capacity analysis indicate that the southbound approach at this RIRO access drive currently operates at LOS A during the weekday morning and weekday evening peak hours. Under Year 2032 no-build and total projected conditions this intersection is projected to continue to operate at the same LOS as existing conditions. As such, this intersection has adequate reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway improvements or traffic control adjustments will be required.

McGilvray Drive with Crest Lake Access Drive (east)

The results of the capacity analysis indicate that the southbound approach and the eastbound left turn movement currently operate at LOS A during the weekday morning and weekday evening peak hours. Under Year 2032 no-build and total projected conditions this intersection is projected to continue to operate at the same LOS as existing conditions. As such, this intersection has adequate reserve capacity to accommodate the traffic estimated to be generated by the proposed development and no roadway improvements or traffic control adjustments will be required.

7. Conclusion

Based on the preceding analyses and recommendations, the following conclusions have been made:

- The results of the capacity analysis indicate that the existing roadway system will have sufficient reserve capacity to accommodate the traffic that will be generated by the proposed residential development.

- Access to the residential development will be provided via six access drives that will connect to the internal private roads and subsequently connect to the surrounding street network through the following existing access roads:

    - An existing RIRO access road that is located on the south side of Renwick Road approximately 635 feet east of Weber Road. This access road provides one inbound lane and one outbound lane with outbound movements under stop sign control.

    - An existing full-movement access road located on the south side of Renwick Road approximately 930 feet west of Borio Drive. This access road provides one inbound lane and one outbound lane with outbound movements under stop sign control.

    - An existing signalized full-movement access road located on the east side of Weber Road approximately 1,060 feet south of Renwick Road. This access road provides one inbound lane and two outbound lanes.

- While the conservative IDOT SRA criteria are not fully met, traffic volumes are close to warranting a signal and meet MUTCD Warrant 1 criteria, with projected volumes and potential future redevelopment further supporting a signal.

- Without applying the SRA criteria, the projected traffic volumes will warrant a traffic signal per Warrant 1, Condition B.

- Maintaining the traffic signal is necessary to provide safe, full-access operations for the proposed development and surrounding land uses while minimizing impacts to the roadway network.

Appendix

Traffic Count Summary Sheets
Site Plan
Level of Service Table
Capacity Analysis Summary Sheets

Traffic Count Summary Sheets

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: McGilvary Dr and Access Dr TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Data

Start Time	McGilvery Dr Eastbound					McGilvery Dr Westbound					Access Dr Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:00 AM	0	1	5	0	6	0	9	0	1	9	0	0	0	0	0	15
7:15 AM	0	0	5	0	5	0	4	0	0	4	0	0	0	0	0	9
7:30 AM	0	3	4	0	7	0	8	1	1	9	0	0	0	0	0	16
7:45 AM	0	0	4	0	4	0	10	0	0	10	0	0	0	0	0	14
Hourly Total	0	4	18	0	22	0	31	1	2	32	0	0	0	0	0	54
8:00 AM	0	4	6	0	10	0	10	0	0	10	0	0	0	0	0	20
8:15 AM	0	3	5	0	8	0	8	0	0	8	0	0	0	0	0	16
8:30 AM	0	5	4	0	9	0	8	0	0	8	0	0	1	0	1	18
8:45 AM	0	2	3	0	5	0	7	1	0	8	0	0	1	0	1	14
Hourly Total	0	14	18	0	32	0	33	1	0	34	0	0	2	0	2	68
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	13	0	13	0	10	2	0	12	0	1	1	0	2	27
4:15 PM	0	2	16	0	18	0	7	0	0	7	0	1	2	1	3	28
4:30 PM	0	2	15	0	17	0	9	2	0	11	0	2	1	0	3	31
4:45 PM	0	3	18	0	21	0	6	0	0	6	0	2	3	0	5	32
Hourly Total	0	7	62	0	69	0	32	4	0	36	0	6	7	1	13	118
5:00 PM	0	0	8	0	8	1	1	0	0	2	0	1	2	0	3	13
5:15 PM	0	1	12	0	13	0	2	0	0	2	0	1	1	0	2	17
5:30 PM	0	0	22	0	22	0	11	3	0	14	0	0	2	0	2	38
5:45 PM	0	1	15	0	16	0	10	3	0	13	0	2	1	0	3	32
Hourly Total	0	2	57	0	59	1	24	6	0	31	0	4	6	0	10	100
Grand Total	0	27	155	0	182	1	120	12	2	133	0	10	15	1	25	340
Approach %	0.0	14.8	85.2	-	-	0.8	90.2	9.0	-	-	0.0	40.0	60.0	-	-	-
Total %	0.0	7.9	45.6	-	53.5	0.3	35.3	3.5	-	39.1	0.0	2.9	4.4	-	7.4	-
Lights	0	26	149	-	175	1	115	12	-	128	0	10	14	-	24	327
% Lights	-	96.3	96.1	-	96.2	100.0	95.8	100.0	-	96.2	-	100.0	93.3	-	96.0	96.2
Buses	0	0	3	-	3	0	2	0	-	2	0	0	0	-	0	5
% Buses	-	0.0	1.9	-	1.6	0.0	1.7	0.0	-	1.5	-	0.0	0.0	-	0.0	1.5
Single-Unit Trucks	0	1	3	-	4	0	3	0	-	3	0	0	1	-	1	8
% Single-Unit Trucks	-	3.7	1.9	-	2.2	0.0	2.5	0.0	-	2.3	-	0.0	6.7	-	4.0	2.4
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	2	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: McGilvary Dr and Access Dr TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (7:15 AM)

Start Time	McGilvery Dr Eastbound					McGilvery Dr Westbound					Access Dr Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:15 AM	0	0	5	0	5	0	4	0	0	4	0	0	0	0	0	9
7:30 AM	0	3	4	0	7	0	8	1	1	9	0	0	0	0	0	16
7:45 AM	0	0	4	0	4	0	10	0	0	10	0	0	0	0	0	14
8:00 AM	0	4	6	0	10	0	10	0	0	10	0	0	0	0	0	20
Total	0	7	19	0	26	0	32	1	1	33	0	0	0	0	0	59
Approach %	0.0	26.9	73.1	-	-	0.0	97.0	3.0	-	-	0.0	0.0	0.0	-	-	-
Total %	0.0	11.9	32.2	-	44.1	0.0	54.2	1.7	-	55.9	0.0	0.0	0.0	-	0.0	-
PHF	0.000	0.438	0.792	-	0.650	0.000	0.800	0.250	-	0.825	0.000	0.000	0.000	-	0.000	0.738
Lights	0	7	16	-	23	0	30	1	-	31	0	0	0	-	0	54
% Lights	-	100.0	84.2	-	88.5	-	93.8	100.0	-	93.9	-	-	-	-	-	91.5
Buses	0	0	2	-	2	0	2	0	-	2	0	0	0	-	0	4
% Buses	-	0.0	10.5	-	7.7	-	6.3	0.0	-	6.1	-	-	-	-	-	6.8
Single-Unit Trucks	0	0	1	-	1	0	0	0	-	0	0	0	0	-	0	1
% Single-Unit Trucks	-	0.0	5.3	-	3.8	-	0.0	0.0	-	0.0	-	-	-	-	-	1.7
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	-	-	-	-	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	-	-	-	-	0.0
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: McGilvary Dr and Access Dr TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (4:00 PM)

Start Time	McGilvery Dr Eastbound					McGilvery Dr Westbound					Access Dr Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
4:00 PM	0	0	13	0	13	0	10	2	0	12	0	1	1	0	2	27
4:15 PM	0	2	16	0	18	0	7	0	0	7	0	1	2	1	3	28
4:30 PM	0	2	15	0	17	0	9	2	0	11	0	2	1	0	3	31
4:45 PM	0	3	18	0	21	0	6	0	0	6	0	2	3	0	5	32
Total	0	7	62	0	69	0	32	4	0	36	0	6	7	1	13	118
Approach %	0.0	10.1	89.9	-	-	0.0	88.9	11.1	-	-	0.0	46.2	53.8	-	-	-
Total %	0.0	5.9	52.5	-	58.5	0.0	27.1	3.4	-	30.5	0.0	5.1	5.9	-	11.0	-
PHF	0.000	0.583	0.861	-	0.821	0.000	0.800	0.500	-	0.750	0.000	0.750	0.583	-	0.650	0.922
Lights	0	7	60	-	67	0	31	4	-	35	0	6	6	-	12	114
% Lights	-	100.0	96.8	-	97.1	-	96.9	100.0	-	97.2	-	100.0	85.7	-	92.3	96.6
Buses	0	0	1	-	1	0	0	0	-	0	0	0	0	-	0	1
% Buses	-	0.0	1.6	-	1.4	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.8
Single-Unit Trucks	0	0	1	-	1	0	1	0	-	1	0	0	1	-	1	3
% Single-Unit Trucks	-	0.0	1.6	-	1.4	-	3.1	0.0	-	2.8	-	0.0	14.3	-	7.7	2.5
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: McGlivray Dr and Access western drive TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Data

Start Time	McGilvary Dr Eastbound					McGilvary Dr Westbound					Retail Access Dr (west) Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:00 AM	0	2	5	0	7	0	9	0	0	9	0	0	0	0	0	16
7:15 AM	0	1	6	0	7	0	4	0	0	4	0	0	0	0	0	11
7:30 AM	0	3	6	0	9	0	9	0	0	9	0	0	2	0	2	20
7:45 AM	0	5	4	0	9	0	9	0	0	9	0	0	2	0	2	20
Hourly Total	0	11	21	0	32	0	31	0	0	31	0	0	4	0	4	67
8:00 AM	0	1	9	0	10	1	9	0	0	10	0	0	3	0	3	23
8:15 AM	0	2	10	0	12	0	9	0	0	9	0	0	0	0	0	21
8:30 AM	0	0	7	0	7	0	8	0	0	8	0	0	1	0	1	16
8:45 AM	0	4	5	0	9	0	8	0	0	8	0	0	7	0	7	24
Hourly Total	0	7	31	0	38	1	34	0	0	35	0	0	11	0	11	84
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	5	12	0	17	0	12	0	0	12	0	1	7	0	8	37
4:15 PM	0	6	16	0	22	0	8	0	0	8	0	0	3	0	3	33
4:30 PM	0	2	18	0	20	0	10	0	0	10	0	0	8	0	8	38
4:45 PM	0	7	18	0	25	0	10	0	0	10	0	0	7	0	7	42
Hourly Total	0	20	64	0	84	0	40	0	0	40	0	1	25	0	26	150
5:00 PM	0	3	10	0	13	0	2	0	0	2	0	0	8	0	8	23
5:15 PM	0	6	11	0	17	0	3	0	0	3	0	0	3	0	3	23
5:30 PM	0	5	23	0	28	0	13	1	0	14	0	0	5	0	5	47
5:45 PM	0	4	14	1	18	0	11	0	0	11	0	1	5	0	6	35
Hourly Total	0	18	58	1	76	0	29	1	0	30	0	1	21	0	22	128
Grand Total	0	56	174	1	230	1	134	1	0	136	0	2	61	0	63	429
Approach %	0.0	24.3	75.7	-	-	0.7	98.5	0.7	-	-	0.0	3.2	96.8	-	-	-
Total %	0.0	13.1	40.6	-	53.6	0.2	31.2	0.2	-	31.7	0.0	0.5	14.2	-	14.7	-
Lights	0	55	167	-	222	1	128	1	-	130	0	2	60	-	62	414
% Lights	-	98.2	96.0	-	96.5	100.0	95.5	100.0	-	95.6	-	100.0	98.4	-	98.4	96.5
Buses	0	0	3	-	3	0	2	0	-	2	0	0	0	-	0	5
% Buses	-	0.0	1.7	-	1.3	0.0	1.5	0.0	-	1.5	-	0.0	0.0	-	0.0	1.2
Single-Unit Trucks	0	1	4	-	5	0	4	0	-	4	0	0	1	-	1	10
% Single-Unit Trucks	-	1.8	2.3	-	2.2	0.0	3.0	0.0	-	2.9	-	0.0	1.6	-	1.6	2.3
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: McGlivray Dr and Access western drive TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (7:15 AM)

Start Time	McGilvary Dr Eastbound					McGilvary Dr Westbound					Retail Access Dr (west) Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:15 AM	0	1	6	0	7	0	4	0	0	4	0	0	0	0	0	11
7:30 AM	0	3	6	0	9	0	9	0	0	9	0	0	2	0	2	20
7:45 AM	0	5	4	0	9	0	9	0	0	9	0	0	2	0	2	20
8:00 AM	0	1	9	0	10	1	9	0	0	10	0	0	3	0	3	23
Total	0	10	25	0	35	1	31	0	0	32	0	0	7	0	7	74
Approach %	0.0	28.6	71.4	-	-	3.1	96.9	0.0	-	-	0.0	0.0	100.0	-	-	-
Total %	0.0	13.5	33.8	-	47.3	1.4	41.9	0.0	-	43.2	0.0	0.0	9.5	-	9.5	-
PHF	0.000	0.500	0.694	-	0.875	0.250	0.861	0.000	-	0.800	0.000	0.000	0.583	-	0.583	0.804
Lights	0	10	22	-	32	1	29	0	-	30	0	0	7	-	7	69
% Lights	-	100.0	88.0	-	91.4	100.0	93.5	-	-	93.8	-	-	100.0	-	100.0	93.2
Buses	0	0	2	-	2	0	2	0	-	2	0	0	0	-	0	4
% Buses	-	0.0	8.0	-	5.7	0.0	6.5	-	-	6.3	-	-	0.0	-	0.0	5.4
Single-Unit Trucks	0	0	1	-	1	0	0	0	-	0	0	0	0	-	0	1
% Single-Unit Trucks	-	0.0	4.0	-	2.9	0.0	0.0	-	-	0.0	-	-	0.0	-	0.0	1.4
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	-	-	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	-	-	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: McGlivray Dr and Access western drive TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (4:00 PM)

Start Time	McGilvary Dr Eastbound					McGilvary Dr Westbound					Retail Access Dr (west) Southbound					
	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
4:00 PM	0	5	12	0	17	0	12	0	0	12	0	1	7	0	8	37
4:15 PM	0	6	16	0	22	0	8	0	0	8	0	0	3	0	3	33
4:30 PM	0	2	18	0	20	0	10	0	0	10	0	0	8	0	8	38
4:45 PM	0	7	18	0	25	0	10	0	0	10	0	0	7	0	7	42
Total	0	20	64	0	84	0	40	0	0	40	0	1	25	0	26	150
Approach %	0.0	23.8	76.2	-	-	0.0	100.0	0.0	-	-	0.0	3.8	96.2	-	-	-
Total %	0.0	13.3	42.7	-	56.0	0.0	26.7	0.0	-	26.7	0.0	0.7	16.7	-	17.3	-
PHF	0.000	0.714	0.889	-	0.840	0.000	0.833	0.000	-	0.833	0.000	0.250	0.781	-	0.813	0.893
Lights	0	19	62	-	81	0	38	0	-	38	0	1	25	-	26	145
% Lights	-	95.0	96.9	-	96.4	-	95.0	-	-	95.0	-	100.0	100.0	-	100.0	96.7
Buses	0	0	1	-	1	0	0	0	-	0	0	0	0	-	0	1
% Buses	-	0.0	1.6	-	1.2	-	0.0	-	-	0.0	-	0.0	0.0	-	0.0	0.7
Single-Unit Trucks	0	1	1	-	2	0	2	0	-	2	0	0	0	-	0	4
% Single-Unit Trucks	-	5.0	1.6	-	2.4	-	5.0	-	-	5.0	-	0.0	0.0	-	0.0	2.7
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	-	0.0	-	-	0.0	-	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	-	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Renwick Rd and Access Rd TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Data

Start Time	Renwick Rd Eastbound					Renwick Rd Westbound					Retail Access Drive Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:00 AM	0	127	0	0	127	0	0	71	0	71	0	0	1	0	1	199
7:15 AM	0	152	0	0	152	0	0	93	0	93	0	0	0	0	0	245
7:30 AM	0	178	0	0	178	0	0	77	0	77	0	0	3	0	3	258
7:45 AM	0	135	0	0	135	0	0	102	0	102	0	0	0	0	0	237
Hourly Total	0	592	0	0	592	0	0	343	0	343	0	0	4	0	4	939
8:00 AM	0	133	1	0	134	0	0	101	0	101	0	0	1	0	1	236
8:15 AM	0	123	0	0	123	0	0	94	0	94	0	0	0	0	0	217
8:30 AM	0	99	0	0	99	0	0	91	0	91	0	0	0	0	0	190
8:45 AM	0	97	1	0	98	0	0	101	0	101	0	0	1	0	1	200
Hourly Total	0	452	2	0	454	0	0	387	0	387	0	0	2	0	2	843
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	136	3	0	139	0	0	169	0	169	0	0	1	0	1	309
4:15 PM	0	101	3	0	104	0	0	170	0	170	0	0	1	0	1	275
4:30 PM	0	101	4	0	105	0	0	197	0	197	0	0	5	0	5	307
4:45 PM	0	87	4	0	91	0	0	162	0	162	0	0	2	0	2	255
Hourly Total	0	425	14	0	439	0	0	698	0	698	0	0	9	0	9	1146
5:00 PM	0	90	5	0	95	0	0	155	0	155	0	0	4	0	4	254
5:15 PM	0	101	3	0	104	0	0	177	0	177	0	0	2	0	2	283
5:30 PM	0	110	3	0	113	0	0	155	0	155	0	0	3	0	3	271
5:45 PM	0	83	5	0	88	0	0	150	0	150	0	0	1	0	1	239
Hourly Total	0	384	16	0	400	0	0	637	0	637	0	0	10	0	10	1047
Grand Total	0	1853	32	0	1885	0	0	2065	0	2065	0	0	25	0	25	3975
Approach %	0.0	98.3	1.7	-	-	0.0	0.0	100.0	-	-	0.0	0.0	100.0	-	-	-
Total %	0.0	46.6	0.8	-	47.4	0.0	0.0	51.9	-	51.9	0.0	0.0	0.6	-	0.6	-
Lights	0	1709	31	-	1740	0	0	1923	-	1923	0	0	23	-	23	3686
% Lights	-	92.2	96.9	-	92.3	-	-	93.1	-	93.1	-	-	92.0	-	92.0	92.7
Buses	0	22	0	-	22	0	0	10	-	10	0	0	1	-	1	33
% Buses	-	1.2	0.0	-	1.2	-	-	0.5	-	0.5	-	-	4.0	-	4.0	0.8
Single-Unit Trucks	0	44	1	-	45	0	0	39	-	39	0	0	1	-	1	85
% Single-Unit Trucks	-	2.4	3.1	-	2.4	-	-	1.9	-	1.9	-	-	4.0	-	4.0	2.1
Articulated Trucks	0	78	0	-	78	0	0	93	-	93	0	0	0	-	0	171
% Articulated Trucks	-	4.2	0.0	-	4.1	-	-	4.5	-	4.5	-	-	0.0	-	0.0	4.3
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	-	0.0	-	0.0	-	-	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Renwick Rd and Access Rd TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Renwick Rd Eastbound					Renwick Rd Westbound					Retail Access Drive Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:15 AM	0	152	0	0	152	0	0	93	0	93	0	0	0	0	0	245
7:30 AM	0	178	0	0	178	0	0	77	0	77	0	0	3	0	3	258
7:45 AM	0	135	0	0	135	0	0	102	0	102	0	0	0	0	0	237
8:00 AM	0	133	1	0	134	0	0	101	0	101	0	0	1	0	1	236
Total	0	598	1	0	599	0	0	373	0	373	0	0	4	0	4	976
Approach %	0.0	99.8	0.2	-	-	0.0	0.0	100.0	-	-	0.0	0.0	100.0	-	-	-
Total %	0.0	61.3	0.1	-	61.4	0.0	0.0	38.2	-	38.2	0.0	0.0	0.4	-	0.4	-
PHF	0.000	0.840	0.250	-	0.841	0.000	0.000	0.914	-	0.914	0.000	0.000	0.333	-	0.333	0.946
Lights	0	555	1	-	556	0	0	332	-	332	0	0	3	-	3	891
% Lights	-	92.8	100.0	-	92.8	-	-	89.0	-	89.0	-	-	75.0	-	75.0	91.3
Buses	0	10	0	-	10	0	0	6	-	6	0	0	1	-	1	17
% Buses	-	1.7	0.0	-	1.7	-	-	1.6	-	1.6	-	-	25.0	-	25.0	1.7
Single-Unit Trucks	0	11	0	-	11	0	0	12	-	12	0	0	0	-	0	23
% Single-Unit Trucks	-	1.8	0.0	-	1.8	-	-	3.2	-	3.2	-	-	0.0	-	0.0	2.4
Articulated Trucks	0	22	0	-	22	0	0	23	-	23	0	0	0	-	0	45
% Articulated Trucks	-	3.7	0.0	-	3.7	-	-	6.2	-	6.2	-	-	0.0	-	0.0	4.6
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	-	0.0	-	0.0	-	-	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Renwick Rd and Access Rd TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Renwick Rd Eastbound					Renwick Rd Westbound					Retail Access Drive Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
4:00 PM	0	136	3	0	139	0	0	169	0	169	0	0	1	0	1	309
4:15 PM	0	101	3	0	104	0	0	170	0	170	0	0	1	0	1	275
4:30 PM	0	101	4	0	105	0	0	197	0	197	0	0	5	0	5	307
4:45 PM	0	87	4	0	91	0	0	162	0	162	0	0	2	0	2	255
Total	0	425	14	0	439	0	0	698	0	698	0	0	9	0	9	1146
Approach %	0.0	96.8	3.2	-	-	0.0	0.0	100.0	-	-	0.0	0.0	100.0	-	-	-
Total %	0.0	37.1	1.2	-	38.3	0.0	0.0	60.9	-	60.9	0.0	0.0	0.8	-	0.8	-
PHF	0.000	0.781	0.875	-	0.790	0.000	0.000	0.886	-	0.886	0.000	0.000	0.450	-	0.450	0.927
Lights	0	389	13	-	402	0	0	659	-	659	0	0	8	-	8	1069
% Lights	-	91.5	92.9	-	91.6	-	-	94.4	-	94.4	-	-	88.9	-	88.9	93.3
Buses	0	6	0	-	6	0	0	3	-	3	0	0	0	-	0	9
% Buses	-	1.4	0.0	-	1.4	-	-	0.4	-	0.4	-	-	0.0	-	0.0	0.8
Single-Unit Trucks	0	10	1	-	11	0	0	9	-	9	0	0	1	-	1	21
% Single-Unit Trucks	-	2.4	7.1	-	2.5	-	-	1.3	-	1.3	-	-	11.1	-	11.1	1.8
Articulated Trucks	0	20	0	-	20	0	0	27	-	27	0	0	0	-	0	47
% Articulated Trucks	-	4.7	0.0	-	4.6	-	-	3.9	-	3.9	-	-	0.0	-	0.0	4.1
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	-	0.0	-	0.0	-	-	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Renwick Rd and Borio Dr TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Data

Start Time	Renwick Rd Eastbound					Renwick Rd Westbound					Borio Dr Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:00 AM	0	127	2	0	129	0	3	71	0	74	0	6	18	0	24	227
7:15 AM	0	146	5	0	151	0	3	86	0	89	0	5	9	0	14	254
7:30 AM	0	184	1	0	185	0	5	91	0	96	0	2	10	0	12	293
7:45 AM	0	148	2	0	150	0	1	107	0	108	0	4	16	0	20	278
Hourly Total	0	605	10	0	615	0	12	355	0	367	0	17	53	0	70	1052
8:00 AM	0	121	5	0	126	0	5	113	0	118	0	7	11	0	18	262
8:15 AM	0	127	1	0	128	0	2	95	0	97	0	9	11	0	20	245
8:30 AM	0	102	0	0	102	0	0	98	0	98	0	8	5	0	13	213
8:45 AM	0	93	5	0	98	0	3	111	0	114	0	7	1	0	8	220
Hourly Total	0	443	11	0	454	0	10	417	0	427	0	31	28	0	59	940
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	120	8	0	128	0	11	176	0	187	0	6	2	0	8	323
4:15 PM	0	102	7	0	109	0	14	174	0	188	0	2	4	0	6	303
4:30 PM	0	103	8	0	111	0	9	196	0	205	0	6	10	0	16	332
4:45 PM	0	76	9	0	85	0	12	168	0	180	0	6	6	0	12	277
Hourly Total	0	401	32	0	433	0	46	714	0	760	0	20	22	0	42	1235
5:00 PM	0	106	8	0	114	0	17	165	0	182	0	9	6	0	15	311
5:15 PM	0	82	9	0	91	0	13	188	0	201	0	7	5	0	12	304
5:30 PM	0	124	9	0	133	0	9	166	0	175	0	6	3	1	9	317
5:45 PM	0	96	3	0	99	0	8	155	0	163	0	4	3	0	7	269
Hourly Total	0	408	29	0	437	0	47	674	0	721	0	26	17	1	43	1201
Grand Total	0	1857	82	0	1939	0	115	2160	0	2275	0	94	120	1	214	4428
Approach %	0.0	95.8	4.2	-	-	0.0	5.1	94.9	-	-	0.0	43.9	56.1	-	-	-
Total %	0.0	41.9	1.9	-	43.8	0.0	2.6	48.8	-	51.4	0.0	2.1	2.7	-	4.8	-
Lights	0	1705	81	-	1786	0	114	1997	-	2111	0	93	116	-	209	4106
% Lights	-	91.8	98.8	-	92.1	-	99.1	92.5	-	92.8	-	98.9	96.7	-	97.7	92.7
Buses	0	21	1	-	22	0	0	16	-	16	0	0	3	-	3	41
% Buses	-	1.1	1.2	-	1.1	-	0.0	0.7	-	0.7	-	0.0	2.5	-	1.4	0.9
Single-Unit Trucks	0	54	0	-	54	0	1	46	-	47	0	1	0	-	1	102
% Single-Unit Trucks	-	2.9	0.0	-	2.8	-	0.9	2.1	-	2.1	-	1.1	0.0	-	0.5	2.3
Articulated Trucks	0	77	0	-	77	0	0	101	-	101	0	0	0	-	0	178
% Articulated Trucks	-	4.1	0.0	-	4.0	-	0.0	4.7	-	4.4	-	0.0	0.0	-	0.0	4.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	1	-	1	1
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.8	-	0.5	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Renwick Rd and Borio Dr TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Renwick Rd Eastbound					Renwick Rd Westbound					Borio Dr Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:15 AM	0	146	5	0	151	0	3	86	0	89	0	5	9	0	14	254
7:30 AM	0	184	1	0	185	0	5	91	0	96	0	2	10	0	12	293
7:45 AM	0	148	2	0	150	0	1	107	0	108	0	4	16	0	20	278
8:00 AM	0	121	5	0	126	0	5	113	0	118	0	7	11	0	18	262
Total	0	599	13	0	612	0	14	397	0	411	0	18	46	0	64	1087
Approach %	0.0	97.9	2.1	-	-	0.0	3.4	96.6	-	-	0.0	28.1	71.9	-	-	-
Total %	0.0	55.1	1.2	-	56.3	0.0	1.3	36.5	-	37.8	0.0	1.7	4.2	-	5.9	-
PHF	0.000	0.814	0.650	-	0.827	0.000	0.700	0.878	-	0.871	0.000	0.643	0.719	-	0.800	0.927
Lights	0	555	13	-	568	0	14	348	-	362	0	18	46	-	64	994
% Lights	-	92.7	100.0	-	92.8	-	100.0	87.7	-	88.1	-	100.0	100.0	-	100.0	91.4
Buses	0	11	0	-	11	0	0	13	-	13	0	0	0	-	0	24
% Buses	-	1.8	0.0	-	1.8	-	0.0	3.3	-	3.2	-	0.0	0.0	-	0.0	2.2
Single-Unit Trucks	0	10	0	-	10	0	0	12	-	12	0	0	0	-	0	22
% Single-Unit Trucks	-	1.7	0.0	-	1.6	-	0.0	3.0	-	2.9	-	0.0	0.0	-	0.0	2.0
Articulated Trucks	0	23	0	-	23	0	0	24	-	24	0	0	0	-	0	47
% Articulated Trucks	-	3.8	0.0	-	3.8	-	0.0	6.0	-	5.8	-	0.0	0.0	-	0.0	4.3
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Renwick Rd and Borio Dr TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Renwick Rd Eastbound					Renwick Rd Westbound					Borio Dr Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
4:00 PM	0	120	8	0	128	0	11	176	0	187	0	6	2	0	8	323
4:15 PM	0	102	7	0	109	0	14	174	0	188	0	2	4	0	6	303
4:30 PM	0	103	8	0	111	0	9	196	0	205	0	6	10	0	16	332
4:45 PM	0	76	9	0	85	0	12	168	0	180	0	6	6	0	12	277
Total	0	401	32	0	433	0	46	714	0	760	0	20	22	0	42	1235
Approach %	0.0	92.6	7.4	-	-	0.0	6.1	93.9	-	-	0.0	47.6	52.4	-	-	-
Total %	0.0	32.5	2.6	-	35.1	0.0	3.7	57.8	-	61.5	0.0	1.6	1.8	-	3.4	-
PHF	0.000	0.835	0.889	-	0.846	0.000	0.821	0.911	-	0.927	0.000	0.833	0.550	-	0.656	0.930
Lights	0	364	32	-	396	0	46	676	-	722	0	20	22	-	42	1160
% Lights	-	90.8	100.0	-	91.5	-	100.0	94.7	-	95.0	-	100.0	100.0	-	100.0	93.9
Buses	0	5	0	-	5	0	0	3	-	3	0	0	0	-	0	8
% Buses	-	1.2	0.0	-	1.2	-	0.0	0.4	-	0.4	-	0.0	0.0	-	0.0	0.6
Single-Unit Trucks	0	13	0	-	13	0	0	8	-	8	0	0	0	-	0	21
% Single-Unit Trucks	-	3.2	0.0	-	3.0	-	0.0	1.1	-	1.1	-	0.0	0.0	-	0.0	1.7
Articulated Trucks	0	19	0	-	19	0	0	27	-	27	0	0	0	-	0	46
% Articulated Trucks	-	4.7	0.0	-	4.4	-	0.0	3.8	-	3.6	-	0.0	0.0	-	0.0	3.7
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Renwick Rd and Executive Dr
TMC
Site Code:
Start Date: 01/07/2026

Turning Movement Data

Start Time	Renwick Rd Eastbound					Renwick Rd Westbound					Executive Dr Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:00 AM	0	105	1	0	106	0	1	75	0	76	0	0	1	0	1	183
7:15 AM	0	106	2	0	108	0	3	93	0	96	0	1	1	0	2	206
7:30 AM	0	157	0	0	157	0	3	106	0	109	0	1	2	0	3	269
7:45 AM	1	144	4	0	149	0	5	102	0	107	0	4	3	0	7	263
Hourly Total	1	512	7	0	520	0	12	376	0	388	0	6	7	0	13	921
8:00 AM	0	142	10	0	152	0	2	102	0	104	0	4	3	0	7	263
8:15 AM	0	136	3	0	139	0	4	83	0	87	0	3	3	0	6	232
8:30 AM	0	111	5	0	116	0	1	89	0	90	0	3	2	0	5	211
8:45 AM	2	131	6	0	139	0	4	102	0	106	0	4	1	0	5	250
Hourly Total	2	520	24	0	546	0	11	376	0	387	0	14	9	0	23	956
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	112	4	0	116	0	2	181	0	183	0	4	2	0	6	305
4:15 PM	1	114	2	0	117	0	3	192	0	195	0	2	4	0	6	318
4:30 PM	1	130	5	0	136	0	3	211	0	214	0	4	4	0	8	358
4:45 PM	0	122	5	0	127	0	7	175	0	182	0	7	3	0	10	319
Hourly Total	2	478	16	0	496	0	15	759	0	774	0	17	13	0	30	1300
5:00 PM	0	119	2	0	121	0	5	178	0	183	0	11	2	0	13	317
5:15 PM	0	103	2	0	105	0	5	176	0	181	0	6	2	0	8	294
5:30 PM	0	131	0	0	131	0	2	150	0	152	0	1	1	0	2	285
5:45 PM	0	96	2	0	98	0	5	173	0	178	0	5	1	0	6	282
Hourly Total	0	449	6	0	455	0	17	677	0	694	0	23	6	0	29	1178
Grand Total	5	1959	53	0	2017	0	55	2188	0	2243	0	60	35	0	95	4355
Approach %	0.2	97.1	2.6	-	-	0.0	2.5	97.5	-	-	0.0	63.2	36.8	-	-	-
Total %	0.1	45.0	1.2	-	46.3	0.0	1.3	50.2	-	51.5	0.0	1.4	0.8	-	2.2	-
Lights	5	1829	53	-	1887	0	55	2037	-	2092	0	60	34	-	94	4073
% Lights	100.0	93.4	100.0	-	93.6	-	100.0	93.1	-	93.3	-	100.0	97.1	-	98.9	93.5
Buses	0	24	0	-	24	0	0	18	-	18	0	0	1	-	1	43
% Buses	0.0	1.2	0.0	-	1.2	-	0.0	0.8	-	0.8	-	0.0	2.9	-	1.1	1.0
Single-Unit Trucks	0	33	0	-	33	0	0	35	-	35	0	0	0	-	0	68
% Single-Unit Trucks	0.0	1.7	0.0	-	1.6	-	0.0	1.6	-	1.6	-	0.0	0.0	-	0.0	1.6
Articulated Trucks	0	73	0	-	73	0	0	98	-	98	0	0	0	-	0	171
% Articulated Trucks	0.0	3.7	0.0	-	3.6	-	0.0	4.5	-	4.4	-	0.0	0.0	-	0.0	3.9
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Renwick Rd and Executive Dr
TMC
Site Code:
Start Date: 01/07/2026

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Renwick Rd Eastbound					Renwick Rd Westbound					Executive Dr Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:15 AM	0	106	2	0	108	0	3	93	0	96	0	1	1	0	2	206
7:30 AM	0	157	0	0	157	0	3	106	0	109	0	1	2	0	3	269
7:45 AM	1	144	4	0	149	0	5	102	0	107	0	4	3	0	7	263
8:00 AM	0	142	10	0	152	0	2	102	0	104	0	4	3	0	7	263
Total	1	549	16	0	566	0	13	403	0	416	0	10	9	0	19	1001
Approach %	0.2	97.0	2.8	-	-	0.0	3.1	96.9	-	-	0.0	52.6	47.4	-	-	-
Total %	0.1	54.8	1.6	-	56.5	0.0	1.3	40.3	-	41.6	0.0	1.0	0.9	-	1.9	-
PHF	0.250	0.874	0.400	-	0.901	0.000	0.650	0.950	-	0.954	0.000	0.625	0.750	-	0.679	0.930
Lights	1	511	16	-	528	0	13	361	-	374	0	10	8	-	18	920
% Lights	100.0	93.1	100.0	-	93.3	-	100.0	89.6	-	89.9	-	100.0	88.9	-	94.7	91.9
Buses	0	12	0	-	12	0	0	10	-	10	0	0	1	-	1	23
% Buses	0.0	2.2	0.0	-	2.1	-	0.0	2.5	-	2.4	-	0.0	11.1	-	5.3	2.3
Single-Unit Trucks	0	8	0	-	8	0	0	11	-	11	0	0	0	-	0	19
% Single-Unit Trucks	0.0	1.5	0.0	-	1.4	-	0.0	2.7	-	2.6	-	0.0	0.0	-	0.0	1.9
Articulated Trucks	0	18	0	-	18	0	0	21	-	21	0	0	0	-	0	39
% Articulated Trucks	0.0	3.3	0.0	-	3.2	-	0.0	5.2	-	5.0	-	0.0	0.0	-	0.0	3.9
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Renwick Rd and Executive Dr
TMC
Site Code:
Start Date: 01/07/2026

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Renwick Rd Eastbound					Renwick Rd Westbound					Executive Dr Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
4:00 PM	0	112	4	0	116	0	2	181	0	183	0	4	2	0	6	305
4:15 PM	1	114	2	0	117	0	3	192	0	195	0	2	4	0	6	318
4:30 PM	1	130	5	0	136	0	3	211	0	214	0	4	4	0	8	358
4:45 PM	0	122	5	0	127	0	7	175	0	182	0	7	3	0	10	319
Total	2	478	16	0	496	0	15	759	0	774	0	17	13	0	30	1300
Approach %	0.4	96.4	3.2	-	-	0.0	1.9	98.1	-	-	0.0	56.7	43.3	-	-	-
Total %	0.2	36.8	1.2	-	38.2	0.0	1.2	58.4	-	59.5	0.0	1.3	1.0	-	2.3	-
PHF	0.500	0.919	0.800	-	0.912	0.000	0.536	0.899	-	0.904	0.000	0.607	0.813	-	0.750	0.908
Lights	2	453	16	-	471	0	15	725	-	740	0	17	13	-	30	1241
% Lights	100.0	94.8	100.0	-	95.0	-	100.0	95.5	-	95.6	-	100.0	100.0	-	100.0	95.5
Buses	0	6	0	-	6	0	0	1	-	1	0	0	0	-	0	7
% Buses	0.0	1.3	0.0	-	1.2	-	0.0	0.1	-	0.1	-	0.0	0.0	-	0.0	0.5
Single-Unit Trucks	0	8	0	-	8	0	0	4	-	4	0	0	0	-	0	12
% Single-Unit Trucks	0.0	1.7	0.0	-	1.6	-	0.0	0.5	-	0.5	-	0.0	0.0	-	0.0	0.9
Articulated Trucks	0	11	0	-	11	0	0	29	-	29	0	0	0	-	0	40
% Articulated Trucks	0.0	2.3	0.0	-	2.2	-	0.0	3.8	-	3.7	-	0.0	0.0	-	0.0	3.1
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Renwick Rd and Weber Rd TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Data

Start Time	Renwick Rd Eastbound						Renwick Rd Westbound						Weber Rd Northbound						Weber Rd Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
7:00 AM	1	60	87	6	0	154	0	17	42	15	0	74	0	5	183	18	0	206	0	23	113	26	0	162	596
7:15 AM	0	67	98	12	0	177	0	15	55	18	0	88	0	10	229	12	0	251	0	40	153	27	0	220	736
7:30 AM	0	77	117	6	0	200	1	20	52	16	0	89	0	15	221	20	0	256	0	43	160	21	0	224	769
7:45 AM	0	68	94	22	0	184	0	18	70	26	0	114	1	16	219	23	0	259	0	30	173	29	0	232	789
Hourly Total	1	272	396	46	0	715	1	70	219	75	0	365	1	46	852	73	0	972	0	136	599	103	0	838	2890
8:00 AM	0	45	68	10	0	123	0	16	61	32	0	109	0	11	146	22	0	179	0	27	170	35	0	232	643
8:15 AM	0	47	90	9	0	146	0	20	52	32	0	104	1	12	116	8	0	137	0	31	183	19	0	233	620
8:30 AM	0	44	74	13	0	131	0	22	54	26	0	102	1	17	123	11	0	152	0	15	177	41	0	233	618
8:45 AM	0	36	53	11	0	100	0	13	67	29	0	109	0	17	122	16	0	155	0	20	168	42	0	230	594
Hourly Total	0	172	285	43	0	500	0	71	234	119	0	424	2	57	507	57	0	623	0	93	698	137	0	928	2475
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	69	94	17	0	180	0	36	117	32	0	185	1	24	182	14	0	221	0	34	230	92	0	356	942
4:15 PM	1	63	53	16	0	133	1	25	120	34	0	180	0	25	184	16	0	225	0	36	268	105	0	409	947
4:30 PM	0	67	48	13	0	128	1	50	113	31	0	195	3	42	189	12	0	246	0	46	250	89	0	385	954
4:45 PM	2	60	48	22	0	132	0	37	108	32	0	177	0	33	179	12	0	224	0	32	260	83	0	375	908
Hourly Total	3	259	243	68	0	573	2	148	458	129	0	737	4	124	734	54	0	916	0	148	1008	369	0	1525	3751
5:00 PM	1	50	51	11	0	113	0	21	103	41	0	165	0	29	202	9	0	240	0	32	254	88	0	374	892
5:15 PM	0	55	45	11	0	111	1	32	119	37	0	189	0	13	224	22	0	259	0	34	223	105	0	362	921
5:30 PM	1	58	65	10	0	134	0	22	114	23	0	159	0	23	183	16	0	222	0	42	229	83	0	354	869
5:45 PM	3	41	53	11	0	108	0	26	87	34	0	147	1	21	200	23	0	245	0	24	213	61	0	298	798
Hourly Total	5	204	214	43	0	466	1	101	423	135	0	660	1	86	809	70	0	966	0	132	919	337	0	1388	3480
Grand Total	9	907	1138	200	0	2254	4	390	1334	458	0	2186	8	313	2902	254	0	3477	0	509	3224	946	0	4679	12596
Approach %	0.4	40.2	50.5	8.9	-	-	0.2	17.8	61.0	21.0	-	-	0.2	9.0	83.5	7.3	-	-	0.0	10.9	68.9	20.2	-	-	-
Total %	0.1	7.2	9.0	1.6	-	17.9	0.0	3.1	10.6	3.6	-	17.4	0.1	2.5	23.0	2.0	-	27.6	0.0	4.0	25.6	7.5	-	37.1	-
Lights	9	890	1076	184	-	2159	4	320	1282	416	-	2022	8	299	2765	200	-	3272	0	478	3069	924	-	4471	11924
% Lights	100.0	98.1	94.6	92.0	-	95.8	100.0	82.1	96.1	90.8	-	92.5	100.0	95.5	95.3	78.7	-	94.1	-	93.9	95.2	97.7	-	95.6	94.7
Buses	0	1	10	8	-	19	0	4	8	5	-	17	0	3	8	3	-	14	0	7	40	4	-	51	101
% Buses	0.0	0.1	0.9	4.0	-	0.8	0.0	1.0	0.6	1.1	-	0.8	0.0	1.0	0.3	1.2	-	0.4	-	1.4	1.2	0.4	-	1.1	0.8
Single-Unit Trucks	0	11	20	3	-	34	0	17	15	12	-	44	0	7	59	17	-	83	0	10	46	11	-	67	228
% Single-Unit Trucks	0.0	1.2	1.8	1.5	-	1.5	0.0	4.4	1.1	2.6	-	2.0	0.0	2.2	2.0	6.7	-	2.4	-	2.0	1.4	1.2	-	1.4	1.8
Articulated Trucks	0	5	32	5	-	42	0	49	29	25	-	103	0	4	70	34	-	108	0	14	69	7	-	90	343
% Articulated Trucks	0.0	0.6	2.8	2.5	-	1.9	0.0	12.6	2.2	5.5	-	4.7	0.0	1.3	2.4	13.4	-	3.1	-	2.8	2.1	0.7	-	1.9	2.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0

% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Renwick Rd and Weber Rd TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Renwick Rd Eastbound						Renwick Rd Westbound						Weber Rd Northbound						Weber Rd Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
7:15 AM	0	67	98	12	0	177	0	15	55	18	0	88	0	10	229	12	0	251	0	40	153	27	0	220	736
7:30 AM	0	77	117	6	0	200	1	20	52	16	0	89	0	15	221	20	0	256	0	43	160	21	0	224	769
7:45 AM	0	68	94	22	0	184	0	18	70	26	0	114	1	16	219	23	0	259	0	30	173	29	0	232	789
8:00 AM	0	45	68	10	0	123	0	16	61	32	0	109	0	11	146	22	0	179	0	27	170	35	0	232	643
Total	0	257	377	50	0	684	1	69	238	92	0	400	1	52	815	77	0	945	0	140	656	112	0	908	2937
Approach %	0.0	37.6	55.1	7.3	-	-	0.3	17.3	59.5	23.0	-	-	0.1	5.5	86.2	8.1	-	-	0.0	15.4	72.2	12.3	-	-	-
Total %	0.0	8.8	12.8	1.7	-	23.3	0.0	2.3	8.1	3.1	-	13.6	0.0	1.8	27.7	2.6	-	32.2	0.0	4.8	22.3	3.8	-	30.9	-
PHF	0.000	0.834	0.806	0.568	-	0.855	0.250	0.863	0.850	0.719	-	0.877	0.250	0.813	0.890	0.837	-	0.912	0.000	0.814	0.948	0.800	-	0.978	0.931
Lights	0	251	356	48	-	655	1	54	220	75	-	350	1	49	767	66	-	883	0	129	631	105	-	865	2753
% Lights	-	97.7	94.4	96.0	-	95.8	100.0	78.3	92.4	81.5	-	87.5	100.0	94.2	94.1	85.7	-	93.4	-	92.1	96.2	93.8	-	95.3	93.7
Buses	0	1	6	0	-	7	0	2	6	5	-	13	0	1	2	0	-	3	0	4	4	2	-	10	33
% Buses	-	0.4	1.6	0.0	-	1.0	0.0	2.9	2.5	5.4	-	3.3	0.0	1.9	0.2	0.0	-	0.3	-	2.9	0.6	1.8	-	1.1	1.1
Single-Unit Trucks	0	3	4	2	-	9	0	4	5	2	-	11	0	1	22	2	-	25	0	3	12	3	-	18	63
% Single-Unit Trucks	-	1.2	1.1	4.0	-	1.3	0.0	5.8	2.1	2.2	-	2.8	0.0	1.9	2.7	2.6	-	2.6	-	2.1	1.8	2.7	-	2.0	2.1
Articulated Trucks	0	2	11	0	-	13	0	9	7	10	-	26	0	1	24	9	-	34	0	4	9	2	-	15	88
% Articulated Trucks	-	0.8	2.9	0.0	-	1.9	0.0	13.0	2.9	10.9	-	6.5	0.0	1.9	2.9	11.7	-	3.6	-	2.9	1.4	1.8	-	1.7	3.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Renwick Rd and Weber Rd TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Renwick Rd Eastbound						Renwick Rd Westbound						Weber Rd Northbound						Weber Rd Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
4:00 PM	0	69	94	17	0	180	0	36	117	32	0	185	1	24	182	14	0	221	0	34	230	92	0	356	942
4:15 PM	1	63	53	16	0	133	1	25	120	34	0	180	0	25	184	16	0	225	0	36	268	105	0	409	947
4:30 PM	0	67	48	13	0	128	1	50	113	31	0	195	3	42	189	12	0	246	0	46	250	89	0	385	954
4:45 PM	2	60	48	22	0	132	0	37	108	32	0	177	0	33	179	12	0	224	0	32	260	83	0	375	908
Total	3	259	243	68	0	573	2	148	458	129	0	737	4	124	734	54	0	916	0	148	1008	369	0	1525	3751
Approach %	0.5	45.2	42.4	11.9	-	-	0.3	20.1	62.1	17.5	-	-	0.4	13.5	80.1	5.9	-	-	0.0	9.7	66.1	24.2	-	-	-
Total %	0.1	6.9	6.5	1.8	-	15.3	0.1	3.9	12.2	3.4	-	19.6	0.1	3.3	19.6	1.4	-	24.4	0.0	3.9	26.9	9.8	-	40.7	-
PHF	0.375	0.938	0.646	0.773	-	0.796	0.500	0.740	0.954	0.949	-	0.945	0.333	0.738	0.971	0.844	-	0.931	0.000	0.804	0.940	0.879	-	0.932	0.983
Lights	3	254	227	58	-	542	2	124	450	123	-	699	4	119	711	39	-	873	0	143	949	364	-	1456	3570
% Lights	100.0	98.1	93.4	85.3	-	94.6	100.0	83.8	98.3	95.3	-	94.8	100.0	96.0	96.9	72.2	-	95.3	-	96.6	94.1	98.6	-	95.5	95.2
Buses	0	0	2	8	-	10	0	2	1	0	-	3	0	0	2	3	-	5	0	0	29	1	-	30	48
% Buses	0.0	0.0	0.8	11.8	-	1.7	0.0	1.4	0.2	0.0	-	0.4	0.0	0.0	0.3	5.6	-	0.5	-	0.0	2.9	0.3	-	2.0	1.3
Single-Unit Trucks	0	3	5	0	-	8	0	5	0	3	-	8	0	4	11	5	-	20	0	1	7	1	-	9	45
% Single-Unit Trucks	0.0	1.2	2.1	0.0	-	1.4	0.0	3.4	0.0	2.3	-	1.1	0.0	3.2	1.5	9.3	-	2.2	-	0.7	0.7	0.3	-	0.6	1.2
Articulated Trucks	0	2	9	2	-	13	0	17	7	3	-	27	0	1	10	7	-	18	0	4	23	3	-	30	88
% Articulated Trucks	0.0	0.8	3.7	2.9	-	2.3	0.0	11.5	1.5	2.3	-	3.7	0.0	0.8	1.4	13.0	-	2.0	-	2.7	2.3	0.8	-	2.0	2.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Ryan and Weber Rd TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Data

Start Time	Ryan Dr Westbound					Weber Rd Northbound					Weber Rd Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
7:00 AM	0	0	1	0	1	0	191	0	0	191	0	0	143	0	143	335
7:15 AM	0	0	2	0	2	0	269	1	0	270	0	5	181	0	186	458
7:30 AM	0	1	3	0	4	0	230	3	0	233	0	3	188	0	191	428
7:45 AM	0	2	3	0	5	0	228	8	0	236	0	3	208	0	211	452
Hourly Total	0	3	9	0	12	0	918	12	0	930	0	11	720	0	731	1673
8:00 AM	0	3	1	0	4	0	187	4	0	191	1	2	194	0	197	392
8:15 AM	0	4	2	0	6	0	153	3	0	156	0	3	208	0	211	373
8:30 AM	0	2	3	0	5	0	160	5	0	165	0	5	208	0	213	383
8:45 AM	0	5	3	0	8	0	169	2	0	171	1	10	186	0	197	376
Hourly Total	0	14	9	0	23	0	669	14	0	683	2	20	796	0	818	1524
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	7	15	0	22	0	200	6	0	206	0	9	298	0	307	535
4:15 PM	0	8	9	0	17	0	232	4	0	236	1	12	292	0	305	558
4:30 PM	0	9	15	0	24	0	272	3	0	275	0	16	312	0	328	627
4:45 PM	0	7	10	0	17	0	232	10	0	242	1	20	307	0	328	587
Hourly Total	0	31	49	0	80	0	936	23	0	959	2	57	1209	0	1268	2307
5:00 PM	0	17	16	0	33	0	242	9	0	251	0	8	264	0	272	556
5:15 PM	0	8	11	0	19	0	236	8	0	244	0	10	249	0	259	522
5:30 PM	0	4	8	0	12	0	222	4	0	226	0	13	255	0	268	506
5:45 PM	0	2	14	0	16	0	226	13	0	239	0	14	209	0	223	478
Hourly Total	0	31	49	0	80	0	926	34	0	960	0	45	977	0	1022	2062
Grand Total	0	79	116	0	195	0	3449	83	0	3532	4	133	3702	0	3839	7566
Approach %	0.0	40.5	59.5	-	-	0.0	97.7	2.3	-	-	0.1	3.5	96.4	-	-	-
Total %	0.0	1.0	1.5	-	2.6	0.0	45.6	1.1	-	46.7	0.1	1.8	48.9	-	50.7	-
Lights	0	79	115	-	194	0	3228	83	-	3311	4	132	3453	-	3589	7094
% Lights	-	100.0	99.1	-	99.5	-	93.6	100.0	-	93.7	100.0	99.2	93.3	-	93.5	93.8
Buses	0	0	0	-	0	0	14	0	-	14	0	0	52	-	52	66
% Buses	-	0.0	0.0	-	0.0	-	0.4	0.0	-	0.4	0.0	0.0	1.4	-	1.4	0.9
Single-Unit Trucks	0	0	1	-	1	0	99	0	-	99	0	0	75	-	75	175
% Single-Unit Trucks	-	0.0	0.9	-	0.5	-	2.9	0.0	-	2.8	0.0	0.0	2.0	-	2.0	2.3
Articulated Trucks	0	0	0	-	0	0	108	0	-	108	0	1	122	-	123	231
% Articulated Trucks	-	0.0	0.0	-	0.0	-	3.1	0.0	-	3.1	0.0	0.8	3.3	-	3.2	3.1
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Ryan and Weber Rd TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Ryan Dr Westbound					Weber Rd Northbound					Weber Rd Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
7:15 AM	0	0	2	0	2	0	269	1	0	270	0	5	181	0	186	458
7:30 AM	0	1	3	0	4	0	230	3	0	233	0	3	188	0	191	428
7:45 AM	0	2	3	0	5	0	228	8	0	236	0	3	208	0	211	452
8:00 AM	0	3	1	0	4	0	187	4	0	191	1	2	194	0	197	392
Total	0	6	9	0	15	0	914	16	0	930	1	13	771	0	785	1730
Approach %	0.0	40.0	60.0	-	-	0.0	98.3	1.7	-	-	0.1	1.7	98.2	-	-	-
Total %	0.0	0.3	0.5	-	0.9	0.0	52.8	0.9	-	53.8	0.1	0.8	44.6	-	45.4	-
PHF	0.000	0.500	0.750	-	0.750	0.000	0.849	0.500	-	0.861	0.250	0.650	0.927	-	0.930	0.944
Lights	0	6	9	-	15	0	847	16	-	863	1	13	730	-	744	1622
% Lights	-	100.0	100.0	-	100.0	-	92.7	100.0	-	92.8	100.0	100.0	94.7	-	94.8	93.8
Buses	0	0	0	-	0	0	3	0	-	3	0	0	5	-	5	8
% Buses	-	0.0	0.0	-	0.0	-	0.3	0.0	-	0.3	0.0	0.0	0.6	-	0.6	0.5
Single-Unit Trucks	0	0	0	-	0	0	32	0	-	32	0	0	19	-	19	51
% Single-Unit Trucks	-	0.0	0.0	-	0.0	-	3.5	0.0	-	3.4	0.0	0.0	2.5	-	2.4	2.9
Articulated Trucks	0	0	0	-	0	0	32	0	-	32	0	0	17	-	17	49
% Articulated Trucks	-	0.0	0.0	-	0.0	-	3.5	0.0	-	3.4	0.0	0.0	2.2	-	2.2	2.8
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Ryan and Weber Rd TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Ryan Dr Westbound					Weber Rd Northbound					Weber Rd Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
4:00 PM	0	7	15	0	22	0	200	6	0	206	0	9	298	0	307	535
4:15 PM	0	8	9	0	17	0	232	4	0	236	1	12	292	0	305	558
4:30 PM	0	9	15	0	24	0	272	3	0	275	0	16	312	0	328	627
4:45 PM	0	7	10	0	17	0	232	10	0	242	1	20	307	0	328	587
Total	0	31	49	0	80	0	936	23	0	959	2	57	1209	0	1268	2307
Approach %	0.0	38.8	61.3	-	-	0.0	97.6	2.4	-	-	0.2	4.5	95.3	-	-	-
Total %	0.0	1.3	2.1	-	3.5	0.0	40.6	1.0	-	41.6	0.1	2.5	52.4	-	55.0	-
PHF	0.000	0.861	0.817	-	0.833	0.000	0.860	0.575	-	0.872	0.500	0.713	0.969	-	0.966	0.920
Lights	0	31	48	-	79	0	892	23	-	915	2	57	1112	-	1171	2165
% Lights	-	100.0	98.0	-	98.8	-	95.3	100.0	-	95.4	100.0	100.0	92.0	-	92.4	93.8
Buses	0	0	0	-	0	0	5	0	-	5	0	0	39	-	39	44
% Buses	-	0.0	0.0	-	0.0	-	0.5	0.0	-	0.5	0.0	0.0	3.2	-	3.1	1.9
Single-Unit Trucks	0	0	1	-	1	0	20	0	-	20	0	0	14	-	14	35
% Single-Unit Trucks	-	0.0	2.0	-	1.3	-	2.1	0.0	-	2.1	0.0	0.0	1.2	-	1.1	1.5
Articulated Trucks	0	0	0	-	0	0	19	0	-	19	0	0	44	-	44	63
% Articulated Trucks	-	0.0	0.0	-	0.0	-	2.0	0.0	-	2.0	0.0	0.0	3.6	-	3.5	2.7
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Ryan Rd and Ontario St TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Data

Start Time	Ryan dr Eastbound					Ryan dr Westbound					Ontario St Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
7:15 AM	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	3
7:30 AM	0	0	1	0	1	0	0	0	0	0	0	8	0	0	8	9
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	6
Hourly Total	0	0	2	0	2	0	0	0	0	0	0	18	0	0	18	20
8:00 AM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
8:45 AM	0	0	2	0	2	0	0	0	0	0	0	5	0	0	5	7
Hourly Total	0	0	3	0	3	0	0	0	0	0	0	12	0	0	12	15
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	5	0	5	0	0	0	0	0	0	2	0	0	2	7
4:15 PM	0	0	4	0	4	0	0	0	0	0	0	2	0	0	2	6
4:30 PM	0	0	6	0	6	0	0	0	0	0	0	2	0	0	2	8
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
Hourly Total	0	0	15	0	15	0	0	0	0	0	0	9	0	0	9	24
5:00 PM	0	0	4	0	4	0	0	0	0	0	0	7	0	0	7	11
5:15 PM	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	3
5:30 PM	0	0	6	0	6	0	0	0	0	0	0	2	0	0	2	8
5:45 PM	0	0	8	0	8	0	0	0	0	0	0	3	0	0	3	11
Hourly Total	0	0	19	0	19	0	0	0	0	0	0	14	0	0	14	33
Grand Total	0	0	39	0	39	0	0	0	0	0	0	53	0	0	53	92
Approach %	0.0	0.0	100.0	-	-	0.0	0.0	0.0	-	-	0.0	100.0	0.0	-	-	-
Total %	0.0	0.0	42.4	-	42.4	0.0	0.0	0.0	-	0.0	0.0	57.6	0.0	-	57.6	-
Lights	0	0	39	-	39	0	0	0	-	0	0	51	0	-	51	90
% Lights	-	-	100.0	-	100.0	-	-	-	-	-	-	96.2	-	-	96.2	97.8
Buses	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	1
% Buses	-	-	0.0	-	0.0	-	-	-	-	-	-	1.9	-	-	1.9	1.1
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	1
% Single-Unit Trucks	-	-	0.0	-	0.0	-	-	-	-	-	-	1.9	-	-	1.9	1.1
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	-	0.0	-	0.0	-	-	-	-	-	-	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	-	0.0	-	0.0	-	-	-	-	-	-	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Ryan Rd and Ontario St TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Ryan dr Eastbound					Ryan dr Westbound					Ontario St Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:15 AM	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	3
7:30 AM	0	0	1	0	1	0	0	0	0	0	0	8	0	0	8	9
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	6
8:00 AM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	2
Total	0	0	3	0	3	0	0	0	0	0	0	17	0	0	17	20
Approach %	0.0	0.0	100.0	-	-	0.0	0.0	0.0	-	-	0.0	100.0	0.0	-	-	-
Total %	0.0	0.0	15.0	-	15.0	0.0	0.0	0.0	-	0.0	0.0	85.0	0.0	-	85.0	-
PHF	0.000	0.000	0.750	-	0.750	0.000	0.000	0.000	-	0.000	0.000	0.531	0.000	-	0.531	0.556
Lights	0	0	3	-	3	0	0	0	-	0	0	16	0	-	16	19
% Lights	-	-	100.0	-	100.0	-	-	-	-	-	-	94.1	-	-	94.1	95.0
Buses	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	1
% Buses	-	-	0.0	-	0.0	-	-	-	-	-	-	5.9	-	-	5.9	5.0
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Single-Unit Trucks	-	-	0.0	-	0.0	-	-	-	-	-	-	0.0	-	-	0.0	0.0
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	-	0.0	-	0.0	-	-	-	-	-	-	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	-	0.0	-	0.0	-	-	-	-	-	-	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Ryan Rd and Ontario St TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Ryan dr Eastbound					Ryan dr Westbound					Ontario St Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
4:00 PM	0	0	5	0	5	0	0	0	0	0	0	2	0	0	2	7
4:15 PM	0	0	4	0	4	0	0	0	0	0	0	2	0	0	2	6
4:30 PM	0	0	6	0	6	0	0	0	0	0	0	2	0	0	2	8
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
Total	0	0	15	0	15	0	0	0	0	0	0	9	0	0	9	24
Approach %	0.0	0.0	100.0	-	-	0.0	0.0	0.0	-	-	0.0	100.0	0.0	-	-	-
Total %	0.0	0.0	62.5	-	62.5	0.0	0.0	0.0	-	0.0	0.0	37.5	0.0	-	37.5	-
PHF	0.000	0.000	0.625	-	0.625	0.000	0.000	0.000	-	0.000	0.000	0.750	0.000	-	0.750	0.750
Lights	0	0	15	-	15	0	0	0	-	0	0	8	0	-	8	23
% Lights	-	-	100.0	-	100.0	-	-	-	-	-	-	88.9	-	-	88.9	95.8
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	-	-	0.0	-	0.0	-	-	-	-	-	-	0.0	-	-	0.0	0.0
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	1
% Single-Unit Trucks	-	-	0.0	-	0.0	-	-	-	-	-	-	11.1	-	-	11.1	4.2
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	-	0.0	-	0.0	-	-	-	-	-	-	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	-	0.0	-	0.0	-	-	-	-	-	-	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Ryan Rd and Retail Access Dr (east) TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Data

Start Time	Ryan Rd Eastbound						Ryan Rd Westbound						Retail Access Rd (east) Northbound						Access Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	2	1	1	0	4	0	0	1	1	0	2	0	1	0	0	0	1	0	0	0	0	0	0	7
7:30 AM	0	2	1	1	0	4	0	0	5	3	0	8	0	0	0	0	1	0	0	0	0	0	0	0	12
7:45 AM	0	6	0	2	0	8	0	0	3	3	0	6	0	0	0	0	1	0	0	0	2	2	0	4	18
Hourly Total	0	10	2	4	0	16	0	0	9	9	0	18	0	1	0	0	2	1	0	0	2	2	0	4	39
8:00 AM	0	4	0	0	0	4	0	0	1	0	0	1	0	0	1	0	0	1	0	1	0	2	0	3	9
8:15 AM	0	3	0	2	0	5	0	0	2	1	0	3	0	0	0	0	0	0	0	0	0	4	0	4	12
8:30 AM	1	5	0	2	0	8	0	0	2	0	0	2	0	0	0	0	0	0	0	0	2	2	0	4	14
8:45 AM	0	2	1	4	0	7	0	0	4	0	0	4	0	1	0	0	0	1	0	1	2	2	0	5	17
Hourly Total	1	14	1	8	0	24	0	0	9	1	0	10	0	1	1	0	0	2	0	2	4	10	0	16	52
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	2	2	4	2	0	10	0	0	1	1	0	2	0	7	0	0	0	7	0	1	0	10	0	11	30
4:15 PM	1	3	3	0	0	7	0	0	1	0	0	1	0	12	2	0	0	14	0	1	2	4	0	7	29
4:30 PM	4	3	2	1	0	10	0	0	2	1	0	3	0	13	2	1	0	16	0	3	3	7	0	13	42
4:45 PM	3	4	0	3	0	10	0	0	1	1	0	2	0	12	0	0	0	12	0	0	4	8	0	12	36
Hourly Total	10	12	9	6	0	37	0	0	5	3	0	8	0	44	4	1	0	49	0	5	9	29	0	43	137
5:00 PM	1	5	2	0	0	8	0	0	4	2	0	6	0	11	3	0	0	14	0	1	2	13	0	16	44
5:15 PM	1	3	2	1	0	7	0	0	2	1	0	3	0	7	0	0	0	7	0	0	3	10	0	13	30
5:30 PM	1	2	5	1	0	9	0	0	1	0	0	1	0	8	3	0	0	11	0	1	2	1	0	4	25
5:45 PM	0	0	3	0	0	3	0	0	4	0	0	4	0	10	1	0	0	11	0	3	3	3	0	9	27
Hourly Total	3	10	12	2	0	27	0	0	11	3	0	14	0	36	7	0	0	43	0	5	10	27	0	42	126
Grand Total	14	46	24	20	0	104	0	0	34	16	0	50	0	82	12	1	2	95	0	12	25	68	0	105	354
Approach %	13.5	44.2	23.1	19.2	-	-	0.0	0.0	68.0	32.0	-	-	0.0	86.3	12.6	1.1	-	-	0.0	11.4	23.8	64.8	-	-	-
Total %	4.0	13.0	6.8	5.6	-	29.4	0.0	0.0	9.6	4.5	-	14.1	0.0	23.2	3.4	0.3	-	26.8	0.0	3.4	7.1	19.2	-	29.7	-
Lights	14	46	24	19	-	103	0	0	33	15	-	48	0	82	12	1	-	95	0	12	25	68	-	105	351
% Lights	100.0	100.0	100.0	95.0	-	99.0	-	-	97.1	93.8	-	96.0	-	100.0	100.0	100.0	-	100.0	-	100.0	100.0	100.0	-	100.0	99.2
Buses	0	0	0	0	-	0	0	0	0	1	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Buses	0.0	0.0	0.0	0.0	-	0.0	-	-	0.0	6.3	-	2.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.3
Single-Unit Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Single-Unit Trucks	0.0	0.0	0.0	0.0	-	0.0	-	-	2.9	0.0	-	2.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.3
Articulated Trucks	0	0	0	1	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Articulated Trucks	0.0	0.0	0.0	5.0	-	1.0	-	-	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0

% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Ryan Rd and Retail Access Dr (east) TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Ryan Rd Eastbound						Ryan Rd Westbound						Retail Access Rd (east) Northbound						Access Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:15 AM	0	2	1	1	0	4	0	0	1	1	0	2	0	1	0	0	0	1	0	0	0	0	0	0	7
7:30 AM	0	2	1	1	0	4	0	0	5	3	0	8	0	0	0	0	1	0	0	0	0	0	0	0	12
7:45 AM	0	6	0	2	0	8	0	0	3	3	0	6	0	0	0	0	1	0	0	0	2	2	0	4	18
8:00 AM	0	4	0	0	0	4	0	0	1	0	0	1	0	0	1	0	0	1	0	1	0	2	0	3	9
Total	0	14	2	4	0	20	0	0	10	7	0	17	0	1	1	0	2	2	0	1	2	4	0	7	46
Approach %	0.0	70.0	10.0	20.0	-	-	0.0	0.0	58.8	41.2	-	-	0.0	50.0	50.0	0.0	-	-	0.0	14.3	28.6	57.1	-	-	-
Total %	0.0	30.4	4.3	8.7	-	43.5	0.0	0.0	21.7	15.2	-	37.0	0.0	2.2	2.2	0.0	-	4.3	0.0	2.2	4.3	8.7	-	15.2	-
PHF	0.000	0.583	0.500	0.500	-	0.625	0.000	0.000	0.500	0.583	-	0.531	0.000	0.250	0.250	0.000	-	0.500	0.000	0.250	0.250	0.500	-	0.438	0.639
Lights	0	14	2	4	-	20	0	0	10	6	-	16	0	1	1	0	-	2	0	1	2	4	-	7	45
% Lights	-	100.0	100.0	100.0	-	100.0	-	-	100.0	85.7	-	94.1	-	100.0	100.0	-	-	100.0	-	100.0	100.0	100.0	-	100.0	97.8
Buses	0	0	0	0	-	0	0	0	0	1	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Buses	-	0.0	0.0	0.0	-	0.0	-	-	0.0	14.3	-	5.9	-	0.0	0.0	-	-	0.0	-	0.0	0.0	0.0	-	0.0	2.2
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Single-Unit Trucks	-	0.0	0.0	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	0.0	0.0	-	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	0.0	0.0	-	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	0.0	0.0	-	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Ryan Rd and Retail Access Dr (east) TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Ryan Rd Eastbound						Ryan Rd Westbound						Retail Access Rd (east) Northbound						Access Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
4:00 PM	2	2	4	2	0	10	0	0	1	1	0	2	0	7	0	0	0	7	0	1	0	10	0	11	30
4:15 PM	1	3	3	0	0	7	0	0	1	0	0	1	0	12	2	0	0	14	0	1	2	4	0	7	29
4:30 PM	4	3	2	1	0	10	0	0	2	1	0	3	0	13	2	1	0	16	0	3	3	7	0	13	42
4:45 PM	3	4	0	3	0	10	0	0	1	1	0	2	0	12	0	0	0	12	0	0	4	8	0	12	36
Total	10	12	9	6	0	37	0	0	5	3	0	8	0	44	4	1	0	49	0	5	9	29	0	43	137
Approach %	27.0	32.4	24.3	16.2	-	-	0.0	0.0	62.5	37.5	-	-	0.0	89.8	8.2	2.0	-	-	0.0	11.6	20.9	67.4	-	-	-
Total %	7.3	8.8	6.6	4.4	-	27.0	0.0	0.0	3.6	2.2	-	5.8	0.0	32.1	2.9	0.7	-	35.8	0.0	3.6	6.6	21.2	-	31.4	-
PHF	0.625	0.750	0.563	0.500	-	0.925	0.000	0.000	0.625	0.750	-	0.667	0.000	0.846	0.500	0.250	-	0.766	0.000	0.417	0.563	0.725	-	0.827	0.815
Lights	10	12	9	6	-	37	0	0	4	3	-	7	0	44	4	1	-	49	0	5	9	29	-	43	136
% Lights	100.0	100.0	100.0	100.0	-	100.0	-	-	80.0	100.0	-	87.5	-	100.0	100.0	100.0	-	100.0	-	100.0	100.0	100.0	-	100.0	99.3
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Buses	0.0	0.0	0.0	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Single-Unit Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Single-Unit Trucks	0.0	0.0	0.0	0.0	-	0.0	-	-	20.0	0.0	-	12.5	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Ryan Rd and Retail Access Drive (west) TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Data

Start Time	Ryan Rd Eastbound					Ryan Rd Westbound					Access Dr Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	4	2	0	6	0	0	1	0	1	0	0	0	0	0	7
7:30 AM	0	4	2	0	6	0	0	4	0	4	0	0	0	0	0	10
7:45 AM	0	8	3	0	11	0	0	5	0	5	0	0	0	0	0	16
Hourly Total	0	16	7	0	23	0	0	10	0	10	0	0	0	0	0	33
8:00 AM	0	4	2	0	6	0	0	4	1	4	0	0	0	0	0	10
8:15 AM	0	5	1	0	6	0	0	6	0	6	0	0	0	0	0	12
8:30 AM	0	8	2	0	10	0	0	5	0	5	0	0	0	0	0	15
8:45 AM	0	7	5	0	12	0	0	7	0	7	0	0	0	0	0	19
Hourly Total	0	24	10	0	34	0	0	22	1	22	0	0	0	0	0	56
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	8	4	0	12	0	0	20	0	20	0	0	1	0	1	33
4:15 PM	0	8	9	0	17	0	0	17	0	17	0	0	0	0	0	34
4:30 PM	0	6	14	0	20	0	0	26	0	26	0	0	3	0	3	49
4:45 PM	0	6	27	0	33	0	0	21	0	21	0	0	3	0	3	57
Hourly Total	0	28	54	0	82	0	0	84	0	84	0	0	7	0	7	173
5:00 PM	0	8	9	0	17	0	0	31	0	31	0	0	0	0	0	48
5:15 PM	0	8	10	0	18	0	0	20	0	20	0	0	0	0	0	38
5:30 PM	0	6	11	0	17	0	0	11	0	11	0	0	3	0	3	31
5:45 PM	0	3	26	0	29	0	0	17	0	17	0	0	0	1	0	46
Hourly Total	0	25	56	0	81	0	0	79	0	79	0	0	3	1	3	163
Grand Total	0	93	127	0	220	0	0	195	1	195	0	0	10	1	10	425
Approach %	0.0	42.3	57.7	-	-	0.0	0.0	100.0	-	-	0.0	0.0	100.0	-	-	-
Total %	0.0	21.9	29.9	-	51.8	0.0	0.0	45.9	-	45.9	0.0	0.0	2.4	-	2.4	-
Lights	0	92	127	-	219	0	0	194	-	194	0	0	10	-	10	423
% Lights	-	98.9	100.0	-	99.5	-	-	99.5	-	99.5	-	-	100.0	-	100.0	99.5
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	-	0.0	0.0	-	0.0	-	-	0.0	-	0.0	-	-	0.0	-	0.0	0.0
Single-Unit Trucks	0	0	0	-	0	0	0	1	-	1	0	0	0	-	0	1
% Single-Unit Trucks	-	0.0	0.0	-	0.0	-	-	0.5	-	0.5	-	-	0.0	-	0.0	0.2
Articulated Trucks	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Articulated Trucks	-	1.1	0.0	-	0.5	-	-	0.0	-	0.0	-	-	0.0	-	0.0	0.2
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	-	0.0	-	0.0	-	-	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Ryan Rd and Retail Access Drive (west) TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Ryan Rd Eastbound					Ryan Rd Westbound					Access Dr Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
7:15 AM	0	4	2	0	6	0	0	1	0	1	0	0	0	0	0	7
7:30 AM	0	4	2	0	6	0	0	4	0	4	0	0	0	0	0	10
7:45 AM	0	8	3	0	11	0	0	5	0	5	0	0	0	0	0	16
8:00 AM	0	4	2	0	6	0	0	4	1	4	0	0	0	0	0	10
Total	0	20	9	0	29	0	0	14	1	14	0	0	0	0	0	43
Approach %	0.0	69.0	31.0	-	-	0.0	0.0	100.0	-	-	0.0	0.0	0.0	-	-	-
Total %	0.0	46.5	20.9	-	67.4	0.0	0.0	32.6	-	32.6	0.0	0.0	0.0	-	0.0	-
PHF	0.000	0.625	0.750	-	0.659	0.000	0.000	0.700	-	0.700	0.000	0.000	0.000	-	0.000	0.672
Lights	0	20	9	-	29	0	0	14	-	14	0	0	0	-	0	43
% Lights	-	100.0	100.0	-	100.0	-	-	100.0	-	100.0	-	-	-	-	-	100.0
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	-	0.0	0.0	-	0.0	-	-	0.0	-	0.0	-	-	-	-	-	0.0
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Single-Unit Trucks	-	0.0	0.0	-	0.0	-	-	0.0	-	0.0	-	-	-	-	-	0.0
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	-	-	0.0	-	0.0	-	-	-	-	-	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	-	0.0	-	0.0	-	-	-	-	-	0.0
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Ryan Rd and Retail Access Drive (west) TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Ryan Rd Eastbound					Ryan Rd Westbound					Access Dr Northbound					
	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Right	Peds	App. Total	Int. Total
4:00 PM	0	8	4	0	12	0	0	20	0	20	0	0	1	0	1	33
4:15 PM	0	8	9	0	17	0	0	17	0	17	0	0	0	0	0	34
4:30 PM	0	6	14	0	20	0	0	26	0	26	0	0	3	0	3	49
4:45 PM	0	6	27	0	33	0	0	21	0	21	0	0	3	0	3	57
Total	0	28	54	0	82	0	0	84	0	84	0	0	7	0	7	173
Approach %	0.0	34.1	65.9	-	-	0.0	0.0	100.0	-	-	0.0	0.0	100.0	-	-	-
Total %	0.0	16.2	31.2	-	47.4	0.0	0.0	48.6	-	48.6	0.0	0.0	4.0	-	4.0	-
PHF	0.000	0.875	0.500	-	0.621	0.000	0.000	0.808	-	0.808	0.000	0.000	0.583	-	0.583	0.759
Lights	0	28	54	-	82	0	0	83	-	83	0	0	7	-	7	172
% Lights	-	100.0	100.0	-	100.0	-	-	98.8	-	98.8	-	-	100.0	-	100.0	99.4
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	-	0.0	0.0	-	0.0	-	-	0.0	-	0.0	-	-	0.0	-	0.0	0.0
Single-Unit Trucks	0	0	0	-	0	0	0	1	-	1	0	0	0	-	0	1
% Single-Unit Trucks	-	0.0	0.0	-	0.0	-	-	1.2	-	1.2	-	-	0.0	-	0.0	0.6
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	0.0	0.0	-	0.0	-	-	0.0	-	0.0	-	-	0.0	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	0.0	-	-	0.0	-	0.0	-	-	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Weber Rd and McGilvray Dr TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Data

Start Time	McGilvray Dr Eastbound						McGilvray Dr Westbound						Weber Rd Northbound						Weber Rd Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:00 AM	0	0	0	2	0	2	0	3	0	5	0	8	0	3	190	4	0	197	0	2	130	1	0	133	340
7:15 AM	0	0	0	1	0	1	0	0	0	4	0	4	0	1	255	2	0	258	0	7	186	0	0	193	456
7:30 AM	0	1	0	3	0	4	0	4	0	7	0	11	0	1	237	5	0	243	0	2	176	1	0	179	437
7:45 AM	0	0	0	1	0	1	0	5	0	7	0	12	0	1	221	6	0	228	0	3	203	1	0	207	448
Hourly Total	0	1	0	7	0	8	0	12	0	23	0	35	0	6	903	17	0	926	0	14	695	3	0	712	1681
8:00 AM	0	0	0	2	0	2	0	7	0	5	0	12	0	0	184	4	0	188	0	6	204	0	0	210	412
8:15 AM	0	0	0	1	0	1	0	5	0	3	0	8	0	1	150	8	0	159	0	5	206	3	0	214	382
8:30 AM	0	1	0	0	0	1	0	5	2	3	0	10	0	0	160	2	0	162	0	4	209	1	0	214	387
8:45 AM	0	0	0	3	0	3	0	8	0	6	0	14	0	0	163	3	0	166	0	6	190	1	0	197	380
Hourly Total	0	1	0	6	0	7	0	25	2	17	0	44	0	1	657	17	0	675	0	21	809	5	0	835	1561
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	0	3	0	3	0	10	0	10	0	20	0	3	200	9	0	212	0	6	281	1	0	288	523
4:15 PM	0	0	0	1	0	1	0	3	0	7	0	10	0	2	235	13	0	250	0	10	291	5	0	306	567
4:30 PM	0	2	0	2	0	4	0	7	0	11	0	18	0	4	253	11	0	268	0	13	292	2	0	307	597
4:45 PM	0	0	0	1	0	1	0	9	0	7	0	16	0	1	235	8	0	244	0	14	286	1	0	301	562
Hourly Total	0	2	0	7	0	9	0	29	0	35	0	64	0	10	923	41	0	974	0	43	1150	9	0	1202	2249
5:00 PM	0	0	0	0	0	0	0	5	0	5	0	10	0	2	246	10	0	258	0	4	258	1	0	263	531
5:15 PM	0	0	0	2	0	2	0	4	0	3	0	7	0	4	240	15	0	259	0	3	261	2	0	266	534
5:30 PM	0	0	2	2	0	4	0	8	0	9	0	17	0	0	214	11	0	225	0	13	273	1	0	287	533
5:45 PM	0	0	1	0	0	1	0	11	0	5	1	16	0	3	220	9	0	232	0	8	203	0	0	211	460
Hourly Total	0	0	3	4	0	7	0	28	0	22	1	50	0	9	920	45	0	974	0	28	995	4	0	1027	2058
Grand Total	0	4	3	24	0	31	0	94	2	97	1	193	0	26	3403	120	0	3549	0	106	3649	21	0	3776	7549
Approach %	0.0	12.9	9.7	77.4	-	-	0.0	48.7	1.0	50.3	-	-	0.0	0.7	95.9	3.4	-	-	0.0	2.8	96.6	0.6	-	-	-
Total %	0.0	0.1	0.0	0.3	-	0.4	0.0	1.2	0.0	1.3	-	2.6	0.0	0.3	45.1	1.6	-	47.0	0.0	1.4	48.3	0.3	-	50.0	-
Lights	0	4	3	23	-	30	0	91	2	94	-	187	0	25	3192	114	-	3331	0	103	3411	18	-	3532	7080
% Lights	-	100.0	100.0	95.8	-	96.8	-	96.8	100.0	96.9	-	96.9	-	96.2	93.8	95.0	-	93.9	-	97.2	93.5	85.7	-	93.5	93.8
Buses	0	0	0	0	-	0	0	0	0	2	-	2	0	0	12	2	-	14	0	1	47	1	-	49	65
% Buses	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	2.1	-	1.0	-	0.0	0.4	1.7	-	0.4	-	0.9	1.3	4.8	-	1.3	0.9
Single-Unit Trucks	0	0	0	1	-	1	0	3	0	1	-	4	0	1	94	4	-	99	0	2	71	2	-	75	179
% Single-Unit Trucks	-	0.0	0.0	4.2	-	3.2	-	3.2	0.0	1.0	-	2.1	-	3.8	2.8	3.3	-	2.8	-	1.9	1.9	9.5	-	2.0	2.4
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	105	0	-	105	0	0	120	0	-	120	225
% Articulated Trucks	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	3.1	0.0	-	3.0	-	0.0	3.3	0.0	-	3.2	3.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0

% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Weber Rd and McGilvray Dr TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (7:15 AM)

Start Time	McGilvray Dr Eastbound						McGilvray Dr Westbound						Weber Rd Northbound						Weber Rd Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
7:15 AM	0	0	0	1	0	1	0	0	0	4	0	4	0	1	255	2	0	258	0	7	186	0	0	193	456
7:30 AM	0	1	0	3	0	4	0	4	0	7	0	11	0	1	237	5	0	243	0	2	176	1	0	179	437
7:45 AM	0	0	0	1	0	1	0	5	0	7	0	12	0	1	221	6	0	228	0	3	203	1	0	207	448
8:00 AM	0	0	0	2	0	2	0	7	0	5	0	12	0	0	184	4	0	188	0	6	204	0	0	210	412
Total	0	1	0	7	0	8	0	16	0	23	0	39	0	3	897	17	0	917	0	18	769	2	0	789	1753
Approach %	0.0	12.5	0.0	87.5	-	-	0.0	41.0	0.0	59.0	-	-	0.0	0.3	97.8	1.9	-	-	0.0	2.3	97.5	0.3	-	-	-
Total %	0.0	0.1	0.0	0.4	-	0.5	0.0	0.9	0.0	1.3	-	2.2	0.0	0.2	51.2	1.0	-	52.3	0.0	1.0	43.9	0.1	-	45.0	-
PHF	0.000	0.250	0.000	0.583	-	0.500	0.000	0.571	0.000	0.821	-	0.813	0.000	0.750	0.879	0.708	-	0.889	0.000	0.643	0.942	0.500	-	0.939	0.961
Lights	0	1	0	7	-	8	0	16	0	21	-	37	0	3	834	15	-	852	0	17	728	2	-	747	1644
% Lights	-	100.0	-	100.0	-	100.0	-	100.0	-	91.3	-	94.9	-	100.0	93.0	88.2	-	92.9	-	94.4	94.7	100.0	-	94.7	93.8
Buses	0	0	0	0	-	0	0	0	0	2	-	2	0	0	1	2	-	3	0	0	6	0	-	6	11
% Buses	-	0.0	-	0.0	-	0.0	-	0.0	-	8.7	-	5.1	-	0.0	0.1	11.8	-	0.3	-	0.0	0.8	0.0	-	0.8	0.6
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	28	0	-	28	0	1	17	0	-	18	46
% Single-Unit Trucks	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	3.1	0.0	-	3.1	-	5.6	2.2	0.0	-	2.3	2.6
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	34	0	-	34	0	0	18	0	-	18	52
% Articulated Trucks	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	3.8	0.0	-	3.7	-	0.0	2.3	0.0	-	2.3	3.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Kenig Lindgren O'Hara Aboona, Inc.
9575 W. Higgins Rd., Suite 400

Rosemont, Illinois, United States 60018
(847)518-9990 mmendoza@kloainc.com

Count Name: Weber Rd and McGilvray Dr TMC
Site Code:
Start Date: 01/06/2026

Turning Movement Peak Hour Data (4:00 PM)

Start Time	McGilvray Dr Eastbound						McGilvray Dr Westbound						Weber Rd Northbound						Weber Rd Southbound						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Int. Total
4:00 PM	0	0	0	3	0	3	0	10	0	10	0	20	0	3	200	9	0	212	0	6	281	1	0	288	523
4:15 PM	0	0	0	1	0	1	0	3	0	7	0	10	0	2	235	13	0	250	0	10	291	5	0	306	567
4:30 PM	0	2	0	2	0	4	0	7	0	11	0	18	0	4	253	11	0	268	0	13	292	2	0	307	597
4:45 PM	0	0	0	1	0	1	0	9	0	7	0	16	0	1	235	8	0	244	0	14	286	1	0	301	562
Total	0	2	0	7	0	9	0	29	0	35	0	64	0	10	923	41	0	974	0	43	1150	9	0	1202	2249
Approach %	0.0	22.2	0.0	77.8	-	-	0.0	45.3	0.0	54.7	-	-	0.0	1.0	94.8	4.2	-	-	0.0	3.6	95.7	0.7	-	-	-
Total %	0.0	0.1	0.0	0.3	-	0.4	0.0	1.3	0.0	1.6	-	2.8	0.0	0.4	41.0	1.8	-	43.3	0.0	1.9	51.1	0.4	-	53.4	-
PHF	0.000	0.250	0.000	0.583	-	0.563	0.000	0.725	0.000	0.795	-	0.800	0.000	0.625	0.912	0.788	-	0.909	0.000	0.768	0.985	0.450	-	0.979	0.942
Lights	0	2	0	7	-	9	0	29	0	34	-	63	0	10	883	38	-	931	0	42	1057	9	-	1108	2111
% Lights	-	100.0	-	100.0	-	100.0	-	100.0	-	97.1	-	98.4	-	100.0	95.7	92.7	-	95.6	-	97.7	91.9	100.0	-	92.2	93.9
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	5	0	-	5	0	1	37	0	-	38	43
% Buses	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.5	0.0	-	0.5	-	2.3	3.2	0.0	-	3.2	1.9
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	1	-	1	0	0	18	3	-	21	0	0	16	0	-	16	38
% Single-Unit Trucks	-	0.0	-	0.0	-	0.0	-	0.0	-	2.9	-	1.6	-	0.0	2.0	7.3	-	2.2	-	0.0	1.4	0.0	-	1.3	1.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	17	0	-	17	0	0	40	0	-	40	57
% Articulated Trucks	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	1.8	0.0	-	1.7	-	0.0	3.5	0.0	-	3.3	2.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Site Plan

RYAN DRIVE

BUILDING A

BUILDING B

BUILDING C

BUILDING D

BUILDING E

GARAGE

BUILDING F

BUILDING G

BUILDING H

BUILDING I

BUILDING J

CLUBHOUSE

POOL

BUILDING K

BUILDING L

BUILDING M

BUILDING N

EXECUTIVE DRIVE (PRIVATE DRIVE)

RYAN DRIVE
(HERETOFORE DEDICATED PER DOC. NO. R2005-124097)

15' DRAINAGE & UTILITY EASEMENT

30' ACCESS-INGRESS/EGRESS EASEMENT

30' ACCESS-INGRESS /EGRESS EASEMENT

60' BUILDING SETBACK LINE

10' DRAINAGE & UTILITY EASEMENT

60' BUILDING SETBACK LINE PER DOC. NO. R2007117350

7.5' DRAINAGE & UTILITY EASEMENT

30' DRAINAGE & UTILITY EASEMENT

36' ACCESS-INGRESS /EGRESS EASEMENT

25' DRAINAGE & UTILITY EASEMENT

BUILDING SETBACK LINE

60' ACCESS-INGRESS/EGRESS & DRAINAGE & UTILITY EASEMENT

30' BUILDING SETBACK LINE PER DOC. NO. R2007117350

15' LANDSCAPE EASEMENT

30' BUILDING SETBACK LINE

100.00'

N

0 20 40 80

SCALE: 1"=40'

SITE DATA TABLE

A. DESCRIPTION OF PROPERTY: TWO STORY WALK UP BUILDINGS WITH 18 UNIT AND 20 UNIT CONFIGURATIONS ALONG WITH A CLUBHOUSE AND POOL
B. TOTAL SITE AREA: 15.814 ACRES
C. TOTAL NUMBER OF UNITS: 260 UNITS
D. LAND USE: ALL LAND USE WILL BE MULTI-FAMILY RESIDENTIAL
E. DENSITY: 17.71 UNITS / ACRE:
F. REQUIRED PARKING: 3.5 PER UNIT, 910 STALLS
PROPOSED PARKING: 559 TOTAL STALLS 2.15 PER UNIT
439 SITE STALLS
120 ENCLOSED STALLS

DRAWN BY | REVISIONS | DATE

Manhard CONSULTING
One Parkview Plaza, Suite 2600, Lincolnshire, IL 60069 Tel: (847) 537-9480 Fax: (847) 537-9483
Civil Engineers • Structural Engineers • Water Resource Engineers • Traffic Engineers • Surveyors
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL

CITY OF CREST HILL, ILLINOIS

CONCEPT SITE PLAN EXHIBIT

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: GAW
DATE: 10-10-25
SCALE: 1" = 40'

SHEET
EXH
FRD.CRIL01

©2025 MANHARD CONSULTING, ALL RIGHTS RESERVED

December 19, 2025 - 10:24 Dwg Name: P:\Projects\01 Dwg\Eng\Preliminary\Exhibits Eng\City of Crest Hill Concept Plan.dwg Updated By: jwaslelewski

Level of Service Criteria

LEVEL OF SERVICE CRITERIA

Signalized Intersections		
Level of Service	Interpretation	Average Control Delay (seconds per vehicle)
A	Favorable progression. Most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Good progression, with more vehicles stopping than for Level of Service A.	>10 - 20
C	Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear. Number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 - 35
D	The volume-to-capacity ratio is high and either progression is ineffective or the cycle length is too long. Many vehicles stop and individual cycle failures are noticeable.	>35 - 55
E	Progression is unfavorable. The volume-to-capacity ratio is high and the cycle length is long. Individual cycle failures are frequent.	>55 - 80
F	The volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	>80.0

Unsignalized Intersections	
Level of Service	Average Total Delay (SEC/VEH)
A	0 - 10
B	> 10 - 15
C	> 15 - 25
D	> 25 - 35
E	> 35 - 50
F	> 50

Source: *Highway Capacity Manual*, 6th Edition.

Capacity Analysis Summary Sheets

Existing Weekday Morning Peak Hour

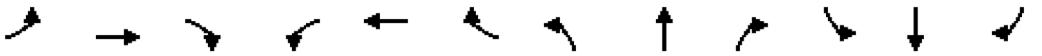
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	2	4	0	10	7	1	1	0	1	2	4
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	20	0	0	17	0	0	2	0	0	7	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.94	0.85	0.95	0.94	0.85	0.95	0.98	0.85	0.95	0.91	0.85
Saturated Flow (vph)	0	1778	0	0	1783	0	0	1853	0	0	1725	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	154		0	1783		0	702		0	1693	
Reference Time A (s)	0.0	15.6		0.0	1.1		0.0	0.3		0.0	0.5	
Adj Saturation B (vph	0	0		0	1783		0	0		0	0	
Reference Time B (s)	8.9	9.3		0.0	1.1		8.1	8.1		8.1	8.5	
Reference Time (s)		9.3			1.1			0.3			0.5	
Adj Reference Time (s)		13.3			8.0			8.0			8.0	
Split Option												
Ref Time Combined (s)	0.0	1.3		0.0	1.1		0.0	0.1		0.0	0.5	
Ref Time Seperate (s)	0.9	0.1		0.0	0.7		0.1	0.1		0.1	0.1	
Reference Time (s)	1.3	1.3		1.1	1.1		0.1	0.1		0.5	0.5	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	13.3	8.0	
Split Option (s)	16.0	16.0	
Minimum (s)	13.3	8.0	21.3

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	17.8%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	257	399	50	69	252	92	52	815	77	140	677	112
Future Volume (vph)	257	399	50	69	252	92	52	815	77	140	677	112
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	255		0	250		385	244		0	255		260
Storage Lanes	2		0	2		1	2		0	2		1
Taper Length (ft)	260			260			260			255		
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	0.97	0.91	0.91	0.97	0.91	1.00
Frt		0.983				0.850		0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3355	0	2870	3519	1357	3303	4798	0	3242	5250	1524
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3355	0	2870	3519	1357	3303	4798	0	3242	5250	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				65		16				120
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1732			655			1043			1170	
Travel Time (s)		26.2			9.9			15.8			17.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	6%	4%	22%	8%	19%	6%	6%	14%	8%	4%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	276	483	0	74	271	99	56	959	0	151	728	120
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8						6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	15.0		3.0	15.0	3.0
Minimum Split (s)	9.5	22.5		9.5	22.5	9.5	9.5	22.5		9.5	22.5	9.5
Total Split (s)	15.0	35.0		15.0	35.0	15.0	15.0	60.0		15.0	60.0	15.0
Total Split (%)	12.0%	28.0%		12.0%	28.0%	12.0%	12.0%	48.0%		12.0%	48.0%	12.0%
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	1.0	1.5		1.0	1.5	1.0	1.0	1.5		1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0	4.5	4.5	6.0		4.5	6.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	None
Act Effct Green (s)	16.7	31.0		8.6	20.8	37.9	7.5	55.5		11.0	61.0	83.7
Actuated g/C Ratio	0.13	0.25		0.07	0.17	0.30	0.06	0.44		0.09	0.49	0.67
v/c Ratio	0.60	0.57		0.38	0.46	0.22	0.28	0.45		0.53	0.28	0.11
Control Delay (s/veh)	56.7	43.2		60.6	48.8	12.6	59.3	26.0		60.9	21.2	2.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	56.7	43.2		60.6	48.8	12.6	59.3	26.0		60.9	21.2	2.1
LOS	E	D		E	D	B	E	C		E	C	A
Approach Delay (s/veh)		48.1			42.7			27.8			24.9	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	109	182		29	105	20	22	189		61	128	0
Queue Length 95th (ft)	153	222		54	139	55	44	274		94	189	25

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		1652			575			963			1090	
Turn Bay Length (ft)	255			250		385	244			255		260
Base Capacity (vph)	458	858		244	816	463	277	2249		303	2616	1060
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.60	0.56		0.30	0.33	0.21	0.20	0.43		0.50	0.28	0.11

Intersection Summary			
Area Type:	Other		
Cycle Length: 125			
Actuated Cycle Length: 125			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay (s/veh): 33.8		Intersection LOS: C	
Intersection Capacity Utilization 58.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Renwick Road & Weber Road

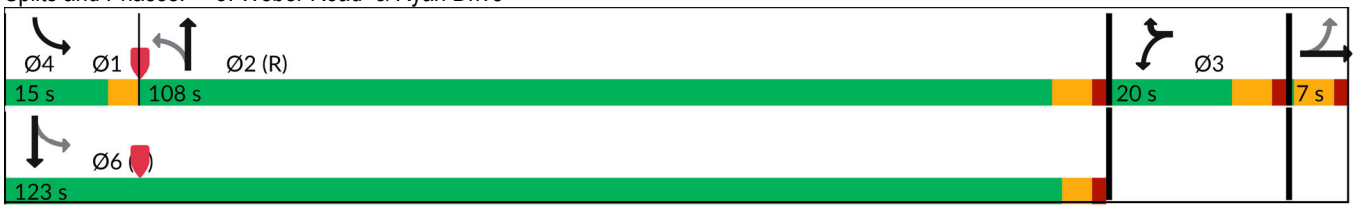


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	6	0	9	0	935	16	13	783	0
Future Volume (vph)	0	0	0	6	0	9	0	935	16	13	783	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	315		0
Storage Lanes	0		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			125		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.91	0.91
Frt						0.850		0.997				
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	1900	0	1805	0	1615	0	4838	0	1805	4940	0
Flt Permitted				0.950						0.264		
Satd. Flow (perm)	0	1900	0	1805	0	1615	0	4838	0	502	4940	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						91		4				
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		487			155			1028			1043	
Travel Time (s)		11.1			3.5			15.6			15.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	6	0	10	0	1012	0	14	833	0
Turn Type				Prot		Prot		NA		pm+pt	NA	
Protected Phases		4		3		3		2		1	6	
Permitted Phases	4						2			6		
Detector Phase	4	4		3		3	2	2		1	6	
Switch Phase												
Minimum Initial (s)	1.0	1.0		5.0		5.0	15.0	15.0		3.0	15.0	
Minimum Split (s)	7.0	7.0		11.0		11.0	24.0	24.0		11.5	23.0	
Total Split (s)	7.0	7.0		20.0		20.0	108.0	108.0		15.0	123.0	
Total Split (%)	4.7%	4.7%		13.3%		13.3%	72.0%	72.0%		10.0%	82.0%	
Yellow Time (s)	4.5	4.5		4.5		4.5	4.5	4.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5		1.5	1.5	1.5		0.0	1.5	
Lost Time Adjust (s)		0.0		0.0		0.0		0.0		0.0	0.0	
Total Lost Time (s)		6.0		6.0		6.0		6.0		3.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None		None	C-Min	C-Min		None	C-Min	
Act Effct Green (s)				6.1		6.1		138.8		141.4	142.9	
Actuated g/C Ratio				0.04		0.04		0.93		0.94	0.95	
v/c Ratio				0.08		0.07		0.23		0.03	0.18	
Control Delay (s/veh)				71.2		0.8		1.7		0.8	0.7	
Queue Delay				0.0		0.0		0.0		0.0	0.0	
Total Delay (s/veh)				71.2		0.8		1.7		0.8	0.7	
LOS				E		A		A		A	A	
Approach Delay (s/veh)					27.2			1.7			0.7	
Approach LOS					C			A			A	
Queue Length 50th (ft)				6		0		0		0	0	
Queue Length 95th (ft)				22		0		85		3	36	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		407			75			948			963	
Turn Bay Length (ft)										315		
Base Capacity (vph)				168		233		4476		573	4705	
Starvation Cap Reductn				0		0		0		0	0	
Spillback Cap Reductn				0		0		0		0	0	
Storage Cap Reductn				0		0		0		0	0	
Reduced v/c Ratio				0.04		0.04		0.23		0.02	0.18	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.23			
Intersection Signal Delay (s/veh): 1.5		Intersection LOS: A	
Intersection Capacity Utilization 32.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Weber Road & Ryan Drive



Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	615	1	0	413	0	4
Future Vol, veh/h	615	1	0	413	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	0	0	11	0	25
Mvmt Flow	647	1	0	435	0	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	324
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.6
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	4.15
Pot Cap-1 Maneuver	-	-	0	-	0	524
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	524
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	11.92
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	524	-	-	-
HCM Lane V/C Ratio	0.008	-	-	-
HCM Ctrl Dly (s/v)	11.9	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	603	16	13	403	10	9
Future Vol, veh/h	603	16	13	403	10	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	285	-	0	25
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	0	0	10	0	11
Mvmt Flow	648	17	14	433	11	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	666	0	893	324
Stage 1	-	-	-	-	648	-
Stage 2	-	-	-	-	245	-
Critical Hdwy	-	-	4.1	-	6.8	7.12
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.41
Pot Cap-1 Maneuver	-	-	933	-	285	646
Stage 1	-	-	-	-	488	-
Stage 2	-	-	-	-	779	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	933	-	281	646
Mov Cap-2 Maneuver	-	-	-	-	389	-
Stage 1	-	-	-	-	488	-
Stage 2	-	-	-	-	768	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.28	12.69
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	389	646	-	-	933	-
HCM Lane V/C Ratio	0.028	0.015	-	-	0.015	-
HCM Ctrl Dly (s/v)	14.5	10.7	-	-	8.9	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	599	13	14	398	18	46
Future Vol, veh/h	599	13	14	398	18	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	240	120	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	0	0	12	0	0
Mvmt Flow	644	14	15	428	19	49

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	658	0	1102	644
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	458	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	939	-	236	476
Stage 1	-	-	-	-	527	-
Stage 2	-	-	-	-	641	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	939	-	232	476
Mov Cap-2 Maneuver	-	-	-	-	367	-
Stage 1	-	-	-	-	527	-
Stage 2	-	-	-	-	631	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.3	14.71
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	439	-	-	939	-
HCM Lane V/C Ratio	0.157	-	-	0.016	-
HCM Ctrl Dly (s/v)	14.7	-	-	8.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	9	0	15	0	0
Future Vol, veh/h	20	9	0	15	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	30	13	0	22	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	37
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	1042
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	1042
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Int Delay, s/veh	7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	3	0	0	17	0
Future Vol, veh/h	0	3	0	0	17	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	56	56	56	56	56
Heavy Vehicles, %	0	0	0	0	6	0
Mvmt Flow	0	5	0	0	30	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	5	0	4	3
Stage 1	-	-	-	-	3	-
Stage 2	-	-	-	-	2	-
Critical Hdwy	-	-	4.1	-	6.46	6.2
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	-	-	2.2	-	3.554	3.3
Pot Cap-1 Maneuver	-	-	1629	-	1007	1087
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	1011	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1629	-	1007	1087
Mov Cap-2 Maneuver	-	-	-	-	1007	-
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	1011	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	8.69
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1007	-	-	1629	-
HCM Lane V/C Ratio	0.03	-	-	-	-
HCM Ctrl Dly (s/v)	8.7	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	7	16	0	23	3	927	18	18	769	2
Future Vol, veh/h	1	0	7	16	0	23	3	927	18	18	769	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	125	-	85	130	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	9	0	7	12	6	5	0
Mvmt Flow	1	0	7	17	0	24	3	966	19	19	801	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1329	1830	402	1410	1813	483	803	0	0	984	0	0
Stage 1	840	840	-	972	972	-	-	-	-	-	-	-
Stage 2	489	991	-	438	841	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	7.08	4.1	-	-	4.22	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.39	2.2	-	-	2.26	-	-
Pot Cap-1 Maneuver	115	77	604	100	79	511	830	-	-	674	-	-
Stage 1	330	384	-	275	333	-	-	-	-	-	-	-
Stage 2	534	327	-	573	383	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	106	75	604	96	77	511	830	-	-	674	-	-
Mov Cap-2 Maneuver	223	187	-	204	195	-	-	-	-	-	-	-
Stage 1	321	373	-	274	332	-	-	-	-	-	-	-
Stage 2	507	326	-	550	373	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.36	18.06	0.03	0.24
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	830	-	-	497	316	674	-	-
HCM Lane V/C Ratio	0.004	-	-	0.017	0.129	0.028	-	-
HCM Ctrl Dly (s/v)	9.4	-	-	12.4	18.1	10.5	-	-
HCM Lane LOS	A	-	-	B	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	36	32	0	0	7
Future Vol, veh/h	0	36	32	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	12	7	0	0	0
Mvmt Flow	0	45	40	0	0	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	40
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	1037
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	1037
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	1037
HCM Lane V/C Ratio	-	-	-	0.008
HCM Ctrl Dly (s/v)	-	-	-	8.5
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	19	32	1	0	0
Future Vol, veh/h	17	19	32	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	0	16	6	0	0	0
Mvmt Flow	23	26	43	1	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	45	0	-	0	116	44
Stage 1	-	-	-	-	44	-
Stage 2	-	-	-	-	72	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1577	-	-	-	886	1032
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	956	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1577	-	-	-	872	1032
Mov Cap-2 Maneuver	-	-	-	-	872	-
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	956	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	3.46	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	850	-	-	-	-
HCM Lane V/C Ratio	0.015	-	-	-	-
HCM Ctrl Dly (s/v)	7.3	0	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Capacity Analysis Summary Sheets

Existing Weekday Evening Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	9	6	0	5	4	47	1	1	5	9	32
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	35	0	0	9	0	0	49	0	0	46	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.93	0.85	0.95	0.95	0.85	0.95	0.89	0.85
Saturated Flow (vph)	0	1798	0	0	1773	0	0	1803	0	0	1692	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	183		0	1773		0	328		0	1772	
Reference Time A (s)	0.0	22.9		0.0	0.6		0.0	18.0		0.0	3.1	
Adj Saturation B (vph	0	0		0	1773		0	0		0	0	
Reference Time B (s)	9.3	10.3		0.0	0.6		11.1	11.3		8.3	11.3	
Reference Time (s)		10.3			0.6			11.3			3.1	
Adj Reference Time (s)		14.3			8.0			15.3			8.0	
Split Option												
Ref Time Combined (s)	0.0	2.3		0.0	0.6		0.0	3.3		0.0	3.3	
Ref Time Seperate (s)	1.3	0.6		0.0	0.3		3.1	0.1		0.3	0.6	
Reference Time (s)	2.3	2.3		0.6	0.6		3.3	3.3		3.3	3.3	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	14.3	15.3	
Split Option (s)	16.0	16.0	
Minimum (s)	14.3	15.3	29.6

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	24.7%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	272	68	156	484	136	134	790	61	166	1042	369
Future Volume (vph)	259	272	68	156	484	136	134	790	61	166	1042	369
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	255		0	250		385	244		0	255		260
Storage Lanes	2		0	2		1	2		0	2		1
Taper Length (ft)	260			260			260			255		
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	0.97	0.91	0.91	0.97	0.91	1.00
Frt		0.970				0.850		0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3225	0	3019	3725	1538	3367	4896	0	3400	5151	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3225	0	3019	3725	1538	3367	4896	0	3400	5151	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23				79		12				80
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1732			655			1043			1170	
Travel Time (s)		26.2			9.9			15.8			17.7	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	7%	15%	16%	2%	5%	4%	3%	28%	3%	6%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	264	347	0	159	494	139	137	868	0	169	1063	377
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8						6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	15.0		3.0	15.0	3.0
Minimum Split (s)	9.5	22.5		9.5	22.5	9.5	9.5	22.5		9.5	22.5	9.5
Total Split (s)	15.0	35.0		15.0	35.0	15.0	15.0	60.0		15.0	60.0	15.0
Total Split (%)	12.0%	28.0%		12.0%	28.0%	12.0%	12.0%	48.0%		12.0%	48.0%	12.0%
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	1.0	1.5		1.0	1.5	1.0	1.0	1.5		1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0	4.5	4.5	6.0		4.5	6.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	None
Act Effct Green (s)	16.0	30.9		11.9	26.7	43.4	9.9	50.5		10.7	51.4	73.4
Actuated g/C Ratio	0.13	0.25		0.10	0.21	0.35	0.08	0.40		0.09	0.41	0.59
v/c Ratio	0.60	0.43		0.56	0.62	0.24	0.52	0.44		0.58	0.50	0.39
Control Delay (s/veh)	57.1	38.1		61.1	47.9	13.3	62.2	28.5		63.3	29.5	12.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	57.1	38.1		61.1	47.9	13.3	62.2	28.5		63.3	29.5	12.6
LOS	E	D		E	D	B	E	C		E	C	B
Approach Delay (s/veh)		46.3			44.5			33.1			29.1	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	105	115		64	190	32	55	186		68	235	123
Queue Length 95th (ft)	145	158		97	245	80	89	239		107	301	196

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		1652			575			963			1090	
Turn Bay Length (ft)	255			250		385	244			255		260
Base Capacity (vph)	440	833		297	875	592	289	2185		304	2307	971
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.60	0.42		0.54	0.56	0.23	0.47	0.40		0.56	0.46	0.39

Intersection Summary			
Area Type:	Other		
Cycle Length: 125			
Actuated Cycle Length: 125			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay (s/veh): 35.7		Intersection LOS: D	
Intersection Capacity Utilization 60.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Renwick Road & Weber Road

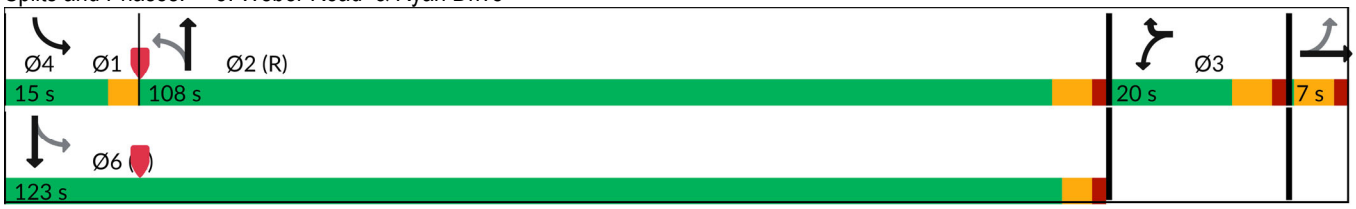


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	35	0	49	0	936	25	57	1209	0
Future Volume (vph)	0	0	0	35	0	49	0	936	25	57	1209	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	315		0
Storage Lanes	0		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			125		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.91	0.91
Frt						0.850		0.996				
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	1900	0	1805	0	1583	0	4926	0	1805	4803	0
Flt Permitted				0.950						0.252		
Satd. Flow (perm)	0	1900	0	1805	0	1583	0	4926	0	479	4803	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						91		6				
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		487			155			1028			1043	
Travel Time (s)		11.1			3.5			15.6			15.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	5%	0%	0%	8%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	38	0	53	0	1044	0	62	1314	0
Turn Type				Prot		Prot		NA		pm+pt	NA	
Protected Phases		4		3		3		2		1	6	
Permitted Phases	4						2			6		
Detector Phase	4	4		3		3	2	2		1	6	
Switch Phase												
Minimum Initial (s)	1.0	1.0		5.0		5.0	15.0	15.0		3.0	15.0	
Minimum Split (s)	7.0	7.0		11.0		11.0	24.0	24.0		11.5	23.0	
Total Split (s)	7.0	7.0		20.0		20.0	108.0	108.0		15.0	123.0	
Total Split (%)	4.7%	4.7%		13.3%		13.3%	72.0%	72.0%		10.0%	82.0%	
Yellow Time (s)	4.5	4.5		4.5		4.5	4.5	4.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5		1.5	1.5	1.5		0.0	1.5	
Lost Time Adjust (s)		0.0		0.0		0.0		0.0		0.0	0.0	
Total Lost Time (s)		6.0		6.0		6.0		6.0		3.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None		None	C-Min	C-Min		None	C-Min	
Act Effct Green (s)				8.6		8.6		125.1		134.2	133.7	
Actuated g/C Ratio				0.06		0.06		0.83		0.89	0.89	
v/c Ratio				0.37		0.30		0.25		0.13	0.31	
Control Delay (s/veh)				77.3		6.3		3.7		1.8	1.8	
Queue Delay				0.0		0.0		0.0		0.0	0.0	
Total Delay (s/veh)				77.3		6.3		3.7		1.8	1.8	
LOS				E		A		A		A	A	
Approach Delay (s/veh)					36.0			3.7			1.8	
Approach LOS					D			A			A	
Queue Length 50th (ft)				37		0		80		5	62	
Queue Length 95th (ft)				76		9		108		13	87	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		407			75			948			963	
Turn Bay Length (ft)										315		
Base Capacity (vph)				168		230		4109		530	4282	
Starvation Cap Reductn				0		0		0		0	0	
Spillback Cap Reductn				0		0		0		0	0	
Storage Cap Reductn				0		0		0		0	0	
Reduced v/c Ratio				0.23		0.23		0.25		0.12	0.31	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.37			
Intersection Signal Delay (s/veh): 3.8		Intersection LOS: A	
Intersection Capacity Utilization 57.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 5: Weber Road & Ryan Drive



Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	485	14	0	776	0	9
Future Vol, veh/h	485	14	0	776	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	8	7	0	6	0	11
Mvmt Flow	522	15	0	834	0	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	268
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.32
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	4.01
Pot Cap-1 Maneuver	-	-	0	-	0	602
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	602
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	11.08
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	602	-	-	-
HCM Lane V/C Ratio	0.016	-	-	-
HCM Ctrl Dly (s/v)	11.1	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	478	16	15	759	17	13
Future Vol, veh/h	478	16	15	759	17	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	285	-	0	25
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	0	0	4	0	0
Mvmt Flow	525	18	16	834	19	14

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	543	0	975	263
Stage 1	-	-	-	-	525	-
Stage 2	-	-	-	-	450	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1036	-	252	742
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	615	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1036	-	248	742
Mov Cap-2 Maneuver	-	-	-	-	379	-
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	605	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.17	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	379	742	-	-	1036	-
HCM Lane V/C Ratio	0.049	0.019	-	-	0.016	-
HCM Ctrl Dly (s/v)	15	9.9	-	-	8.5	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	459	32	46	754	20	22
Future Vol, veh/h	459	32	46	754	20	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	240	120	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	9	0	0	5	0	0
Mvmt Flow	494	34	49	811	22	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	528	0	1403	494
Stage 1	-	-	-	-	494	-
Stage 2	-	-	-	-	910	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1049	-	156	580
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	396	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1049	-	148	580
Mov Cap-2 Maneuver	-	-	-	-	276	-
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	377	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.49	15.74
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	380	-	-	1049	-
HCM Lane V/C Ratio	0.119	-	-	0.047	-
HCM Ctrl Dly (s/v)	15.7	-	-	8.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	28	54	0	84	0	7
Future Vol, veh/h	28	54	0	84	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	37	71	0	111	0	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	72
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	995
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	995
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	8.65
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	995	-	-	-
HCM Lane V/C Ratio	0.009	-	-	-
HCM Ctrl Dly (s/v)	8.7	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	15	0	0	9	0
Future Vol, veh/h	0	15	0	0	9	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	11	0
Mvmt Flow	0	20	0	0	12	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	20	0	11	10
Stage 1	-	-	-	-	10	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.1	-	6.51	6.2
Critical Hdwy Stg 1	-	-	-	-	5.51	-
Critical Hdwy Stg 2	-	-	-	-	5.51	-
Follow-up Hdwy	-	-	2.2	-	3.599	3.3
Pot Cap-1 Maneuver	-	-	1609	-	986	1077
Stage 1	-	-	-	-	990	-
Stage 2	-	-	-	-	999	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1609	-	986	1077
Mov Cap-2 Maneuver	-	-	-	-	986	-
Stage 1	-	-	-	-	990	-
Stage 2	-	-	-	-	999	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	986	-	-	1609	-
HCM Lane V/C Ratio	0.012	-	-	-	-
HCM Ctrl Dly (s/v)	8.7	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	7	29	0	36	10	923	45	43	1192	9
Future Vol, veh/h	2	0	7	29	0	36	10	923	45	43	1192	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	125	-	85	130	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	3	0	4	7	2	8	0
Mvmt Flow	2	0	7	31	0	38	11	982	48	46	1268	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1877	2415	639	1729	2372	491	1278	0	0	1030	0	0
Stage 1	1364	1364	-	1003	1003	-	-	-	-	-	-	-
Stage 2	512	1051	-	726	1369	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.96	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.33	2.2	-	-	2.22	-	-
Pot Cap-1 Maneuver	45	33	424	58	35	521	550	-	-	670	-	-
Stage 1	158	217	-	263	322	-	-	-	-	-	-	-
Stage 2	518	306	-	387	216	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	38	30	424	52	32	521	550	-	-	670	-	-
Mov Cap-2 Maneuver	112	117	-	158	122	-	-	-	-	-	-	-
Stage 1	147	203	-	258	316	-	-	-	-	-	-	-
Stage 2	471	300	-	354	202	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	19.24	24.1	0.12	0.37
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	550	-	-	262	257	670	-	-
HCM Lane V/C Ratio	0.019	-	-	0.036	0.269	0.068	-	-
HCM Ctrl Dly (s/v)	11.7	-	-	19.2	24.1	10.8	-	-
HCM Lane LOS	B	-	-	C	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	1.1	0.2	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	88	40	0	0	25
Future Vol, veh/h	0	88	40	0	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	5	8	5	0	0	0
Mvmt Flow	0	99	45	0	0	28

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	45
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	1031
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	1031
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	8.59
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	1031
HCM Lane V/C Ratio	-	-	-	0.027
HCM Ctrl Dly (s/v)	-	-	-	8.6
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	61	33	4	7	7
Future Vol, veh/h	27	61	33	4	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	3	3	0	0	14
Mvmt Flow	29	66	36	4	8	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	40	0	-	0	163	38
Stage 1	-	-	-	-	38	-
Stage 2	-	-	-	-	125	-
Critical Hdwy	4.1	-	-	-	6.4	6.34
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.426
Pot Cap-1 Maneuver	1582	-	-	-	832	1001
Stage 1	-	-	-	-	990	-
Stage 2	-	-	-	-	906	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1582	-	-	-	816	1001
Mov Cap-2 Maneuver	-	-	-	-	816	-
Stage 1	-	-	-	-	971	-
Stage 2	-	-	-	-	906	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	2.25	0	9.07
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	552	-	-	-	899
HCM Lane V/C Ratio	0.019	-	-	-	0.017
HCM Ctrl Dly (s/v)	7.3	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Capacity Analysis Summary Sheets

Year 2032 No-Build Weekday Morning Peak Hour

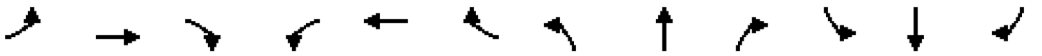
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	2	4	0	10	7	1	1	0	1	2	88
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	131	0	0	17	0	0	2	0	0	91	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.94	0.85	0.95	0.98	0.85	0.95	0.85	0.85
Saturated Flow (vph)	0	1801	0	0	1783	0	0	1853	0	0	1624	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	124		0	1783		0	255		0	1624	
Reference Time A (s)	0.0	127.0		0.0	1.1		0.0	0.9		0.0	6.7	
Adj Saturation B (vph	0	0		0	1783		0	0		0	0	
Reference Time B (s)	16.3	16.7		0.0	1.1		8.1	8.1		8.1	14.7	
Reference Time (s)		16.7			1.1			0.9			6.7	
Adj Reference Time (s)		20.7			8.0			8.0			10.7	
Split Option												
Ref Time Combined (s)	0.0	8.7		0.0	1.1		0.0	0.1		0.0	6.7	
Ref Time Seperate (s)	8.3	0.1		0.0	0.7		0.1	0.1		0.1	0.1	
Reference Time (s)	8.7	8.7		1.1	1.1		0.1	0.1		6.7	6.7	
Adj Reference Time (s)	12.7	12.7		8.0	8.0		8.0	8.0		10.7	10.7	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	20.7	10.7	
Split Option (s)	20.7	18.7	
Minimum (s)	20.7	10.7	31.5

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	26.2%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	267	426	59	72	265	105	63	873	80	178	726	116
Future Volume (vph)	267	426	59	72	265	105	63	873	80	178	726	116
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	255		0	250		385	244		0	255		260
Storage Lanes	2		0	2		1	2		0	2		1
Taper Length (ft)	260			260			260			255		
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	0.97	0.91	0.91	0.97	0.91	1.00
Frt		0.982				0.850		0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3352	0	2870	3519	1357	3303	4799	0	3242	5250	1524
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3352	0	2870	3519	1357	3303	4799	0	3242	5250	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				65		15				125
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1732			655			1043			1170	
Travel Time (s)		26.2			9.9			15.8			17.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	6%	4%	22%	8%	19%	6%	6%	14%	8%	4%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	287	521	0	77	285	113	68	1025	0	191	781	125
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8						6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	15.0		3.0	15.0	3.0
Minimum Split (s)	9.5	22.5		9.5	22.5	9.5	9.5	22.5		9.5	22.5	9.5
Total Split (s)	15.0	35.0		15.0	35.0	15.0	15.0	60.0		15.0	60.0	15.0
Total Split (%)	12.0%	28.0%		12.0%	28.0%	12.0%	12.0%	48.0%		12.0%	48.0%	12.0%
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	1.0	1.5		1.0	1.5	1.0	1.0	1.5		1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0	4.5	4.5	6.0		4.5	6.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	None
Act Effct Green (s)	17.2	31.9		8.7	21.2	39.1	8.0	53.7		11.8	59.6	82.9
Actuated g/C Ratio	0.14	0.26		0.07	0.17	0.31	0.06	0.43		0.09	0.48	0.66
v/c Ratio	0.61	0.60		0.39	0.48	0.24	0.32	0.50		0.62	0.31	0.12
Control Delay (s/veh)	56.5	43.5		60.6	48.8	14.6	59.5	27.5		63.7	22.1	2.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	56.5	43.5		60.6	48.8	14.6	59.5	27.5		63.7	22.1	2.2
LOS	E	D		E	D	B	E	C		E	C	A
Approach Delay (s/veh)		48.1			42.5			29.5			27.1	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	113	196		31	111	27	27	217		77	144	0
Queue Length 95th (ft)	160	245		56	146	69	51	283		118	202	26

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		1652			575			963			1090	
Turn Bay Length (ft)	255			250		385	244			255		260
Base Capacity (vph)	473	873		245	816	471	277	2189		313	2564	1052
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.61	0.60		0.31	0.35	0.24	0.25	0.47		0.61	0.30	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 125			
Actuated Cycle Length: 125			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay (s/veh): 34.9		Intersection LOS: C	
Intersection Capacity Utilization 61.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Renwick Road & Weber Road

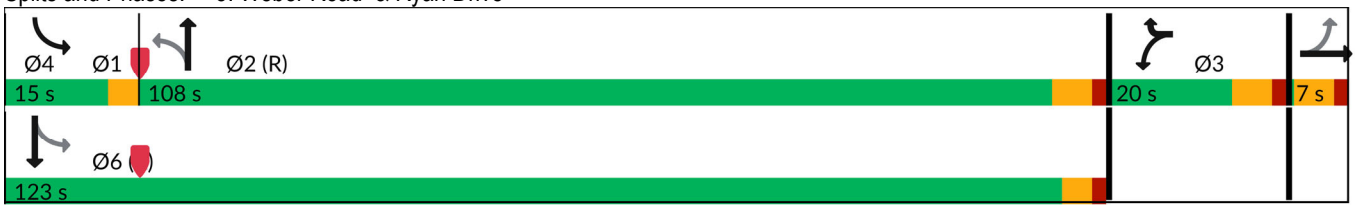


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	56	0	43	0	972	98	43	814	0
Future Volume (vph)	0	0	0	56	0	43	0	972	98	43	814	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	315		0
Storage Lanes	0		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			125		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.91	0.91
Frt						0.850		0.986				
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	1900	0	1805	0	1615	0	4809	0	1805	4940	0
Flt Permitted				0.950						0.225		
Satd. Flow (perm)	0	1900	0	1805	0	1615	0	4809	0	428	4940	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						91		25				
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		487			155			1028			1043	
Travel Time (s)		11.1			3.5			15.6			15.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	60	0	46	0	1138	0	46	866	0
Turn Type				Prot		Prot		NA		pm+pt	NA	
Protected Phases		4		3		3		2		1	6	
Permitted Phases	4						2			6		
Detector Phase	4	4		3		3	2	2		1	6	
Switch Phase												
Minimum Initial (s)	1.0	1.0		5.0		5.0	15.0	15.0		3.0	15.0	
Minimum Split (s)	7.0	7.0		11.0		11.0	24.0	24.0		11.5	23.0	
Total Split (s)	7.0	7.0		20.0		20.0	108.0	108.0		15.0	123.0	
Total Split (%)	4.7%	4.7%		13.3%		13.3%	72.0%	72.0%		10.0%	82.0%	
Yellow Time (s)	4.5	4.5		4.5		4.5	4.5	4.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5		1.5	1.5	1.5		0.0	1.5	
Lost Time Adjust (s)		0.0		0.0		0.0		0.0		0.0	0.0	
Total Lost Time (s)		6.0		6.0		6.0		6.0		3.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None		None	C-Min	C-Min		None	C-Min	
Act Effct Green (s)				10.3		10.3		123.6		132.6	132.1	
Actuated g/C Ratio				0.07		0.07		0.82		0.88	0.88	
v/c Ratio				0.48		0.24		0.29		0.11	0.20	
Control Delay (s/veh)				79.5		2.8		4.2		2.1	1.9	
Queue Delay				0.0		0.0		0.0		0.0	0.0	
Total Delay (s/veh)				79.5		2.8		4.2		2.1	1.9	
LOS				E		A		A		A	A	
Approach Delay (s/veh)					46.2			4.2			1.9	
Approach LOS					D			A			A	
Queue Length 50th (ft)				58		0		95		5	41	
Queue Length 95th (ft)				106		0		130		12	61	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		407			75			948			963	
Turn Bay Length (ft)										315		
Base Capacity (vph)				169		234		3967		484	4351	
Starvation Cap Reductn				0		0		0		0	0	
Spillback Cap Reductn				0		0		0		0	0	
Storage Cap Reductn				0		0		0		0	0	
Reduced v/c Ratio				0.36		0.20		0.29		0.10	0.20	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.48			
Intersection Signal Delay (s/veh): 5.3		Intersection LOS: A	
Intersection Capacity Utilization 46.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Weber Road & Ryan Drive



Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	640	44	0	442	0	14
Future Vol, veh/h	640	44	0	442	0	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	0	0	11	0	25
Mvmt Flow	674	46	0	465	0	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	360
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.6
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	4.15
Pot Cap-1 Maneuver	-	-	0	-	0	496
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	496
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	12.49
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	496	-	-	-
HCM Lane V/C Ratio	0.03	-	-	-
HCM Ctrl Dly (s/v)	12.5	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	637	17	41	419	22	13
Future Vol, veh/h	637	17	41	419	22	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	285	-	0	25
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	0	0	10	0	11
Mvmt Flow	685	18	44	451	24	14

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	703	0	998	342
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	313	-
Critical Hdwy	-	-	4.1	-	6.8	7.12
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.41
Pot Cap-1 Maneuver	-	-	904	-	244	628
Stage 1	-	-	-	-	467	-
Stage 2	-	-	-	-	720	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	904	-	232	628
Mov Cap-2 Maneuver	-	-	-	-	353	-
Stage 1	-	-	-	-	467	-
Stage 2	-	-	-	-	685	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.82	14.05
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	353	628	-	-	904	-
HCM Lane V/C Ratio	0.067	0.022	-	-	0.049	-
HCM Ctrl Dly (s/v)	15.9	10.9	-	-	9.2	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	637	14	15	441	19	48
Future Vol, veh/h	637	14	15	441	19	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	240	120	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	0	0	12	0	0
Mvmt Flow	685	15	16	474	20	52

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	700	0	1191	685
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	506	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	906	-	209	452
Stage 1	-	-	-	-	504	-
Stage 2	-	-	-	-	609	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	906	-	205	452
Mov Cap-2 Maneuver	-	-	-	-	342	-
Stage 1	-	-	-	-	504	-
Stage 2	-	-	-	-	598	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.3	15.52
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	414	-	-	906	-
HCM Lane V/C Ratio	0.174	-	-	0.018	-
HCM Ctrl Dly (s/v)	15.5	-	-	9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	131	9	0	100	0	0
Future Vol, veh/h	131	9	0	100	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	196	13	0	149	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	202
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	844
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	844
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Int Delay, s/veh	7.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	3	0	0	18	0
Future Vol, veh/h	0	3	0	0	18	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	56	56	56	56	56
Heavy Vehicles, %	0	0	0	0	6	0
Mvmt Flow	0	5	0	0	32	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	5	0	4	3
Stage 1	-	-	-	-	3	-
Stage 2	-	-	-	-	2	-
Critical Hdwy	-	-	4.1	-	6.46	6.2
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	-	-	2.2	-	3.554	3.3
Pot Cap-1 Maneuver	-	-	1629	-	1007	1087
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	1011	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1629	-	1007	1087
Mov Cap-2 Maneuver	-	-	-	-	1007	-
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	1011	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	8.69
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1007	-	-	1629	-
HCM Lane V/C Ratio	0.032	-	-	-	-
HCM Ctrl Dly (s/v)	8.7	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	7	17	0	24	3	1045	19	19	850	2
Future Vol, veh/h	1	0	7	17	0	24	3	1045	19	19	850	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	125	-	85	130	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	9	0	7	12	6	5	0
Mvmt Flow	1	0	7	18	0	25	3	1089	20	20	885	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1477	2041	444	1577	2022	544	888	0	0	1108	0	0
Stage 1	926	926	-	1095	1095	-	-	-	-	-	-	-
Stage 2	551	1115	-	482	927	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	7.08	4.1	-	-	4.22	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.39	2.2	-	-	2.26	-	-
Pot Cap-1 Maneuver	89	57	567	75	59	465	772	-	-	603	-	-
Stage 1	293	350	-	232	292	-	-	-	-	-	-	-
Stage 2	492	286	-	539	350	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	81	55	567	72	57	465	772	-	-	603	-	-
Mov Cap-2 Maneuver	193	160	-	172	168	-	-	-	-	-	-	-
Stage 1	283	339	-	231	291	-	-	-	-	-	-	-
Stage 2	463	285	-	515	338	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.04	20.65	0.03	0.24
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	772	-	-	456	273	603	-	-
HCM Lane V/C Ratio	0.004	-	-	0.018	0.157	0.033	-	-
HCM Ctrl Dly (s/v)	9.7	-	-	13	20.6	11.2	-	-
HCM Lane LOS	A	-	-	B	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0.1	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	37	33	0	0	7
Future Vol, veh/h	0	37	33	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	12	7	0	0	0
Mvmt Flow	0	46	41	0	0	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	41
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	1035
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	1035
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	8.51
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	1035
HCM Lane V/C Ratio	-	-	-	0.008
HCM Ctrl Dly (s/v)	-	-	-	8.5
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	20	33	1	0	0
Future Vol, veh/h	18	20	33	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	0	16	6	0	0	0
Mvmt Flow	24	27	45	1	0	0

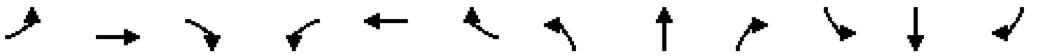
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	46	0	-	0	121	45
Stage 1	-	-	-	-	45	-
Stage 2	-	-	-	-	76	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1575	-	-	-	879	1030
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	952	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1575	-	-	-	866	1030
Mov Cap-2 Maneuver	-	-	-	-	866	-
Stage 1	-	-	-	-	967	-
Stage 2	-	-	-	-	952	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	3.47	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	853	-	-	-	-
HCM Lane V/C Ratio	0.015	-	-	-	-
HCM Ctrl Dly (s/v)	7.3	0	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Capacity Analysis Summary Sheets

Year 2032 No-Build Weekday Evening Peak Hour



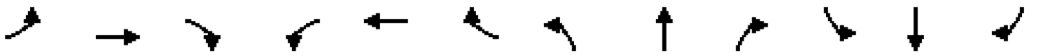
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	131	9	6	0	5	4	49	1	1	5	9	175
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	146	0	0	9	0	0	51	0	0	189	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.93	0.85	0.95	0.95	0.85	0.95	0.86	0.85
Saturated Flow (vph)	0	1804	0	0	1773	0	0	1803	0	0	1634	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	129		0	1773		0	173		0	1655	
Reference Time A (s)	0.0	135.5		0.0	0.6		0.0	35.3		0.0	13.7	
Adj Saturation B (vph	0	0		0	1773		NA	NA		0	0	
Reference Time B (s)	16.7	17.7		0.0	0.6		NA	NA		8.3	21.9	
Reference Time (s)		17.7			0.6			35.3			13.7	
Adj Reference Time (s)		21.7			8.0			39.3			17.7	
Split Option												
Ref Time Combined (s)	0.0	9.7		0.0	0.6		0.0	3.4		0.0	13.9	
Ref Time Seperate (s)	8.7	0.6		0.0	0.3		3.3	0.1		0.3	0.7	
Reference Time (s)	9.7	9.7		0.6	0.6		3.4	3.4		13.9	13.9	
Adj Reference Time (s)	13.7	13.7		8.0	8.0		8.0	8.0		17.9	17.9	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	21.7	39.3	
Split Option (s)	21.7	25.9	
Minimum (s)	21.7	25.9	47.6

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	39.7%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

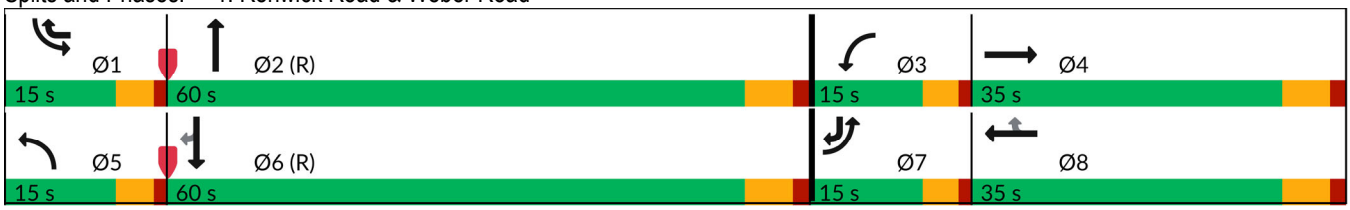


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	269	293	79	162	507	154	154	865	63	205	1106	384
Future Volume (vph)	269	293	79	162	507	154	154	865	63	205	1106	384
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	255		0	250		385	244		0	255		260
Storage Lanes	2		0	2		1	2		0	2		1
Taper Length (ft)	260			260			260			255		
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	0.97	0.91	0.91	0.97	0.91	1.00
Frt		0.968				0.850		0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3215	0	3019	3725	1538	3367	4905	0	3400	5151	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3215	0	3019	3725	1538	3367	4905	0	3400	5151	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26				65		11				65
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1732			655			1043			1170	
Travel Time (s)		26.2			9.9			15.8			17.7	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	7%	15%	16%	2%	5%	4%	3%	28%	3%	6%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	274	380	0	165	517	157	157	947	0	209	1129	392
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8						6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	15.0		3.0	15.0	3.0
Minimum Split (s)	9.5	22.5		9.5	22.5	9.5	9.5	22.5		9.5	22.5	9.5
Total Split (s)	15.0	35.0		15.0	35.0	15.0	15.0	60.0		15.0	60.0	15.0
Total Split (%)	12.0%	28.0%		12.0%	28.0%	12.0%	12.0%	48.0%		12.0%	48.0%	12.0%
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	1.0	1.5		1.0	1.5	1.0	1.0	1.5		1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0	4.5	4.5	6.0		4.5	6.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	None
Act Effct Green (s)	16.1	31.3		12.1	27.3	44.5	10.0	49.5		11.1	50.6	72.7
Actuated g/C Ratio	0.13	0.25		0.10	0.22	0.36	0.08	0.40		0.09	0.40	0.58
v/c Ratio	0.62	0.46		0.57	0.64	0.27	0.58	0.49		0.69	0.54	0.41
Control Delay (s/veh)	58.1	38.7		61.2	47.9	17.0	64.5	29.6		67.7	30.4	13.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	58.1	38.7		61.2	47.9	17.0	64.5	29.6		67.7	30.4	13.9
LOS	E	D		E	D	B	E	C		E	C	B
Approach Delay (s/veh)		46.8			44.7			34.6			31.1	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	108	125		67	198	48	63	217		84	263	142
Queue Length 95th (ft)	157	182		101	257	103	101	249		#138	305	216

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		1652			575			963			1090	
Turn Bay Length (ft)	255			250		385	244			255		260
Base Capacity (vph)	441	836		301	880	591	286	2166		307	2281	956
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.62	0.45		0.55	0.59	0.27	0.55	0.44		0.68	0.49	0.41

Intersection Summary			
Area Type:	Other		
Cycle Length: 125			
Actuated Cycle Length: 125			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay (s/veh): 37.0		Intersection LOS: D	
Intersection Capacity Utilization 63.2%		ICU Level of Service B	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Renwick Road & Weber Road



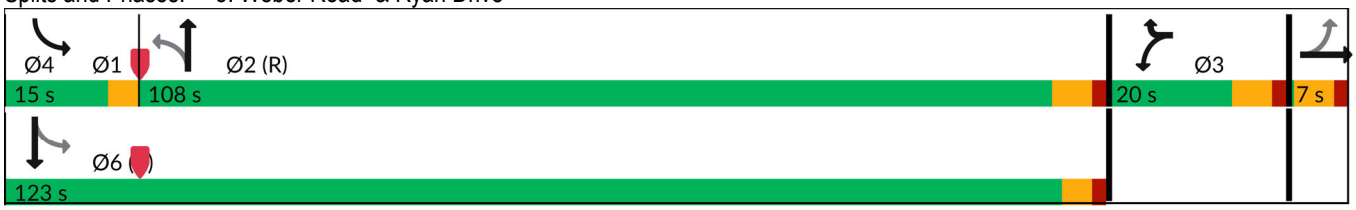
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	120	0	109	0	973	106	89	1257	0
Future Volume (vph)	0	0	0	120	0	109	0	973	106	89	1257	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	315		0
Storage Lanes	0		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			125		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.91	0.91
Frt						0.850		0.985				
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	1900	0	1805	0	1583	0	4889	0	1805	4803	0
Flt Permitted				0.950						0.211		
Satd. Flow (perm)	0	1900	0	1805	0	1583	0	4889	0	401	4803	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						118		27				
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		487			155			1028			1043	
Travel Time (s)		11.1			3.5			15.6			15.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	5%	0%	0%	8%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	130	0	118	0	1173	0	97	1366	0
Turn Type				Prot		Prot		NA		pm+pt	NA	
Protected Phases		4		3		3		2		1	6	
Permitted Phases	4						2			6		
Detector Phase	4	4		3		3	2	2		1	6	
Switch Phase												
Minimum Initial (s)	1.0	1.0		5.0		5.0	15.0	15.0		3.0	15.0	
Minimum Split (s)	7.0	7.0		11.0		11.0	24.0	24.0		11.5	23.0	
Total Split (s)	7.0	7.0		20.0		20.0	108.0	108.0		15.0	123.0	
Total Split (%)	4.7%	4.7%		13.3%		13.3%	72.0%	72.0%		10.0%	82.0%	
Yellow Time (s)	4.5	4.5		4.5		4.5	4.5	4.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5		1.5	1.5	1.5		0.0	1.5	
Lost Time Adjust (s)		0.0		0.0		0.0		0.0		0.0	0.0	
Total Lost Time (s)		6.0		6.0		6.0		6.0		3.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None		None	C-Min	C-Min		None	C-Min	
Act Effct Green (s)				15.0		15.0		112.6		125.5	124.0	
Actuated g/C Ratio				0.10		0.10		0.75		0.84	0.83	
v/c Ratio				0.72		0.45		0.32		0.24	0.34	
Control Delay (s/veh)				86.8		15.6		6.4		3.7	3.5	
Queue Delay				0.0		0.0		0.0		0.0	0.0	
Total Delay (s/veh)				86.8		15.6		6.4		3.7	3.5	
LOS				F		B		A		A	A	
Approach Delay (s/veh)					52.9			6.4			3.5	
Approach LOS					D			A			A	
Queue Length 50th (ft)				124		0		126		14	105	
Queue Length 95th (ft)				#235		63		137		21	105	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		407			75			948			963	
Turn Bay Length (ft)										315		
Base Capacity (vph)				188		270		3676		443	3969	
Starvation Cap Reductn				0		0		0		0	0	
Spillback Cap Reductn				0		0		0		0	0	
Storage Cap Reductn				0		0		0		0	0	
Reduced v/c Ratio				0.69		0.44		0.32		0.22	0.34	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay (s/veh): 8.9		Intersection LOS: A	
Intersection Capacity Utilization 64.6%		ICU Level of Service C	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Weber Road & Ryan Drive



Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	504	57	0	824	0	26
Future Vol, veh/h	504	57	0	824	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	8	7	0	6	0	11
Mvmt Flow	542	61	0	886	0	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	302
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.32
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	4.01
Pot Cap-1 Maneuver	-	-	0	-	0	572
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	572
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	11.61
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	572	-	-	-
HCM Lane V/C Ratio	0.049	-	-	-
HCM Ctrl Dly (s/v)	11.6	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	514	17	42	789	35	23
Future Vol, veh/h	514	17	42	789	35	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	285	-	0	25
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	0	0	4	0	0
Mvmt Flow	565	19	46	867	38	25

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	584	0	1091	282
Stage 1	-	-	-	-	565	-
Stage 2	-	-	-	-	526	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1001	-	213	721
Stage 1	-	-	-	-	538	-
Stage 2	-	-	-	-	563	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1001	-	203	721
Mov Cap-2 Maneuver	-	-	-	-	338	-
Stage 1	-	-	-	-	538	-
Stage 2	-	-	-	-	537	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.44	14.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	338	721	-	-	1001	-
HCM Lane V/C Ratio	0.114	0.035	-	-	0.046	-
HCM Ctrl Dly (s/v)	17	10.2	-	-	8.8	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	503	33	48	810	21	23
Future Vol, veh/h	503	33	48	810	21	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	240	120	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	9	0	0	5	0	0
Mvmt Flow	541	35	52	871	23	25

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	576	0	1515	541
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	974	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1007	-	133	545
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	369	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1007	-	126	545
Mov Cap-2 Maneuver	-	-	-	-	253	-
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	350	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.49	16.84
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	351	-	-	1007	-
HCM Lane V/C Ratio	0.135	-	-	0.051	-
HCM Ctrl Dly (s/v)	16.8	-	-	8.8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	139	56	0	229	0	7
Future Vol, veh/h	139	56	0	229	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	183	74	0	301	0	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	220
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	825
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	825
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	9.41
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	825	-	-	-
HCM Lane V/C Ratio	0.011	-	-	-
HCM Ctrl Dly (s/v)	9.4	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	16	0	0	9	0
Future Vol, veh/h	0	16	0	0	9	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	11	0
Mvmt Flow	0	21	0	0	12	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	21	0	12	11
Stage 1	-	-	-	-	11	-
Stage 2	-	-	-	-	1	-
Critical Hdwy	-	-	4.1	-	6.51	6.2
Critical Hdwy Stg 1	-	-	-	-	5.51	-
Critical Hdwy Stg 2	-	-	-	-	5.51	-
Follow-up Hdwy	-	-	2.2	-	3.599	3.3
Pot Cap-1 Maneuver	-	-	1608	-	985	1076
Stage 1	-	-	-	-	989	-
Stage 2	-	-	-	-	999	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1608	-	985	1076
Mov Cap-2 Maneuver	-	-	-	-	985	-
Stage 1	-	-	-	-	989	-
Stage 2	-	-	-	-	999	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	985	-	-	1608	-
HCM Lane V/C Ratio	0.012	-	-	-	-
HCM Ctrl Dly (s/v)	8.7	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	7	30	0	37	10	1040	47	45	1324	9
Future Vol, veh/h	2	0	7	30	0	37	10	1040	47	45	1324	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	125	-	85	130	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	3	0	4	7	2	8	0
Mvmt Flow	2	0	7	32	0	39	11	1106	50	48	1409	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2084	2687	709	1928	2641	553	1418	0	0	1156	0	0
Stage 1	1509	1509	-	1128	1128	-	-	-	-	-	-	-
Stage 2	574	1178	-	800	1514	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.96	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.33	2.2	-	-	2.22	-	-
Pot Cap-1 Maneuver	31	22	381	41	24	474	487	-	-	600	-	-
Stage 1	129	185	-	221	282	-	-	-	-	-	-	-
Stage 2	476	267	-	349	184	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	26	20	381	36	21	474	487	-	-	600	-	-
Mov Cap-2 Maneuver	90	95	-	131	101	-	-	-	-	-	-	-
Stage 1	118	170	-	216	276	-	-	-	-	-	-	-
Stage 2	427	261	-	315	169	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	21.92	29.23	0.11	0.38
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	487	-	-	222	219	600	-	-
HCM Lane V/C Ratio	0.022	-	-	0.043	0.326	0.08	-	-
HCM Ctrl Dly (s/v)	12.6	-	-	21.9	29.2	11.5	-	-
HCM Lane LOS	B	-	-	C	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	1.4	0.3	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	92	42	0	0	26
Future Vol, veh/h	0	92	42	0	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	5	8	5	0	0	0
Mvmt Flow	0	103	47	0	0	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	47
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	1028
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	1028
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	8.61
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	1028
HCM Lane V/C Ratio	-	-	-	0.028
HCM Ctrl Dly (s/v)	-	-	-	8.6
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	63	34	4	7	7
Future Vol, veh/h	28	63	34	4	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	3	3	0	0	14
Mvmt Flow	30	68	37	4	8	8

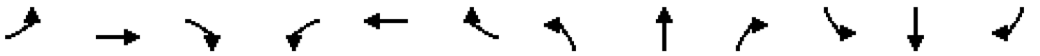
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	41	0	-	0	168	39
Stage 1	-	-	-	-	39	-
Stage 2	-	-	-	-	129	-
Critical Hdwy	4.1	-	-	-	6.4	6.34
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.426
Pot Cap-1 Maneuver	1581	-	-	-	826	999
Stage 1	-	-	-	-	989	-
Stage 2	-	-	-	-	902	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1581	-	-	-	810	999
Mov Cap-2 Maneuver	-	-	-	-	810	-
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	902	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	2.25	0	9.09
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	554	-	-	-	895
HCM Lane V/C Ratio	0.019	-	-	-	0.017
HCM Ctrl Dly (s/v)	7.3	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Capacity Analysis Summary Sheets

Year 2032 Total Projected Weekday Morning Peak Hour



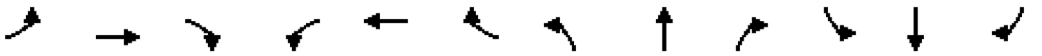
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	129	12	4	0	40	7	1	1	0	1	2	103
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	145	0	0	47	0	0	2	0	0	106	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.98	0.85	0.95	0.98	0.85	0.95	0.85	0.85
Saturated Flow (vph)	0	1808	0	0	1858	0	0	1853	0	0	1622	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	130		0	1858		0	249		0	1623	
Reference Time A (s)	0.0	133.5		0.0	3.0		0.0	1.0		0.0	7.8	
Adj Saturation B (vph	0	0		0	1858		0	0		0	0	
Reference Time B (s)	16.6	17.6		0.0	3.0		8.1	8.1		8.1	15.8	
Reference Time (s)		17.6			3.0			1.0			7.8	
Adj Reference Time (s)		21.6			8.0			8.0			11.8	
Split Option												
Ref Time Combined (s)	0.0	9.6		0.0	3.0		0.0	0.1		0.0	7.8	
Ref Time Seperate (s)	8.6	0.8		0.0	2.6		0.1	0.1		0.1	0.1	
Reference Time (s)	9.6	9.6		3.0	3.0		0.1	0.1		7.8	7.8	
Adj Reference Time (s)	13.6	13.6		8.0	8.0		8.0	8.0		11.8	11.8	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	21.6	11.8	
Split Option (s)	21.6	19.8	
Minimum (s)	21.6	11.8	33.5

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	27.9%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

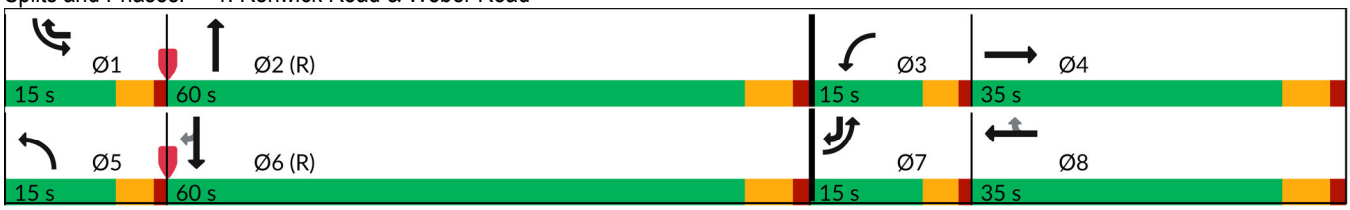


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	267	428	60	72	269	123	67	891	80	183	732	116
Future Volume (vph)	267	428	60	72	269	123	67	891	80	183	732	116
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	255		0	250		385	244		0	255		260
Storage Lanes	2		0	2		1	2		0	2		1
Taper Length (ft)	260			260			260			255		
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	0.97	0.91	0.91	0.97	0.91	1.00
Frt		0.981				0.850		0.988				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3349	0	2870	3519	1357	3303	4805	0	3242	5250	1524
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3349	0	2870	3519	1357	3303	4805	0	3242	5250	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				65		15				125
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1732			655			1043			1170	
Travel Time (s)		26.2			9.9			15.8			17.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	6%	4%	22%	8%	19%	6%	6%	14%	8%	4%	6%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	287	525	0	77	289	132	72	1044	0	197	787	125
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8						6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	15.0		3.0	15.0	3.0
Minimum Split (s)	9.5	22.5		9.5	22.5	9.5	9.5	22.5		9.5	22.5	9.5
Total Split (s)	15.0	35.0		15.0	35.0	15.0	15.0	60.0		15.0	60.0	15.0
Total Split (%)	12.0%	28.0%		12.0%	28.0%	12.0%	12.0%	48.0%		12.0%	48.0%	12.0%
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	1.0	1.5		1.0	1.5	1.0	1.0	1.5		1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0	4.5	4.5	6.0		4.5	6.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	None
Act Effct Green (s)	17.0	32.0		8.7	21.6	39.5	8.1	53.6		11.8	59.4	82.4
Actuated g/C Ratio	0.14	0.26		0.07	0.17	0.32	0.06	0.43		0.09	0.48	0.66
v/c Ratio	0.62	0.61		0.39	0.48	0.28	0.34	0.50		0.64	0.32	0.12
Control Delay (s/veh)	57.2	43.4		60.6	48.3	16.7	59.6	27.7		64.6	22.3	2.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	57.2	43.4		60.6	48.3	16.7	59.6	27.7		64.6	22.3	2.3
LOS	E	D		E	D	B	E	C		E	C	A
Approach Delay (s/veh)		48.3			41.9			29.7			27.6	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	113	197		31	112	38	29	223		79	145	0
Queue Length 95th (ft)	162	246		56	146	84	53	284		#132	204	27

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		1652			575			963			1090	
Turn Bay Length (ft)	255			250		385	244			255		260
Base Capacity (vph)	465	875		245	816	475	277	2187		312	2560	1046
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.62	0.60		0.31	0.35	0.28	0.26	0.48		0.63	0.31	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 125			
Actuated Cycle Length: 125			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay (s/veh): 35.0		Intersection LOS: D	
Intersection Capacity Utilization 61.8%		ICU Level of Service B	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Renwick Road & Weber Road

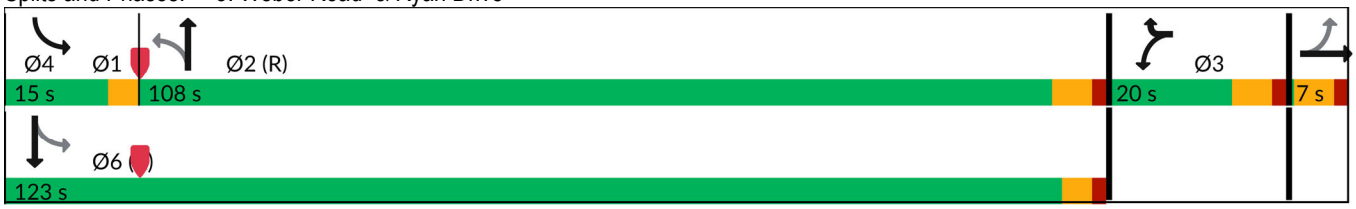


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	79	0	65	0	972	105	50	814	0
Future Volume (vph)	0	0	0	79	0	65	0	972	105	50	814	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	315		0
Storage Lanes	0		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			125		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.91	0.91
Frt						0.850		0.985				
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	1900	0	1805	0	1615	0	4806	0	1805	4940	0
Flt Permitted				0.950						0.221		
Satd. Flow (perm)	0	1900	0	1805	0	1615	0	4806	0	420	4940	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						91		27				
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		487			155			1028			1043	
Travel Time (s)		11.1			3.5			15.6			15.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	84	0	69	0	1146	0	53	866	0
Turn Type				Prot		Prot		NA		pm+pt	NA	
Protected Phases		4		3		3		2		1	6	
Permitted Phases	4						2			6		
Detector Phase	4	4		3		3	2	2		1	6	
Switch Phase												
Minimum Initial (s)	1.0	1.0		5.0		5.0	15.0	15.0		3.0	15.0	
Minimum Split (s)	7.0	7.0		11.0		11.0	24.0	24.0		11.5	23.0	
Total Split (s)	7.0	7.0		20.0		20.0	108.0	108.0		15.0	123.0	
Total Split (%)	4.7%	4.7%		13.3%		13.3%	72.0%	72.0%		10.0%	82.0%	
Yellow Time (s)	4.5	4.5		4.5		4.5	4.5	4.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5		1.5	1.5	1.5		0.0	1.5	
Lost Time Adjust (s)		0.0		0.0		0.0		0.0		0.0	0.0	
Total Lost Time (s)		6.0		6.0		6.0		6.0		3.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None		None	C-Min	C-Min		None	C-Min	
Act Effct Green (s)				12.3		12.3		117.9		128.2	126.7	
Actuated g/C Ratio				0.08		0.08		0.79		0.85	0.84	
v/c Ratio				0.57		0.32		0.30		0.13	0.21	
Control Delay (s/veh)				80.6		9.1		5.1		2.6	2.5	
Queue Delay				0.0		0.0		0.0		0.0	0.0	
Total Delay (s/veh)				80.6		9.1		5.1		2.6	2.5	
LOS				F		A		A		A	A	
Approach Delay (s/veh)					48.4			5.1			2.5	
Approach LOS					D			A			A	
Queue Length 50th (ft)				81		0		104		6	46	
Queue Length 95th (ft)				136		28		144		15	69	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		407			75			948			963	
Turn Bay Length (ft)										315		
Base Capacity (vph)				176		239		3781		465	4173	
Starvation Cap Reductn				0		0		0		0	0	
Spillback Cap Reductn				0		0		0		0	0	
Storage Cap Reductn				0		0		0		0	0	
Reduced v/c Ratio				0.48		0.29		0.30		0.11	0.21	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay (s/veh): 7.0		Intersection LOS: A	
Intersection Capacity Utilization 53.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Weber Road & Ryan Drive



Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	641	50	0	464	0	20
Future Vol, veh/h	641	50	0	464	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	0	0	11	0	25
Mvmt Flow	675	53	0	488	0	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	364
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.6
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	4.15
Pot Cap-1 Maneuver	-	-	0	-	0	493
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	493
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	12.63
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	493	-	-	-
HCM Lane V/C Ratio	0.043	-	-	-
HCM Ctrl Dly (s/v)	12.6	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	643	18	45	419	44	19
Future Vol, veh/h	643	18	45	419	44	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	285	-	0	25
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	0	0	10	0	11
Mvmt Flow	691	19	48	451	47	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	711	0	1013	346
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	322	-
Critical Hdwy	-	-	4.1	-	6.8	7.12
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.41
Pot Cap-1 Maneuver	-	-	898	-	238	625
Stage 1	-	-	-	-	464	-
Stage 2	-	-	-	-	713	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	898	-	226	625
Mov Cap-2 Maneuver	-	-	-	-	348	-
Stage 1	-	-	-	-	464	-
Stage 2	-	-	-	-	675	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.9	15.15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	348	625	-	-	898	-
HCM Lane V/C Ratio	0.136	0.033	-	-	0.054	-
HCM Ctrl Dly (s/v)	17	11	-	-	9.2	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	649	14	15	445	19	48
Future Vol, veh/h	649	14	15	445	19	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	240	120	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	0	0	12	0	0
Mvmt Flow	698	15	16	478	20	52

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	713	0	1209	698
Stage 1	-	-	-	-	698	-
Stage 2	-	-	-	-	511	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	896	-	204	444
Stage 1	-	-	-	-	497	-
Stage 2	-	-	-	-	607	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	896	-	200	444
Mov Cap-2 Maneuver	-	-	-	-	338	-
Stage 1	-	-	-	-	497	-
Stage 2	-	-	-	-	596	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.3	15.72
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	408	-	-	896	-
HCM Lane V/C Ratio	0.177	-	-	0.018	-
HCM Ctrl Dly (s/v)	15.7	-	-	9.1	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	145	9	0	145	0	0
Future Vol, veh/h	145	9	0	145	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	216	13	0	216	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	223
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	821
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	821
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	5	3	0	15	0	18	0	0	0	0	15
Future Vol, veh/h	5	5	3	0	15	0	18	0	0	0	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	56	56	56	56	92	56	92	56	92	92	92
Heavy Vehicles, %	2	0	0	0	0	2	6	2	0	2	2	2
Mvmt Flow	5	9	5	0	27	0	32	0	0	0	0	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	27	0	0	14	0	0	49	49	12	47	52	27
Stage 1	-	-	-	-	-	-	22	22	-	27	27	-
Stage 2	-	-	-	-	-	-	27	27	-	20	25	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.16	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.554	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1587	-	-	1617	-	-	941	842	1075	955	839	1049
Stage 1	-	-	-	-	-	-	986	877	-	991	873	-
Stage 2	-	-	-	-	-	-	980	873	-	999	874	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1587	-	-	1617	-	-	923	839	1075	951	836	1049
Mov Cap-2 Maneuver	-	-	-	-	-	-	923	839	-	951	836	-
Stage 1	-	-	-	-	-	-	982	873	-	991	873	-
Stage 2	-	-	-	-	-	-	965	873	-	996	871	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	2.01	0	9.04	8.49
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	923	461	-	-	1617	-	-	1049
HCM Lane V/C Ratio	0.035	0.003	-	-	-	-	-	0.016
HCM Ctrl Dly (s/v)	9	7.3	0	-	0	-	-	8.5
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	7	17	0	24	3	1052	19	19	873	2
Future Vol, veh/h	1	0	7	17	0	24	3	1052	19	19	873	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	125	-	85	130	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	9	0	7	12	6	5	0
Mvmt Flow	1	0	7	18	0	25	3	1096	20	20	909	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1504	2072	456	1596	2053	548	911	0	0	1116	0	0
Stage 1	950	950	-	1102	1102	-	-	-	-	-	-	-
Stage 2	554	1122	-	494	951	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	7.08	4.1	-	-	4.22	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.39	2.2	-	-	2.26	-	-
Pot Cap-1 Maneuver	85	55	557	73	56	463	756	-	-	599	-	-
Stage 1	283	341	-	229	290	-	-	-	-	-	-	-
Stage 2	489	284	-	531	341	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	78	53	557	69	54	463	756	-	-	599	-	-
Mov Cap-2 Maneuver	187	157	-	169	164	-	-	-	-	-	-	-
Stage 1	274	330	-	228	289	-	-	-	-	-	-	-
Stage 2	461	282	-	506	330	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.21	20.87	0.03	0.24
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	756	-	-	447	269	599	-	-
HCM Lane V/C Ratio	0.004	-	-	0.019	0.159	0.033	-	-
HCM Ctrl Dly (s/v)	9.8	-	-	13.2	20.9	11.2	-	-
HCM Lane LOS	A	-	-	B	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.6	0.1	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	37	33	0	0	7
Future Vol, veh/h	0	37	33	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	12	7	0	0	0
Mvmt Flow	0	46	41	0	0	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	41
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	1035
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	1035
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	8.51
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	1035
HCM Lane V/C Ratio	-	-	-	0.008
HCM Ctrl Dly (s/v)	-	-	-	8.5
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	20	33	1	0	0
Future Vol, veh/h	18	20	33	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	0	16	6	0	0	0
Mvmt Flow	24	27	45	1	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	46	0	-	0	121	45
Stage 1	-	-	-	-	45	-
Stage 2	-	-	-	-	76	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1575	-	-	-	879	1030
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	952	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1575	-	-	-	866	1030
Mov Cap-2 Maneuver	-	-	-	-	866	-
Stage 1	-	-	-	-	967	-
Stage 2	-	-	-	-	952	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	3.47	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	853	-	-	-	-
HCM Lane V/C Ratio	0.015	-	-	-	-
HCM Ctrl Dly (s/v)	7.3	0	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Capacity Analysis Summary Sheets

Year 2032 Total Projected Weekday Evening Peak Hour

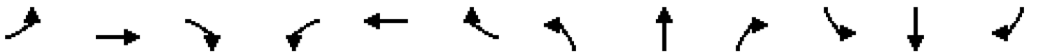
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	146	41	6	0	24	4	49	1	1	5	9	185
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	193	0	0	28	0	0	51	0	0	199	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.96	0.85	0.95	0.98	0.85	0.95	0.95	0.85	0.95	0.86	0.85
Saturated Flow (vph)	0	1820	0	0	1859	0	0	1803	0	0	1633	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	148		0	1859		0	171		0	1653	
Reference Time A (s)	0.0	156.6		0.0	1.8		0.0	35.9		0.0	14.4	
Adj Saturation B (vph	0	0		0	1859		NA	NA		0	0	
Reference Time B (s)	17.7	20.7		0.0	1.8		NA	NA		8.3	22.6	
Reference Time (s)		20.7			1.8			35.9			14.4	
Adj Reference Time (s)		24.7			8.0			39.9			18.4	
Split Option												
Ref Time Combined (s)	0.0	12.7		0.0	1.8		0.0	3.4		0.0	14.6	
Ref Time Seperate (s)	9.7	2.6		0.0	1.5		3.3	0.1		0.3	0.7	
Reference Time (s)	12.7	12.7		1.8	1.8		3.4	3.4		14.6	14.6	
Adj Reference Time (s)	16.7	16.7		8.0	8.0		8.0	8.0		18.6	18.6	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	24.7	39.9	
Split Option (s)	24.7	26.6	
Minimum (s)	24.7	26.6	51.4

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	42.8%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

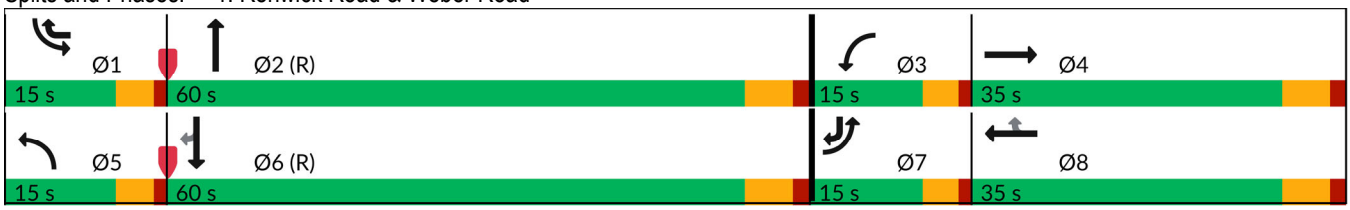


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	269	298	82	162	509	165	157	877	63	223	1125	384
Future Volume (vph)	269	298	82	162	509	165	157	877	63	223	1125	384
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	255		0	250		385	244		0	255		260
Storage Lanes	2		0	2		1	2		0	2		1
Taper Length (ft)	260			260			260			255		
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	0.97	0.91	0.91	0.97	0.91	1.00
Frt		0.968				0.850		0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3214	0	3019	3725	1538	3367	4906	0	3400	5151	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3214	0	3019	3725	1538	3367	4906	0	3400	5151	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26				65		11				65
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1732			655			1043			1170	
Travel Time (s)		26.2			9.9			15.8			17.7	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	7%	15%	16%	2%	5%	4%	3%	28%	3%	6%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	274	388	0	165	519	168	160	959	0	228	1148	392
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8						6
Detector Phase	7	4		3	8	1	5	2		1	6	7
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0	3.0	3.0	15.0		3.0	15.0	3.0
Minimum Split (s)	9.5	22.5		9.5	22.5	9.5	9.5	22.5		9.5	22.5	9.5
Total Split (s)	15.0	35.0		15.0	35.0	15.0	15.0	60.0		15.0	60.0	15.0
Total Split (%)	12.0%	28.0%		12.0%	28.0%	12.0%	12.0%	48.0%		12.0%	48.0%	12.0%
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	1.0	1.5		1.0	1.5	1.0	1.0	1.5		1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0		4.5	6.0	4.5	4.5	6.0		4.5	6.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	None
Act Effct Green (s)	15.8	31.2		11.9	27.3	44.9	10.1	49.2		11.6	50.8	72.6
Actuated g/C Ratio	0.13	0.25		0.10	0.22	0.36	0.08	0.39		0.09	0.41	0.58
v/c Ratio	0.63	0.47		0.57	0.64	0.28	0.59	0.49		0.72	0.55	0.41
Control Delay (s/veh)	58.8	39.1		61.8	47.9	17.9	64.8	29.8		68.8	30.3	13.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	58.8	39.1		61.8	47.9	17.9	64.8	29.8		68.8	30.3	13.9
LOS	E	D		E	D	B	E	C		E	C	B
Approach Delay (s/veh)		47.2			44.7			34.8			31.6	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	108	128		67	199	54	64	223		91	269	143
Queue Length 95th (ft)	158	186		102	258	112	102	249		#157	306	216

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		1652			575			963			1090	
Turn Bay Length (ft)	255			250		385	244			255		260
Base Capacity (vph)	435	834		297	879	595	286	2160		317	2280	956
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.63	0.47		0.56	0.59	0.28	0.56	0.44		0.72	0.50	0.41

Intersection Summary			
Area Type:	Other		
Cycle Length: 125			
Actuated Cycle Length: 125			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay (s/veh): 37.3		Intersection LOS: D	
Intersection Capacity Utilization 63.7%		ICU Level of Service B	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Renwick Road & Weber Road

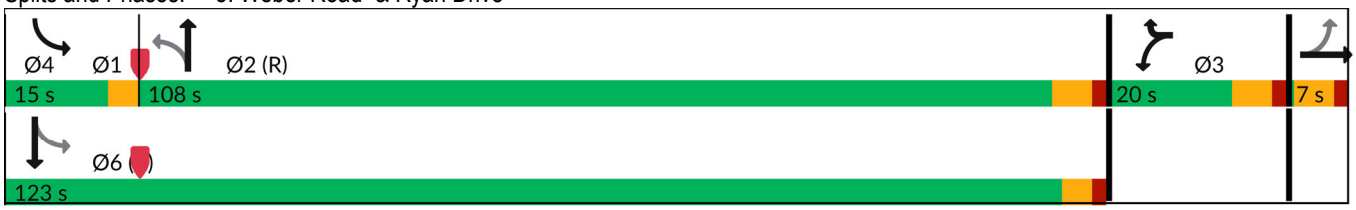


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	134	0	124	0	973	131	111	1257	0
Future Volume (vph)	0	0	0	134	0	124	0	973	131	111	1257	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	315		0
Storage Lanes	0		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			125		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.91	0.91
Frt						0.850		0.982				
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	1900	0	1805	0	1583	0	4879	0	1805	4803	0
Flt Permitted				0.950						0.203		
Satd. Flow (perm)	0	1900	0	1805	0	1583	0	4879	0	386	4803	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						135		36				
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		487			155			1028			1043	
Travel Time (s)		11.1			3.5			15.6			15.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	5%	0%	0%	8%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	146	0	135	0	1200	0	121	1366	0
Turn Type				Prot		Prot		NA		pm+pt	NA	
Protected Phases		4		3		3		2		1	6	
Permitted Phases	4						2			6		
Detector Phase	4	4		3		3	2	2		1	6	
Switch Phase												
Minimum Initial (s)	1.0	1.0		5.0		5.0	15.0	15.0		3.0	15.0	
Minimum Split (s)	7.0	7.0		11.0		11.0	24.0	24.0		11.5	23.0	
Total Split (s)	7.0	7.0		20.0		20.0	108.0	108.0		15.0	123.0	
Total Split (%)	4.7%	4.7%		13.3%		13.3%	72.0%	72.0%		10.0%	82.0%	
Yellow Time (s)	4.5	4.5		4.5		4.5	4.5	4.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5		1.5	1.5	1.5		0.0	1.5	
Lost Time Adjust (s)		0.0		0.0		0.0		0.0		0.0	0.0	
Total Lost Time (s)		6.0		6.0		6.0		6.0		3.5	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None		None	C-Min	C-Min		None	C-Min	
Act Effct Green (s)				16.7		16.7		110.4		123.8	122.3	
Actuated g/C Ratio				0.11		0.11		0.74		0.83	0.82	
v/c Ratio				0.73		0.46		0.33		0.31	0.35	
Control Delay (s/veh)				84.3		14.5		7.1		4.7	3.9	
Queue Delay				0.0		0.0		0.0		0.0	0.0	
Total Delay (s/veh)				84.3		14.5		7.1		4.7	3.9	
LOS				F		B		A		A	A	
Approach Delay (s/veh)					50.8			7.1			4.0	
Approach LOS					D			A			A	
Queue Length 50th (ft)				138		0		141		20	116	
Queue Length 95th (ft)				#273		67		142		26	105	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		407			75			948			963	
Turn Bay Length (ft)										315		
Base Capacity (vph)				203		298		3601		427	3916	
Starvation Cap Reductn				0		0		0		0	0	
Spillback Cap Reductn				0		0		0		0	0	
Storage Cap Reductn				0		0		0		0	0	
Reduced v/c Ratio				0.72		0.45		0.33		0.28	0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay (s/veh): 9.7		Intersection LOS: A	
Intersection Capacity Utilization 65.9%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Weber Road & Ryan Drive



Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	509	75	0	837	0	30
Future Vol, veh/h	509	75	0	837	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	8	7	0	6	0	11
Mvmt Flow	547	81	0	900	0	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	314
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.32
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	4.01
Pot Cap-1 Maneuver	-	-	0	-	0	562
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	562
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	562	-	-	-
HCM Lane V/C Ratio	0.057	-	-	-
HCM Ctrl Dly (s/v)	11.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	518	22	54	789	48	27
Future Vol, veh/h	518	22	54	789	48	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	285	-	0	25
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	0	0	4	0	0
Mvmt Flow	569	24	59	867	53	30

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	593	0	1121	285
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	552	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	993	-	203	718
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	546	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	993	-	191	718
Mov Cap-2 Maneuver	-	-	-	-	326	-
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	513	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.57	15.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	326	718	-	-	993	-
HCM Lane V/C Ratio	0.162	0.041	-	-	0.06	-
HCM Ctrl Dly (s/v)	18.1	10.2	-	-	8.9	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	511	33	48	822	21	23
Future Vol, veh/h	511	33	48	822	21	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	240	120	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	9	0	0	5	0	0
Mvmt Flow	549	35	52	884	23	25

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	585	0	1537	549
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	987	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1000	-	129	539
Stage 1	-	-	-	-	582	-
Stage 2	-	-	-	-	364	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1000	-	122	539
Mov Cap-2 Maneuver	-	-	-	-	249	-
Stage 1	-	-	-	-	582	-
Stage 2	-	-	-	-	345	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.49	17.04
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	346	-	-	1000	-
HCM Lane V/C Ratio	0.137	-	-	0.052	-
HCM Ctrl Dly (s/v)	17	-	-	8.8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	186	56	0	258	0	7
Future Vol, veh/h	186	56	0	258	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	2	0	0	1	0	0
Mvmt Flow	245	74	0	339	0	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	282
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	-	0	-	0	762
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	762
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	9.78
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	762	-	-	-
HCM Lane V/C Ratio	0.012	-	-	-
HCM Ctrl Dly (s/v)	9.8	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	16	16	0	10	0	9	0	0	0	0	9
Future Vol, veh/h	16	16	16	0	10	0	9	0	0	0	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	75	75	75	75	92	75	92	75	92	92	92
Heavy Vehicles, %	2	0	0	0	0	2	11	2	0	2	2	2
Mvmt Flow	17	21	21	0	13	0	12	0	0	0	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	13	0	0	43	0	0	80	80	32	69	91	13
Stage 1	-	-	-	-	-	-	67	67	-	13	13	-
Stage 2	-	-	-	-	-	-	13	13	-	56	77	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.21	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.21	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.21	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.599	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1605	-	-	1579	-	-	887	810	1048	923	799	1067
Stage 1	-	-	-	-	-	-	922	839	-	1007	884	-
Stage 2	-	-	-	-	-	-	984	884	-	956	831	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1605	-	-	1579	-	-	869	801	1048	912	790	1067
Mov Cap-2 Maneuver	-	-	-	-	-	-	869	801	-	912	790	-
Stage 1	-	-	-	-	-	-	911	830	-	1007	884	-
Stage 2	-	-	-	-	-	-	975	884	-	945	821	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	2.1	0	9.2	8.41
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	869	474	-	-	1579	-	-	1067
HCM Lane V/C Ratio	0.014	0.011	-	-	-	-	-	0.009
HCM Ctrl Dly (s/v)	9.2	7.3	0	-	0	-	-	8.4
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	7	30	0	37	10	1065	47	45	1338	9
Future Vol, veh/h	2	0	7	30	0	37	10	1065	47	45	1338	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	125	-	85	130	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	3	0	4	7	2	8	0
Mvmt Flow	2	0	7	32	0	39	11	1133	50	48	1423	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2112	2728	716	1962	2683	566	1433	0	0	1183	0	0
Stage 1	1524	1524	-	1154	1154	-	-	-	-	-	-	-
Stage 2	588	1204	-	807	1529	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.96	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.33	2.2	-	-	2.22	-	-
Pot Cap-1 Maneuver	30	21	377	39	22	465	480	-	-	586	-	-
Stage 1	126	182	-	213	274	-	-	-	-	-	-	-
Stage 2	467	259	-	346	181	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	24	19	377	34	20	465	480	-	-	586	-	-
Mov Cap-2 Maneuver	88	93	-	127	98	-	-	-	-	-	-	-
Stage 1	116	167	-	208	268	-	-	-	-	-	-	-
Stage 2	418	254	-	311	166	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	22.26	30.28	0.11	0.38
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	480	-	-	218	212	586	-	-
HCM Lane V/C Ratio	0.022	-	-	0.044	0.336	0.082	-	-
HCM Ctrl Dly (s/v)	12.7	-	-	22.3	30.3	11.7	-	-
HCM Lane LOS	B	-	-	C	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	1.4	0.3	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	92	42	0	0	26
Future Vol, veh/h	0	92	42	0	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	5	8	5	0	0	0
Mvmt Flow	0	103	47	0	0	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	47
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	1028
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	1028
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	8.61
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	1028
HCM Lane V/C Ratio	-	-	-	0.028
HCM Ctrl Dly (s/v)	-	-	-	8.6
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	63	34	4	7	7
Future Vol, veh/h	28	63	34	4	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	3	3	0	0	14
Mvmt Flow	30	68	37	4	8	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	41	0	-	0	168	39
Stage 1	-	-	-	-	39	-
Stage 2	-	-	-	-	129	-
Critical Hdwy	4.1	-	-	-	6.4	6.34
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.426
Pot Cap-1 Maneuver	1581	-	-	-	826	999
Stage 1	-	-	-	-	989	-
Stage 2	-	-	-	-	902	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1581	-	-	-	810	999
Mov Cap-2 Maneuver	-	-	-	-	810	-
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	902	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	2.25	0	9.09
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	554	-	-	-	895
HCM Lane V/C Ratio	0.019	-	-	-	0.017
HCM Ctrl Dly (s/v)	7.3	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

ENGINEER'S OPINION OF PROBABLE COST - LETTER OF CREDIT
SEASONS AT CREST HILL
CREST HILL, ILLINOIS
BASED ON THE PLAN SET DATED JANUARY 14, 2026
DATE: JANUARY 14, 2026

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENSION
SCHEDULE I - EROSION CONTROL					
1	Erosion Control Maintenance	1	LUMP SUM	$10,000.00	$10,000.00
2	Grading	1	LUMP SUM	$300,000.00	$300,000.00
2	Silt Fence (Non-Wire Back)	6,000	LF	$2.75	$16,500.00
3	Concrete Washout	2	EACH	$4,500.00	$9,000.00
4	Construction Entrance	2	LUMP SUM	$5,000.00	$10,000.00
5	Sodding	23,280	SY	$5.00	$116,401.19
6	Inlet Filter	69	EACH	$350.00	$24,150.00
TOTAL SCHEDULE I - EROSION CONTROL					**$486,051.19**
SCHEDULE II - UNDERGROUND IMPROVEMENTS					
A.	**SANITARY SEWER IMPROVEMENTS**				
1	8" PVC Sanitary Sewer - 12'-16' Depth	1,700	LF	$40.00	$68,000.00
2	4' Diameter Manhole - 12'-16'	15	EACH	$4,600.00	$69,000.00
3	4' Diameter Doghouse Manhole - 12'-16'	7	EACH	$4,600.00	$32,200.00
4	Trench Backfill - Mains 12'-16' Depth	1,700	LF	$70.00	$119,000.00
5	Televise Sanitary Sewer - Public	1,700	LF	$3.00	$5,100.00
SUBTOTAL A - SANITARY SEWER IMPROVEMENTS					**$293,300.00**
B.	**WATER MAIN IMPROVEMENTS**				
1	8" DI Water Main	2,934	LF	$50.00	$146,700.00
2	8" Valve & Vault, STD 4' Dia. w/FR & Lid	6	EACH	$3,750.00	$22,500.00
3	6" Valve Box, STD 1' Dia. w/FR & Lid	12	EACH	$1,500.00	$18,000.00
4	Fire Hydrant with Auxiliary Valve	8	EACH	$4,000.00	$32,000.00
5	Trench Backfill - Mains	2,664	LF	$30.00	$79,920.00
6	Pressure Connection with Valve Vault	6	EACH	$8,500.00	$51,000.00
7	Water Pressure Test and Chlorination	1	LS	$20,000.00	$20,000.00
SUBTOTAL B - WATER MAIN IMPROVEMENTS					**$370,120.00**
C.	**STORM SEWER IMPROVEMENTS**				
1	6" Perforated Pipe Underdrain	400	LF	$45.00	$18,000.00
2	12" RCP Storm Sewer Pipe	1,220	LF	$70.00	$85,400.00
3	15" RCP Storm Sewer Pipe	810	LF	$75.00	$60,750.00
4	18" RCP Storm Sewer Pipe	380	LF	$80.00	$30,400.00
5	24" RCP Storm Sewer Pipe	880	LF	$85.00	$74,800.00
6	30" RCP Storm Sewer Pipe	200	LF	$90.00	$18,000.00
7	36" RCP Storm Sewer Pipe	380	EACH	$95.00	$36,100.00
8	4'-0" Diameter Manhole	45	EACH	$3,000.00	$135,000.00
9	Connection to Existing Structure	4	EACH	$3,000.00	$12,000.00
10	Storm Sewer to be Removed	1285	LF	$60.00	$77,100.00
11	Manhole to be Removed	9	EACH	$550.00	$4,950.00
12	Trench Backfill	3,870	LF	$30.00	$116,100.00
13	Televise Storm Sewer Line	4,270	LF	$3.00	$12,810.00
SUBTOTAL C - STORM SEWER IMPROVEMENTS					**$681,410.00**
TOTAL SCHEDULE II - UNDERGROUND IMPROVEMENTS (A-C)					**$1,344,830.00**
SCHEDULE III - ROADWAY IMPROVEMENTS					
1	2" Asphalt Mill and Overlay	8,787	SY	$10.50	$92,261.17
TOTAL SCHEDULE III - ON-SITE ROADWAY IMPROVEMENTS					**$92,261.17**

ENGINEER'S OPINION OF PROBABLE COST - LETTER OF CREDIT
SEASONS AT CREST HILL
CREST HILL, ILLINOIS
BASED ON THE PLAN SET DATED JANUARY 14, 2026
DATE: JANUARY 14, 2026

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENSION
SCHEDULE IV - MISCELLANEOUS					
1	Record Drawings	1	LS	$10,000.00	$10,000.00
2	Benchmark	1	LS	$3,000.00	$3,000.00
TOTAL SCHEDULE IV - MISCELLANEOUS					**$13,000.00**
SUBTOTAL SCHEDULES I-IV					**$1,936,142.36**
CONTINGENCY @10%					$193,614.24
TOTAL ON-SITE BOND AMOUNT					**$2,129,756.60**

Prepared By: Manhard Consulting, Ltd.
One Overlook Point, Suite 290
Lincolnshire, Illinois 60069

NOTE: This Engineer's Opinion of Probable Cost is made on the basis of Engineer's experience and qualifications using plan quantities and represents Engineer's best judgment as an experienced and qualified professional engineer generally familiar with the construction industry. However, since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, or over quantities of work actually performed, Engineer cannot and does not guarantee that proposals, bids or actual Construction Cost will not vary from Opinions of Probable Cost prepared by Engineer. This Opinion of Probable Construction Cost is limited to those items stated herein and does not include permit fees, recapture costs, consultant fees landscaping, dewatering, maintenance, bonds or the like.

January 14, 2026

Ronald J. Wiedeman, P.E.
City Engineer
City of Crest Hill, Illinois

RE: Seasons at Crest Hill
Stormwater Memo
Atwell Project Number: MHFRD.CRIL01

This memo presents documentation for the design of the proposed Seasons of Crest Hill in Crest Hill, Illinois. The purpose of this stormwater memo is to provide appropriate information showing that the stormwater design meets or exceeds the requirements of the City of Crest Hill, the Will County Stormwater Technical Guidance Manual and generally accepted engineering practices. The project site is located at the southeast corner of Renwick Road and Weber Road, Crest Hill, Will County, Illinois, and is located within Section 20, Township 36 North, and Range 10 East of the Third Principal Meridian. The objective of this memo is to prove that the proposed development provides less impervious area than the original design which would produce less runoff and thus no detention basin improvements would be required. Also, that the existing storm sewer that the proposed development is connecting to is adequately sized to convey the runoff from the proposed development to the existing basins.

The project will consist of the construction of 14 2-story apartment buildings, a clubhouse with a pool, and associated parking. The project site is not located within a Regulated Floodplain, a Special Flood Hazard Area, or a flood prone area. The project site does not contain any wetlands within or adjacent to the site boundary. Modifications to flood prone channels are not proposed as a part of the project.

The total ownership parcel consists of 15.81 acres (688,840 square feet) of previously developed land as a part of the Remington Lakes Subdivision. There are currently five existing detention basins that were developed per the design presented in the Remington Lakes Final Stormwater Management Plan dated January 16, 2002. The proposed Seasons of Crest Hill development is proposed to be tributary to existing Basin 2A and Basin 4 that drains to them via storm sewer. Part of the proposed development is located in the original design drainage area of SA 4A (Tributary to Basin 4), and another part of the proposed development is located in the original design drainage area of SA 2A (Tributary to Basin 2A). The original drainage area SA 4A has an area of 17.6 acres with a curve number of 93.3. The original drainage area SA 2A has an area of 10.1 acres with a curve number of 93.0. The curve number of the proposed development will be compared to the original design curve number to ensure that the new runoff produced is less than what was originally designed for. Refer to attached original design drainage area exhibits and curve number calculations for reference.

The Seasons at Crest Hill development will be disturbing the entirety of the 15.81 acres apart from small existing roadway sections that are remaining. The development will convey stormwater runoff via storm sewer and connect to the existing storm sewer along the southern and western sides of the property. The western half of the site will drain toward Basin 4 and the eastern half will drain toward Basin 2A. The ultimate outfall, however, is at the south end of Basin 4 so the entire drainage area is still tributary to a single outfall point.

The original design area within the property limits is 9.73 acres for drainage area SA 4A and 6.08 acres for drainage area SA 2A. The drainage areas to each basin have been slightly modified as a part of the proposed development which is revised to 10.50 acres for drainage area SA 4A and 5.31 acres for drainage area SA 2A. Utilizing the SCS runoff curve number method to calculate runoff volume, the runoff volume from the proposed development will be reduced for the area within the property boundary from the original design runoff volume for both of the onsite tributary areas. Refer to the attached drainage area exhibits and drainage area summary tables for reference.

Following the Will County Stormwater Technical Guidance Manual, proposed storm sewers and grate capacities are designed to attain 10-year storm events utilizing Bulletin 70 rainfall data. The existing downstream storm sewer that the proposed development connects to is also analyzed to confirm the existing sewer provides enough capacity to convey the 10-year storm event. The 100-year storm event will also be conveyed through storm sewer within the proposed development, however emergency overland flow routes are still designed with appropriate freeboard to the adjacent buildings. 100-year storm event overflow design for the existing downstream storm sewer will be maintained from the original design. Refer to attached tributary area exhibits and storm sewer tables and profiles for reference.

In summary, we believe the stormwater management design for the proposed development complies with the appropriate provisions of the Will County Stormwater Technical Guidance Manual. If you have any questions, comments or concerns regarding the content of this report, please do not hesitate to email me at jeverard@atwell.com or call at (847) 634-5550.

Respectfully,

ATWELL, LLC

Lincolnshire, Illinois

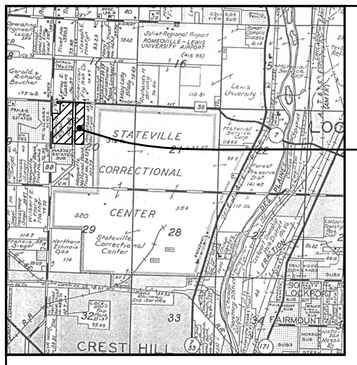
John S. Everard, P.E.
Project Manger

PROPOSED DRAINAGE EXHIBIT

FOR

REMINGTON LAKES

WILL COUNTY, ILLINOIS



LOCATION MAP

LEGAL DESCRIPTION

BEING A PART OF THE NORTHWEST QUARTER OF SECTION 20, TOWNSHIP 36 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN, IN WILL COUNTY, ILLINOIS.

N

100 50 0 100

SCALE: 1" = 100'

S.A. 2B = 4.2 AC.

S.A. 2C = 3.4 AC.

FUTURE COMMERCIAL DEVELOPMENT

S.A. 2A = 10.1 AC.
FUTURE COMMERCIAL DEVELOPMENT

S.A. 4A = 17.6 AC.
FUTURE COMMERCIAL DEVELOPMENT

FUTURE COMMERCIAL DEVELOPMENT

S.A. 1 = 24.9 AC.

S.A. 3 = 9.7 AC.

S.A. 4B = 38.1 AC.

RENWICK ROAD

McGILVRAY DRIVE

BORIO DRIVE

OUTLOT A

OUTLOT B
STORMWATER MANAGEMENT FACILITY NO. 2
N.W.L. 639.0
N.W.L. 639.0

OUTLOT C
STORMWATER MANAGEMENT FACILITY NO. 4
N.W.L. 637.5
N.W.L. 634.7

OUTLOT D

OUTLOT E

OUTLOT I
STORMWATER MANAGEMENT FACILITY NO. 1
N.W.L. 634.0
N.W.L. 640.3

OUTLOT J

OUTLOT K
STORMWATER MANAGEMENT FACILITY NO. 3
N.W.L. 639.0
N.W.L. 634.7

FUTURE COMMERCIAL

ALBERT DRIVE
(Asphalt Surface W/ MR-12 Conc. Curb & Gutter)

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		MANHOLE
		CATCH BASIN
		INLET
		CLEANOUT
		HEADWALL
		END SECTION
		STORM SEWER
		SANITARY SEWER
		WATERMAIN
		VALVE & BOX
		WATER VALVE (UNLESS OTHERWISE NOTED)
		WATER VALVE IN VAULT
		FIRE HYDRANT
		CONTOURS
(ELEV)	ELEV	ELEVATIONS
		STREET LIGHTS
		WATERMAIN PROTECTION
		STRAW BALE SEDIMENT TRAP
		TEMPORARY STRAW BALE DITCH CHECK
		OVERFLOW ROUTE

PREPARED FOR:

INLAND REAL ESTATE DEVELOPMENT CORP.
2901 BUTTERFIELD RD.
OAK BROOK, ILLINOIS 60521
PH: (630) 218-8000, FAX:(630) 954-5673

PREPARED BY:

CEMCON, Ltd.
Consulting Engineers, Land Surveyors & Planners
1N131 COUNTY FARM ROAD
WINFIELD, ILLINOIS 60190
(630) 653-1030
Ph: (630) 653-1030 Fax: (630) 653-0652
E-Mail: Cadd@Cemcon.Com

DISC NO. : 588007 FILE NAME : DRAINAGE_EXH
DRAWN BY : ESM FLD. BK. / PG. NO. : N/A
COMPLETION DATE : DEC. 2001 JOB NO. : 588.007
PROJECT MANAGER : TDW XREF: OVERALL

Copyright © 2001 Cemcon, Ltd. All rights reserved.

Worksheet 2: Runoff Curve Number and Runoff

Project: Remington Lakes--S.A. 2A | By: ESM | Date: 10/1/01
Location: Will County, Illinois | Checked: | Date:

Circle one: Present (Developed)

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area X acres __mi2 __%	Product of CN x Area
B	Commercial Development	92			4.70	432.4
B	Paved Parking Lot	98			4.80	470.4
B	Open Space, good condition	61			0.60	36.6
1/ Use only one CN source per line.			Totals =		10.10	939.400

$$\text{CN (weighted)} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{939.400}{10.100} = 93.010$$

Use CN = 93.0

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr			
Rainfall	in			
Runoff, Q	in			

(Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

Worksheet 2: Runoff Curve Number and Runoff

Project Remington Lakes–S.A. 4A By ESM Date 9/13/01
Location Will County, Illinois Checked _____ Date _____

Circle one: Present (Developed)

1. Runoff curve number (CN)

Soil Name and Hydrologic Group	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area X acres __mi2 __%	Product of CN x Area
B	Commercial Development	92			2.60	239.2
B	Paved Parking Lot	98			13.20	1293.6
B	Open Space, good condition	61			1.80	109.8
1/ Use only one CN source per line.			Totals =		17.60	1642.600

CN (weighted) = $\frac{\text{Total Product}}{\text{Total Area}} = \frac{1642.600}{17.600} = 93.330$

Use CN = 93.3

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr			
Rainfall	in			
Runoff, Q	in			

(Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)

EXECUTIVE DRIVE

DRAINAGE AREA
SA 4A

DRAINAGE AREA
SA 2A

RYAN DRIVE

N

0 20 40 80
SCALE: 1"=40'

06-01-16

LEGEND

	ONSITE TRIBUTARY AREA:	
	DRAINAGE AREA SA 4A	10.50 ACRES
	DRAINAGE AREA SA 2A	5.31 ACRES
	IMPERVIOUS AREA	
	DRAINAGE AREA SA 4A	7.32 ACRES
	DRAINAGE AREA SA 2A	3.68 ACRES
	PERVIOUS AREA	
	DRAINAGE AREA SA 4A	3.18 ACRES
	DRAINAGE AREA SA 2A	1.63 ACRES

DRAWN BY
REVISIONS
DATE

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.634.5500 f:847.634.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
IMPERVIOUS AREA EXHIBIT

PROJ. MGR.:	JSE
PROJ. ASSOC.:	MSL
DRAWN BY:	MSL
DATE:	01-14-26
SCALE:	1"=40'

SHEET
EXH
FRD.CRIL01

©2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

January 15, 2026 - 15:13 Dwg Name: P:\Frd\c\01\dwg\&Storm\Water\Exhibits\Impervious Area exhibit.dwg Updated By: MLeBeau

COMPOSITE RUNOFF CURVE NUMBER (*CN*)

PROJECT: Seasons at Crest Hill **CALCULATED BY:** MSL

SUBBASIN: Drainage Area SA 4A **DATE:** 1/14/2026

CONDITION (SELECT WITH DROP-DOWN)

___ PROPOSED CONDITION ___ EXISTING CONDITION

RUNOFF CURVE NUMBER

Surface Description	Hydrologic Soil Group (HSG)	CN	Area (acres)	Product (CN)(Area)
Impervious		98	7.32	717.36
Pervious	B	61	3.18	193.98
TOTALS:			10.50	911.34

COMPOSITE RUNOFF CURVE NUMBER

$$\text{Composite CN} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{911.34}{10.50} \rightarrow \textbf{Composite CN} = \textbf{86.8}$$

COMPOSITE RUNOFF CURVE NUMBER (*CN*)

PROJECT: Seasons at Crest Hill **CALCULATED BY:** MSL

SUBBASIN: Drainage Area SA 2A **DATE:** 1/14/2026

CONDITION (SELECT WITH DROP-DOWN)

___ PROPOSED CONDITION ___ EXISTING CONDITION

RUNOFF CURVE NUMBER

Surface Description	Hydrologic Soil Group (HSG)	CN	Area (acres)	Product (CN)(Area)
Impervious		98	3.68	360.64
Pervious	B	61	1.63	99.43
TOTALS:			5.31	460.07

COMPOSITE RUNOFF CURVE NUMBER

$$\text{Composite CN} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{460.07}{5.31} \rightarrow \textbf{Composite CN} = \textbf{86.6}$$

Total Runoff Change Summary

Seasons at Crest Hill
1/12/2026
Drainage Area SA 4A

					2-YEAR		100-YEAR	
	Impervious Area	Pervious Area	Composite CN	Total Area	Pe	Runoff Volume	Pe	Runoff Volume
EXISTING	8.49	1.24	93.3	9.73	2.09	1.69	5.71	4.63

					2-YEAR		100-YEAR	
	Impervious Area	Pervious Area	Composite CN	Total Area	Pe	Runoff Volume	Pe	Runoff Volume
PROPOSED	7.32	3.18	86.8	10.50	1.55	1.36	4.97	4.35

			2-YEAR		100-YEAR	
			Pe	Runoff Volume	Pe	Runoff Volume
NET INCREASE				-0.34		-0.28

$$P_e = \frac{(P-0.2(1000/CN-10))^2}{P+0.8(1000/CN-10)}$$

$CN_{impervious}$= 98
$CN_{pervious}$= 61

P = Peak Rainfall Depth (2-year/24hour) = 2.80 inches — Bulletin 70
P = Peak Rainfall Depth (100-year/24hour) = 6.50 Inches — Bulletin 70
P = Peak Rainfall Depth (2-year/24hour) = 3.34 inches — Bulletin 75
P = Peak Rainfall Depth (100-year/24hour) = 8.57 inches — Bulletin 75

Total Runoff Change Summary

Seasons at Crest Hill
1/12/2026
Drainage Area SA 2A

					2-YEAR		100-YEAR	
	Impervious Area	Pervious Area	Composite CN	Total Area	Pe	Runoff Volume	Pe	Runoff Volume
EXISTING	5.26	0.82	93.0	6.08	2.06	1.05	5.68	2.88

					2-YEAR		100-YEAR	
	Impervious Area	Pervious Area	Composite CN	Total Area	Pe	Runoff Volume	Pe	Runoff Volume
PROPOSED	3.68	1.63	86.6	5.31	1.54	0.68	4.96	2.19

					2-YEAR		100-YEAR	
					Pe	Runoff Volume	Pe	Runoff Volume
NET INCREASE						-0.36		-0.68

$$P_e = \frac{(P-0.2(1000/CN-10))^2}{P+0.8(1000/CN-10)}$$

$CN_{impervious}$= 98
$CN_{pervious}$= 61

P = Peak Rainfall Depth (2-year/24hour) = 2.80 inches — Bulletin 70
P = Peak Rainfall Depth (100-year/24hour) = 6.50 Inches — Bulletin 70
P = Peak Rainfall Depth (2-year/24hour) = 3.34 inches — Bulletin 75
P = Peak Rainfall Depth (100-year/24hour) = 8.57 inches — Bulletin 75

EX. INL-8
0.30 AC

IN-1
0.03 AC

EX. INL-1
0.11 AC

MH-1
0.11 AC

IN-2
0.44 AC

IN-3
0.11 AC

MH-8
0.12 AC

IN-12
0.46 AC

EX. INL-7
0.58 AC

IN-14
0.05 AC

IN-13
0.07 AC

MH-29
0.07 AC

MH-31
0.25 AC

BUILDING A
F.F.=649.15
G.F=648.65

BUILDING B
F.F.=649.15
G.F=648.65

BUILDING C
F.F.=649.15
G.F=648.65

BUILDING D
F.F.=649.15
G.F=648.65

BUILDING E
F.F.=648.80
G.F=648.30

MH-7
0.18 AC

MH-26
0.15 AC

MH-28
0.06 AC

MH-30
0.14 AC

GARAGE

EXECUTIVE DRIVE

EX. MH-1
0.02 AC

MH-45
0.02 AC

MH-3
0.22 AC

MH-9
0.15 AC

IN-4
0.16 AC

MH-25
0.12 AC

MH-27
0.12 AC

MH-24
0.34 AC

MH-21
0.27 AC

MH-22
0.24 AC

MH-23
0.03 AC

MH-6
0.13 AC

CB-1
0.13 AC

MH-5
0.13 AC

MH-10
0.22 AC

MH-4
0.35 AC

CB-3
0.36 AC

CLUBHOUSE
F.F.=648.80
G.F=648.30

BUILDING K
F.F.=647.75
G.F=647.25

BUILDING L
F.F.=647.75
G.F=647.25

MH-44
0.23 AC

BUILDING F
F.F.=648.70
G.F=648.20

IN-5
0.10 AC

MH-43
0.35 AC

WEBER ROAD

EX. INL-2
0.49 AC

IN-7
0.24 AC

IN-6
0.24 AC

MH-20
0.45 AC

MH-37
0.16 AC

POOL

BUILDING G
F.F.=648.70
G.F=648.20

EX. INL-6
0.76 AC

IN-16
0.16 AC

MH-42
0.20 AC

IN-17
0.21 AC

IN-10
0.31 AC

IN-9
0.06 AC

IN-8
0.08 AC

MH-36
0.26 AC

MH-41
0.07 AC

MH-14
0.20 AC

MH-19
0.26 AC

IN-11
0.18 AC

MH-16
0.06 AC

MH-15
0.08 AC

BUILDING I
F.F.=648.00
G.F=647.50

BUILDING J
F.F.=648.00
G.F=647.50

MH-17
0.29 AC

MH-18
0.32 AC

MH-40
0.28 AC

BUILDING M
F.F.=647.25
G.F=646.75

BUILDING N
F.F.=647.25
G.F=646.75

MH-12
0.26 AC

EX. INL-3
0.31 AC

BUILDING H
F.F.=648.70
G.F=648.20

CB-4
0.17 AC

MH-34
0.57 AC

MH-33
0.33 AC

MH-39
0.25 AC

CB-2
0.08 AC

MH-11
0.07 AC

CB-5
0.07 AC

MH-38
0.08 AC

EX. INL-4
0.31 AC

EX. INL-5
0.29 AC

N

0 20 40 80

SCALE: 1"=40'

DRAWN BY

REVISIONS

DATE

Manhard CONSULTING

One Parkview Plaza, Suite 2800, Lisle/Wheaton, IL 60532 ph 630.724.3000 fax 630.724.3095 Hinterlocum
Civil Engineers • Surveyors • Water Resource Engineers • Structural Engineers • Water Resource Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL

CITY OF CREST HILL, ILLINOIS

PROPOSED STORM SEWER CATCHMENT EXHIBIT

PROJ. MGR.:	JSE
PROJ. ASSOC.:	MSL
DRAWN BY:	GAW
DATE:	01-14-26
SCALE:	1" = 40'

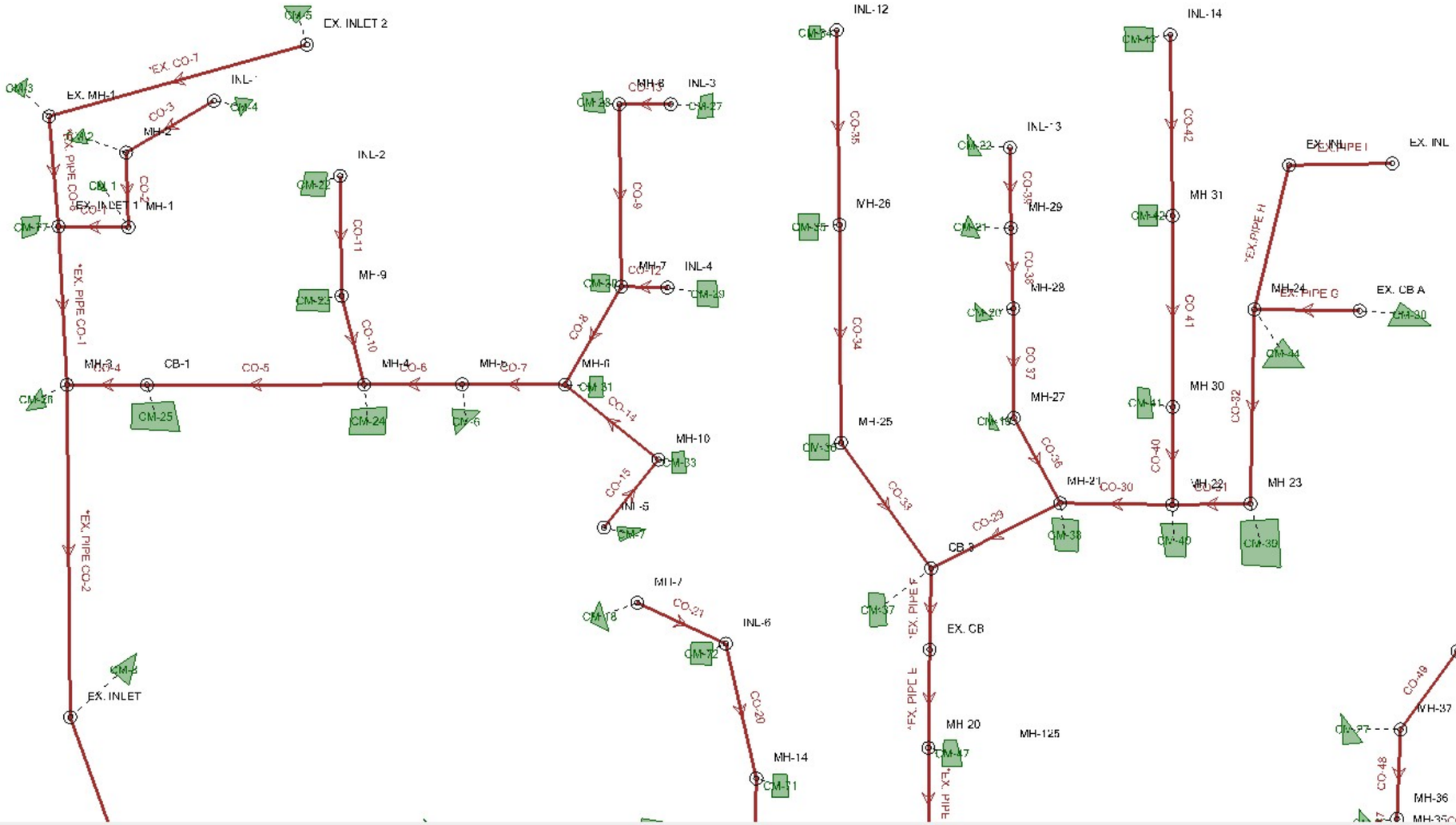
SHEET

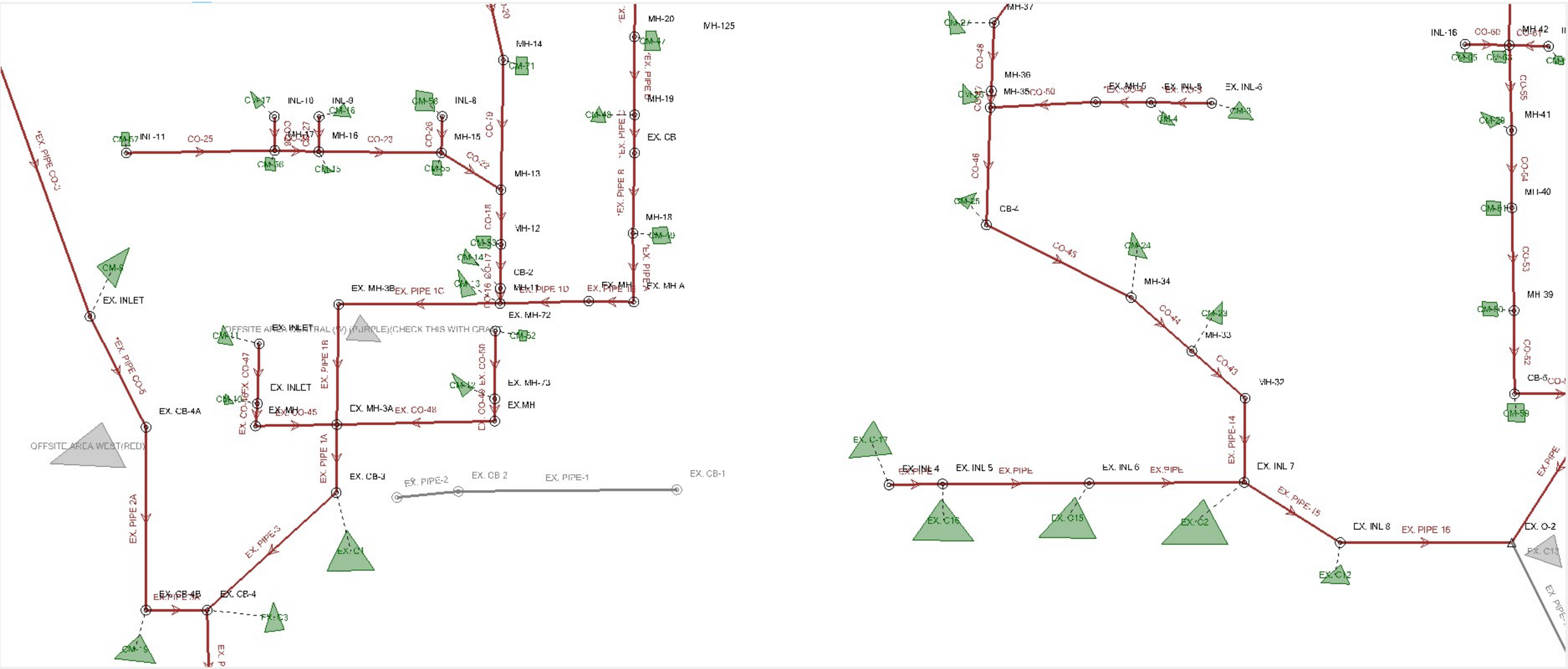
EXH

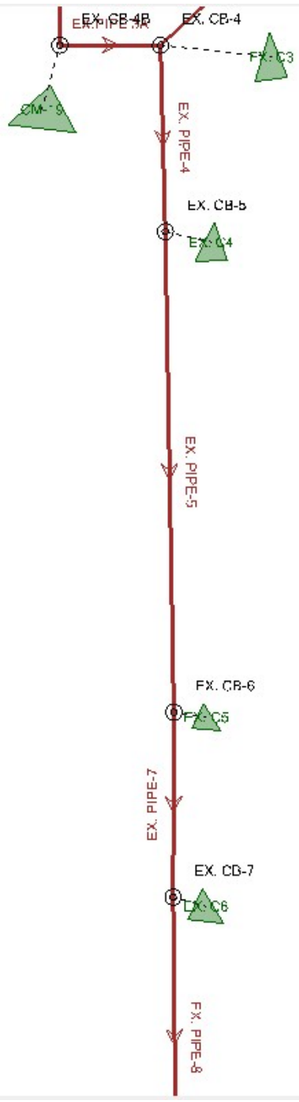
FRD.GUIL01

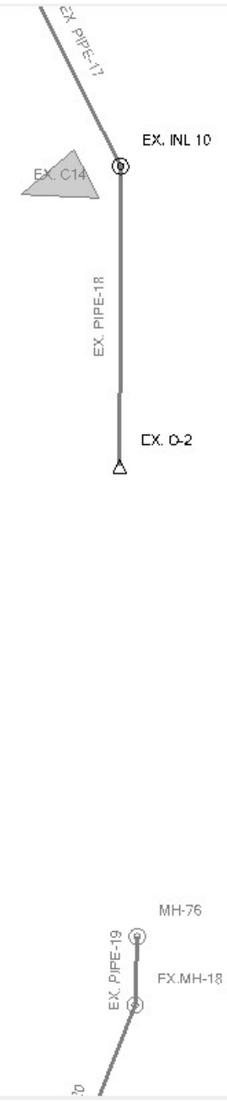
© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

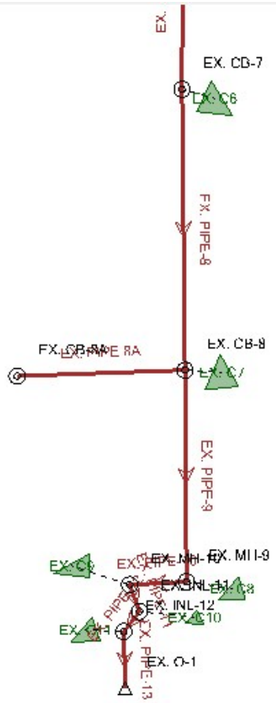
January 14, 2026 - 11:45 Dwg Name=P:\Frdrd01\Dwg\StormWater\Exhibits\Proposed Storm Sewer Catchment Area Exhibit.dwg Updated By gwaskowski

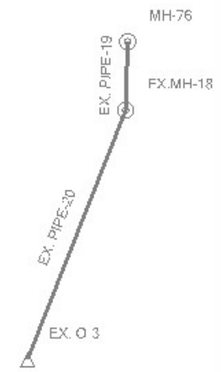

EX. INLET 2
EX. CO-7
EX. MH-1
INL-
CO-3
MH-2
EX. PIPE CO-3
CB-1
EX. INLET 1
MH-1
CO-2
CO-1
INL-2
CO-11
MH-9
CO-10
MH-8
INL-3
CO-13
CO-9
MH-7
INL-4
CO-12
CO-8
MH-3
CB-1
CO-4
CO-5
MH-4
CO-6
MH-5
CO-7
MH-6
CO-14
MH-10
CO-15
INL-5
EX. PIPE CO-1
EX. PIPE CO-2
EX. INLET
MH-7
CO-21
INL-6
CO-20
MH-14
INL-12
CO-35
MH-26
CO-34
INL-13
CO-33
MH-29
CO-36
MH-28
CO 37
MH-27
MH-25
CO-38
CO-39
MH-21
CO-30
CO-29
CB-2
EX. PIPE F
EX. CB
EX. PIPE E
MH 20
MH-125
INL-14
CO-42
MH 31
CO 41
MH 30
CO-40
CO-32
MH 22
MH 23
EX. INL
EX. PIPE I
EX. PIPE H
MH-24
EX. PIPE G
EX. CB A
INL-15
CO-49
MH-37
CO-48
MH-36
EX. INL-5
EX. INL-6

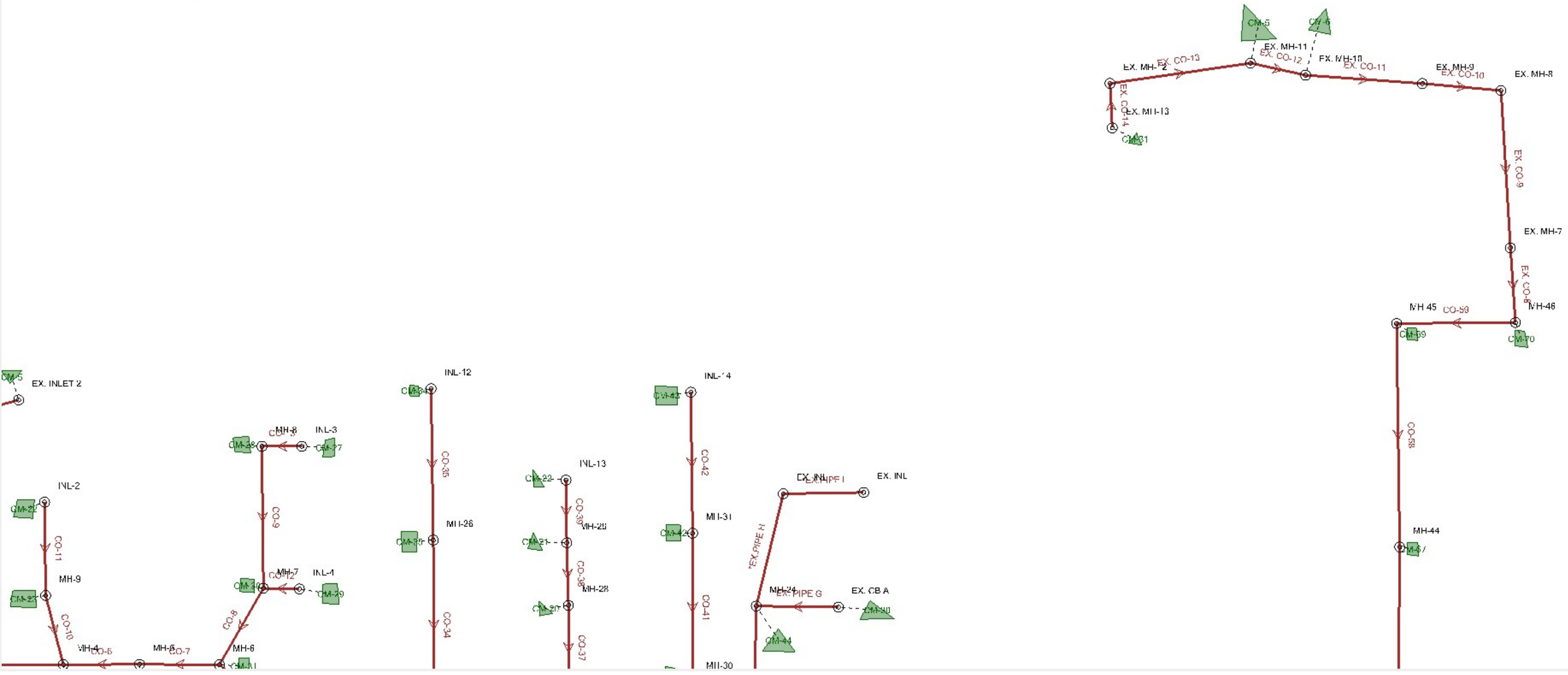

MH-125
MH-20
MH-14
MH-19
EX. CB
MH-13
MH-18
MH-12
CB-2
EX. MH-72
EX. MH-3B
EX. PIPE 1C
EX. PIPE 1D
EX. MH A
EX. INLET
EX. INLET
OFFSITE AREA CENTRAL (W) (PURPLE)(CHECK THIS WITH GRADING)
EX. INLET
EX. MH-73
EX.MH
EX. MH
EX. MH-3A
EX. CO-45
EX. CO-48
EX. CB-4A
OFFSITE AREA WEST(RED)
EX. CB-3
EX. PIPE-2
EX. CB 2
EX. PIPE-1
EX. CB-1
EX. CB-4B
EX. CB-4
EX. PIPE 2A
EX. PIPE-3
EX. PIPE 1A
EX. PIPE 1B
EX. PIPE CO-5
INL-11
INL-10
INL-9
INL-8
MH-16
MH-15
MH-17
CO-25
CO-23
CO-19
CO-18
CO-17
CO-16
CO-26
CO-27
CO-21
EX. PIPE 1
EX. PIPE B
EX. PIPE A
EX. CO-47
EX. CO-46
EX. CO-50
EX. PIPE 1B
MH-37
MH-36
MH-35
CB-4
MH-34
MH-33
MH-32
EX. INL 4
EX. INL 5
EX. INL 6
EX. INL 7
EX. INL 8
EX. MH-5
EX. INL-5
EX. INL-6
EX. PIPE
EX. PIPE-14
EX. PIPE-15
EX. PIPE 16
EX. C17
EX. C16
EX. C15
EX. C2
EX. C12
CO-48
CO-46
CO-45
CO-44
CO-43
INL-16
CO-60
MH-42
MH-41
MH-40
MH 39
CB-5
CO-55
CO-54
CO-53
CO-52
EX. O-2
EX. C13
EX. PIPE

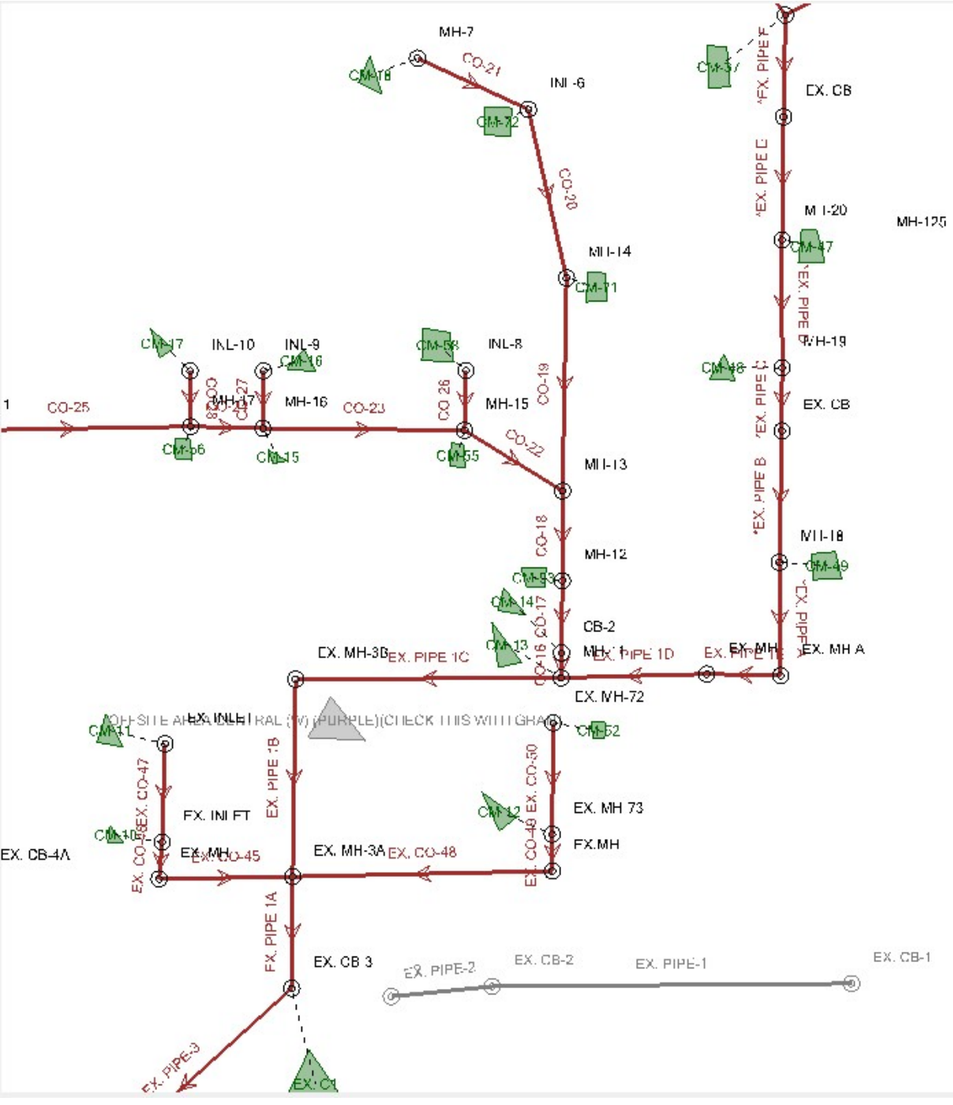

EX. CB-4B
EX. CB-4
EX. C3
EX. PIPE-4
EX. CB-5
EX. C4
EX. PIPE-5
EX. CB-6
EX. C5
EX. PIPE-7
EX. CB-7
EX. C6
EX. PIPE-8

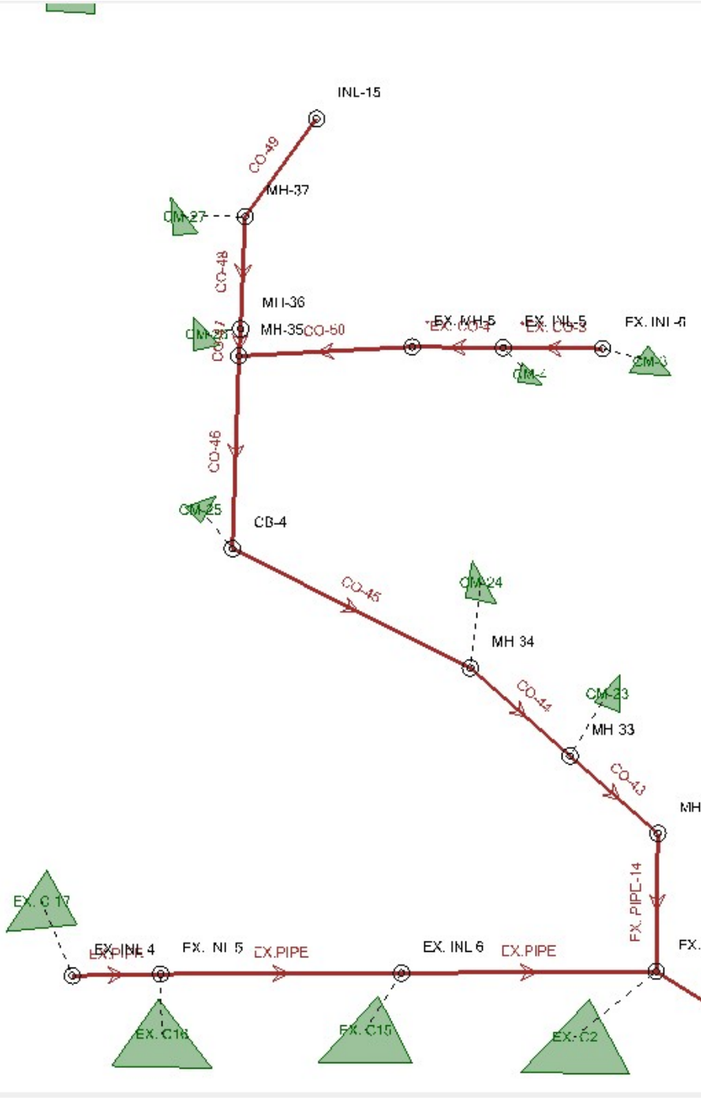

EX. PIPE-17
EX. INL 10
EX. C14
EX. PIPE-18
EX. O-2
MH-76
EX. PIPE-19
FX.MH-18

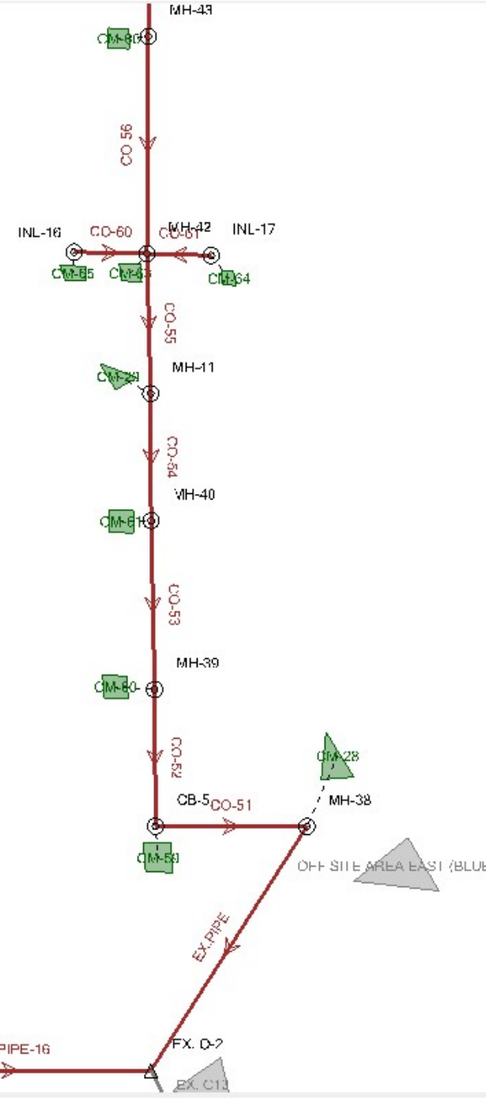

EX.
EX. CB-7
EX. C6
EX. PIPE-9
EX. CB-8
EX. C7
EX. PIPE-9
EX. MH-9
EX. INL-11
EX. INL-12
EX. C10
EX. O-1
EX. PIPE-13


MH-76
EX. PIPE-19
FX.MH-18
EX. PIPE-20
EX. O 3


CM-5
CM-6
EX. MH-11
EX. CO-12
EX. MH-10
EX. CO-11
EX. MH-9
EX. CO-10
EX. MH-8
EX. MH-12
EX. CO-13
EX. CO-14
EX. MH-13
CM-31
EX. CO-9
EX. MH-7
EX. CO-8
MH-46
MH 45
CO-59
CM-69
CM-70
CO-58
MH-44
CM-67
EX. INLET 2
CM-5
MH-8
INL-3
CM-28
CM-27
CO-9
INL-2
CM-25
CO-11
MH-9
CM-26
CO-10
MH-4
CO-6
MH-5
CO-7
MH-6
CM-30
MH-7
CO-12
INL-1
CM-29
CO-8
INL-12
CM-34
CO-35
MH-26
CM-33
CO-34
INL-13
CM-22
CO-39
MH-25
CM-21
CO-38
MH-28
CM-20
CO-37
INL-14
CM-42
CO-42
MH-31
CM-41
CO-41
MH-30
EX. INL
EX. PIPE I
EX. PIPE H
MH-24
EX. PIPE G
EX. CB A
CM-40
CM-44


MH-7
CM-18
CO-21
INL-6
CM-22
CO-20
MH-14
CM-21
CM-17
INL-10
INL-9
CM-16
CM-56
INL-8
CO-25
CO-27
CO-26
MH-16
MH-15
CO-19
CO-23
CM-26
CM-55
CO-22
MH-13
CO-18
MH-12
CM-53
CM-14
CM-13
CB-2
CO-16
CO-17
EX. MH-3B
EX. PIPE 1C
EX. PIPE 1D
EX. MH A
EX. MH-72
CM-11
CM-52
EX. INL-1
EX. CO-47
EX. PIPE 1B
FX. INI FT
CM-12
EX. CO-50
EX. MH 73
FX.MH
EX. CB-4A
EX. MH
EX. CO-45
EX. MH-3A
EX. CO-48
FX. PIPE 1A
EX. CB 3
EX. PIPE-2
EX. CB-2
EX. PIPE-1
EX. CB-1
EX. PIPE-3
EX. C1
EX. PIPE F
EX. CB
EX. PIPE C
MH-20
MH-125
CM-47
EX. PIPE E
FX. MH-19
CM-48
EX. CB
EX. PIPE B
MH-18
CM-49
EX. PIPE A


INL-15
CO-49
MH-37
CM-27
CO-48
MH-36
MH-35
CO-50
EX. MH-5
EX. INL-5
FX. INI-6
CM-28
CO-47
CM-
CO-46
CM-25
CB-4
CO-45
CM-24
MH 34
CO-44
CM-23
MH 33
CO-43
MH-32
FX. PIPE-14
EX. C17
EX. INL 4
FX. INI 5
CX.PIPE
EX. INL 6
CX.PIPE
FX. INI 7
EX. C18
FX. C16
EX.-C2
EX. PIPE-15
FX. INI 8
EX. PIPE-16
FX. C-2
EX. C13


MH-43
CM-66
CO 56
INL-16
CO-60
MH-42
CO-61
INL-17
CM-65
CM-63
CM-64
CO-55
MH-11
CM-29
CO-54
MH-40
CM-61
CO-53
MH-39
CM-60
CO-52
CB-5
CO-51
CM-28
MH-38
CM-59
OFF SITE AREA EAST (BLUE)
EX.PIPE

SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
STORM SEWER DESIGN CALCULATIONS
10-YR STORM EVENT - BULLETIN 70 RAINFALL DATA
1/14/2026

Location		Ground		Hydraulic Grade Line		Crown		Invert		Length	Slope	Diameter	Manning's n	Velocity	Flow	Capacity (Full Flow)	Flow / Capacity (Design)
Upstream Structure	Downstream Structure	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	(ft)	(%)	(in)		(ft/s)	(cfs)	(cfs)	(%)
EX. INL-12	EX. O-1	636.04	630.65	644.47	631.65	632.99	631.65	628.99	627.65	73	1.84	48	0.013	47.92	602.23	194.66	309.40
EX. INL 11	EX. INL-12	635.91	636.04	636.13	636.04	633.81	632.99	629.81	628.99	31	2.67	48	0.013	6.07	76.29	234.52	32.50
EX. INL 11	EX. MH-10	635.91	637.46	635.97	635.91	633.81	632.46	629.81	628.46	25	5.50	48	0.013	5.74	72.09	336.76	21.40
EX. MH-9	EX. MH-10	637.39	637.46	636.11	635.97	634.99	632.46	630.99	628.46	53	4.75	48	0.013	5.74	72.09	313.14	23.00
EX. CB-8	EX. MH-9	640.20	637.39	636.41	636.11	636.16	634.99	632.16	630.99	137	0.86	48	0.013	5.40	67.83	132.83	51.10
EX. CB-8	EX. CB-8A	640.20	639.65	636.41	636.41	633.21	634.98	632.21	633.98	62	-2.85	12	0.013	0.00	0.00	6.01	0.00
EX. CB-7	EX. CB-8	641.19	640.20	637.10	636.41	637.59	636.16	633.59	632.16	372	0.38	48	0.013	7.77	66.69	89.03	74.90
EX. CB-6	EX. CB-7	642.87	641.19	637.27	637.10	638.16	637.59	634.16	633.59	148	0.39	48	0.013	7.66	61.41	89.26	68.80
EX. CB-5	EX. CB-6	643.64	642.87	637.77	637.27	638.84	638.23	634.84	634.23	284	0.21	48	0.013	5.94	56.58	66.52	85.10
EX. CB-4	EX. CB-5	643.76	643.64	637.94	637.77	639.00	638.91	635.00	634.91	99	0.09	48	0.013	3.87	48.60	43.31	112.20
EX. CB-3	EX. CB-4	644.36	643.76	638.06	637.94	638.75	638.53	635.25	635.03	169	0.13	42	0.013	4.17	28.29	36.30	77.90
EX. MH-3A	EX. CB-3	645.50	644.36	638.10	638.06	639.04	638.91	635.54	635.41	52	0.25	42	0.013	5.32	27.06	50.23	53.90
EX. MH-3A	EX. MH-3B	645.50	645.70	638.13	638.10	639.04	639.25	635.54	635.75	73	-0.29	42	0.013	5.48	24.40	54.14	45.10
MH-11	EX. MH-3B	646.60	645.70	638.39	638.13	638.86	638.25	636.36	635.75	116	0.53	30	0.013	6.77	24.40	29.81	81.90
EX. MH	MH-11	646.57	646.60	638.43	638.39	639.38	638.86	636.88	636.36	100	0.53	30	0.013	6.08	15.13	29.73	50.90
EX. MH A	EX. MH	647.23	646.57	638.52	638.43	639.71	639.38	637.21	636.88	45	0.74	30	0.013	6.92	15.13	35.32	42.80
MH-18	EX. MH A	646.25	647.23	638.91	638.39	640.10	639.71	637.60	637.21	59	0.66	30	0.013	6.62	15.13	33.26	45.50
EX. CB	MH-18	646.14	646.25	639.37	638.91	640.62	640.10	638.12	637.60	81	0.65	30	0.013	6.41	13.75	32.96	41.70
MH-19	EX. CB	646.25	646.14	639.62	639.46	640.22	640.12	638.22	638.12	20	0.51	24	0.013	5.79	13.75	16.20	84.90
MH-20	MH-19	646.35	646.25	639.99	639.62	640.70	640.22	638.70	638.22	86	0.56	24	0.013	5.91	12.63	16.92	74.70
EX. CB	MH-20	646.49	646.35	640.32	639.99	641.15	640.7	639.15	638.7	83	0.55	24	0.013	5.64	10.69	16.71	64
CB-3	EX. CB	646.7	646.49	640.69	640.32	641.43	641.15	639.43	639.15	65	0.43	24	0.013	5.13	10.69	14.8	72.2
MH-21	CB-3	646.4	646.7	641.13	640.74	642.02	641.87	640.02	639.87	96	0.16	24	0.013	3.06	5.99	8.96	66.9
MH-27	MH-21	647.99	646.4	642.41	642.18	642.81	642.68	641.81	641.68	43	0.31	12	0.013	2.71	1.38	1.97	70.1
MH-28	MH-27	648.52	647.99	642.56	642.41	643.06	642.81	642.06	641.81	82	0.3	12	0.013	2.48	0.95	1.97	48.2
MH-29	MH-28	648.46	648.52	642.59	642.56	643.14	643.06	642.14	642.06	26	0.3	12	0.013	2.2	0.6	1.96	30.8
INL-13	MH-29	648.47	648.46	642.6	642.59	643.23	643.14	642.23	642.14	32	0.29	12	0.013	1.77	0.3	1.9	15.9
MH-22	MH-21	646.43	646.4	641.18	641.13	642.16	642.02	640.16	640.02	90	0.16	24	0.013	2.66	3.45	8.92	38.7
MH-23	MH-22	646.65	646.43	641.21	641.18	642.33	642.24	640.83	640.74	46	0.2	18	0.013	1.74	0.52	4.66	11.1
MH-24	MH-23	646.72	646.65	641.29	641.21	642.5	642.33	641	640.83	84	0.2	18	0.013	1.56	0.34	4.74	7.3
EX. CB A	MH-24	647.39	646.72	641.68	641.29	642.82	642.35	641.57	641.1		0.96	15	0.013	1.81	0.09	6.32	1.4
EX. INL	MH-24	645.63	646.72	641.7	641.29	643.2	642.6	641.7	641.1	82	0.73	18	0.013	0	0	8.97	0
EX. INL	EX. INL	645.63	645.54	642.79	642.79	643.79	642.7	642.79	641.7	29	3.76	12	0.013	0	0	6.91	0
MH-30	MH-22	646.9	646.43	642.74	642.32	643.3	643.02	642.05	641.77	113	0.25	15	0.013	2.72	1.9	3.21	59.1
MH-31	MH-30	646.9	646.9	642.84	642.74	643.5	643.3	642.25	642.05	79	0.25	15	0.013	2.5	1.29	3.26	39.7
INL-14	MH-31	646.95	646.9	643	642.84	643.78	643.52	642.78	642.52	76	0.34	12	0.013	1.71	0.22	2.08	10.4
MH-25	CB-3	647.3	646.7	642.94	642.51	643.31	643.05	642.06	641.8	83	0.31	15	0.013	3.32	3.15	3.62	86.9
MH-26	MH-25	647.25	647.3	643.1	642.94	643.53	643.31	642.28	642.06	71	0.31	15	0.013	3.19	2.63	3.59	73.3
INL-12	MH-26	647.25	647.25	643.85	643.42	644.08	643.82	643.08	642.82	79	0.33	12	0.013	2.97	1.98	2.05	96.8
CB-2	MH-11	646.23	646.6	638.4	638.39	639.32	639.31	636.82	636.81	7	0.15	30	0.013	3.36	8.97	16.05	55.9
MH-12	CB-2	646.1	646.23	640.26	639.87	640.94	640.82	638.94	638.82	71	0.17	24	0.013	3.36	8.62	9.31	92.6
MH-13	MH-12	646.7	646.1	641.18	640.91	642.01	641.94	640.01	639.94	39	0.18	24	0.013	3.36	7.5	9.54	78.6
MH-15	MH-13	646.54	646.7	642.37	642.06	642.84	642.74	641.34	641.24	49	0.2	18	0.013	3.06	4.57	4.74	96.4
MH-16	MH-15	646.54	646.54	642.85	642.41	643.04	642.86	641.79	641.61	72	0.25	15	0.013	3.16	3.88	3.23	120.1
MH-17	MH-16	646.35	646.54	642.95	642.85	643.13	643.04	641.88	641.79	36	0.25	15	0.013	2.99	3.36	3.23	104.1
INL-10	MH-17	646.4	646.35	642.96	642.95	643.23	643.16	642.23	642.16	17	0.41	12	0.013	3.02	1.34	2.29	58.5
INL-11	MH-17	646.65	646.35	643	642.95	643.48	643.15	642.48	642.15	96	0.35	12	0.013	2.47	0.78	2.09	37.1
INL-9	MH-16	646.45	646.54	642.85	642.85	643.29	643.21	642.29	642.21	17	0.47	12	0.013	2.02	0.26	2.44	10.6
INL-8	MH-15	646.45	646.54	642.54	642.45	643.28	643.21	642.28	642.21	17	0.41	12	0.013	2.1	0.34	2.29	15.1
MH-14	MH-13	646.1	646.7	642.51	642.25	642.91	642.81	641.66	641.56	39	0.25	15	0.013	3	2.93	3.26	90
INL-6	MH-14	646.65	646.1	642.68	642.51	643.17	642.91	641.92	641.66	103	0.25	15	0.013	2.8	2.07	3.24	63.8

SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
STORM SEWER DESIGN CALCULATIONS
10-YR STORM EVENT - BULLETIN 70 RAINFALL DATA
1/14/2026

Location		Ground		Hydraulic Grade Line		Crown		Invert		Length	Slope	Diameter	Manning's n	Velocity	Flow	Capacity (Full Flow)	Flow / Capacity (Design)
Upstream Structure	Downstream Structure	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	(ft)	(%)	(in)		(ft/s)	(cfs)	(cfs)	(%)
MH-7	INL-6	647.02	646.65	642.82	642.68	643.33	643.19	642.33	642.19	40	0.35	12	0.013	2.67	1.03	2.11	49.1
EX. MH-3A	EX. MH	645.5	645.08	640.46	640.02	640.52	640.92	639.52	639.92	86	-0.47	12	0.013	3.2	1.38	2.44	56.6
EX. MH	EX. INLET	645.08	643.3	640.75	640.42	641.05	641.25	640.05	640.25	8	-2.39	12	0.013	5.83	1.38	5.51	25.1
EX. INLET	EX. INLET	643.3	643.17	641.01	640.75	641.25	641.56	640.25	640.56	30	-1.04	12	0.013	4.08	1.12	3.63	30.8
EX. MH-3A	EX.MH	645.5	645.4	640.83	639.98	640.52	641.35	639.52	640.35	123	-0.67	12	0.013	3.6	1.28	2.93	43.8
EX.MH	EX. MH-73	645.4	643.65	640.83	640.83	641.09	641.35	640.09	640.35	8	-3.25	12	0.013	6.38	1.28	6.42	19.9
EX. MH-73	EX. MH-72	643.65	643.86	641.06	640.9	641.5	641.09	640.5	640.09	29	1.41	12	0.013	1.15	0.91	4.24	21.4
EX. CB-4B	EX. CB-4	643.17	643.76	637.97	637.94	638.67	638.67	635.17	635.17	61	0	42	0.013	2	19.2	1.01	1,908.60
EX. CB-4A	EX. CB-4B	644.18	643.17	637.99	637.97	638.81	638.67	635.31	635.17	135	0.1	42	0.013	3.26	14.28	32.43	44
EX. INLET	EX. CB-4A	643.76	644.18	640.02	637.99	641.25	637.81	638.75	635.31	62	5.51	30	0.013	14.06	14.28	96.27	14.8
EX. INLET	EX. INLET	645.94	643.76	641.49	640.02	642.76	641.25	640.26	638.75	241	0.63	30	0.013	6.28	13.29	32.44	41
MH-3	EX. INLET	646.74	645.94	642.43	641.49	643.8	642.76	641.3	640.26	193	0.54	30	0.013	5.72	11.43	30.14	37.9
EX. INLET 1	MH-3	649.1	646.74	642.44	642.43	644.16	643.8	641.66	641.3	159	0.23	30	0.013	2.13	1.08	19.51	5.5
EX. INLET 1	MH-1	649.1	649	642.45	642.44	642.66	642.77	641.66	641.77	28	-0.39	12	0.013	2.46	0.65	2.23	29
MH-1	MH-2	649	649.01	643.8	643.37	644.13	644.54	643.13	643.54	102	-0.4	12	0.013	2.08	0.34	2.26	15.3
MH-2	INL-1	649.01	648.92	645.01	644.77	645.54	645.75	644.54	644.75	61	-0.34	12	0.013	1.89	0.3	2.08	14.5
EX. INLET 1	EX. MH-1	649.1	648.68	642.58	642.44	644.16	644.94	641.66	642.44	147	-0.53	30	0.013	1.66	0.17	29.83	0.6
EX. MH-1	EX. INLET 2	648.68	647.17	643.27	642.58	644.44	645.15	642.44	643.15	260	-0.27	24	0.013	1.1	0.09	11.82	0.7
CB-1	MH-3	646.9	646.74	642.79	642.43	643.39	643.3	641.39	641.3	59	0.15	24	0.013	3.05	9.58	8.86	108.1
MH-4	CB-1	646.8	646.9	642.97	642.79	643.5	643.39	641.5	641.39	73	0.15	24	0.013	3.18	9.02	8.77	102.9
MH-5	MH-4	646.95	646.8	643.19	642.97	643.53	643.4	642.03	641.9	70	0.19	18	0.013	2.81	4.97	4.53	109.7
MH-6	MH-5	646.95	646.95	643.31	643.19	643.63	643.53	642.13	642.03	56	0.18	18	0.013	2.85	4.41	4.42	99.7
MH-10	MH-6	646.85	646.95	643.42	643.31	643.66	643.53	642.66	642.53	67	0.2	12	0.013	2.26	1.39	1.57	88.2
MH-10	INL-5	646.85	646.61	643.76	643.42	643.56	643.81	643.06	643.31	50	-0.5	6	0.013	2.24	0.44	0.4	110.3
MH-7	MH-6	647.35	646.95	643.49	643.31	643.88	643.64	642.63	642.39	97	0.25	15	0.013	2.88	2.46	3.21	76.5
INL-4	MH-7	647.35	647.35	643.57	643.49	644.18	644.1	643.18	643.1	22	0.36	12	0.013	2.43	0.69	2.15	32.1
MH-8	MH-7	647.5	647.35	643.74	643.49	644.26	643.9	643.26	642.9	104	0.35	12	0.013	2.64	0.99	2.1	47.2
INL-3	MH-8	647.5	647.5	643.76	643.74	644.33	644.26	643.33	643.26	22	0.32	12	0.013	2.09	0.47	2.01	23.6
MH-9	MH-4	647.25	646.8	643.35	642.97	643.78	643.5	642.53	642.25	112	0.25	15	0.013	2.92	2.54	3.23	78.7
INL-2	MH-9	647.25	647.25	643.81	643.4	644.08	643.81	643.08	642.81	79	0.34	12	0.013	3.01	1.9	2.09	90.9
MH-38	EX. O-2	643.54	635.68	638.64	632.48	639.16	633.68	637.16	631.68	109	5.01	24	0.013	14.48	16.81	50.61	33.2
CB-5	MH-38	645.4	643.54	638.93	638.64	640.24	640.16	637.24	637.16	96	0.08	36	0.013	3.06	16.47	19.23	85.6
MH-39	CB-5	645.35	645.4	639.07	638.93	640.3	640.24	637.3	637.24	75	0.08	36	0.013	2.99	16.17	18.82	85.9
MH-40	MH-39	645.35	645.35	639.17	639.07	640.36	640.3	637.36	637.3	79	0.08	36	0.013	2.91	15.09	18.42	81.9
MH-41	MH-40	645.63	645.35	639.23	639.17	640.41	640.36	637.41	637.36	65	0.08	36	0.013	2.87	13.88	18.46	75.2
MH-42	MH-41	645.4	645.63	639.28	639.23	640.46	640.41	637.46	637.41	59	0.08	36	0.013	2.97	13.58	19.44	69.9
INL-17	MH-42	645.65	645.4	640.91	640.59	641.48	641.19	640.48	640.19	67	0.43	12	0.013	2.79	0.91	2.34	38.6
INL-16	MH-42	645.51	645.4	640.71	640.38	641.34	641.03	640.34	640.03	71	0.44	12	0.013	2.6	0.69	2.35	29.3
MH-43	MH-42	645.85	645.4	639.51	639.28	640.47	640.36	637.97	637.86	110	0.1	30	0.013	2.97	11.12	12.98	85.7
MH-44	MH-43	645.85	645.85	639.6	639.51	640.55	640.47	638.05	637.97	79	0.1	30	0.013	2.91	9.61	13.08	73.5
MH-45	MH-44	646.99	645.85	639.93	639.6	640.6	640.45	638.6	638.45	85	0.18	24	0.013	3.43	8.62	9.5	90.8
MH-46	MH-45	644.26	646.99	640.16	639.93	640.78	640.6	638.78	638.6	99	0.18	24	0.013	3.46	8.36	9.67	86.5
MH-46	EX. MH-7	644.26	643.45	640.2	640.16	640.78	640.92	638.78	638.92	36	-0.39	24	0.013	4.62	7.98	14.06	56.7
EX. MH-7	EX. MH-8	643.45	640.03	640.57	640.2	640.92	637.83	638.92	635.83	192	1.61	24	0.013	2.54	7.98	28.73	27.8
EX. MH-8	EX. MH-9	640.03	641.36	640.25	640.03	637.58	637.91	635.83	636.16	87	-0.38	21	0.013	3.32	7.98	9.77	81.6
EX. MH-9	EX. MH-10	641.36	646.81	641.72	640.25	637.91	642.42	636.16	640.67	165	-2.74	21	0.013	9.57	7.98	26.23	30.4
EX. MH-10	EX. MH-11	646.81	646.56	642.07	641.72	642.42	642.96	640.67	641.21	42	-1.3	21	0.013	6.6	5.52	18.07	30.5
EX. MH-11	EX. MH-12	646.56	645.62	642.51	642.07	642.01	642.28	641.01	641.28	147	-0.18	12	0.013	2.47	1.94	1.53	127.2
EX. MH-12	EX. MH-13	645.62	645.63	642.58	642.51	642.28	642.99	641.28	641.99	25	-2.86	12	0.013	6.84	1.94	6.03	32.2
EX. INL 8	EX. O-2	644.47	635.68	634.12	632.77	634.79	633.68	632.79	631.68	102	1.09	24	0.013	7.78	13.57	23.61	57.5
EX. INL 7	EX. INL 8	642.03	644.47	636.65	635.76	637.38	636.65	635.38	634.65	85	0.86	24	0.013	6.97	12.53	20.96	59.8

SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
STORM SEWER DESIGN CALCULATIONS
10-YR STORM EVENT - BULLETIN 70 RAINFALL DATA
1/14/2026

Location		Ground		Hydraulic Grade Line		Crown		Invert		Length	Slope	Diameter	Manning's n	Velocity	Flow	Capacity (Full Flow)	Flow / Capacity (Design)
Upstream Structure	Downstream Structure	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	(ft)	(%)	(in)		(ft/s)	(cfs)	(cfs)	(%)
EX. INL 7	EX. INL 6	642.03	643.98	641.55	636.65	636.38	641.93	635.38	640.93	107	-5.17	12	0.013	8.68	2.11	8.1	26.1
EX. INL 6	EX. INL 5	643.98	646	642.83	641.55	641.93	643.3	640.93	642.3	138	-0.99	12	0.013	4.39	1.59	3.55	44.7
EX. INL 5	EX. INL 4	646	646.08	643.15	642.83	643.3	643.78	642.3	642.78	31	-1.57	12	0.013	4.27	0.78	4.46	17.4
MH-32	EX. INL 7	645.23	642.03	636.73	636.65	637.66	637.38	635.66	635.38	48	0.59	24	0.013	5.58	9.05	17.33	52.2
MH-33	MH-32	643.7	645.23	639.34	639.14	640.17	640.07	638.17	638.07	27	0.36	24	0.013	4.65	9.05	13.66	66.3
MH-34	MH-33	643.75	643.7	639.4	639.34	640.27	640.17	638.27	638.17	28	0.35	24	0.013	4.41	7.63	13.41	56.9
CB-4	MH-34	646.1	643.75	639.65	639.4	640.73	640.27	638.73	638.27	131	0.35	24	0.013	4.11	5.78	13.43	43
MH-35	CB-4	646.19	646.1	640.27	639.96	641.42	641.17	639.42	639.17	73	0.34	24	0.013	3.94	5.04	13.27	38
EX. MH-5	MH-35	645.77	646.19	640.45	640.27	641.05	640.92	639.55	639.42	72	0.18	18	0.013	2.76	3.23	4.47	72.3
EX. INL-5	EX. MH-5	644.86	645.77	640.68	640.45	641.5	641.05	640	639.55	24	1.87	18	0.013	6.56	3.23	14.37	22.5
EX. INL-6	EX. INL-5	644.85	644.86	640.7	640.68	641.63	641.5	640.13	640	30	0.44	18	0.013	3.17	1.55	6.95	22.3
MH-36	MH-35	646.1	646.19	640.28	640.27	641.43	641.42	639.43	639.42	6	0.16	24	0.013	2.27	1.81	9.17	19.8
MH-37	MH-36	646.2	646.1	642.12	641.78	642.75	642.43	641.75	641.43	73	0.44	12	0.013	2.61	0.69	2.36	29.2
INL-15	MH-37	647.8	646.2	642.81	642.5	643.31	643	642.81	642.5	31	1	6	0.013	0	0	0.56	0

SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
STORM SEWER DESIGN CALCULATIONS
10-YR STORM EVENT - BULLETIN 70 RAINFALL DATA
1/14/2026

Drainage Area	Outflow Element	Area (Acres)	Runoff Coefficient	Tc (min)	Intensity (in/hr)	Flow (cfs)
EX. C1	EX. CB-3	0.29	0.66	5	6.48	1.23
EX. C2	EX. INL 7	0.32	0.66	5	6.48	1.36
EX. C3	EX. CB-4	0.26	0.66	5	6.48	1.11
EX. C4	EX. CB-5	1.85	0.66	5	6.48	7.98
EX. C5	EX. CB-6	1.12	0.66	5	6.48	4.83
EX. C6	EX. CB-7	1.22	0.66	5	6.48	5.28
EX. C7	EX. CB-8	0.26	0.66	5	6.48	1.14
EX. C8	EX. MH-9	0.99	0.66	5	6.48	4.26
EX. C9	EX. MH-10	0.00	0.66	5	6.48	0.00
EX. C10	EX. INL 11	0.97	0.66	5	6.48	4.20
EX. C11	EX. INL-12	122.00	0.66	5	6.48	525.94
EX. C12	EX. INL 8	0.24	0.66	5	6.48	1.04
EX. C15	EX. INL 6	0.12	0.66	5	6.48	0.53
EX. C16	EX. INL 5	0.19	0.66	5	6.48	0.81
EX. C-17	EX. INL 4	0.18	0.66	5	6.48	0.78
CM-19	EX. CB-4B	1.14	0.66	5	6.48	4.92
CM-22	INL-2	0.44	0.66	5	6.48	1.9
CM-23	MH-9	0.15	0.66	5	6.48	0.65
CM-24	MH-4	0.35	0.66	5	6.48	1.51
CM-25	CB-1	0.13	0.66	5	6.48	0.56
CM-26	MH-3	0.18	0.66	5	6.48	0.78
CM-27	INL-3	0.11	0.66	5	6.48	0.47
CM-28	MH-8	0.12	0.66	5	6.48	0.52
CM-29	INL-4	0.16	0.66	5	6.48	0.69
CM-30	MH-7	0.18	0.66	5	6.48	0.78
CM-31	MH-6	0.13	0.66	5	6.48	0.56
CM-33	MH-10	0.22	0.66	5	6.48	0.95
CM-34	INL-12	0.46	0.66	5	6.48	1.98
CM-35	MH-26	0.15	0.66	5	6.48	0.65
CM-36	MH-25	0.12	0.66	5	6.48	0.52
CM-37	CB-3	0.36	0.66	5	6.48	1.55
CM-38	MH-21	0.27	0.66	5	6.48	1.16
CM-39	MH-23	0.04	0.66	5	6.48	0.17
CM-40	MH-22	0.24	0.66	5	6.48	1.03
CM-41	MH-30	0.14	0.66	5	6.48	0.6
CM-42	MH-31	0.25	0.66	5	6.48	1.08
CM-43	INL-14	0.05	0.66	5	6.48	0.22
CM-44	MH-24	0.06	0.66	5	6.48	0.26
CM-47	MH-20	0.45	0.66	5	6.48	1.94
CM-48	MH-19	0.26	0.66	5	6.48	1.12
CM-49	MH-18	0.32	0.66	5	6.48	1.38

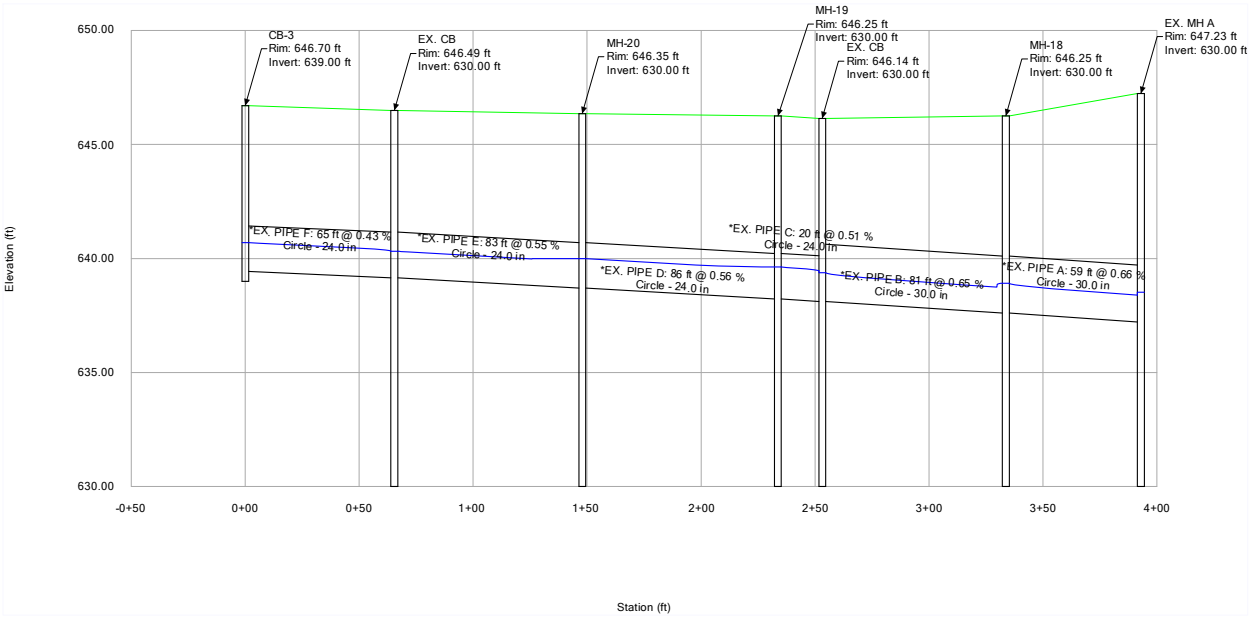
SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
STORM SEWER DESIGN CALCULATIONS
10-YR STORM EVENT - BULLETIN 70 RAINFALL DATA
1/14/2026

Drainage Area	Outflow Element	Area (Acres)	Runoff Coefficient	Tc (min)	Intensity (in/hr)	Flow (cfs)
CM-52	EX. MH-72	0.21	0.66	5	6.48	0.91
CM-53	MH-12	0.26	0.66	5	6.48	1.12
CM-55	MH-15	0.08	0.66	5	6.48	0.34
CM-56	MH-17	0.29	0.66	5	6.48	1.25
CM-57	INL-11	0.18	0.66	5	6.48	0.78
CM-58	INL-8	0.08	0.66	5	6.48	0.34
CM-59	CB-5	0.07	0.66	5	6.48	0.3
CM-60	MH-39	0.25	0.66	5	6.48	1.08
CM-61	MH-40	0.28	0.66	5	6.48	1.21
CM-63	MH-42	0.2	0.66	5	6.48	0.86
CM-64	INL-17	0.21	0.66	5	6.48	0.91
CM-65	INL-16	0.16	0.66	5	6.48	0.69
CM-66	MH-43	0.35	0.66	5	6.48	1.51
CM-67	MH-44	0.23	0.66	5	6.48	0.99
CM-69	MH-45	0.06	0.66	5	6.48	0.26
CM-70	MH-46	0.09	0.66	5	6.48	0.39
CM-71	MH-14	0.2	0.66	5	6.48	0.86
CM-72	INL-6	0.24	0.66	5	6.48	1.03
CM-77	EX. INLET 1	0.06	0.66	5	6.48	0.26
CM-1	MH-1	0.07	0.66	5	6.48	0.3
CM-2	MH-2	0.01	0.66	5	6.48	0.04
CM-3	EX. MH-1	0.02	0.66	5	6.48	0.09
CM-4	INL-1	0.07	0.66	5	6.48	0.3
CM-5	EX. INLET 2	0.02	0.66	5	6.48	0.09
CM-6	MH-5	0.13	0.66	5	6.48	0.56
CM-7	INL-5	0.1	0.66	5	6.48	0.44
CM-8	EX. INLET	0.43	0.66	5	6.48	1.85
CM-9	EX. INLET	0.23	0.66	5	6.48	0.99
CM-10	EX. INLET	0.06	0.66	5	6.48	0.26
CM-11	EX. INLET	0.26	0.66	5	6.48	1.12
CM-12	EX. MH-73	0.09	0.66	5	6.48	0.38
CM-13	MH-11	0.07	0.66	5	6.48	0.3
CM-14	CB-2	0.08	0.66	5	6.48	0.34
CM-15	MH-16	0.06	0.66	5	6.48	0.26
CM-16	INL-9	0.06	0.66	5	6.48	0.26
CM-17	INL-10	0.31	0.66	5	6.48	1.34
CM-18	MH-7	0.24	0.66	5	6.48	1.03
CM-19	MH-27	0.1	0.66	5	6.48	0.43
CM-20	MH-28	0.08	0.66	5	6.48	0.34
CM-21	MH-29	0.07	0.66	5	6.48	0.3
CM-22	INL-13	0.07	0.66	5	6.48	0.3

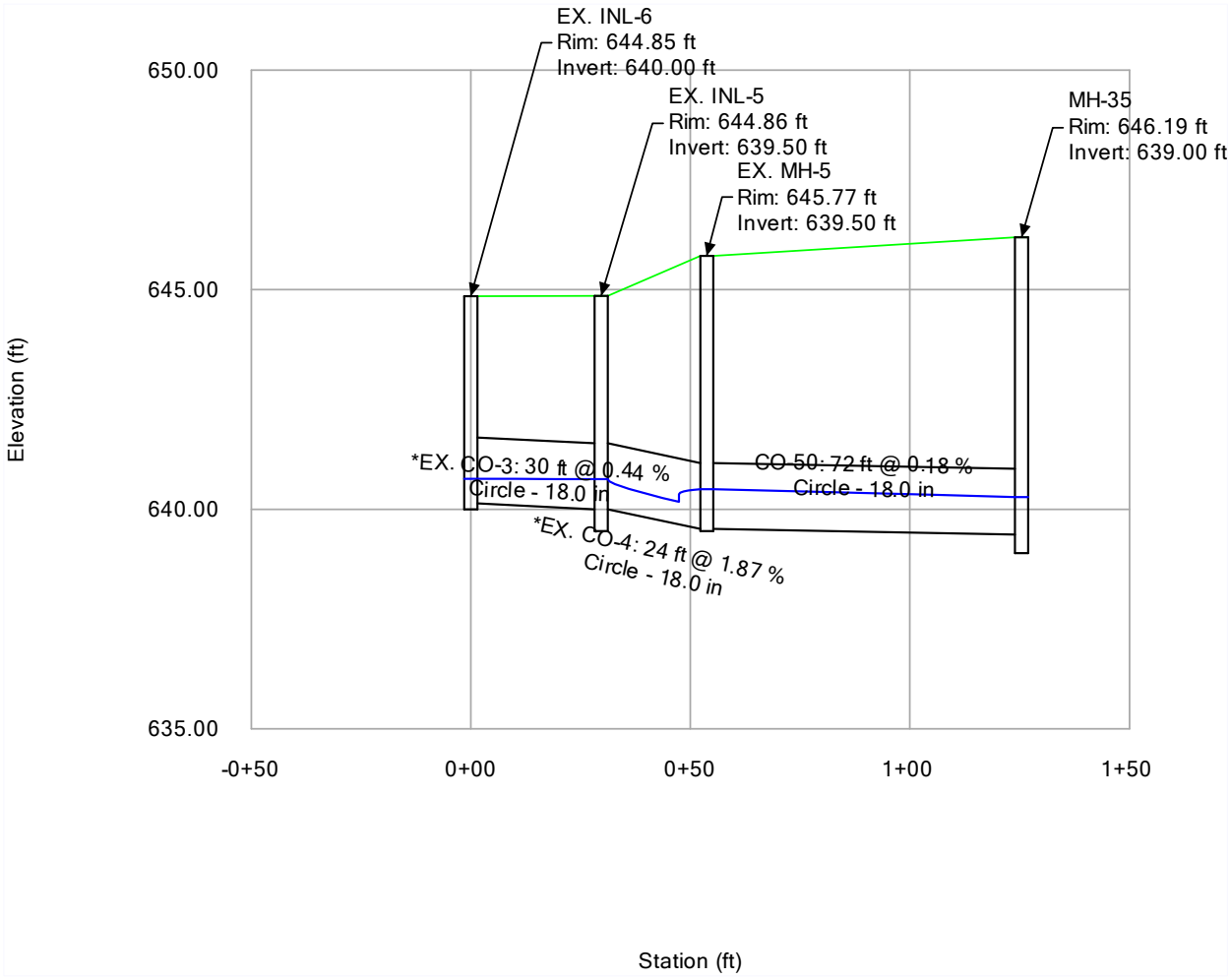
SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
STORM SEWER DESIGN CALCULATIONS
10-YR STORM EVENT - BULLETIN 70 RAINFALL DATA
1/14/2026

Drainage Area	Outflow Element	Area (Acres)	Runoff Coefficient	Tc (min)	Intensity (in/hr)	Flow (cfs)
CM-23	MH-33	0.33	0.66	5	6.48	1.42
CM-24	MH-34	0.43	0.66	5	6.48	1.85
CM-25	CB-4	0.17	0.66	5	6.48	0.73
CM-26	MH-36	0.26	0.66	5	6.48	1.12
CM-27	MH-37	0.16	0.66	5	6.48	0.69
CM-28	MH-38	0.08	0.66	5	6.48	0.34
CM-29	MH-41	0.07	0.66	5	6.48	0.3
CM-30	EX. CB A	0.02	0.66	5	6.48	0.09
CM-31	EX. MH-13	0.45	0.66	5	6.48	1.94
CM-3	EX. INL-6	0.36	0.66	5	6.48	1.55
CM-4	EX. INL-5	0.39	0.66	5	6.48	1.68
CM-5	EX. MH-11	0.83	0.66	5	6.48	3.58
CM-6	EX. MH-10	0.57	0.66	5	6.48	2.46

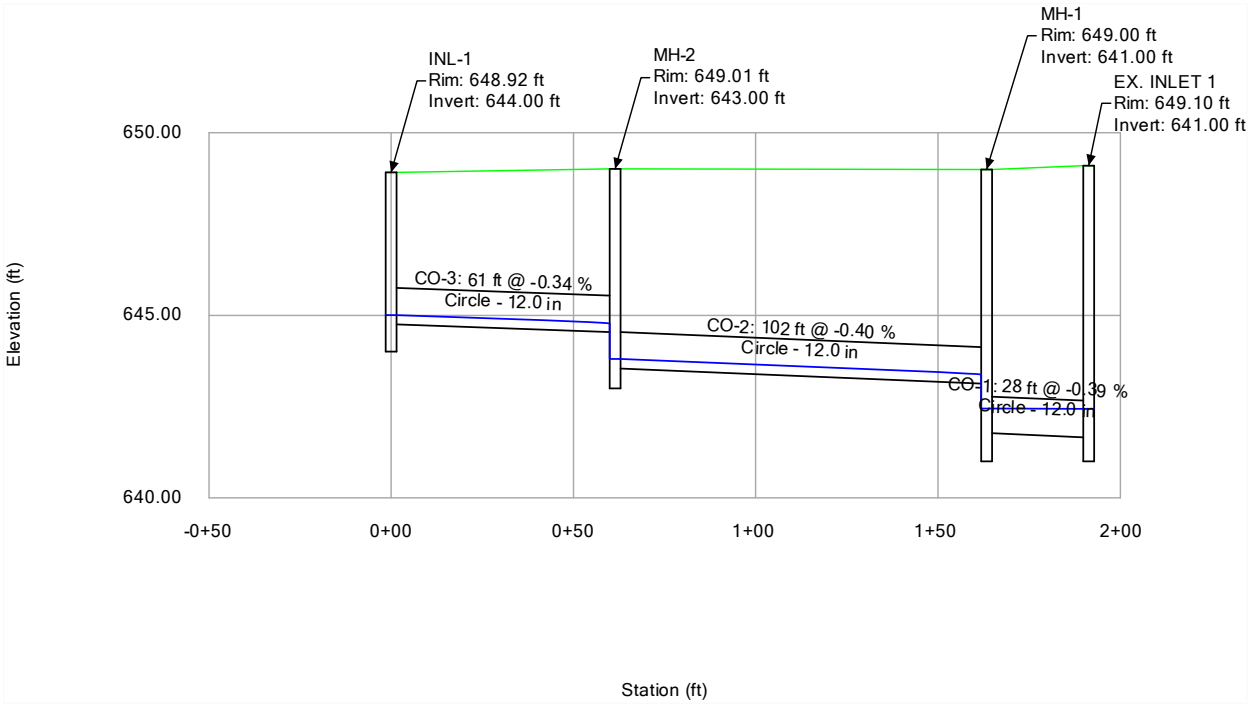
Profile Report
Engineering Profile - CB-3 TO EX. MH-A (FRDCR_repaired_FINAL.stsw)



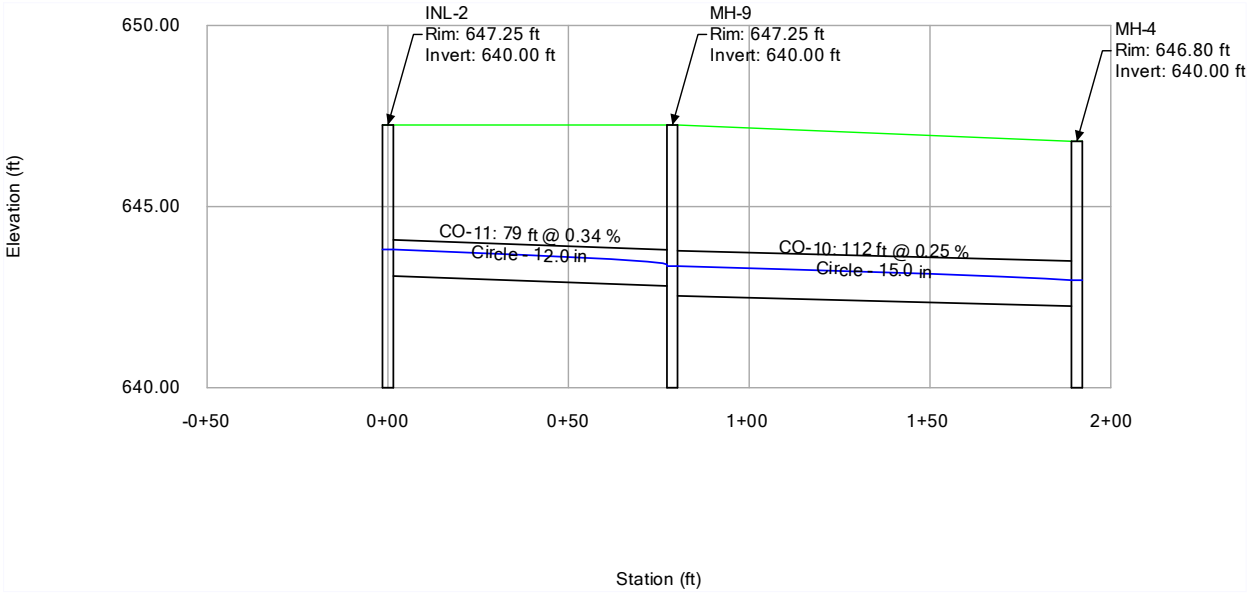
Profile Report
Engineering Profile - EX. INL-6 TO MH-36 (FRDCR_repaired_FINAL.stsw)



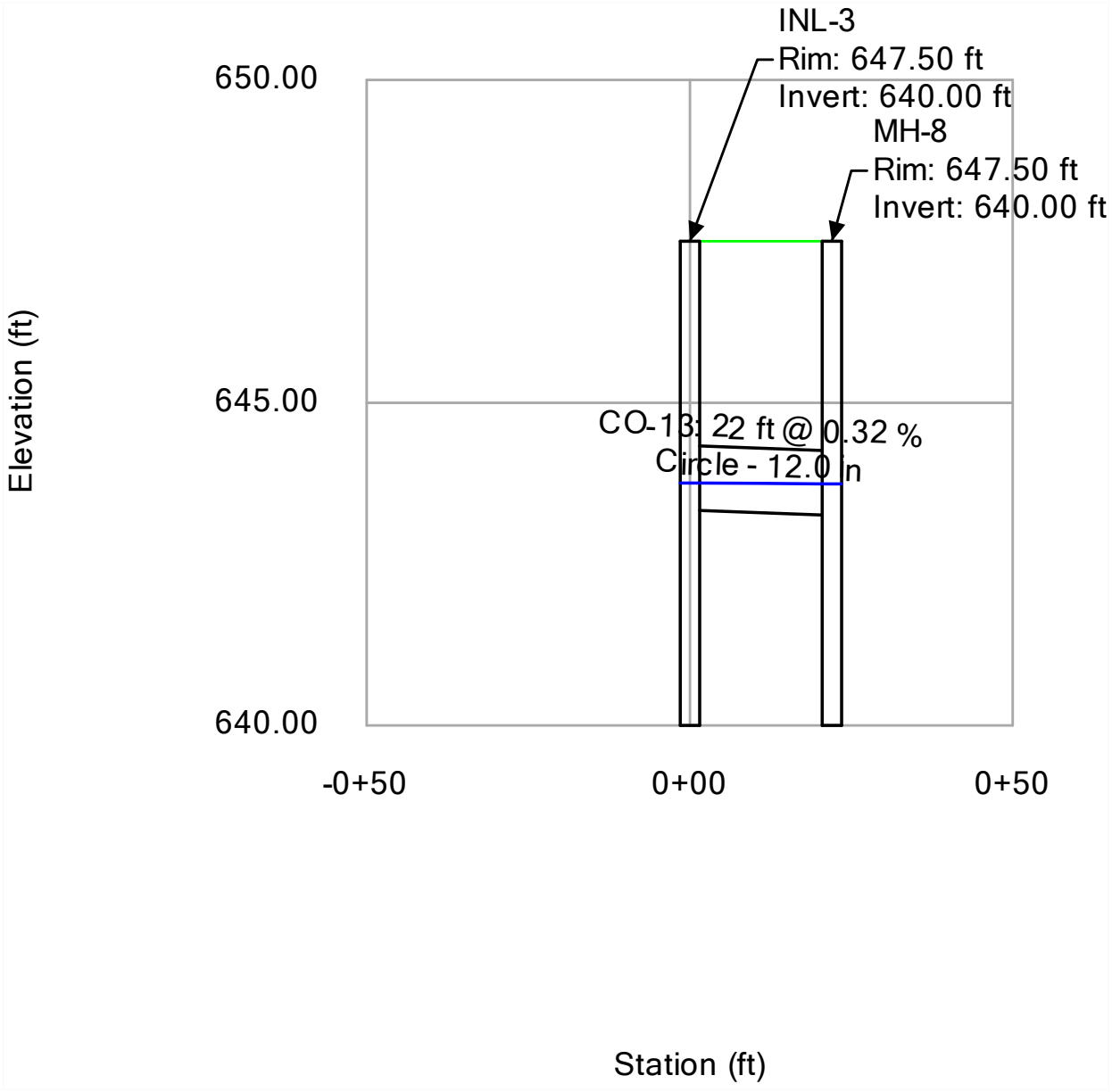
Profile Report
Engineering Profile - INL-1 TO EX. INL-1 (FRDCR_repaired_FINAL.stsw)



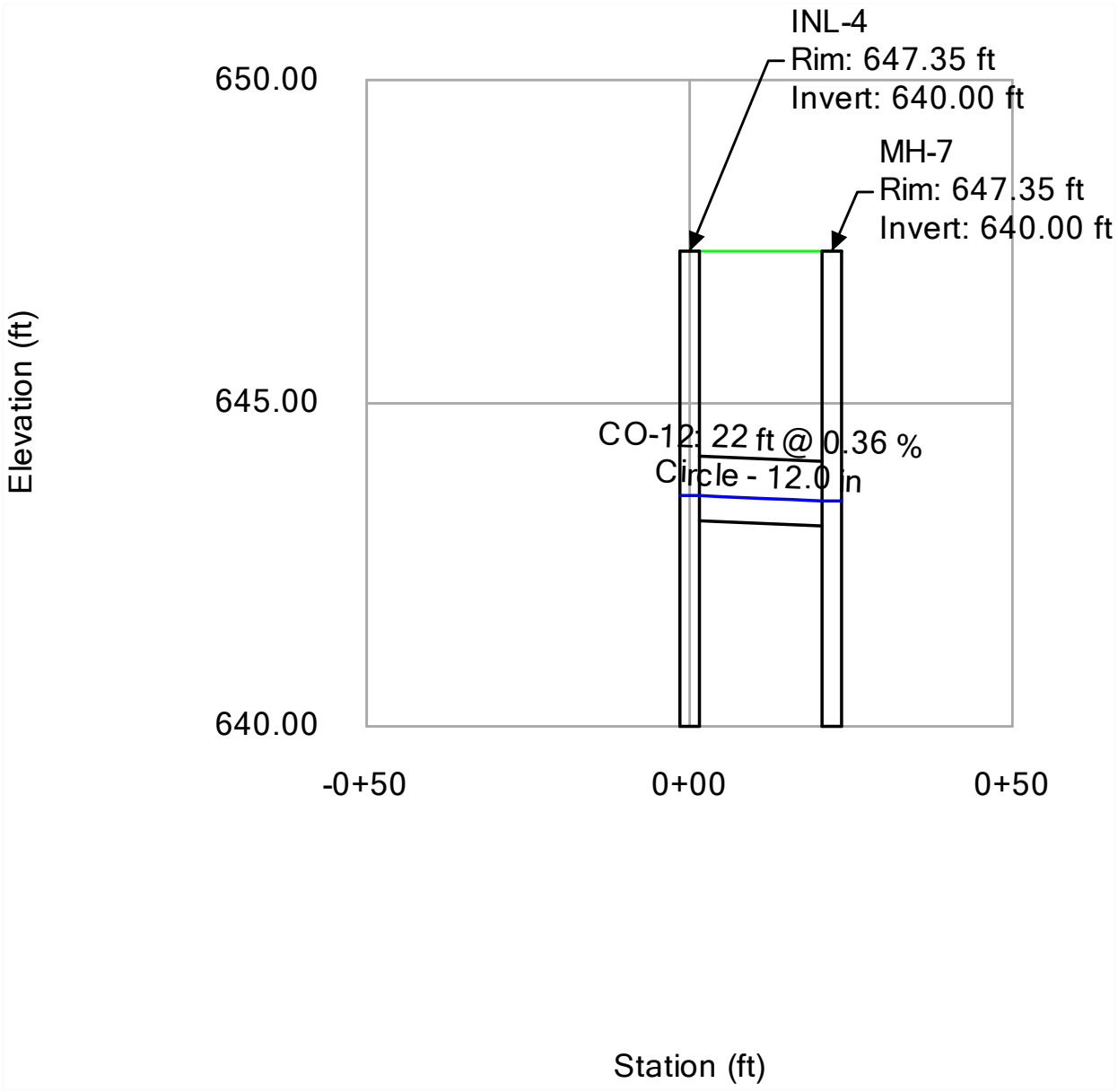
Profile Report
Engineering Profile - INL-2 TO MH-4 (FRDCR_repaired_FINAL.stsw)



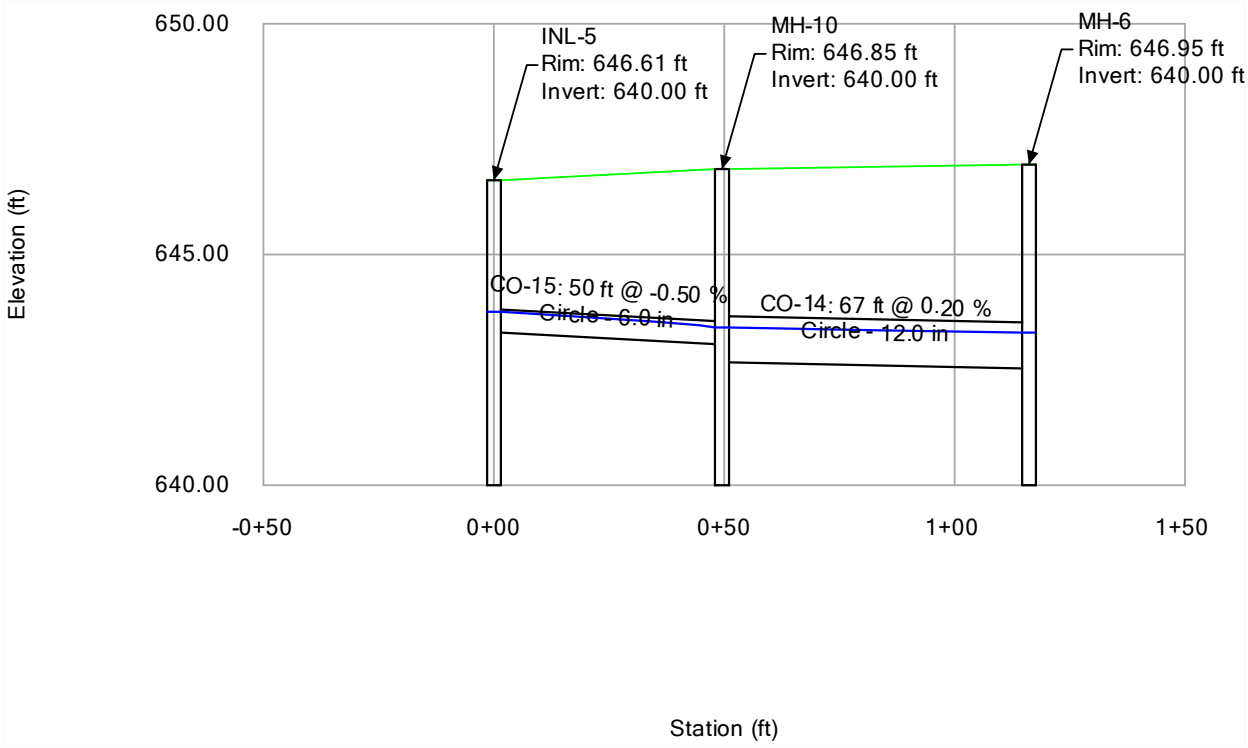
Profile Report
Engineering Profile - INL-3 TO MH-8 (FRDCR_repaired_FINAL.stsw)



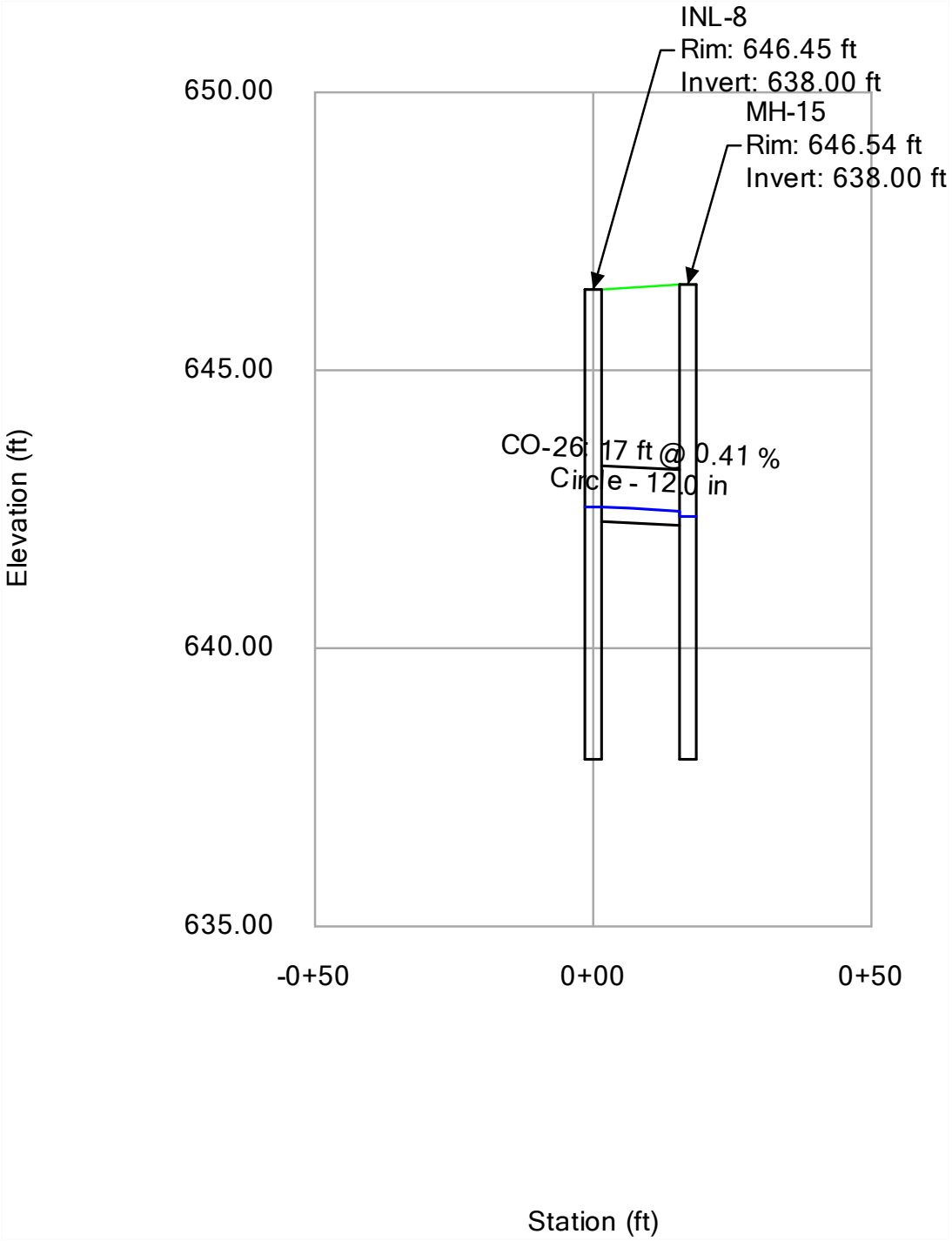
Profile Report
Engineering Profile - INL-4 TO MH-7 (FRDCR_repaired_FINAL.stsw)



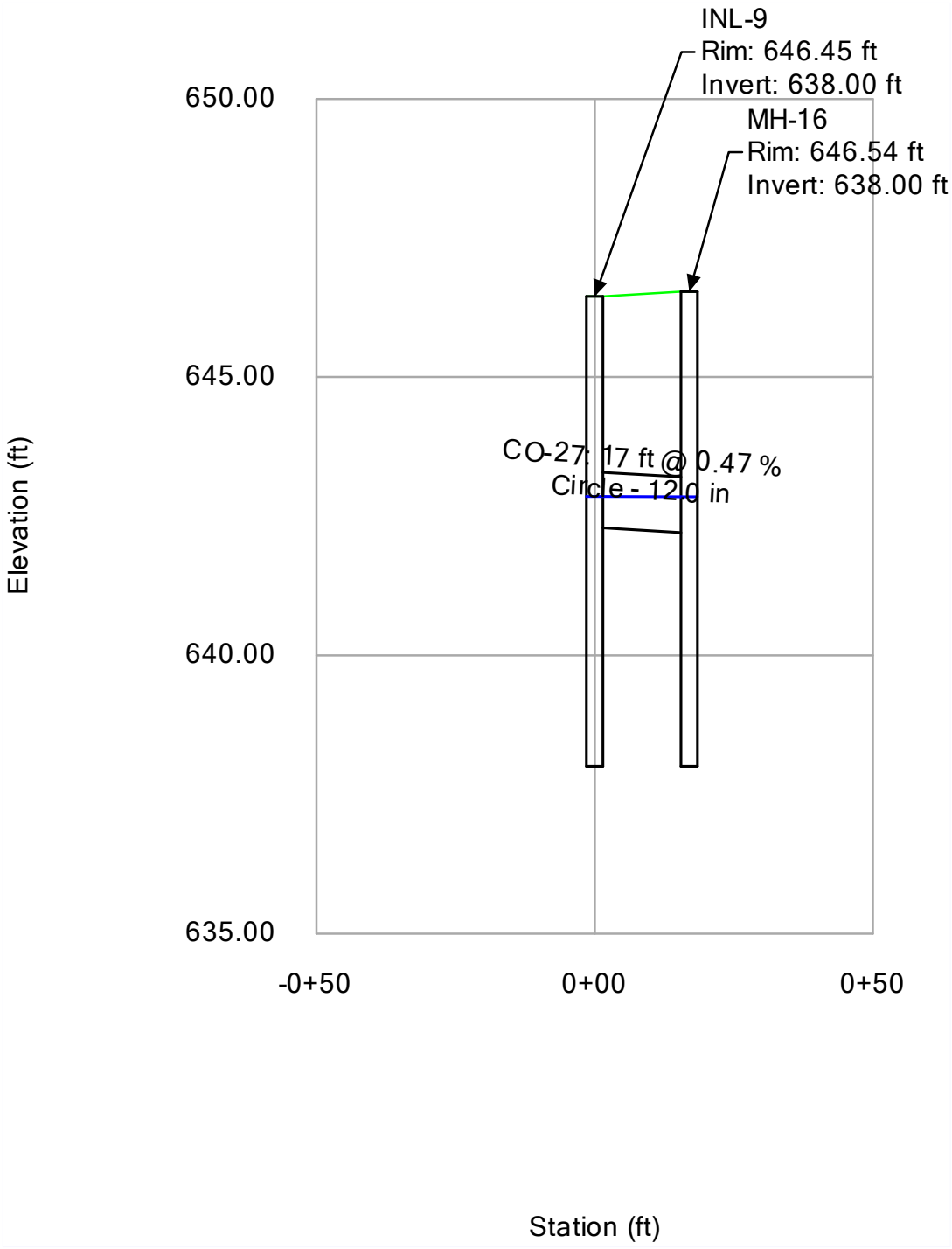
Profile Report
Engineering Profile - INL-5 TO MH-6 (FRDCR_repaired_FINAL.stsw)



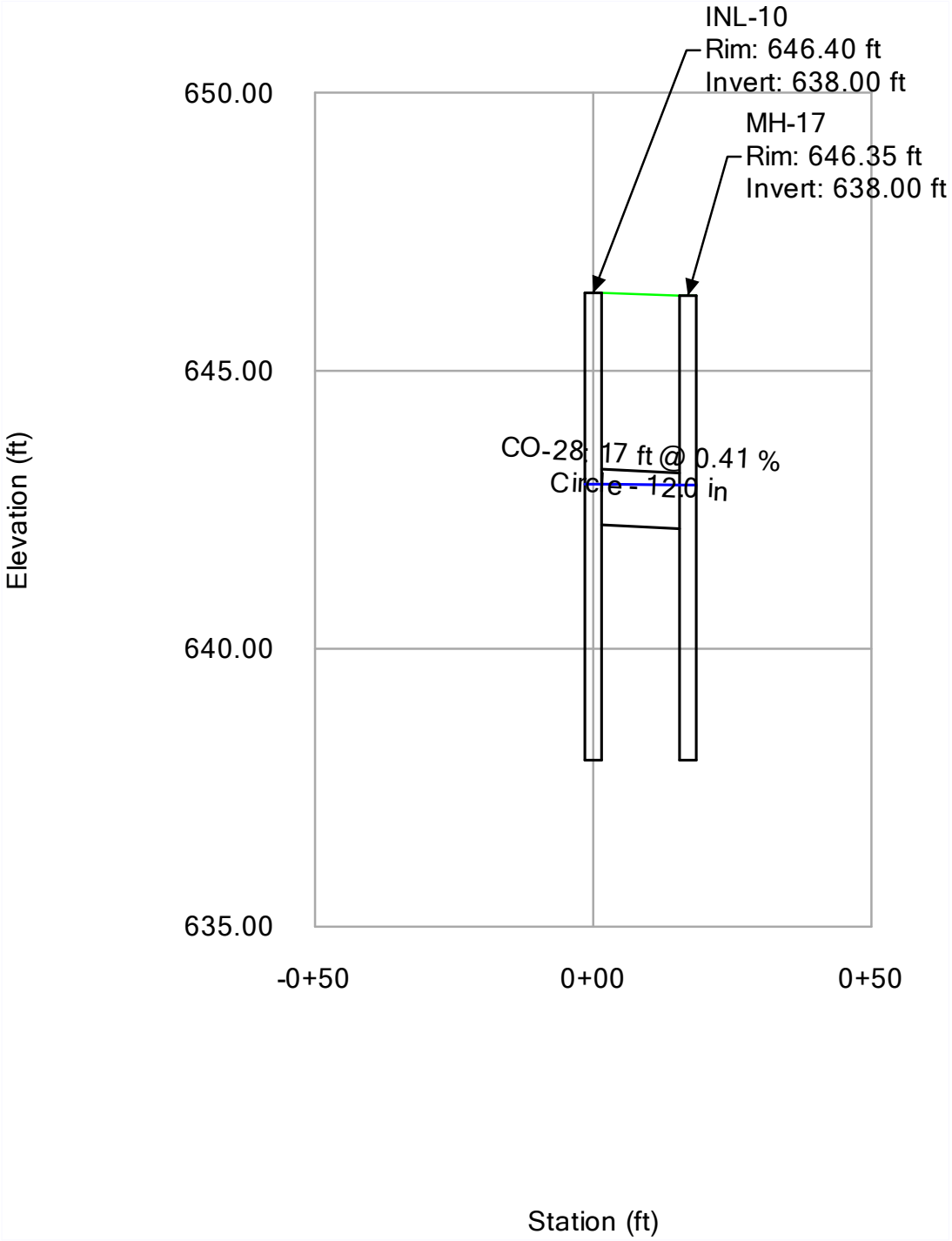
Profile Report
Engineering Profile - INL-8 TO MH-15 (FRDCR_repaired_FINAL.stsw)



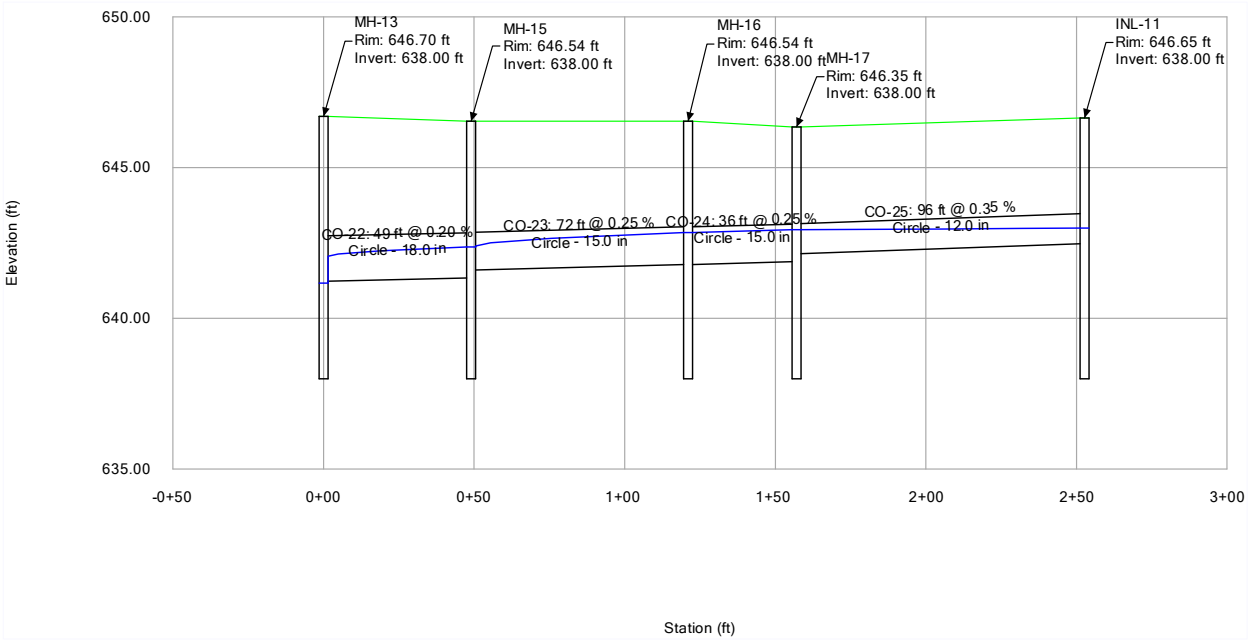
Profile Report
Engineering Profile - INL-9 TO MH-16 (FRDCR_repaired_FINAL.stsw)



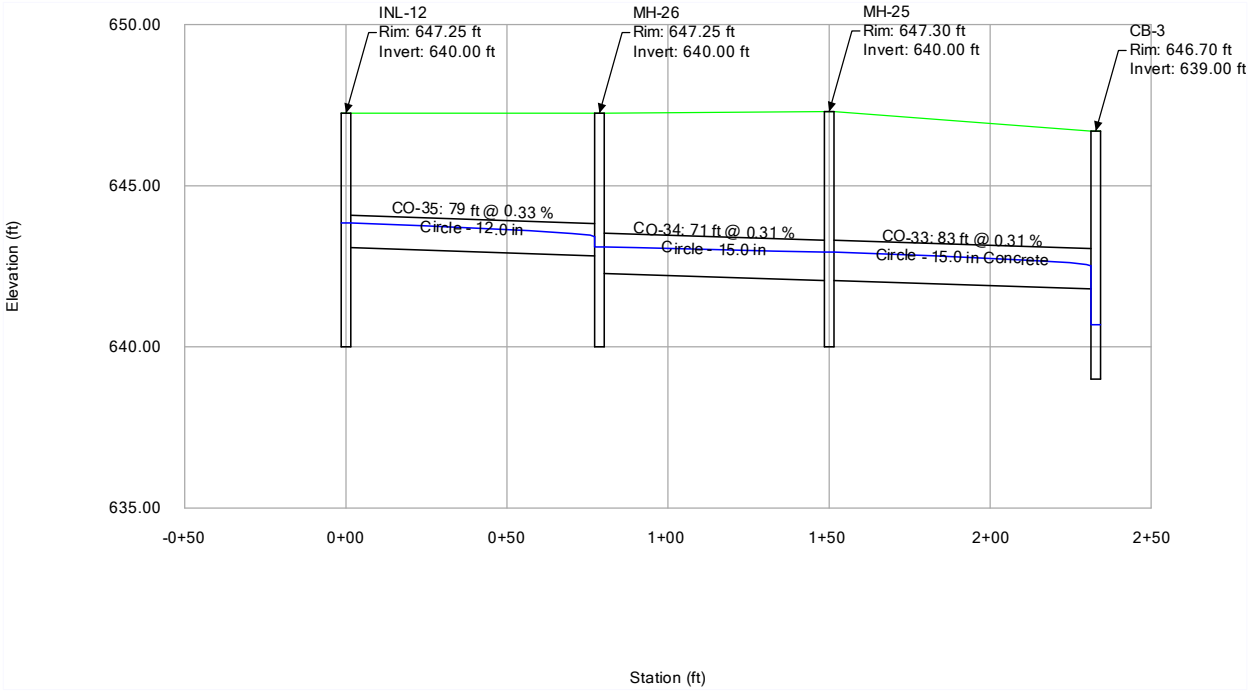
Profile Report
Engineering Profile - INL-10 TO MH-17 (FRDCR_repaired_FINAL.stsw)



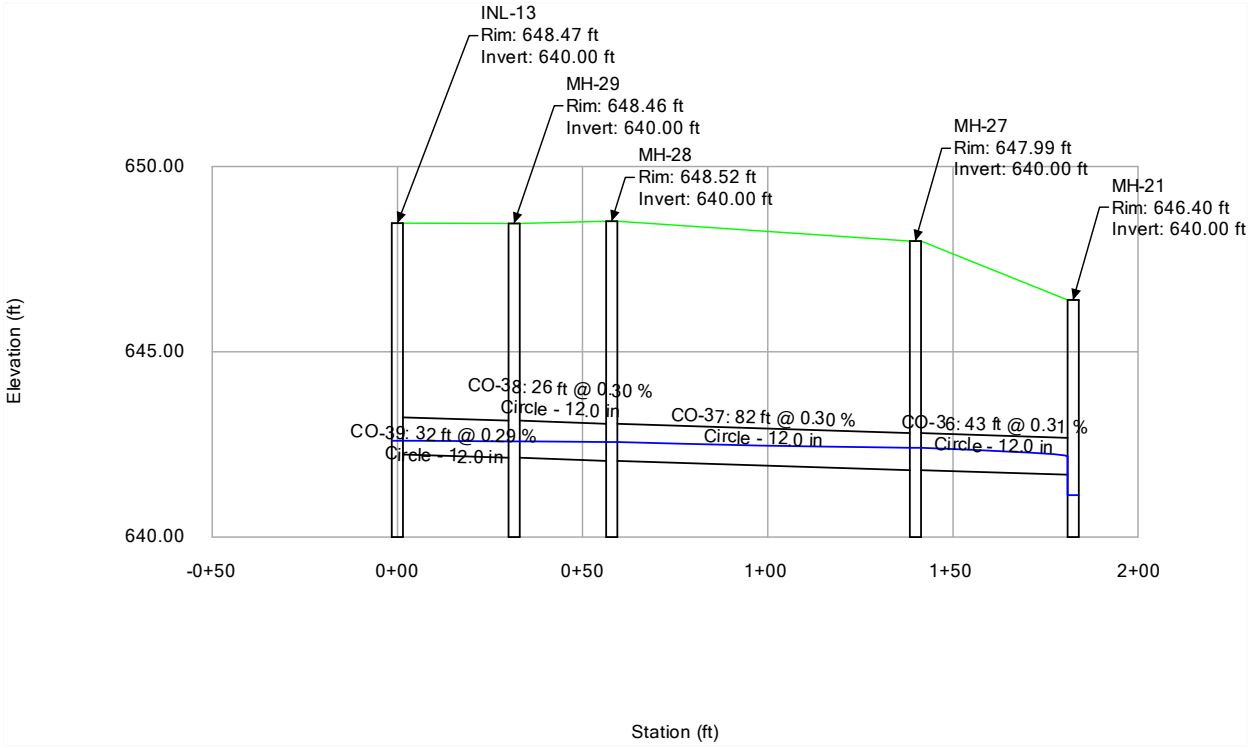
Profile Report
Engineering Profile - INL-11 TO MH-13 (FRDCR_repaired_FINAL.stsw)



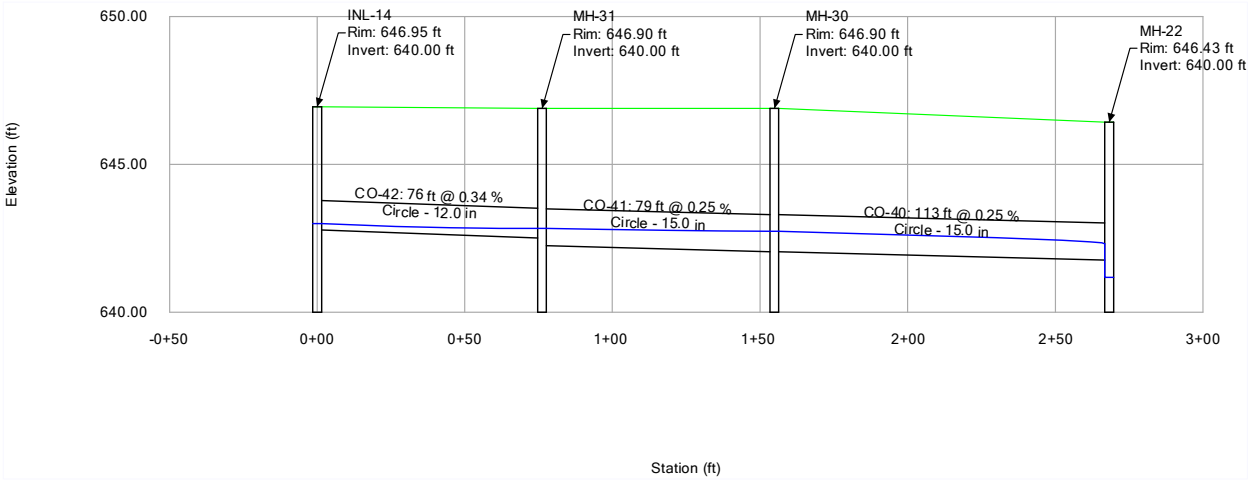
Profile Report
Engineering Profile - INL-12 TO CB-3 (FRDCR_repaired_FINAL.stsw)



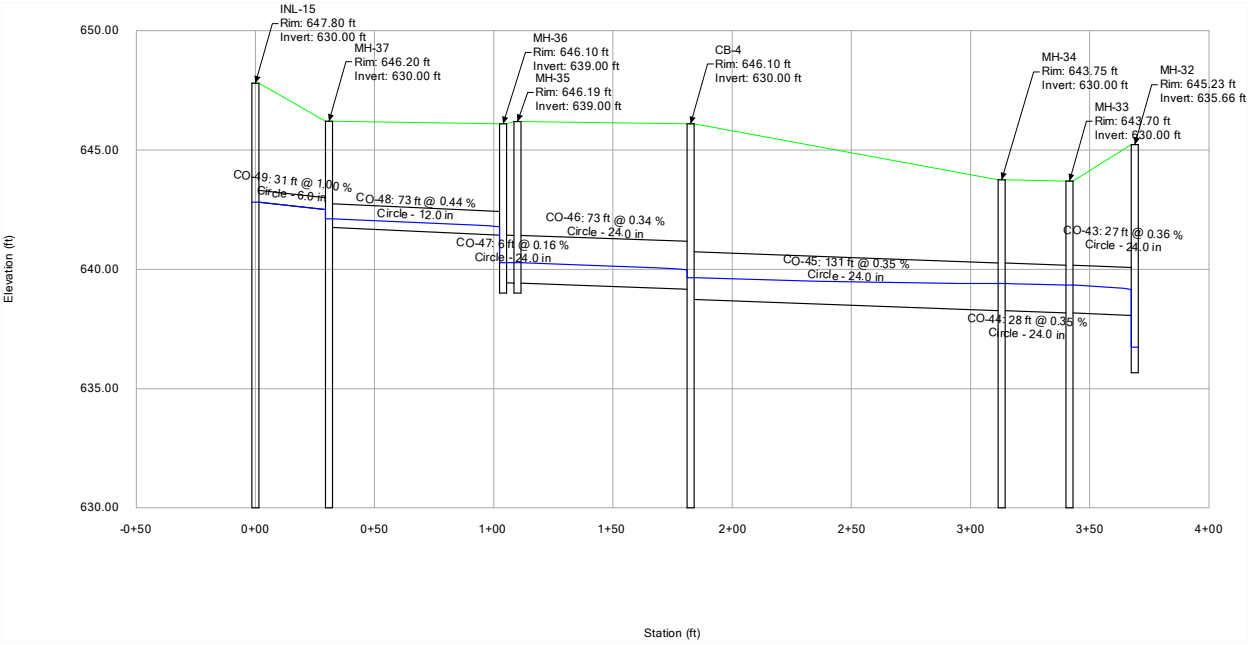
Profile Report
Engineering Profile - INL-13 TO MH-21 (FRDCR_repaired_FINAL.stsw)



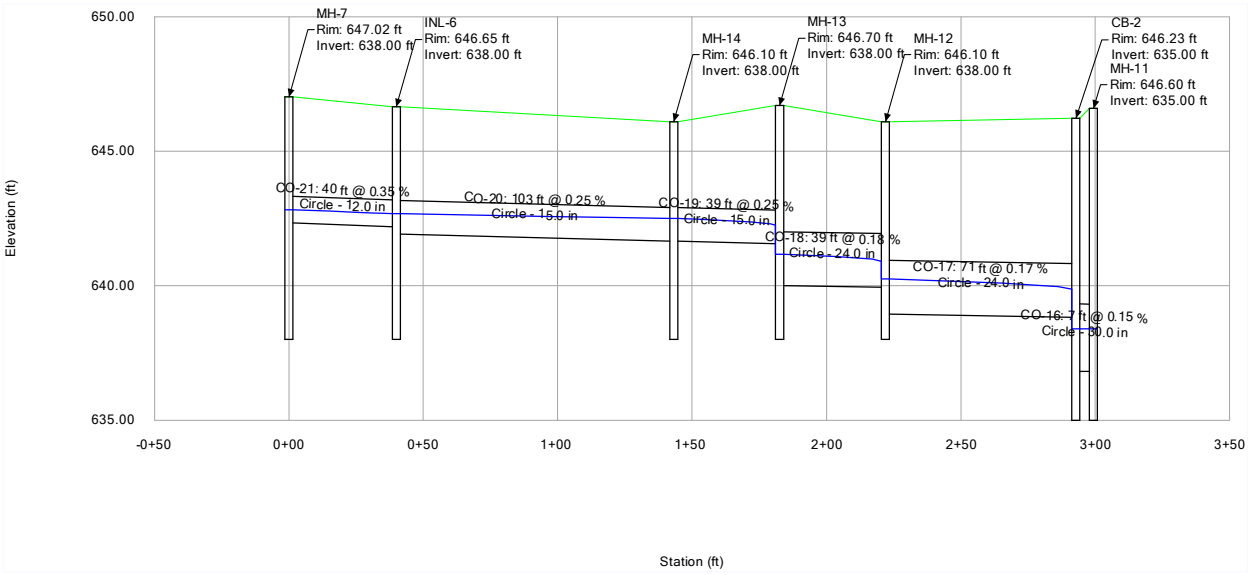
Profile Report
Engineering Profile - INL-14 TO MH-22 (FRDCR_repaired_FINAL.stsw)



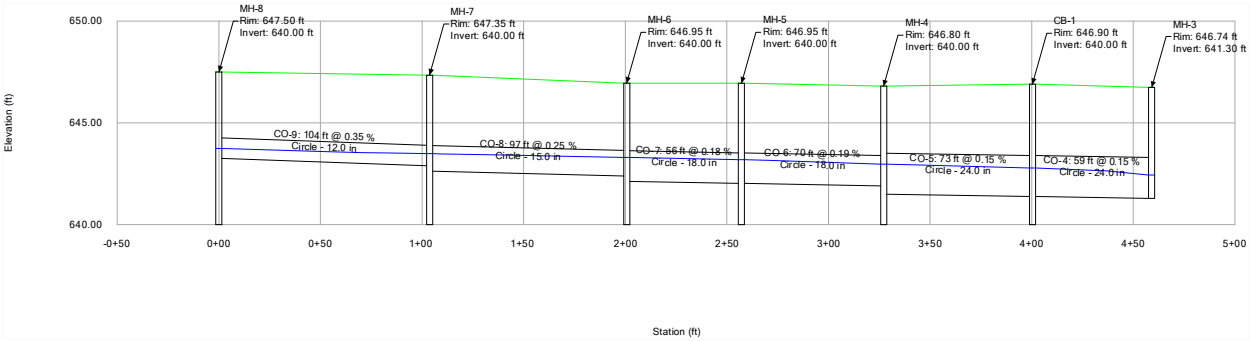
Profile Report
Engineering Profile - INL-15 TO MH-32 (FRDCR_repaired_FINAL.stsw)



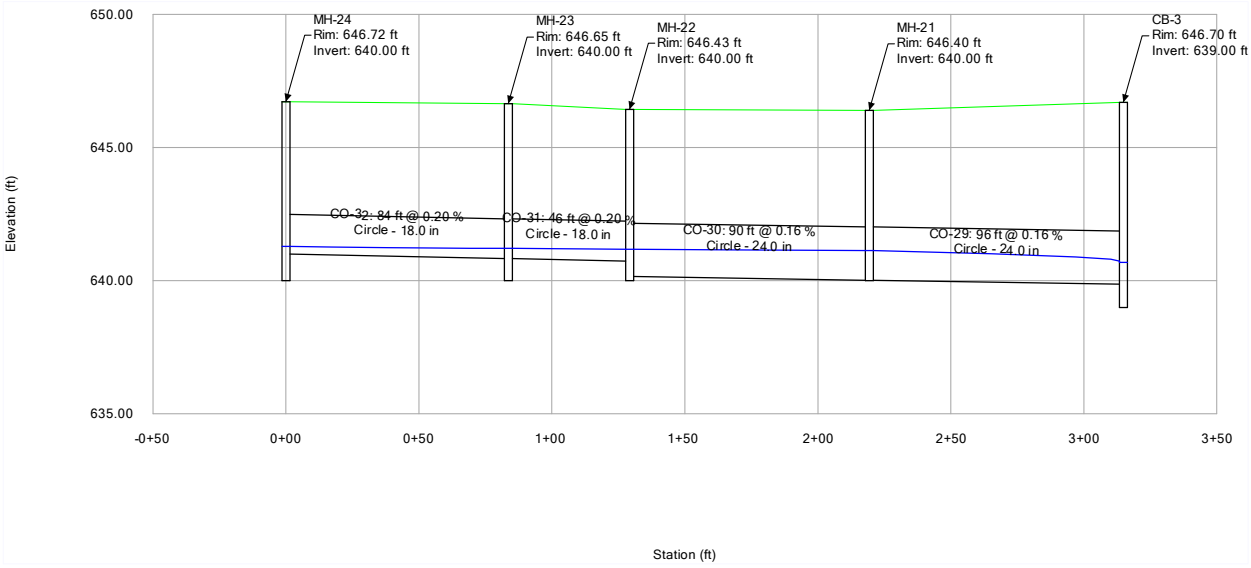
Profile Report
Engineering Profile - MH-7 TO MH-11 (FRDCR_repaired_FINAL.stsw)



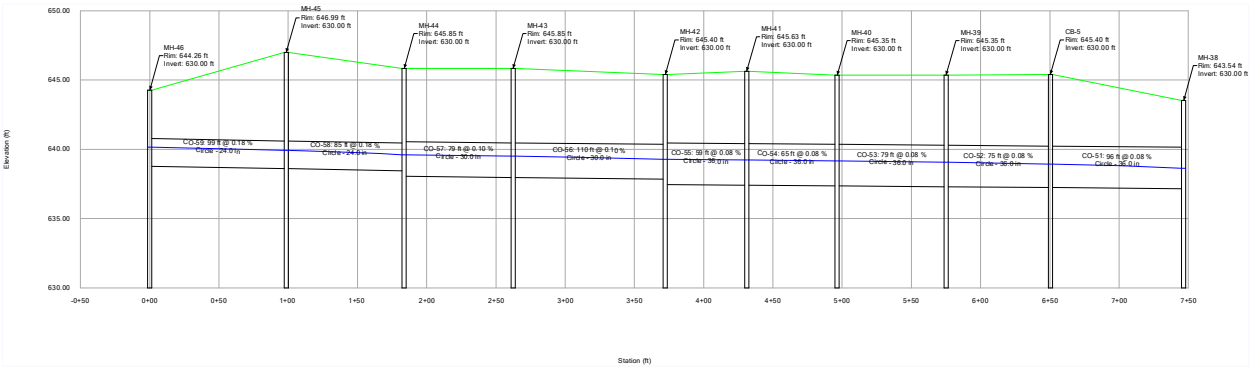
Profile Report
Engineering Profile - MH-8 TO EX. INL-3 (FRDCR_repaired_FINAL.stsw)



Profile Report
Engineering Profile - MH-24 TO CB-3 (FRDCR_repaired_FINAL.stsw)



Profile Report
Engineering Profile - MH-46 TO EX. MH-38
(FRDCR_repaired_FINAL.stsw)



SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
STORM SEWER DESIGN CALCULATIONS
100-YR STORM EVENT - BULLETIN 70 RAINFALL DATA
1/14/2026

Location		Ground		Hydraulic Grade Line		Crown		Invert		Length	Slope	Diameter	Manning's n	Velocity	Flow	Capacity (Full Flow)	Flow / Capacity (Design)
Upstream Structure	Downstream Structure	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	(ft)	(%)	(in)		(ft/s)	(cfs)	(cfs)	(%)
EX. INL-12	EX. O-1	636.04	630.65	668.07	631.65	632.99	631.65	628.99	627.65	73	1.84	48	0.013	80.76	1014.87	194.66	521.40
EX. INL 11	EX. INL-12	635.91	636.04	636.29	636.04	633.81	632.99	629.81	628.99	31	2.67	48	0.013	10.23	128.56	234.52	54.80
EX. INL 11	EX. MH-10	635.91	637.46	636.09	635.91	633.81	632.46	629.81	628.46	25	5.50	48	0.013	9.67	121.48	336.76	36.10
EX. MH-9	EX. MH-10	637.39	637.46	636.47	636.09	634.99	632.46	630.99	628.46	53	4.75	48	0.013	9.67	121.48	313.14	38.80
EX. CB-8	EX. MH-9	640.20	637.39	637.33	636.47	636.16	634.99	632.16	630.99	137	0.86	48	0.013	9.10	114.30	132.83	86.00
EX. CB-8	EX. CB-8A	640.20	639.65	637.33	637.33	633.21	634.98	632.21	633.98	62	-2.85	12	0.013	0.00	0.00	6.01	0.00
EX. CB-7	EX. CB-8	641.19	640.20	639.61	637.33	637.59	636.16	633.59	632.16	372	0.38	48	0.013	8.94	112.38	89.03	126.20
EX. CB-6	EX. CB-7	642.87	641.19	640.38	639.61	638.16	637.59	634.16	633.59	148	0.39	48	0.013	8.24	103.49	89.26	115.90
EX. CB-5	EX. CB-6	643.64	642.87	641.63	640.38	638.84	638.23	634.84	634.23	284	0.21	48	0.013	7.59	95.35	66.52	143.30
EX. CB-4	EX. CB-5	643.76	643.64	641.95	641.63	639.00	638.91	635.00	634.91	99	0.09	48	0.013	6.52	81.90	43.31	189.10
EX. CB-3	EX. CB-4	644.36	643.76	642.33	641.95	638.75	638.53	635.25	635.03	169	0.13	42	0.013	4.96	47.68	36.30	131.40
EX. MH-3A	EX. CB-3	645.50	644.36	642.44	642.33	639.04	638.91	635.54	635.41	52	0.25	42	0.013	4.74	45.60	50.23	90.80
EX. MH-3A	EX. MH-3B	645.50	645.70	642.56	642.44	639.04	639.25	635.54	635.75	73	-0.29	42	0.013	4.27	41.12	54.14	75.90
MH-11	EX. MH-3B	646.60	645.70	643.72	642.56	638.86	638.25	636.36	635.75	116	0.53	30	0.013	8.38	41.12	29.81	138.00
EX. MH	MH-11	646.57	646.60	644.11	643.72	639.38	638.86	636.88	636.36	100	0.53	30	0.013	5.19	25.50	29.73	85.80
EX. MH A	EX. MH	647.23	646.57	644.28	644.11	639.71	639.38	637.21	636.88	45	0.74	30	0.013	5.19	25.50	35.32	72.20
MH-18	EX. MH A	646.25	647.23	644.51	644.28	640.10	639.71	637.60	637.21	59	0.66	30	0.013	5.19	25.50	33.26	76.70
EX. CB	MH-18	646.14	646.25	644.77	644.51	640.62	640.10	638.12	637.60	81	0.65	30	0.013	4.72	23.17	32.96	70.30
MH-19	EX. CB	646.25	646.14	644.97	644.77	640.22	640.12	638.22	638.12	20	0.51	24	0.013	7.38	23.17	16.20	143.10
MH-20	MH-19	646.35	646.25	645.73	644.97	640.70	640.22	638.70	638.22	86	0.56	24	0.013	6.78	21.29	16.92	125.80
EX. CB	MH-20	646.49	646.35	646.25	645.73	641.15	640.7	639.15	638.7	83	0.55	24	0.013	5.73	18.02	16.71	107.8
CB-3	EX. CB	646.7	646.49	646.67	646.25	641.43	641.15	639.43	639.15	65	0.43	24	0.013	5.73	18.02	14.8	121.7
MH-21	CB-3	646.4	646.7	646.86	646.67	642.02	641.87	640.02	639.87	96	0.16	24	0.013	3.21	10.1	8.96	112.7
MH-27	MH-21	647.99	646.4	646.58	646.4	642.81	642.68	641.81	641.68	43	0.31	12	0.013	2.96	2.32	1.97	118.2
MH-28	MH-27	648.52	647.99	646.75	646.58	643.06	642.81	642.06	641.81	82	0.3	12	0.013	2.03	1.6	1.97	81.2
MH-29	MH-28	648.46	648.52	646.77	646.75	643.14	643.06	642.14	642.06	26	0.3	12	0.013	1.29	1.02	1.96	51.8
INL-13	MH-29	648.47	648.46	646.77	646.77	643.23	643.14	642.23	642.14	32	0.29	12	0.013	0.65	0.51	1.9	26.7
MH-22	MH-21	646.43	646.4	646.46	646.4	642.16	642.02	640.16	640.02	90	0.16	24	0.013	1.85	5.81	8.92	65.2
MH-23	MH-22	646.65	646.43	646.43	646.43	642.33	642.24	640.83	640.74	46	0.2	18	0.013	0.49	0.87	4.66	18.7
MH-24	MH-23	646.72	646.65	646.44	646.43	642.5	642.33	641	640.83	84	0.2	18	0.013	0.33	0.58	4.74	12.3
EX. CB A	MH-24	647.39	646.72	646.44	646.44	642.82	642.35	641.57	641.1		0.96	15	0.013	0.12	0.15	6.32	2.3
EX. INL	MH-24	645.63	646.72	646.44	646.44	643.2	642.6	641.7	641.1	82	0.73	18	0.013	0	0	8.97	0
EX. INL	EX. INL	645.63	645.54	645.63	645.63	643.79	642.7	642.79	641.7	29	3.76	12	0.013	0	0	6.91	0
MH-30	MH-22	646.9	646.43	646.71	646.43	643.3	643.02	642.05	641.77	113	0.25	15	0.013	2.6	3.2	3.21	99.6
MH-31	MH-30	646.9	646.9	646.8	646.71	643.5	643.3	642.25	642.05	79	0.25	15	0.013	1.78	2.18	3.26	66.9
INL-14	MH-31	646.95	646.9	646.81	646.8	643.78	643.52	642.78	642.52	76	0.34	12	0.013	0.46	0.36	2.08	17.4
MH-25	CB-3	647.3	646.7	647.23	646.67	643.31	643.05	642.06	641.8	83	0.31	15	0.013	4.32	5.3	3.62	146.4
MH-26	MH-25	647.25	647.3	647.56	647.23	643.53	643.31	642.28	642.06	71	0.31	15	0.013	3.61	4.43	3.59	123.6
INL-12	MH-26	647.25	647.25	647.94	647.25	644.08	643.82	643.08	642.82	79	0.33	12	0.013	4.25	3.34	2.05	163.2
CB-2	MH-11	646.23	646.6	643.73	643.72	639.32	639.31	636.82	636.81	7	0.15	30	0.013	3.08	15.11	16.05	94.1
MH-12	CB-2	646.1	646.23	644.02	643.73	640.94	640.82	638.94	638.82	71	0.17	24	0.013	4.62	14.53	9.31	156.1
MH-13	MH-12	646.7	646.1	644.15	644.02	642.01	641.94	640.01	639.94	39	0.18	24	0.013	4.02	12.64	9.54	132.5
MH-15	MH-13	646.54	646.7	644.41	644.15	642.84	642.74	641.34	641.24	49	0.2	18	0.013	4.36	7.7	4.74	162.4
MH-16	MH-15	646.54	646.54	645.15	644.41	643.04	642.86	641.79	641.61	72	0.25	15	0.013	5.33	6.54	3.23	202.4
MH-17	MH-16	646.35	646.54	645.42	645.15	643.13	643.04	641.88	641.79	36	0.25	15	0.013	4.62	5.67	3.23	175.5
INL-10	MH-17	646.4	646.35	645.49	645.42	643.23	643.16	642.23	642.16	17	0.41	12	0.013	2.87	2.25	2.29	98.5
INL-11	MH-17	646.65	646.35	645.55	645.42	643.48	643.15	642.48	642.15	96	0.35	12	0.013	1.66	1.31	2.09	62.5
INL-9	MH-16	646.45	646.54	645.15	645.15	643.29	643.21	642.29	642.21	17	0.47	12	0.013	0.55	0.44	2.44	17.8
INL-8	MH-15	646.45	646.54	644.41	644.41	643.28	643.21	642.28	642.21	17	0.41	12	0.013	0.74	0.58	2.29	25.4
MH-14	MH-13	646.1	646.7	644.38	644.15	642.91	642.81	641.66	641.56	39	0.25	15	0.013	4.03	4.94	3.26	151.7
INL-6	MH-14	646.65	646.1	644.68	644.38	643.17	642.91	641.92	641.66	103	0.25	15	0.013	2.84	3.49	3.24	107.6

SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
STORM SEWER DESIGN CALCULATIONS
100-YR STORM EVENT - BULLETIN 70 RAINFALL DATA
1/14/2026

Location		Ground		Hydraulic Grade Line		Crown		Invert		Length	Slope	Diameter	Manning's n	Velocity	Flow	Capacity (Full Flow)	Flow / Capacity (Design)
Upstream Structure	Downstream Structure	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	(ft)	(%)	(in)		(ft/s)	(cfs)	(cfs)	(%)
MH-7	INL-6	647.02	646.65	644.77	644.68	643.33	643.19	642.33	642.19	40	0.35	12	0.013	2.22	1.74	2.11	82.7
EX. MH-3A	EX. MH	645.5	645.08	642.8	642.44	640.52	640.92	639.52	639.92	86	-0.47	12	0.013	2.96	2.32	2.44	95.4
EX. MH	EX. INLET	645.08	643.3	642.84	642.8	641.05	641.25	640.05	640.25	8	-2.39	12	0.013	2.96	2.32	5.51	42.2
EX. INLET	EX. INLET	643.3	643.17	642.92	642.84	641.25	641.56	640.25	640.56	30	-1.04	12	0.013	2.4	1.89	3.63	52
EX. MH-3A	EX.MH	645.5	645.4	642.89	642.44	640.52	641.35	639.52	640.35	123	-0.67	12	0.013	2.75	2.16	2.93	73.7
EX.MH	EX. MH-73	645.4	643.65	642.92	642.89	641.09	641.35	640.09	640.35	8	-3.25	12	0.013	2.75	2.16	6.42	33.6
EX. MH-73	EX. MH-72	643.65	643.86	642.97	642.92	641.5	641.09	640.5	640.09	29	1.41	12	0.013	1.94	1.53	4.24	36
EX. CB-4B	EX. CB-4	643.17	643.76	642.02	641.95	638.67	638.67	635.17	635.17	61	0	42	0.013	3.36	32.36	1.01	3,216.30
EX. CB-4A	EX. CB-4B	644.18	643.17	642.09	642.02	638.81	638.67	635.31	635.17	135	0.1	42	0.013	2.5	24.06	32.43	74.2
EX. INLET	EX. CB-4A	643.76	644.18	642.31	642.09	641.25	637.81	638.75	635.31	62	5.51	30	0.013	4.9	24.06	96.27	25
EX. INLET	EX. INLET	645.94	643.76	643.03	642.31	642.76	641.25	640.26	638.75	241	0.63	30	0.013	4.56	22.39	32.44	69
MH-3	EX. INLET	646.74	645.94	643.37	643.03	643.8	642.76	641.3	640.26	193	0.54	30	0.013	6.51	19.27	30.14	63.9
EX. INLET 1	MH-3	649.1	646.74	643.37	643.37	644.16	643.8	641.66	641.3	159	0.23	30	0.013	2.49	1.82	19.51	9.3
EX. INLET 1	MH-1	649.1	649	643.4	643.37	642.66	642.77	641.66	641.77	28	-0.39	12	0.013	1.39	1.09	2.23	48.8
MH-1	MH-2	649	649.01	643.89	643.45	644.13	644.54	643.13	643.54	102	-0.4	12	0.013	2.41	0.58	2.26	25.7
MH-2	INL-1	649.01	648.92	645.09	644.84	645.54	645.75	644.54	644.75	61	-0.34	12	0.013	2.19	0.51	2.08	24.4
EX. INLET 1	EX. MH-1	649.1	648.68	643.37	643.37	644.16	644.94	641.66	642.44	147	-0.53	30	0.013	1.94	0.29	29.83	1
EX. MH-1	EX. INLET 2	648.68	647.17	643.38	643.37	644.44	645.15	642.44	643.15	260	-0.27	24	0.013	1.29	0.15	11.82	1.2
CB-1	MH-3	646.9	646.74	643.67	643.37	643.39	643.3	641.39	641.3	59	0.15	24	0.013	5.14	16.14	8.86	182.2
MH-4	CB-1	646.8	646.9	644	643.67	643.5	643.39	641.5	641.39	73	0.15	24	0.013	4.84	15.2	8.77	173.3
MH-5	MH-4	646.95	646.8	644.44	644	643.53	643.4	642.03	641.9	70	0.19	18	0.013	4.74	8.37	4.53	184.9
MH-6	MH-5	646.95	646.95	644.72	644.44	643.63	643.53	642.13	642.03	56	0.18	18	0.013	4.2	7.42	4.42	168
MH-10	MH-6	646.85	646.95	645.01	644.72	643.66	643.53	642.66	642.53	67	0.2	12	0.013	2.98	2.34	1.57	148.6
MH-10	INL-5	646.85	646.61	645.87	645.01	643.56	643.81	643.06	643.31	50	-0.5	6	0.013	3.77	0.74	0.4	185.9
MH-7	MH-6	647.35	646.95	645.12	644.72	643.88	643.64	642.63	642.39	97	0.25	15	0.013	3.37	4.14	3.21	128.9
INL-4	MH-7	647.35	647.35	645.15	645.12	644.18	644.1	643.18	643.1	22	0.36	12	0.013	1.48	1.16	2.15	54.1
MH-8	MH-7	647.5	647.35	645.35	645.12	644.26	643.9	643.26	642.9	104	0.35	12	0.013	2.13	1.67	2.1	79.6
INL-3	MH-8	647.5	647.5	645.36	645.35	644.33	644.26	643.33	643.26	22	0.32	12	0.013	1.02	0.8	2.01	39.7
MH-9	MH-4	647.25	646.8	644.49	644	643.78	643.5	642.53	642.25	112	0.25	15	0.013	3.49	4.29	3.23	132.7
INL-2	MH-9	647.25	647.25	645.12	644.49	644.08	643.81	643.08	642.81	79	0.34	12	0.013	4.07	3.2	2.09	153.2
MH-38	EX. O-2	643.54	635.68	638.99	632.79	639.16	633.68	637.16	631.68	109	5.01	24	0.013	16.57	28.33	50.61	56
CB-5	MH-38	645.4	643.54	639.45	638.99	640.24	640.16	637.24	637.16	96	0.08	36	0.013	3.93	27.75	19.23	144.3
MH-39	CB-5	645.35	645.4	639.64	639.45	640.3	640.24	637.3	637.24	75	0.08	36	0.013	3.85	27.24	18.82	144.8
MH-40	MH-39	645.35	645.35	639.78	639.64	640.36	640.3	637.36	637.3	79	0.08	36	0.013	3.6	25.43	18.42	138
MH-41	MH-40	645.63	645.35	639.87	639.78	640.41	640.36	637.41	637.36	65	0.08	36	0.013	3.31	23.39	18.46	126.7
MH-42	MH-41	645.4	645.63	639.94	639.87	640.46	640.41	637.46	637.41	59	0.08	36	0.013	3.24	22.88	19.44	117.7
INL-17	MH-42	645.65	645.4	641.07	640.71	641.48	641.19	640.48	640.19	67	0.43	12	0.013	3.18	1.53	2.34	65.1
INL-16	MH-42	645.51	645.4	640.84	640.48	641.34	641.03	640.34	640.03	71	0.44	12	0.013	2.99	1.16	2.35	49.4
MH-43	MH-42	645.85	645.4	640.18	639.94	640.47	640.36	637.97	637.86	110	0.1	30	0.013	3.82	18.74	12.98	144.5
MH-44	MH-43	645.85	645.85	640.3	640.18	640.55	640.47	638.05	637.97	79	0.1	30	0.013	3.3	16.2	13.08	123.9
MH-45	MH-44	646.99	645.85	640.64	640.3	640.6	640.45	638.6	638.45	85	0.18	24	0.013	4.62	14.53	9.5	153
MH-46	MH-45	644.26	646.99	641.02	640.64	640.78	640.6	638.78	638.6	99	0.18	24	0.013	4.49	14.09	9.67	145.8
MH-46	EX. MH-7	644.26	643.45	641.15	641.02	640.78	640.92	638.78	638.92	36	-0.39	24	0.013	4.28	13.44	14.06	95.6
EX. MH-7	EX. MH-8	643.45	640.03	641.83	641.15	640.92	637.83	638.92	635.83	192	1.61	24	0.013	4.28	13.44	28.73	46.8
EX. MH-8	EX. MH-9	640.03	641.36	640.65	640.03	637.58	637.91	635.83	636.16	87	-0.38	21	0.013	5.59	13.44	9.77	137.6
EX. MH-9	EX. MH-10	641.36	646.81	642.03	640.65	637.91	642.42	636.16	640.67	165	-2.74	21	0.013	10.97	13.44	26.23	51.2
EX. MH-10	EX. MH-11	646.81	646.56	642.34	642.03	642.42	642.96	640.67	641.21	42	-1.3	21	0.013	7.57	9.3	18.07	51.5
EX. MH-11	EX. MH-12	646.56	645.62	643.58	642.34	642.01	642.28	641.01	641.28	147	-0.18	12	0.013	4.16	3.27	1.53	214.3
EX. MH-12	EX. MH-13	645.62	645.63	643.79	643.58	642.28	642.99	641.28	641.99	25	-2.86	12	0.013	4.16	3.27	6.03	54.2
EX. INL 8	EX. O-2	644.47	635.68	634.49	633.27	634.79	633.68	632.79	631.68	102	1.09	24	0.013	8.56	22.87	23.61	96.9
EX. INL 7	EX. INL 8	642.03	644.47	637.03	636.3	637.38	636.65	635.38	634.65	85	0.86	24	0.013	7.6	21.12	20.96	100.8

SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
STORM SEWER DESIGN CALCULATIONS
100-YR STORM EVENT - BULLETIN 70 RAINFALL DATA
1/14/2026

Location		Ground		Hydraulic Grade Line		Crown		Invert		Length	Slope	Diameter	Manning's n	Velocity	Flow	Capacity (Full Flow)	Flow / Capacity (Design)
Upstream Structure	Downstream Structure	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	(ft)	(%)	(in)		(ft/s)	(cfs)	(cfs)	(%)
EX. INL 7	EX. INL 6	642.03	643.98	641.74	637.03	636.38	641.93	635.38	640.93	107	-5.17	12	0.013	9.99	3.56	8.1	43.9
EX. INL 6	EX. INL 5	643.98	646	643	641.74	641.93	643.3	640.93	642.3	138	-0.99	12	0.013	4.96	2.67	3.55	75.3
EX. INL 5	EX. INL 4	646	646.08	643.26	643	643.3	643.78	642.3	642.78	31	-1.57	12	0.013	4.94	1.31	4.46	29.3
MH-32	EX. INL 7	645.23	642.03	637.19	637.03	637.66	637.38	635.66	635.38	48	0.59	24	0.013	6.23	15.26	17.33	88
MH-33	MH-32	643.7	645.23	639.77	639.48	640.17	640.07	638.17	638.07	27	0.36	24	0.013	4.86	15.26	13.66	111.7
MH-34	MH-33	643.75	643.7	639.87	639.77	640.27	640.17	638.27	638.17	28	0.35	24	0.013	4.86	12.86	13.41	95.9
CB-4	MH-34	646.1	643.75	640.1	639.87	640.73	640.27	638.73	638.27	131	0.35	24	0.013	4.66	9.73	13.43	72.5
MH-35	CB-4	646.19	646.1	640.58	640.21	641.42	641.17	639.42	639.17	73	0.34	24	0.013	4.48	8.5	13.27	64
EX. MH-5	MH-35	645.77	646.19	640.81	640.58	641.05	640.92	639.55	639.42	72	0.18	18	0.013	3.08	5.45	4.47	121.8
EX. INL-5	EX. MH-5	644.86	645.77	640.9	640.81	641.5	641.05	640	639.55	24	1.87	18	0.013	7.57	5.45	14.37	37.9
EX. INL-6	EX. INL-5	644.85	644.86	640.92	640.9	641.63	641.5	640.13	640	30	0.44	18	0.013	3.65	2.62	6.95	37.6
MH-36	MH-35	646.1	646.19	640.58	640.58	641.43	641.42	639.43	639.42	6	0.16	24	0.013	2.62	3.05	9.17	33.3
MH-37	MH-36	646.2	646.1	642.25	641.88	642.75	642.43	641.75	641.43	73	0.44	12	0.013	2.99	1.16	2.36	49.3
INL-15	MH-37	647.8	646.2	642.81	642.5	643.31	643	642.81	642.5	31	1	6	0.013	0	0	0.56	0

SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
STORM SEWER DESIGN CALCULATIONS
100-YR STORM EVENT - BULLETIN 70 RAINFALL DATA
1/14/2026

Drainage Area	Outflow Element	Area (Acres)	Runoff Coefficient	Tc (min)	Intensity (in/hr)	Flow (cfs)
EX. C1	EX. CB-3	0.29	0.66	5	10.92	2.08
EX. C2	EX. INL 7	0.32	0.66	5	10.92	2.30
EX. C3	EX. CB-4	0.26	0.66	5	10.92	1.87
EX. C4	EX. CB-5	1.85	0.66	5	10.92	13.45
EX. C5	EX. CB-6	1.12	0.66	5	10.92	8.14
EX. C6	EX. CB-7	1.22	0.66	5	10.92	8.89
EX. C7	EX. CB-8	0.26	0.66	5	10.92	1.92
EX. C8	EX. MH-9	0.99	0.66	5	10.92	7.18
EX. C9	EX. MH-10	0.00	0.66	5	10.92	0.00
EX. C10	EX. INL 11	0.97	0.66	5	10.92	7.08
EX. C11	EX. INL-12	122.00	0.66	5	10.92	886.31
EX. C12	EX. INL 8	0.24	0.66	5	10.92	1.75
EX. C15	EX. INL 6	0.12	0.66	5	10.92	0.89
EX. C16	EX. INL 5	0.19	0.66	5	10.92	1.37
EX. C-17	EX. INL 4	0.18	0.66	5	10.92	1.31
CM-19	EX. CB-4B	1.14	0.66	5	10.92	8.30
CM-22	INL-2	0.44	0.66	5	10.92	3.20
CM-23	MH-9	0.15	0.66	5	10.92	1.09
CM-24	MH-4	0.35	0.66	5	10.92	2.54
CM-25	CB-1	0.13	0.66	5	10.92	0.94
CM-26	MH-3	0.18	0.66	5	10.92	1.31
CM-27	INL-3	0.11	0.66	5	10.92	0.8
CM-28	MH-8	0.12	0.66	5	10.92	0.87
CM-29	INL-4	0.16	0.66	5	10.92	1.16
CM-30	MH-7	0.18	0.66	5	10.92	1.31
CM-31	MH-6	0.13	0.66	5	10.92	0.94
CM-33	MH-10	0.22	0.66	5	10.92	1.6
CM-34	INL-12	0.46	0.66	5	10.92	3.34
CM-35	MH-26	0.15	0.66	5	10.92	1.09
CM-36	MH-25	0.12	0.66	5	10.92	0.87
CM-37	CB-3	0.36	0.66	5	10.92	2.62
CM-38	MH-21	0.27	0.66	5	10.92	1.96
CM-39	MH-23	0.04	0.66	5	10.92	0.29
CM-40	MH-22	0.24	0.66	5	10.92	1.74
CM-41	MH-30	0.14	0.66	5	10.92	1.02
CM-42	MH-31	0.25	0.66	5	10.92	1.82
CM-43	INL-14	0.05	0.66	5	10.92	0.36
CM-44	MH-24	0.06	0.66	5	10.92	0.44
CM-47	MH-20	0.45	0.66	5	10.92	3.27
CM-48	MH-19	0.26	0.66	5	10.92	1.89
CM-49	MH-18	0.32	0.66	5	10.92	2.32

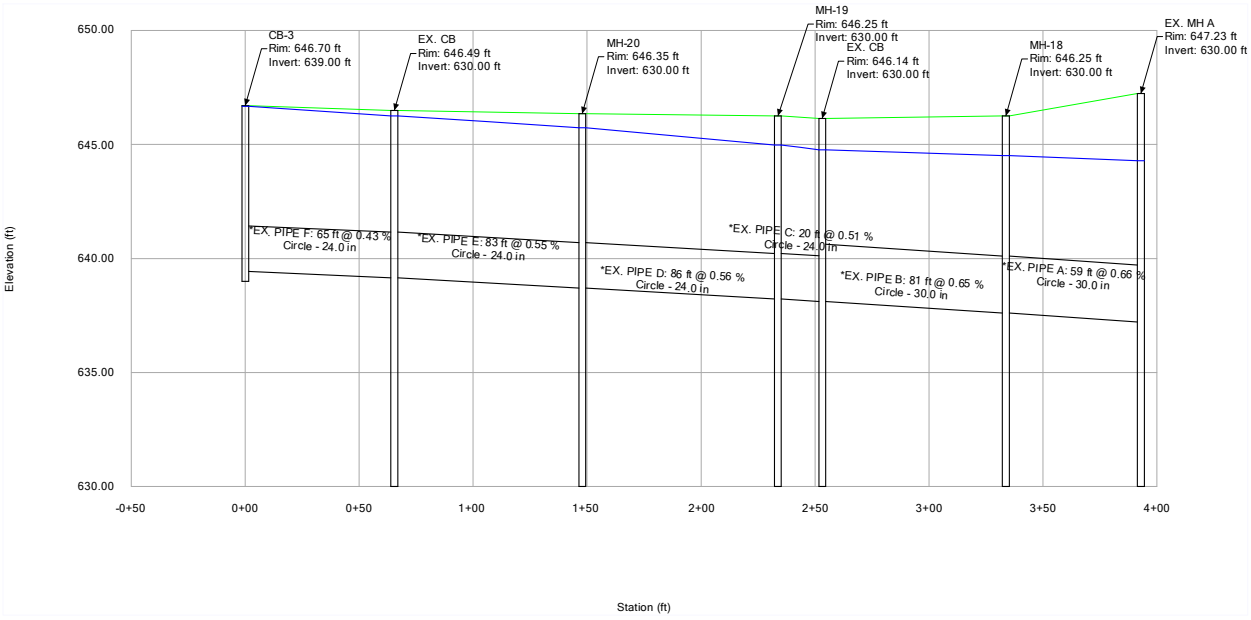
SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
STORM SEWER DESIGN CALCULATIONS
100-YR STORM EVENT - BULLETIN 70 RAINFALL DATA
1/14/2026

Drainage Area	Outflow Element	Area (Acres)	Runoff Coefficient	Tc (min)	Intensity (in/hr)	Flow (cfs)
CM-52	EX. MH-72	0.21	0.66	5	10.92	1.53
CM-53	MH-12	0.26	0.66	5	10.92	1.89
CM-55	MH-15	0.08	0.66	5	10.92	0.58
CM-56	MH-17	0.29	0.66	5	10.92	2.11
CM-57	INL-11	0.18	0.66	5	10.92	1.31
CM-58	INL-8	0.08	0.66	5	10.92	0.58
CM-59	CB-5	0.07	0.66	5	10.92	0.51
CM-60	MH-39	0.25	0.66	5	10.92	1.82
CM-61	MH-40	0.28	0.66	5	10.92	2.03
CM-63	MH-42	0.2	0.66	5	10.92	1.45
CM-64	INL-17	0.21	0.66	5	10.92	1.53
CM-65	INL-16	0.16	0.66	5	10.92	1.16
CM-66	MH-43	0.35	0.66	5	10.92	2.54
CM-67	MH-44	0.23	0.66	5	10.92	1.67
CM-69	MH-45	0.06	0.66	5	10.92	0.44
CM-70	MH-46	0.09	0.66	5	10.92	0.65
CM-71	MH-14	0.2	0.66	5	10.92	1.45
CM-72	INL-6	0.24	0.66	5	10.92	1.74
CM-77	EX. INLET 1	0.06	0.66	5	10.92	0.44
CM-1	MH-1	0.07	0.66	5	10.92	0.51
CM-2	MH-2	0.01	0.66	5	10.92	0.07
CM-3	EX. MH-1	0.02	0.66	5	10.92	0.15
CM-4	INL-1	0.07	0.66	5	10.92	0.51
CM-5	EX. INLET 2	0.02	0.66	5	10.92	0.15
CM-6	MH-5	0.13	0.66	5	10.92	0.94
CM-7	INL-5	0.1	0.66	5	10.92	0.74
CM-8	EX. INLET	0.43	0.66	5	10.92	3.12
CM-9	EX. INLET	0.23	0.66	5	10.92	1.67
CM-10	EX. INLET	0.06	0.66	5	10.92	0.44
CM-11	EX. INLET	0.26	0.66	5	10.92	1.89
CM-12	EX. MH-73	0.09	0.66	5	10.92	0.63
CM-13	MH-11	0.07	0.66	5	10.92	0.51
CM-14	CB-2	0.08	0.66	5	10.92	0.58
CM-15	MH-16	0.06	0.66	5	10.92	0.44
CM-16	INL-9	0.06	0.66	5	10.92	0.44
CM-17	INL-10	0.31	0.66	5	10.92	2.25
CM-18	MH-7	0.24	0.66	5	10.92	1.74
CM-19	MH-27	0.1	0.66	5	10.92	0.73
CM-20	MH-28	0.08	0.66	5	10.92	0.58
CM-21	MH-29	0.07	0.66	5	10.92	0.51
CM-22	INL-13	0.07	0.66	5	10.92	0.51

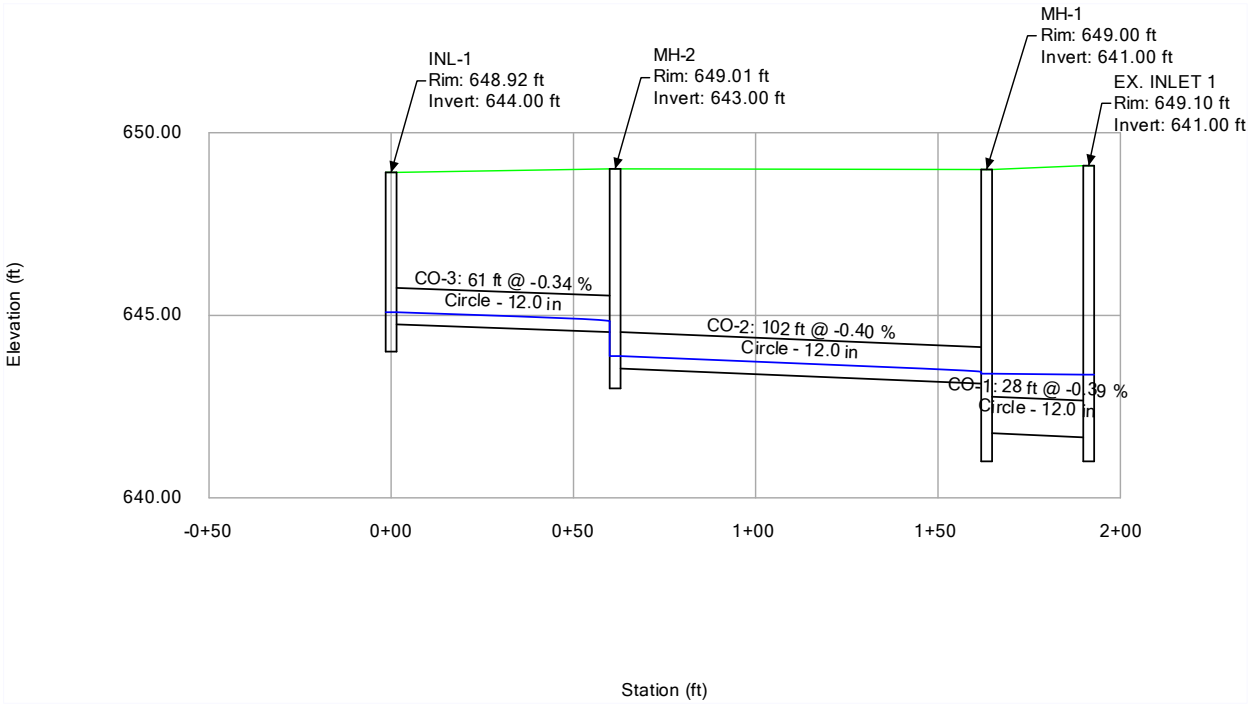
SEASONS AT CREST HILL
CITY OF CREST HILL, ILLINOIS
STORM SEWER DESIGN CALCULATIONS
100-YR STORM EVENT - BULLETIN 70 RAINFALL DATA
1/14/2026

Drainage Area	Outflow Element	Area (Acres)	Runoff Coefficient	Tc (min)	Intensity (in/hr)	Flow (cfs)
CM-23	MH-33	0.33	0.66	5	10.92	2.4
CM-24	MH-34	0.43	0.66	5	10.92	3.12
CM-25	CB-4	0.17	0.66	5	10.92	1.24
CM-26	MH-36	0.26	0.66	5	10.92	1.89
CM-27	MH-37	0.16	0.66	5	10.92	1.16
CM-28	MH-38	0.08	0.66	5	10.92	0.58
CM-29	MH-41	0.07	0.66	5	10.92	0.51
CM-30	EX. CB A	0.02	0.66	5	10.92	0.15
CM-31	EX. MH-13	0.45	0.66	5	10.92	3.27
CM-3	EX. INL-6	0.36	0.66	5	10.92	2.62
CM-4	EX. INL-5	0.39	0.66	5	10.92	2.83
CM-5	EX. MH-11	0.83	0.66	5	10.92	6.03
CM-6	EX. MH-10	0.57	0.66	5	10.92	4.14

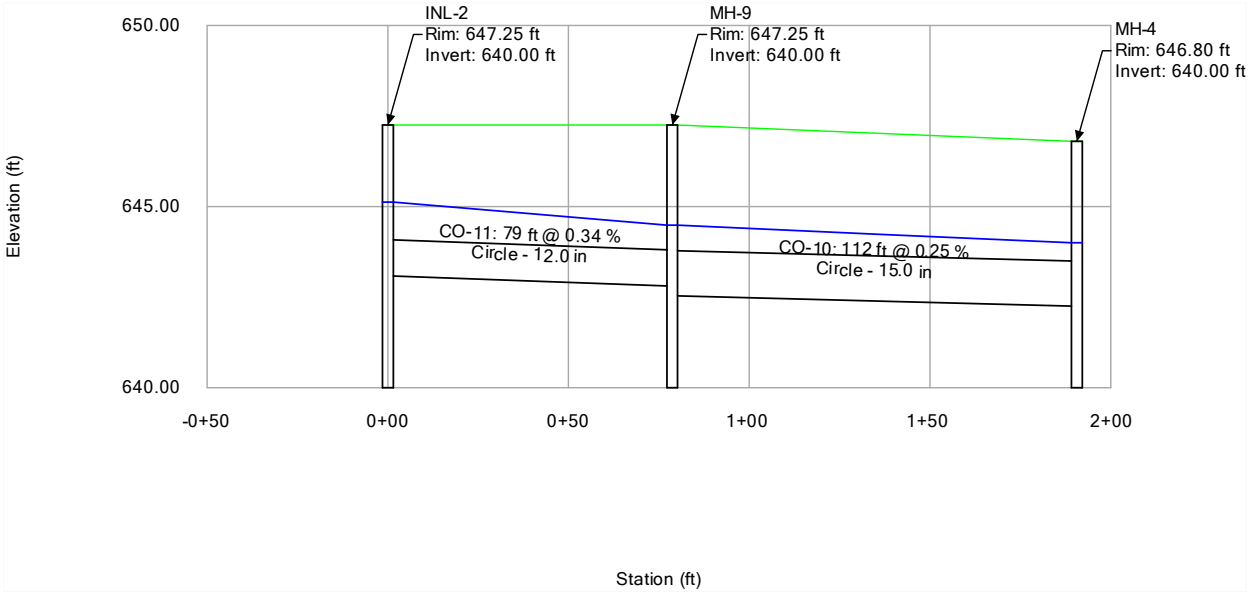
Profile Report
Engineering Profile - CB-3 TO EX. MH-A (FRDCR_repaired_FINAL.stsw)



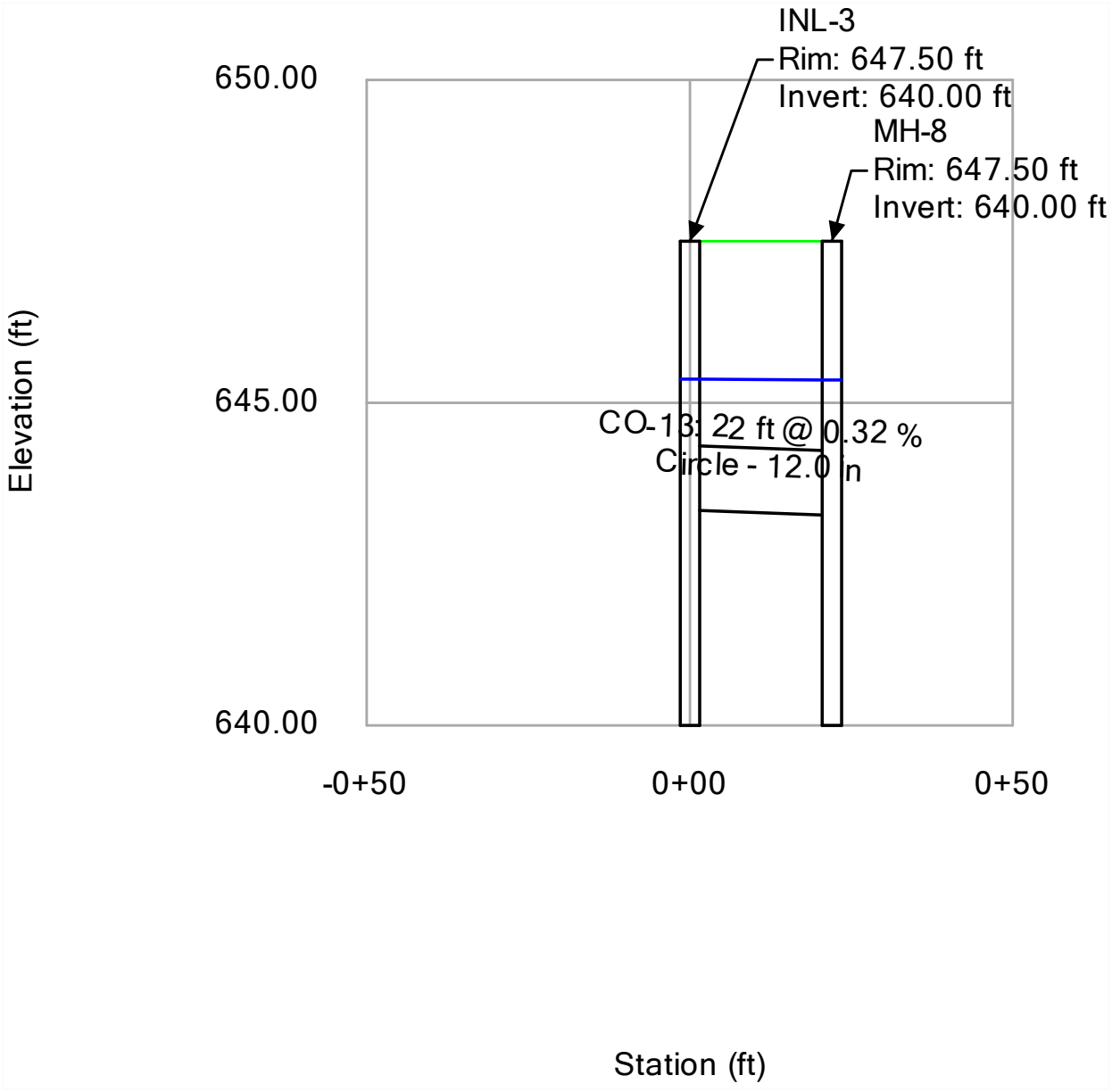
Profile Report
Engineering Profile - INL-1 TO EX. INL-1 (FRDCR_repaired_FINAL.stsw)



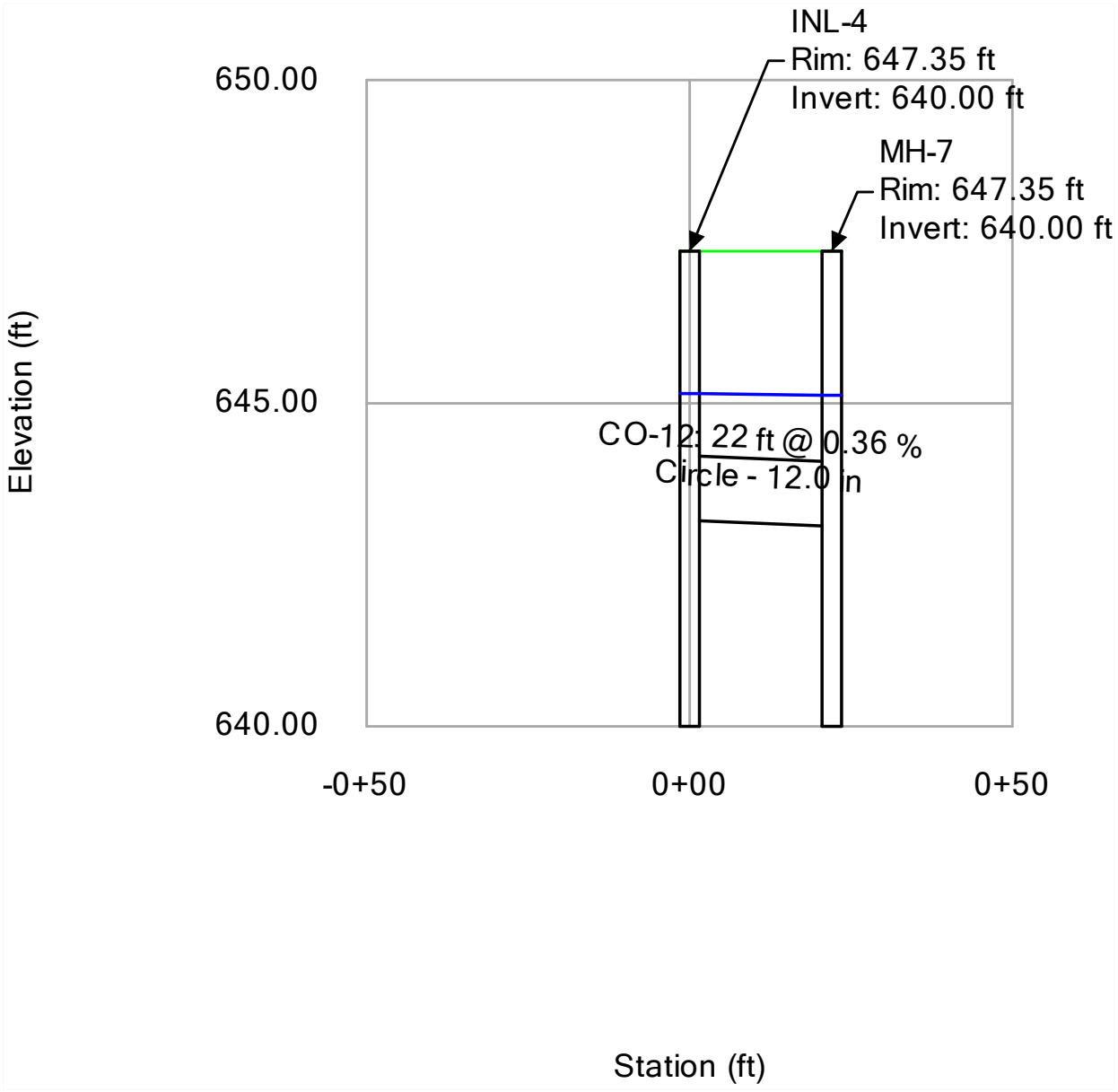
Profile Report
Engineering Profile - INL-2 TO MH-4 (FRDCR_repaired_FINAL.stsw)



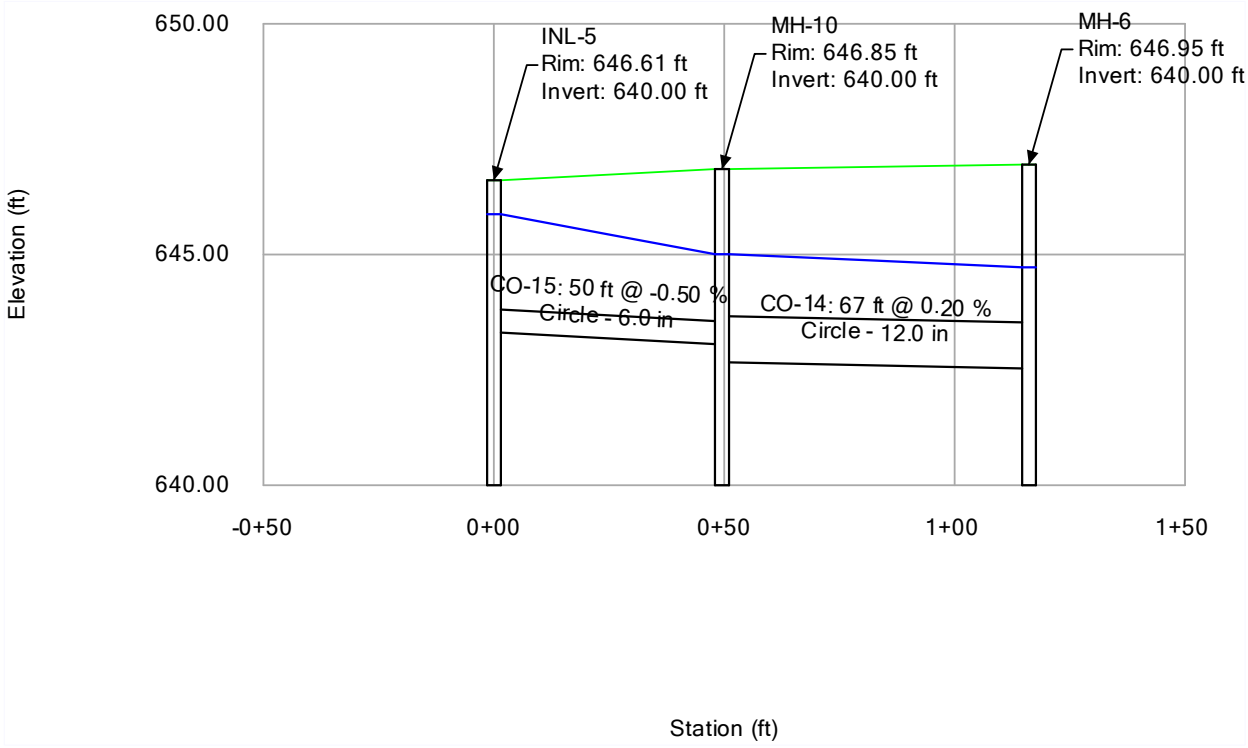
Profile Report
Engineering Profile - INL-3 TO MH-8 (FRDCR_repaired_FINAL.stsw)



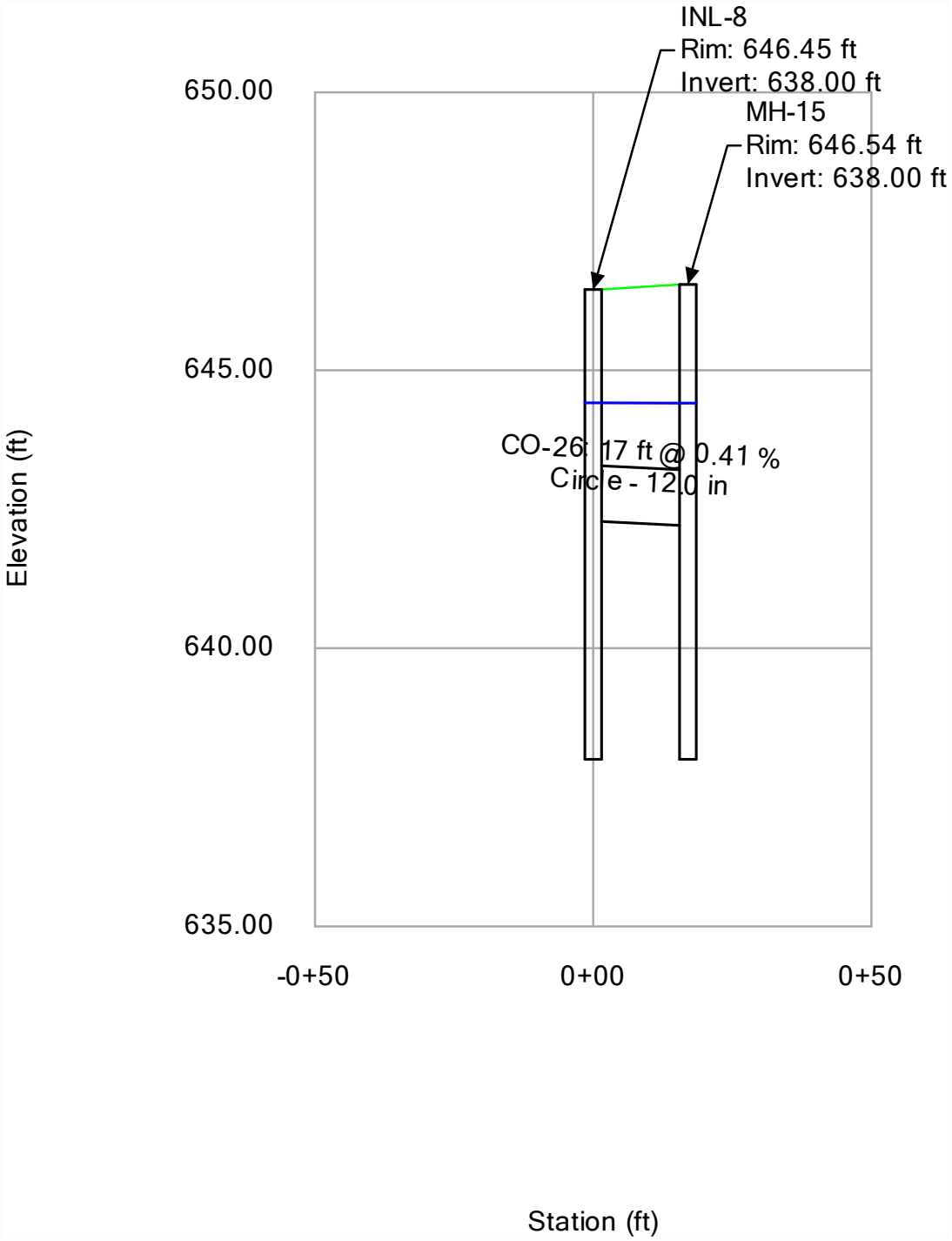
Profile Report
Engineering Profile - INL-4 TO MH-7 (FRDCR_repaired_FINAL.stsw)



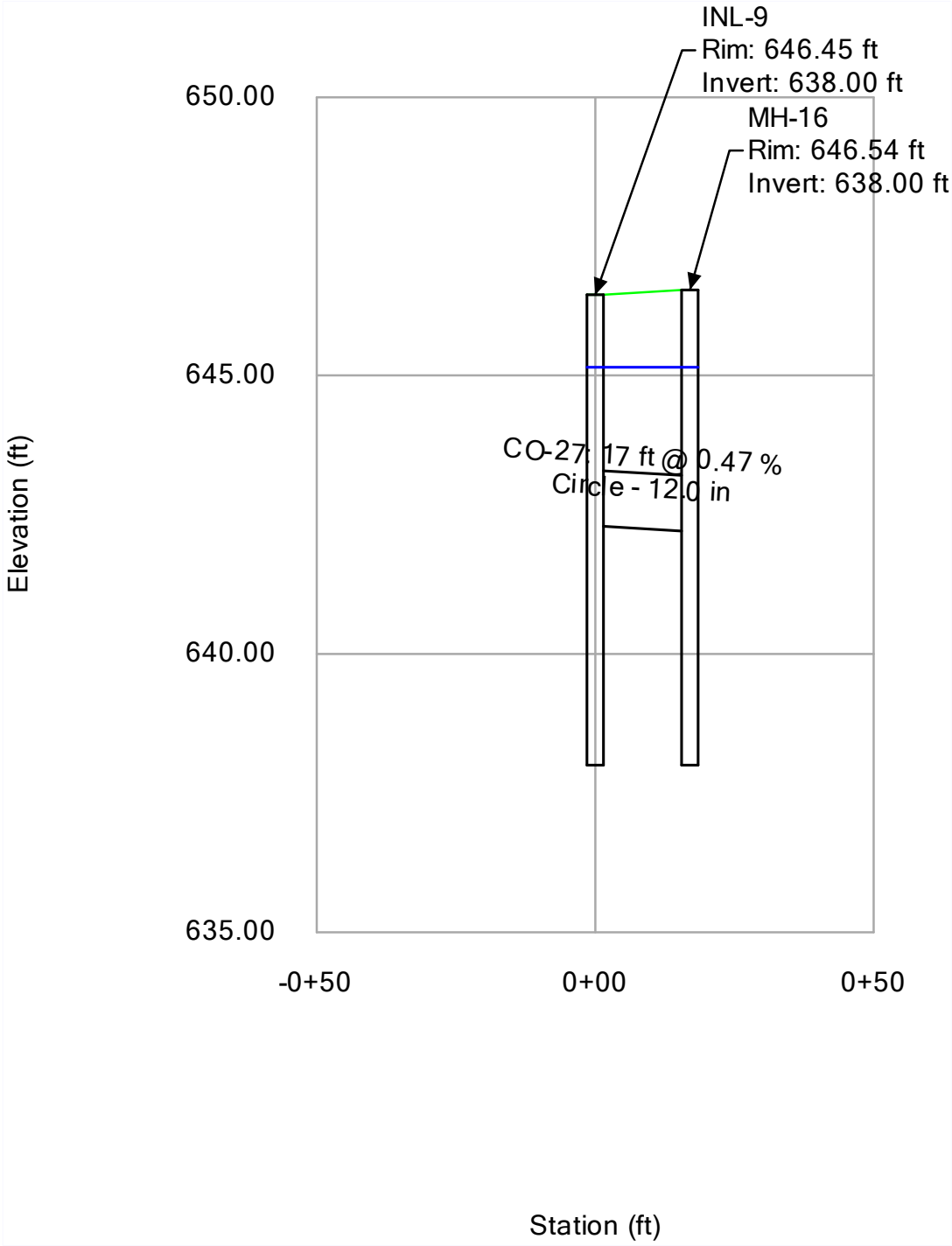
Profile Report
Engineering Profile - INL-5 TO MH-6 (FRDCR_repaired_FINAL.stsw)



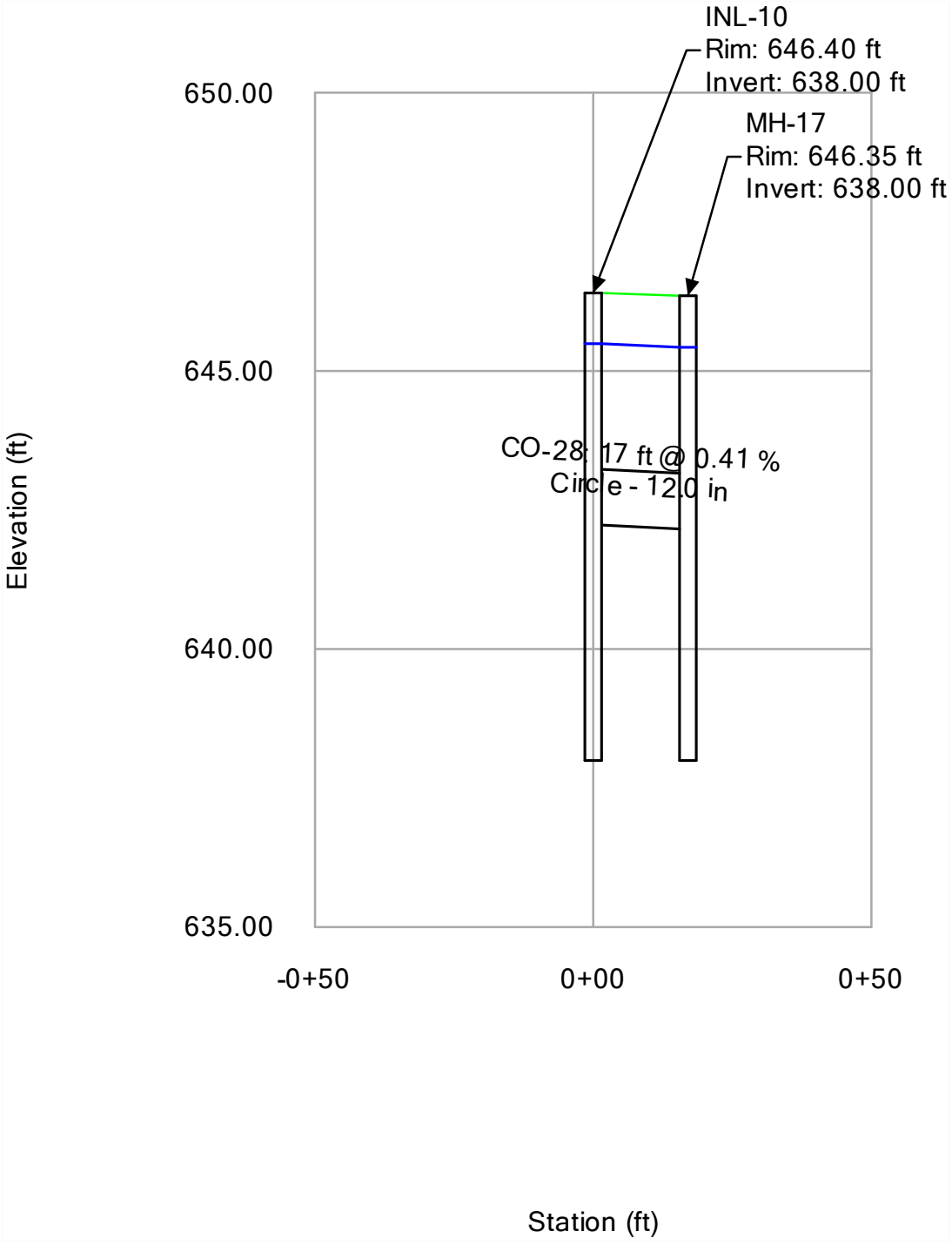
Profile Report
Engineering Profile - INL-8 TO MH-15 (FRDCR_repaired_FINAL.stsw)



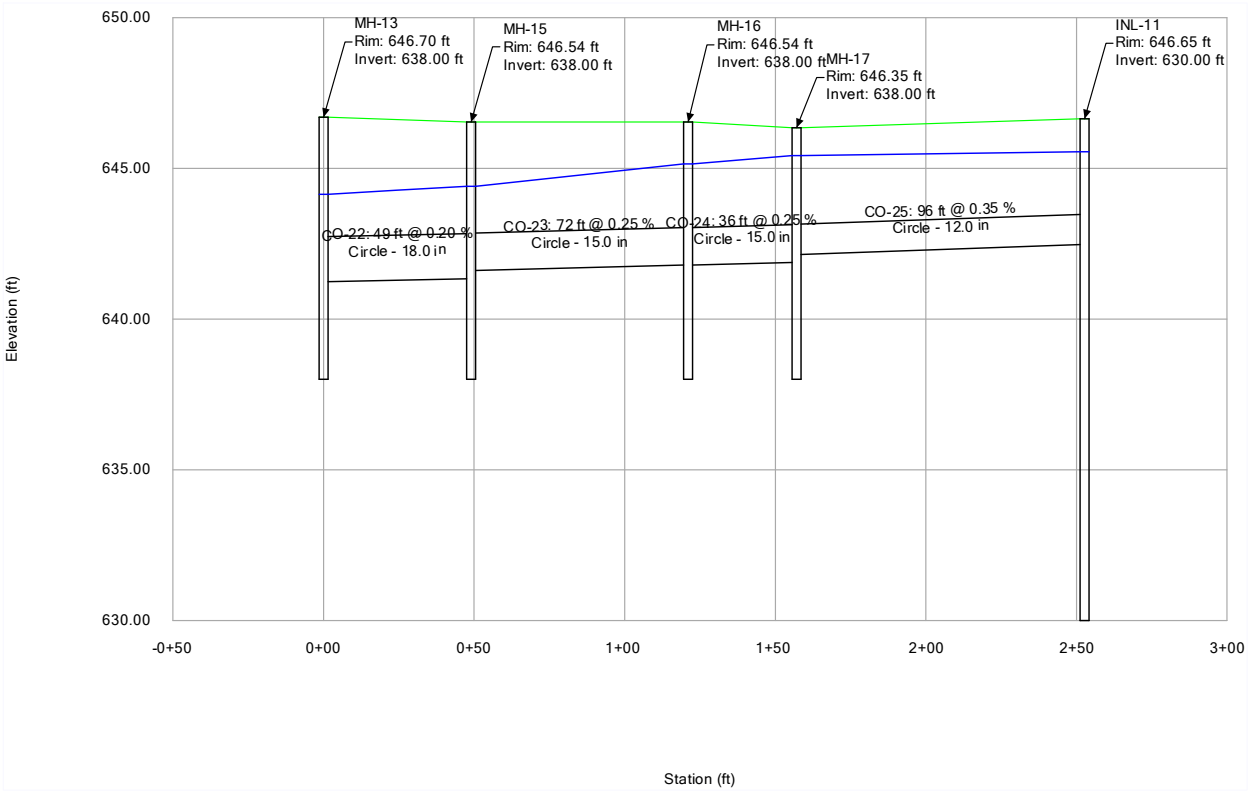
Profile Report
Engineering Profile - INL-9 TO MH-16 (FRDCR_repaired_FINAL.stsw)



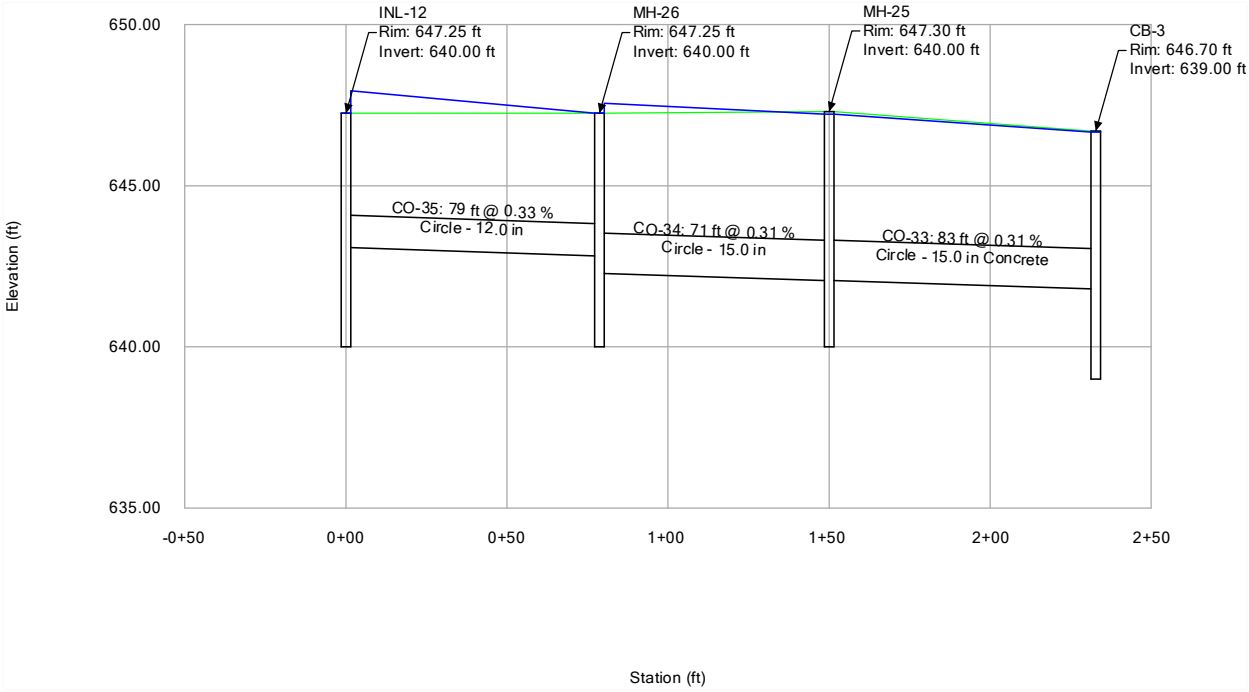
Profile Report
Engineering Profile - INL-10 TO MH-17 (FRDCR_repaired_FINAL.stsw)



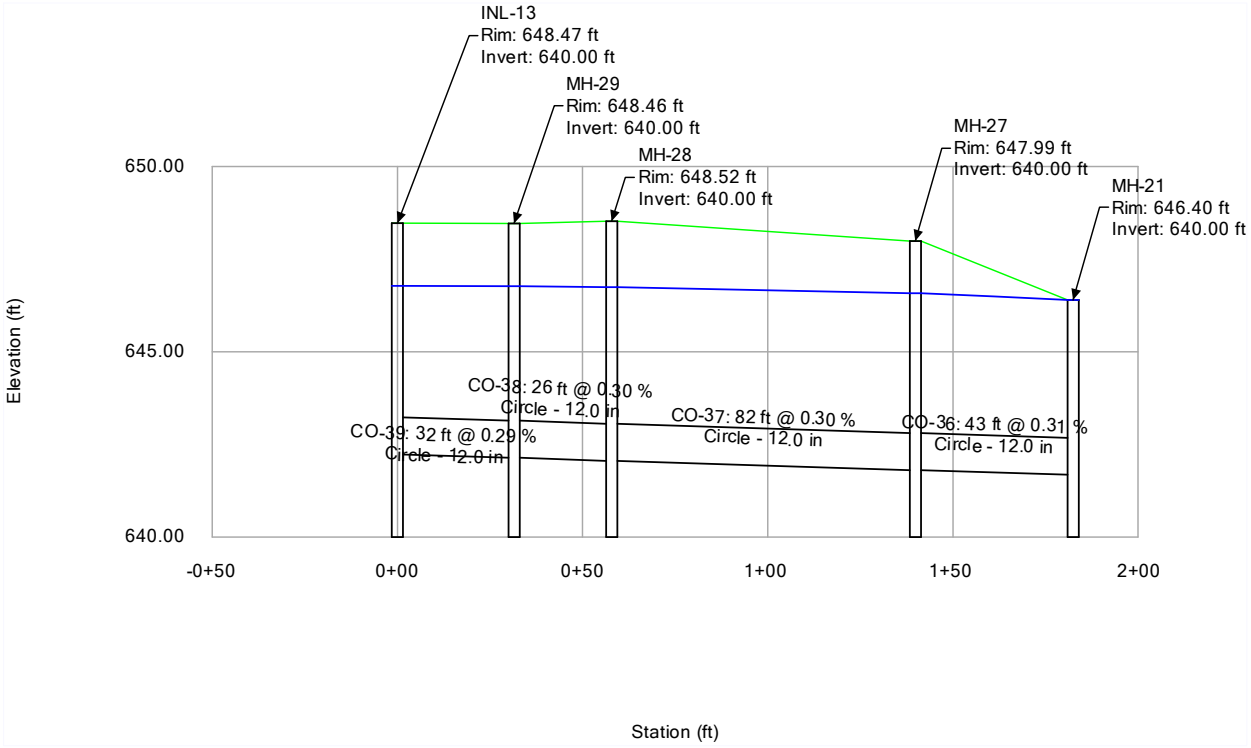
Profile Report
Engineering Profile - INL-11 TO MH-13 (FRDCR_repaired_FINAL.stsw)



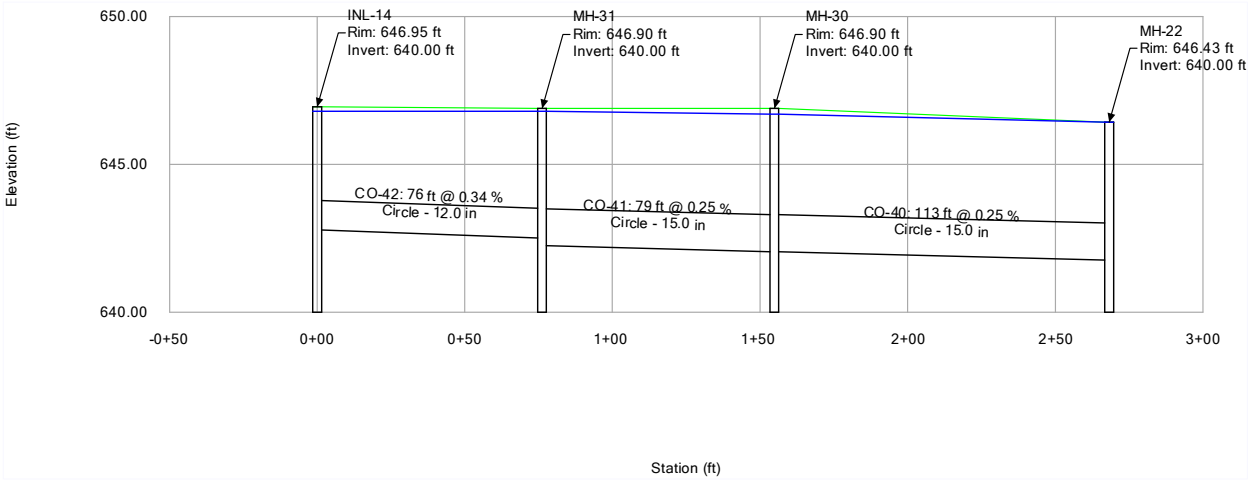
Profile Report
Engineering Profile - INL-12 TO CB-3 (FRDCR_repaired_FINAL.stsw)



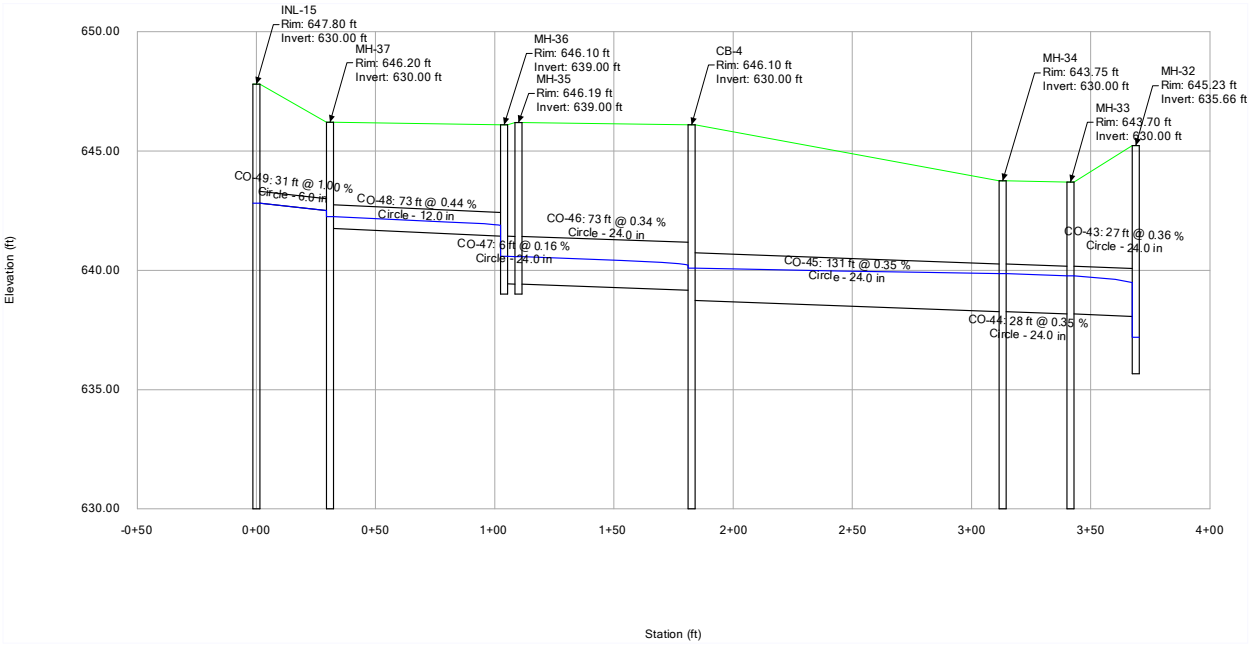
Profile Report
Engineering Profile - INL-13 TO MH-21 (FRDCR_repaired_FINAL.stsw)



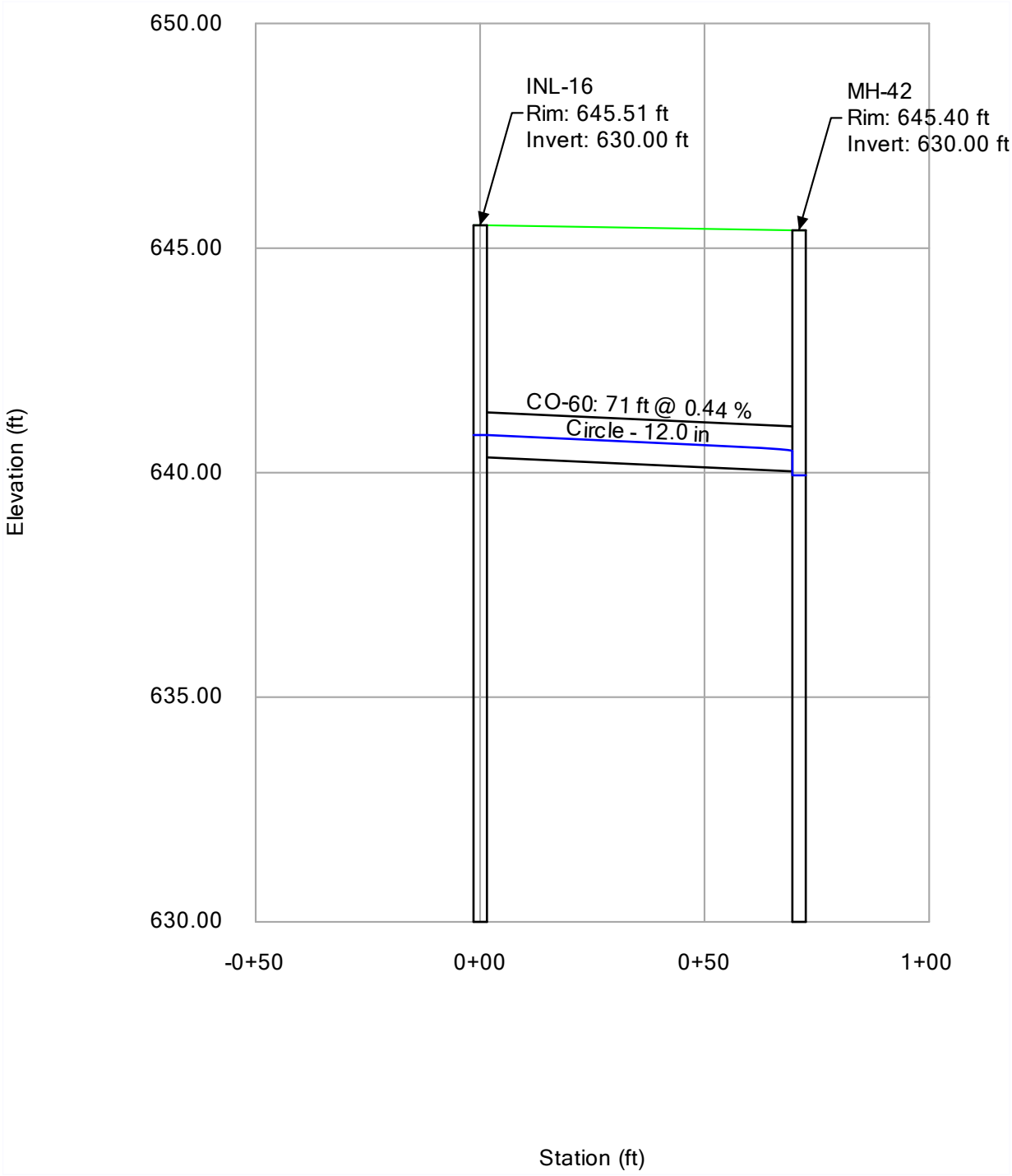
Profile Report
Engineering Profile - INL-14 TO MH-22 (FRDCR_repaired_FINAL.stsw)



Profile Report
Engineering Profile - INL-15 TO MH-32 (FRDCR_repaired_FINAL.stsw)

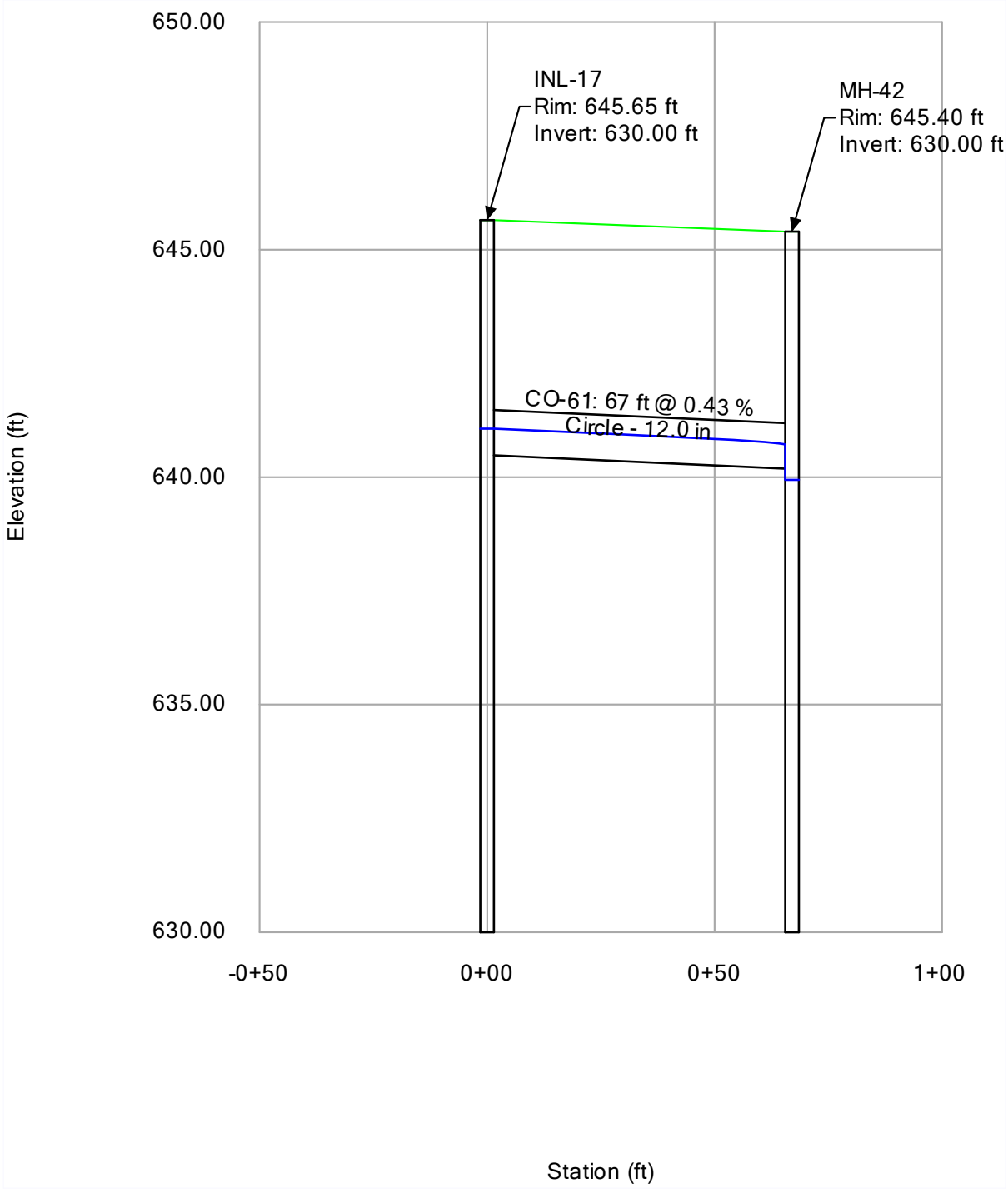


Profile Report
Engineering Profile - INL-16 TO MH-42 (FRDCR_repaired_FINAL.stsw)

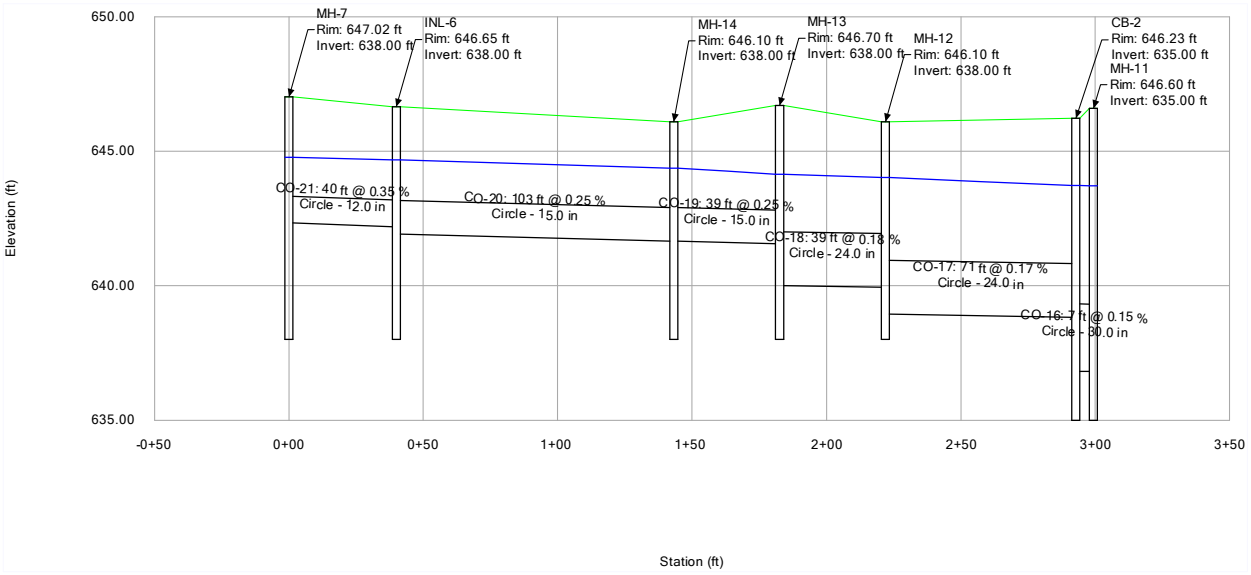


Profile Report

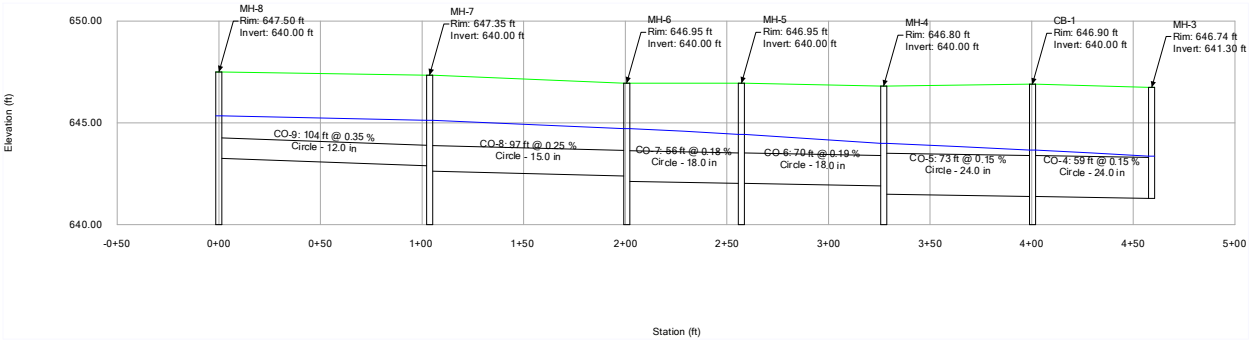
Engineering Profile - INL-17 TO MH-42 (FRDCR_repaired_FINAL.stsw)



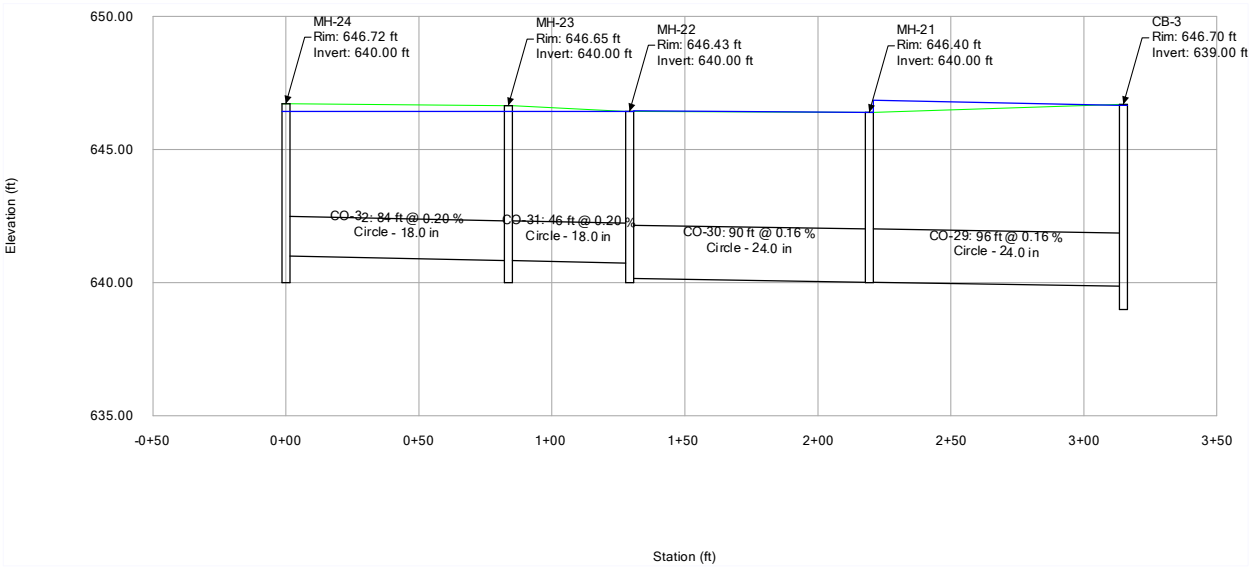
Profile Report
Engineering Profile - MH-7 TO MH-11 (FRDCR_repaired_FINAL.stsw)



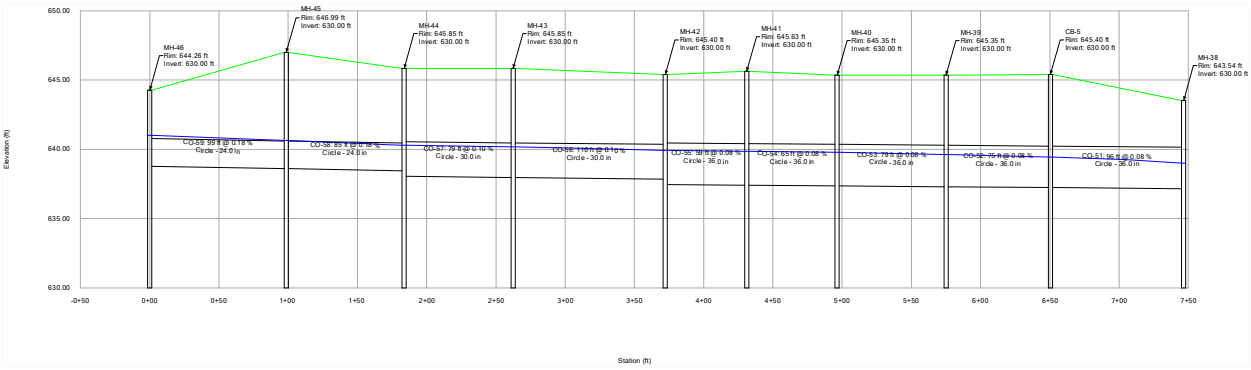
Profile Report
Engineering Profile - MH-8 TO EX. INL-3 (FRDCR_repaired_FINAL.stsw)



Profile Report
Engineering Profile - MH-24 TO CB-3 (FRDCR_repaired_FINAL.stsw)



Profile Report
Engineering Profile - MH-46 TO EX. MH-38
(FRDCR_repaired_FINAL.stsw)



Stormwater Pollution Prevention Plan

For Construction Activities At:

Seasons at Crest Hill
Southeast corner of Renwick and Weber Road.
Crest Hill, Illinois 60435

SWPPP Prepared For:

FRED-Crest Hill HC, LLC
Tony DeRosa
789 North Water Street, Suite 200
Milwaukee, Wisconsin 53202
262-366-4376
tderosa@fred-inc.com

SWPPP Prepared By:

Manhard Consulting, LTD
Grant Wasielewski
1 Overlook Point, Suite 290
Lincolnshire, Illinois 60069
847-325-7042
gwasielewski@manhard.com

Contractor:

TBD

SWPPP Preparation Date:

01/ 14 / 2026

Estimated Project Dates:

Project Start Date: 08/01/26
Project Completion Date: 11/01/27

Contents

SECTION 1: SITE EVALUATION, ASSESSMENT, AND PLANNING 1
1.1 Project/Site Information 1
1.2 Contact Information/Responsible Parties 1
1.3 Nature and Sequence of Construction Activity ..... **Error! Bookmark not defined.**
1.4 Soils, Slopes, Vegetation, and Current Drainage Patterns 3
1.5 Construction Site Estimates 4
1.6 Receiving Waters 4
1.7 Site Features and Sensitive Areas to be Protected 4
1.8 Potential Sources of Pollution 4
1.9 Endangered Species Certification 5
1.10 Historic Preservation 6
1.11 Applicable Federal, Tribal, State or Local Programs 6
1.12 Maps 6
SECTION 2: EROSION AND SEDIMENT CONTROL BMPS 7
2.1 Minimize Disturbed Area and Protect Natural Features and Soil 7
2.2 Phase Construction Activity 7
2.3 Stabilize Soils 8
2.4 Protect Slopes 9
2.5 Protect Storm Drain Inlets 9
2.6 Establish Perimeter Controls and Sediment Barriers 10
2.7 Establish Stabilized Construction Exits 11
SECTION 3: GOOD HOUSEKEEPING BMPS 11
3.1 Material Handling and Waste Management 11
3.2 Establish Proper Building Material Staging Areas 12
3.3 Designate Washout Areas 13
3.4 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices 13
3.5 Control Equipment/Vehicle Washing 14
3.6 Spill Prevention and Control Plan 14
3.7 Any Additional BMPs 14
3.8 Allowable Non-Stormwater Discharge Management 14
SECTION 4: SELECTING POST-CONSTRUCTION BMPs 15
SECTION 5: INSPECTIONS 16
5.1 Inspections 16
5.2 Delegation of Authority 18
5.3 Corrective Action Log 18
SECTION 6: RECORDKEEPING AND TRAINING 18
6.1 Recordkeeping 18
6.2 Log of Changes to the SWPPP 18
SECTION 7: FINAL STABILIZATION 19
SECTION 8: CERTIFICATION AND NOTIFICATION 20
SWPPP APPENDICES 21
Appendix A – General Location Map
Appendix B – Site Maps
Appendix C – Construction General Permit

Appendix D – NOI and Acknowledgement Letter from EPA/State
Appendix E – Inspection Reports
Appendix F – Corrective Action Log
Appendix G – SWPPP Amendment Log
Appendix H – Subcontractor Certifications/Agreements
Appendix I – Grading and Stabilization Activities Log
Appendix K – Delegation of Authority
Appendix K – Site Specific Permits

SECTION 1: SITE EVALUATION, ASSESSMENT, AND PLANNING

1.1 Project/Site Information

Project/Site Name: Seasons at Crest Hill
Project Street/Location: Southeast corner of Renwick and Weber Road.

City: Crest Hill State: IL ZIP Code: 60435
County or Similar Subdivision: Will County

Latitude/Longitude (Use **one** of three possible formats, and specify method)
Latitude: Longitude:
41°35'36" (degrees, minutes, seconds) -88°07'12" (degrees, minutes, seconds)

Method for determining latitude/longitude:
☐ USGS topographic map (specify scale: _____) ☐ EPA Web site ☐ GPS
☒ Other (please specify): Google Maps

Is the project located in Indian country? ☐ Yes ☒ No
If yes, name of Reservation, or if not part of a Reservation, indicate "not applicable."
Not Applicable

Is this project considered a federal facility? ☐ Yes ☒ No

NPDES project or permit tracking number*:N/A
**(This is the unique identifying number assigned to your project by your permitting authority after you have applied for coverage under the appropriate National Pollutant Discharge Elimination System (NPDES) construction general permit.)*

1.2 Contact Information/Responsable Parties

Owner:
FRED-Crest Hill HC, LLC
Tony DeRosa
789 North Water Street, Suite 200
Milwaukee, Wisconsin 53202
262-366-4376
tderosa@fred-inc.com

Contractor:
TBD

SWPPP Contact(s):
Manhard Consulting, LTD
Grant Wasielewski
1 Overlook Point, Suite 290
Lincolnshire, IL 60069
847-325-7042
gwasielewski@manhard.com

This SWPPP was Prepared by:
Manhard Consulting, LTD
Grant Wasielewski
1 Overlook Point, Suite 290
Lincolnshire, IL 60069
847-325-7042
gwasielewski@manhard.com

Subcontractor(s):
T.B.D.

Subcontractor(s):
T.B.D.

Subcontractor(s):
T.B.D.

Emergency 24-Hour Contact:
T.B.D.

1.3 Nature and Sequence of Construction Activity

The scope of work for this project includes the construction of ten (10) 18-unit multi-family buildings, four (4) 20-unit buildings, a clubhouse, and associated parking and utilities. The site is located at the southeast corner of Renwick and Weber Road in the Village of Cresthill, McHenry County, Illinois. The construction site will disturb approximately 15.81 acres of the 15.81-acre site and 1.27 acres off-site. The site is currently vacant with minimal vegetation. The site is surrounded by various existing retail businesses such as a bank and a gas station. To the northeast is Lewis University Airport. To the south is an existing residential neighborhood. The site construction activities will consist of topsoil stripping, clay excavation, clay fill, grading activities, installation of erosion and sedimentation controls, utility excavation, parking lot paving, and building construction.

What is the function of the construction activity?

☒ Residential ☐ Commercial ☐ Industrial ☐ Road Construction ☐ Linear Utility

☐ Other (please specify):

Estimated Project Start Date: 11/01/26

Estimated Project Completion Date: 8/01/28

1.4 Soils, Slopes, Vegetation, and Current Drainage Patterns

Soil type(s):

According to the USDA Natural Resources Conservation Service the site consists of six types of soil classified as: Ashkum silty clay loam and Symerton silt loam.

Slopes:

The existing landscape regions have slopes varying from 0 to 5 percent. The proposed conditions will have slopes from 1 to 5 percent in the parking lot and 2 to 25 percent in the landscape regions.

Drainage Patterns:

In the existing conditions the majority of the site slopes towards the south. In the proposed conditions, this drainage pattern will route water to storm sewer structures after which it will then be carried to a system of existing retention ponds to the south of the existing residential neighborhood. Inlets and manholes will collect the storm water and convey runoff into retention ponds.

Vegetation:

The existing site is covered in Kentucky Blue Grass. The proposed landscaping will consist of trees, shrubs, perennials, and grasses. Disturbed areas to be vegetated will receive topsoil and seeding or sod for final stabilization.

1.5 Construction Site Estimates

The following are estimates of the construction site.

Total project area:	15.81 acres
Construction site area to be disturbed:	15.81 acres
Percentage impervious area before construction:	0.0 %
Runoff coefficient before construction:	0.45
Percentage impervious area after construction:	30.4 %
Runoff coefficient after construction	0.66

1.6 Receiving Waters

Description of receiving waters:

The ultimate receiving water for the pre- and post-construction runoff is the Desplaines River. The proposed storm water will enter a series of inlets and manholes onsite and flow to the detention basins.

Description of impaired waters or waters subject to TMDLs:

According to the Illinois Integrated Water Quality Report and the Section 303(d) List (2022) as published by the Illinois EPA, the section of the Desplaines River that receives runoff from this site was analyzed by the IEPA. The Desplaines was analyzed for fish consumption and aquatic life. The potential causes of impairment include aldrin, arsenic, cause unknown, chromium, lindane, methoxychlor, phosphorus, mercury, polychlorinated biphenyls (PCBS), and fecal coliform. The IEPA has indicated that this portion of the river is of Medium priority.

1.7 Site Features and Sensitive Areas to be Protected

There is no flood plains or wetlands on site. Silt fence will be installed at the boundary of the site anywhere water would flow off. The contractor shall restrict all construction to the proposed construction limits and ensure that all stormwater runoff is treated prior to leaving the site.

1.8 Potential Sources of Pollution

Potential sources of sediment to stormwater runoff:

- Clearing and grubbing operations
- Grading and site excavation operations
- Vehicle tracking

- Topsoil stripping and stockpiling
- Landscaping operations

Potential pollutants and sources, other than sediment, to stormwater runoff:

- Combined Staging Areas – small fueling activities, minor equipment maintenance, sanitary facilities, and hazardous waste storage.
- Material Storage Area – general building materials, solvents, adhesives, paving materials, paints, aggregates, trash, etc.
- Construction Activity - paving, curb/gutter installation, concrete pouring/mortar/stucco, and building construction/demolition.
- Concrete washout area.

Trade Name Material	Stormwater Pollutants	Location
Fertilizer	Nitrogen, Phosphorous	Newly seeded areas
Asphalt	Oil, Petroleum distillates	Streets and Parking lot
Concrete	Limestone, sand, PH, Chromium	Curb & Gutter, Building construction
Paints	Metal oxides, Stoddard solvent, talc, Calcium carbonate, arsenic	Building Construction
Curing Compounds	Naphtha	Curb & Gutter
Wood preservatives	Stoddard solvent, Petroleum distillates, arsenic, copper, chromium	Timber pads & building construction
Hydraulic oil/fluids	Mineral Oil	Leaks or broken hoses from equipment
Diesel Fuel	Petroleum distillates, oil & grease, Naphthalene, xylenes	Secondary containment/staging area
Sanitary Toilets	Bacteria, parasites, and viruses	Staging Area

1.9 Endangered Species Certification

Are endangered or threatened species and critical habitats on or near the project area?

☐ Yes ☒ No

Describe how this determination was made:

The Illinois Department of Natural Resources Consultation Agency Action Review, attached in Appendix K, dated September 03, 2025, states that the Illinois Natural Heritage Database contains no record of State-listed threatened or endangered species, Illinois Natural Area

Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the project location.

1.10 Historic Preservation

Are there any historic sites on or near the construction site?

☐ Yes ☒ No

Describe how this determination was made:

The Illinois Historic Preservation Agency Letter, attached in Appendix K, dated September 29, 2025 states that no historic, architectural, or archaeological sites exist within the project area.

1.11 Applicable Federal, Tribal, State or Local Programs

The Illinois General Permit requires that an Incidence of Non-Compliance (ION) be filed to report any violation of the SWPPP observed during an inspection conducted, including those not required by the Plan. The IEPA must be notified within 24 hours of any violation via email at epa.swnoncomp@illinois.gov, telephone or fax. The ION form attached in Appendix E, must be submitted to the IEPA within five days of a violation.

1.12 Maps

Please refer to Sheets 3-4 (“Soil Erosion and Sedimentation Control Plan and Details”), of the plan set titled “SEASONS AT CREST HILL” by Manhard Consulting, Ltd.

SECTION 2: EROSION AND SEDIMENT CONTROL BMPS

2.1 Minimize Disturbed Area and Protect Natural Features and Soil

The construction will occur according to the construction sequence shown in Section 2.2. Approximately 15.81 acres will be disturbed on site, and approximately 1.27 acres will be disturbed off site. Silt fence is proposed along the perimeter of the area of disturbance at areas of downstream flow to prevent sediment-laden runoff from leaving the site. Soil excavation and fill operations will take place to meet proposed grades. Topsoil will be separated and stockpiled prior to re-spread. All soil stockpiles will be surrounded with silt fence.

2.2 Phase Construction Activity

CONSTRUCTION SEQUENCE:

1. INSTALL SILT FENCE AT LOCATIONS AS INDICATED ON THE PLANS.
2. PROVIDE STABILIZED CONSTRUCTION ENTRANCE.
3. CONSTRUCT TEMPORARY SEDIMENT TRAPS AND/OR BASINS.
4. STRIP EXISTING TOPSOIL FROM PROPOSED STORMWATER MANAGEMENT AREAS AND STOCKPILE WHERE SHOWN ON PLANS.
5. PROVIDE SILT FENCE AROUND THE BASE OF THE STOCKPILES.
6. CONSTRUCT STORMWATER MANAGEMENT (DETENTION) FACILITIES TO SUB-GRADE AND INSTALL OUTLET PIPES.
7. COMPLETE TOPSOIL PLACEMENT AND PERMANENT SEEDING AND SODDING OF STORMWATER MANAGEMENT FACILITIES.
8. CUT AND FILL SITE TO PLAN SUB-GRADE.
9. CONSTRUCT UNDERGROUND IMPROVEMENTS, i.e. SANITARY SEWER WATERMAIN AND STORM SEWER**, ETC.
10. CONSTRUCT PAVEMENT IMPROVEMENTS PER PLAN.
11. COMPLETE CONSTRUCTION OF SITE WITH PERMANENT STABILIZATION.
12. REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES.

** INSTALL INLET PROTECTION AROUND DRAINAGE STRUCTURES AS CONSTRUCTED.

2.3 Stabilize Soils

Temporary Stabilization

BMP Description: Temporary stabilization will be required over any region that will remain inactive for a period of fourteen (14) days or more unless stabilization is precluded by snow cover from when activities ceased. The temporary stabilization will help reduce runoff and erosion until permanent vegetation is established.	
☐ ***Permanent***	☒ ***Temporary***
Installation Schedule:	Temporary seed mixture shall be applied in accordance with the Soil Protection Chart, on portions of the site that will require temporary stabilization, no more than one (1) day after the construction activity has ceased when earth disturbing activities will cease for more than 14 days. In order for an area or stockpile to be temporarily stabilized, seed must germinate, grow, and provide a minimum of 70% vegetative density.
Maintenance and Inspection:	Inspections must occur at least once every seven (7) calendar days and after every ½" or greater rainfall event. Areas must be watered, fertilized, and reseeded as needed to maintain a minimum of 70% vegetative density.
Responsible Staff:	TBD

Permanent Stabilization

BMP Description: Permanent stabilization using seed mixes and sod will be provided immediately after the completion of all other construction events, and shall be completed as soon as possible.	
☒ ***Permanent***	☐ ***Temporary***
Installation Schedule:	Disturbed areas shall be stabilized with seeding or sod within fourteen (14) days of completion of disturbance and grass sown as necessary to re-establish vegetation for control of siltation and soil erosion.
Maintenance and Inspection:	Inspections must occur at least once every seven (7) calendar days and after every ½" or greater rainfall event during construction. Maintenance includes watering, fertilizing, and reseeding as needed to maintain a minimum of 70% vegetative density. Once construction is complete, the permanent stabilization will be monitored until final stabilization is reached. Final stabilization is reached when 70% of the ground cover is permanently stabilized.
Responsible Staff:	TBD

2.4 Protect Slopes

Erosion Control Blanket

BMP Description: Erosion control blankets will be applied to protect exposed soil surfaces against erosion due to rainfall or flowing water. Erosion control blankets are proposed at slopes greater than 4:1 and also in areas of highly concentrated flows. Erosion control blankets are to be installed per manufacturers specifications and per the Illinois Urban Manual Standards.	
☒ ***Permanent***	☐ ***Temporary***
Installation Schedule:	Erosion control blankets are to be installed while construction activities are occurring and/or after construction activities have been completed.
Maintenance and Inspection:	Inspections must occur at least one every seven (7) calendar days and after every ½" or greater rainfall event during construction to check for tears or holes in blankets, and to ensure that water flowing over the blanket is not causing erosion. Any areas where the blanket is damaged or is not in close contact with the ground will be repaired or replaced.
Responsible Staff:	TBD

2.5 Protect Storm Drain Inlets

Inlet protection

BMP Description: Inlet protection is required at all proposed structures as they are constructed and any existing structures that will be receiving flow within the construction limits. The inlet protection will consist of a filter basket or filter fabric placed beneath the rim and should be installed to prevent any tears or damage during construction.	
☐ ***Permanent***	☒ ***Temporary***
Installation Schedule:	Inlet protection for all existing structures will be installed before any construction activities begin on site. For each proposed structure, the inlet protection will be installed immediately after the installation of the structure.
Maintenance and Inspection:	The inlet protection is to be inspected once every seven (7) calendar days and after every ½" or greater rainfall event to check sediment load and identify tears in the filter. Maintenance will include removing any sediment, and repairing and replacing when necessary.
Responsible Staff:	TBD

Culvert Inlet Protection

BMP Description: Culvert Inlet protection is required at the proposed flared end section (FES) that is to be constructed. The culvert inlet protection will consist of a silt fence filter fabric placed around the opening and should be installed to prevent any tears or damage during construction.

☐ *Permanent*	☒ *Temporary*
Installation Schedule:	Inlet protection for the proposed FES will be installed immediately after completion of the structure.
Maintenance and Inspection:	The culvert inlet protection is to be inspected once every seven (7) calendar days and after every ½" or greater rainfall event to check sediment load and identify tears in the filter. Maintenance will include removing any sediment, and repairing and replacing when necessary.
Responsible Staff:	TBD

2.6 Establish Perimeter Controls and Sediment Barriers

Silt Fence

BMP Description: Silt fence will be installed around the temporary topsoil stockpile to prevent runoff from the stockpile onto the construction area. The silt fence consists of filter fabric stretched across and attached to posts that will intercept sediment from small tributary areas.

☐ *Permanent*	☒ *Temporary*
Installation Schedule:	The silt fence is to be installed as soon as the stockpile areas are established. The maximum drainage per overland flow to a silt fence shall not exceed ½ acre per 100 feet of fence.
Maintenance and Inspection:	The silt fence is to be inspected once every seven (7) calendar days and after every ½" or greater rainfall event. Inspection will include ensuring the silt fence is installed properly so that water flows through the structure. Maintenance will include repairing or replacing if damaged, and the removal of sediment when the sediment reaches half the height of the silt fence.
Responsible Staff:	TBD

2.7 Establish Stabilized Construction Exits

Wheel Wash

BMP Description: A temporary wheel wash will be provided at the designated construction exit at the northwest side of the site. The wheel wash will be located on the existing pavement where the tires of vehicles can be cleaned of sediment to prevent track-out from the site. All wash water must be contained on site and filtered prior to being directed towards the existing storm drains.	
☐ ***Permanent***	☒ ***Temporary***
Installation Schedule:	The temporary wheel wash is to be installed prior to the beginning of construction activities.
Maintenance and Inspection:	The wheel wash shall be maintained, adjusted, or relocated as necessary to prevent sediment from being tracked onto public roadways. Any sediment reaching a public road shall be removed by shoveling or street cleaning before the end of each working day.
Responsible Staff:	TBD

HOUSEKEEPING BMPS

3.1 Material Handling and Waste Management

Waste Materials

BMP Description: All waste materials on site are to be disposed in refuse containers. The containers are to be emptied when necessary by a trash disposal service and taken off site. No waste materials are to be discharged from the site with storm water. Containers must have watertight lids and meet all federal, state and municipal regulations.	
Installation Schedule:	Trash containers are to be placed on site once construction has begun. Contractor to place containers in an appropriate location as needed for construction.
Maintenance and Inspection:	Trash containers are to be emptied weekly or more frequently if the container capacity is exceeded. Trash containers shall be inspected after any storm event of ½" or more.
Responsible Staff:	TBD

Hazardous Waste Materials

BMP Description: All hazardous waste materials brought onto site are to be properly stored, handled, dispensed and disposed of according to all applicable label directions. The storage and handling of any flammable and combustible liquids must meet the requirements according

to 29 CFR 1926.152. No hazardous waste materials are to be disposed of in the containers stored on site for waste materials.	
Installation Schedule:	Storage containers for all hazardous waste materials are to be placed on site, in a separate location from the waste material containers, once construction has begun. Contractor to place containers in an appropriate location as needed for construction.
Maintenance and Inspection:	Hazardous waste containers shall be inspected weekly and after any storm event of ½" or more. Material Safety Data Sheets (MSDS) will be kept on site for any applicable materials.
Responsible Staff:	TBD

Sanitary Waste

BMP Description: Temporary sanitary facilities (portable toilets) will be provided at the site throughout the construction phase. The toilets will be placed in a location appropriate to the phase of construction. The portable toilets will be located away from a concentrated flow paths and traffic flow and may have collection pans underneath as secondary containment	
Installation Schedule:	The portable toilets will be brought to the site once the staging area has been established and will be placed in a location that is appropriate to the phase of construction.
Maintenance and Inspection:	All sanitary waste will be collected from the portable facilities as recommended by the service provider. The portable toilets will be inspected weekly for evidence of leaking holding tanks. Toilets with leaking holding tanks will be removed from the site and replaced with new portable toilets.
Responsible Staff:	TBD

3.2 Establish Proper Building Material Staging Areas

Materials Storage

BMP Description: All construction equipment and materials will be stored on site at a location deemed appropriate by the General Contractor and owner's representative. The General Contractor is to identify the location in the pre-construction meeting.	
Installation Schedule:	A material storage area will be identified on site before any construction activities begin.
Maintenance and Inspection:	The storage area will be inspected weekly and within 24 hours after every ½" or greater rainfall event. The area is to be inspected for evidence of, or the potential for, pollutants entering the drainage system. Based on the results of the inspection, the description of potential pollutant sources identified in the plan and pollution prevention measures identified in the plan shall be revised as appropriate as soon as practicable after such inspection. Such modifications shall

	provide for timely implementation of any changes to the plan within seven (7) calendar days following the inspection.
Responsible Staff:	TBD

3.3 Designate Washout Areas

Concrete Washout Facility

BMP Description: A concrete washout facility is to be located on site to provide a location to contain concrete and liquids to rinse out machines using concrete after delivery. The washout facility will allow for easier disposal of the concrete and liquids. The washout facility will also prevent runoff of the liquids, which could contaminate the groundwater or clog storm drains and pipes.	
Installation Schedule:	A concrete washout facility is to be installed before any concrete materials are used on site. The contractor is to place the facility in an appropriate location as needed for construction. The concrete washout facility is not to be located within 50 feet of storm drains, open ditches, or waterbodies.
Maintenance and Inspection:	Materials are to be removed if the facility has been filled to 75 percent capacity. The facilities should be inspected daily to ensure the container is not leaking or nearing capacity. The liquids shall be removed, or the facilities covered, before predicted rainstorms to prevent overflows.
Responsible Staff:	TBD

3.4 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices

Equipment / Vehicle Fueling and Maintenance

BMP Description: All equipment / vehicle fueling and maintenance will be performed off site. If minor vehicle maintenance or fueling is needed on site, all equipment fluids are to be disposed of into designated containers stored with the other hazardous materials.	
Installation Schedule:	Containers to handle and dispose of hazardous materials are to be located on site as designated by the General Contractor if it becomes necessary to perform minor maintenance to equipment or vehicles on site.
Maintenance and Inspection:	All vehicles and equipment are to be inspected each day prior to use. Cleanup materials are to be kept on site if immediate cleanup becomes necessary.
Responsible Staff:	TBD

3.5 Control Equipment/Vehicle Washing

All equipment and vehicle washing shall be done off site. All water used for equipment and vehicle washing performed on site shall be filtered prior to discharge.

3.6 Spill Prevention and Control Plan

Spill Prevention and Control Plan

BMP Description: All spills are to be cleaned up immediately and are to be reported to the Owner. If a spill containing any hazardous materials or petroleum products has occurred on site in excess of Reportable Quantities as defined by the EPA, the spill must be immediately reported to the EPA National Response Center (1-800-424-8802) and the Illinois Emergency Management Agency (IEMA) (1-800-782-7860). The reportable quantity for all hazardous materials can be found in 40 CFR 302. The reportable quantity for all petroleum products for the state of Illinois is 25 gallons or less if the spill is contained.	
Installation Schedule:	The spill prevention and control procedures will be put in place immediately upon the start of construction. Spill kits are to remain on site at all times in case of a spill.
Maintenance and Inspection:	The pre-construction meeting given by the General Contractor will review all procedures for spill prevention and control. Notices are to be available on site indicating the spill prevention and control plan.
Responsible Staff:	TBD

3.7 Any Additional BMPs

No additional BMP's above and beyond those previously mentioned in this document and shown on the engineering plans referenced herein are proposed at this time.

3.8 Allowable Non-Stormwater Discharge Management

The General NPDES Permit for Illinois prohibits most non-storm water discharges during construction. The following are allowable non-storm water discharges that are covered by the General Permit during construction activities:

1. Discharges from fire fighting activities;
2. Fire hydrant flushings;
3. Waters used to wash vehicles where detergents are not used;

4. Waters used to control dust;
5. Potable water sources including uncontaminated waterline flushings;
6. Landscape irrigation drainages;
7. Routine external building washdown which does not use detergents;
8. Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used;
9. Uncontaminated air conditioning condensate;
10. Springs;
11. Uncontaminated ground water;
12. Foundation or footing drains where flows are not contaminated with process materials such as solvents.

SECTION 4: SELECTING POST-CONSTRUCTION BMPs

There will be no post-construction BMP's to control pollutants in stormwater discharges after construction operations have been completed.

SECTION 5: INSPECTIONS

5.1 Inspections

1. Inspection Personnel:

Inspections shall be performed by a person knowledgeable in the principles and practices of erosion and sediment control measures, such as a licensed Professional Engineer (P.E.), a Certified Professional in Erosion and Sediment Control (CPESC), a Certified Erosion Sediment and Storm Water Inspector (CESSWI) or other knowledgeable person who possesses the skills to assess conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharge from the construction activities.

The qualified Inspection Personnel are to be identified at a later date by the General Contractor.

2. Inspection Schedule and Procedures:

Qualified personnel (provided by the Owner or General Contractor) shall inspect disturbed areas of the construction site that have not been finally stabilized, structural control measures, and locations where vehicles enter or exit the site at least once every seven calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater or equivalent snowfall. It should be noted that inspections may be reduced to once per month when construction activities have ceased due to frozen conditions. Weekly inspections shall recommence when construction activities are conducted, or if there is 0.5" or greater rain event, or discharge due to snowmelt occurs.

Qualified personnel means a person knowledgeable in the principles and practices of erosion and sediment controls measures, such as a licensed Professional Engineer (P.E.), a Certified Professional in Erosion and Sediment Control (CPESC), a Certified Erosion Sediment and Stormwater Inspector (CWSSWI) or other knowledgeable person who possesses the skills to assess conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the construction activities.

a. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off site sediment tracking.

b. Based on the results of the inspection, the description of potential pollutant sources identified in the plan in accordance with Part IV.D.1 (Site Description) of the Illinois General NPDES Permit and pollution prevention measures identified in the plan in accordance with Part IV.D.2 (Controls) of the Illinois General NPDES permit shall be revised as appropriate as soon as practicable after such inspection. Such modifications shall provide for timely implementation of any changes to the plan within 7 calendar days following the inspection.

c. A report summarizing the scope of the inspection, name and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the storm water pollution prevention plan, and actions taken in accordance with paragraph b above shall be made and retained as part of the storm water pollution prevention plan for at least three years from the date that the permit coverage expires or is terminated. All inspection reports shall be retained at the construction site. The report shall be signed in accordance with Part VI.G (Signatory Requirements) of the Illinois General NPDES Permit.

d. The Owner or General Contractor shall notify the appropriate Illinois Environmental Protection Agency Field Operations Section office by email at: epa.swnoncomp@illinois.gov, telephone or fax within 24 hours of any incidence of non-compliance for any violation of the storm water pollution prevention plan during any inspection conducted, or for violations of any condition of the Illinois General NPDES permit. The Owner or General Contractor shall complete and submit within 5 days an "incidence of non-compliance" (ION) report for any violation of the storm water pollution prevention plan observed during any inspection conducted, or for violations of any condition of the Illinois General NPDES permit. Submission shall be on forms provided by the Illinois Environmental Protection Agency and include specific information on the cause of non-compliance, actions which were taken to prevent any further causes of non-compliance, and a statement detailing any environmental impact, which may have resulted from the non-compliance.

e. All reports of non-compliance shall be signed by a responsible authority as defined in Part VI.G (Signatory Requirements of the Illinois General NPDES Permit).

f. After the initial contact has been made with the appropriate Agency Field Operations Section Office, all reports of non-compliance shall be mailed to the Agency at the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Compliance Assurance Section
2520 W Iles Avenue
Post Office Box 19276
Springfield, Illinois 62794-9276

5.2 Delegation of Authority

Please refer to Appendix J for Delegation of Authority.

5.3 Corrective Action Log

Actions taken to correct a violation, repairs to damaged materials or replacement of BMPs shall be noted in the Corrective Action Log in Appendix F.

SECTION 6: RECORDKEEPING AND TRAINING

6.1 Recordkeeping

Records will be retained for a minimum period of at least 3 years after the permit is terminated.

Date(s) when major grading activities occur:
See Appendix I Grading and Stabilization Activities Log
Date(s) when construction activities temporarily or permanently cease on a portion of the site:
See Appendix I Grading and Stabilization Activities Log
Date(s) when an area is either temporarily or permanently stabilized:
See Appendix I Grading and Stabilization Activities Log

6.2 Log of Changes to the SWPPP

Log of changes and updates to the SWPPP
Changes to the design, location of BMPs, sequence of construction, operation, maintenance or material substitutions shall be amended on the plans and appropriately logged in Appendix G.

SECTION 7: FINAL STABILIZATION

Permanent Seeding and Sodding

BMP Description: Permanent stabilization will be provided immediately after the completion of all other construction events, no more than seven (7) days after the construction in a portion of the site has permanently ceased. Refer to the landscape plan for final stabilization proposed.	
☒ ***Permanent***	☐ ***Temporary***
Installation Schedule:	Seed shall be planted or sod laid immediately on any portion of the site that has permanently finished all other construction activities, but no later than seven (7) days after the completion of construction.
Maintenance and Inspection:	Inspections must occur at least once every seven (7) calendar days and after every ½" or greater rainfall event during construction. Maintenance includes watering, fertilizing, and reseeding as needed to maintain adequate vegetative density. Once construction is complete, the permanent stabilization will be monitored until final stabilization is reached. Final stabilization is reached when 70% of the ground cover is permanently stabilized.
Responsible Staff:	TBD

SECTION 8: CERTIFICATION AND NOTIFICATION

NPDES OWNER CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

_____ Name	_____ Company
_____ Title	_____ Address
_____ Signature	_____ Telephone
_____ Date	

NPDES CONTRACTOR CERTIFICATION

Certification Statement. All contractors and subcontractors identified to implement or maintain a stormwater pollution prevention measure shall sign a copy of the following Certification Statement before conducting any service at SEASONS AT ELGIN – SOUTHWEST CORNER OF HOPPS ROAD AND RANDALL ROAD, ELGIN, IL:

"I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR10) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification."

_____ Name	_____ Company
_____ Title	_____ Address
_____ Signature	_____ Telephone
_____ Date	

SWPPP APPENDICES

Attach the following documentation to the SWPPP:

Appendix A – General Location Map

Appendix B – Site Maps

Appendix C – Construction General Permit

Appendix D – NOI and Acknowledgement Letter from EPA/State

Appendix E – Inspection Reports

Appendix F – Corrective Action Log

Appendix G – SWPPP Amendment Log

Appendix H – Subcontractor Certifications/Agreements

Appendix I – Grading and Stabilization Activities Log

Appendix J – Delegation of Authority

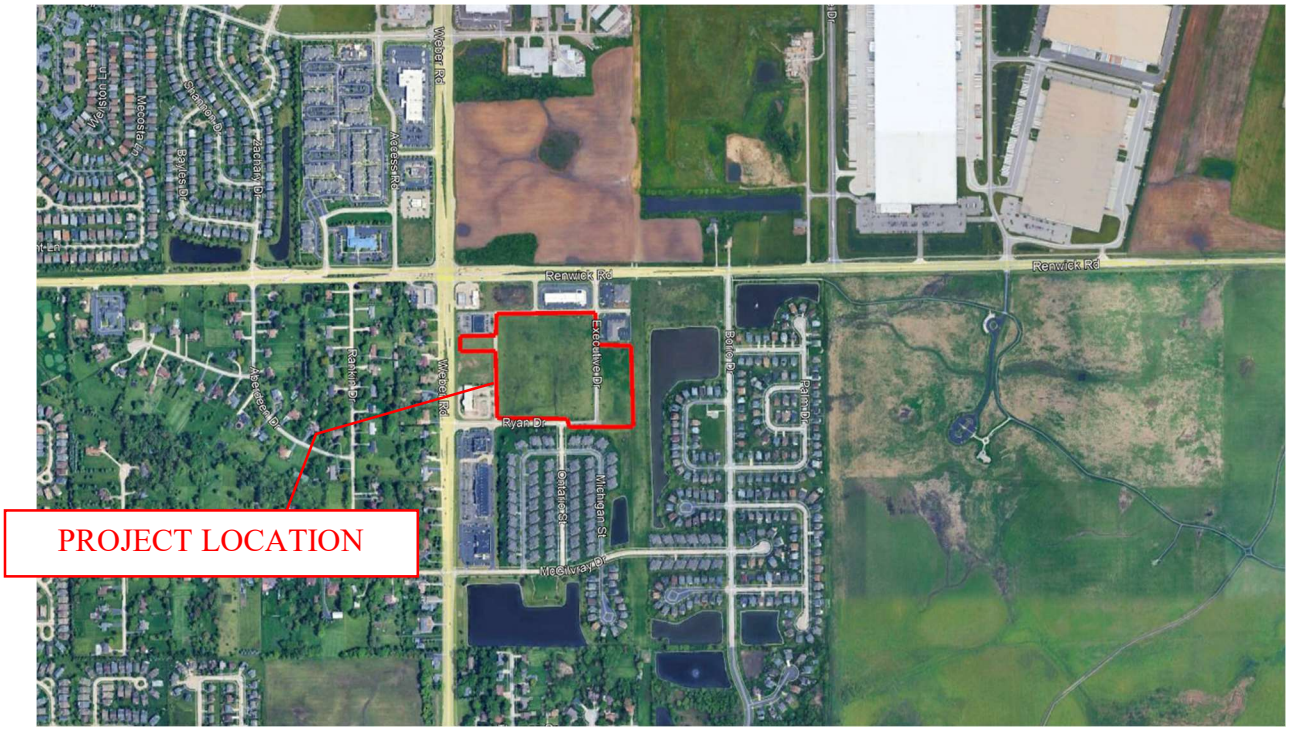
Appendix K – Site Specific Permits

APPENDIX A

GENERAL LOCATION MAP

Appendix A

Site Location Map



APPENDIX B

SITE MAPS

Please refer to Sheet 3-4 ("Soil Erosion and Sediment Control Plan and Details") of the plan set titled "SEASONS AT CREST HILL" by Manhard Consulting, Ltd.

APPENDIX C

CONSTRUCTION GENERAL PERMIT

APPENDIX D

NOTICE OF INTENT (NOI)

NOTICE OF TERMINATION (NOT)

The Notice of Termination will be completed, certified and submitted once the construction site has been stabilized upon project completion.

APPENDIX E

INSPECTION REPORTS

INCIDENCE OF NON-COMPLIANCE (ION) FORM

APPENDIX F

CORRECTIVE ACTION LOG

Appendix F – Corrective Action Log

Project Name:
SWPPP Contact:

Inspection Date	Inspector Name(s)	Description of BMP Deficiency	Corrective Action Needed (including planned date/responsible person)	Date Action Taken/Responsible person

APPENDIX G

SWPPP AMENDMENT LOG

Appendix G – SWPPP Amendment Log

Project Name:
SWPPP Contact:

Amendment No.	Description of the Amendment	Date of Amendment	Amendment Prepared by [Name(s) and Title]

APPENDIX H

SUBCONTRACTOR CERTIFICATION / AGREEMENTS

Appendix H –Subcontractor Certifications/Agreements

SUBCONTRACTOR CERTIFICATION
STORMWATER POLLUTION PREVENTION PLAN

Project Number: _____

Project Title: _____

Operator(s): _____

As a subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement:

I certify under the penalty of law that I have read and understand the terms and conditions of the SWPPP for the above designated project and agree to follow the BMPs and practices described in the SWPPP.

This certification is hereby signed in reference to the above named project:

Company: _____

Address: _____

Telephone Number: _____

Type of construction service to be provided: _____

_____

_____

Signature: _____

Title: _____

Date: _____

APPENDIX I

GRADING AND STABILIZATION ACTIVITIES LOG

Appendix I – Grading and Stabilization Activities Log

Project Name:
SWPPP Contact:

Date Grading Activity Initiated	Description of Grading Activity	Date Grading Activity Ceased (Indicate Temporary or Permanent)	Date When Stabilization Measures are Initiated	Description of Stabilization Measure and Location

APPENDIX J

DELEGATION OF AUTHORITY

Appendix J1 –Delegation of Authority Form – General Contactor Only

Note: This form is for use by the Contractor whether or not Manhard is providing compliance observation and reporting onsite. Manhard Employees should NOT sign this form. If Manhard is providing compliance observation and reporting, Manhard Employees should be listed in Appendix K2 and sign it.

I, _____ (name), hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing compliance with the environmental requirements outlined in the Construction General Permit ILR-10, at the SEASONS AT ELGIN construction site. The designee is authorized to sign any reports, stormwater pollution prevention plans and all other documents required by the permit.

_____ (name of person or position)
_____ (company)
_____ (address)
_____ (city, state, zip)
_____ (phone)

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in Part VI.G.2 of the Illinois EPA General NPDES Permit, and that the designee above meets the definition of a "duly authorized representative" as set forth in Part VI.G.2.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____

Company: _____

Title: _____

Signature: _____

Date: _____

Appendix J2 –Delegation of Authority Form – Compliance Observation and Compliance Reporting

Note: This form is for use when Manhard is providing compliance observation and reporting onsite. It is for signature by Manhard Employees, as it is specific to the services that Manhard Consulting provides. The highlighted paragraph below can be removed if the client is sensitive to the wording. Manhard employees should NOT sign Appendix K1, as it is intended for situations where the contractor is responsible for its own inspections and includes implementation and installation of compliance measures.

I, _____ (name), hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing weekly compliance observations and compliance reporting per the environmental requirements outlined in the Construction General Permit ILR-10, at the SEASONS AT ELGIN construction site. The designee is authorized to sign any reports, stormwater pollution prevention plans and all other documents required by the permit in regards to compliance observations and reporting.

_____ (name of person or position)
_____ (company)
_____ (address)
_____ (city, state, zip)
_____ (phone)

It should be noted that this Authority includes responsibility for compliance monitoring and compliance reporting of erosion and sediment control measures only. The designated person or position is not responsible for any violations of The Construction General Permit ILR-10.

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in Part VI.G.2 of the Illinios EPA General NPDES Permit, and that the designee above meets the definition of a "duly authorized representative" as set forth in Part VI.G.2.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____

Company: _____

Title: _____

Signature: _____

Date:

APPENDIX K

SITE SPECIFIC PERMITS
ILLINOIS HISTORIC PRESERVATION AGENCY (IHPA)
ILLINOIS DEPARTMENT OF NATURAL RESOURCES (IDNR)

Illinois Department of Natural Resources
JB Pritzker, Governor • Natalie Phelps Finnie, Director
One Natural Resources Way • Springfield, Illinois 62702-1271
www.dnr.illinois.gov

Will County
Crest Hill
SE of Renwick Rd. and Weber Rd.
Section:20-Township:36N-Range:10E
IEPA
New Construction, Multi-Family Residential Development

PLEASE REFER TO: SHPO LOG #010090425

September 29, 2025

Grant Wasielewski
Manhard Consulting, Ltd.
One E. Wacker Dr., Suite 2700
Chicago, IL 60601

The Illinois State Historic Preservation Office is required by the Illinois State Agency Historic Resources Preservation Act (20 ILCS 3420, as amended, 17 IAC 4180) to review all state funded, permitted, or licensed undertakings for their effect on cultural resources. Pursuant to this, we have received information regarding the referenced project for our comment.

Our staff has reviewed the specifications under the state law and assessed the impact of the project as submitted by your office. We have determined, based on the available information, that no significant historic, architectural, or archaeological resources will be affected within the proposed project area.

According to the information you have provided there is no federal involvement in your project. Be aware that the state law is less restrictive than the federal cultural resource laws concerning archaeology. If your project will use federal loans or grants, need federal agency permits (including non-reporting), use federal property, or involve assistance from a federal agency then your project must be reviewed under the National Historic Preservation Act of 1966, as amended. Please notify us immediately if such is the case.

This approval remains in effect for two (2) years from date of issuance. It does not pertain to any discovery during construction, nor is it a clearance for purposes of the Illinois Human Remains Protection Act (20 ILCS 3440).

Please retain this letter in your files as evidence of compliance with the Illinois State Agency Historic Resources Preservation Act.

If further assistance is needed, please contact Jeff Kruchten, Principal Archaeologist, at 217/785-1279 or jeff.kruchten@illinois.gov.

Sincerely,

Carey L. Mayer

Carey L. Mayer, AIA
Deputy State Historic Preservation Officer

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Applicant: Manhard Consulting
Contact: Grant Wasielewski
Address: 1 E. Wacker Drive Suite 2700
Floor 27
Chicago, IL 60601

IDNR Project Number: 2604696
Date: 09/03/2025

Project: Seasosn at Crest Hill
Address: SEC of Renwick Rd and Weber Rd, Crest Hill

Description: The project consists of construction of a 14.89 multifamily development and a 1.01 acre future commercial outlot, along with needed utilties and parking infrastructure.

Natural Resource Review Results

Consultation for Endangered Species Protection and Natural Areas Preservation (Part 1075)

The Illinois Natural Heritage Database contains no record of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves in the vicinity of the project location.

Consultation is terminated. This consultation is valid for two years unless new information becomes available that was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the project has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary. Termination does not imply IDNR's authorization or endorsement.

Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Will

Township, Range, Section:
36N, 10E, 20



IL Department of Natural Resources Contact
Isabella Newingham
217-785-5500
Division of Ecosystems & Environment

Government Jurisdiction
IL Environmental Protection Agency
Permit Section
2520 W Iles Ave,
Springfield, Illinois 62794 -9276

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

Terms of Use

By using this website, you acknowledge that you have read and agree to these terms. These terms may be revised by IDNR as necessary. If you continue to use the EcoCAT application after we post changes to these terms, it will mean that you accept such changes. If at any time you do not accept the Terms of Use, you may not continue to use the website.

1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.

2. Unauthorized attempts to upload, download, or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.

3. IDNR reserves the right to enhance, modify, alter, or suspend the website at any time without notice, or to terminate or restrict access.

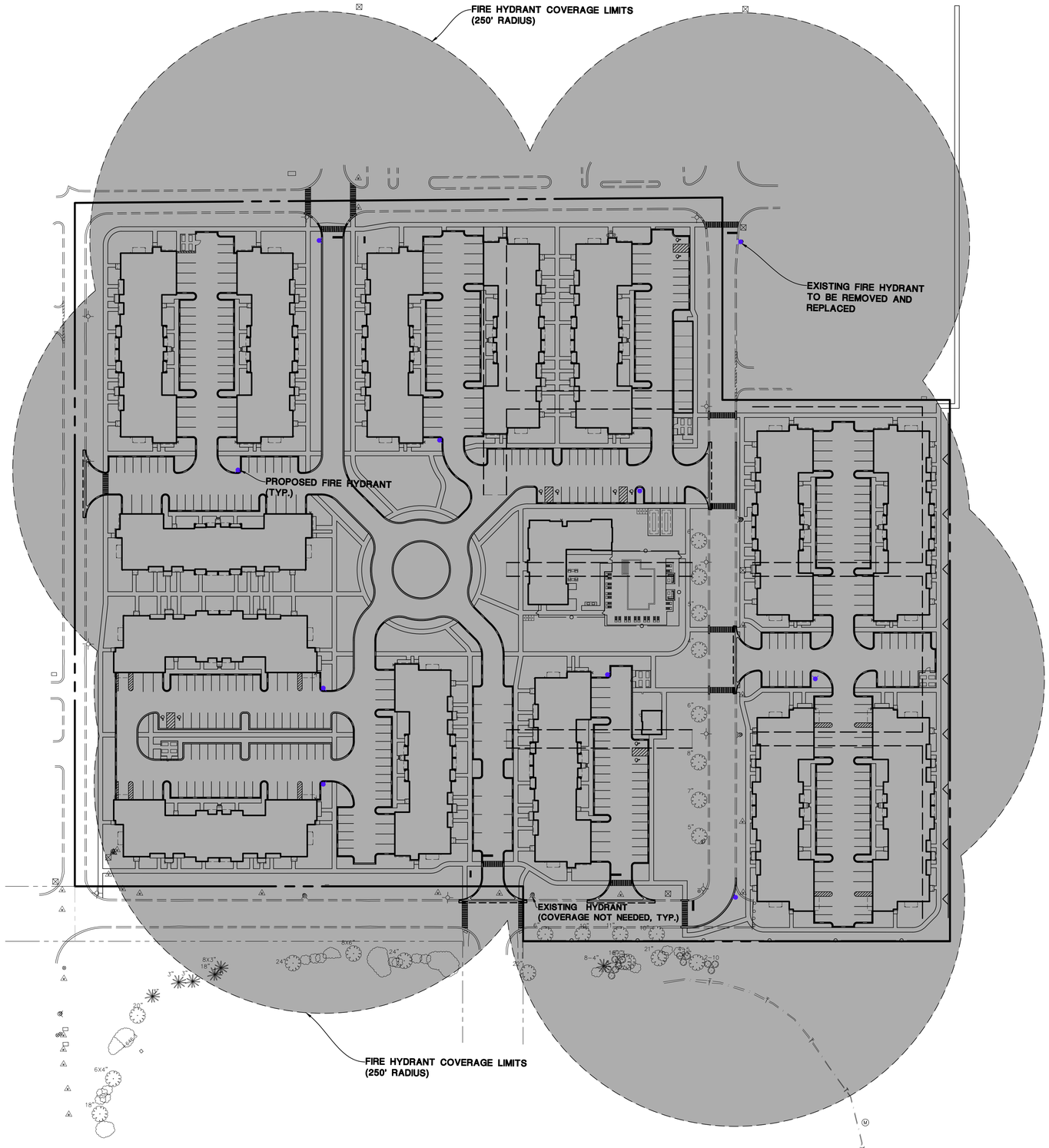
Security

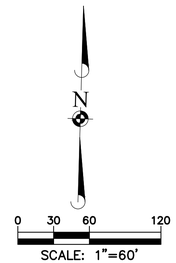
EcoCAT operates on a state of Illinois computer system. We may use software to monitor traffic and to identify unauthorized attempts to upload, download, or change information, to cause harm or otherwise to damage this site. Unauthorized attempts to upload, download, or change information on this server is strictly prohibited by law.

Unauthorized use, tampering with or modification of this system, including supporting hardware or software, may subject the violator to criminal and civil penalties. In the event of unauthorized intrusion, all relevant information regarding possible violation of law may be provided to law enforcement officials.

Privacy

EcoCAT generates a public record subject to disclosure under the Freedom of Information Act. Otherwise, IDNR uses the information submitted to EcoCAT solely for internal tracking purposes.





DRAWN BY	REVISIONS	DATE
####	####	####
####	####	####
####	####	####
####	####	####
####	####	####
####	####	####
####	####	####
####	####	####
####	####	####
####	####	####
####	####	####
####	####	####

Manhard CONSULTING
One Overlook Point, Suite 280, Lincolnshire, IL 60069 p:847.634.5500 f:847.634.0066 manhard.com
Civil Engineers • Water Resource Engineers • Structural Engineers • Surveyors • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL

CITY OF CREST HILL

FIRE HYDRANT COVERAGE EXHIBIT

PROJ. MGR.:	JSE
PROJ. ASSOC.:	MSL
DRAWN BY:	GAW
DATE:	01-13-26
SCALE:	1"=60'

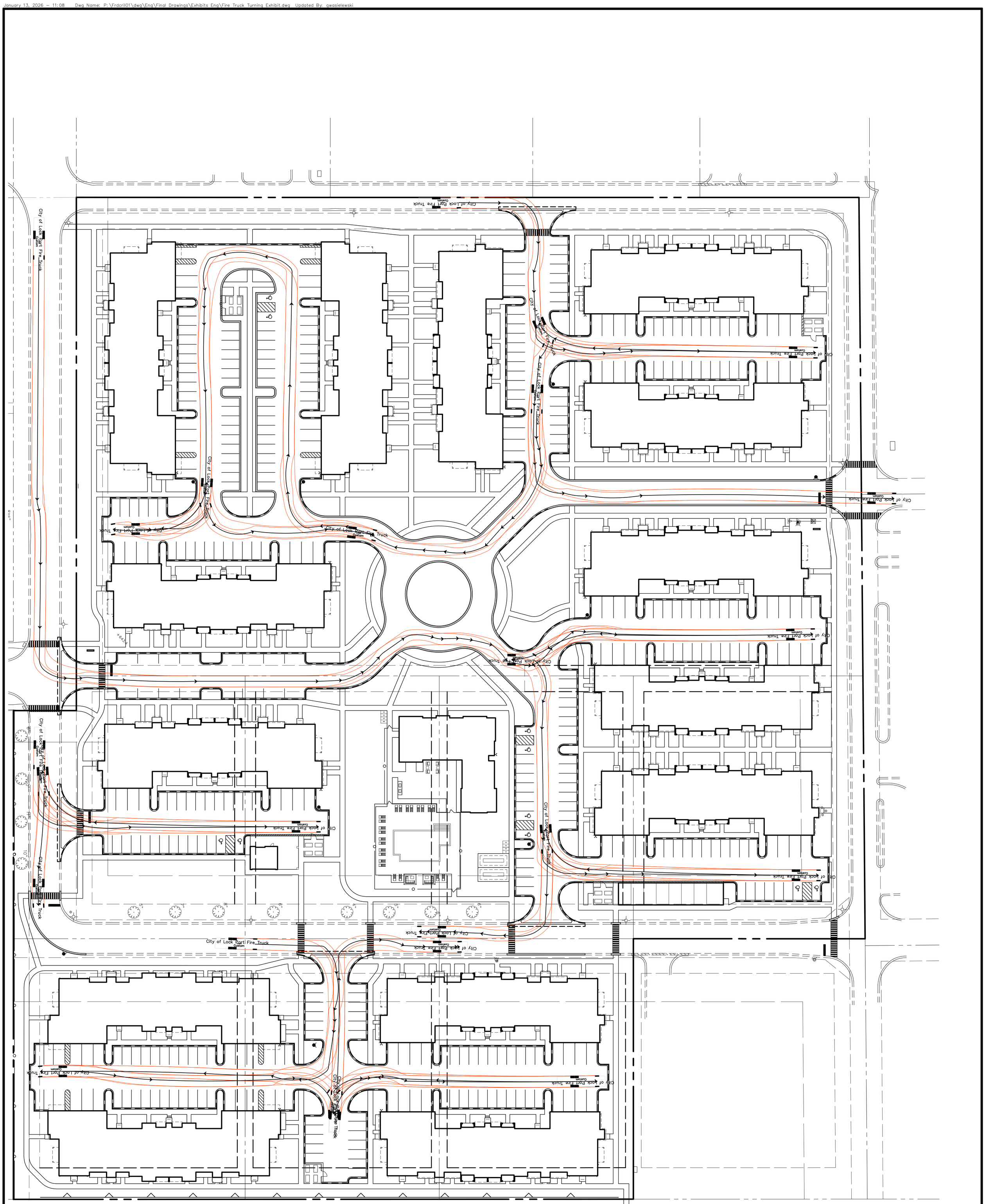
SHEET

EXB.

FRDCRIL01

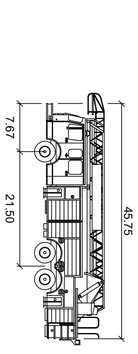
©2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 15, 2026 - 14:19 Dwg Name: P:\Frdcril01\Dwg\Eng\Final Drawings\Exhibits Eng\Fire Hydrant Coverage Exhibit.dwg Updated By: gkosiekowski



City of Lock Port Fire Truck

	feet
Width	9.88
Track	10.76
Lock to Lock Time	6.0
Steering Angle	40.0



FIRE TRUCK ACCESS EXHIBIT

CITY OF CREST HILL

SEASONS AT CREST HILL

SHEET **EXB.**

FRDCRIL01

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: GAW
DATE: 1/14/26
SCALE: 1"=40'

© 2008 ALL RIGHTS RESERVED

Manhard CONSULTING LTD
900 Woodlands Parkway, Vernon Hills, IL 60061 tel: (847) 634 5550 fax: (847) 634 0095 www.manhard.com
Civil Engineers · Surveyors · Water Resources Engineers · Water & Wastewater Engineers
Construction Managers · Environmental Scientists · Landscape Architects · Planners

DATE	REVISIONS	DRAWN BY

Call Before You Dig
JULIE ILLINOIS ONE-CALL SYSTEM
Simply Call 811

UTILITY CONTACTS	
ELECTRIC: COMMONWEALTH EDISON CO. 1910 S. BRIGGS RD. JOLIET, IL 60433 (800) 595-6237 CONTACT:	WATER: VILLAGE OF CRESTHILL 2090 OAKLAND AVE, CREST HILL, ILLINOIS 60403 (815)-741-5100 CONTACT: JULIUS HANSEN
GAS: NICOR 1844 FERRY RD NAPERVILLE, IL 60563 (309) 557-8501 CONTACT: LARRY BLACKBURN	TELEPHONE: AT&T 297 S. WEBER RD. ROMEOVILLE, IL 60446 (630) 573-5653 CONTACT: KEITH HEMLICH
SEWER: VILLAGE OF CREST HILL 2090 OAKLAND AVE, CREST HILL ILLINOIS 60403 (815-741-5108) CONTACT: JULIUS HANSEN	

Proposed Improvements for SEASONS AT CREST HILL

SOUTHEAST CORNER OF RENWICK AND WEBER ROAD
CITY OF CREST HILL, IL

STANDARD SYMBOLS

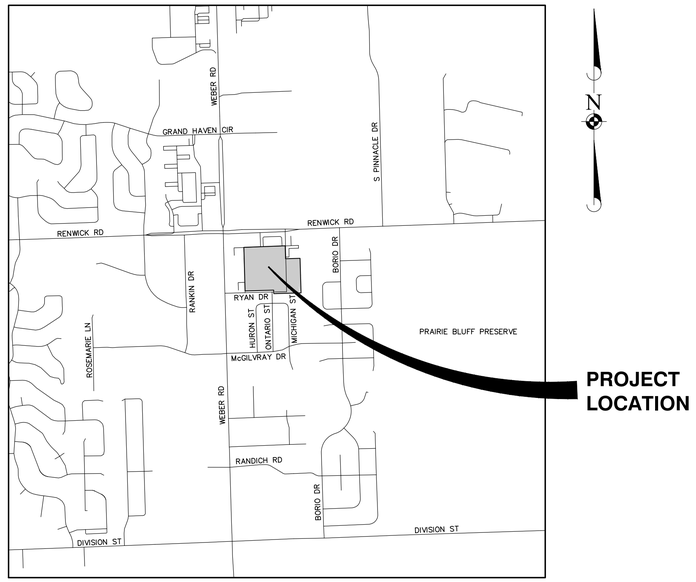
08-01-16

EXISTING		PROPOSED
	STORM SEWER	
	SANITARY SEWER	
	COMBINED SEWER	
FM	FORCEMAIN	FM
	DRAINTILE	
W	WATER MAIN	W
E	ELECTRIC	E
G	GAS	G
T	TELEPHONE	T
OH	OVERHEAD WIRES	OH
	SANITARY MANHOLE	
	STORM MANHOLE	
	CATCH BASIN	
	STORM INLET	
	CLEANOUT	
	HAY BALES	
	RIP RAP	
	VALVE IN VAULT	
	VALVE IN BOX	
	FIRE HYDRANT	
	BUFFALO BOX	
	FLARED END SECTION	
	STREET LIGHT	
	SUMMIT / LOW POINT	S/L
795.20 / 790.25	RIM ELEVATION / INVERT ELEVATION	795.25 / 790.20
	DITCH OR SWALE	
	DIRECTION OF FLOW	
	OVERFLOW RELIEF SWALE	
764	1 FOOT CONTOURS	764
	CURB AND GUTTER	
	DEPRESSED CURB AND GUTTER	
	REVERSE CURB AND GUTTER	
	SIDEWALK	
	DETECTABLE WARNINGS	
	PROPERTY LINE	
	EASEMENT LINE	
	SETBACK LINE	
	MAIL BOX	
	SIGN	
	TRAFFIC SIGNAL	
	POWER POLE	
	GUY WIRE	
	GAS VALVE	
H	HANDHOLE	
E	ELECTRICAL EQUIPMENT	
T	TELEPHONE EQUIPMENT	
	CHAIN-LINK FENCE	
792.8	SPOT ELEVATION	792.8
	BRUSH/TREE LINE	
16"	DECIDUOUS TREE WITH TRUNK DIA. IN INCHES (TBR)	16"
25'	CONIFEROUS TREE WITH HEIGHT IN FEET (TBR)	25'
S	SILT FENCE	S
	RETAINING WALL	
	WETLAND	

ABBREVIATIONS

06-01-16

ADJ	ADJUST	F/L	FLOW LINE	R.O.W.	RIGHT-OF-WAY
AGG.	AGGREGATE	FM	FORCE MAIN	RCP	REINFORCED CONCRETE PIPE
ARCH	ARCHITECT	G	GROUND	REM	REMOVAL
B.A.M.	BITUMINOUS AGGREGATE MIXTURE	G/F	GRADE AT FOUNDATION	REV	REVERSE
B-B	BACK TO BACK	GW	GUY WIRE	RR	RAILROAD
B/C	BACK OF CURB	HDWL	HEADWALL	RT	RIGHT
B/P	BOTTOM OF PIPE	HH	HANDHOLE	SAN	SANITARY
B/W	BACK OF WALK	HWL	HIGH WATER LEVEL	SF	SQUARE FOOT
B-BOX	BUFFALO BOX	HYD	HYDRANT	SHLD.	SHOULDER
BIT.	BITUMINOUS	INL	INLET	SL	STREET LIGHT
BM	BENCHMARK	INV	INVERT	SMH	SANITARY MANHOLE
B.O.	BY OTHERS	IP	IRON PIPE	ST	STORM
C.E.	COMMERCIAL ENTRANCE	LT	LEFT	STA.	STATION
CB	CATCH BASIN	MAX.	MAXIMUM	STD	STANDARD
℄	CENTERLINE	MB	MAILBOX	SW	SIDEWALK
CMP	CORRUGATED METAL PIPE	M/E	MEET EXISTING	SY	SQUARE YARDS
CNTRL	CONTROL	MH	MANHOLE	TBR	TO BE REMOVED
CO	CLEANOUT	MIN.	MINIMUM	T	TELEPHONE
CONC.	CONCRETE	NWL	NORMAL WATER LEVEL	T-A	TYPE A
CY	CUBIC YARD	P.E.	PRIVATE ENTRANCE	T/C	TOP OF CURB
D	DITCH	PC	POINT OF CURVATURE	T/F	TOP OF FOUNDATION
DIA.	DIAMETER	PCC	POINT OF COMPOUND CURVE	T/P	TOP OF PIPE
DIP	DUCTILE IRON PIPE	PGL	PROFILE GRADE LINE	T/W	TOP OF WALK
DWM	DUCTILE IRON WATER MAIN	PI	POINT OF INTERSECTION	T/WALL	TOP OF WALL
DS	DOWNSPOUT	ℙ	PROPERTY LINE	TEMP	TEMPORARY
DT	DRAIN TILE	PP	POWER POLE	TRANS	TRANSFORMER
E	ELECTRIC	PROP.	PROPOSED	V.B.	VALVE BOX
E-E	EDGE TO EDGE	PT	POINT OF TANGENCY	VCP	VITRIFIED CLAY PIPE
ELEV.	ELEVATION	PVC	POLYVINYL CHLORIDE PIPE	V.V.	VALVE VAULT
E/P	EDGE OF PAVEMENT	PVC	POINT OF VERTICAL CURVATURE	WL	WATER LEVEL
EX.	EXISTING	PVI	POINT OF VERTICAL INTERSECTION	WM	WATER MAIN
F.O.	FIELD ENTRANCE	PVT	POINT OF VERTICAL TANGENCY		
F-F	FACE TO FACE	P.	PAVEMENT		
F.F.	FINISHED FLOOR	P.U.D.E.	PUBLIC UTILITY & DRAINAGE EASEMENT		
FES	FLARED END SECTION	R	RADIUS		



LOCATION MAP

N.T.S.

DEVELOPER:
FRED-CREST HILL HC, LLC
789 NORTH WATER STREET, SUITE 500
MILWAUKEE, WISCONSIN 53202
(414) 246-8402

NOTE:

THE BOUNDARY LINES AND TOPOGRAPHY FOR THIS PROJECT ARE BASED ON A FIELD SURVEY COMPLETED BY MANHARD CONSULTING ON SEPTEMBER 23, 2025. THE CONTRACTOR SHALL VERIFY THE EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND SHALL IMMEDIATELY NOTIFY MANHARD CONSULTING AND THE CLIENT IN WRITING OF ANY DIFFERING CONDITIONS.

Manhard CONSULTING
One Overlook Point, Suite 260, Lincolnshire, IL 60069 ph:847.934.5550 fx:847.934.0995 manhard.com
Civil Engineers • Surveyors • Water Resources Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

MANHARD CONSULTING IS NOT RESPONSIBLE FOR THE SAFETY OF ANY PARTY AT OR ON THE CONSTRUCTION SITE. SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND ANY OTHER PERSON OR ENTITY PERFORMING WORK OR SERVICES. NEITHER THE OWNER NOR ENGINEER ASSUMES ANY RESPONSIBILITY FOR THE JOB SITE SAFETY OF PERSONS ENGAGED IN THE WORK OR THE MEANS OR METHODS OF CONSTRUCTION.

INDEX OF SHEETS

SHEET NUMBER	SHEET TITLE
1	TITLE SHEET
2	EXISTING CONDITIONS AND DEMOLITION PLAN
3	SOIL EROSION AND SEDIMENT CONTROL PLAN
4	SOIL EROSION AND SEDIMENT CONTROL DETAILS
5	SOIL EROSION AND SEDIMENT CONTROL DETAILS
6	SITE DIMENSIONAL AND PAVING PLAN - OVERALL
7	SITE DIMENSIONAL AND PAVING PLAN - NW
8	SITE DIMENSIONAL AND PAVING PLAN - NE
9	SITE DIMENSIONAL AND PAVING PLAN - WEST
10	SITE DIMENSIONAL AND PAVING PLAN - EAST
11	SITE DIMENSIONAL AND PAVING PLAN - SW
12	SITE DIMENSIONAL AND PAVING PLAN - SE
13	GRADING PLAN - OVERALL
14	GRADING PLAN - NW
15	GRADING PLAN - NE
16	GRADING PLAN - WEST
17	GRADING PLAN - EAST
18	GRADING PLAN - SW
19	GRADING PLAN - SE
20	TYPICAL BUILDING GRADING DETAILS (18-UNIT)
21	TYPICAL BUILDING GRADING DETAILS (20-UNIT)
22	OVERALL UTILITY PLAN
23	UTILITY PLAN - NW
24	UTILITY PLAN - NE
25	UTILITY PLAN- WEST
26	UTILITY PLAN - EAST
27	UTILITY PLAN- SW
28	UTILITY PLAN - SE
29	SANITARY PROFILES 1&2
30	SANITARY PROFILES 3&4
31	SANITARY PROFILES 5&6
32	SANITARY PROFILES 7
33	SANITARY PROFILES 8
34	SANITARY PROFILES 9
35	SANITARY PROFILES 10&11
36	SANITARY PROFILES 12&13
37	SANITARY PROFILES 14&15
38	CONSTRUCTION DETAILS
39	CONSTRUCTION DETAILS
40	CONSTRUCTION DETAILS
41	CONSTRUCTION DETAILS
42	CONSTRUCTION DETAILS
43	CONSTRUCTION DETAILS
44	CONSTRUCTION SPECIFICATIONS

BENCHMARKS:

REFERENCE BENCHMARK:
ELEVATIONS AND SITE BENCHMARKS SHOWN HEREON WERE ESTABLISHED UTILIZING A TRIMBLE REAL-TIME KINETIC (RTK) GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) AND THE TRIMBLE VRS NOW NETWORK. THE OBSERVED ELEVATIONS ARE THE BASIS FOR ALL ELEVATIONS SHOWN HEREON AND THIS INFORMATION HAS NOT BEEN DIRECTLY (COMPARED TO ANY OTHER KNOWN OR FIXED BENCHMARK.

SITE BENCHMARK #1:
SOUTHEAST "ARROW" BOLT OF FIRST FIRE HYDRANT (TAG #3-054) WEST OF THE CENTERLINE OF ONTARIO STREET AND NORTH SIDE OF RYAN DRIVE. LOCATED APPROXIMATELY 19 FEET NORTH OF CENTERLINE OF RYAN DRIVE AND 208 FEET WEST OF CENTERLINE OF ONTARIO STREET.

ELEVATION = 647.21

SITE BENCHMARK #2:
NORTHWEST BOLT OF FIRST FIRE HYDRANT (TAG #3-067) WEST OF EXECUTIVE DRIVE ON SOUTH SIDE OF "PRIVATE DRIVE" AT EXISTING ENTRANCE ON NORTH SIDE OF SITE. LOCATED APPROXIMATELY 718 FEET NORTH OF CENTERLINE OF RYAN DRIVE AND 145 FEET WEST OF CENTERLINE OF ONTARIO STREET EXTENDED NORTH.

ELEVATION = 649.73

SITE BENCHMARK #3:
SOUTHWEST "ARROW" BOLT OF THIRD FIRE HYDRANT (TAG #3-057) SOUTH OF WEBER ROAD ON EAST SIDE OF EXECUTIVE DRIVE.
LOCATED APPROXIMATELY 431 FEET NORTH OF CENTERLINE OF RYAN DRIVE AND 19 FEET EAST OF CENTERLINE OF EXECUTIVE DRIVE.

ELEVATION = 649.16

SEAL

DRAWN BY | REVISIONS | DATE

Manhard CONSULTING
One Overlook Point, Suite 260, Lincolnshire, IL 60069 ph:847.934.5550 fx:847.934.0995 manhard.com
Civil Engineers • Surveyors • Water Resources Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

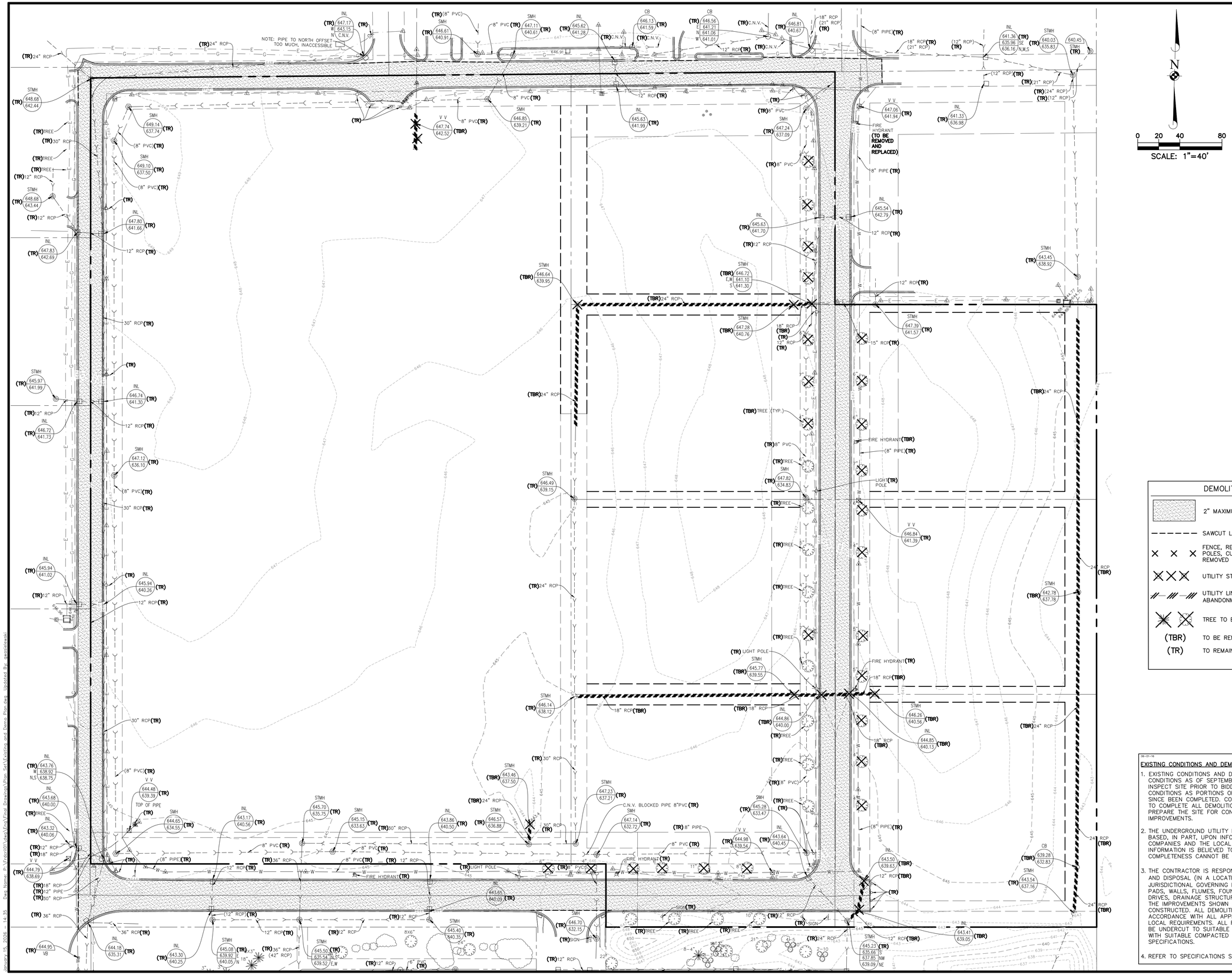
SEASONS AT CREST HILL
CITY OF CREST HILL
TITLE SHEET

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: MH
DATE: 01-14-26
SCALE: NTS

SHEET 1 OF 44
FRD.CRIL01

©2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 14, 2026 - 16:26 Dwg Name: P:\Fred\001\Mep\Engr\Plan Drawings\Plan Set\TITLE SHEET.dwg Updated By: dwesterwelt



DEMOLITION LEGEND

- 2" MAXIMUM MILL
- SAWCUT LINE
- FENCE, RETAINING WALL, RAILROAD TIES, POLES, CURB AND GUTTER, ETC. TO BE REMOVED
- UTILITY STRUCTURE TO BE REMOVED
- UTILITY LINE REMOVAL, FILL OR ABANDONMENT (REFER TO SPECIFICATIONS)
- TREE TO BE REMOVED
- (TBR) TO BE REMOVED
- (TR) TO REMAIN

06-01-16

EXISTING CONDITIONS AND DEMOLITION NOTES:

1. EXISTING CONDITIONS AND DEMOLITION PLAN REPRESENT SITE CONDITIONS AS OF SEPTEMBER 23, 2025. CONTRACTOR SHALL INSPECT SITE PRIOR TO BIDDING WORK TO VERIFY ACTUAL FIELD CONDITIONS AS PORTIONS OF THE DEMOLITION WORK MAY HAVE SINCE BEEN COMPLETED. CONTRACTOR SHALL BE RESPONSIBLE TO COMPLETE ALL DEMOLITION WORK AS PER PLANS TO PREPARE THE SITE FOR CONSTRUCTION OF PROPOSED IMPROVEMENTS.
2. THE UNDERGROUND UTILITY INFORMATION AS SHOWN HEREON IS BASED, IN PART, UPON INFORMATION FURNISHED BY UTILITY COMPANIES AND THE LOCAL MUNICIPALITY. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, ITS ACCURACY AND COMPLETENESS CANNOT BE GUARANTEED NOR CERTIFIED TO.
3. THE CONTRACTOR IS RESPONSIBLE FOR DEMOLITION, REMOVAL AND DISPOSAL (IN A LOCATION APPROVED BY ALL JURISDICTIONAL GOVERNING ENTITIES) OF ALL STRUCTURES, PADS, WALLS, FLUMES, FOUNDATIONS, ROAD, PARKING LOTS, DRIVES, DRAINAGE STRUCTURES, UTILITIES, ETC., SUCH THAT THE IMPROVEMENTS SHOWN ON THESE PLANS CAN BE CONSTRUCTED. ALL DEMOLITION WORK SHALL BE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS. ALL FACILITIES TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL PER THE SPECIFICATIONS.
4. REFER TO SPECIFICATIONS SHEET FOR DEMOLITION NOTES.

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.894.5000 f:847.894.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water Resource Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY | REVISIONS | DATE

SEASONS AT CREST HILL
CITY OF CREST HILL
EXISTING CONDITIONS AND DEMOLITION PLAN

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: GAW
DATE: 01-14-26
SCALE: 1"=40'

SHEET 2 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 15, 2026 - 14:35 Dwg Name: P:\Projects\Data\Engineering\Plat Drawings\Plan Sets\Existing and Demo Plan.dwg Updated By: dansidewski

SILT FENCE AROUND RECEIVING PIT

CONCRETE WASHOUT

INLET PROTECTION (TYP.)

CONSTRUCTION ENTRANCE

BUILDING A
F.F.=649.15
G.F=648.65

BUILDING B
F.F.=649.15
G.F=648.65

BUILDING C
F.F.=649.15
G.F=648.65

BUILDING D
F.F.=649.15
G.F=648.65

BUILDING E
F.F.=648.80
G.F=648.30

GARAGE

EXECUTIVE DRIVE

SILT FENCE (TYP.)

LIMITS OF DISTURBANCE (TYP.)

CLOSED LID

RETAINING WALL (BY OTHERS)

BUILDING F
F.F.=648.70
G.F=648.20

CLUBHOUSE
F.F.=648.80
G.F=648.30

POOL

BUILDING K
F.F.=647.75
G.F=647.25

BUILDING L
F.F.=647.75
G.F=647.25

INSTALL TREE PROTECTION FENCING AROUND DRIPLINE (TYP.)

BUILDING G
F.F.=648.70
G.F=648.20

INLET PROTECTION (TYP.)

BUILDING I
F.F.=648.00
G.F=647.50

BUILDING J
F.F.=648.00
G.F=647.50

BUILDING M
F.F.=647.25
G.F=646.75

BUILDING N
F.F.=647.25
G.F=646.75

INLET PROTECTION (TYP.)

BUILDING H
F.F.=648.70
G.F=648.20

CONCRETE WASHOUT

CONSTRUCTION ENTRANCE

RYAN DRIVE

SILT FENCE (TYP.)

LIMITS OF DISTURBANCE (TYP.)

SILT FENCE AROUND RECEIVING PIT

APPROXIMATE LOCATION OF TOPSOIL STOCKPILE. FINAL LOCATION TO BE DETERMINED BY CONTRACTOR

N

0 20 40 80

SCALE: 1"=40'

SEE SHEET 4 FOR EROSION CONTROL NOTES

SOIL PROTECTION CHART

STABILIZATION CHART	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
PERMANENT SEEDINGS			A						*			
DORMANT SEEDINGS	B										B	
TEMPORARY SEEDINGS			C									
TEMPORARY SEEDINGS	D											
SODDING			E**									
MULCHING	F											

A – KENTUCKY BLUEGRASS 90 LBS./AC. MIXED WITH PERENNIAL RYEGRASS 30 LBS./AC.

B – KENTUCKY BLUEGRASS 135 LBS./AC. MIXED WITH PERENNIAL RYEGRASS 45 LBS./AC. 2 TONS STRAW MULCH PER ACRE

C – SPRING OATS

D – WHEAT OR CEREAL RYE

E – SOD (NURSERY GROWN KENTUCKY BLUEGRASS)

F – STRAW MULCH 2 TONS PER ACRE

* IRRIGATION NEEDED DURING JUNE, JULY AND SEPTEMBER

** IRRIGATION NEEDED FOR 2–3 WEEKS AFTER SODDING

NOTE: THIS CHART IS A GUIDE TO ASSISTS THE CONTRACTOR IN UNDERSTANDING OPTIONS FOR SOIL STABILIZATION. THE LANDSCAPE PLAN SHALL TAKE PRECEDENCE OVER THIS CHART. ANY CONFLICT SHALL BE DISCUSSED WITH THE LANDSCAPE ARCHITECT PRIOR TO THE START OF CONSTRUCTION.

01-01-16

LEGEND

- S — S — TEMPORARY SILT FENCE (PERIMETER EROSION BARRIER)
- SD — SD — TEMPORARY SILT DIKE
- TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
- TEMPORARY STORM STRUCTURE PROTECTION
- TEMPORARY PERFORATED RISER
- PAVEMENT DRAINAGE FLOW
- SWALE DRAINAGE FLOW
- LIMITS OF DISTURBANCE/CONSTRUCTION

01-01-16

CONSTRUCTION SEQUENCE:

1. INSTALL SILT FENCE AT LOCATIONS AS INDICATED ON THE PLANS.
2. PROVIDE STABILIZED CONSTRUCTION ENTRANCE.
3. CONSTRUCT TEMPORARY DITCHES, SWALES, SEDIMENT TRAPS AND/OR BASINS.
4. STRIP EXISTING TOPSOIL FROM PROPOSED LIMITS OF DISTURBANCE AND STOCKPILE WHERE SHOWN ON PLANS.
5. PROVIDE SILT FENCE AROUND THE BASE OF THE STOCKPILES.
6. CONSTRUCT STORMWATER MANAGEMENT (DETENTION) FACILITIES TO SUB–GRADE AND INSTALL OUTLET PIPES.
7. COMPLETE TOPSOIL PLACEMENT AND PERMANENT SEEDING AND SODDING OF STORMWATER MANAGEMENT FACILITIES.
8. CUT AND FILL SITE TO PLAN SUB–GRADE.
9. CONSTRUCT UNDERGROUND IMPROVEMENTS, i.e. SANITARY SEWER WATERMAIN AND STORM SEWER**, ETC.
10. CONSTRUCT PAVEMENT IMPROVEMENTS PER PLAN.
11. COMPLETE CONSTRUCTION OF SITE WITH PERMANENT STABILIZATION.
12. REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES.

** INSTALL INLET PROTECTION AROUND DRAINAGE STRUCTURES AS CONSTRUCTED.

"THESE EROSION CONTROL PLANS ARE A PORTION OF THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA) TOTAL REQUIREMENTS FOR A COMPLETE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AS REQUIRED BY THE GENERAL NPDES PERMIT NO. ILR10. CLIENT AND/OR CONTRACTOR WILL BE RESPONSIBLE FOR COMPLIANCE WITH ALL REQUIREMENTS OF THE GENERAL NPDES PERMIT AND COMPILATION OF THE COMPLETE SWPPP."

DRAWN BY

REVISIONS

DATE

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.894.5500 f:847.894.5599 manhardconsulting.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL

CITY OF CREST HILL

SOIL EROSION AND SEDIMENT CONTROL PLAN

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: GAW
DATE: 01-14-26
SCALE: 1"=40'

SHEET 3 OF 44

FRD.CRIL01

© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 14, 2026 - 12:59 Dwg Name: P:\Projects\01\Veg\Eng\Plan Drawings\Plan Set\Soil Erosion and Sediment Control Plan.dwg Updated By: gaw(sdewa)

Street and Parking Lot Sweeping

Purpose: To reduce the amount of pollutants that get washed into the storm drain and ultimately transported and deposited in waterbodies.

Application:
1. Sweeping at points of egress where sediment is tracked from project site onto public or private streets and roads.

Limitations:
1. Sweeping may be ineffective if soil is wet or heavy accumulation of mud.
2. May require repeat Cleanings

Maintenance:
1. Inspect potential sediment tracking ingress and egress points locations daily, and after rain events.
2. Visible sediment observed outside the construction limits shall be swept and removed daily.
3. Use only brooms or sweeper attachments. These tend to spread the dirt rather than remove it.
4. If not mixed with debris or trash, consider incorporating the removed sediment back into the project.
5. Be careful not to sweep up any unknown substance or any object that may be CONTAMINATED.
6. Adjust brooms frequently; maximize efficiency of sweeping operations.
7. After sweeping is finished, properly dispose of sweeper wastes at an approved dumpsite.

Topsoil Salvage & Utilization

Purpose: To provide a method of preserving topsoil for use in establishing vegetation to achieve final site stabilization.

Specifications:

Material

Typically the darker, friable, loamy surface lay of soil found immediately below vegetation

Storage Area
1. Free of stumps, rock, and construction debris.
2. Stockpile covered with vegetation or a tarp.
3. Surrounded by a sediment barrier or sediment filter.
4. Stockpile outside rooting zone of trees to be protected.

Application:

Salvaging and Stockpiling Topsoil
1. Determine depth and suitability of topsoil at site.
2. Prior to stripping topsoil, install any site-specific down slope measures needed to control storm water and sedimentation
3. Remove soil material no deeper than the "Surface Soil".
4. Stockpile outside rooting zone of trees to be protected.

Spreading topsoil
1. Prior to applying topsoil, grade the subsoil and roughen the top three to four inches by disking.
2. Apply topsoil evenly to a depth of a minimum of four inches, then compact slightly to improve contract with the subsoil.
3. Do not apply topsoil when the site is wet, muddy, or frozen.
4. After spreading the topsoil, grade and stabilize the site.

Maintenance:
1. Inspect Daily
2. Check for damage to perimeter barrier; repair immediately.
3. Check for erosion or damage to newly spread topsoil; repair immediately and re-vegetate.

EROSION CONTROL GENERAL NOTES

SELF-MONITORING PROGRAM

A SELF-MONITORING PROGRAM THAT INCLUDES THE FOLLOWING MUST BE IMPLEMENTED AT ALL PERMITTED PROJECT SITES:

1. A TRAINED INDIVIDUAL SHALL PERFORM A WRITTEN EVALUATION OF THE PROJECT SITE A MINIMUM OF ONE (1) TIME PER WEEK AND BY THE END OF THE NEXT BUSINESS DAY FOLLOWING EACH MEASURABLE STORM EVENT.
2. THE EVALUATION MUST ADDRESS THE MAINTENANCE OF EXISTING STORM WATER QUALITY MEASURES, TO ENSURE THEY ARE FUNCTIONING PROPERLY AND IDENTIFY ADDITIONAL MEASURES NECESSARY TO REMAIN IN COMPLIANCE WITH ALL APPLICABLE STATUTES AND RULES.
3. WRITTEN EVALUATION REPORTS MUST INCLUDE:
   A. THE NAME OF INDIVIDUAL PERFORMING THE EVALUATION;
   B. THE DATE OF EVALUATION;
   C. PROBLEMS IDENTIFIED AT THE PROJECT SITE; AND
   D. DETAILS OF CORRECTIVE ACTIONS RECOMMENDED AND COMPLETED.
4. ALL EVALUATION REPORTS FOR THE PROJECT SITE MUST BE MADE AVAILABLE TO THE **CM** OR OTHER DESIGNATED ENTITY WITHIN FORTY-EIGHT (48) HOURS OF A REQUEST.
5. EVALUATION REPORTS MUST BE MAINTAINED FOR A PERIOD OF TWO (2) YEARS FROM DATE OF NOT.
6. ALL EVALUATION REPORTS WILL BE SUBMITTED TO THE OWNER WHEN REQUESTED.

SELF MONITORING PROGRAM

Site:
Date:
Inspected by:
Type of Inspection: ☐ Routine Weekly ☐ Rain Event (0.5" or more)

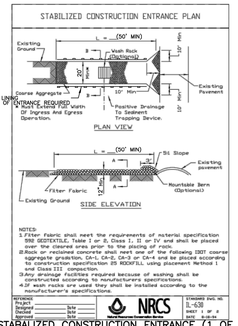
CONSTRUCTION SITE INSPECTION AND MAINTENANCE LOG
(To be completed by Trained Individual Project Manager)

All approved stormwater pollution prevention practices shall be inspected and maintained as needed to ensure continued performance of their intended function during construction and shall continue until the entire site has been stabilized and all BMPs are removed. Inspections shall be by the end of the next business day following each measurable storm event (0.5" or greater). If there are no measurable storm events within a given week, the site should be monitored at least once in that week. Maintenance and repair shall be conducted in accordance with the approved stormwater pollution prevention (SWPPP) plan. This log shall be kept as a permanent record and must be made available to town stormwater inspectors within forty-eight (48) hours upon request.

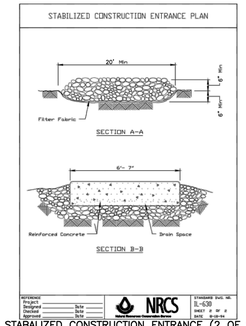
Row	Yes	No	N/A	BMP	Description
1				Perimeter Control	Rock & Fence Intercepter Dikes/Swales installed? Perimeter Filtered Inlet protection provided?
2				Rock Entrance	Rock Entrance installed at site access (wash rack)? Wash Rack Effective? Clean, and dry?
3				Vehicle Entrance	Temporary construction entrance/ramp maintained?
4				Silt Fence	Silt fence (or equivalent) installed properly and being maintained?
5				Inlet Protection	Inlet protection devices installed and being maintained?
6				Inlet Protection	Inlet protection devices installed and being maintained?
7				Temporary Seeding	All areas at least 50ft from inlets have been mulched? Mulch is intact and covering?
8				Erosion Blanket	Are all areas cut that have been mulched for 7 days or more are seeded?
9					Are all areas cut that have been mulched for 7 days or more are seeded? Are all areas at final grade, all disturbed areas have been stabilized through the implementation of permanent soil stabilization practices?
10				Dewatering Bags	Dewatering discharge functioning properly?
11				Dewatering Bags	Dewatering discharge functioning properly? Are all pollution prevention practices installed? Are all pollution prevention practices maintained properly?
12				Check Dams	Check dams are installed properly and being maintained?
13				Staging Area	Construction staging and parking areas are being utilized as indicated on the plans?
14				Soil Stockpiles	Soil stockpiles have been temporarily seeded and have perimeter silt fence?
15				Concrete Washout	Washout Facility has been installed in the proper location and is being maintained?
16				Sanitary Facilities	Sanitary facilities are in good working order and placed in proper locations?
17				Trashing Areas	Bulk trashing areas have proper containment, soil/filter around base of them, in place?
18				Spill Response	Spill response equipment, emergency contact info are accessible for all?
19				Fueling	Fueling and maintenance of equipment occurring according to the approved SWPPP?
20				Containment	Solid waste is properly contained?
21				Hazmat Controls	Hazardous materials, waste or otherwise are properly handled and stored?
22				Corrective Actions	Previously recommended corrective actions have been implemented?
23				Other	
24				Other	

"If not answered, list" at by of the above questions describe any corrective action which must be taken to remedy the problem and when the corrective actions are to be completed" ---

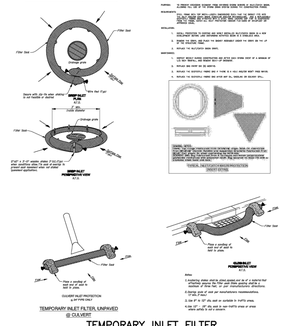
SELF MONITORING PROGRAM

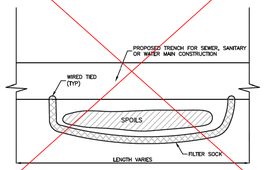


STABILIZED CONSTRUCTION ENTRANCE (1 OF 2)

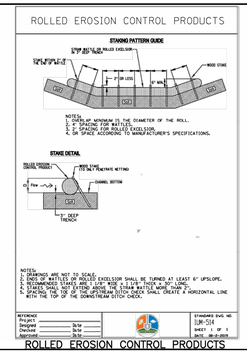


STABILIZED CONSTRUCTION ENTRANCE (2 OF 2)

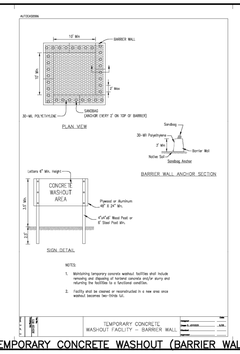

TEMPORARY INLET FILTER (UNPAVED AREA)
Filter Sock
Stake with 2x 4 min. stakes @ 4' o.c. maximum spacing
Filter Sock Flow Line
Min. 6" Overlap
Min. 6" Overlap
ASPHALT PAVEMENT
INLET
TEMPORARY INLET FILTER (PAVED AREA)
TEMPORARY INLET FILTER, UNPAVED @ CULVERT
Flow Line
Flow Line
Flow Line



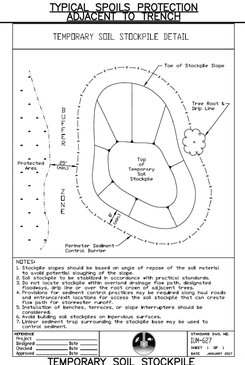
TYPICAL SPOILS PROTECTION ADJACENT TO TRENCH



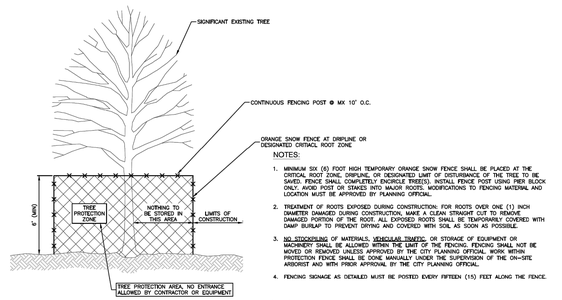
ROLLED EROSION CONTROL PRODUCTS



TEMPORARY CONCRETE WASHOUT (BARRIER WALL)



TEMPORARY SOIL STOCKPILE



TREE TRUNK PROTECTION

CLIENT:
City of CREST HILL Illinois
CITY OF CREST HILL
1610 PLAINFIELD ROAD
CREST HILL, IL 60403

NO.	DATE	NATURE OF REVISION	CHKD.

FILE NAME: W:\CRESTHILL\2022\PLOVI\Plan Plates\Details.dgn

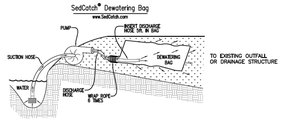
DSGN.
DWN.
CHKD.
SCALE:
PLOT DATE: 11/10/2021
CAD USER: jspearmon
MODEL: Default

TITLE:
CITY OF CREST HILL
EROSION CONTROL DETAILS

PROJ. NO.
DATE: 11/10/2021
SHEET 18 OF 38
DRAWING NO.
ERO-3

THE PURPOSE OF A DEWATERING BAG/TUBE IS TO COLLECT SEDIMENT CONTAINED IN THE DISCHARGED WATER, TO PREVENT THE SCOUR AND EROSION FROM WATER EXITING A PIPE AT HIGH VELOCITY, TO DIFFUSE THE WATER OVER A WIDER AREA TO MINIMIZE EROSION AS THE WATER DRAINS AWAY, AND TO RETAIN OIL CONTAINED WITHIN EFFLUENT.

A SEDCATCH® DEWATERING BAG/TUBE OR APPROVED EQUAL SHOULD BE USED ANYTIME WATER IS PUMPED ON THE SITE.



INSTALLATION AND USE:

1. PLACE SEDCATCH® DEWATERING BAG/TUBE ON THE GROUND OR ON A TRAILER OVER A RELATIVELY LEVEL, STABILIZED AREA.
2. INSERT DISCHARGE PIPE A MINIMUM OF 5FT. INSIDE SEDCATCH® DEWATERING BAG/TUBE AND SECURE WITH A ROPE (INCLUDED) WRAPPED 6 TIMES AROUND THE SNOUT OVER A 6 INCH WIDTH OF THE BAG. TO CLOSE OPEN END OF THE DEWATERING TUBE : OVERLAP THE TUBE 2 FT. FROM THE END, GATHER THE CENTER OF THE DOUBLED-UP PORTION FORMING A BOW TIE. SECURE WITH A ROPE WRAPPED MULTIPLE TIMES.
3. REPLACE SEDCATCH® DEWATERING BAG WHEN HALF FULL OF SEDIMENT OR WHEN THE SEDIMENT HAS REDUCED THE FLOW RATE OF THE PUMP DISCHARGE TO AN IMPRACTICAL AMOUNT, OR, EMPTY SEDCATCH® SEDIMENT TUBE WHEN HALF FULL OF SEDIMENT OR WHEN THE SEDIMENT HAS REDUCED THE FLOW RATE OF THE PUMP DISCHARGE TO AN IMPRACTICAL RATE.

MAINTENANCE AND DISPOSAL:

1. REMOVE AND DISPOSE OF ACCUMULATED SEDIMENT AWAY FROM WATERWAYS OR ENVIRONMENTALLY SENSITIVE AREAS. SLIT OPEN DEWATERING BAG AND REMOVE ACCUMULATED SEDIMENT. DISPOSE OF BAG AT AN APPROPRIATE RECYCLING OR SOLID WASTE FACILITY, OR: OPEN BOTH ENDS OF THE SEDCATCH® DEWATERING TUBE , PICK IT UP IN THE CENTER AND DUMP ACCUMULATED SEDIMENT OUT OF BOTH ENDS. ALLOW TO DRY AND STORE FOR RE-USE, OR, AS DIRECTED BY ENGINEER OR INSPECTOR.

DEWATERING BAG/TUBE

CLIENT:
City of CREST HILL Illinois
CITY OF CREST HILL
1610 PLAINFIELD ROAD
CREST HILL, IL 60403

NO.	DATE	NATURE OF REVISION	CHKD.

FILE NAME: W:\CRESTHILL\2022\PLOVI\Plan Plates\Details.dgn

DSGN.
DWN.
CHKD.
SCALE:
PLOT DATE: 11/10/2021
CAD USER: jspearmon
MODEL: Default

TITLE:
CITY OF CREST HILL
EROSION CONTROL DETAILS

PROJ. NO.
DATE: 11/10/2021
SHEET 19 OF 38
DRAWING NO.
ERO-4

DRAWN BY | REVISIONS | DATE

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 | p:847.634.0066
Civil Engineers • Surveyors • Water Resource Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

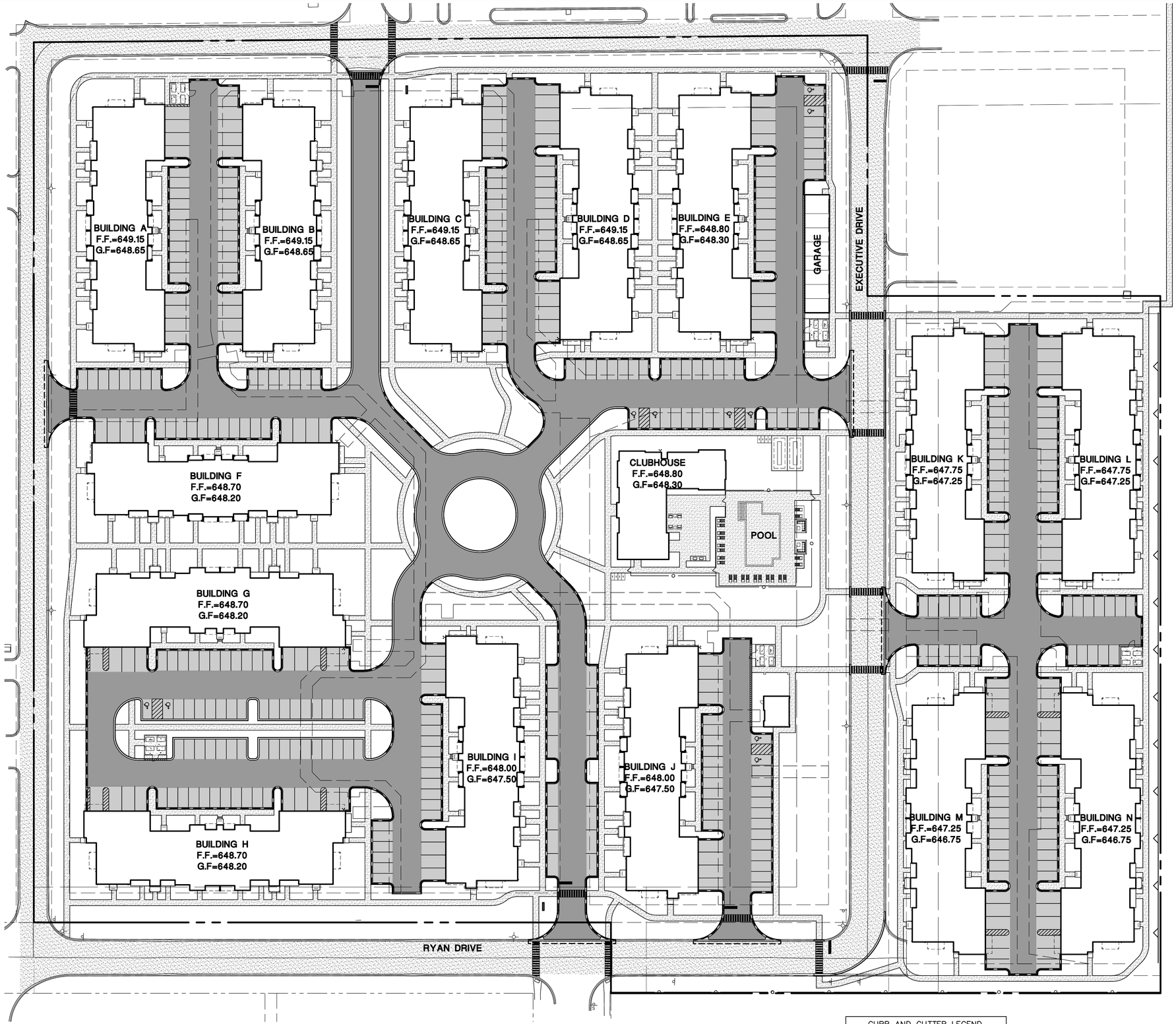
SEASONS AT CREST HILL
CITY OF CREST HILL
SOIL EROSION AND SEDIMENT CONTROL DETAILS

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: OTHERS
DATE: 01-14-26
SCALE: 1"=40'

SHEET
5 OF **44**
FRD.CRIL01

© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 14, 2026 - 18:01 Data Name: P:\Projects\Data\Final Drawings\Plan Set\Soil Erosion and Sediment Control Details.dwg Updated By: dweisbrod



N

0 20 40 80

SCALE: 1"=40'

SITE DATA	
SITE AREA	15.81 ACRES
DEVELOPMENT AREA	15.81 ACRES
OPEN SPACE AREA	4.81 ACRES
IMPERVIOUS AREA	11.00 ACRES
STANDARD PARKING PROVIDED	401 SPACES
HANDICAP PROVIDED	11 SPACES
VAN PARKING PROVIDED	1 SPACE
GARAGE PARKING PROVIDED	120 SPACES
TOTAL PARKING PROVIDED	552 SPACES
PARKING RATIO	2.12 SPACES/UNIT

PAVEMENT MARKING LEGEND

- (A) 6" SOLID WHITE
- (B) LETTERS AND SYMBOLS
- (C) 4" YELLOW DIAGONAL AT 45° SPACED 2' O.C. W/ 4" YELLOW BORDER
- (D) 4" YELLOW LINE

SIGN LEGEND

- (1) R1-1 STOP SIGN
- (2) R7-8 HANDICAP PARKING SIGN
- (3) R7-8AP VAN PARKING ONLY

06-01-16

PAVEMENT LEGEND

STANDARD DUTY PAVEMENT
1 1/2" BITUMINOUS SURFACE COURSE, HOT-MIX ASPHALT, MIX D, N50
2 1/4" BITUMINOUS BINDER COURSE, HOT-MIX ASPHALT, IL-19, N50
8" AGGREGATE BASE COURSE, TYPE B

HEAVY DUTY PAVEMENT
1 1/2" BITUMINOUS SURFACE COURSE, HOT-MIX ASPHALT, MIX D, N50
3" BITUMINOUS BINDER COURSE, HOT-MIX ASPHALT, IL-19, N50
12" AGGREGATE BASE COURSE, TYPE B

CONCRETE PAVEMENT
8" PORTLAND CEMENT CONCRETE PAVEMENT W/ 6 X 6 W1.4 WWF
4" COMPACTED AGGREGATE BASE, TYPE B

CONCRETE SIDEWALK
5" PORTLAND CEMENT CONCRETE
4" COMPACTED AGGREGATE BASE COURSE, TYPE B

OVERLAY BITUMINOUS PAVEMENT
2" MAXIMUM BITUMINOUS SURFACE COURSE

06-01-16

SITE DIMENSIONAL AND PAVING NOTES:

1. ALL DIMENSIONS ARE FACE OF CURB TO FACE OF CURB OR BUILDING FOUNDATION UNLESS NOTED OTHERWISE.
2. ALL PROPOSED CURB AND GUTTER SHALL BE B6.12 UNLESS OTHERWISE NOTED.
3. ALL CURB RADII SHALL BE 3' MEASURED TO FACE OF CURB UNLESS NOTED OTHERWISE.
4. TIE ALL PROPOSED CURB AND GUTTER TO EXISTING CURB AND GUTTER WITH 2-#6 BARS x 18" LONG DOWELED INTO EXISTING CURB.
5. BUILDING DIMENSIONS AND ADJACENT PARKING HAVE BEEN PREPARED BASED UPON ARCHITECTURAL INFORMATION CURRENT AT THE DATE OF THIS DRAWING. SUBSEQUENT ARCHITECTURAL CHANGES MAY EXIST. THEREFORE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR PRECISE BUILDING DIMENSIONS AND NOTIFY THE ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. BUILDING DIMENSIONS SHOWN SHOULD NOT BE USED FOR CONSTRUCTION LAYOUT OF BUILDING.
6. IMPROVEMENTS ADJACENT TO BUILDING, IF SHOWN, SUCH AS TRUCK DOCK, RETAINING WALLS, SIDEWALKS, CURBING, FENCES, CANOPIES, RAMPS, HANDICAP ACCESS, PLANTERS, DUMPSTERS, AND TRANSFORMERS ETC. HAVE BEEN SHOWN FOR APPROXIMATE LOCATION ONLY. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS, SPECIFICATIONS AND DETAILS.
7. LOCATION OF PRIVATE SIDEWALKS SHALL BE COORDINATED WITH PROPOSED DOORWAY. CONTRACTOR TO VERIFY ACTUAL BUILDING PLAN LOCATIONS WITH ARCHITECT/DEVELOPER PRIOR TO CONSTRUCTING THE SIDEWALKS.
8. ALL ROADWAY AND PARKING LOT SIGNAGE, STRIPING, SYMBOLS, ETC. SHALL BE IN ACCORDANCE WITH LATEST JURISDICTIONAL GOVERNMENTAL ENTITY DETAILS.
9. SOME EXISTING ITEMS TO BE REMOVED HAVE BEEN DELETED FROM THIS PLAN FOR CLARITY. SEE DEMOLITION PLAN FOR ITEMS DELETED.
10. PROVIDE DEPRESSED CURB AND RAMP AT ALL HANDICAP ACCESSIBLE SIDEWALK AND PATH LOCATIONS PER FEDERAL AND STATE STANDARDS.
11. THE CONTRACTOR SHALL CONTACT J.U.L.I.E. (1-800-892-0123) PRIOR TO ANY WORK TO LOCATE UTILITIES AND SHALL CONTACT THE OWNER SHOULD UTILITIES APPEAR TO BE IN CONFLICT WITH THE PROPOSED IMPROVEMENT.

DEVELOPER: FRED-GURNEE HC, LLC
ADDRESS: 789 NORTH WATER STREET, SUITE 500
MILWAUKEE, WISCONSIN 53202
PHONE: (414) 246-8402

CURB AND GUTTER LEGEND

- CURB AND GUTTER
- DEPRESSED CURB AND GUTTER
- REVERSE CURB AND GUTTER

CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION OF SIDEWALKS, SIDEWALK SCORING, BENCHES, BIKE RACKS, FLAG POLES, ETC., DIMENSIONS OF VESTIBULE, RAMPS AND TRUCK DOCKS, PRECISE BUILDING DIMENSIONS AND EXACT UTILITY ENTRANCE LOCATIONS

© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

DRAWN BY:
REVISIONS:
DATE:

Manhard CONSULTING
One Overlook Point, Suite 540, Lincolnshire, IL 60069 p:847.634.5500 f:847.634.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL
CITY OF CREST HILL
SITE DIMENSIONAL AND PAVING PLAN - OVERALL

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: PA
DATE: 01-14-26
SCALE: 1"=40'

SHEET
6 OF 44
FRD.CRIL01

Date Name: P:\Fred01\dgn\Civil\Final Drawings\Plan Set\SITE DIMENSIONAL AND PAVING PLAN.dwg Updated By: dwoodward
January 15, 2026 - 14:13

N: 1794923 E: 1042325.46

CROSS WALK

MATCHLINE SEE SHEET 8

MATCHLINE SEE SHEET 9

BUILDING A
F.F.=649.15
G.F=648.65

BUILDING B
F.F.=649.15
G.F=648.65

BUILDING C
F.F.=649.15
G.F=648.65

BUILDING D
F.F.=649.15
G.F=648.65

SAN 15' EASEMENTS

WTR 10' EASEMENTS

SAN 10' EASEMENTS

LIGHTPOLE

MONUMENT SIGN

30' SIDE YARD SETBACK

6 SP AT 11=62'

5 SP AT 11=53'

11 SP AT 9=99'

TYP (A)

SCALE: 1"=20'

KEY MAP

SHEET SHEET 6 FOR SITE NOTES AND LEGENDS

SEASONS AT CREST HILL

CITY OF CREST HILL

SITE DIMENSIONAL AND PAVING PLAN - NW

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: PA
DATE: 01-14-26
SCALE: 1"=20'

SHEET 7 OF 44

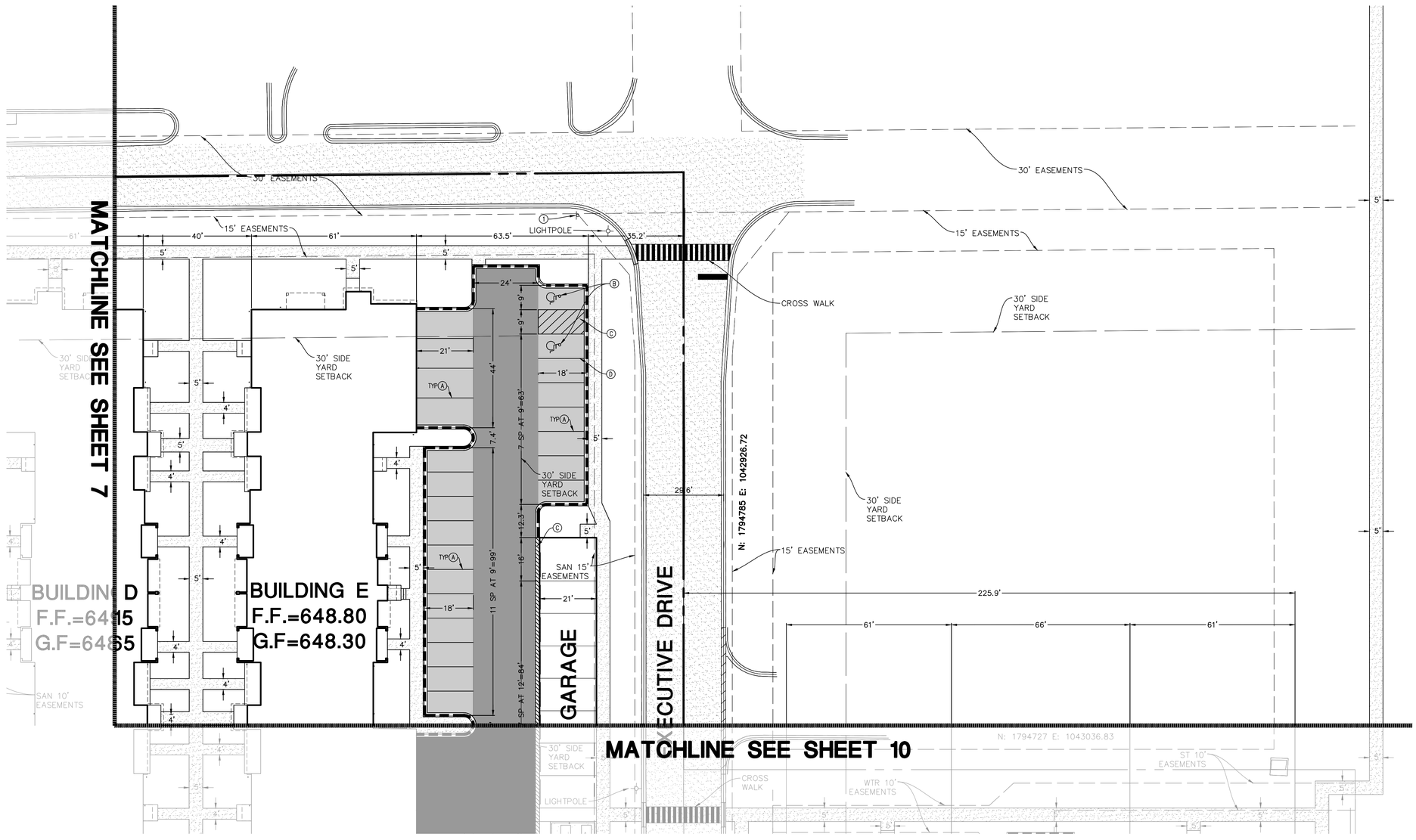
FRD.CRIL01

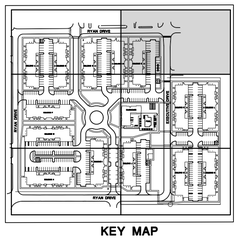
© 2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.894.5000 f:847.894.0066 manhardconsulting.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY | REVISIONS | DATE

January 15, 2026 - 14:13 Dwg Name: P:\Projects\Crest Hill\Final Drawings\Plan Set\SITE DIMENSIONAL AND PAVING PLAN.dwg Updated By: pastafiewski





KEY MAP

N

0 10 20 40

SCALE: 1"=20'

SHEET SHEET 6 FOR SITE NOTES AND LEGENDS

DRAWN BY:

REVISIONS

DATE:

Manhard CONSULTING

One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.634.5500 f:847.634.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL

CITY OF CREST HILL

SITE DIMENSIONAL AND PAVING PLAN - NE

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: PA
DATE: 01-14-26
SCALE: 1"=20'

SHEET
8 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 15, 2026 - 14:13 Data Name: P:\Projects\Civil Drawings\Final Drawings\Plan Set\SITE DIMENSIONAL AND PAVING PLAN.dwg Updated By: dpastelewski

F.F.=649.15
G.F=648.65

F.F.=649.15
G.F=648.65

G.F=648.65

G.F=648

MATCHLINE SEE SHEET 7

SAN 10' EASEMENTS

WTR 10' EASEMENTS

SAN 15' EASEMENTS

WTR 10' EASEMENTS

WTR 10' EASEMENTS

WTR 10' EASEMENTS

SAN 10' EASEMENTS

WTR 10' EASEMENTS

SAN 10' EASEMENTS

24.0000'

25.5000'

5 SP AT 11'=53'

8 SP AT 9'=72'

72.4'

7 SP AT 9'=63'

11 SP AT 9'=99'

8 SP AT 9

CROSS WALK

WHITE VINYL FENCE (SEE LANDSCAPING PLANS FOR DETAILS) (TYP)

SAN 10' EASEMENTS

WTR 10' EASEMENTS

WTR 10' EASEMENTS

WTR 10' EASEMENTS

WTR 10' EASEMENTS

WTR 10' EASEMENTS

WTR 10' EASEMENTS

BUILDING F
F.F.=648.70
G.F=648.20

N: 1794420 E: 1042230.04

200.6'

200.6'

SAN 15' EASEMENTS

LIGHTPOLE

BUILDING G
F.F.=648.70
G.F=648.20

WTR 10' EASEMENTS

WTR 10' EASEMENTS

WTR 10' EASEMENTS

WTR 10' EASEMENTS

11 SP AT 11'=99'

ø62'

244'

95.6'

61'

92'

43.5'

MATCHLINE SEE SHEET 10

MATCHLINE SEE SHEET 11

CLUB
F.F.=
G.F=

T. 25'
ASEMENTS

WTR 10
EASEMENTS

SHEET SHEET 6 FOR SITE NOTES AND LEGENDS

N

0 10 20 40

SCALE: 1"=20'

KEY MAP

DRAWN BY

REVISIONS

DATE

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069
Phone: 847.894.5500 Fax: 847.894.5525 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL

CITY OF CREST HILL

SITE DIMENSIONAL AND PAVING PLAN - WEST

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: PA
DATE: 01-14-26
SCALE: 1"=20'

SHEET
9 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

January 15, 2026 - 14:13 Dwg Name: P:\Projects\Crest Hill\Engineering\Plan Set\SITE DIMENSIONAL AND PAVING PLAN.dwg Updated By: davidedwards

MATCHLINE SEE SHEET 8

MATCHLINE SEE SHEET 9

MATCHLINE SEE SHEET 12

N: 1794727 E: 1043036.83

N: 1794402 E: 1043185.95

G.F=648.30

GARAGE

EXECUTIVE

30' SIDE YARD SETBACK

LIGHTPOLE

CROSS WALK

WTR 10' EASEMENTS

ST 10' EASEMENTS

WTR 15' EASEMENTS

WTR/ST 21' EASEMENTS

SAN/ST/WTR 32' EASEMENTS

CLUBHOUSE
F.F.=648.80
G.F=648.30

POOL

BIKE RACKS

MAILBOXES

SAN 15' EASEMENTS

ST 25' EASEMENTS

BUILDING K
F.F.=647.75
G.F=647.25

BUILDING L
F.F.=647.75
G.F=647.25

RETAINING WALL

WTR 18' EASEMENTS

WTR/SAN/ST 31' EASEMENTS

SAN/ST 10' EASEMENTS

WTR/SAN/ST 31' EASEMENTS

SAN 10' EASEMENTS

WTR 12.4' EASEMENTS

SAN/ST 20' EASEMENTS

8 SP AT 9'=72'

5 SP AT 9'=45'

11 SP AT 9'=99'

6 SP AT 9'=54'

7 SP AT 9'=63'

6 SP AT 9'=54'

5 SP AT 9'=45'

0 10 20 40
SCALE: 1"=20'

KEY MAP

SHEET SHEET 6 FOR SITE NOTES AND LEGENDS

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.634.5500 f:847.634.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY

REVISIONS

DATE

SEASONS AT CREST HILL
CITY OF CREST HILL
SITE DIMENSIONAL AND PAVING PLAN - EAST

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: PA
DATE: 01-14-26
SCALE: 1"=20'

SHEET
10 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

January 15, 2026 - 14:13 Dan Niemi P:\Projects\Vara\Civil\Final Drawings\Plan Set\SITE DIMENSIONAL AND PAVING PLAN.dwg Updated By: danielewski

MATCHLINE SEE SHEET 9

BUILDING H
F.F.=648.70
G.F=648.20

BUILDING I
F.F.=648.00
G.F=647.50

BUILDI
F.F.=64
G.F=64

MATCHLINE SEE SHEET 12

RYAN DRIVE

8 SP AT 9'=72'
10 SP AT 9'=90'
7 SP AT 9'=63'
11 SP AT 9'=99'
6 SP AT 9'=54'
4 SP AT 20'=80'

SAN 15' EASEMENTS
WTR 10' EASEMENTS
SAN 25' EASEMENTS
30' SIDE YARD SETBACK
SAN/ST 25' EASEMENTS
ST 25' EASEMENTS
MONUMENT SIGN
CROSS WALK
LIGHTPOLE

N: 1794180 E: 1042481.69

SCALE: 1"=20'

KEY MAP

SEASONS AT CREST HILL
CITY OF CREST HILL
SITE DIMENSIONAL AND PAVING PLAN - SW

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: PA
DATE: 01-14-26
SCALE: 1"=20'

SHEET
11 OF 44
FRD.CRIL01

SHEET SHEET 6 FOR SITE NOTES AND LEGENDS

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 ph 847.894.5500 fax 847.894.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

© 2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

January 15, 2026 - 14:13 Dwg Name: P:\Fdrdrl01\Data\Civil\Final Drawings\Plan Set\SITE DIMENSIONAL AND PAVING PLAN.dwg Updated By: dwiniarewski

MATCHLINE SEE SHEET 10

MATCHLINE SEE SHEET 11

BUILDING J
F.F.=648.00
G.F=647.50

BUILDING M
F.F.=647.25
G.F=646.75

BUILDING N
F.F.=647.25
G.F=646.75

WTR 10' EASEMENTS

WTR 12.4' EASEMENTS

WTR 15' EASEMENTS

SAN 10' EASEMENTS

SAN 15' EASEMENTS

SAN/ST 20' EASEMENTS

ST 10' EASEMENTS

LIGHTPOLE

30' SIDE YARD SETBACK

CROSS WALK

WHITE VINYL FENCE (SEE LANDSCAPING PLANS FOR DETAILS) (TYP)

15' EASEMENTS

13 SP AT 9'=117'

11 SP AT 9'=99'

N: 17944402 E:

0 10 20 40
SCALE: 1"=20'

KEY MAP

SHEET SHEET 6 FOR SITE NOTES AND LEGENDS

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.634.5500 f:847.634.0066 manhardcom
Civil Engineers • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY:
REVISIONS
DATE:

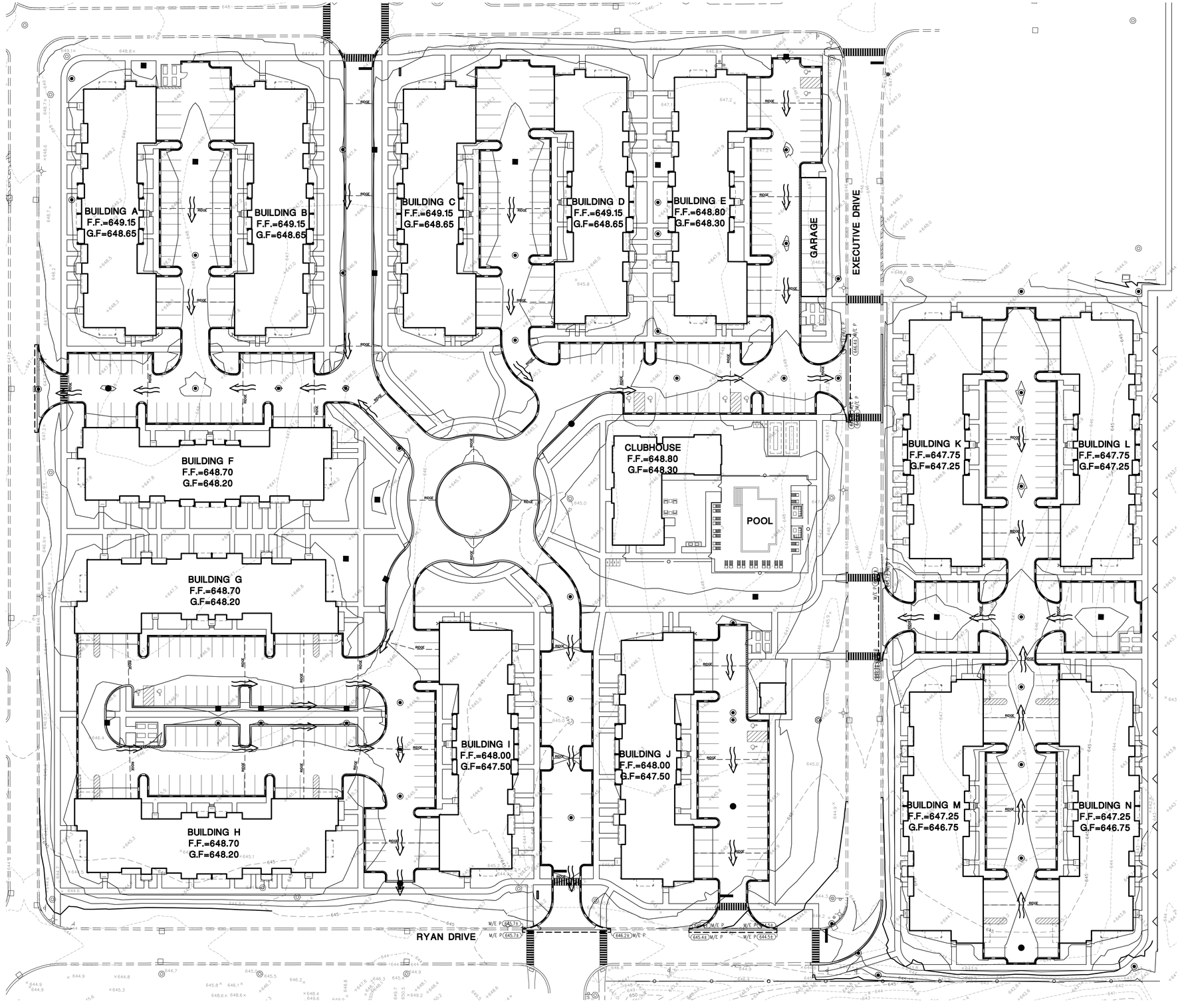
SEASONS AT CREST HILL
CITY OF CREST HILL
SITE DIMENSIONAL AND PAVING PLAN - SE

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: PA
DATE: 01-14-26
SCALE: 1"=20'

SHEET
12 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 15, 2026 - 14:13 Data Name: P:\Projects\Vista\Civil\Final Drawings\Plan Set\SITE DIMENSIONAL AND PAVING PLAN.dwg Updated By: dwoldanski





01-01-16

GRADING PLAN LEGEND

764	PROPOSED 1 FOOT CONTOURS
792.8 G	PROPOSED SPOT ELEVATION
P	PROPOSED PAVEMENT ELEVATION
T/C	PROPOSED TOP OF CURB
T/W	PROPOSED TOP OF WALK
M/E	MEET EXISTING
G	PROPOSED GROUND GRADE OR GROUND AT BASE OF RETAINING WALL
→	PROPOSED DIRECTION OF FLOW
⇉	OVERFLOW RELIEF SWALE

01-01-16

GRADING NOTES:

1. PAVEMENT SLOPES THROUGH HANDICAP ACCESSIBLE PARKING AREAS SHALL BE 2.00% MAXIMUM IN ANY DIRECTION.
2. ALL HANDICAP RAMPS SHALL BE CONSTRUCTED WITH A MAXIMUM CROSS SLOPE OF 2.00% OR LESS.
3. MEET EXISTING GRADE AT PROPERTY LIMITS UNLESS NOTED OTHERWISE.
4. CONTRACTOR SHALL REFER TO THE SOIL EROSION AND SEDIMENT CONTROL PLAN AND DETAILS FOR CONSTRUCTION SCHEDULING AND EROSION CONTROL MEASURES TO BE INSTALLED PRIOR TO BEGINNING GRADING OPERATIONS.
5. THE CONTRACTOR SHALL CONTACT J.U.L.I.E. (1-800-892-0123) PRIOR TO ANY WORK TO LOCATE UTILITIES AND SHALL CONTACT THE OWNER SHOULD UTILITIES APPEAR TO BE IN CONFLICT WITH THE PROPOSED IMPROVEMENT.
6. 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.
7. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITION OR BETTER.
8. ALL UNPAVED AREAS DISTURBED BY GRADING OPERATIONS SHALL RECEIVE 6 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH GOVERNING SPECIFICATIONS UNTIL A HEALTHY STAND OF VEGETATION IS OBTAINED.
9. EXISTING TOPOGRAPHY SHOWN REPRESENTS SITE CONDITIONS AS PREPARED BY MANHARD CONSULTING ON SEPTEMBER 23, 2025. CONTRACTOR SHALL FIELD CHECK EXISTING ELEVATIONS AND CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO STARTING CONSTRUCTION. IF THE CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, THEN THE CONTRACTOR SHALL SUPPLY, AT THEIR EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR TO THE OWNER FOR REVIEW.
10. TRANSITIONS FROM DEPRESSED CURB TO FULL HEIGHT CURB SHALL BE TAPERED AT 2H:1V UNLESS OTHERWISE NOTED.
11. EXCAVATION, GRADING, AND COMPACTION TO BE COMPLETED IN ACCORDANCE WITH RECOMMENDATIONS OF GEOTECHNICAL REPORT.
12. ELEVATIONS GIVEN FOR STORM SEWER STRUCTURES LOCATED IN CURB LINE ARE PAVEMENT ELEVATIONS.

DRAWN BY | REVISIONS | DATE

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 ph 847.634.5500 fx 847.634.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

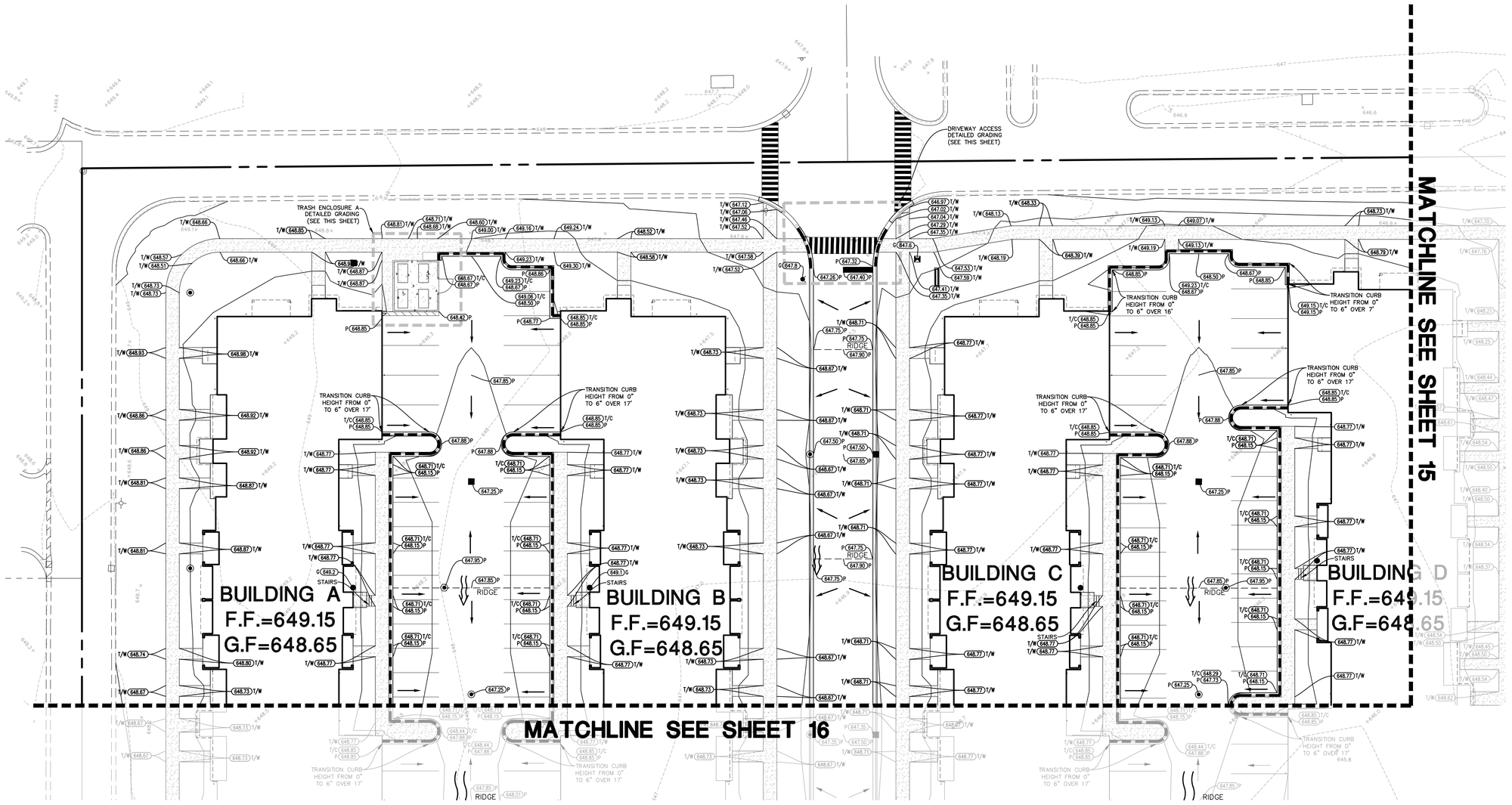
SEASONS AT CREST HILL
CITY OF CREST HILL
GRADING PLAN - OVERALL

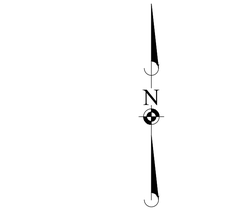
PROJ. MGR.:	JSE
PROJ. ASSOC.:	MSL
DRAWN BY:	PA
DATE:	01-14-26
SCALE:	1"=40'

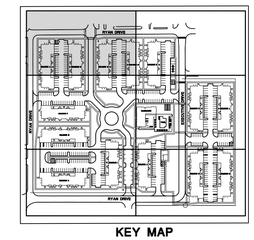
SHEET
13 OF 44
FRD.CRIL01

©2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

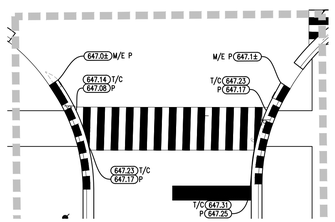
January 15, 2026 - 13:55 Dwg Name: P:\Projects\Data\Final\Civil Drawings\Plan Set\GRADING PLAN.dwg Updated By: MLeBleu



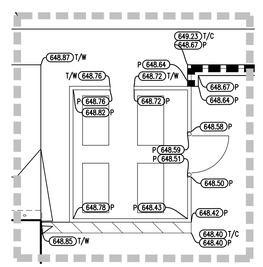




KEY MAP



DRIVEWAY ACCESS DETAILED GRADING
SCALE: 1" = 10'



TRASH ENCLOSURE A DETAILED GRADING
SCALE: 1" = 10'

SHEET SHEET 13 FOR GRADING NOTES AND LEGENDS

DRAWN BY
REVISIONS
DATE

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.634.5500 f:847.634.0066 manhardconsulting.com
Civil Engineers • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

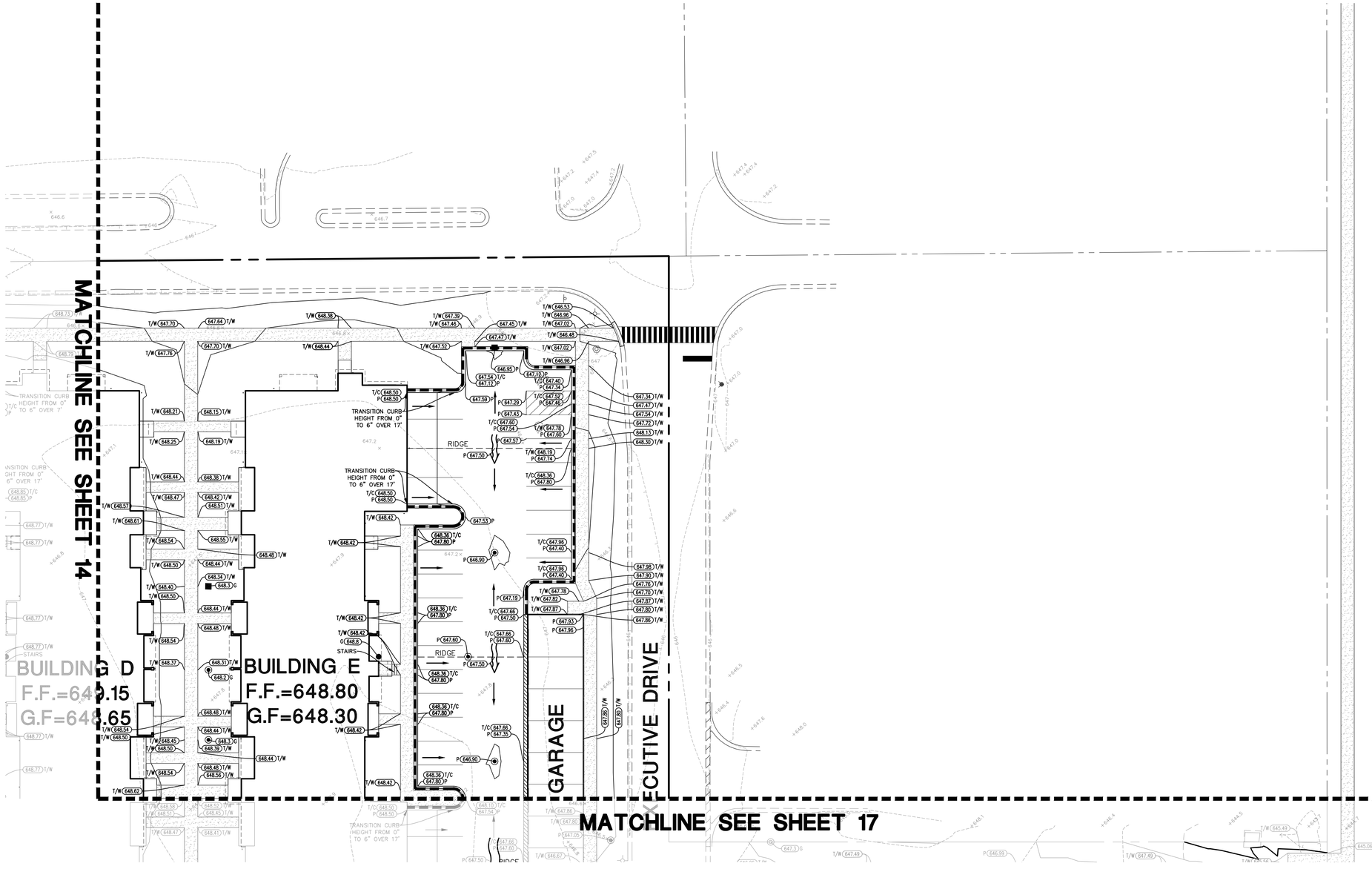
SEASONS AT CREST HILL
CITY OF CREST HILL
GRADING PLAN - NW

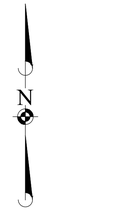
PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: PA
DATE: 01-14-26
SCALE: 1"=20'

SHEET
14 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

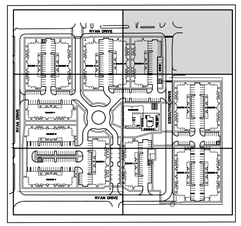
January 15, 2026 - 13:55 Dwg Name: P:\Projects\Vlaw\Land\Final Drawings\Plan Set\GRADING PLAN.dwg Updated By: MJeBou





0 10 20 40

SCALE: 1"=20'



KEY MAP

SHEET SHEET 13 FOR GRADING NOTES AND LEGENDS

DRAWN BY

REVISIONS

DATE

Manhard CONSULTING

One Overlook Point, Suite 250, Lincolnshire, IL 60069 ph 847.894.5500 fax 847.894.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL

CITY OF CREST HILL

GRADING PLAN - NE

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: PA
DATE: 01-14-26
SCALE: 1"=20'

SHEET
15 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 15, 2026 – 13:55 Dwg Name: P:\Projects\Users\Engr\Final Drawings\Plan Set\GRADING PLAN.dwg Updated By: MJeffreu

MATCHLINE SEE SHEET 14

MATCHLINE SEE SHEET 17

MATCHLINE SEE SHEET 18

BUILDING F
F.F.=648.70
G.F=648.20

BUILDING G
F.F.=648.70
G.F=648.20

DRIVEWAY ACCESS DETAILED GRADING (SEE THIS SHEET)

TRANSITION CURB HEIGHT FROM 0" TO 6" OVER 17'

STAIRS

RIDGE

N

0 10 20 40
SCALE: 1"=20'

KEY MAP

DRIVEWAY ACCESS DETAILED GRADING
SCALE: 1" = 10'

SHEET SHEET 13 FOR GRADING NOTES AND LEGENDS

DRAWN BY
REVISIONS
DATE

Manhard CONSULTING

One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.894.5500 f:847.634.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL
CITY OF CREST HILL
GRADING PLAN - WEST

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: PA
DATE: 01-14-26
SCALE: 1"=20'

SHEET
16 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, INC. ALL RIGHTS RESERVED

January 15, 2026 - 13:55 Data Name: P:\Projects\Civil Work\Final Drawings\Plan Set\GRADING PLAN.dwg Updated By: MLaBeau

MATCHLINE SEE SHEET 15

MATCHLINE SEE SHEET 16

MATCHLINE SEE SHEET 19

CLUBHOUSE
F.F.=648.80
G.F=648.30

POOL

BUILDING K
F.F.=647.75
G.F=647.25

BUILDING L
F.F.=647.75
G.F=647.25

DRIVEWAY ACCESS DETAILED GRADING (SEE THIS SHEET)

TRANSITION CURB HEIGHT FROM 0" TO 6" OVER 17'

TRASH ENCLOSURE B DETAILED GRADING (SEE THIS SHEET)

TRASH ENCLOSURE C DETAILED GRADING (SEE THIS SHEET)

TRASH ENCLOSURE D DETAILED GRADING (SEE THIS SHEET)

SEGMENTED BLOCK RETAINING WALL (DESIGN BY OTHERS)

RIDGE

STAIRS

0 10 20 40
SCALE: 1"=20'

KEY MAP

TRASH ENCLOSURE B DETAILED GRADING
SCALE: 1" = 10'

TRASH ENCLOSURE C DETAILED GRADING
SCALE: 1" = 10'

TRASH ENCLOSURE D DETAILED GRADING
SCALE: 1" = 10'

DRIVEWAY ACCESS DETAILED GRADING
SCALE: 1" = 10'

DRIVEWAY ACCESS DETAILED GRADING
SCALE: 1" = 10'

SHEET SHEET 13 FOR GRADING NOTES AND LEGENDS

DRAWN BY
REVISIONS
DATE

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p847.894.5500 f847.894.0066 manhard.com
Civil Engineers • Water Resource Engineers • Water/Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

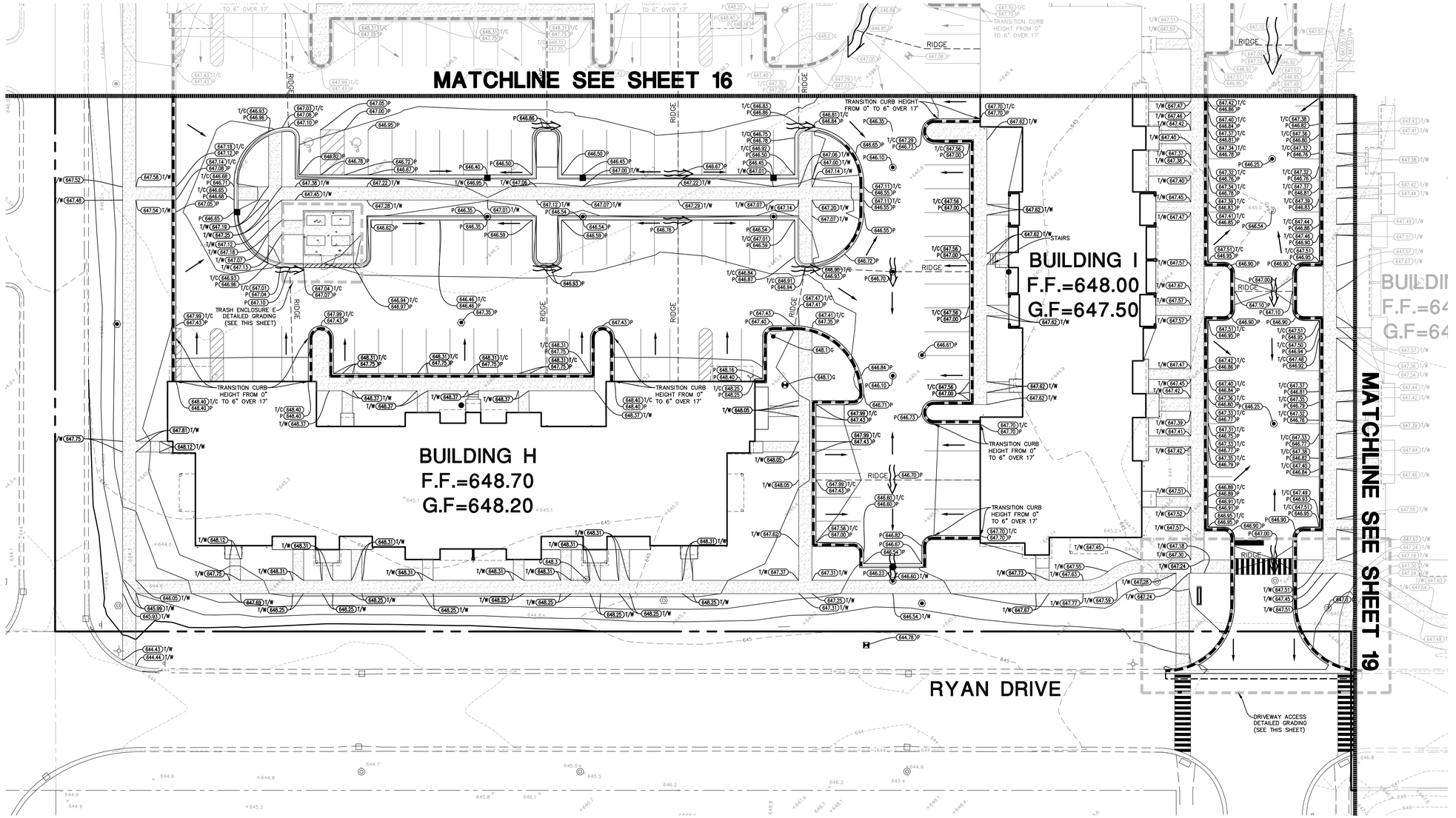
SEASONS AT CREST HILL
CITY OF CREST HILL
GRADING PLAN - EAST

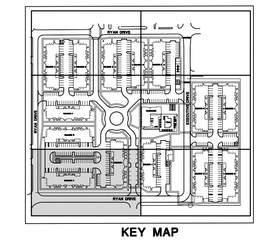
PROJ. MGR.:	JSE
PROJ. ASSOC.:	MSL
DRAWN BY:	PA
DATE:	01-14-26
SCALE:	1"=20'

SHEET
17 OF 44
FRD.CRIL01

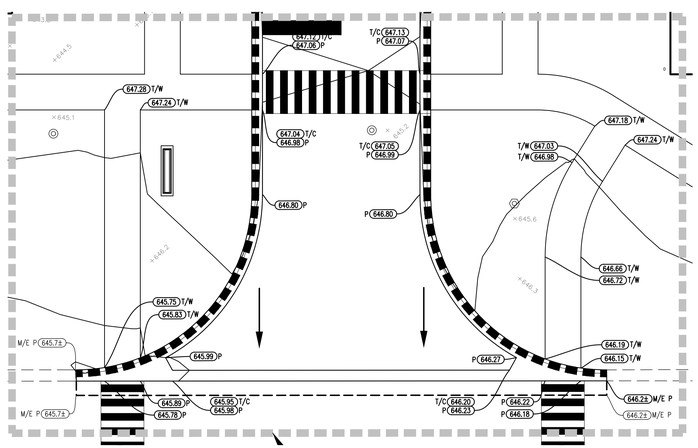
©2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 15, 2026 - 13:55 Dwn Name: P:\Projects\Active\Final Drawings\Plan Set\GRADING PLAN.dwg Updated By: MJeffries

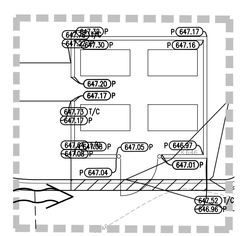




KEY MAP



DRIVEWAY ACCESS DETAILED GRADING
SCALE: 1" = 10'



TRASH ENCLOSURE E DETAILED GRADING
SCALE: 1" = 10'

SHEET SHEET 13 FOR GRADING NOTES AND LEGENDS

SCALE: 1"=20'

SEASONS AT CREST HILL
CITY OF CREST HILL
GRADING PLAN - SW

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: GAW
DATE: 01-14-26
SCALE: 1"=20'

SHEET 18 OF 44
FRD.CRIL01

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069
p:847.894.5500 f:847.894.5501 www.manhard.com
Civil Engineers • Surveyors • Water Resource Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 15, 2026 - 13:55 Data Name: P:\Projects\Civil\Data\Xref\Final Drawings\Plan Set\GRADING PLAN.dwg Updated By: MJRau

MATCHLINE SEE SHEET 17

MATCHLINE SEE SHEET 18

BUILDING J
F.F.=648.00
G.F=647.50

BUILDING M
F.F.=647.25
G.F=646.75

BUILDING N
F.F.=647.25
G.F=646.75

TRANSITION CURB HEIGHT FROM 0" TO 6" OVER 17'

RIDGE

STAIRS

TRASH ENCLOSURE C DETAILED GRADING (SEE THIS SHEET)

TRASH ENCLOSURE D DETAILED GRADING (SEE THIS SHEET)

SEGMENTED BLOCK RETAINING WALL (DESIGN BY OTHERS)

DRIVEWAY ACCESS DETAILED GRADING (SEE THIS SHEET)

EWAY ACCESS
ILED GRADING
THIS SHEET)

N

0 10 20 40
SCALE: 1"=20'

KEY MAP

DRIVEWAY ACCESS DETAILED GRADING
SCALE: 1" = 10'

SHEET SHEET 13 FOR GRADING NOTES AND LEGENDS

DRAWN BY
REVISIONS
DATE

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 | manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

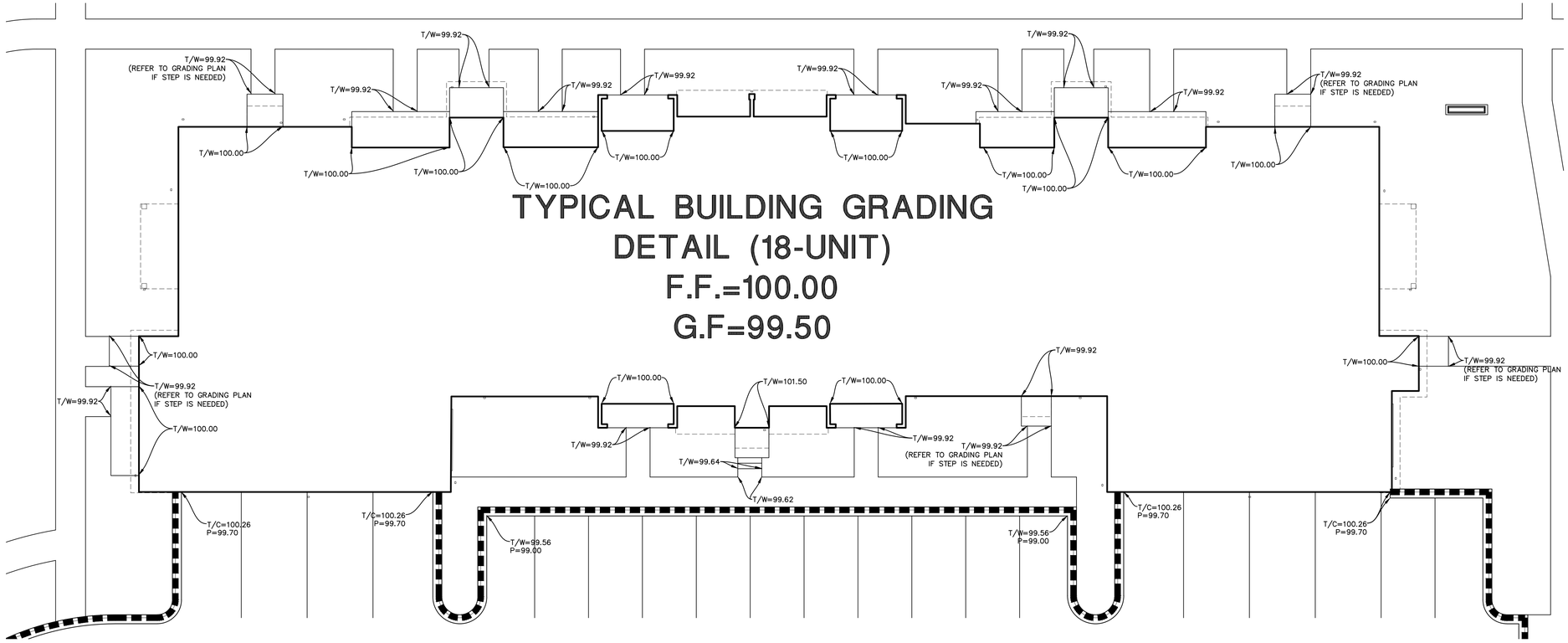
SEASONS AT CREST HILL
CITY OF CREST HILL
GRADING PLAN - SE

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: GAW
DATE: 01-14-26
SCALE: 1"=20'

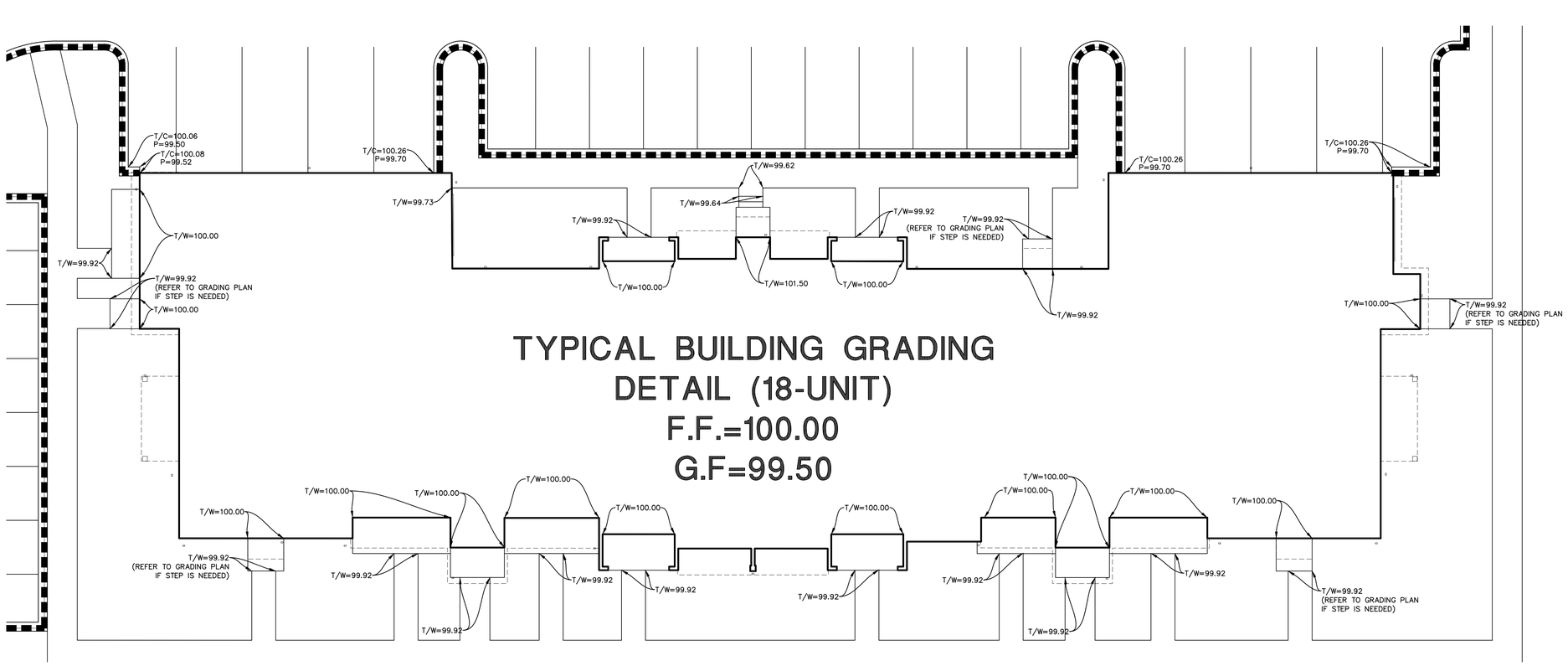
SHEET
19 OF 44
FRD.CRIL01

©2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 15, 2026 - 13:55 Dwn Name: P:\Projects\Active\Plans\Drawings\Plan Set\GRADING PLAN.dwg Updated By: MJeffries



TYPICAL BUILDING GRADING DETAIL (18-UNIT) F.F.=100.00 G.F=99.50



TYPICAL BUILDING GRADING DETAIL (18-UNIT) F.F.=100.00 G.F=99.50

N

0 5 10 20

SCALE: 1"=10'

DRAWN BY | REVISIONS | DATE

Manhard CONSULTING

One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.634.5500 f:847.634.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL

CITY OF CREST HILL

TYPICAL BUILDING GRADING DETAILS (18-UNIT)

PROJ. MGR.:	JSE
PROJ. ASSOC.:	MSL
DRAWN BY:	GC
DATE:	01-14-26
SCALE:	1"=20'

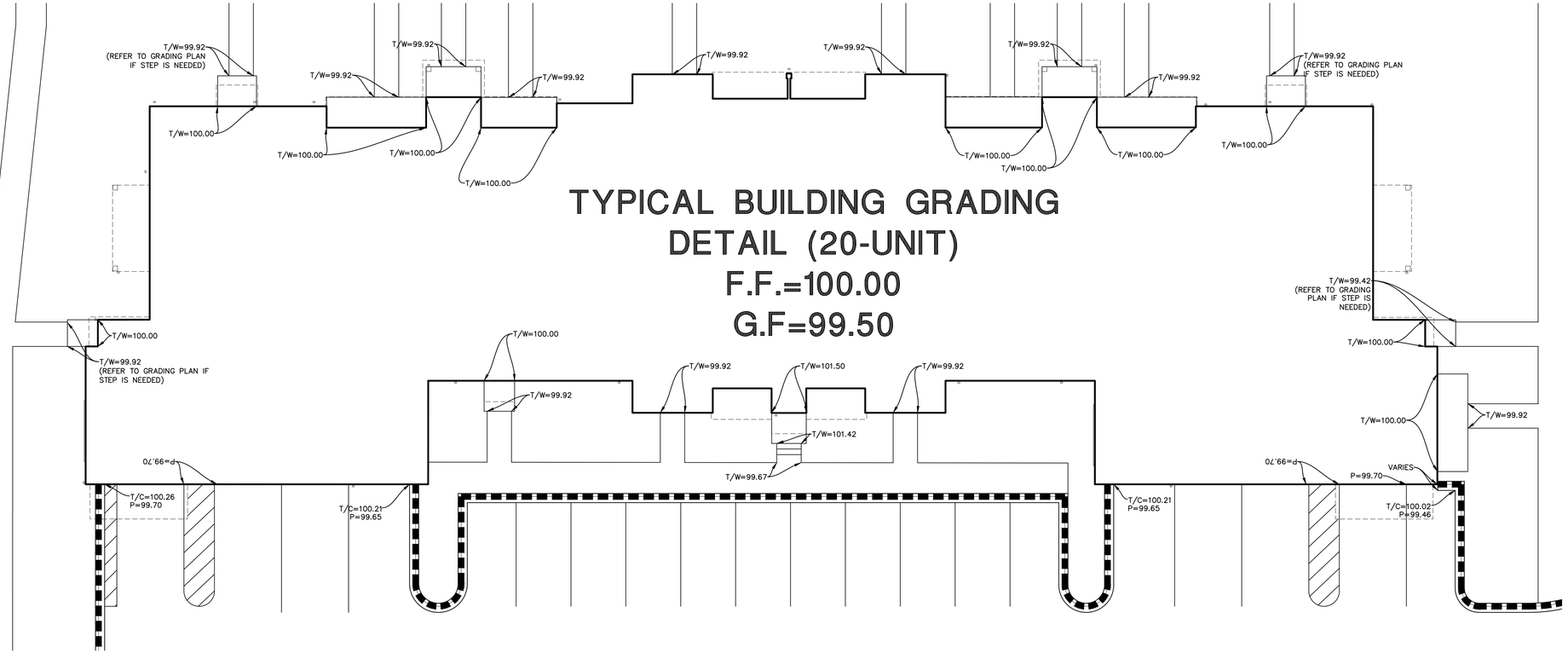
SHEET

20 OF 44

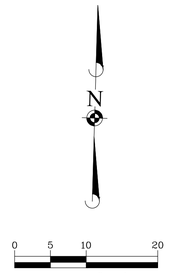
FRD.CRIL01

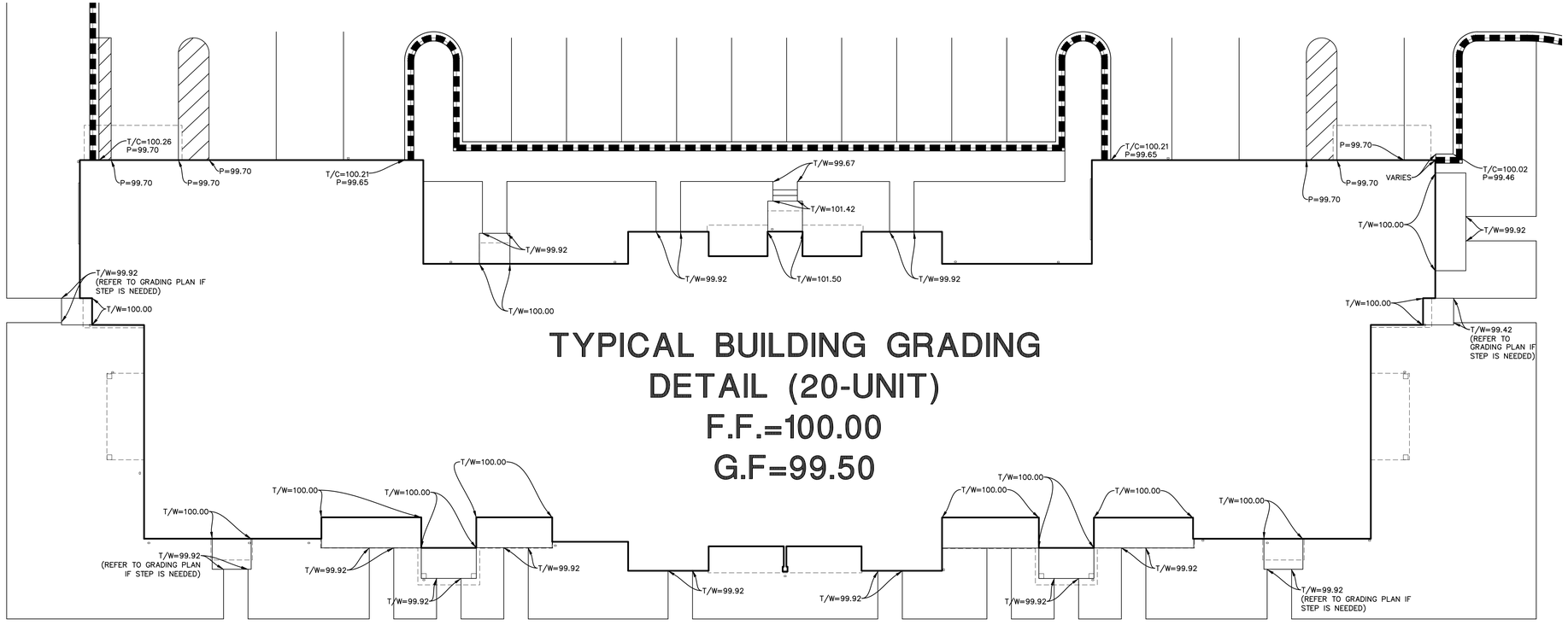
© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 14, 2026 - 8:08 Data Name: P:\Projects\Vlaw\Final Drawings\Plan Set\GRADING DETAILS.dwg Updated By: cwolsiefawski



TYPICAL BUILDING GRADING DETAIL (20-UNIT)
F.F.=100.00
G.F=99.50





TYPICAL BUILDING GRADING DETAIL (20-UNIT)
F.F.=100.00
G.F=99.50

DRAWN BY | REVISIONS | DATE

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 | p:847.634.5500 | manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

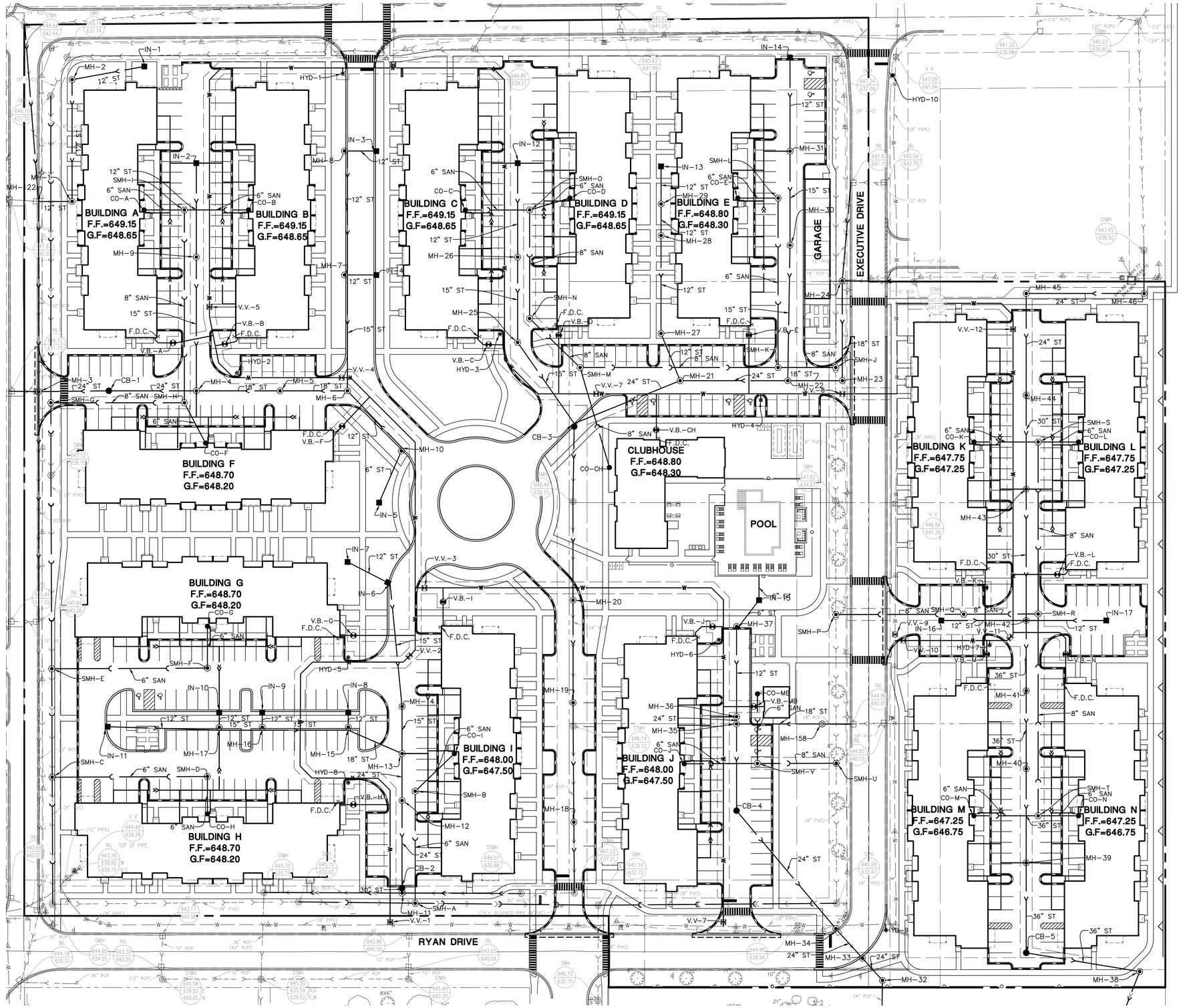
SEASONS AT CREST HILL
CITY OF CREST HILL
TYPICAL BUILDING GRADING DETAILS (20-UNIT)

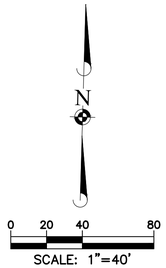
PROJ. MGR.:	JSE
PROJ. ASSOC.:	MSL
DRAWN BY:	GC
DATE:	01-14-26
SCALE:	1"=20'

SHEET
21 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

January 14, 2026 - 8:08 Data Name: P:\Projects\Crest\Civil\Final Drawings\Plan Set\GRADING DETAILS.dwg Updated By: dwolsiewski





06-01-22

UTILITY NOTES:

1. ALL UTILITY DIMENSIONS ARE TO CENTER OF PIPE OR CENTER OF STRUCTURE UNLESS OTHERWISE NOTED.
2. BUILDING DIMENSIONS AND ADJACENT UTILITY LAYOUT HAVE BEEN PREPARED BASED UPON ARCHITECTURAL INFORMATION CURRENT AT THE DATE OF THIS DRAWING. SUBSEQUENT ARCHITECTURAL CHANGES MAY EXIST. THEREFORE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR PRECISE BUILDING DIMENSIONS AND EXACT UTILITY ENTRANCE LOCATIONS AND NOTIFY THE ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL CONTACT J.U.L.I.E. (1-800-892-0123) PRIOR TO ANY WORK TO LOCATE UTILITIES AND SHALL CONTACT THE OWNER SHOULD UTILITIES APPEAR TO BE IN CONFLICT WITH THE PROPOSED IMPROVEMENT.
4. ROUTING OF GAS, ELECTRIC AND TELEPHONE SERVICES IF SHOWN ARE APPROXIMATE ONLY AND SUBJECT TO CHANGE BASED UPON FINAL REVIEW AND APPROVAL BY RESPECTIVE UTILITY COMPANIES AND OWNER. CONTRACTOR SHALL CONTACT EACH UTILITY COMPANY AND COORDINATE FINAL LOCATIONS FOR ALL UTILITY SERVICES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL EXCAVATE AND VERIFY ALL EXISTING SEWER, WATER MAIN AND DRY UTILITY LOCATIONS, SIZES, CONDITIONS & ELEVATIONS AT PROPOSED POINTS OF CONNECTION AND CROSSINGS PRIOR TO ANY UNDERGROUND CONSTRUCTION AND NOTIFY THE OWNER OF ANY DISCREPANCIES OR CONFLICTS.
6. LIGHTING AND UNDERGROUND CABLE IF SHOWN ON PLANS ARE FOR APPROXIMATE LOCATION ONLY. REFER TO ARCHITECTURAL PLANS FOR SPECIFICATIONS AND DETAILS.
7. THE CONTRACTOR SHALL ADJUST RIM ELEVATIONS OF ALL EXISTING STRUCTURES TO PROPOSED FINISH GRADES.
8. CONTRACTOR TO VERIFY LOCATION, SIZES, AND ELEVATION OF ALL BUILDING SERVICE LOCATIONS WITH ARCHITECTURAL PLANS.
9. AT LOCATIONS WHERE WATER MAIN CROSSES BENEATH OR LESS THAN 18" ABOVE A SEWER, PROVIDE WATER MAIN PROTECTION PER STANDARD SPECIFICATIONS FOR SEWER AND WATER MAIN CONSTRUCTION IN ILLINOIS, LATEST EDITION.
10. ELEVATIONS GIVEN FOR STORM SEWER STRUCTURES LOCATED IN CURB LINE ARE PAVEMENT ELEVATIONS.
11. ALL WATER MAIN SHALL BE 5'-6" BELOW FINISHED GRADE TO TOP OF MAINS UNLESS NOTED OTHERWISE.
12. ALL EXISTING UTILITIES SHOWN ARE NOT TO BE INTERPRETED AS THE EXACT ELEVATION OR LOCATION, OR AS THE ONLY OBSTACLES THAT MAY OCCUR ON THE SITE. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND PROCEED WITH CAUTION AROUND ANY ANTICIPATED FEATURES.
13. THE UNDERGROUND UTILITY INFORMATION AS SHOWN HERE ON IS BASED, IN PART, UPON INFORMATION FURNISHED BY UTILITY COMPANIES AND THE LOCAL MUNICIPALITY. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, ITS ACCURACY AND COMPLETENESS CANNOT BE GUARANTEED NOR CERTIFIED.
14. ALL SANITARY AND STORM SEWER LENGTHS SHOWN ARE CENTER OF MANHOLE TO CENTER OF MANHOLE OR STORM MANHOLE TO FES.
15. PROVIDE CONCRETE COLLAR FOR ALL DRAINAGE STRUCTURES IN PAVEMENT, NOT ADJACENT TO CURB. SEE CONCRETE COLLAR DETAIL ON DETAIL SHEET.
16. CONTRACTOR SHALL CORE AND BOOT ALL PIPE ENTRANCES TO EXISTING SANITARY MANHOLES.
17. EXTERNAL CHIMNEY SEALS ARE REQUIRED ON PROPOSED AND ADJUSTED EXISTING SANITARY MANHOLES.
18. SOME EXISTING ITEMS TO BE REMOVED HAVE BEEN DELETED FROM THIS PLAN FOR CLARITY. SEE DEMOLITION PLAN FOR ITEMS DELETED.
19. ALL D.I. WATERMAIN PIPE AND D.I. WATERMAIN FITTINGS SHALL BE WRAPPED.

DRAWN BY
REVISIONS
DATE

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.894.5500 f:847.634.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL
CITY OF CREST HILL
OVERALL UTILITY PLAN

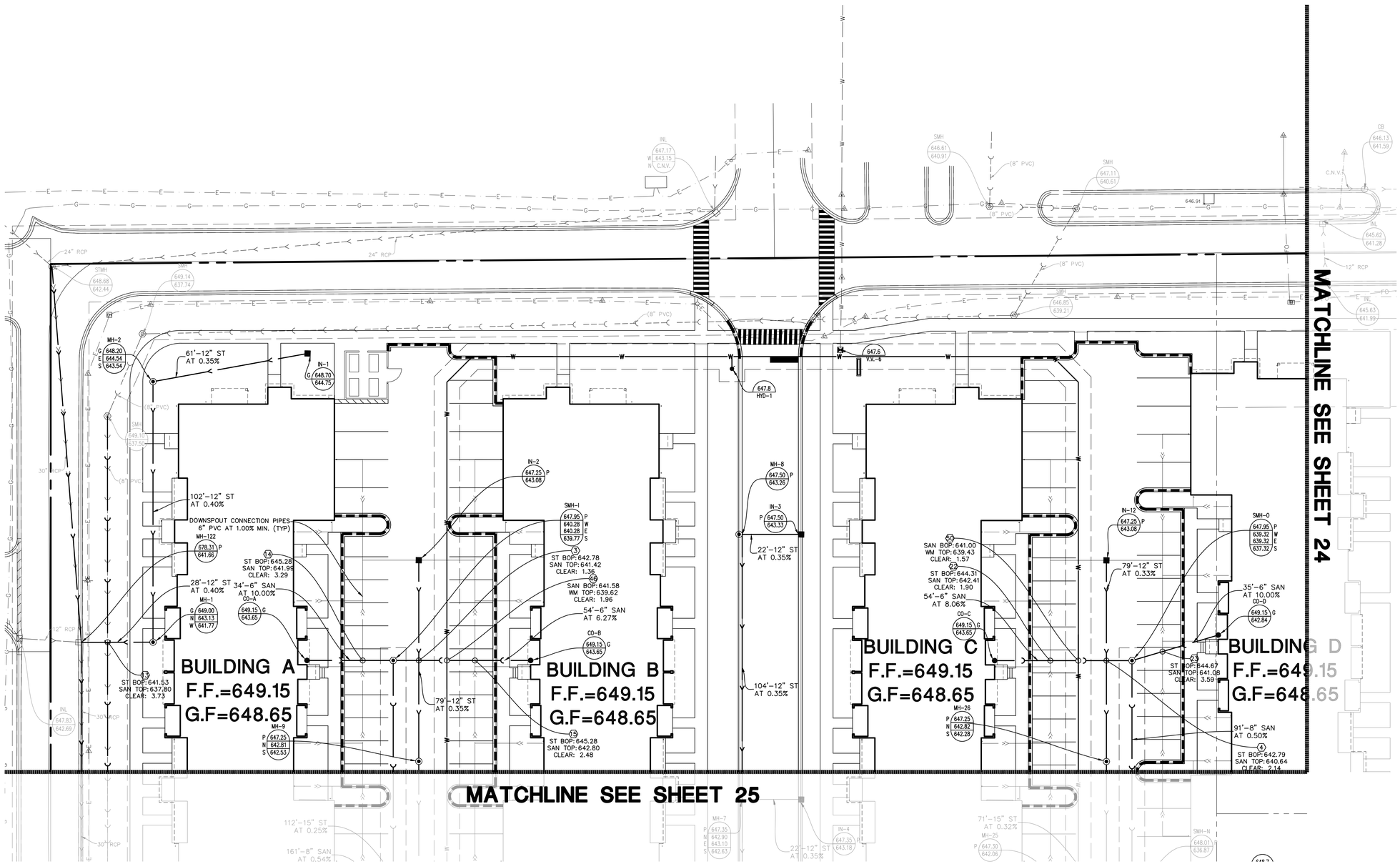
PROJ. MGR.:	JSE
PROJ. ASSOC.:	MSL
DRAWN BY:	JG
DATE:	01-14-26
SCALE:	1"=40'

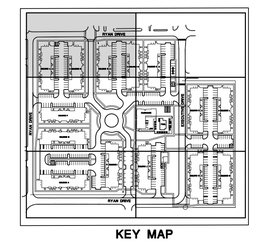
SHEET
22 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

January 15, 2026 - 14:27
Data Name: P:\Projects\01\Vaca\Civil\Final Drawings\Final Set\OVERALL UTILITY.dwg Updated By: dpastewski

06-01-14





KEY MAP

N

0 10 20 40

SCALE: 1"=20'

SHEET SHEET 22 FOR UTILITY NOTES

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.894.5500 f:847.894.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY | REVISIONS | DATE

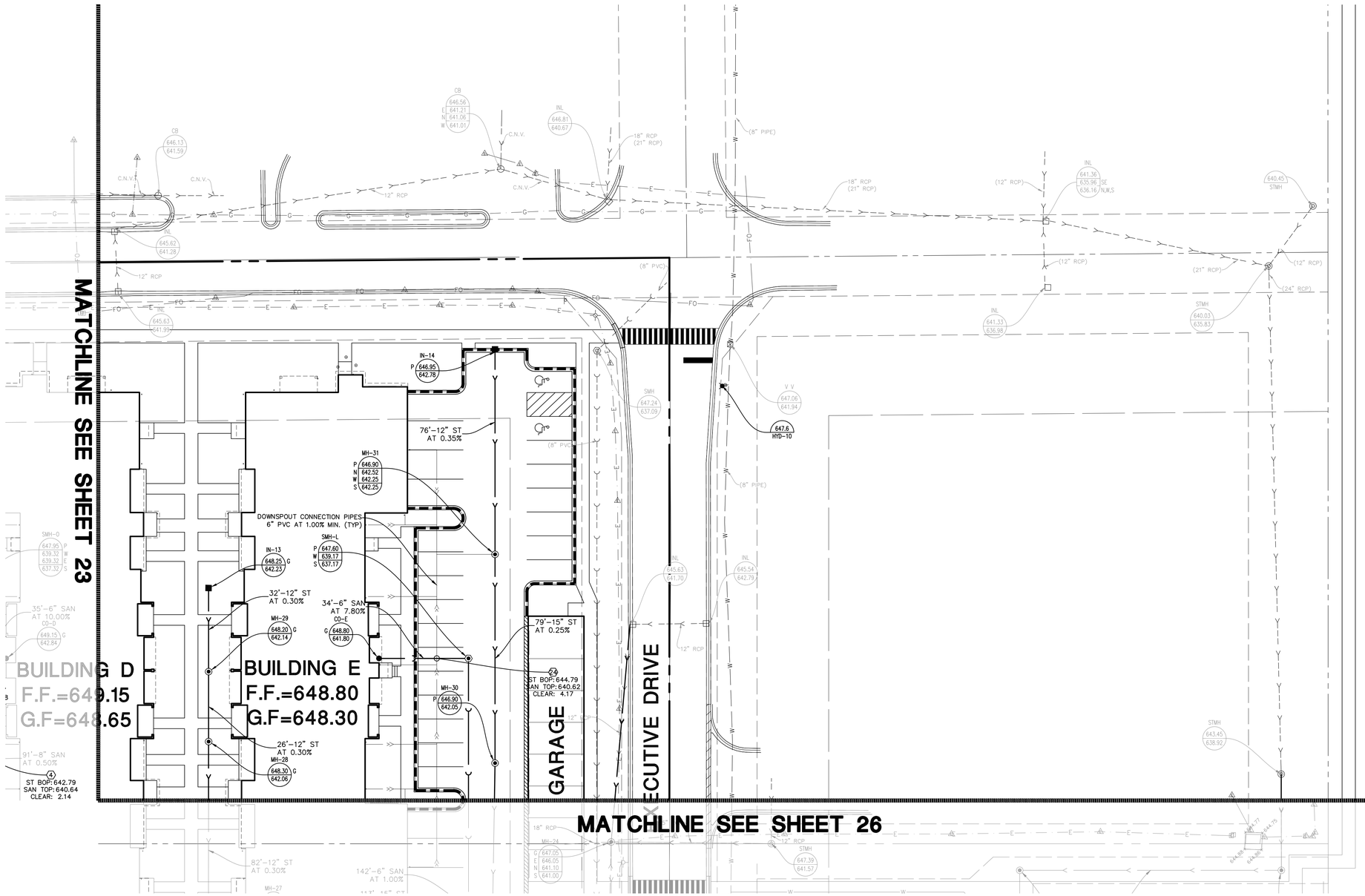
SEASONS AT CREST HILL
CITY OF CREST HILL
UTILITY PLAN - NW

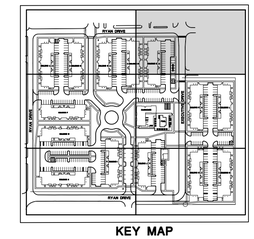
PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: JG
DATE: 01-14-26
SCALE: 1"=20'

SHEET
23 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

January 15, 2026 - 14:48
Dwg. Name: P:\Projects\Crest Hill\Civil\Drawings\Final Drawings\Plan Set\INDIVIDUAL UTILITY.dwg Updated By: dwolderwski





KEY MAP

N

0 10 20 40

SCALE: 1"=20'

SHEET SHEET 22 FOR UTILITY NOTES

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 ph 847.634.5500 fx 847.634.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY | REVISIONS | DATE

SEASONS AT CREST HILL
CITY OF CREST HILL
UTILITY PLAN - NE

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: JG
DATE: 01-14-26
SCALE: 1"=20'

SHEET
24 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 15, 2026 - 14:48 Dwg Name: P:\Projects\Vlad\Final\Final Drawings\Plan Set\UTILITY.dwg Updated By: dpeshkewicz

MATCHLINE SEE SHEET 23

BUILDING A
F.F.=649.15
G.F=648.65

BUILDING B
F.F.=649.15
G.F=648.65

F.F.=649.15
G.F=648.65

112'-15" ST AT 0.25%
161'-8" SAN AT 0.54%
SAN BOF: 639.15
WM TOP: 637.66
CLEAR: 1.50
648.2 V.B.-A
F.D.C.
ST BOF: 642.17
WM TOP: 637.66
CLEAR: 4.51
648.4 V.B.-B
F.D.C.
648.0 V.V.-5
79'-12" ST AT 0.35%
104'-12" ST AT 0.35%
22'-12" ST AT 0.35%
97'-15" ST AT 0.25%
71'-15" ST AT 0.32%
91'-8" SAN AT 0.50%
ST BOF: 642.79
SAN TOP: 640.64
59'-8" SAN AT 0.50%
F.D.C.
648.7 V.B.-D
WM BOF: 642.48
SAN TOP: 637.39
CLEAR: 5.08
WM BOF: 638.98
SAN TOP: 637.37
CLEAR: 1.61
647.1 V.V.-7
96'-24" ST AT 0.16%
MH-4
MH-3
ST BOF: 641.07
SAN TOP: 637.10
CLEAR: 3.97
CB-1
59'-24" ST AT 0.15%
73'-24" ST AT 0.15%
ST BOF: 641.23
SAN TOP: 639.64
CLEAR: 1.59
648.3 HYD-2
MH-5
70'-18" ST AT 0.18%
56'-18" ST AT 0.18%
38'-6" SAN AT 8.85%
647.2 V.V.-4
ST BOF: 642.23
WM TOP: 640.19
CLEAR: 2.04
MH-6
67'-12" ST AT 0.20%
MH-10
83'-15" ST AT 0.32%
ST BOF: 641.70
WM TOP: 639.69
CLEAR: 2.01
SMH-G
SMH-H
112'-8" SAN AT 0.47%
ST BOF: 643.96
SAN TOP: 640.93
CLEAR: 3.03
F.D.C.
648.1 V.B.-F
CO-F
DOWNSPOUT CONNECTION PIPES
6" PVC AT 1.00% MIN. (TYP)
ST BOF: 642.40
WM TOP: 640.40
CLEAR: 2.00
CB-3
ST BOF: 639.65
SAN TOP: 637.45
CLEAR: 2.20
87'-8" SAN AT 0.43%
CO-CH
SMH-M
SMH-N
MH-26
MH-25
MH-7
IN-4
648.5 HYD-3
648.5 V.B.-C
F.D.C.
50'-6" ST AT 0.50%
IN-5
BUILDING F
F.F.=648.70
G.F=648.20
CLUBH
F.F.=6
G.F=6
MATCHLINE SEE SHEET 26
40'-12" ST AT 0.35%
IN-7
IN-6
103'-15" ST AT 0.25%
647.7 V.V.-3
647.7 V.B.-I
MH-20
BUILDING G
F.F.=648.70
G.F=648.20
CO-G
648.0 V.B.-G
F.D.C.
35'-6" SAN AT 9.00%
SMH-E
SMH-F
ST BOF: 644.18
SAN TOP: 642.20
CLEAR: 1.98
130'-6" SAN AT 0.50%
648.0 HYD-5
647.1 V.V.-2
ST BOF: 641.62
WM TOP: 640.13
CLEAR: 1.50
ST BOF: 641.57
WM TOP: 639.58
CLEAR: 1.99
F.D.C.
MATCHLINE SEE SHEET 27
96'-12" ST AT 0.35%
17'-12" ST AT 0.44%
39'-15" ST AT 0.25%
MH-14
MH-13
MH-19
STMH
IN-10
IN-9
IN-11
24" RCP
30" RCP
18" PVC
12" RCP

N

0 10 20 40
SCALE: 1"=20'

KEY MAP

SHEET SHEET 22 FOR UTILITY NOTES

DRAWN BY
REVISIONS
DATE

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.894.6000 f:847.894.6060 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL
CITY OF CREST HILL
UTILITY PLAN- WEST

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: JG
DATE: 01-14-26
SCALE: 1"=20'

SHEET
25 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

January 15, 2026 - 14:48
Dwg Name: P:\Projects\Vlogs\Civil\Final Drawings\Plan Set\INDIVIDUAL UTILITY.dwg Updated By: dwisniewski

MATCHLINE SEE SHEET 24

MATCHLINE SEE SHEET 25

MATCHLINE SEE SHEET 28

CLUBHOUSE
F.F.=648.80
G.F=648.30

POOL

BUILDING K
F.F.=647.75
G.F=647.25

BUILDING L
F.F.=647.75
G.F=647.25

GARAGE

EXECUTIVE

82'-12" ST AT 0.30%
142'-6" SAN AT 1.00%
113'-15" ST AT 0.25%
43'-12" ST AT 0.30%
84'-18" ST AT 0.20%
48'-8" SAN AT 0.50%
96'-24" ST AT 0.16%
166'-8" SAN AT 0.50%
90'-24" ST AT 0.16%
46'-18" ST AT 0.20%
21'-6" ST AT 1.79%
31'-6" ST AT 1.00%
107'-8" SAN AT 0.50%
73'-12" ST AT 0.44%
6'-24" ST AT 0.16%
72'-18" ST AT 0.18%
99'-24" ST AT 0.18%
85'-24" ST AT 0.18%
79'-30" ST AT 0.10%
54'-6" SAN AT 1.00%
110'-30" ST AT 0.10%
62'-8" SAN AT 0.50%
71'-12" ST AT 0.44%
59'-36" ST AT 0.08%
34'-6" SAN AT 8.90%
144'-8" SAN AT 0.50%
67'-12" ST AT 0.44%
169'-8" SAN AT 0.50%

DOWNSPOUT CONNECTION PIPES 6" PVC AT 1.00% MIN. (TYP)

F.D.C.

0 10 20 40
SCALE: 1"=20'

KEY MAP

SHEET SHEET 22 FOR UTILITY NOTES

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.634.0066
One Tower Lane, Suite 1600, Oakbrook Terrace, IL 60181 p:847.894.5500
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners
mhm@manhard.com

DRAWN BY
REVISIONS
DATE

SEASONS AT CREST HILL
CITY OF CREST HILL
UTILITY PLAN - EAST

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: JC
DATE: 01-14-26
SCALE: 1"=20'

SHEET
26 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, INC. ALL RIGHTS RESERVED

January 15, 2026 - 14:48
Data Name: P:\Projects\Crest Hill\Drawings\Civil\Final Drawings\Plan Set\INDIVIDUAL UTILITY.dwg Updated By: dastefanski

MATCHLINE SEE SHEET 25

MATCHLINE SEE SHEET 28

BUILDING H
F.F.=648.70
G.F=648.20

BUILDING I
F.F.=648.00
G.F=647.50

BUILDI
F.F.=64
G.F=64

RYAN DRIVE

96'-12" ST AT 0.35%
17'-12" ST AT 0.44%
36'-15" ST AT 0.25%
17'-12" ST AT 0.44%
72'-15" ST AT 0.25%
49'-18" ST AT 0.20%
39'-15" ST AT 0.25%
39'-24" ST AT 0.17%
71'-24" ST AT 0.17%
7'-30" ST AT 0.17%
130'-6" SAN AT 0.50%
130'-6" SAN AT 0.50%
35'-6" SAN AT 9.00%
31'-6" SAN AT 9.73%
45'-6" SAN AT 13.62%
94'-6" SAN AT 0.58%

ST BOP: 644.18
SAN TOP: 642.20
CLEAR: 1.98

ST BOP: 641.62
WM TOP: 640.13
CLEAR: 1.50

ST BOP: 641.57
WM TOP: 639.58
CLEAR: 1.99

ST BOP: 641.52
WM TOP: 639.43
CLEAR: 2.09

ST BOP: 644.06
SAN TOP: 641.29
CLEAR: 2.77

ST BOP: 644.14
SAN TOP: 638.37
CLEAR: 5.76

ST BOP: 636.13
SAN TOP: 633.85
CLEAR: 2.28

DOWNSPOUT CONNECTION PIPES
6" PVC AT 1.00% MIN. (TYP)

C.N.V. BLOCKED PIPE (8"PVC)

SMH-C 647.18 G 635.01 N 637.01 E 635.01 S
SMH-D 647.35 P 639.66 S 639.66 W
SMH-F 647.52 G 635.40 N 637.40 E 635.40 S
SMH-A 646.31 G 633.28
SMH-B 646.61 P 635.82 NE 633.82 S
CB-2 646.23 P 636.82 N 636.82 S
MH-11 646.60 G 636.81 N 636.36 E 636.36 W
MH-12 646.10 P 639.94 N 639.94 S
MH-13 646.70 P 641.56 N 641.24 W 642.87 E 640.01 S
MH-14 646.10 P 641.66
MH-15 646.54 P 641.61 W 642.21 N 641.34 E
MH-16 646.54 P 641.79 W 642.21 N 641.79 E
MH-17 646.35 P 642.15 W 642.16 N 642.16 S 641.88 E
MH-18 646.25 P 637.60
MH-19 646.25 638.23
IN-8 646.45 P 642.28
IN-9 646.45 P 642.29
IN-10 P 646.40 642.23
IN-11 P 646.65 642.48
CO-H G 648.58 642.70
CO-I G 648.00 642.00
HYD-5 648.0
HYD-8 648.1
V.V.-2 647.1
V.B.-H 648.1
V.V.-1 0.0
F.D.C.

0 10 20 40
SCALE: 1"=20'

KEY MAP

SEASONS AT CREST HILL
CITY OF CREST HILL
UTILITY PLAN- SW

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: JG
DATE: 01-14-26
SCALE: 1"=20'

SHEET
27 OF 44
FRD.CRILO1

SHEET SHEET 22 FOR UTILITY NOTES

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.894.5000 f:847.894.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY
REVISIONS
DATE

©2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

January 15, 2026 - 14:48 Dwg. Name: P:\Fdc\001\Dwg\Eng\Plan Drawings\Plan Set\INDIVIDUAL UTILITY.dwg Updated By: rjaasielewski

MATCHLINE SEE SHEET 26

MATCHLINE SEE SHEET 27

BUILDING J
F.F.=648.00
G.F=647.50

BUILDING M
F.F.=647.25
G.F=646.75

BUILDING N
F.F.=647.25
G.F=646.75

MH-36 P 646.10 N 641.43 W 641.43 S 639.43
6'-24" ST AT 0.16%
MH-35 P 646.19 639.42
61'-6" SAN AT 8.82%
CO-J G 648.00 641.00
ST BOP: 642.82 SAN TOP: 639.58 CLEAR: 3.24
73'-24" ST AT 0.35%
CB-4 P 646.10 N 639.17 SE 638.73
CO-MB 646.92 P 639.10
646.8 V.B.-MB
72'-18" ST AT 0.18%
MH-158 G 646.05 639.55
ST BOP: 639.56 SAN TOP: 634.77 CLEAR: 4.79
ST BOP: 639.24 SAN TOP: 637.67 CLEAR: 1.57
58'-6" SAN AT 7.73%
SMH-U 645.65 G 633.94
ST BOP: 639.05 SAN TOP: 637.66 CLEAR: 1.39
66'-8" SAN AT 1.00%
SMH-V 646.88 P 635.60 W 634.60 N 634.60 E
131'-24" ST AT 0.35%
ST BOP: 638.12 SAN TOP: 634.09 CLEAR: 4.03
MH-34 643.72 P 638.27
LOWER EXIST. WATER MAIN
ST BOP: 638.04 WM TOP: 636.54 CLEAR: 1.50
28'-24" ST AT 0.35%
27'-24" ST AT 0.35%
MH-32 G 643.70 NW 638.07 S 635.66
107'-8" SAN AT 0.50%
73'-12" ST AT 0.44%
59'-36" ST AT 0.08%
MH-41 P 645.63 637.41
169'-8" SAN AT 0.50%
65'-36" ST AT 0.08%
MH-40 P 645.35 637.36
79'-36" ST AT 0.08%
54'-6" SAN AT 0.50%
CO-M G 647.25 642.50
SAN BOP: 642.37 ST TOP: 641.41 CLEAR: 0.96
MH-39 P 645.35 N 637.30 E 638.80 W 638.80 S 637.30
SMH-T 646.05 P 642.23 W 638.62 E 636.62 N
34'-6" SAN AT 7.80%
CO-N G 647.25 641.25
ST BOP: 640.99 SAN TOP: 640.01 CLEAR: 0.98
SAN BOP: 642.26 ST TOP: 640.66 CLEAR: 1.60
DOWNSPOUT CONNECTION PIPES 6" PVC AT 1.00% MIN. (TYP)
75'-36" ST AT 0.08%
CB-5 P 645.40 637.24
MH-33 643.70 P 638.17
MH-38 G 644.35 637.16
96'-36" ST AT 0.08%

N

0 10 20 40
SCALE: 1"=20'

KEY MAP

SHEET SHEET 22 FOR UTILITY NOTES

Manhard CONSULTING

One Overlook Point, Suite 250, Lincolnshire, IL 60069 p847.634.5500 f847.634.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY | REVISIONS | DATE

SEASONS AT CREST HILL
CITY OF CREST HILL
UTILITY PLAN - SE

PROJ MGR.: JSE
PROJ ASSOC.: MSL
DRAWN BY: JG
DATE: 01-14-26
SCALE: 1"=20'

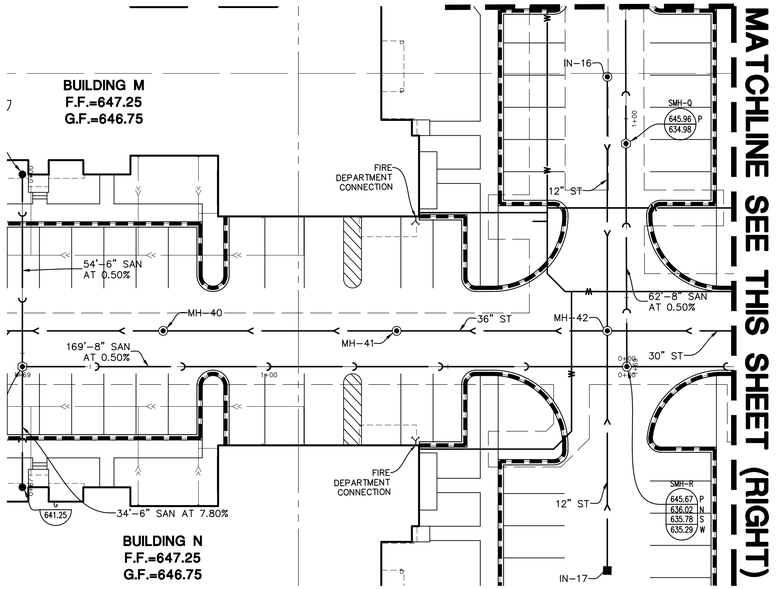
SHEET
28 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

January 15, 2026 - 14:48 Data Name: P:\Projects\Vlas\Civil\Crossvik\Plan Set\INDIVIDUAL UTILITY.dwg Updated By: dwesterweck

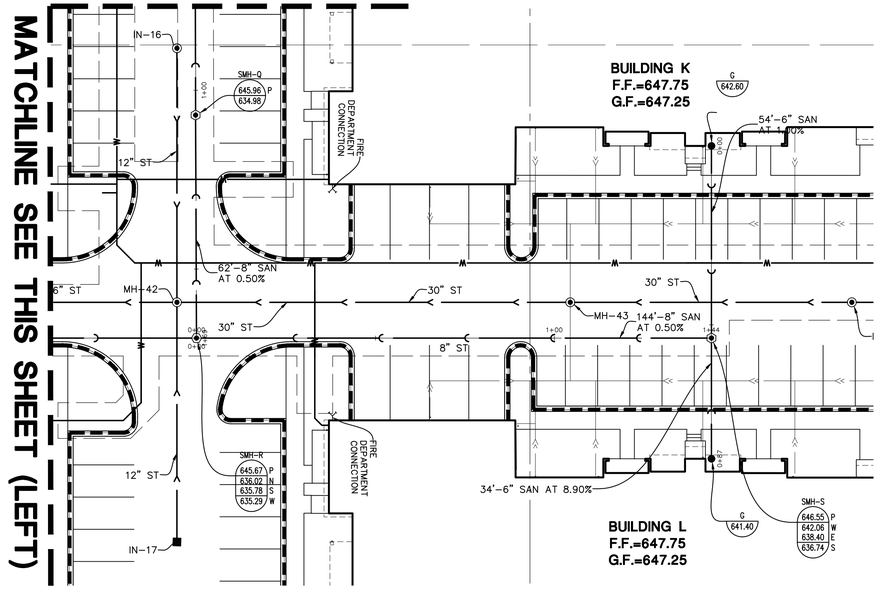
MATCHLINE SEE SHEET 30

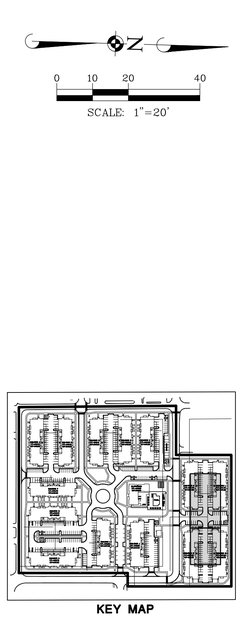
MATCHLINE SEE THIS SHEET (RIGHT)

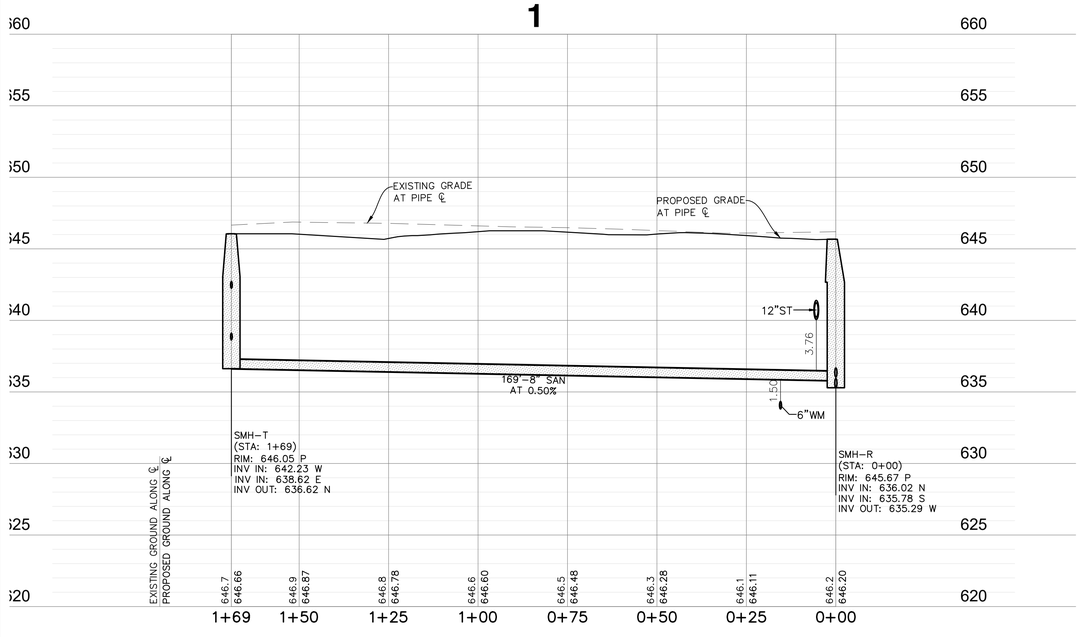


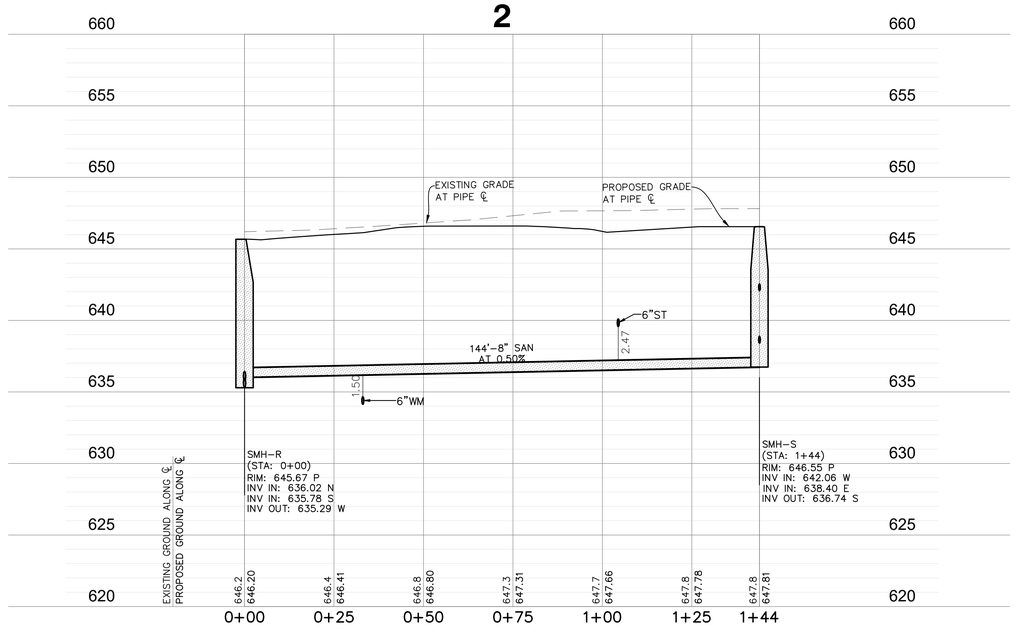
MATCHLINE SEE SHEET 30

MATCHLINE SEE THIS SHEET (LEFT)









DRAWN BY | REVISIONS | DATE

Manhard CONSULTING

One Overlook Point, Suite 250, Lincolnshire, IL 60069 | manhard.com
(847) 865-4170 | Civil Engineers • Water Resource Engineers • Surveyors
Construction Managers • Environmental Scientists • Landscape Architects • Planners

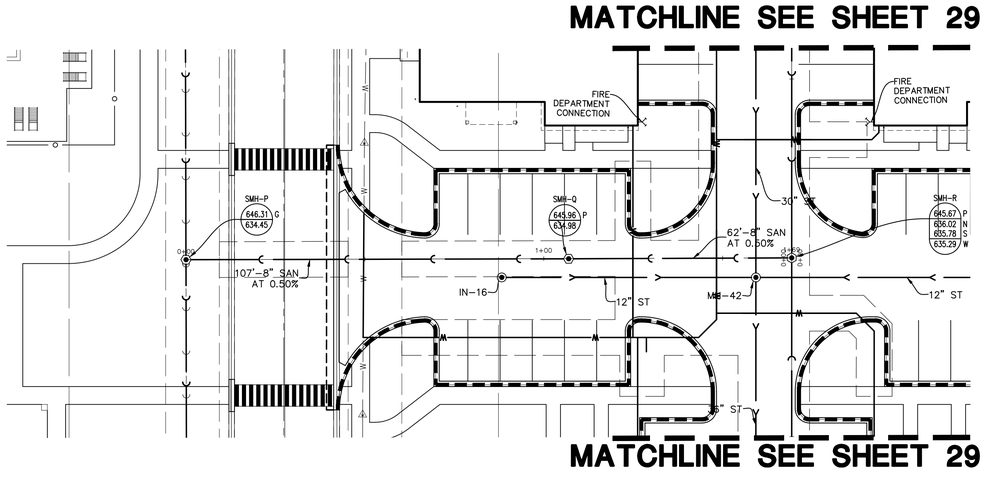
SEASONS AT CREST HILL
CITY OF CREST HILL
SANITARY PROFILES 1&2

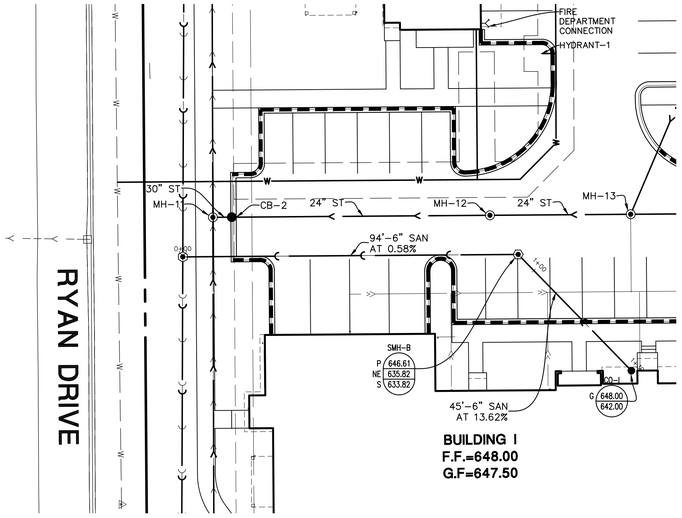
PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: GAW
DATE: 01-14-26
SCALE: H:1"=20' V:1"=5'

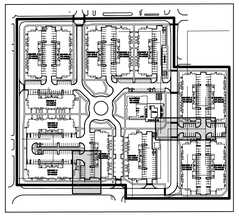
SHEET
29 OF 44
FRD.CRIL01

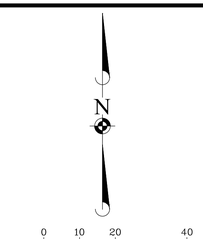
©2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

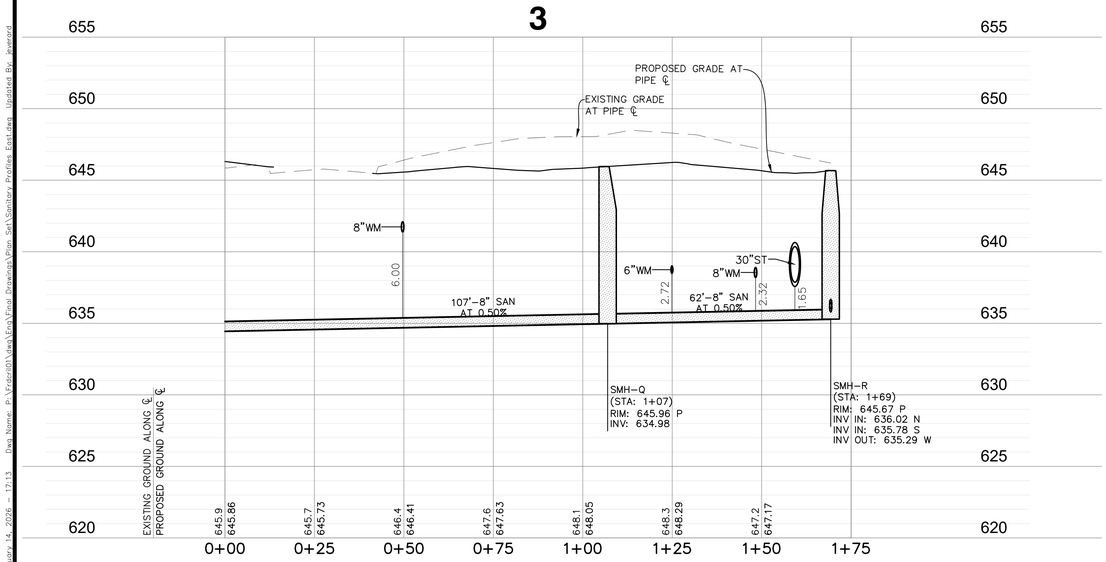
January 14, 2026 - 12:13 Dwg Name: P:\Projects\Kes\Eng\Final Drawings\Plan Set\Sanitary Profiles, Exist.dwg Updated By: jeverard

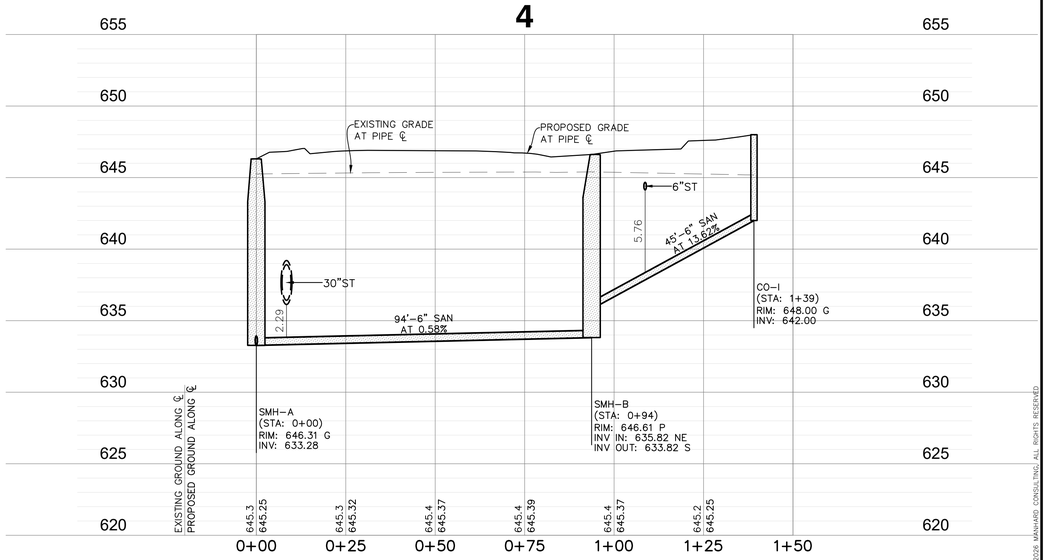












Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069
Phone: 847.634.5500 Fax: 847.634.5599 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY
REVISIONS
DATE

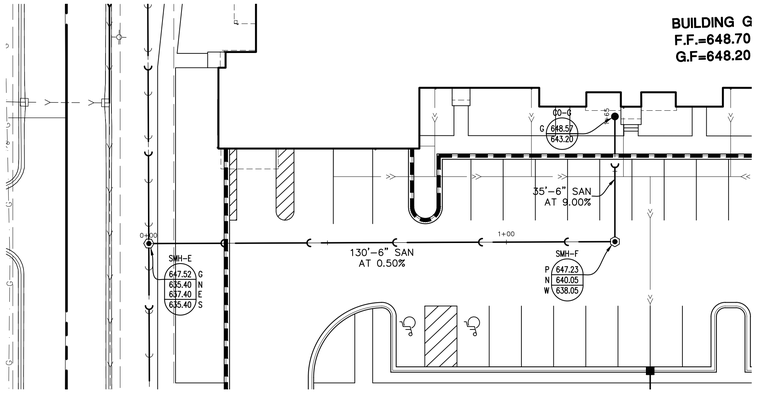
SEASONS AT CREST HILL
CITY OF CREST HILL
SANITARY PROFILES 3&4

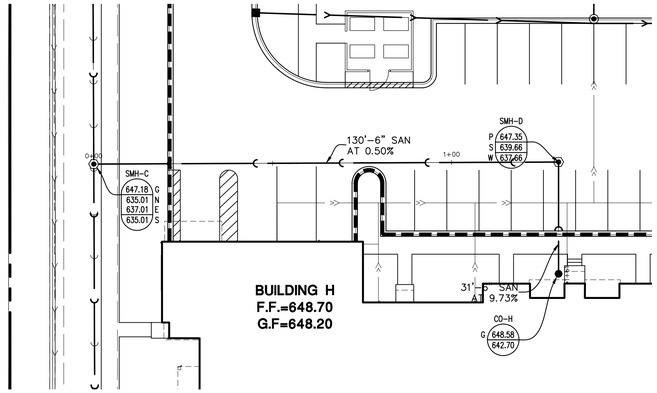
PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: GAW
DATE: 01-14-26
SCALE: H:1"=20' V:1"=5'

SHEET
30 OF 44
FRD.CRIL01

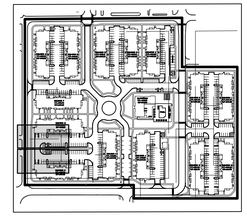
©2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

January 14, 2026 - 12:13 Dwg Name: P:\Projects\Data\Civil\Final Drawings\Plan Set\Sanitary Profiles Final.dwg Updated By: jsveterd

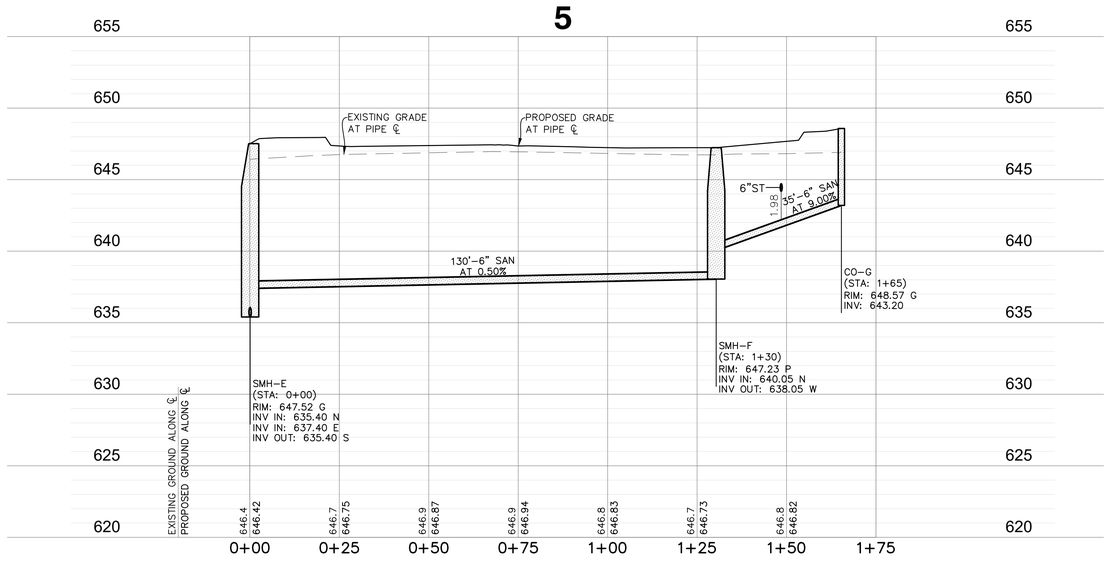


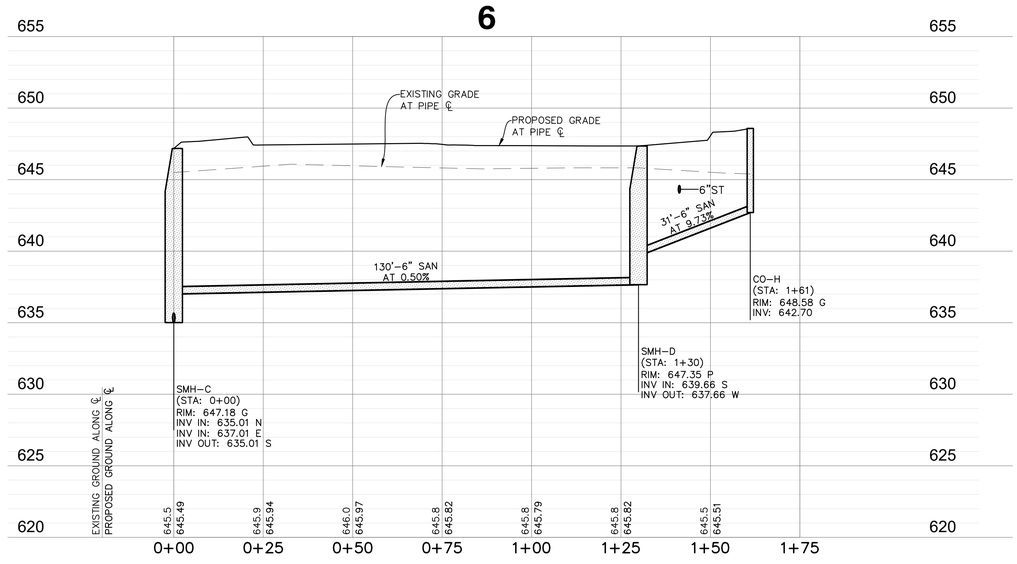






KEY MAP





DRAWN BY
REVISIONS
DATE

Manhard CONSULTING
One Overlook Point, Suite 260, Lincolnshire, IL 60069 ph 847.634.5500 fx 847.634.0066 manhardcom
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL
CITY OF CREST HILL
SANITARY PROFILES 5&6

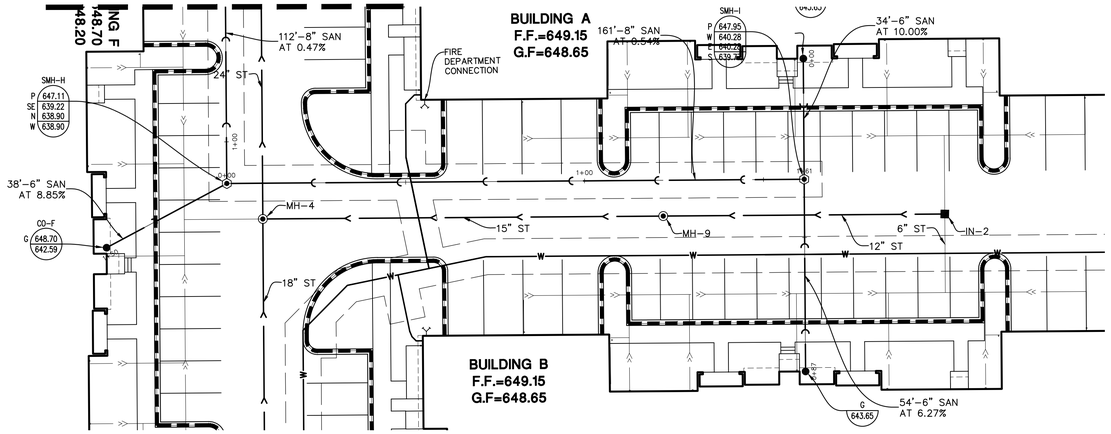
PROJ. MGR.:	JSE
PROJ. ASSOC.:	MSL
DRAWN BY:	GAW
DATE:	01-14-26
SCALE:	H:1"=20' V:1"=5'

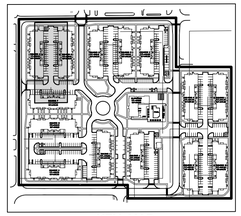
SHEET
31 OF 44
FRD.CRIL01

©2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 14, 2026 - 12:13 Dwg Name: P:\Projects\Crest Hill\Final Drawings\Plan Set\Sanitary Profiles Final.dwg Updated By: jsveterd

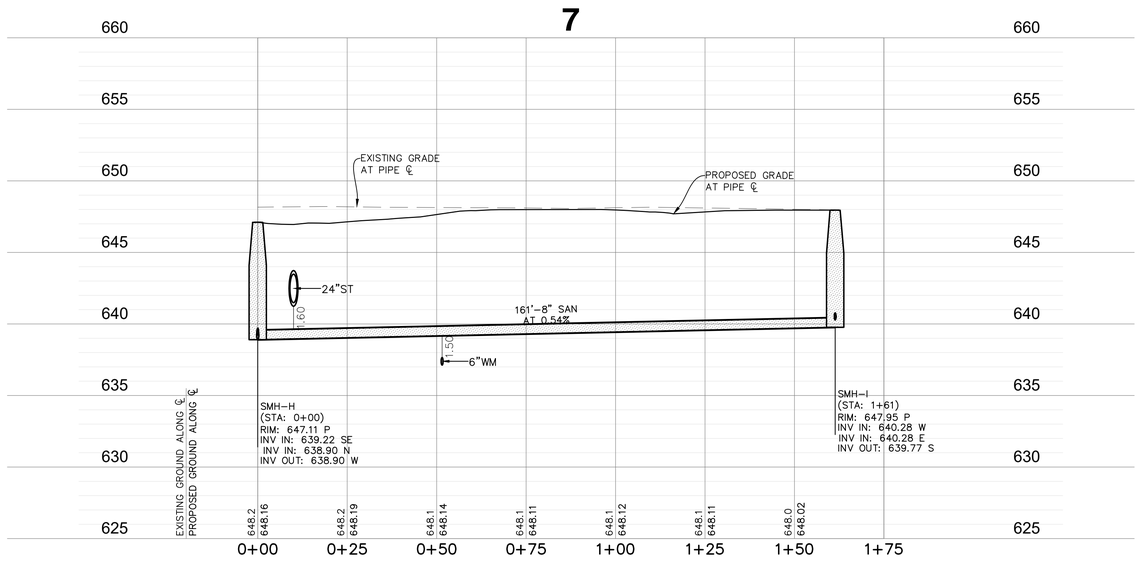
MATCHLINE SEE SHEET 33





KEY MAP

7



Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p/847.634.5500 f/847.634.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY	REVISIONS	DATE

SEASONS AT CREST HILL

CITY OF CREST HILL

SANITARY PROFILES 7

PROJ. MGR.:	JSE
PROJ. ASSOC.:	MSL
DRAWN BY:	GAW
DATE:	01-14-26
SCALE:	H:1"=20' V:1"=5'

SHEET

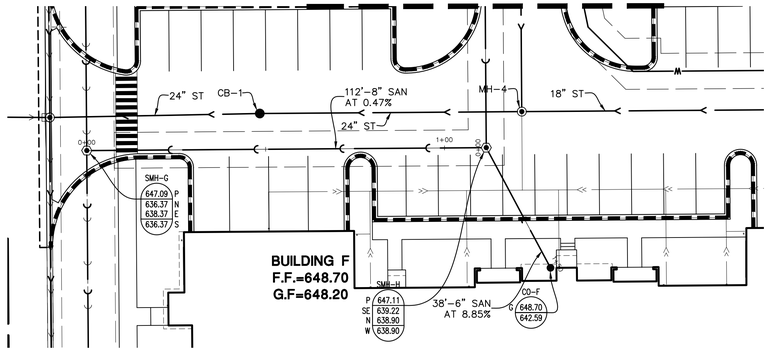
32 OF 44

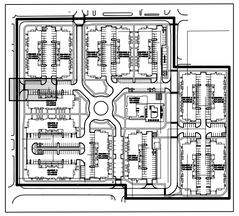
FRD.CRIL01

©2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

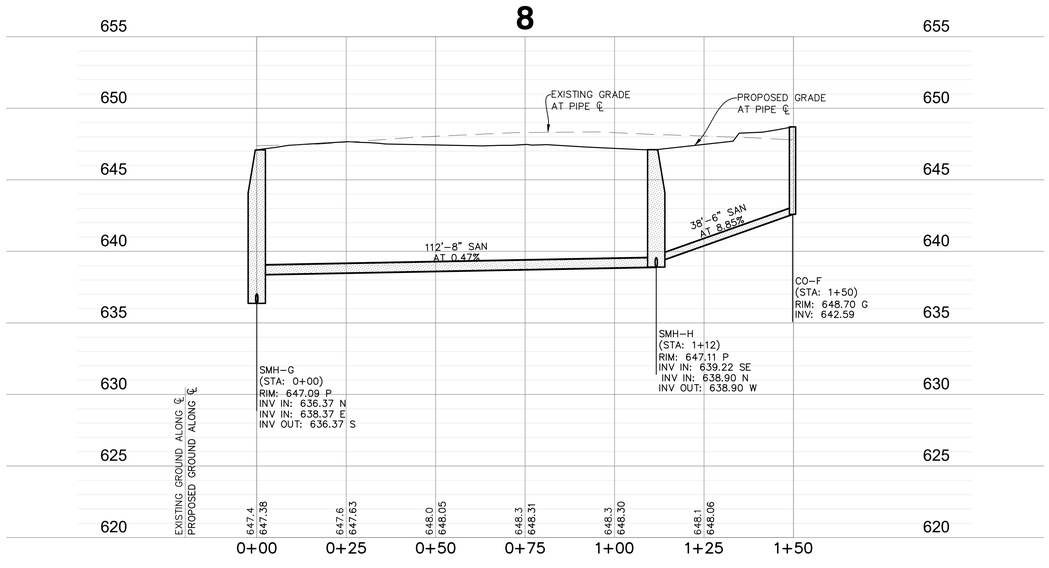
January 14, 2026 - 12:13 Dwg Name: P:\Frdcrl01\Men\Final Drawings\Plan Set\Sanitary Profiles Eost.dwg Updated By: jlyeford

MATCHLINE SEE SHEET 32





KEY MAP



Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p/847.634.5500 f/847.634.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY | REVISIONS | DATE

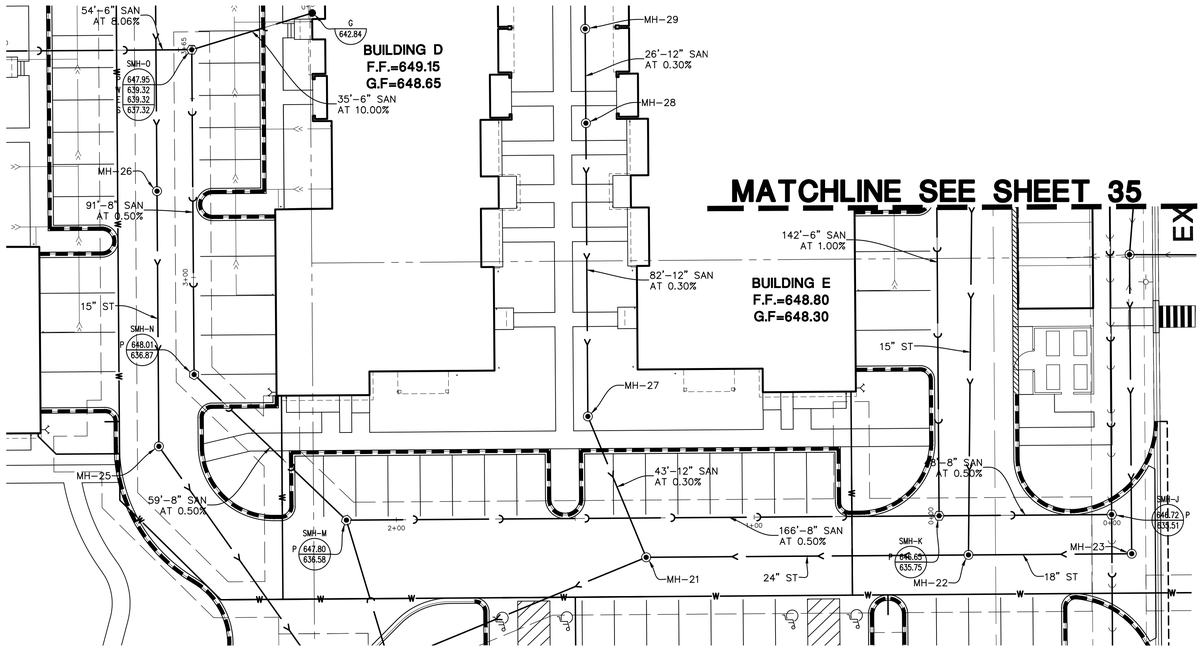
SEASONS AT CREST HILL
CITY OF CREST HILL
SANITARY PROFILES 8

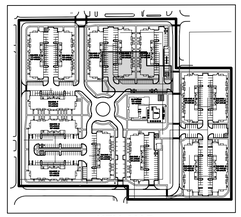
PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: GAW
DATE: 01-14-26
SCALE: H:1"=20' V:1"=5'

SHEET
33 OF 44
FRD.CRIL01

©2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

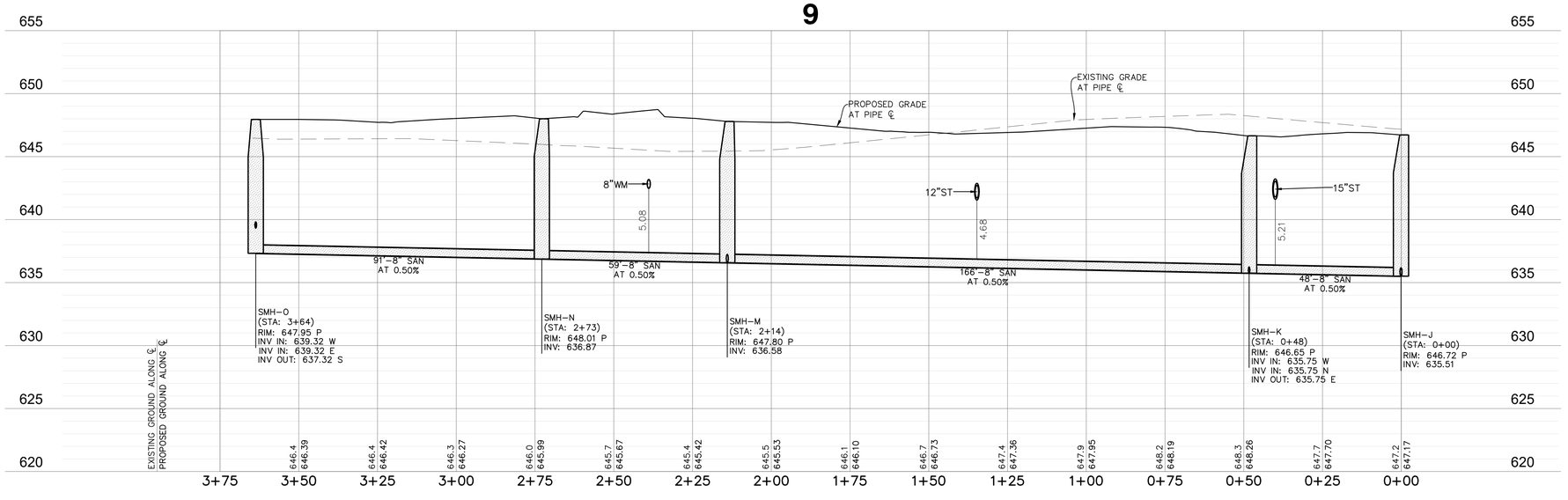
January 14, 2026 - 12:13 Dwg Name: P:\Projects\Kes\Final Drawings\Plan Set\Sanitary Profiles Eost.dwg Updated By: jlyeford





KEY MAP

9



Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p847.634.5500 f847.634.0066 manhard.com
Civil Engineers • Water Resource Engineers • Water & Wastewater Engineers • Surveyors
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY
REVISIONS
DATE

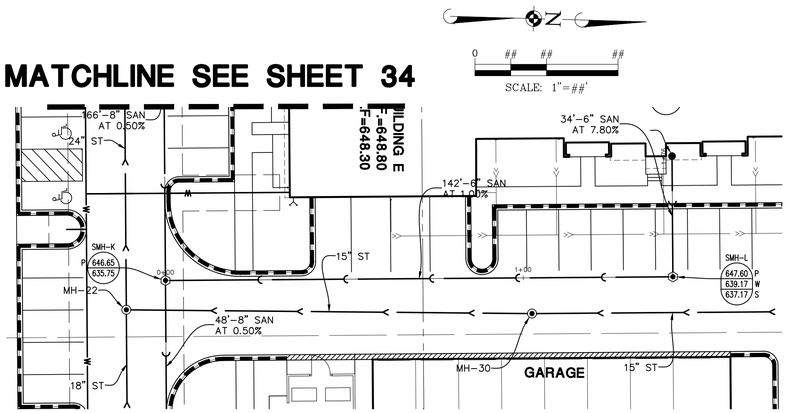
SEASONS AT CREST HILL
CITY OF CREST HILL
SANITARY PROFILES 9

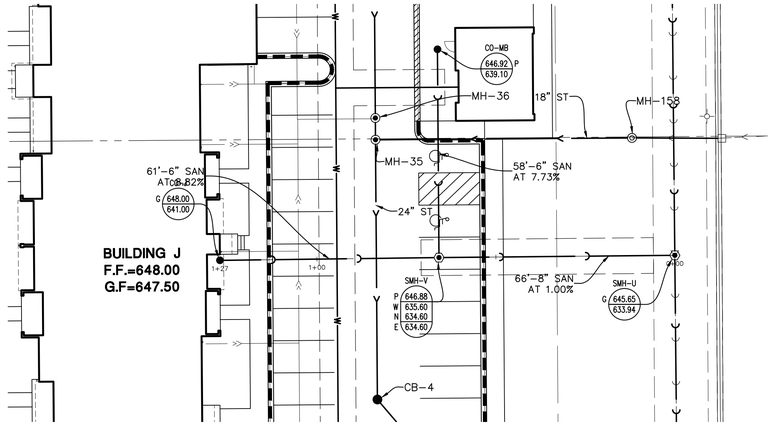
PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: GAW
DATE: 01-14-26
SCALE: H:1"=20' V:1"=5'

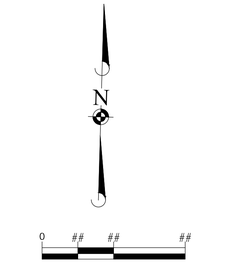
SHEET
34 OF 44
FRD.CRIL01

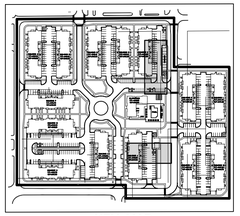
© 2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

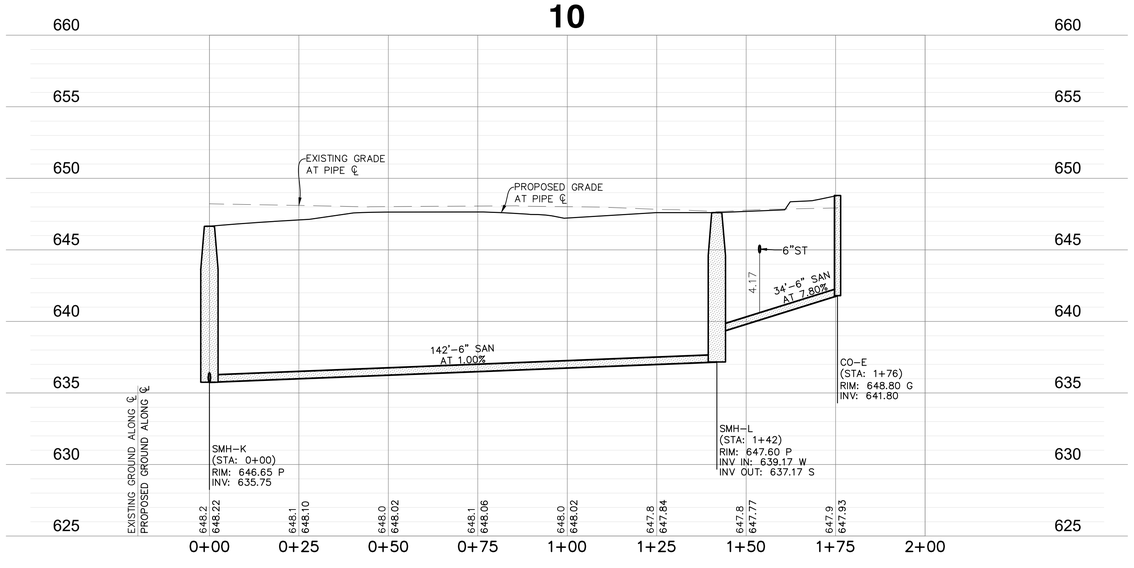
January 14, 2026 - 17:13 Dwg Name: P:\Fnd\01\Civil\Final Drawings\Plan Set\Sanitary Profiles Ext1.dwg Updated By: gwentzel

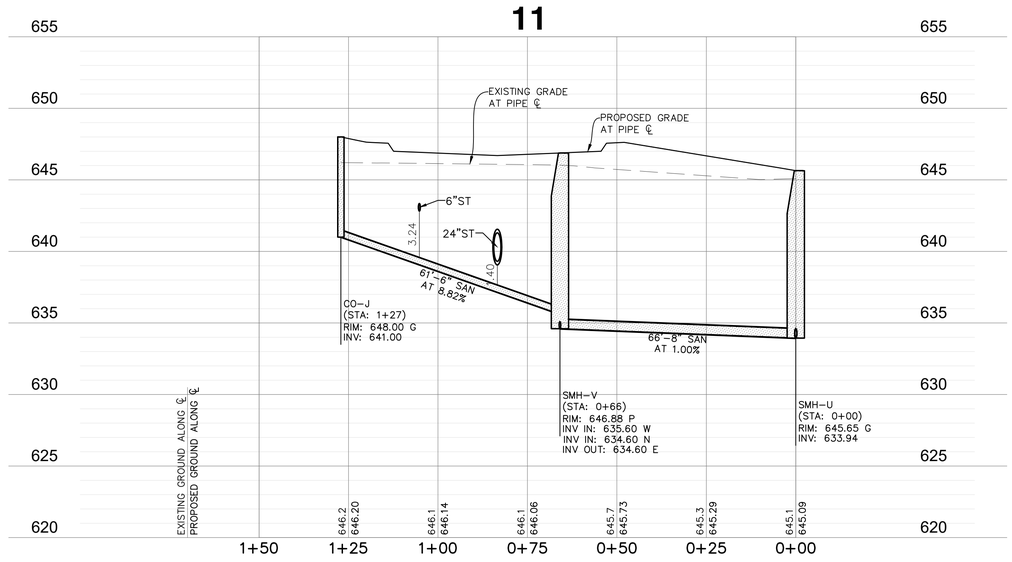












Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.634.5500 f:847.634.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY | REVISIONS | DATE

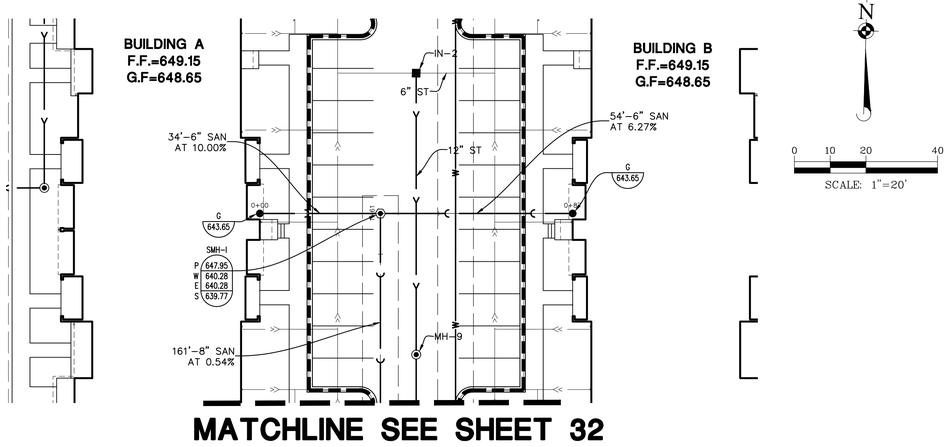
SEASONS AT CREST HILL
CITY OF CREST HILL
SANITARY PROFILES 10&11

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: GAW
DATE: 01-14-26
SCALE: H:1"=20' V:1"=5'

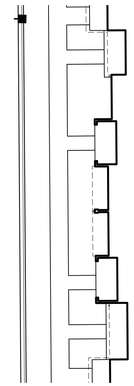
SHEET
35 OF 44
FRD.CRIL01

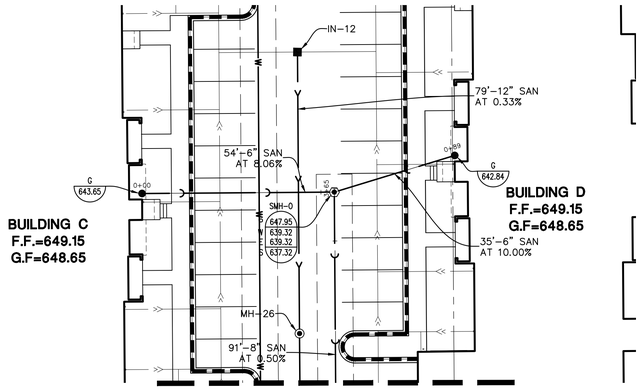
©2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 14, 2026 - 12:13 Dwg Name: P:\Frdcrl01\Men\Final Drawings\Plan Set\Sanitary Profiles, Final.dwg Updated By: jlyeland

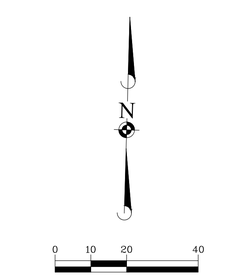


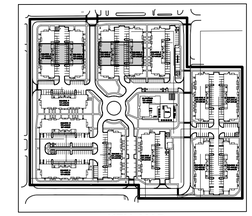
MATCHLINE SEE SHEET 32



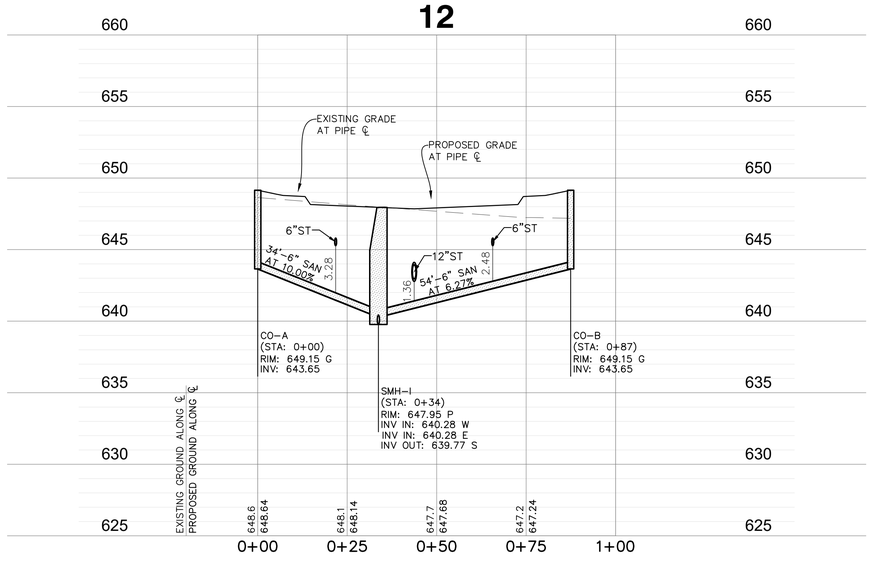


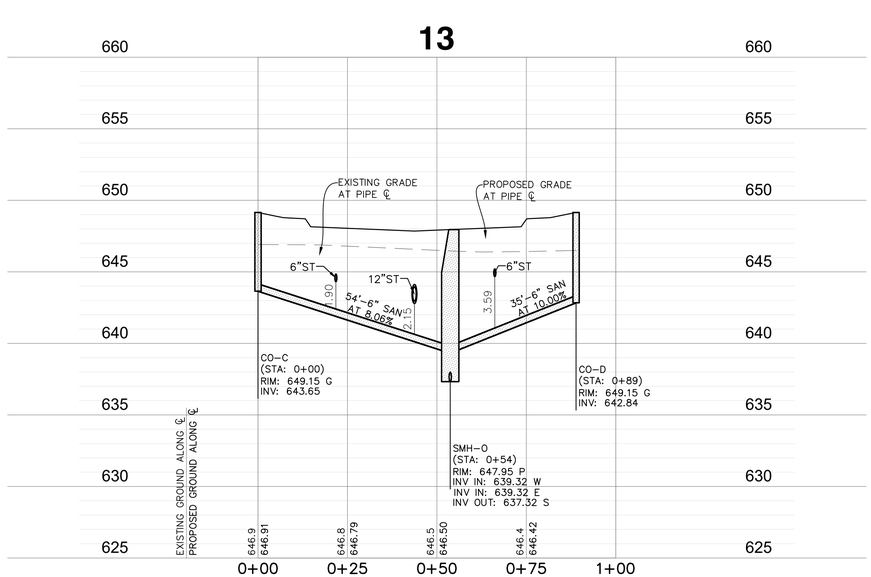
MATCHLINE SEE SHEET 34





KEY MAP





Manhard CONSULTING

One Overlook Point, Suite 250, Lincolnshire, IL 60069
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners
p:847.634.0066 f:847.634.0067 manhard.com

DRAWN BY | REVISIONS | DATE

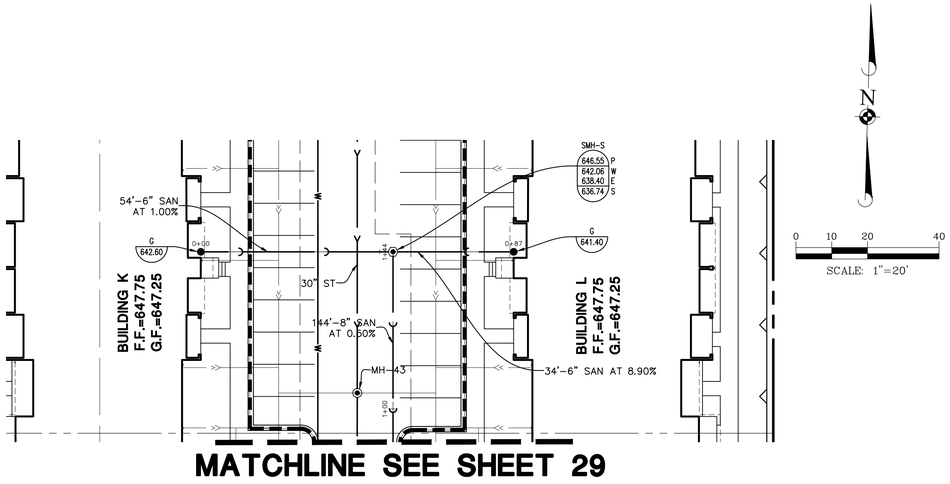
SEASONS AT CREST HILL
CITY OF CREST HILL
SANITARY PROFILES 12&13

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: GAW
DATE: 01-14-26
SCALE: H:1"=20' V:1"=5'

SHEET
36 OF 44
FRD.CRIL01

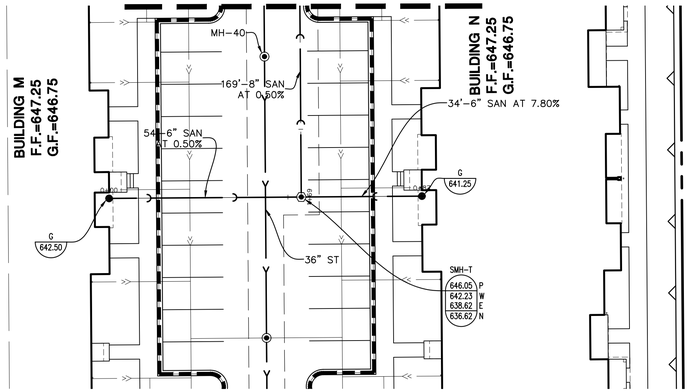
©2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

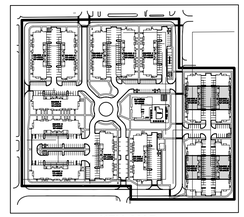
January 14, 2026 - 12:13 Dwg Name: P:\Projects\Data\Final\Final Drawings\Plan Set\Sanitary Profiles East.dwg Updated By: jeverard



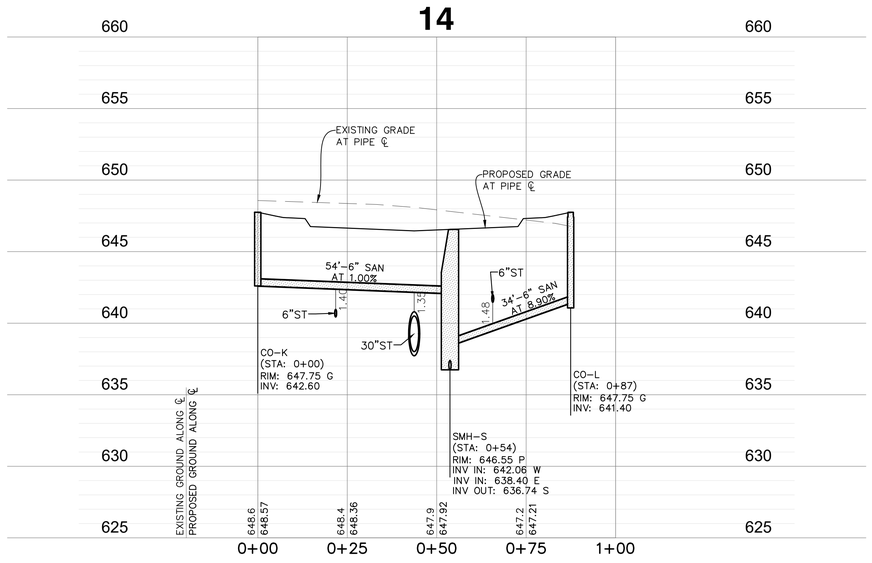
MATCHLINE SEE SHEET 29

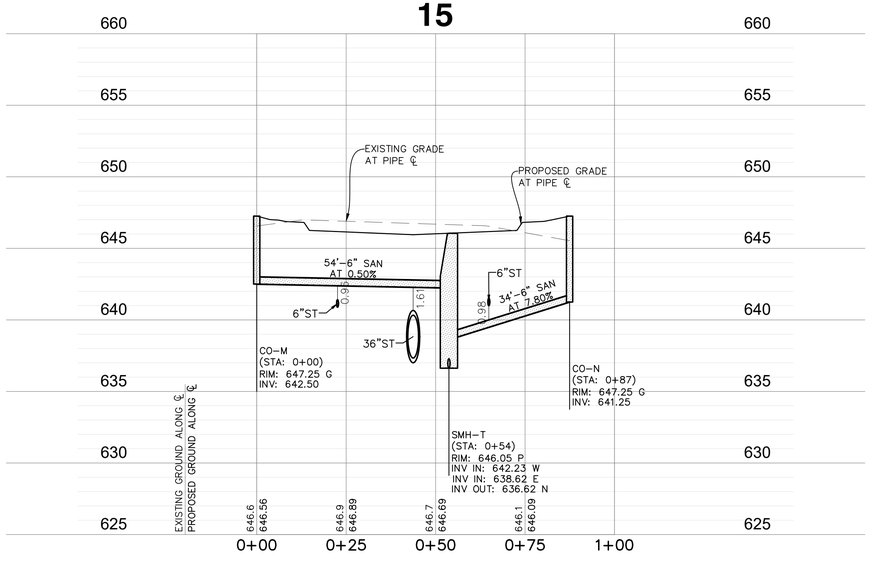
MATCHLINE SEE SHEET 29





KEY MAP





DRAWN BY

REVISIONS

DATE

Manhard CONSULTING

One Overlook Point, Suite 250, Lincolnshire, IL 60069 p847.894.5500 f847.894.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers • Structural Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL

CITY OF CREST HILL

SANITARY PROFILES 14&15

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: GAW
DATE: 01-14-26
SCALE: H:1"=20' V:1"=5'

SHEET

37 OF 44

FRD.CRIL01

©2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 14, 2026 - 12:13 Dwg Name: P:\Projects\Data\Final Drawings\Plan Set\Sanitary Profiles, Exist.dwg Updated By: jsveterd

Miscellaneous Water Standards/Notes

1. Water mains shall be a minimum of 8" in diameter, shall include installation of shutoff valves and fire hydrants, and shall be free from dead-end mains, unless authorized by the City.
2. For any water service line repairs, the homeowner is responsible from the lil-box to the house. The City will make repairs from the lil-box to the trunk line.
3. Water mains and fittings shall be ductile cast iron, cement lined, with push on joints class 52 conforming to latest ANSI/ AWWA C151/ A21.51-96, C111, and C104.
4. Fire hydrant leads shall be 6" diameter.
5. All ductile iron water main shall include installation of polyethylene encasement conforming to ANSI/ AWWA C105/ A21.5 and ASTM A674 standards.
6. A building permit is required for all water main/service installations.
7. Any dwelling with a private well providing drinking water that converts to City water must remove any and all well piping that connects to the building drinking water supply. The well may be kept active for purposes of outside irrigation, only if the well meets current Illinois Department of Health guidelines, all well piping is removed from the building, and after inspection and with written permission of the Public Works Department.

Water Main Testing Specifications

Pressure and Leakage Test

1. Testing Procedures
   a. All pressure leakage testing shall be tested against installed pipe, fittings, valves, joints, and fire hydrants up to nozzles.
2. Valve Operations
   a. City of Crest Hill Water Division personnel are the only individuals authorized to operate any water valves for pressurizing or flushing the system.
3. Taps for Testing
   a. Contractor/developer is required to provide a minimum one (1)-inch service taps or size required for adequate flushing in manholes for test gauges, flushing needs, and for disinfection at each end of the pipe test section.
   b. Service tap shall be a direct tap.
   c. Contractor shall schedule an appointment with the City of Crest Hill Water Division for the witnessing/inspection of all taps. A 24-hour notice is required.
   d. Contractor shall remove copper tube with stop assembly from manholes upon completion of testing and chlorination procedures. Corporation stop must be removed and replaced with a stainless steel full circle repair clamp.
4. Air Removal
   a. Before applying the specified test pressure, air shall be expelled completely from the section of piping under test. Air removal will be done in conjunction with the flushing procedures of the water main (see Flushing Requirements.)
5. Allowable Leakage
   a. Testing allowance shall be defined as the maximum quantity of makeup water that is added into a pipeline undergoing the pressure pressure testing, or any valves section thereof, in order to maintain pressure within ±5 psi of the specified test pressure. After the pipeline has been filled with water and the air has been expelled*, No pipeline installation will be accepted if the quantity of makeup water is greater than determined by the following formula:
   b. All visible leaks are to be repaired regardless of the amount of leakage.
   c. Dye or any other form of colorizing the water will not be introduced into the water main for the purpose of locating leaks.

In inch-pound units,

$$L = \frac{SD\sqrt{P}}{148{,}000}$$

Where:

L= testing allowance (makeup water), in gallons per hour
S= length of pipe tested, in feet
D= nominal diameter of the pipe, in inches
P= average test pressure during the hydrostatic test, in pounds per square in (gauge)

These formulas are based on a testing allowance of 10.45 gal/d/in. of nominal diameter of a pressure of 110 psi. Values of testing allowance at various pressures are shown in the table below. When testing against closed metal-seated valves, an additional testing allowance per closed value of 0.0078 gal/hr/in. of nominal value size shall be allowed. When hydrants are in the test section, the test shall be made against the main valve in the hydrant.

ALLOWABLE LEAKAGE PER 1,000 FT OF PIPELINE

Avg Test Pressure (psi)	Allowance per Diameter (in)														
	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"	48"	54"
250	0.96	1.43	1.91	2.39	2.87	3.34	3.82	4.30	4.78	5.74	7.17	8.61	10.04	11.48	12.91
225	0.91	1.36	1.81	2.27	2.72	3.17	3.63	4.08	4.53	5.44	6.80	8.16	9.52	10.88	12.24
200	0.86	1.29	1.72	2.15	2.58	3.01	3.44	3.87	4.30	5.16	6.45	7.74	9.03	10.32	11.61
175	0.80	1.20	1.60	2.00	2.40	2.80	3.20	3.60	4.00	4.81	6.01	7.21	8.41	9.61	10.81
150	0.74	1.11	1.48	1.85	2.22	2.59	2.96	3.33	3.70	4.44	5.55	6.66	7.77	8.88	9.99
125	0.68	1.01	1.35	1.69	2.03	2.36	2.70	3.04	3.38	4.05	5.07	6.08	7.10	8.11	9.13
100	0.61	0.91	1.21	1.52	1.82	2.12	2.43	2.73	3.03	3.64	4.54	5.45	6.36	7.27	8.18
75	0.53	0.80	1.06	1.33	1.59	1.86	2.12	2.39	2.65	3.18	3.98	4.77	5.57	6.36	7.16
50	0.44	0.65	0.87	1.09	1.31	1.52	1.74	1.96	2.18	2.61	3.26	3.92	4.57	5.22	5.87
25	0.31	0.46	0.62	0.77	0.92	1.08	1.23	1.38	1.54	1.85	2.31	2.77	3.23	3.69	4.16

Testing allowance (makeup water) is the measured quantity of water that must be added into the section being tested to maintain the specified test pressure after the air has been expelled. (Reference: AWWA Standard C600-05)

6. Acceptance of Installation
   a. Acceptance shall be determined as the basis of allowable leakage or the presence of visible leakage by the City of Crest Hill Public Works Department. If any test of and pipe discloses leakage greater than the specified, repairs or replacements shall be accomplished in accordance with the Specifications.

Disinfection of Water Mains

1. Flushing Water Main
   a. Sections of pipe to be disinfected shall first be flushed to remove any solids or contaminated material that may have become lodged in the pipe. Fire hydrants in these sections will be flushed using either the two and a half (2 ½)-inches nozzle or the pumper nozzle to develop a velocity of at least 2.5 feet Tries in the main.
   b. All fire hydrants will be flushed and operated in the section of water main to be tested and disinfected.
   c. City of Crest Hill Water Division personnel are the only individuals authorized to operate any water valves.
   d. All valves that are closed will have a tap with copper tube and ship assembly installed in the vault for the purpose of flushing, and disinfecting the water main to the furthest and point of each sections being tested.
2. Requirement of Chlorine

   Before being placed into service, all new mains and repaired portion of, or extensions to existing mains shall be chlorinated so that the initial chlorine residual is not less than 50 mg/l and that a chlorine residual of not less than 25 mg/l remains in the water after standing 24 hours in the pipe. Mains must be flushed of chlorinated water within 24 hours of disinfection.

   Continuous flushing method using sodium hypershlorite Atone 15@ 12%/12.5 must be used.
3. Point of Application

   The preferred point of application of the chlorinating agent is at the beginning of the pipeline extension or any valved section of it, and through a corporation stop inserted in the pipe.
   a. The contractor will install corporation cocks with a copper tube gooseneck assembly for the purpose of disinfecting and as sample collection point at 1320' intervals, and at each change in direction that has a closed valve. Fire hydrants will be disinfected as part of this procedure.
   b. At a point not to exceed two (2)-feet downstream from the beginning of the new main the water entering the new main will receive a dose of chlorine fed at a constant rate such that the water main will have not less than 25 mg/l free chlorine.
   c. Water from the existing distribution system shall be made to flow at a constant rate into the new main.
   d. The City of Crest Hill Water Division personnel must witness the disinfection process. An appointment with 24-hour prior notice must be scheduled with City of Crest Hill Water Division.
   e. In the process of chlorinating newly laid pipe, all valves, fire hydrants, or other appurtenances shall be operated while the pipe line is filled with the chlorinating agent and under normal operating pressures.

Disinfection of Water Services (Larger Than Two (2)-Inches)

For the purpose of clarifying this section, water service in this section refers to one (1) or more of the following installations that terminate inside of a building under construction.

- The service line being installed is for the purpose of a combination domestic and fire protection use.
- The service line being installed is for the purpose of branching into multiple domestic services inside of a meter room.
- The service line is the section of main being tested from the City of Crest Hill right-of-way valve to a location inside of the building.
- There are no fire hydrants installed on the service line.

1. Meter Rooms/Building Installations
   a. The service line will be disinfected to the inside valve of the meter room prior to any branch service being connected.
   b. The meter room will have a permanent heating system installed and in working condition prior to the disinfection.
   c. One (1) sample point will be provided at the source and one (1) sample point will be provided at the inside valve provided the length of pipe does not exceed 1,000-feet.
   d. The contractor will supply a copper tube gooseneck assembly at each of the sample points and provide methods to divert the flushing water.
   e. The City of Crest Hill in Water Division personnel must witness the disinfection process. An appointment with 24 hours prior notice must be scheduled with City of Crest Hill Water Division.
2. Domestic/Fire Service Mains/Meter Room
   a. The service line will be disinfected up to the inside valve on both the fire branch and the domestic branch.
   b. The Fire Service Main Branch will have a valve of equal size to the riser section installed prior to chlorination.
   c. The building, meter room, or location of the incoming service line will have a permanent heating system installed and in working condition prior to the disinfection.
   d. One (1) sample point will be provided at the source and one (1) sample point will be provided at the inside valve provided the length of pipe does not exceed 1,000-feet and provide a method to divert the flushing water.
   e. The contractor will supply a copper tube goose neck assembly at each of the sample points.
   f. The City of Crest Hill Water Division personnel must witness the disinfection process. An appointment with 24 hours prior notice must be scheduled with City of Crest Hill Water Division.

De-chlorination Requirements

Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipe using the first hydrant(s) and/or all the copper gooseneck assemblies. The flushing shall replace the highly chlorinated water with water that has a chlorine residual of less than 1mg/l or equal to the residual from the supply service.

- The discharging of chlorinated water must be expelled to the surrounding ground surface.
- The contractor/developer must comply with all of the I.E.P.A. Rules, Regulations, and Standards for de-chlorinating water as part of the discharging.
- The contractor/developer is responsible for the equipment and materials to de-chlorinate the water at each point it is discharging.
- The City of Crest Hill Water Division personnel are the only individuals authorized to operate the valves.
- The City of Crest Hill Water Division personnel must witness the de-chlorination procedures when flushing the water mains. An appointment with 24-hour prior notice must be scheduled with City of Crest Hill Water Division.

Sampling and Testing

Sample collection for bacterial testing will start immediately after flushing the disinfection water from the system and prior to any portion of the water main being placed into service. Samples will be collected at all sample points designated by the City of Crest Hill Water Superintendent. Sampling procedures must follow the I.E.P.A. Standards for construction of new water mains.

1. Locations and Spacing
   a. Samples will be collected from the service, along the water main, as required, and at the end of the line.
   b. Samples will be collected from fire hydrants at points not to exceed 1,000-feet of linear water main, or as directed by the City of Crest Hill.
   c. A sample will be collected from the copper goose-neck assembly point that is located no further than five (5)-feet downstream from the beginning of the new water main.
2. Collection Requirements
   a. The contractor is required to collect all samples at the location(s) designated by the City of Crest Hill Water Superintendent.
   b. City of Crest Hill Water Division personnel are the only individuals authorized to operate any water valves and must witness all samples at time of collection. 24-hour prior notice must be scheduled with the City of Crest Hill Water Division.
   c. A chain of custody form will be used to identify sample location, chloride residual, time of collection, etc. All collection samples will be sealed with a tamper proof label.
   d. The contractor is required to take the collected samples to a certified laboratory approved by the City of Crest Hill Water Superintendent.
   e. The City of Crest Hill Water Division has the right to collect quality control samples at the same time contractor collects samples. The charges for the quality control samples will be charged to the contractor.
   f. Samples must be collected on two consecutive days with at least 24-hours of separation between the collection times.
   g. Each sample collected will be tested for quality and must show the absence of coliform organisms.
3. Satisfactory Sample Results

   If all the samples tested meet the Bacteriological Quality Standards and are certified as satisfactory by the testing lab:
   a. The contractor may have the lab email the results directly to the City of Crest Hill Water Division;
   b. The contractor must provide original copies of the certified results to the City of Crest Hill Water Superintendent within seven (7) business days of the date on the test results; and
   c. The contractor must contact the City of Crest Hill Water Division to schedule an appointment to have the water main placed into service within 72 hours of the satisfactory test results being certified and only as approved by the Water Superintendent. All original chain of custody forms must be returned before activation.
4. Unsatisfactory Sample Results

   If any one of the samples tested fails to meet the Bacteriological Quality Standards and is deemed unsatisfactory, then all the samples collected on the same date for the tested section of pipe, will be considered unsatisfactory.
   d. Unsatisfactory samples from the first day of collection will be discarded. A new first day collection must be collected with a new second day to be collected consecutively.
   e. Unsatisfactory samples from the second day of collection will be discarded. First day samples will also be discarded and the contractor must schedule new first and second day samples.

   The contractor will have up to three (3) chances of first day and two (2) chances of second day bacterial testing to obtain satisfactory results on all the samples collected and tested.
   f. Should the contractor fail to obtain satisfactory results after the allotted attempts, the watermain section being tested is to have the original disinfection procedures repeated until satisfactory results are obtained.

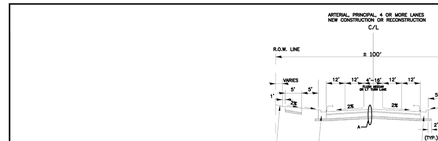
Flow Test

After completion of all water mains and installation of all fire hydrants within a subdivision, a flow test shall be performed at the point in the subdivisions farthest away from the existing City water main. The flow test shall provide information regarding static pressure, residual pressure and flow rate, and the information shall be supplied to the City.

CLIENT: City of Crest Hill, Illinois	CITY OF CREST HILL 1610 PLAINFIELD ROAD CREST HILL, IL 60403	NO.	DATE	NATURE OF REVISION	DSGN.		
					DWN.		
					CHKD.		
					SCALE:		
					PLOT DATE:	11/10/2021	
					CAD USER:	Jspeakman	
					CHKD. MODEL:	DefPlotT	
		FILE NAME:	N:\CREST\ILL\2022\F\Civil\Ref\Admin\dtls.dgn				

TITLE: **CITY OF CREST HILL GENERAL NOTES**

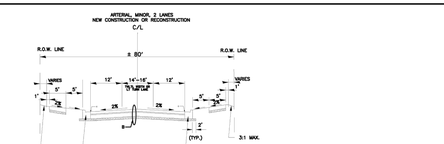
PROJ. NO.
DATE: 11/10/2021
SHEET 3 OF 38
DRAWING NO. **NOT-2**



A 3" HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N70
2" HOT-MIX ASPHALT BINDER COURSE, IL-19, N70
7" HOT-MIX ASPHALT BASE COURSE
12" AGGREGATE SUBBASE GRANULAR MATERIAL, TYPE B

NOTES:
1. A GEOTECHNICAL REPORT PREPARED BY DEVELOPER'S ENGINEER SHALL BE PREPARED ACCORDING TO IDOT GUIDELINES AND ANY SUBGRADE TREATMENT SHALL BE ACCORDING TO IDOT STANDARD SPECIFICATIONS.
2. HORIZONTAL AND VERTICAL CURVES SHALL BE PER IDOT DESIGN CRITERIA.
3. IN SPECIAL SITUATIONS CONCRETE PAVEMENTS WILL BE REQUIRED OR ALOWED BY THE CITY, IF APPROVED BY THE CITY, CONCRETE PAVEMENT DESIGN WILL BE ACCORDING TO THE CURRENT IDOT DESIGN MANUAL.
4. FOR ANY PROPOSED RAISED MEDIANS IDOT'S DESIGN CRITERIA FOR ARTERIAL, FOUR OR MORE LANES SHALL BE FOLLOWED.
5. MINIMUM PAVEMENT THICKNESS ALLOWED IS 12".
6. ALL CURB AND SIDEWALKS SHALL BE CONSTRUCTED WITH IDOT CLASS "D" CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI AT 14 DAYS. PAVEMENTS SHALL BE FINISHED WITH A MINIMUM OF SIX INCHES OF TOPSOIL.
7.

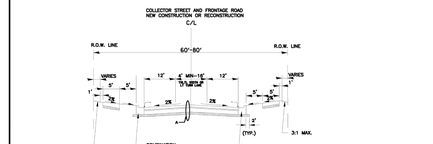
TYPICAL PAVEMENT SECTION (PRINCIPAL ARTERIAL)



A 3" HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N70
2" HOT-MIX ASPHALT BINDER COURSE, IL-19, N70
12" AGGREGATE SUBBASE GRANULAR MATERIAL, TYPE B

NOTES:
1. A GEOTECHNICAL REPORT PREPARED BY DEVELOPER'S ENGINEER SHALL BE PREPARED ACCORDING TO IDOT GUIDELINES AND ANY SUBGRADE TREATMENT SHALL BE ACCORDING TO IDOT STANDARD SPECIFICATIONS.
2. HORIZONTAL AND VERTICAL CURVES SHALL BE PER IDOT DESIGN CRITERIA.
3. IN SPECIAL SITUATIONS CONCRETE PAVEMENTS WILL BE REQUIRED OR ALOWED BY THE CITY, IF APPROVED BY THE CITY, CONCRETE PAVEMENT DESIGN WILL BE ACCORDING TO THE CURRENT IDOT DESIGN MANUAL.
4. FOR ANY PROPOSED RAISED MEDIANS IDOT'S DESIGN CRITERIA FOR ARTERIAL, FOUR OR MORE LANES SHALL BE FOLLOWED.
5. MINIMUM PAVEMENT THICKNESS ALLOWED IS 12".
6. ALL CURB AND SIDEWALKS SHALL BE CONSTRUCTED WITH IDOT CLASS "D" CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI AT 14 DAYS. PAVEMENTS SHALL BE FINISHED WITH A MINIMUM OF SIX INCHES OF TOPSOIL.
7.

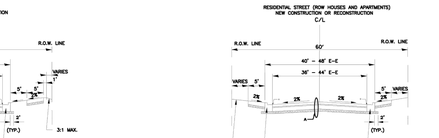
TYPICAL PAVEMENT SECTION (MINOR ARTERIAL)



A 3" HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N70
5" HOT-MIX ASPHALT BINDER COURSE, IL-19, N70
8" HOT-MIX ASPHALT BASE COURSE
12" AGGREGATE SUBBASE GRANULAR MATERIAL, TYPE B

NOTES:
1. A GEOTECHNICAL REPORT PREPARED BY DEVELOPER'S ENGINEER SHALL BE PREPARED ACCORDING TO IDOT GUIDELINES AND ANY SUBGRADE TREATMENT SHALL BE ACCORDING TO IDOT STANDARD SPECIFICATIONS.
2. HORIZONTAL AND VERTICAL CURVES SHALL BE PER IDOT DESIGN CRITERIA.
3. IN SPECIAL SITUATIONS CONCRETE PAVEMENTS WILL BE REQUIRED OR ALOWED BY THE CITY, IF APPROVED BY THE CITY, CONCRETE PAVEMENT DESIGN WILL BE ACCORDING TO THE CURRENT IDOT DESIGN MANUAL.
4. FOR ANY PROPOSED RAISED MEDIANS IDOT'S DESIGN CRITERIA FOR ARTERIAL, FOUR OR MORE LANES SHALL BE FOLLOWED.
5. MINIMUM PAVEMENT THICKNESS ALLOWED IS 12".
6. ALL CURB AND SIDEWALKS SHALL BE CONSTRUCTED WITH IDOT CLASS "D" CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI AT 14 DAYS. PAVEMENTS SHALL BE FINISHED WITH A MINIMUM OF SIX INCHES OF TOPSOIL.
7.

TYPICAL PAVEMENT SECTION (COLLECTOR)



A 3" HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N70
5" HOT-MIX ASPHALT BINDER COURSE, IL-19, N70
8" AGGREGATE SUBBASE GRANULAR MATERIAL, TYPE B

NOTES:
1. A GEOTECHNICAL REPORT PREPARED BY DEVELOPER'S ENGINEER SHALL BE PREPARED ACCORDING TO IDOT GUIDELINES AND ANY SUBGRADE TREATMENT SHALL BE ACCORDING TO IDOT STANDARD SPECIFICATIONS.
2. HORIZONTAL AND VERTICAL CURVES SHALL BE PER IDOT DESIGN CRITERIA.
3. IN SPECIAL SITUATIONS CONCRETE PAVEMENTS WILL BE REQUIRED OR ALOWED BY THE CITY, IF APPROVED BY THE CITY, CONCRETE PAVEMENT DESIGN WILL BE ACCORDING TO THE CURRENT IDOT DESIGN MANUAL.
4. FOR ANY PROPOSED RAISED MEDIANS IDOT'S DESIGN CRITERIA FOR ARTERIAL, FOUR OR MORE LANES SHALL BE FOLLOWED.
5. MINIMUM PAVEMENT THICKNESS ALLOWED IS 12".
6. ALL CURB AND SIDEWALKS SHALL BE CONSTRUCTED WITH IDOT CLASS "D" CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI AT 14 DAYS. PAVEMENTS SHALL BE FINISHED WITH A MINIMUM OF SIX INCHES OF TOPSOIL.
7.

TYPICAL PAVEMENT SECTION (RESIDENTIAL)

A 3" HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N70
5" HOT-MIX ASPHALT BINDER COURSE, IL-19, N70
8" AGGREGATE SUBBASE GRANULAR MATERIAL, TYPE B

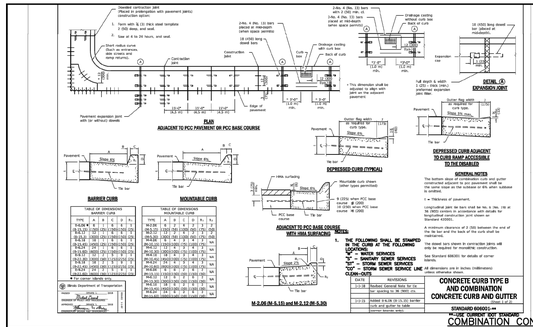
NOTES:
1. A GEOTECHNICAL REPORT PREPARED BY DEVELOPER'S ENGINEER SHALL BE PREPARED ACCORDING TO IDOT GUIDELINES AND ANY SUBGRADE TREATMENT SHALL BE ACCORDING TO IDOT STANDARD SPECIFICATIONS.
2. HORIZONTAL AND VERTICAL CURVES SHALL BE PER IDOT DESIGN CRITERIA.
3. IN SPECIAL SITUATIONS NOT COVERED IN THESE TYPICAL SECTIONS SHALL BE APPROVED BY THE CITY AND DESIGNED PER THE CURRENT IDOT DESIGN MANUAL IF APPROVED.
4. ALL CURB AND SIDEWALKS SHALL BE CONSTRUCTED WITH IDOT CLASS "D" CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI AT 14 DAYS. PAVEMENTS SHALL BE FINISHED WITH A MINIMUM OF SIX INCHES OF TOPSOIL.
5.

TYPICAL PAVEMENT SECTION (RESIDENTIAL, BUILDING ON R.O.W.)

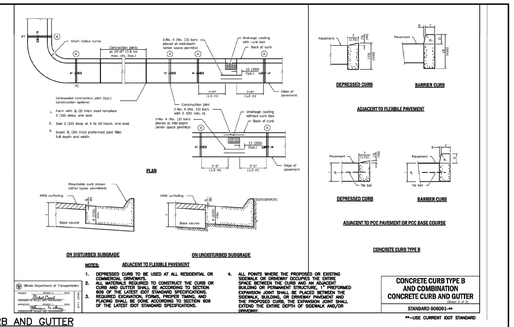
CLIENT: City of Crest Hill, Illinois	CITY OF CREST HILL 1610 PLAINFIELD ROAD CREST HILL, IL 60403	NO.	DATE	NATURE OF REVISION	DSGN.		
					DWN.		
					CHKD.		
					SCALE:		
					PLOT DATE:	11/10/2021	
					CAD USER:	Jspeakman	
					CHKD. MODEL:	DefPlotT	
		FILE NAME:	N:\CREST\ILL\2022\F\Civil\Ref\Admin\dtls.dgn				

TITLE: **CITY OF CREST HILL PAVEMENT, CURB AND GUTTER, AND SIDEWALK STANDARD DETAILS**

PROJ. NO.
DATE: 11/10/2021
SHEET 4 OF 38
DRAWING NO. **PVT-1**

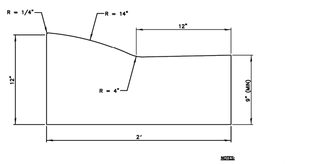


COMBINATION CONCRETE CURB AND GUTTER



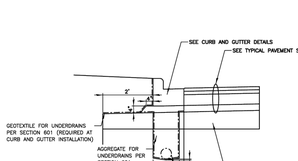
CONCRETE CURB TYPE B AND COMBINATION CONCRETE CURB AND GUTTER

STANDARD 606001
**-M-USE CURRENT IDOT STANDARD

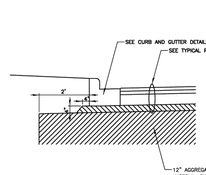


NOTES:
1. THE FOLLOWING SHALL BE STAMPED THE CURB AT THE FOLLOWING LOCATIONS:
"W" – WATER SERVICES
"S" – SANITARY SEWER SERVICES
"SD" – STORM SEWER SERVICES
"SDT" – STORM SEWER SERVICE LINE CLEAN-OUTS
2. TO BE USED ONLY IN AREAS WHERE CURB AND GUTTER IS NOT BEING USED. NOT TO BE USED IN NEW CONSTRUCTION.

COMBINATION CONCRETE CURB AND GUTTER (ROLLED CURB)



CONCRETE CURB AND GUTTER SECTION FOR HMA PAVEMENT WITH UNDERDRAIN FOR ALL MAJOR AND MINOR ARTERIALS

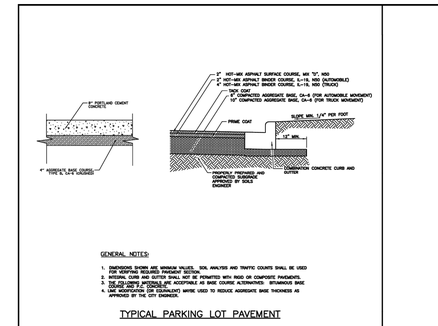


CONCRETE CURB AND GUTTER SECTION FOR HMA PAVEMENT WITHOUT UNDERDRAIN

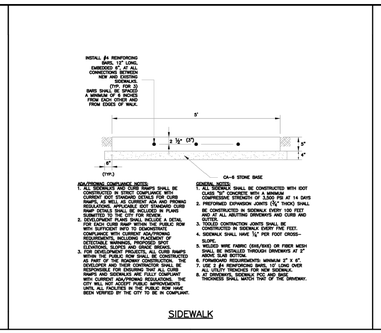
CLIENT: City of Crest Hill, Illinois	CITY OF CREST HILL 1610 PLAINFIELD ROAD CREST HILL, IL 60403	NO.	DATE	NATURE OF REVISION	DSGN.		
					DWN.		
					CHKD.		
					SCALE:		
					PLOT DATE:	11/10/2021	
					CAD USER:	Jspeakman	
					CHKD. MODEL:	DefPlotT	
		FILE NAME:	N:\CREST\ILL\2022\F\Civil\Ref\Admin\dtls.dgn				

TITLE: **CITY OF CREST HILL PAVEMENT, CURB AND GUTTER, AND SIDEWALK STANDARD DETAILS**

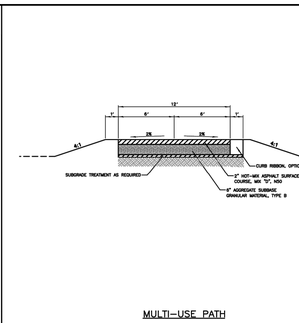
PROJ. NO.
DATE: 11/10/2021
SHEET 5 OF 38
DRAWING NO. **PVT-2**



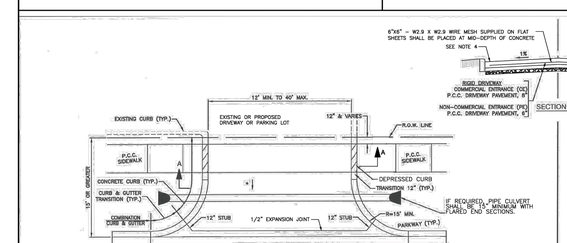
TYPICAL PARKING LOT PAVEMENT

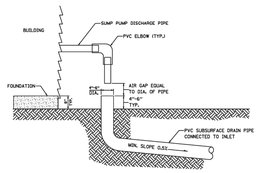


SIDEWALK



MULTI-USE PATH

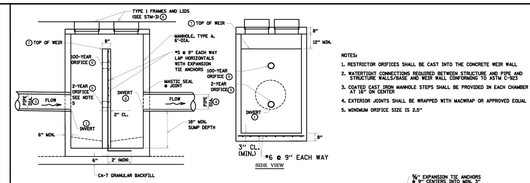

6"x6" - W2.9 X W2.9 WIRE MESH SUPPLIED ON FLAT SHEETS SHALL BE PLACED AT MID-DEPTH OF CONCRETE
SEE NOTE 4
1/2" PREFORMED EXPANSION JOINT FILLER (TYP.)
PCC SIDEWALK, 5"
15'
RIGID DRIVEWAY
COMMERCIAL ENTRANCE (CE)
P.C.C. DRIVEWAY PAVEMENT, 8"
NON-COMMERCIAL ENTRANCE (PE)
P.C.C. DRIVEWAY PAVEMENT, 6"
4" AGGREGATE BASE COURSE, TYPE B
SUB-GRADE COMPACTED TO 93% MODIFIED PROCTOR DENSITY
SECTION AA
EXISTING CURB (TYP.)
12' MIN. TO 40' MAX.
EXISTING OR PROPOSED DRIVEWAY OR PARKING LOT
12' & VARIES
R.O.W. LINE
P.C.C. SIDEWALK
CONCRETE CURB (TYP.)
CURB & GUTTER TRANSITION (TYP.)
DEPRESSED CURB TRANSITION 12' (TYP.)
12' OR GREATER



NOTES:

1. SUMP PUMP CONNECTIONS TO OUTLET AT GRADE OR FOR RESIDENTIAL DEVELOPMENTS WITH AN ON-SITE STORMWATER CONTROL FACILITY, THE SUMP PUMP MAY BE CONNECTED INTO THE STORM SEWER SYSTEM LOCATED OUTSIDE THE PUBLIC RIGHT-OF-WAY, AT A STRUCTURE.
2. SUMP PUMP DISCHARGE SHALL BE DIRECTED AWAY FROM ADJACENT PROPERTIES, AND OUTLET SHALL BE LOCATED A MINIMUM OF 10 FEET FROM PROPERTY LINES. INSTALLATION OF "POP-UPS" ARE NOT RECOMMENDED. THE CITY SHALL ASSUME NO RESPONSIBILITY FOR ANY ISSUES RESULTING FROM THEIR INSTALLATION.
3. INSTALLER/OWNER ASSUMES FULL RESPONSIBILITY AND LIABILITY FOR ANY AND ALL DAMAGE TO UTILITIES OR ADJOINING PROPERTIES.
4. INSTALLATION OF SUMP PUMP DISCHARGE LINES MUST BE INSPECTED BY THE CITY PUBLIC WORKS DEPARTMENT.

SUMP PUMP CONNECTION

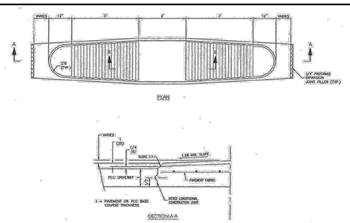


UPSTREAM INVERT ELEV	①	RS*1	RS*2	RS*3	RS*4
DOWNSTREAM INVERT ELEV	②				
UPSTREAM PIPE DIAMETER (IN)	③				
DOWNSTREAM PIPE DIAMETER (IN)	④				
2-YEAR ORIFICE SIZE (IN)	⑤				
2-YEAR ORIFICE ELEV					
100-YEAR ORIFICE SIZE (IN)	⑥				
100-YEAR ORIFICE ELEV					
TOP OF WEIR ELEV	⑦				
STRUCTURE RIM ELEV	⑧				

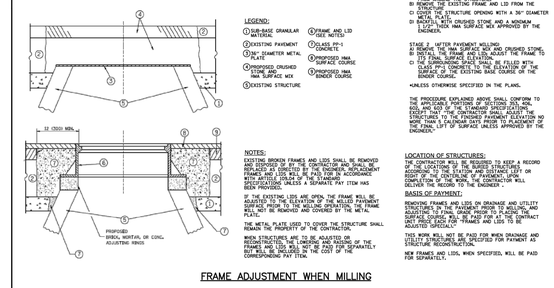
NOTES:

1. RESTRICTOR ORIFICES SHALL BE CAST INTO THE CONCRETE WEIR WALL
2. WATERTIGHT CONNECTIONS REQUIRED BETWEEN STRUCTURE AND PIPE AND STRUCTURE WALLS/BASE AND WEIR WALL CONFORMING TO ASTM C-923
3. COATED CAST IRON MANHOLE STEPS SHALL BE PROVIDED IN EACH CHAMBER AT 16" ON CENTER
4. EXTERIOR JOINTS SHALL BE WRAPPED WITH MACMRAP OR APPROVED EQUAL
5. WINDOWN ORIFICE SIZE IS 2.5"

DETENTION POND RESTRICTOR STRUCTURE



CORRUGATED PCC MEDIAN



NOTES:

EXISTING BROKEN FRAMES AND LIDS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AND SHALL BE REPLACED AS DIRECTED BY THE ENGINEER. REPLACEMENT FRAMES AND LIDS SHALL BE SET TO GRADE IN ACCORDANCE WITH ARTICLE 602.06 OF THE STANDARD SPECIFICATIONS UNLESS A SEPARATE PAY ITEM HAS BEEN PROVIDED.

IF THE EXISTING LIDS ARE OPEN, THE FRAME WILL BE ADJUSTED TO GRADE AND THE LID WILL BE REMOVED. THE SURFACE PATCH TO THE ADJOINING PAVEMENT. THE FRAME WILL NOT BE REMOVED AND COVERED BY THE METAL PLATE.

THE METAL PLATE USED TO COVER THE STRUCTURE SHALL REMAIN THE PROPERTY OF THE CONTRACTOR.

WHEN STRUCTURES ARE TO BE ADJUSTED OR RECONSTRUCTED, THE REMOVAL AND RESETTING OF THE FRAMES AND LIDS WILL NOT BE PAID FOR SEPARATELY BUT WILL BE INCLUDED IN THE COST OF THE CORRESPONDING PAY ITEM.

STAGE I (BEFORE PAVEMENT MILLING)
A) REMOVE A MINIMUM OF 12" OF THE PAVEMENT FROM AROUND THE STRUCTURE.
B) REMOVE THE EXISTING FRAME AND LID FROM THE STRUCTURE.
C) COVER THE STRUCTURE OPENING WITH A 36" DIAMETER METAL PLATE.
D) BACKFILL WITH CRUSHED STONE AND A MINIMUM 1.5" THICK HMA SURFACE MIX APPROVED BY THE ENGINEER.

STAGE II (AFTER PAVEMENT MILLING)
A) REMOVE THE METAL PLATE AND CRUSHED STONE, AS BACKFILL THE PCC SURFACE MIX AND ADJUST THE FRAME TO ITS FINAL SURFACE ELEVATION.
B) CLEAN AND PREPARE THE SURFACE TO BE FILLED WITH HMA AND PROVIDE PAINT TO FULL DEPTH OF THE SURFACE OF THE EXISTING BASE COURSE OF THE BINDER COURSE.

*UNLESS OTHERWISE SPECIFIED IN THE PLANS.

THE PROCEDURE EXPLAINED ABOVE SHALL CONFORM TO ARTICLE 602.06 OF THE STANDARD SPECIFICATIONS, AS WELL AND SIZE OF THE STANDARD SPECIFICATIONS, EXCEPT THAT "THE CONTRACTOR SHALL ADJUST THE FRAMES AND LIDS TO GRADE WITHIN A PERIOD OF NO MORE THAN 2 CALENDAR DATES PRIOR TO PLACEMENT OF THE FINAL LIFT OF SURFACE UNLESS APPROVED BY THE ENGINEER."

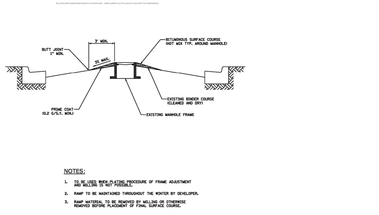
LOCATION OF STRUCTURES:
THE CONTRACTOR WILL BE REQUIRED TO KEEP A RECORD OF THE LOCATIONS OF THE BURIED STRUCTURES. THE LOCATIONS SHALL BE GIVEN AS DISTANCES LEFT OR RIGHT OF THE CENTERLINE OF PAVEMENT. UPON COMPLETION OF THE WORK, THE CONTRACTOR WILL DELIVER THE RECORD TO THE ENGINEER.

BASIS OF PAYMENT:
REMOVING FRAMES AND LIDS ON DRAINAGE AND UTILITY STRUCTURES WHERE NECESSARY PRIOR TO MILLING, AND ADJUSTING TO FINAL GRADE PRIOR TO PLACING THE FINAL LIFT OF SURFACE WILL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH FOR FRAMES AND LIDS TO BE ADJUSTED SPECIALLY.

THIS WORK WILL NOT BE PAID FOR WHEN DRAINAGE AND UTILITY STRUCTURES ARE SPECIFIED FOR PAYMENT AS STRUCTURE RECONSTRUCTION.

NEW FRAMES AND LIDS, WHEN SPECIFIED, WILL BE PAID FOR SEPARATELY.

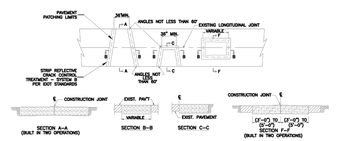
FRAME ADJUSTMENT WHEN MILLING



NOTES:

1. USE IN LIEU INSTALLATION PROCEDURE OF FRAME ADJUSTMENT WHEN MILLING.
2. RAMP TO BE MAINTAINED THROUGHOUT THE WINTER BY DEVELOPER.
3. RAMP NOTICE TO BE ADJUSTED BY MILLING OR OTHERWISE REMOVED BEFORE PLACEMENT OF FINAL SURFACE COURSE.

MANHOLE RAMPING DETAIL



GENERAL NOTES:

1. EXISTING TIE BARS SHALL BE EITHER CUT OR REMOVED. MARGINAL BARS SHALL BE CUT.
2. IN LOCATIONS WHERE BITUMINOUS PATCHES WILL BE OVERLAYED WITH BITUMINOUS SURFACE COURSE, STRIP REFLECTIVE CRACK CONTROL TREATMENT SHALL BE APPLIED TO ALL PAVEMENT JOINTS AND CENTERED ALONG THE RESPECTIVE JOINTS.
3. IN LOCATIONS WHERE THE PAVEMENT PATCH WILL NOT BE OVERLAYED, TWO (2) INCHES OF BITUMINOUS SURFACE COURSE SHALL BE LAID IN THE FINAL LIFT OF THE PATCH.
4. THE DEPTH OF THE BITUMINOUS PAVEMENT PATCH SHALL MATCH THE FULL DEPTH OF THE EXISTING PAVEMENT, BUT SHALL NOT BE LESS THAN THE CITY STANDARD FOR THE RESPECTIVE PAVEMENT SECTION.

HOT-MIX ASPHALT PAVEMENT PATCHING

CLIENT: City of Crest Hill Illinois	CITY OF CREST HILL 1610 PLAINFIELD ROAD CREST HILL, IL 60403			DSGN.	
				DWN.	
				CHKD.	
				SCALE:	
				PLOT DATE:	11/10/2021
				CAD USER:	Jspeelman
NO.	DATE	NATURE OF REVISION		CHKD.	MODEL: Default
FILE NAME: N:\CRESTHILL\2020\Civil\Pavt\pvtdtls.dgn					

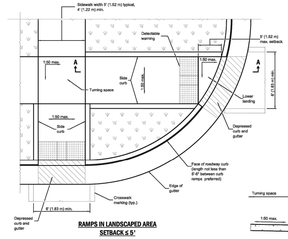
TITLE: CITY OF CREST HILL STORM SEWER SYSTEM DETAILS

PROJ. NO.
DATE: 11/10/2021
SHEET 24 OF 38
DRAWING NO. STM-5

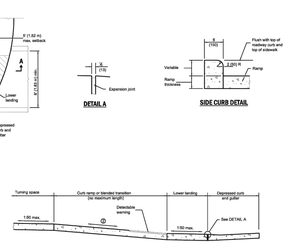
CLIENT: City of Crest Hill Illinois	CITY OF CREST HILL 1610 PLAINFIELD ROAD CREST HILL, IL 60403			DSGN.	
				DWN.	
				CHKD.	
				SCALE:	
				PLOT DATE:	11/10/2021
				CAD USER:	Jspeelman
NO.	DATE	NATURE OF REVISION		CHKD.	MODEL: Default
FILE NAME: N:\CRESTHILL\2020\Civil\Pavt\pvtdtls.dgn					

TITLE: CITY OF CREST HILL PAVEMENT, CURB AND GUTTER, AND SIDEWALK STANDARD DETAILS

PROJ. NO.
DATE: 11/10/2021
SHEET 13 OF 38
DRAWING NO. PVT-10



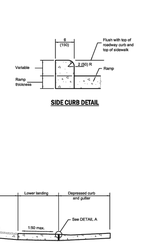
RAMPS IN LANDSCAPED AREA
SETBACK ≤ 5'



SECTION A-A

① The running slope of a curb ramp shall be 1:20 min. and 1:12 max. The running slope of a blended transition shall be 1:20 max.

DETAIL A



SIDE CURB DETAIL

GENERAL NOTES

See KDA notes on page NOT-1.

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

Where the turning space is constrained on a side opposite a ramp, the minimum length of the turning space in the direction of the ramp run shall be 5' (1.52 m).

Where 1:50 maximum slope is shown, 1:54 is preferred.

Detectable warnings are shown in their ideal locations but the following placement tolerances are allowed.

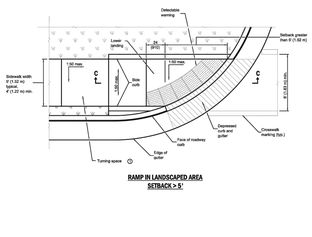
Side Border - Detectable warnings should extend the full width of the walking surface (excluding flared sides) but a border along each side up to 2 in. (50 mm) in width is allowed.

Curb Set-Back - Detectable warnings located at the back of curb should closely align with the curb but a gap up to 8 in. (150 mm) behind the curb is allowed.

See Standard 606001-XX for details of depressed curb adjacent to curb ramp.

All dimensions are in inches (millimeters) unless otherwise shown.

XX - Use current IDOT standard.



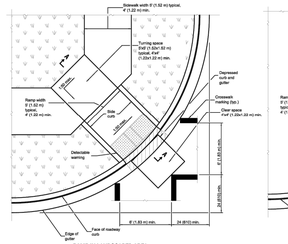
RAMP IN LANDSCAPED AREA
SETBACK > 5'



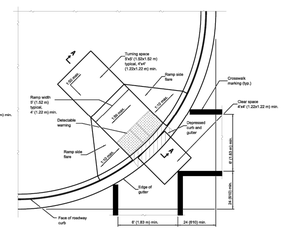
SECTION C-C

① The running slope of a curb ramp shall be 1:20 min. and 1:12 max. The running slope of a blended transition shall be 1:20 max.

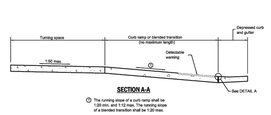
PERPENDICULAR CURB RAMPS FOR SIDEWALKS (424001-XX)



RAMP IN LANDSCAPED AREA



RAMP IN PAVED AREA



SECTION A-A

① The running slope of a curb ramp shall be 1:20 min. and 1:12 max. The running slope of a blended transition shall be 1:20 max.



DETAIL A



SIDE CURB DETAIL

GENERAL NOTES

See KDA notes on page NOT-1.

This Standard shall only be used for curb radii of 20 ft. (6.1 m) or greater.

Where the turning space is constrained on a side opposite a ramp, the minimum length of the turning space in the direction of the ramp run shall be 5' (1.52 m).

Where 1:50 maximum slope is shown, 1:54 is preferred.

Detectable warnings are shown in their ideal locations but the following placement tolerances are allowed.

Side Border - Detectable warnings should extend the full width of the walking surface (excluding flared sides) but a border along each side up to 2 in. (50 mm) in width is allowed.

Curb Set-Back - Detectable warnings located at the back of curb should closely align with the curb but a gap up to 8 in. (150 mm) behind the curb is allowed.

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

See Standard 606001-XX for details of depressed curb adjacent to curb ramp.

All dimensions are in inches (millimeters) unless otherwise shown.

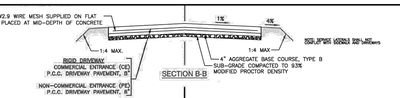
XX - Use current IDOT standard.

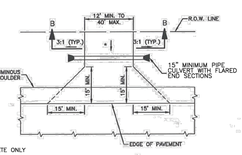
DIAGONAL CURB RAMPS FOR SIDEWALKS (424006-XX)

CLIENT: City of Crest Hill Illinois	CITY OF CREST HILL 1610 PLAINFIELD ROAD CREST HILL, IL 60403			DSGN.	
				DWN.	
				CHKD.	
				SCALE:	
				PLOT DATE:	11/10/2021
				CAD USER:	Jspeelman
NO.	DATE	NATURE OF REVISION		CHKD.	MODEL: Default
FILE NAME: N:\CRESTHILL\2020\Civil\Pavt\pvtdtls.dgn					

TITLE: CITY OF CREST HILL PAVEMENT, CURB AND GUTTER, AND SIDEWALK STANDARD DETAILS

PROJ. NO.
DATE: 11/10/2021
SHEET 9 OF 38
DRAWING NO. PVT-6

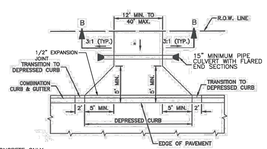




NOTES:

1. PIPE CULVERTS CAN BE PRECAST CONCRETE ONLY
2. DRIVEWAYS SHALL BE IN ACCORDANCE WITH STANDARD 606001 OF THE STANDARD SPECIFICATIONS
3. SECTION LATERALS SHALL NOT CONFLICT WITH SIDEWALK AND DRIVEWAYS

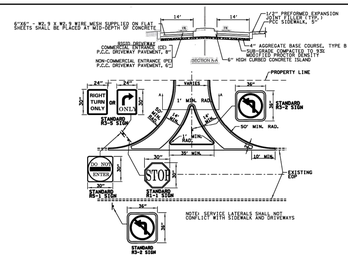
DRIVE DETAIL ADJACENT HMA SHOULDER



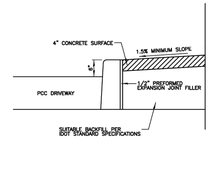
NOTES:

1. PIPE CULVERTS CAN BE PRECAST CONCRETE ONLY
2. DRIVEWAYS SHALL BE IN ACCORDANCE WITH STANDARD 606001 OF THE STANDARD SPECIFICATIONS
3. SECTION LATERALS SHALL NOT CONFLICT WITH SIDEWALK AND DRIVEWAYS

DRIVE DETAIL ADJACENT CURB & GUTTER



RIGHT-IN RIGHT-OUT DRIVEWAY ENTRANCE



BARRIER MEDIAN FOR COMMERCIAL DRIVES

CLIENT: City of Crest Hill Illinois	CITY OF CREST HILL 1610 PLAINFIELD ROAD CREST HILL, IL 60403			DSGN.	
				DWN.	
				CHKD.	
				SCALE:	
				PLOT DATE:	11/10/2021
				CAD USER:	Jspeelman
NO.	DATE	NATURE OF REVISION		CHKD.	MODEL: Default
FILE NAME: N:\CRESTHILL\2020\Civil\Pavt\pvtdtls.dgn					

TITLE: CITY OF CREST HILL PAVEMENT, CURB AND GUTTER, AND SIDEWALK STANDARD DETAILS

PROJ. NO.
DATE: 11/10/2021
SHEET 7 OF 38
DRAWING NO. PVT-4

DRAWN BY | REVISIONS | DATE

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 | p:847.634.0066
Civil Engineers • Surveyors • Water Resource Engineers • Structural Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

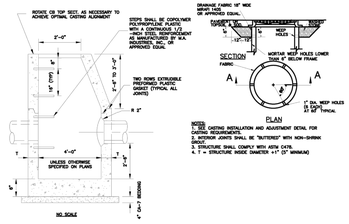
SEASONS AT CREST HILL
CITY OF CREST HILL
CONSTRUCTION DETAILS

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: OTHERS
DATE: 01-14-26
SCALE: N/A

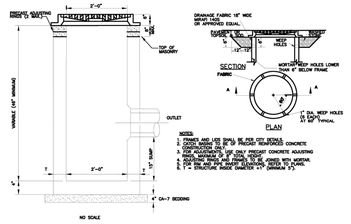
SHEET 39 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

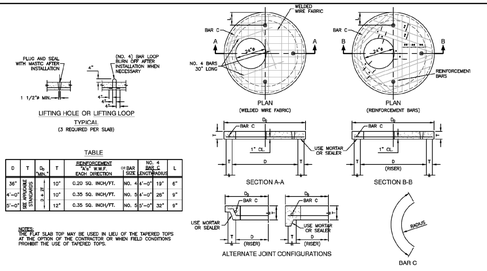
January 14, 2026 - 14:07 Data Name: P:\Projects\Civil\Final Engineering\Plan Set\DETAILS.dwg Updated By: jhorstad



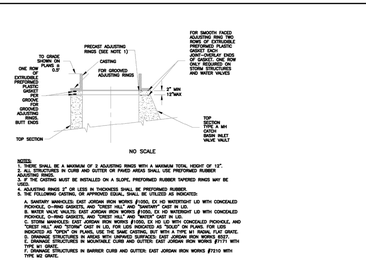
CATCH BASIN, TYPE A



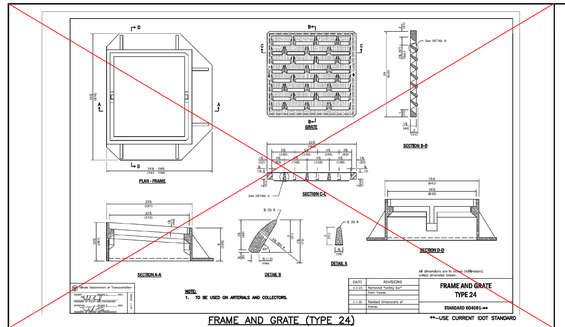
CATCH BASIN, TYPE C



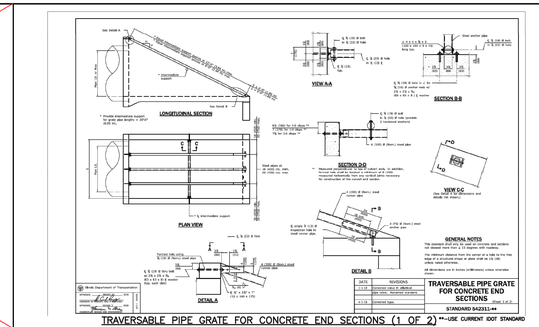
PRECAST REINFORCED FLAT SLAB TOP



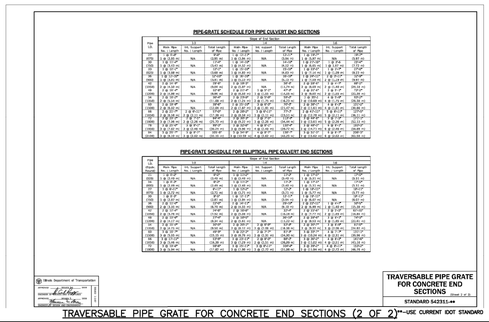
CASTING INSTALLATION AND ADJUSTING



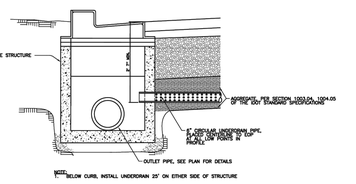
FRAME AND GRATE (TYPE 24)



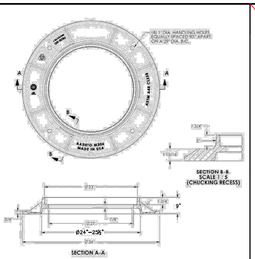
TRAVERSABLE PIPE GRATE FOR CONCRETE END SECTIONS (1 OF 2) **-USE CURRENT IDOT STANDARD



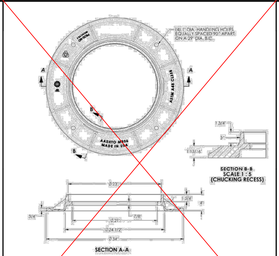
TRAVERSABLE PIPE GRATE FOR CONCRETE END SECTIONS (2 OF 2) **-USE CURRENT IDOT STANDARD



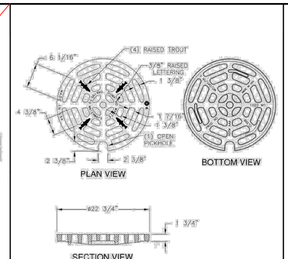
UNDERDRAIN CONNECTION TO STRUCTURE AT LOW POINTS FOR ALL COLLECTOR AND RESIDENTIAL STREETS



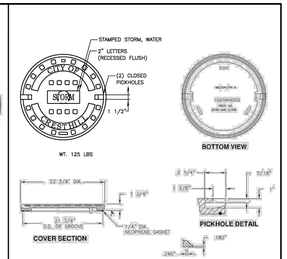
TYPE 1 FRAME



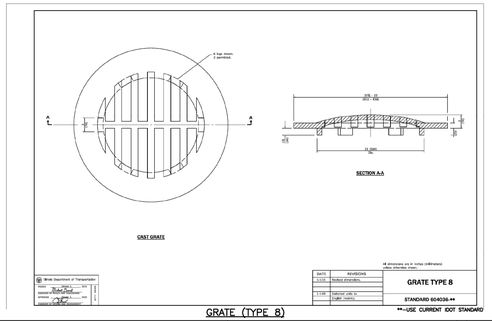
TYPE 1 FRAME (ALTERNATE)



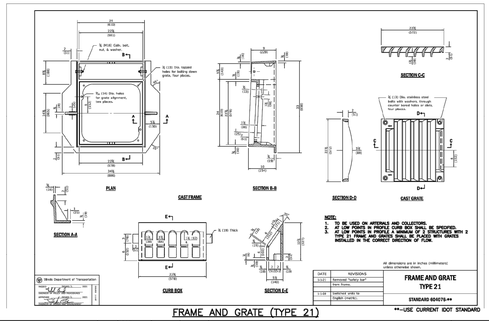
TYPE 1 LID-OPEN LID



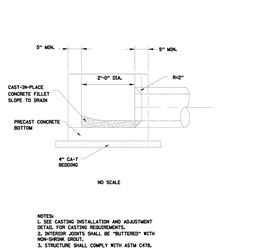
TYPE 1 LID-CLOSED LID



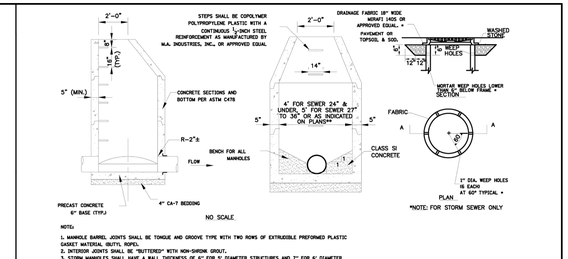
GRATE (TYPE 8)



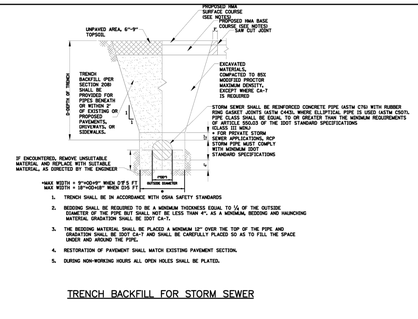
FRAME AND GRATE (TYPE 21)



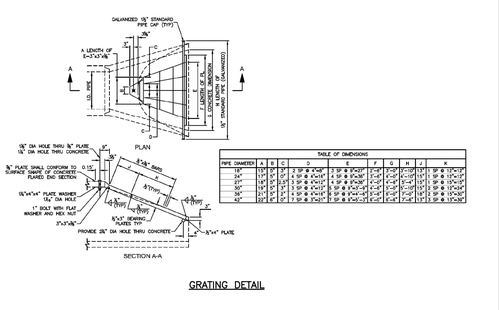
INLET



STORM MANHOLE, TYPE A



TRENCH BACKFILL FOR STORM SEWER



GRATING DETAIL

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 | p:847.634.5500 | manhard.com
Civil Engineers • Water Resource Engineers • Structural Engineers • Surveyors
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY | REVISIONS | DATE

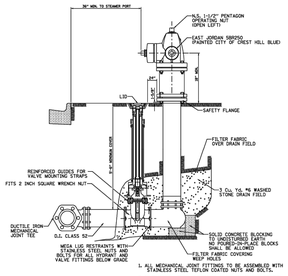
SEASONS AT CREST HILL
CITY OF CREST HILL
CONSTRUCTION DETAILS

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: OTHERS
DATE: 01-14-26
SCALE: N/A

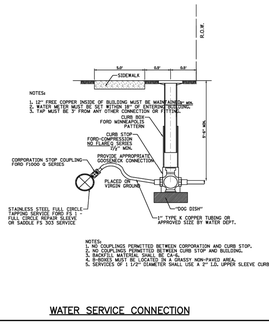
SHEET 40 OF 44
FRD.CRIL01

© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

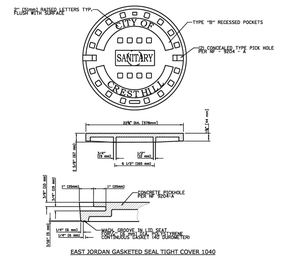
January 14, 2026 - 14:07 Data Name: P:\Projects\01\Civil\Final\Drawings\Plan Set\DETAILS.dwg Updated By: jhorstad



TYPICAL FIRE HYDRANT

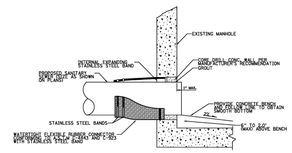


WATER SERVICE CONNECTION

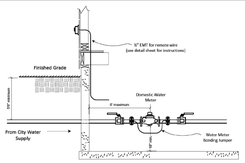


EAST JORDAN GASKETED SEAL TIGHT COVER 1040

SANITARY MANHOLE SELF-SEALING LID



EXTERNAL SANITARY MANHOLE PIPE ENTRY



1. The water connection property owner is responsible for all labor, equipment, material, tools and transportation to complete the work...

2. The water customer, at their expense, must provide all suitable pipe connections. For water meters up to 2", two (2) full port ball valves, one immediately on the inlet side and one on the outlet side for the means of isolated the water meter is required.

3. The meter setting must have an electrical bonding jumper connected on the inlet and outlet sides of the piping. (See NEC requirements for proper cable size)

4. Minimum service size is 1" Type "K" copper tubing.

5. The meter setting must be accessible with a minimum clearances of 18" on all sides and 36" directly in front to allow servicing the meter.

Meter Information

¾" (RFR) meter length- 9", meter spread – 14.5"
1" (RFR) meter length – 10.5", Meter spread 16.5"

WATER METER



Standards for Water Meter Remote Wiring and Conduit Installation

1. This standard covers the work to be undertaken for water meter remote wire and conduit installation. The property owner is responsible for providing all labor, equipment, material, tools and transportation to complete the work as described in this document.

2. All indoor conduit and all associated bends and fittings shall have a minimum inside trade size diameter of ½" and shall be electrical metallic tubing (EMT) type conduit.

3. The remote wire conduit shall be installed from a point, in the same room as the water meter, within 5 feet of the water meter, to a point on the outside wall of the building at a distance between 24" and 42" above finished grade.

4. Where the conduit terminates at the outside wall of the building, the conduit's stall extend through the wall and terminate flush with the finished surface of the outside wall. The outside reader will be installed over the conduit end and sealed against the weather.

5. The conduit shall be installed to a point on the front wall of the building, or within 6 feet of the front wall of the building if placed on the side wall of the building.

6. The point on the outside wall of the building where the conduit terminates shall be accessible at all times. The remote reader location will be determined and approved by the Water Operations Division. The location must be accessible to a meter reader and must not be in a location subject to flooding or damage. It must not be located in an area that creates a hazard for the meter reader due to situations including, but not limited to:

Dogs or other potentially dangerous animals
Bushes or other obstructions
Severe snow accumulations

7. All conduit installations must comply with the NEC requirements.

8. Where the conduit terminates at the outside wall of the building, a clear space of a minimum of 12" x 16" shall be provided on the surface of the wall suitable for mounting the remote readout device or transmitter.

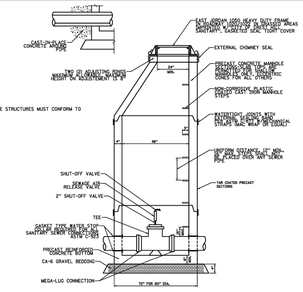
9. The route the conduct takes from the water meter to the termination point on the outside wall must be the shortest, most direct route.

10. Only the remote meter wire shall be permitted to be installed inside the conduit.

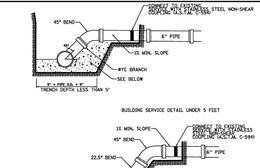
11. All wire installed on the exterior of any building or structure, including wire exiting any water meter vault, shall be protected with a galvanized rigid metal electrical conduit specifically designed for exterior use and the path of the raceway approved by the City.

12. The City shall supply the remote meter wire. The owner shall provide a pull string (Greenlee 438 Poly Fishing Line or equivalent) within the conduct leaving an excess of at least 3 feet of string at both ends. Both ends of the fishing line must be clearly tagged with the words "Water Meter". The fishing line must be a continuous single piece without splices.

WATER METER WIRING AND CONDUIT INSTALLATION



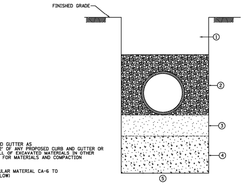
SANITARY SEWER AIR RELEASE MANHOLE



BUILDING SERVICE RISER

CLIENT: City of CREST HILL Illinois — CITY OF CREST HILL, 1610 PLAINFIELD ROAD, CREST HILL, IL 60403				DSGN.			TITLE: CITY OF CREST HILL WATER DISTRIBUTION SYSTEM DETAILS
				DWN.			PROJ. NO.
				CHKD.			DATE: 11/10/2021
				SCALE:			SHEET 28 OF 38
				PLOT DATE:	11/10/2021		DRAWING NO. WTR-2
NO.	DATE	NATURE OF REVISION	CHKD.	CAD USER:	Jgreenhorn		
FILE NAME		N:\CRESTHILL\2020\Civil\Ref\wtrdtls.dgn		MODEL:	Default		

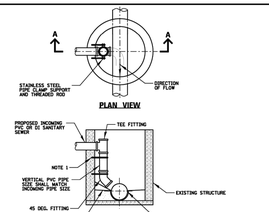
CLIENT: City of CREST HILL Illinois — CITY OF CREST HILL, 1610 PLAINFIELD ROAD, CREST HILL, IL 60403				DSGN.			TITLE: CITY OF CREST HILL SANITARY SEWER SYSTEM DETAILS
				DWN.			PROJ. NO.
				CHKD.			DATE: 11/10/2021
				SCALE:			SHEET 29 OF 38
				PLOT DATE:	11/10/2021		DRAWING NO. SAN-2
NO.	DATE	NATURE OF REVISION	CHKD.	CAD USER:	Jgreenhorn		
FILE NAME		N:\CRESTHILL\2020\Civil\Ref\wtrdtls.dgn		MODEL:	Default		



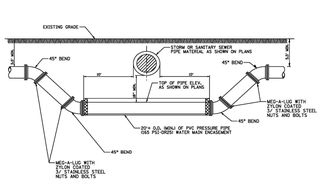
①TRENCH BACKFILL UNDER PAVEMENT, CURB AND GUTTER AS INDICATED ON PAVEMENT CROSS SECTIONS AND UNDER PROPOSED CURB AND GUTTER OR DRIVEWAY APPROACH FOR BUILDING BLANKING AND TRENCH BACKFILL OF UNTREATED MATERIALS IN OTHER LOCATIONS IF APPROVED BY THE PROVISIONS FOR MATERIALS AND COMPACTION REQUIREMENTS.
②FOR SANITARY SEWER PVC, COMPACTED GRANULAR MATERIAL CA-6 TO 12" ABOVE TOP PIPE, ALSO SEE NOTE #1 BELOW
③6" COMPACTED BEDDING, CA-6 GRADATION
④UNSUITABLE MATERIAL TO BE REMOVED WHERE DIRECTED BY THE ENGINEER AND REPLACED WITH SUITABLE AND COMPACTED MATERIAL
⑤TRENCH WIDTH = PIPE O.D. + 12" MINIMUM PIPE O.D. + 18" MAXIMUM

NOTES:
1. PVC PIPE CONFORMING TO THE SDR SPECIFIED IN THE PLANS SHALL BE INSTALLED TO THE LATEST RECOMMENDATIONS OF THE MANUFACTURER. BEDDING MATERIAL COMPACTED AS FOR CLASS II (GRANULAR MATERIAL) FOR BUILDING BLANKING AND TRENCH BACKFILL SHALL BE PLACED TO THE TOP OF PIPE TO PROVIDE THE NECESSARY SUPPORT FOR THE PIPE, SO THAT THE MAXIMUM DEFLECTION DOES NOT EXCEED 5% OF THE PIPE'S ORIGINAL INTERNAL DIAMETER.
2. ALL CA-6 MATERIAL TO BE IDOT APPROVED

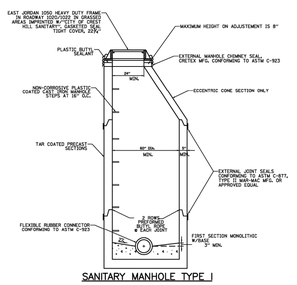
TYPICAL SANITARY SEWER TRENCH



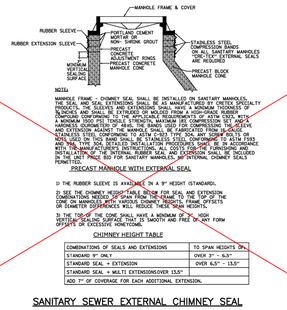
INTERNAL DROP MANHOLE



WATER MAIN LOWERING



SANITARY MANHOLE TYPE I



NOTE:
MANHOLE FRAME - CHIMNEY SEAL SHALL BE INSTALLED ON SANITARY MANHOLES. THE SEAL AND SEAL EXTENSIONS SHALL BE AS MANUFACTURED BY CRETEX SPECIALTY PRODUCTS. THE SEALERS AND EXTENSIONS SHALL HAVE A MINIMUM THICKNESS OF 100 MILS AND SHALL BE FABRICATED FROM A SYNTHETIC ELASTOMERIC COMPOUND COMPLYING TO THE APPLICABLE REQUIREMENTS OF ASTM C923 WITH A MINIMUM 1500 PSI TENSILE STRENGTH, MAXIMUM 25% COMPRESSION SET AND A MINIMUM 300% ELONGATION. THE SEAL SHALL BE FURNISHED WITH A STAINLESS STEEL BAND AND EXTENSION AGAINST THE MANHOLE SHALL BE FABRICATED FROM 16 GAUGE STAINLESS STEEL CONFORMING TO AISI TYPE 304 WITH WORM DRIVE ASSEMBLY RATED TO 200 INCH POUNDS MINIMUM TORQUE. THE SEALS SHALL BE CRETEX CHIMNEY SEAL AND THE TYPE AND DETAILED INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE COST OF FURNISHING AND INSTALLATION OF THE INTERNAL RUBBER SEAL AND EXPANSION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR SANITARY MANHOLES. NO INTERNAL CHIMNEY SEALS PERMITTED.

PRECAST MANHOLE WITH EXTERNAL SEAL

① THE RUBBER SLEEVE IS AVAILABLE IN A 9" HEIGHT (STANDARD).

② SEE THE CHIMNEY HEIGHT TABLE BELOW FOR SEAL AND EXTENSION COMBINATIONS FOR SPAN HEIGHTS UP TO 13.5'. THE SPAN HEIGHT OF THE CONE ON MANHOLES WITH ECCENTRIC CHIMNEY HEIGHTS FROM OFFSETS OR DIAMETER DIFFERENCES WILL REDUCE THESE SPAN HEIGHTS.

③ THE TOP OF THE CONE SHALL HAVE A MINIMUM OF 7" HIGH VERTICAL SEALING SURFACE THAT IS SMOOTH AND FREE OF ANY FORM OFFSETS OR EXCESSIVE HONEYCOMB.

CHIMNEY HEIGHT TABLE

COMBINATIONS OF SEALS AND EXTENSIONS	TO SPAN HEIGHTS OF...
STANDARD 9" ONLY	OVER 3'-0" - 6.5'
STANDARD SEAL + EXTENSION	OVER 6.5' - 13.5'
STANDARD SEAL + MULTI EXTENSIONSOVER 13.5'	
ADD 7" OF COVERAGE FOR EACH ADDITIONAL EXTENSION.	

SANITARY SEWER EXTERNAL CHIMNEY SEAL

CLIENT: City of CREST HILL Illinois — CITY OF CREST HILL, 1610 PLAINFIELD ROAD, CREST HILL, IL 60403				DSGN.			TITLE: CITY OF CREST HILL SANITARY SEWER SYSTEM DETAILS
				DWN.			PROJ. NO.
				CHKD.			DATE: 11/10/2021
				SCALE:			SHEET 28 OF 38
				PLOT DATE:	11/10/2021		DRAWING NO. SAN-1
NO.	DATE	NATURE OF REVISION	CHKD.	CAD USER:	Jgreenhorn		
FILE NAME		N:\CRESTHILL\2020\Civil\Ref\wtrdtls.dgn		MODEL:	Default		

CLIENT: City of CREST HILL Illinois — CITY OF CREST HILL, 1610 PLAINFIELD ROAD, CREST HILL, IL 60403				DSGN.			TITLE: CITY OF CREST HILL WATER DISTRIBUTION SYSTEM DETAILS
				DWN.			PROJ. NO.
				CHKD.			DATE: 11/10/2021
				SCALE:			SHEET 27 OF 38
				PLOT DATE:	11/10/2021		DRAWING NO. WTR-3
NO.	DATE	NATURE OF REVISION	CHKD.	CAD USER:	Jgreenhorn		
FILE NAME		N:\CRESTHILL\2020\Civil\Ref\wtrdtls.dgn		MODEL:	Default		

DRAWN BY | REVISIONS | DATE

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 | ph 847.634.5500 | manhard.com
Civil Engineers • Surveyors • Water Resource Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL
CITY OF CREST HILL
CONSTRUCTION DETAILS

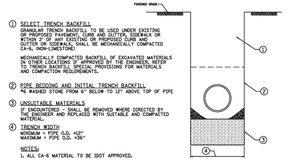
PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: OTHERS
DATE: 01-14-26
SCALE: N/A

SHEET 41 OF 44

FRD.CRIL01

© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

January 14, 2026 – 14:07 Data Name: P:\Projects\Civil\Final Engineering\Plan Set\WTR&LS.dwg Updated By: jhorstad



① SELECT TRENCH BACKFILL
GRANULAR TRENCH BACKFILL TO BE USED UNDER EXISTING OR PROPOSED PAVEMENT, CURB AND GUTTER, SIDEWALK OR WITHIN 5'-0" OF ANY EXISTING OR PROPOSED CURB AND GUTTER OR SIDEWALK, SHALL BE MECHANICALLY COMPACTED CA-6, (NON-CHAT/STONE)

MECHANICALLY COMPACTED BACKFILL OF EXCAVATED MATERIALS MAY BE USED IN OPEN AREAS WHERE NO PAVEMENT IS PRESENT. SEE TO TRENCH BACKFILL SPECIAL PROVISIONS FOR MATERIALS AND COMPACTION REQUIREMENTS.

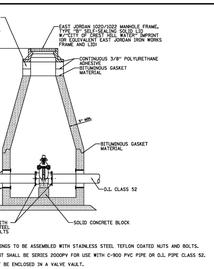
② PIPE BEDDING AND INITIAL TRENCH BACKFILL
#16 WASHED STONE FROM 6" BELOW TO 12" ABOVE TOP OF PIPE

③ UNSUITABLE MATERIALS
IF ENCOUNTERED - SHALL BE REMOVED WHERE DIRECTED BY THE ENGINEER AND REPLACED WITH SUITABLE AND COMPACTED MATERIAL

④ TRENCH WIDTH
MINIMUM = PIPE O.D. +12"
MAXIMUM = PIPE O.D. +30"

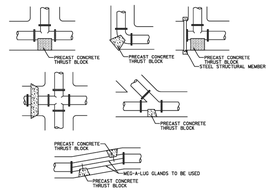
NOTES:
1. ALL CA-6 MATERIAL TO BE IDOT APPROVED.

TYPICAL WATER MAIN TRENCH



1. ALL MECHANICAL JOINT FITTINGS TO BE ASSEMBLED WITH STAINLESS STEEL TEFLON COATED NUTS AND BOLTS.
2. MECHANICAL JOINT RESTRAINT SHALL BE SERIES 2000PV FOR USE WITH C-900 PVC PIPE OR D.I. PIPE CLASS 52.
3. VALVES 4" OR LARGER MUST BE ENCLOSED IN A VALVE VAULT.
4. VALVES LESS THAN 4", OR WHEN DIRECTED BY THE CITY, SHALL USE AN AMERICAN FLOW CONTROL TRENCH ADAPTER.

TYPICAL VALVE VAULT

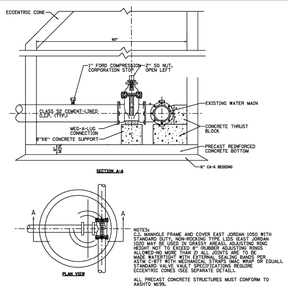


BEARING AREA (SQ. FT.)

PIPE SIZE	TEE/PLUG	90 DEG.	45 DEG.	22½°	11.25°
6	4	2	1	1	1
8	6	4	3	1	1
10	7	5	3	2	1
12	8	6	4	3	2
14	12	9	6	4	3
16	15	12	7	5	3
18	18	15	9	5	4
24	40	30	15	10	5

ALL BLOCKING MUST BEAR ON UNDISTURBED EARTH.
ALL BENDS OR ELBOWS GREATER THAN AND INCLUDING 11.25° SHALL HAVE THRUST BLOCKING. WOOD SHIMS NOT ALLOWED.

THRUST BLOCK DETAIL

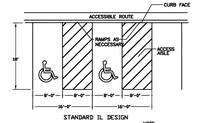


NOTES:
1. MANHOLE FRAME AND COVER EAST JORDAN 1060 WITH STANDARD DUTY, NON-ROCKING TYPE LIDS. EAST JORDAN 1020 MAY BE USED IN GRASSY AREAS). ADJUSTING RING MAY BE USED TO ADJUST TO FINISHED GRADE. ADJUSTING RINGS ALLOWING MORE THAN 8" ALL JOINTS ARE TO BE MADE WATERTIGHT WITH EXTERNAL SEALING BANDS PER ASTM C-923 AND SHALL BE EQUAL TO CORE SEAL OR EQUAL.
2. STANDARD VALVE VAULT SPECIFICATIONS REQUIRE ECCENTRIC CONES USE SEPARATE DETAILS.

ALL PRECAST CONCRETE STRUCTURES MUST CONFORM TO AASHTO M199.

WATER MAIN PRESSURE CONNECTION

CLIENT: City of CREST HILL Illinois — CITY OF CREST HILL, 1610 PLAINFIELD ROAD, CREST HILL, IL 60403				DSGN.			TITLE: CITY OF CREST HILL WATER DISTRIBUTION SYSTEM DETAILS
				DWN.			PROJ. NO.
				CHKD.			DATE: 11/10/2021
				SCALE:			SHEET 29 OF 38
				PLOT DATE:	11/10/2021		DRAWING NO. WTR-1
				CAD USER:	jspearman		
NO.:	DATE:	NATURE OF REVISION		CHKD.	MODEL:	Default	
FILE NAME:	N:\CRESTHILL\2023\Civil\Dwf\detailsdgn						



STANDARD IL DESIGN

NOTE:
1. A HIGH QUALITY YELLOW PAINT RECOMMENDED BY THE PAINT MANUFACTURER FOR PAVEMENT STRIPING SHALL BE USED.
2. REFER TO THE PLANS FOR THE MINIMUM REQUIRED NUMBER OF HANDICAP STALLS.
3. HANDICAP LOGO SHALL BE INSTALLED USING YELLOW PAINT.



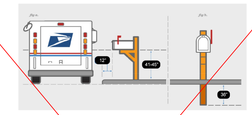
THE ARROW SHOULD BE USED WHERE THERE IS ONLY ONE SPACE. THE ARROW MAY ALSO BE MADE HORIZONTAL FOR ONE DIRECTION. THE SIGN MUST BE SUPPLEMENTED WITH ANOTHER SIGN, STANDARD R7-1101 PLATE GIVING THE AMOUNT OF THE FINE FOR ILLEGALLY PARKING IN THE RESERVED SPACE(S).

THIS PLATE MAY BE MOUNTED DIRECTLY BELOW THE R7-8 SIGN OR COMBINED WITH THAT SIGN ON A SINGLE 12" BY 24" PANEL.

HANDICAP STALL

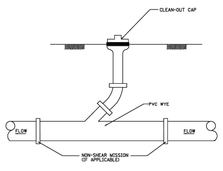
GUIDELINES FOR THE INSTALLATION OF CURBSIDE MAILBOXES

1. THE HEIGHT OF THE MAILBOX MUST BE BETWEEN FORTY-ONE INCHES AND FORTY-FIVE INCHES (41"-45"), FROM THE TOP OF THE STREET TO THE BOTTOM OF THE MAILBOX.
2. HOUSE NUMBERS OF NOT LESS THAN ONE INCH (1") HIGH ARE REQUIRED ON ALL MAILBOXES. NAMES ARE OPTIONAL.
3. THE FACE OF THE MAILBOX SHOULD BE TWELVE INCHES (12") FROM THE BACK OF THE CURB, OR EDGE OF THE PAVEMENT IF NO CURB IS PRESENT.
4. SUPPORT POST SHOULD BE INSTALLED TWENTY-FOUR INCHES (24") BELOW GRADE.
5. ALL POSTS USED TO SUPPORT MAILBOXES MUST BE NEAT AND OF ADEQUATE STRENGTH.
6. MAILBOX SUPPORT STRUCTURES SHOULD BE PAINTED WITH A PRESERVATIVE TO PREVENT RUST OR DECAY.
7. THE CITY OF CREST HILL PROHIBITS THE USE OF BRICKS AND/OR OTHER MASONRY STRUCTURES TO BE USED AS MAILBOX SUPPORTS.



STANDARD MAILBOX GUIDELINES

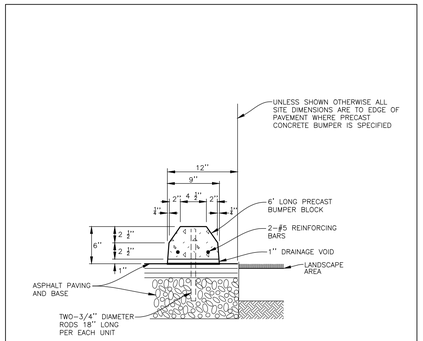
CLIENT: City of CREST HILL Illinois — CITY OF CREST HILL, 1610 PLAINFIELD ROAD, CREST HILL, IL 60403				DSGN.			TITLE: CITY OF CREST HILL MISCELLANEOUS STANDARDS
				DWN.			PROJ. NO.
				CHKD.			DATE: 11/10/2021
				SCALED:			SHEET 38 OF 38
				PLOT DATE:	11/10/2021		DRAWING NO. MSC-1
				CAD USER:	jspearman		
NO.:	DATE:	NATURE OF REVISION		CHKD.	MODEL:	Default	
FILE NAME:	N:\CRESTHILL\2023\Civil\Dwf\detailsdgn						



NOTE:
1. EXTERIOR CLEAN-OUTS CANNOT BE INSTALLED FURTHER THAN 5 FEET FROM THE BUILDING. THE CONTRACTOR SHALL CONFIRM WITH THE ENGINEER THE INSTALLATION AS SPECIFIED. THE "CLEAN-OUT MAY" BE INSTALLED IN A LOCATION AS DETERMINED BY THE DIRECTOR OF PUBLIC WORKS.
2. CLEANOUT SHALL BE 6" SDR 26 PIPE.

SANITARY SEWER SERVICE CLEANOUT

CLIENT: City of CREST HILL Illinois — CITY OF CREST HILL, 1610 PLAINFIELD ROAD, CREST HILL, IL 60403				DSGN.			TITLE: CITY OF CREST HILL SANITARY SEWER SYSTEM DETAILS
				DWN.			PROJ. NO.
				CHKD.			DATE: 11/10/2021
				SCALE:			SHEET 30 OF 38
				PLOT DATE:	11/10/2021		DRAWING NO. SAN-3
				CAD USER:	jspearman		
NO.:	DATE:	NATURE OF REVISION		CHKD.	MODEL:	Default	
FILE NAME:	N:\CRESTHILL\2023\Civil\Dwf\detailsdgn						



06-01-15
PRECAST CONCRETE WHEEL STOP DETAIL
S-MS-WHEELSTOP

SHOULD A CONFLICT ARISE BETWEEN MANHARD DETAILS AND THE VILLAGE DETAILS, THE VILLAGE DETAILS SHALL TAKE PRECEDENCE.

January 14, 2026 - 14:07 Data Name: P:\Projects\Civil\Final Drawings\Plan Set\DETAILS.dwg Updated By: jhorsford

© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED

DRAWN BY | REVISIONS | DATE

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.634.5500 f:847.634.0066 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL
CITY OF CREST HILL
CONSTRUCTION DETAILS

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: OTHERS
DATE: 01-14-26
SCALE: N/A

SHEET
42 OF 44
FRD.CRIL01

STANDARD SPECIFICATIONS FOR WATER AND SEWER CONSTRUCTION IN ILLINOIS, LATEST EDITION.

41-2.01C VERTICAL SEPARATION – WATER MAINS AND SEWERS

(1.) A water main shall be separated from a sewer so that its invert is a minimum of eighteen (18) inches (460mm) above the crown of the drain or sewer whenever water mains cross storm sewers, sanitary sewers or sewer service connections. The vertical separation shall be maintained for that portion of the water main located within ten (10) feet (3.1m) horizontally of any sewer or drain crossed. A length of water main pipe shall be centered over the sewer to be crossed with joints equidistant from the sewer or drain.

(2.) Both the water main and sewer shall be constructed of slip-on or mechanical joint cast or ductile iron pipe, prestressed concrete pipe, or PVC pipe equivalent to water main standards of construction when:

(a) it is impossible to obtain the proper vertical separation as described in (1) above; or

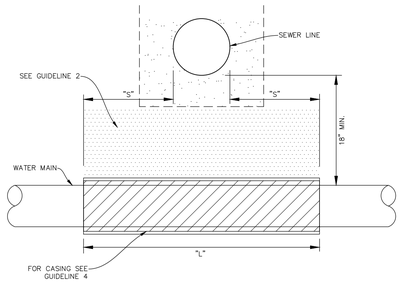
(b) the water main passes under a sewer or drain.

(3.) A vertical separation of eighteen (18) inches (460 mm) between the invert of the sewer or drain and the crown of the water main shall be maintained where a water main crosses under a sewer. Support the sewer or drain lines to prevent settling and breaking the main, as shown on the Plans or as approved by the ENGINEER.

(4.) Construction of water main quality pipe shall extend on each side of the crossing until the perpendicular distance from the water main to the sewer or drain line is at least ten (10) feet (3.1 m) See Standard Drawings No. 19-23.

02-01-19
WATER AND SEWER SEPARATION REQUIREMENTS (VERTICAL SEPARATION)
S-WM-SEP-VERTICAL

WATER MAIN BELOW SEWER LINE WITH 18" MINIMUM VERTICAL SEPERATION.



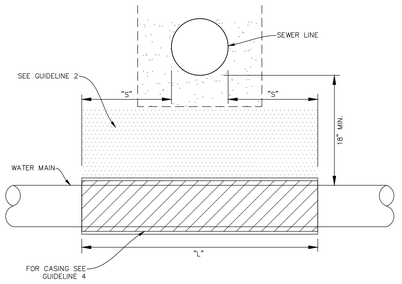
NOTE: "S" = THE LENGTH NECESSARY TO PROVIDE 10 FEET OF SEPARATION AS MEASURED PERPENDICULAR TO THE EXISTING SEWER LINE.

GUIDELINES:

1. OMIT SELECT GRANULAR EMBEDMENT AND GRANULAR BACKFILL TO ONE (1) FOOT OVER TOP OF WATER MAIN AND USE SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT THE LENGTH OF "L" FEET.
2. IF SELECT GRANULAR BACKFILL EXISTS, REMOVE WITHIN WIDTH OF SEWER LINE TRENCH AND REPLACE WITH SELECT SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT.
3. PROVIDE ADEQUATE SUPPORT FOR SEWER LINE TO PREVENT DAMAGE DUE TO SETTLEMENT.
4. USE "L" FEET OF WATER MAIN MATERIAL FOR CASING OF WATER MAIN AND SEAL ENDS OF CASING.

06-01-15
WATER AND SEWER SEPARATION REQUIREMENTS (VERTICAL SEPARATION)
S-WM-SEP-VERTICAL-2

WATER MAIN BELOW SEWER LINE WITH 18" MINIMUM VERTICAL SEPERATION.



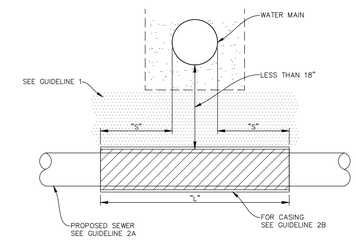
NOTE: "S" = THE LENGTH NECESSARY TO PROVIDE 10 FEET OF SEPARATION AS MEASURED PERPENDICULAR TO THE EXISTING SEWER LINE.

GUIDELINES:

1. OMIT SELECT GRANULAR EMBEDMENT AND GRANULAR BACKFILL TO ONE (1) FOOT OVER TOP OF WATER MAIN AND USE SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT THE LENGTH OF "L" FEET.
2. IF SELECT GRANULAR BACKFILL EXISTS, REMOVE WITHIN WIDTH OF SEWER LINE TRENCH AND REPLACE WITH SELECT SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT.
3. PROVIDE ADEQUATE SUPPORT FOR SEWER LINE TO PREVENT DAMAGE DUE TO SETTLEMENT.
4. USE "L" FEET OF WATER MAIN MATERIAL FOR CASING OF WATER MAIN AND SEAL ENDS OF CASING.

06-01-15
WATER AND SEWER SEPARATION REQUIREMENTS (VERTICAL SEPARATION)
S-WM-SEP-VERTICAL-2

SEWER LINE BELOW WATER MAIN WITH LESS THAN 18" VERTICAL SEPARATION.



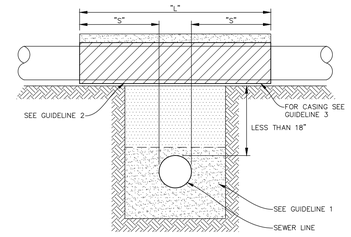
NOTE: "S" = THE LENGTH NECESSARY TO PROVIDE 10 FEET OF SEPARATION AS MEASURED PERPENDICULAR TO THE EXISTING WATER MAIN.

GUIDELINES:

1. OMIT SELECT GRANULAR EMBEDMENT AND GRANULAR BACKFILL TO ONE (1) FOOT OVER TOP OF SEWER AND USE SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT FOR "S" FEET ON EACH SIDE OD WATER MAIN.
2. a) CONSTRUCT "L" FEET OF PROPOSED SEWER OF WATER MAIN MATERIAL AND PRESSURE TEST, OR:
   b) USE "L" FEET OF WATER MAIN MATERIAL FOR CASING OF PROPOSED SEWER AND SEAL ENDS OF CASING.
3. PROVIDE ADEQUATE SUPPORT FOR EXCAVATING WATER MAIN TO PREVENT DAMAGE DUE TO SETTLEMENT OF SEWER TRENCH.

06-01-15
WATER AND SEWER SEPARATION REQUIREMENTS (VERTICAL SEPARATION)
S-WM-SEP-VERTICAL-3

WATER MAIN ABOVE SEWER LINE WITH LESS THAN 18" VERTICAL SEPARATION.



NOTE: "S" = THE LENGTH NECESSARY TO PROVIDE 10 FEET OF SEPARATION AS MEASURED PERPENDICULAR TO THE EXISTING SEWER LINE.

GUIDELINES:

1. OMIT SELECT GRANULAR EMBEDMENT AND GRANULAR BACKFILL TO ONE (1) FOOT OVER TOP OF WATER MAIN AND USE SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT THE LENGTH OF "L".
2. IF SELECT GRANULAR BACKFILL EXISTS, REMOVE WITHIN WIDTH OF EXISTING SEWER LINE TRENCH AND REPLACE WITH SELECT EXCAVATED MATERIAL (CLASS IV) AND COMPACT.
3. USE "L" FEET OF WATER MAIN MATERIAL FOR CASING OF PROPOSED WATER MAIN AND SEAL ENDS OF CASING.
4. POINT LOADS SHALL NOT BE ALLOWED BETWEEN WATER MAIN CASING AND SEWER.

06-01-15
WATER AND SEWER SEPARATION REQUIREMENTS (VERTICAL SEPARATION)
S-WM-SEP-VERTICAL-4

STANDARD SPECIFICATIONS FOR WATER AND SEWER CONSTRUCTION IN ILLINOIS, LATEST EDITION.

41-2.01 PROTECTION OF WATER MAIN AND WATER SERVICE LINES

41-2.01A GENERAL

Water mains and water service lines shall be protected from sanitary sewers, storm sewers, combined sewers, house sewer service connections and drains as follows:

41-2.01B HORIZONTAL SEPARATION – WATER MAINS AND SEWERS

(1.) Water mains shall be located at least ten (10) feet (3.1 m) horizontally from any existing or proposed drain, storm sewer, sanitary sewer, combined sewer or sewer service connection.

(2.) Water mains may be located closer than ten (10) feet (3.1 m) to a sewer line when:

(a) local conditions prevent a lateral separation of ten (10) feet (3.1 m); and

(b) the water main invert is at least eighteen (18) inches (460 mm) above the crown of the sewer; and

(c) the water main is either in a separate trench or in the same trench on an undisturbed earth shelf located to one side of the sewer.

(3.) When it is impossible to meet (1) or (2) above, both the water main and drain or sewer shall be constructed of slip-on or mechanical joint cast or ductile iron pipe, prestressed concrete pipe, or PVC pipe equivalent to water main standards of construction. The drain or sewer shall be pressure tested to the maximum expected surcharge head before backfilling. See Standard Drawing No. 18.

02-01-19
WATER AND SEWER SEPARATION REQUIREMENTS (HORIZONTAL SEPARATION)
S-WM-SEP-HORIZONTAL

SHOULD A CONFLICT ARISE BETWEEN MANHARD DETAILS AND THE VILLAGE DETAILS, THE VILLAGE DETAILS SHALL TAKE PRECEDENCE.

© 2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

Manhard CONSULTING
One Overlook Point, Suite 250, Lincolnshire, IL 60069 p:847.634.0066
Civil Engineers • Water Resource Engineers • Structural Engineers • Surveyors
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY | REVISIONS | DATE

SEASONS AT CREST HILL
CITY OF CREST HILL
CONSTRUCTION DETAILS

PROJ. MGR.: JSE
PROJ. ASSOC.: MSL
DRAWN BY: MANHARD
DATE: 01-14-26
SCALE: N/A

SHEET
43 OF 44
FRD.CRIL01

January 14, 2026 - 14:07 Data Name: P:\Projects\Data\Final Drawings\Plan Set\DETAILS.dwg Updated By: jhunter

06-01-16

MANHARD CONSULTING
STANDARD SPECIFICATIONS

GENERAL CONDITIONS

CONTRACTOR acknowledges and agrees that the use and reliance of these Plans and Specifications is sufficient consideration for CONTRACTOR'S covenants stated herein.

DEFINITION OF TERMS

a. "CLIENT" shall mean FRED-Crest Hill HC,LLC. , which is the person or entity with whom Manhard Consulting has contracted with to prepare Civil Engineering PLANS and SPECIFICATIONS.

b. "ENGINEER" shall mean Manhard Consulting, a Civil Engineering consultant on the subject project.

c. "PLANS and SPECIFICATIONS" shall mean the Civil Engineering PLANS and SPECIFICATIONS prepared by the ENGINEER, which may be a part of the contract documents for the subject project.

d. "CONTRACTOR" shall mean any person or entity performing any work described in the PLANS and SPECIFICATIONS.

e. "JURISDICTIONAL GOVERNMENTAL ENTITY" shall mean any municipal, county, state or federal unit of government from whom an approval, permit and/or review is required for any aspect of the subject project.

INTENT OF THE PLANS AND SPECIFICATIONS

The intent of the PLANS and SPECIFICATIONS is to set forth certain requirements of performance, type of equipment and structures, and standards of materials and construction. They may also identify labor and materials, equipment and transportation necessary for the proper execution of the work but are not intended to be infinitely determined so as to include minor items obviously required as part of the work. The PLANS and SPECIFICATIONS require new material and equipment unless otherwise indicated, and to require complete performance of the work in spite of omissions of specific references to any minor component part. It is not intended, however, that materials or work not covered by or properly inferred from any heading, branch, class or trade of the SPECIFICATIONS shall be supplied unless distinctly so noted. Materials or work described in words, which so applied have a well-known technical or trade meaning, shall be held to refer to such recognized standards.

INTERPRETATION OF PLANS AND SPECIFICATIONS

a. The CLIENT and/or CONTRACTOR shall promptly report any errors or ambiguities in the PLANS and SPECIFICATIONS to the ENGINEER. Questions as to meaning of PLANS and SPECIFICATIONS shall be interpreted by the ENGINEER, whose decision shall be final and binding on all parties concerned.

b. The ENGINEER will provide the CLIENT with such information as may be required to show revised or additional details of construction.

c. Should any discrepancies or conflicts on the PLANS or SPECIFICATIONS be discovered either prior to or after award of the contract, the ENGINEER's attention shall be called to the same before the work is begun thereon and the proper corrections made. Neither the CLIENT nor the CONTRACTOR may take advantage of any error or omissions in the PLANS and SPECIFICATIONS. The ENGINEER will provide information when errors or omissions are discovered.

GOVERNING BODIES

All works herein proposed shall be completed in accordance with all requirements of any JURISDICTIONAL GOVERNMENTAL ENTITY, and all such pertinent laws, directives, ordinances and the like shall be considered to be a part of these SPECIFICATIONS. If a discrepancy is noted between the PLANS and SPECIFICATIONS and requirements of any JURISDICTIONAL GOVERNMENTAL ENTITY, the CLIENT and/or the CONTRACTOR shall immediately notify the ENGINEER in writing.

LOCATION OF UNDERGROUND FACILITIES AND UTILITIES

When the PLANS and SPECIFICATIONS include information pertaining to the location of existing underground facilities and utilities (including but not limited to water mains, sanitary sewers, storm sewers, electric, telephone, gas and cable TV lines), such information represents only the opinion of the ENGINEER as to the approximate location and elevation of such facilities and utilities. At the locations wherein detailed positions of these facilities and utilities become necessary to the new construction, including all points of connection, the CONTRACTOR shall furnish all labor and tools to verify or definitely establish the horizontal location, elevation, size and material (if appropriate) of the facilities and utilities. The CONTRACTOR shall notify the ENGINEER at least 48 hours prior to construction if any discrepancies in existing utility information or conflicts with existing utilities exist. The ENGINEER assumes no responsibility whatever with respect to the sufficiency or accuracy of the information shown on the PLANS and SPECIFICATIONS relative to the location of underground facilities and utilities, nor the manner in which they are removed or adjusted.

It shall be the CONTRACTOR's responsibility prior to construction, to notify all Utility Companies of the intent to begin construction and to verify the actual location of all such facilities and utilities. The CONTRACTOR shall also obtain from the respective Utility Companies the working schedules for removing or adjusting these facilities.

UNSUITABLE SOILS

The PLANS have been prepared by the ENGINEER based on the assumption that all soils on the project are suitable to support the proposed improvements shown. The CLIENT or CONTRACTOR shall immediately notify the ENGINEER if he discovers or encounters an obstruction that prevents the installation of the improvement according to the line and grades shown on the PLANS.

PROTECTION OF TREES

All trees that are not to be removed shall be protected from damage. Trees shall not be removed unless requested to do so in writing by the CLIENT.

NOTIFICATION OF OWNERS OF FACILITIES AND UTILITIES

The CONTRACTOR shall notify all applicable Jurisdictional Governmental Entities or utility companies, i.e., water, sewer, electric, telephone, gas and cable TV prior to beginning any construction so that said entity or company can establish the location and elevation of underground pipes, conduits or cables adjoining or crossing proposed construction.

TRAFFIC CONTROL

The CONTRACTOR shall provide when required by any JURISDICTIONAL GOVERNMENTAL ENTITY, all signs, equipment, and personnel necessary to provide for safe and efficient traffic flow in all areas where the work will interrupt, interfere or cause to change in any form, the conditions of traffic flow that existed prior to the commencement of any portions of the work. The CLIENT may, at his discretion, require the CONTRACTOR to furnish traffic control under these or other circumstances where in his opinion it is necessary for the protection of life and property. Emergency vehicle access shall be maintained at all times. Unless authorized by the CLIENT or CLIENT's construction representative, all existing access points shall be maintained at all times by the CONTRACTOR. The need for traffic control shall be anticipated by the CLIENT.

WORK AREA

The CONTRACTOR, his agents and employees and their employees and all equipment, machinery and vehicles shall confine their work within the boundaries of the project or work area specified by the Client. The CONTRACTOR shall be solely liable for damage caused by him or his agents and employees and their equipment, machinery and vehicles on adjacent property or areas outside designated work areas.

UTILITY POLES

It shall be the responsibility of the CONTRACTOR to arrange for the relocation or bracing of existing utility poles that may be within the working limits of this contract. It is expressly understood that all work and costs connected with the maintenance of these utility poles, their temporary relocations, etc., shall be the responsibility of the CLIENT or the CONTRACTOR.

RESTORATION

It is the intent of these SPECIFICATIONS that clean-up and final restoration shall be performed immediately upon completion of each phase of the work, both inside and outside the Project, or when so directed by the CLIENT so that these areas will be restored as nearly as possible to their original condition or better, and shall include but not be limited to, restoration of maintained lawns and rights-of-way, roadways, driveways, sidewalks, ditches, bushes, hedges, trees, shrubs, fences, mailboxes, sewers, drain tiles, water mains, etc.

CLEANING UP

The CONTRACTOR shall at all times keep the premises free from accumulations of waste material or rubbish caused by his employees or work, and at the completion of the work he shall remove all his rubbish, tools, scaffolding and surplus materials and shall leave his work "broom clean" or its equivalent, unless more exactly specified.

ROAD CLEANING

The CONTRACTOR shall maintain roadways adjoining the project site free from mud and debris at all times. If mud and/or debris is carried onto the roadways from vehicles entering onto the highway from either the CONTRACTOR's trucks, his employees' vehicles, or his material suppliers, the CONTRACTOR shall immediately remove said mud and/or debris.

SAFETY AND PROTECTION

The CONTRACTOR shall be solely and completely responsible for the conditions of the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours. The CONTRACTOR shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR's duties and responsibilities for safety and for protection of the work shall continue until such time as all work is completed and the CLIENT has notified CONTRACTOR that the work is acceptable. The duties of the ENGINEER do not include review of the adequacy of either the CONTRACTOR's or the general public's safety in, on, or near the construction site.

HOLD HARMLESS

To the fullest extent permitted by law, any CONTRACTOR; material supplier or other entity by use of these plans and specifications hereby waives any right of contribution and agrees to indemnify, defend, save and hold harmless the CLIENT and ENGINEER and its agents, employees and consultants from and against all manner of claims, causes, causes of action, damages, losses and expenses, including but not limited to, attorneys' fees arising out of, resulting from or in connection with the performance of any work, pursuant to or with respect to these plans and specifications. However, this indemnity shall not be construed to indemnify ENGINEER, its consultants, agents or employees against its own negligence.

Claims, damages, losses and expenses as these words are used in the Agreement shall mean and include, but not be limited to (1) injury or damage occurring by reason of the failure of or use or misuse of any hoist, riggings, blocking, scaffolding or any and all other kinds of items of equipment, whether or not the same be owned, furnished or loaned by any part or entity, including any contractor; (2) all attorneys' fees and costs incurred in bringing an action to enforce the provisions of this indemnity; (3) costs for time expended by the indemnified party and its employees, at its usual rates plus costs or travel, long distance telephone and reproduction of documents and (4) consequential damages.

In any and all claims against the CLIENT or ENGINEER or any of their agents or employees and consultants by any party, including any employee of the CONTRACTOR or any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount of type of damages, compensation or benefits payable by or for the CONTRACTOR or any Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts or any insurance maintained by CONTRACTOR or any Subcontractor or any other party.

INSURANCE

Any party using or relying on these plans, including any contractor, material supplier, or other entity shall obtain, (prior to commencing any work) general public liability insurance insuring against all damages and claims for any bodily injuries, death or property damage arising out of any work, including the construction work provided for in these plans, and shall name the CLIENT and ENGINEER and its consultants, agents and representatives as additional insureds to the limits of such insurance policies; provided that any party using or relying on these plans having obligations to maintain specific insurance by reason of any agreement with CLIENT or any CONTRACTOR or ENGINEER shall provide evidence and certificates of insurance as required by such contract or agreement. Such insurance must contain a clause stating that the insurance is primary coverage for ENGINEER and ENGINEER's other applicable coverage is considered secondary. Policies shall contain a waiver of subrogation against Manhard and Client. Such insurance shall not limit any liability of any party providing work or services or providing materials.

THIRD PARTY BENEFICIARY

Manhard Consulting, the ENGINEER, is intended to be a third party beneficiary of this willing agreement and requirement.

DETAILED SPECIFICATIONS

I. DEMOLITION

The CONTRACTOR shall coordinate with respective utility companies prior to the removal and/or relocation of utilities. The CONTRACTOR shall coordinate with the utility company concerning portions of work which may be performed by the Utility Company's forces and any fees which are to be paid to the utility company for their services. The CONTRACTOR is responsible for paying for all fees and charges.

Should removal and/or relocation activities damage features indicated to remain, the CONTRACTOR shall provide new materials/structures in accordance with the contract documents. Except for materials designed to be relocated on this plan, all other construction materials shall be new.

Prior to demolition occurring, all erosion control devices are to be installed.

All existing utility lines and conduits located under proposed buildings shall be removed and properly backfilled. All utility lines and conduits located under drives, on-site roads, parking lots or sidewalks shall be filled with a flowable backfill and end plugged. All existing structures shall be removed. All existing utility lines located under landscape areas shall be left in place and plugged at all structures.

The CONTRACTOR is responsible for demolition, removal and disposal (in a location approved by all JURISDICTIONAL GOVERNING ENTITIES) of all structures, pads, walls, flumes, foundations, road, parking lots, drives, drainage structures, utilities, etc., such that the improvements shown on these plans can be constructed. All demolition work shall be in accordance with all applicable federal, state and local requirements. All facilities to be removed shall be undercut to suitable material and brought to grade with suitable compacted fill material per the specifications.

The CONTRACTOR is responsible for obtaining all permits required for demolition and disposal.

Electrical, telephone, cable, water, fiber optic cable and/or gas lines needing to be removed shall be coordinated by the CONTRACTOR with the affected utility company.

CONTRACTOR must protect the public at all times with fencing, barricades, enclosures, and other appropriate best management practices.

Continuous access shall be maintained for surrounding properties at all times during demolition.

All fire access lanes within the project area shall remain in service, clean of debris, and accessible for use by emergency vehicles.

The CONTRACTOR shall coordinate water main work with the Fire Department and the JURISDICTIONAL GOVERNING ENTITY to plan the proposed improvements and to ensure adequate fire protection is available to the facility and site throughout this specific work and through all phases of construction. CONTRACTOR shall be responsible for any required water main shut offs with the JURISDICTIONAL GOVERNING ENTITY during construction. Any costs associated with water main shut offs will be the responsibility of the CONTRACTOR and no extra compensation will be provided.

CONTRACTOR shall maintain all existing parking areas, sidewalks, drives, etc. clear and free from any construction activity and/or material to ensure easy and safe pedestrian and vehicular traffic to and from the site. CONTRACTOR shall coordinate/phase all construction activity within proximity of the building and utility interruptions with the facility manager to minimize disturbance and inconvenience to facility operations.

CONTRACTOR may limit saw-cut and pavement removal to only those areas where it is required as shown on these construction plans, however if any damage is incurred on any of the surrounding pavement, etc. the CONTRACTOR shall be responsible for ITS removal and repair.

Any existing wells encountered shall be exposed and sealed 3' below proposed finish grade by the CONTRACTOR in accordance with Section 920.120 (latest edition) of the Illinois Water Well Construction Code, Department of Public Health, and all applicable local rules and regulations. CONTRACTOR is responsible for obtaining all permits required by JURISDICTIONAL GOVERNMENTAL ENTITIES for abandoning existing wells.

Any existing septic tanks and grease traps encountered shall have all liquids and solids removed and disposed of by a licensed commercial hauler in accordance with JURISDICTIONAL GOVERNING ENTITY regulations, and the tank and grease traps shall then be filled with suitable materials or removed from the site and disposed of by the CONTRACTOR.

Voids left by any item removed under any proposed building, pavement, walk, etc. or within 24" thereof shall be filled and compacted with suitable materials by the CONTRACTOR.

The CONTRACTOR shall be responsible for the disconnection of utility services to the existing buildings prior to demolition of the buildings.

Any material containing asbestos found within existing structures shall be removed from the site and disposed of off-site by the CONTRACTOR in accordance with County, State and Federal regulations.

CONTRACTOR shall develop and implement a daily program of dust control and shall submit and obtain JURISDICTIONAL GOVERNING ENTITY approval of dust control procedures prior to demolition of any structures. Modification of dust control procedures shall be performed by the CONTRACTOR to the satisfaction of the JURISDICTIONAL GOVERNING ENTITY as requested.

The CONTRACTOR shall coordinate all demolition with the JURISDICTIONAL GOVERNING ENTITY and CLIENT to ensure protection and maintenance of sanitary sewer and water utilities as necessary and to provide stormwater conveyance until new facilities are constructed, tested and placed into operation.

The locations of all existing utilities shown on this plan have been determined from the best information available and are given for the convenience of the CONTRACTOR and are not to be interpreted as the exact location, or as the only obstacles that may occur on the site. The ENGINEER assumes no responsibility for their accuracy. Prior to the start of any demolition activity, the CONTRACTOR shall notify the utility companies for location of existing utilities and shall verify existing conditions and proceed with caution around any anticipated features.

The CONTRACTOR is responsible for removing the existing irrigation system in the areas of proposed improvements. The contractor shall cap the existing irrigation system to remain such that the remaining system shall continue to function properly.

The paving lot shall be completed in sections such that it does not interrupt the facility operations. The CONTRACTOR shall coordinate with the construction manager for work to be performed.

II.EARTHWORK

STANDARDS

This work shall be completed in conformance with the applicable sections of the Standard Specifications for Road and Bridge Construction, Department of Transportation, State of Illinois, latest edition except as modified below.

SOIL BORING DATA

Copies of results of soil boring and reports, if such borings were taken by the CLIENT in the vicinity of the proposed construction site, should be made available by the CLIENT to the CONTRACTOR. These borings are presented for whatever purpose the CONTRACTOR chooses to make of them. The ENGINEER makes no representation or warranty regarding the number, location, spacing or depth of borings taken, nor of the accuracy or reliability of the information given in the results thereof.

Further, the ENGINEER does not assume responsibility for the possibility that during construction, the soil and groundwater condition may be different than indicated. Neither does the ENGINEER assume responsibility for variations of soil and groundwater at location between borings. The CONTRACTOR is required to make its own borings, explorations and observations to determine soil and groundwater conditions.

EARTHWORK CALCULATIONS AND CROSS SECTIONS

The CONTRACTOR understands that any earthwork calculations, quantities or cross sections that have been furnished by the ENGINEER are for information only and are provided without any guarantee by the CLIENT or ENGINEER whatsoever as to their sufficiency or accuracy. CONTRACTOR warrants that he has performed his own subsurface investigations as necessary and his own calculations and cross sections to determine site soil conditions and earthwork volumes. The ENGINEER makes no representation or guarantee regarding earthwork quantities or that the earthwork for this project will balance due to the varying field conditions, changing soil types, allowable construction to tolerances and construction methods that are beyond the control of the ENGINEER.

CLEARING, GRUBBING AND TREE REMOVAL

The site shall be cleared, grubbed, and trees and stumps removed where designated on the PLANS. Trees designated to remain shall be protected from damage.

TOPSOIL STRIPPING

Upon completion of demolition, clearing, grubbing and tree removal, all topsoil shall be stripped from under all buildings and pavements areas, and other areas necessary to complete the work. Topsoil stripped shall be placed in stockpiles in locations as designated by the CLIENT.

TOPSOIL RESPREAD

Upon completion of roadway and/or parking lot improvements and installation of underground utilities a minimum of six inches (6") of topsoil shall be respread over all unpaved areas which have been disturbed by earthwork construction, except building pads and other designated areas, which shall be kept free from topsoil.

SEEDING

Upon completion of topsoil respread, the CONTRACTOR shall apply seed and fertilizer to all respread areas in accordance with IDOT standards or as designated on landscape drawings and specifications provided by the CLIENT.

SODDING

Upon completion of topsoil respread, the CONTRACTOR shall install sod to all areas designated on the plans or as designated on the landscape drawings and specifications provided by the CLIENT.

EXCAVATION AND EMBANKMENT

Upon completion of topsoil stripping, all excavation and embankments shall be completed as shown on the PLANS. All suitable excavated materials shall be hauled, placed (moisture conditioned if necessary) and compacted in the embankment areas. The CONTRACTOR shall include all dewatering, temporary ditching and culverts necessary to complete the excavation and embankment.

Specifically included in the scope of Excavation and Embankments is grading and shaping of all cut or fill areas including swales and ditches; handling of sewer spoil, etc., and all work required to provide positive drainage at the end of each working day and upon completion of a section.

The CONTRACTOR shall be responsible for the excavation of all swales and ditches and for the excavation or filling of the roads, building pads and parking lots within the work limits to lines & grades shown on the plans. He shall be responsible for obtaining compaction in accordance with the minimum values listed in the table below for all embankments unless more stringent values are listed in the soils report or are approved by the CLIENT, and to use any method approved by the CLIENT necessary to obtain this compaction (i.e., soil fabric or any undercutting that may be required).

Type Material	Percent Compaction Standard	Pavement & Floor Slabs	Grass Areas
Sandy Soils	Modified Proctor	95%	90%
Clayey Soils	Standard Proctor	95%	90%

The CONTRACTOR shall notify the CLIENT if proper compaction cannot be obtained so that the CLIENT may determine what remedial measures may be needed.

A soils testing firm employed by the CLIENT shall determine which soils are unsuitable. Materials in their natural state being defined as unsuitable that would be suitable material if moisture conditioned, shall be conditioned by the CONTRACTOR and used as suitable embankment material or hauled from the site.

For purposes of definition, unsuitable material shall be as follows unless determined otherwise by the Soils Engineer:

1. Any soil whose optimum moisture content exceeds 25%.
2. Any cohesive soil with an unconfined compressive strength of 1.5 tons per square foot or less.
3. Any soil whose silt content exceeds 60% by weight.
4. Any soil whose maximum density is less than 100 pounds per cubic foot.
5. Any soil containing organic, deleterious, or hazardous material.

Upon completion of excavation and shaping of the water retention areas intended to maintain a permanent pool of water, all silt seams and granular or sandy soils shall be removed to a minimum depth of three feet below the subgrade and replaced with an impermeable clay liner, including adjacent to and under storm sewer inlets and outlets. It is the intent of these PLANS and SPECIFICATIONS that the CONTRACTOR shall prepare the lake bottoms, side slopes, and compaction thereof such that the lakes will maintain the proposed normal water level and that leakage does not exceed ½ inch per week.

Ditches and swales are to be excavated to the lines and grades indicated on the PLANS. All suitable materials excavated from the ditches shall be used in construction of the embankments.

The CONTRACTOR shall notify the CLIENT immediately upon encountering groundwater during excavation. If in the opinion of the CLIENT or the JURISDICTIONAL GOVERNING ENTITY this condition necessitates the installation of perforated drain tile bedded in washed gravel or open storm sewer joints wrapped with fabric, the CONTRACTOR shall install the same.

During excavation and embankment, grades may be adjusted to achieve an overall site earthwork balance. The CONTRACTOR shall cooperate fully with the CLIENT in adjustment of grades, construction methods and placement of material to meet the above goals and shall immediately advise CLIENT if he believes that the earthwork will not balance.

It is the intent of these PLANS that storm waters falling on the site be diverted into sedimentation / lake / detention basins during construction. The CONTRACTOR shall construct and maintain any temporary ditches or swales that are necessary to accomplish this prior to beginning mass excavation.

EROSION CONTROL

Suitable erosion control practices shall be maintained by the CONTRACTOR in accordance with Illinois Urban Manual and all applicable Soil Erosion and Sedimentation Control ordinances and the PLANS.

UNDERCUTTING DURING EARTHWORK

If the subgrade cannot be dried adequately by discing as outlined above for placement of material to planned grades and if the CLIENT determines that the subgrade does not meet the standards set forth above, the CLIENT may require undercutting.

MISCELLANEOUS CONTRACT ITEMS

The following items may be required at the CLIENT's option, as indicated on the PLANS or as required by the JURISDICTIONAL GOVERNING ENTITY:

(1) **GEOTEXTILE FABRIC**

Geotextile fabric or approved equal shall be provided in areas as designated by the CLIENT, as indicated on the PLANS or as required by the JURISDICTIONAL GOVERNING ENTITY where proper compaction of embankments over existing soft soils is not possible. Geotextile fabric shall meet the material specifications of and shall be installed in accordance with the above standards.

(2) **EROSION CONTROL BLANKET**

Erosion control blanket or approved equal shall be provided in areas as designated by the CLIENT, as indicated on the PLANS or as required by the JURISDICTIONAL GOVERNING ENTITY for the stabilization of disturbed areas. Erosion control blanket shall meet the material specifications of and shall be installed in accordance with the above standards, the Illinois Urban Manual and/or the details shown on the PLANS.

III.UNDERGROUND IMPROVEMENTS

A. GENERAL

STANDARDS

All underground improvements shall be constructed and tested in accordance with the Standard Specifications for Water and Sewer Construction in Illinois and Standard Specifications for Road and Bridge Construction, Department of Transportation, State of Illinois, latest edition. In the event of conflicting guidelines, the more restrictive shall govern.

SELECTED GRANULAR BACKFILL

Selected Granular Backfill shall be required for all sewer and water main trenches lying under existing or proposed streets, driveways, parking lots and within 24" thereof, and where noted on PLANS. All material placed in such trenches shall be in accordance with the above standards.

MANHOLES, CATCH BASINS, INLETS & VALVE VAULTS

All Manholes, Catch Basins, Inlets, and Valve Vaults shall be constructed of reinforced precast concrete ring construction with tongue and groove joints in conformance with the latest revision of ASTM designation C-478. All joints between sections and frames (except sanitary manholes, see Section IIIB Manholes, below) shall be sealed with mastic type bituminous jointing compound. CONTRACTOR shall remove all excess mastic on inside of structure and butter joints with mortar. Manholes are to have offset cones except that no cone shall be used on storm manholes 6'-0" deep or less in which case a reinforced concrete flat top section shall be used, and Valve Vaults shall have concentric cones. Only concrete adjustment rings will be permitted where necessary and shall be limited to two adjustment rings totaling not more than 8" in height. All manholes and catch basin steps shall be copolymer polypropylene with continuous ½" steel reinforcement as manufactured by MA Industries, or approved equal.

AUGER/BORING AND CASING

Casing pipe shall be welded steel pipe, installed where shown on the PLANS. The carrier pipe shall be securely blocked and banded and sanitary and storm sewers shall maintain the specified gradient. Upon installing the carrier pipe the ends shall be sealed with hydraulic cement.

AUGER (OPEN BORE)

The CONTRACTOR shall auger (open bore) where noted on PLANS.

HORIZONTAL AND VERTICAL SEPARATION OF WATER AND SEWER MAINS

Horizontal and vertical separation of water and sewer mains shall be in accordance with Standard Specifications for Water and Sewer Construction in Illinois Section 41-2.01A and 41-2.01B and Standard Drawing 18, 19, 20, 21, 22, 23 and 24.

STRUCTURE ADJUSTMENTS

Structures shall be adjusted to the finished grade as shown on PLANS.

B. SANITARY SEWERS AND APPURTENANCES

SANITARY SEWER PIPE

Sanitary sewer pipe including building services, shall conform to the following:

(1) Polyvinyl Chloride (PVC) Sewer Pipe shall conform to ASTM D3034 (4-inch thru 15-inch) or ASTM F679 (18-inch thru 48-inch) minimum SDR 26 with flexible elastomeric seal gasket gasketed joints conforming to ASTM D3212 and F477.

(2) Ductile Iron Sewer Pipe shall conform with ANSI/AWWA C151/A21.51 Class 50, cement lined with push on type joints conforming to ANSI/AWWA C111/A21.11.

(3) Extra Strength Clay Sewer Pipe shall conform with ASTM Specification C700 (glazed) with ASTM D1784 type joints conforming to Clow NO-BEL (ESVCP), with flexible gasket meeting ASTM C425 (MWRD only).

Sanitary sewers shall include bedding and backfilling.

MANHOLES

Manholes shall be constructed in conformance with Section IIIA Manholes, etc. above. The concrete base and bottom section shall be constructed of precast reinforced concrete monolithically cast sections including benches, pipe connection and invert flow lines. Manhole frame and lids shall be Neenah R-1772 or approved equal, with lids imprinted "SANITARY", with recessed pick holes. Manhole joints between adjustment rings and frames and between manhole sections shall be set on preformed plastic gasket consisting of a homogeneous blend of refined hydrocarbon resins and plasticizing compounds reinforced with inert mineral filler to provide a water tight seal. All pipe connection openings shall be precast with resilient rubber watertight pipe sleeves. A 10" elastomeric band (chimney seal) shall be installed extending from the manhole top to the manhole frame as shown on detail. Manholes shall include steps, frame & grate, bedding, and trench backfill.

FOUNDATION, BEDDING AND HAUNCHING

Foundation, Bedding and Haunching shall be wet coarse aggregate or moist fine aggregate in accordance with the above standards and placed as shown on the detail.

TESTING

Sanitary sewers shall be air tested and tested for deflection in accordance with the requirements of Section 31-1.12 "TESTING AND INSPECTION FOR ACCEPTANCE OF SANITARY SEWERS" of the Standard Specifications for Water and Sewer Construction in Illinois or the JURISDICTIONAL GOVERNING ENTITY, whichever is more restrictive. In addition, a televised inspection of the completed sanitary sewers shall be conducted and a copy of the videotape and report furnished to the JURISDICTIONAL GOVERNING ENTITY.

All sanitary manholes are to be tested for water tightness in accordance with ASTM C969 "Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines", or ASTM C1244 "Standard Test Method for Concrete Sewer Manholes by the Negative Pressure (Vacuum) Test".

SERVICES

A wye branch or "tee" and sanitary service line, properly plugged and sealed shall be constructed as shown on the PLANS. The ends of all services shall be marked with a 4"x4" post extending 36" above grade and painted red. The CONTRACTOR shall keep accurate records of all Wye or Tee locations as measured from the downstream manhole as well as the service lengths and furnish same to CLIENT.

RISERS

Risers shall be constructed in locations as shown on the PLANS and according to the detail.

DROP MANHOLE CONNECTIONS

Drop manhole connections to existing manholes shall be constructed according to the PLANS and the detail.

SANITARY SEWER FORCE MAIN

Sanitary sewer force main shall conform to the following:

(1) Polyvinyl Chloride (PVC) Pressure Pipe conforming to the latest revision of ANSI/AWWA C900, Class 150 with integral bell and flexible elastomeric gasket joints conforming to ASTM F477.

(2) Ductile iron cement lined pipe conforming to the latest revision of ANSI/AWWA C151/A21.51, Thickness Class 50, minimum 150 psi working pressure with "push on" type joints.

Force mains shall have a minimum of five feet six inches (5'-6") of cover and shall include bedding and trench backfill. Poured or monolithic concrete thrust blocks are required to brace all tees, plugs, caps, and bends of 11 1/4 degree deflection or greater.

Upon completion of installation, force mains are to be plugged and pressure tested at 2 times the working pressure or total dynamic head for a period of 10 minutes, with no loss of pressure or as required by the JURISDICTIONAL GOVERNING ENTITY, whichever is more stringent.

TELEVISION INSPECTION

Upon completion of construction a television inspection of the sanitary sewer system shall be performed on all portions of the sewer if required by the JURISDICTIONAL GOVERNING ENTITY. Videotapes and written report of all television inspections shall be provided to the CLIENT. The form of report and type and format of the videotape shall be approved by the JURISDICTIONAL GOVERNING ENTITY.

All sewers and appurtenances shall be cleaned prior to inspection and testing required by this section.

All defects and corrective work required as the result of television inspection shall be performed by the CONTRACTOR without delay. All dips, cracks, leaks, improperly sealed joints and departures from approved grades and alignment shall be repaired by removing and replacing the involved sections of pipe. Upon completion thereof, the sewer shall be retested and such further inspection made as may appear warranted by the CLIENT.

MISCELLANEOUS

All floor drains shall be connected to the sanitary sewer.

C. WATER MAINS AND APPURTENANCES

WATER MAIN PIPE (3" AND LARGER)

Water main pipe shall conform to the following:

(1) Ductile iron pipe shall be per ANSI/AWWA C151/A21.51, Thickness Class 52, minimum 150 psi working pressure, cement lined in accordance with ANSI/AWWA C104/A21.4, with "push on" type joints.(2)

(2) Polyvinyl Chloride Pipe (PVC) conforming to the latest revision of ANSI/AWWA C900 (4-inch thru 12-inch) or ANSI/AWWA C905 (14-inch thru 48-inch) with a pressure rating of 235 psi, SDR 18 in accordance with ASTM D2241. Joints shall be pressure rated in accordance with ASTM D3139 with elastomeric seals in accordance with ASTM F477.

Installation shall be in accordance with ANSI/AWWA C600 (Ductile Iron) or ANSI/AWWA C605 (PVC). All water main shall have mechanical joint cast iron or ductile iron fittings in accordance with ANSI/AWWA C110/A21.10 or compact ductile iron fittings in accordance with ANSI/AWWA C153/A21.53 with 250 psi working pressure.

Poured or monolithic concrete thrust blocks are required to brace all tees, plugs, caps, and bends of 11 1/4 degree deflection or greater. Minimum cover for all water mains, including services, shall be 5'-6" from the finished grade. Water main shall include bedding and backfilling.

WATER VALVES

All valves shall be resilient wedge gate valves conforming to the latest revision of ANSI/AWWA C515, with a rated working pressure of 200 psi in accordance with JURISDICTIONAL GOVERNING ENTITY requirements, except that butterfly valves conforming to ANSI/AWWA C504 shall be constructed on all water mains 16" diameter and larger. Valves shall be non-rising stem and shall close by turning clockwise.

VALVE VAULTS

Valve vaults shall be constructed in conformance with Section IIIA Manholes, etc. above. Frame and lids shall be as approved by the JURISDICTIONAL GOVERNING ENTITY and shall be imprinted "WATER".

VALVE BOXES

Valve boxes shall be constructed in conformance with the standard detail. Valve boxes shall be cast iron extension screw type having lids imprinted with the letters "WATER".

FIRE HYDRANTS

Fire Hydrants shall be per JURISDICTIONAL GOVERNING ENTITY requirements. All fire hydrants shall be located as shown on the PLANS and shall be painted in a manner acceptable to the JURISDICTIONAL GOVERNING ENTITY after installation and shall be adjusted to final grade.

TAP, STOPS AND BOX

The CONTRACTOR shall determine from the JURISDICTIONAL GOVERNING ENTITY as to the exact style, type, and manufacture of corporation stops, ground key stops and services boxes preferred by the JURISDICTIONAL GOVERNING ENTITY and shall furnish same.

SMALL WATER SERVICES (2" DIAMETER OR LESS)

Water services shall be type K copper size as shown on PLANS, and constructed where shown on the PLANS. The ends of all services shall be marked with a 4"x4" post extending 36" above grade and painted blue. The CONTRACTOR shall keep accurate records of tap locations and service box locations, as well as the service lengths and furnish same to CLIENT. Water services shall include bedding and backfilling.

DISINFECTION

Disinfections shall meet all of the requirements of the State of Illinois, Environmental Protection Agency, Public Water Supplies Division. The safe quality of the water supply shall be demonstrated by bacteriological analysis of samples collected at sampling taps on at least two consecutive days following disinfection of the mains and copies of the said report submitted to the JURISDICTIONAL GOVERNING ENTITY and the CLIENT.

PRESSURE TEST

Allowable leakage, test pressure and duration shall be as per the requirements of the JURISDICTIONAL GOVERNING ENTITY.

PRESSURE CONNECTION TO EXISTING WATER MAIN

The CONTRACTOR shall maintain system pressure on existing water main at all times. Existing water main shall be located and material excavated, and valve basin slab and main supports installed. The existing water main shall be cleaned and the exterior disinfected prior to installing the tapping tee (material to conform to AWWA C110). The tapping valve shall be installed (valve to conform to AWWA C500) and the pressure tap completed in accordance with the detail on the plans. Valve shall be constructed in conformance with the detail. Payment for pressure connection to existing water main shall include disinfection, tapping valve and tee, valve vault, frame and lid, bedding, and trench backfill.

DRY CONNECTION TO EXISTING WATER MAIN

A dry connection to existing water main shall include a connection to an existing water main stub where shown on the PLANS. The CONTRACTOR shall obtain approval of the JURISDICTIONAL GOVERNING ENTITY to shut down any main, including submittal of a schedule of the time of shut off and the time the line will be returned to service. All mains shut down that are opened to atmosphere must be disinfected prior to returning main into service.

POLYETHYLENE ENCASEMENT (FOR DUCTILE IRON WATER MAIN ONLY)

The CLIENT, or JURISDICTIONAL GOVERNING ENTITY may request that portions of the water main be enclosed in a polyethylene encasement in accordance with ANSI/AWWA C105/A21.5 should soil conditions so warrant its use.

FOUNDATION, BEDDING AND HAUNCHING

Foundation, Bedding and Haunching shall be wet coarse aggregate or moist fine aggregate in accordance with the above standards and placed as shown on the detail.

TRACER WIRE

If the distance between valves when installing PVC pipe exceeds 1,000', tracer wire stations will be required for current induction. Tracer wire stations in grass areas will be Rhino TriView Flex Tracing Wire Stations or approved equal. In paved areas, they will be Valvco Tracer Wire Access Box for H20 loading or approved equal.

For open cut construction, using PVC pipe, a continuous, insulated, 12 gauge copper wire suitable for direct burial shall be taped on top of all piping to provide for locating following construction. This wire shall be securely terminated inside every valve vault on stainless steel hardware with an exposed lead of at least 12". A mechanically secure and soldered connection shall be provided for all wire splices. Where construction is by directional drilling or similar trenchless technology the tracer wire shall be 3/16" 7x19 PVC coated stainless steel aircraft cable with minimum breaking strength of 3,700 lbs (Lexco, Chicago, IL). Or Trace-Safe water blocking tracerwire RT series 19 gauge conductor (RT 1802W water, RT 1803W sewer).

Before final approval of any water main, there will be a monitored tracer wire continuity test in order to confirm proper installation of any tracer wire.

D. STORM SEWERS AND APPURTENANCES

STORM SEWER PIPE

Storm sewer pipe shall conform to the following:

(1) Reinforced concrete pipe minimum Class IV in conformance with the latest revision of ASTM designation C76 with C443 flexible gasket joints, except that bituminous mastic joints may be used in grass areas.

(2) Polyvinyl Chloride (PVC) Pipe: ASTM D3034 (4-inch thru 15-inch) or ASTM F679 (18-inch thru 36-inch), rated SDR 35, continually marked with manufacturer's name, pipe size, cell classification, SDR rating. Joints shall be flexible elastomeric seals conforming to ASTM D3212.

(3) Ductile Iron Pipe (DIP) shall conform to ANSI/AWWA C151/21.5, Class 50 cement lined with push on type joints conforming to ANSI/AWWA C111/A21.11.

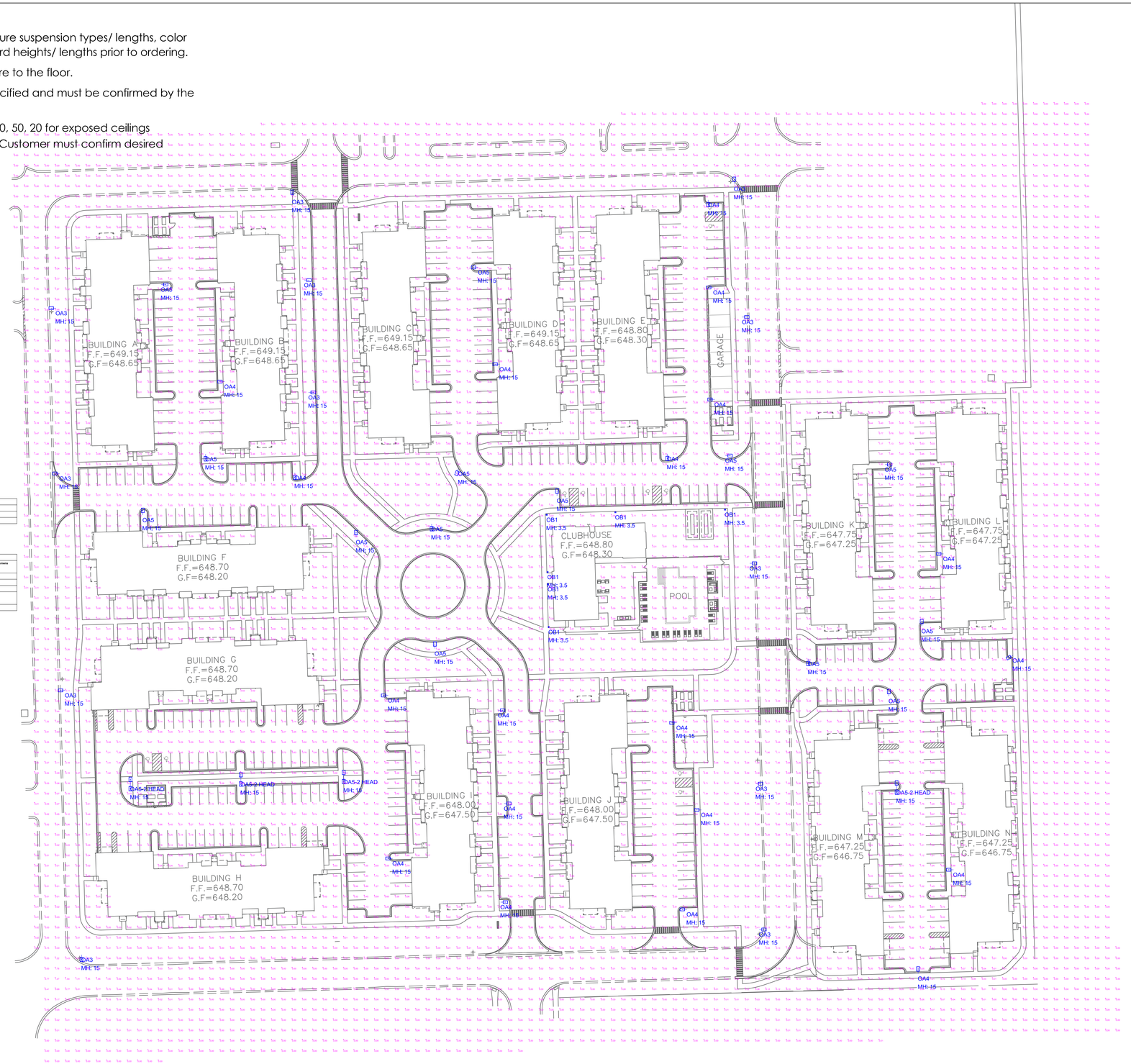
(4) Spiral Rib Metal Pipe Type 1R: 18-inch diameter and greater. Pipe ends shall be re-corrugated and installed with semi-corrugated Hugger type brands and "O" ring gaskets. (Only permitted with Municipality approval and/or when specifically indicated on PLANS).

(5) High Density Polyethylene Pipe (HDPE) Smooth Interior, AASHTO Designation M252 and M294, maximum diameter of 48 inches. Pipe joints and fittings shall be watertight gasketed joints. No band seals will be allowed. (Only permitted in landscape areas with Municipality Approval and/or when specifically indicated on PLANS).

(6) Polypropylene (PP) Pipe shall have a smooth interior

NOTES:

- Customers are responsible for confirming mounting heights, fixture suspension types/ lengths, color temperature, CRI, linear fixture lengths, pole lengths, and bollard heights/ lengths prior to ordering.
- Mounting height (MH) is measured from the bottom of the fixture to the floor.
- This Lighting layout assumes the following unless values are specified and must be confirmed by the customer prior to ordering.
  - Room reflectance of 80, 50, 20 for standard ceilings and 50, 50, 20 for exposed ceilings
  - Wall sconces are mounted at 7' for calculation purposes. Customer must confirm desired mounting height before rough in.



Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
SITE	Illuminance	Fc	0.44	15.56	0.00	N.A.	N.A.
PARKING AND DRIVES	Illuminance	Fc	0.95	6.4	0.0	N.A.	N.A.

Luminaire Schedule

Qty	Label	Arrangement	LLF	MFR	Description	Lum. Watts	Total Watts	Lum. Lumens
12	OA3	Single	0.950	LITHONIA	RSX1 LED P1 40K R3 14FT POLE 9FT BASE	51.34	616.08	7096
10	OA4	Single	0.950	LITHONIA	RSX1 LED P1 40K R4 14FT POLE 9FT BASE	51.34	975.46	7189
14	OA5	Single	0.950	LITHONIA	RSX1 LED P1 40K R5 14FT POLE 9FT BASE	51.34	718.76	7294
4	OA5-2 HEAD	Back-Back	0.950	LITHONIA	RSX1 LED P1 40K R5 2@180 14FT POLE 9FT BASE	51.34	410.72	7294
6	OB1	Single	0.950	LUMINIS	BVA1B 5 L1L1 LO4 40K	19.2	115.2	1392

ENTERPRISE Lighting & Control

#	DATE	COMMENTS

REVISIONS

DRAWN BY : BB

DATE : JAN 13, 2026

SCALE :1" = 50'-0"

SEASONS AT CREST HILL

CREST HILL, IL

SITE LIGHTING LAYOUT

RYAN DRIVE

4"-7" TREE ALONG
EXECUTIVE DRIVE (TYP.)

RYAN DRIVE

EXECUTIVE DRIVE

PROPERTY BOUNDARY

4"-7" TREE ALONG
EXECUTIVE DRIVE (TYP.)

4"-11" TREE ALONG
SOUTHERN RYAN DRIVE

RYAN DRIVE

N

0 20 40 80

SCALE: 1"=40'

DRAWN BY	REVISIONS	DATE

Manhard CONSULTING
One Parkview Plaza, Suite 2800 Lisle/Wheaton, IL 60532 ph 630.724.3200 fax 630.724.3202 Timberlake
Civil Engineers • Surveyors • Water Resource Engineers • Structural Engineers • Water Resource Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL

CITY OF CREST HILL

EXISTING VEGITATION EXHIBIT

PROJ. MGR.:	JSE
PROJ. ASSOC.:	MSL
DRAWN BY:	CAW
DATE:	10-9-25
SCALE:	1"=40'

SHEET

EXB.

FRD.GUIL01

©2025 MANHARD CONSULTING, ALL RIGHTS RESERVED

October 10, 2025 - 8:48 Dwg Name: P:\Projects\Active\Preliminary\Exhibits Exh\EXISTING CONDITIONS Exhibit.dwg Updated By: pwasielewski

Final Landscape Plan
for
SEASONS AT CREST HILL
CREST HILL, ILLINOIS

Crest Hill Required Landscaping

MINIMUM PLANTING REQUIREMENTS

One approved planting for each 725 sf of gross lot area. For each required planting, there shall be an additional 10 sf of approved ground cover adjacent thereto. Approx. 688,840 sf gross lot area (preliminary) = 950 approved plantings and 9,500 sf approved adjacent groundcover required.

Approved Plantings and Ground Cover: Shade trees min 3" caliper, conifers min 6' height, ornamental trees min 6' in height, border plantings and foundation plantings, living ground coverages at a density sufficient to guarantee total coverage within 2 yrs of planting, other ground covers.

SCREENING AND BUFFERING REQUIREMENTS

Multi-family sites shall be buffered from adjacent single-family sites via landscape berms, plantings, and/or fencing to achieve less than a minimum of 75% visual screen at a min. mature height of 6'.

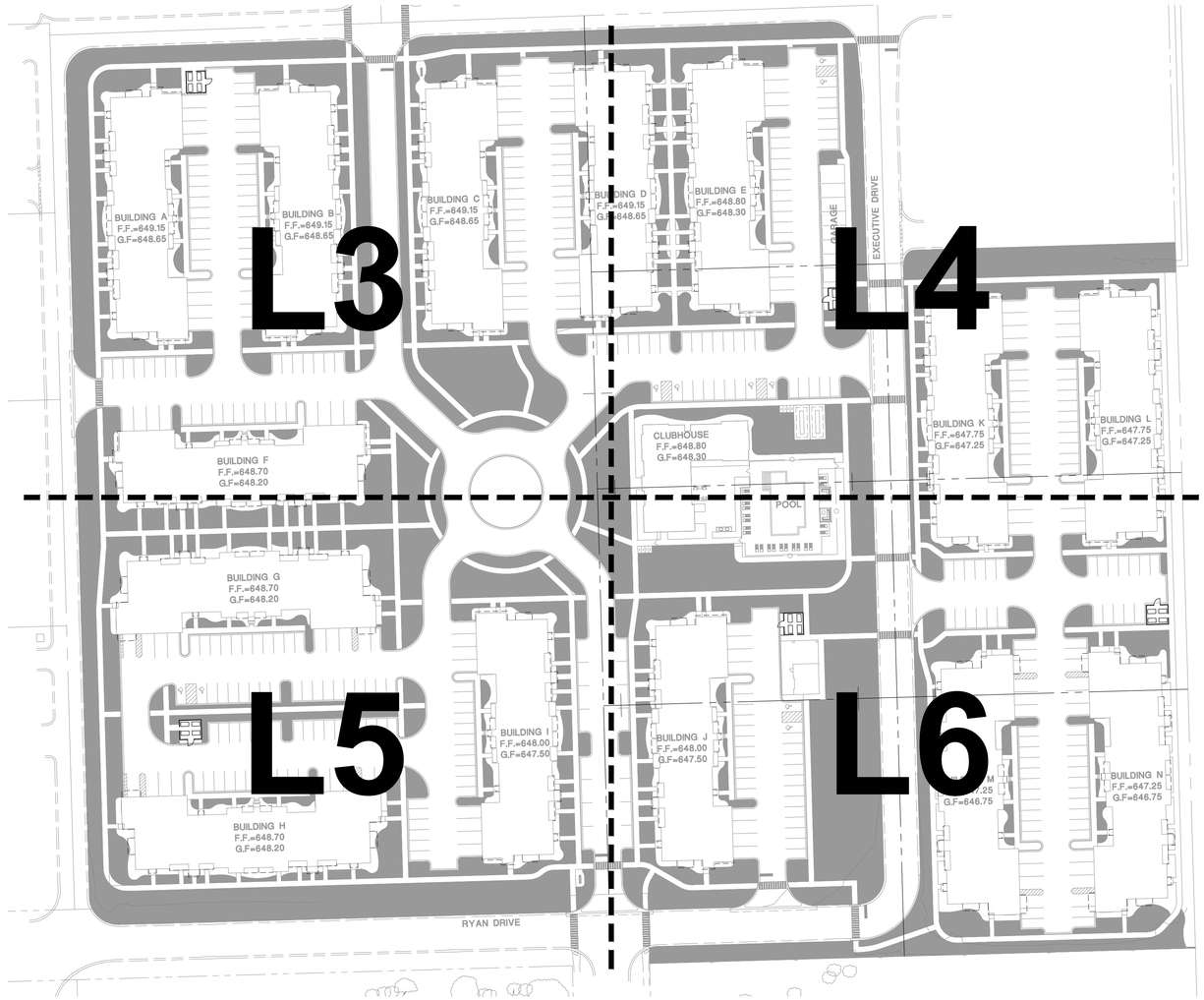
Per 8.3-9.1, a fence, wall, hedge, or shrubbery may be placed along the side and rear lot line. If placed in the front or corner side yard it must maintain a min. setback of 6'. Maximum height 6' in rear and side, 4' in front or corner side.

PARKING REQUIREMENTS

All off-street parking areas containing more than 4 spaces shall be effectively screened on each side adjoining or fronting on any property situated in a R- District. A landscape island shall be required at the end of each parking row. The interior of a parking lot with >20 cars shall include interior landscape islands at 1 tree per 20 parking spaces or fraction thereof, evenly distributed.

Landscape Notes:

1. Seed/ Sod limit line is approximate. Seed/ Sod to limits of grading and disturbance. Contractor responsible for restoration of any unauthorized disruption outside of designated construction area.
2. Contractor responsible for erosion control in all seeded/ sodded areas. Tree mulch rings in turf areas are 5' diameter. Contractor shall provide a mulch ring around all existing trees within the limits of work. Remove all existing grass from area to be mulched and provide a typical spade cut edge. Landscape Fabric shall not be installed under mulch. Root flares shall be at or above grade, per specifications, and all rope/cord shall be removed from the base of tree trunks.
3. Bedlines are to be spade cut to a minimum depth of 3". Curved bedlines are to be smooth and not segmented.
4. All planting, beds shall receive top dressing of mulch. Landscape fabric shall not be installed under mulch.
5. Do not locate plants within 10' of utility structures or within 5' horizontally of underground utility lines unless otherwise shown on plans. Consult with Landscape Architect if these conditions exist.
6. For Lump Sum Contracts, plants and other materials are quantified and summarized for the convenience of the Owner and jurisdictional agencies only. Confirm and install sufficient quantities to complete the work as drawn and specified. No additional payments will be made for materials required to complete the work as drawn and specified.
7. For Unit Price Contracts, payments will be made based on actual quantities installed as measured in place by the Owner's Representative.
8. It is the responsibility of the contractor to locate and provide plant material as specified on this plan. The contractor may submit a request to provide substitutions for the specified plant material under the following conditions:
   a. Any substitutions proposed shall be submitted to the project owner's representative within two weeks of the award of contract. Substitutions must meet equivalent design and functional goals of the original materials as determined by the owner's representative. Any changes must have the approval of the owner's representative,
   b. The request will be accompanied by at least three notices from plant material suppliers that the plant material specified is not available and will not be available prior to construction.
10. Verify site conditions and information on drawings. Promptly report any concealed conditions, mistakes, discrepancies or deviations from the information shown in the Contract Documents. The Owner is not responsible for unauthorized changes or extra work required to correct unreported discrepancies. Commencement of work shall constitute acceptance of conditions and responsibility for corrections
11. A minimum of two working days before performing any digging, call underground service alert for information on the location of natural gas lines, electric cables, telephone cables, etc. The contractor shall be responsible for location and protection of all utilities, and repair of any damage resulting from his work at no additional cost to the owner.
12. Contractor shall promptly repair all damages to existing site at no cost to owner.
13. Refer to landscape specifications for additional conditions, standards, and notes.
14. Downspouts shall be routed underground and/or away from planting beds.



KEY MAP

0 30 60 120
Scale: 1"= 60'-0"

Note: Full Plant Schedule on Sheet L7

JULIE ILLINOIS ONE-CALL SYSTEM
Simply Call 811

LICENSED LANDSCAPE ARCHITECT
JENNIFER HENDRICKS
157-001253
STATE OF ILLINOIS
SEAL
Date: 01/14/26

Jennifer Hendricks, ASLA, PLA
Illinois Registered Landscape Architect # 157-001253
Expires 08/31/2027

Manhard CONSULTING
333 East Butterfield Road, Suite 800, Lombard, IL 60148 ph 630.591.8000 fx 630.591.8585 manhard.com
Civil Engineers • Water Resource Engineers • Surveyors • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY | REVISIONS | DATE

SEASONS AT CREST HILL
CREST HILL, ILLINOIS
LANDSCAPE COVER SHEET

PROJ. MGR.: PM
PROJ. ASSOC.: ----
DRAWN BY: JSH
DATE: 1/14/2026
SCALE: AS SHOWN

SHEET
L1 OF L8
FRD.CRIL01

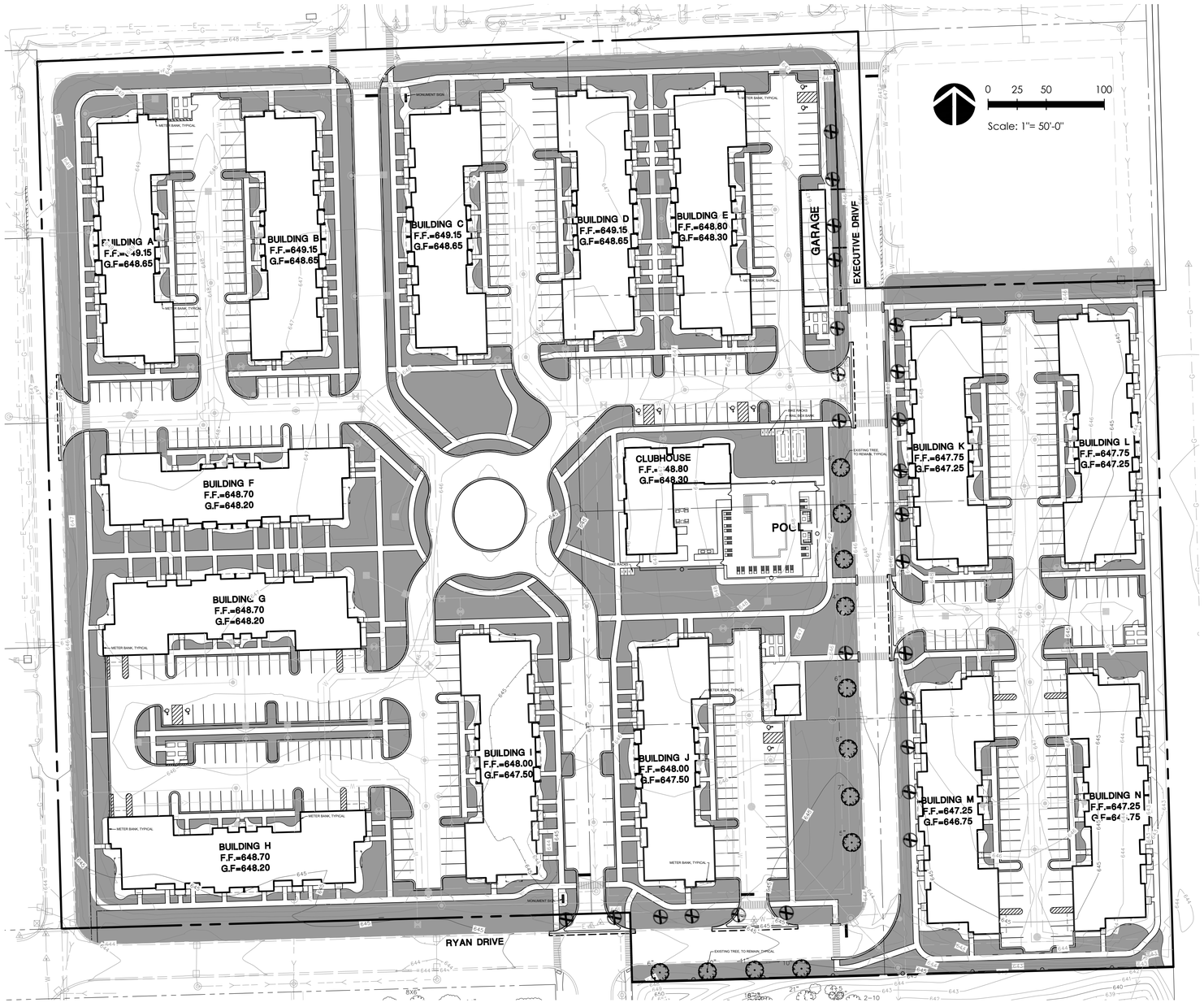
©2026MANHARD CONSULTING, ALL RIGHTS RESERVED

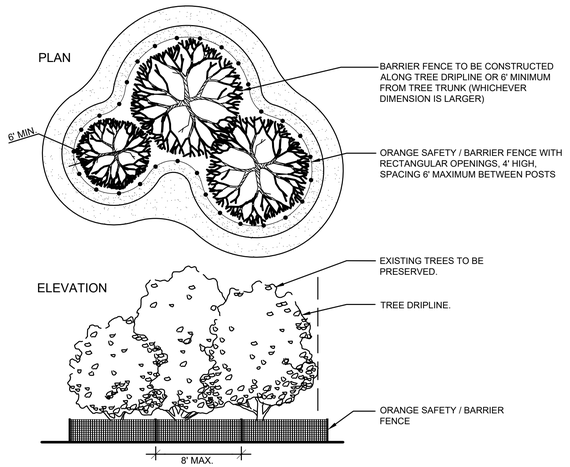
January 15, 2026 - 10:16 Dwg Name: P:\Frdc\031\dwg\Landdpl\v00-Final\01-Final-landscape.dwg Updated By: JHendricks

Legend

Existing tree to be removed

Existing tree to remain





ERECT ORANGE SAFETY/BARRIER FENCE PRIOR TO ANY CONSTRUCTION ACTIVITY, **AS SHOWN ON PLAN**. DO NOT STORE ANY EQUIPMENT OR MATERIALS WITHIN THE PROTECTED AREA. REMOVE THE BARRIER FENCE ONLY AFTER CONSTRUCTION OPERATIONS ARE COMPLETED.

A Tree Protection Plan

TREE PROTECTION SPECIFICATION

PART 1 - GENERAL

DEFINITIONS:

Tree and Plant Protection Area: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and defined by a circle centered on the trunk with each tree with a radius equal to the crown dripline (the outer edge of the branch crown) unless otherwise indicated on the plans or by the Owner's Representative.

PART 2 - PRODUCTS

2.1 MULCH

2.1.1 Unless otherwise specified in the Plans, mulch shall be shredded hardwood mulch and shall be free of disease, insects, weed seeds, and added color. The minimum range of fine particles shall be 3/8 inch or less in size and a maximum size of individual pieces shall be approximately 1 to 1-1/2 inch in diameter and maximum length of approximately 4 to 5 inches.

2.1.2 Submit suppliers' product data that the product meets the requirements and two-gallon sample for approval.

2.2 TREE PROTECTION FENCING / PLASTIC MESH FENCE: Heavy - duty orange plastic mesh fencing fabric 48 inches wide. Fencing shall be attached to metal "U" or "T" post driven into the ground of sufficient depth to hold the fabric soldily in place without sagging. The fabric shall be attached to the post using attachment ties of sufficient number and strength to hold up the fabric without sagging. The Owner's Representative may request, at any time, additional post, deeper post depths and or additional fabric attachments if the fabric begins to sag, lean or otherwise not present a sufficient barrier to access.

2.3 TREE PROTECTION SIGN: Heavy-duty cardboard signs, 8.5 inches x 11 inches, white colored background with black 2-inch high or larger letters block letters. The signs shall be attached to the tree protection fence every 50 feet o.c. The tree protection sign shall read "Tree and Plant Protection Area- Keep Out".

PART 3 - EXECUTION

3.1 PREPARATION:

3.1.1 Prior to start of construction, layout the limits of the Tree and Plant Protection Area and then alignments of required Tree and Plant Protection Fencing and root pruning. Obtain the Owner's Representative's approval of the limits of the protection area and the alignment of all fencing and root pruning.

3.1.2 Prior to any construction activity at the site including utility work, grading, storage of materials, or installation of temporary construction facilities, install all tree protection fencing, silt fence, tree protection signs, and mulch as shown on the drawings.

3.2 PROTECTION: Protect the Tree and Plant Protection Area at all times from compaction of the soil, damage of any kind to trunks, bark, branches, leaves and roots of all plants, and contamination of the soil, bark or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the Owner's Representative of any spills, compaction or damage and take corrective action immediately using methods approved by the Owner's Representative.

3.3 GENERAL REQUIREMENTS AND LIMITATIONS FOR OPERATIONS WITHIN THE TREE AND PLANT PROTECTION AREA:

3.3.1 The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

3.3.2 In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner's Representative and submit a detailed written plan of action for approval.

3.3.2.1 Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices (ANSI A300, part 8) and be performed under supervision of an arborist.

3.3.2.2 TRUNK PROTECTION: Protect the trunk of each tree to remain by covering it with a ring of 8-foot long 2-inch x 6-inch planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

3.4 TREE REMOVAL:

3.4.1 Remove all trees indicated by the drawings and specifications, as requiring removal, in a manner that will not damage adjacent trees or structures or compacts the soil.

3.4.2 Remove trees that are adjacent to trees or structures to remain, in sections, to limit the opportunity of damage to adjacent crowns, trunks, ground plane elements and structures.

3.4.3 Remove stumps and immediate root plate from existing trees to be removed. Grind trunk bases and large buttress roots to a depth of the largest buttress root or at least 18 inches below the top-most roots, whichever is less and over the area of three times the diameter of the trunk (DBH).

3.4.3.1 For trees where the stump will fall under new paved areas, grind roots to a total depth of 18 inches below the existing grade. If the sides of the stump hole still have greater than approximately 20% wood visible, continue grinding operation deeper and or wider until the resulting hole has less than 20% wood. Remove all wood chips produced by the grinding operation and back fill in 8-inch layers with controlled fill of a quality acceptable to the site engineer for fill material under structures, compacted to 95% of the maximum dry density standard proctor. The Owner's Representative shall approve each hole at the end of the grinding operation.

3.4.3.2 In areas where the tree location is to be a planting bed or lawn, remove all woodchips and backfill stump holes with planting soil as defined in Specification Section Planting Soil, in maximum of 12-inch layers and compact to 80 - 85% of the maximum dry density.

3.5 PRUNING:

3.5.1 Within six months of the estimated date of substantial completion, prune all dead or hazardous branches larger than 2 inch in diameter from all trees to remain.

3.5.2 All pruning shall be done in accordance with ANSI A300 (part 1), ISA BMP Tree Pruning (latest edition), and the "Structural Pruning: A Guide for the Green Industry", Edward Gilman, Brian Kempf, Nelda Matheny and Jim Clark, 2013 Urban Tree Foundation, Visalia CA.

3.6 WATERING: The Contractor shall be fully responsible to ensure that adequate water is provided to all plants to be preserved during the entire construction period. Adequate water is defined to be maintaining soil moisture above the permanent wilt point to a depth of 8 inches or greater.

3.7 WEED REMOVAL: During the construction period, control any plants that seed in and around the fenced Tree and Plant Protection area at least three times a year, with one final weeding of the Area at the end of the construction period.

3.8 REMOVAL OF FENCING AND OTHER TREE AND PLANT PROTECTION: At the end of the construction period (at Preliminary Acceptance) or when requested by the Owner's Representative, remove all fencing, trunk protection, signs, and any other Tree and Plant Protection material.

3.9 DAMAGE OR LOSS TO EXISTING PLANTS DESIGNATED TO REMAIN

3.9.1 Any trees or plants designated to remain, and which are damaged by the Contractor shall be replaced in kind by the Contractor at their own expense. Trees shall be replaced with a tree of similar species and of equal size or 6-inch caliper, whichever is less. Shrubs shall be replaced with a plant of similar species and equal size or the largest size plants reasonably available whichever is less. Where replacement plants are to be smaller than the size of the plant that is damaged, the Owner's Representative shall approve the size and quality of the replacement plant. All replacement trees and plants shall be installed per the requirements of Specification Section Planting. Note that local ordinance requirements may supercede the replacement specifications stated here.

3.9.2 Plants that are damaged shall be considered as requiring replacement or appraisal when the damage affects more than 25% of the crown, 25% of the trunk circumference or root protection area, or the tree is damaged in such a manner that the tree could develop into a potential hazard. Trees and shrubs to be replaced shall be removed by the Contractor at his own expense.

Manhard CONSULTING
303 East Butterfield Road, Suite 600, Lombard, IL 60148 ph 630.691.8000 fx 630.691.8585 manhard.com
Civil Engineers • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DATE	REVISIONS	DRAWN BY

SEASONS AT CREST HILL
CREST HILL, ILLINOIS
TREE PRESERVATION PLAN

PROJ. MGR.:	PM
PROJ. ASSOC.:	----
DRAWN BY:	JSH
DATE:	1/14/2026
SCALE:	AS SHOWN

SHEET
L2 OF L8
FRD.CRIL01

© 2026MANHARD CONSULTING, ALL RIGHTS RESERVED

January 15, 2026 - 16:16 Dwg Name: P:\Fdcr001\Dwg\Landplan\02-Final\01-Final-Landscape.dwg Updated By: JHendricks

BUILDING A
F.F.=649.15
G.F=648.65

BUILDING B
F.F.=649.15
G.F=648.65

BUILDING C
F.F.=649.15
G.F=648.65

BUILDING D
F.F.=649.15
G.F=648.65

BUILDING F
F.F.=648.70
G.F=648.20

MONUMENT SIGN

METER BANK, TYPICAL

METER BANK, TYPICAL

MATCHLINE SEE SHEET L5

MATCHLINE SEE SHEET L4

PLANT SCHEDULE

CODE	BOTANICAL NAME
DECIDUOUS TREES	
AA	Acer rubrum 'Armstrong'
AM5	Acer x freemanii 'Marmo'
CB	Carpinus betulus
CA	Carpinus caroliniana
CHI	Celtis occidentalis 'Chicagoland'
CJ	Cercidiphyllum japonicum
CL	Cladrastis lutea
CK	Cornus kousa
GBI	Ginkgo biloba
GY	Gymnocladus dioica
LT	Liriodendron tulipifera
NY	Nyssa sylvatica
OV	Ostrya virginiana
PAM	Platanus x acerifolia 'Morton Circle' TM
QM	Quercus macrocarpa
QE	Quercus x 'Crimschmidt'
TR	Tilia x euchlora 'Redmond'
UE	Ulmus davidiana japonica 'Morton' TM
EVERGREEN TREES	
ABI	Abies concolor
PG	Picea pungens 'Glauca'
PS2	Pinus sylvestris
TS2	Thuja occidentalis 'Smaragd'
ORNAMENTAL TREES	
AO	Acer palmatum dissectum 'Orangeola'
AG4	Amelanchier x grandiflora 'Autumn Brilliance'
CE	Cercis canadensis
CHV	Chionanthus virginicus
HT	Heptacodium miconioides 'SMNHMRF'
MAG	Magnolia x 'Jane'
SYR	Syringa reticulata 'Ivory Silk'
SHRUBS	
VM2	Viburnum dentatum 'Blue Muffin'
DECIDUOUS SHRUBS	
ABR	Aronia arbutifolia 'Brilliantissima'
AP2	Aronia melanocarpa 'SMNANMPEM'
AGH	Aronia melanocarpa 'UCONNAM012' TM
AM2	Aronia melanocarpa elata
COS	Cephalanthus occidentalis 'SMCOSS' TM
CI3	Cornus sericea 'Isanti'
CA3	Cotoneaster acutifolius
FX	Diervilla x splendens 'SMNDSD'
HU	Hydrangea paniculata 'Renba'
HYSS	Hydrangea paniculata 'Rensun' TM
HB	Hydrangea quercifolia 'Brenhill'
HR	Hydrangea quercifolia 'Ruby Slippers'
IN	Itea virginica 'SMNIVDFC'
PYG	Physocarpus opulifolius 'SMNPOBLR' TM
ROR	Rosa x 'Radcon' TM
SH2	Sorbaria sorbifolia 'Bacocot'
VC	Viburnum carlesii
VU	Viburnum dentatum deamii
WS2	Weigela florida 'Bokrasopin'
WS	Weigela x 'Slingco 2'
EVERGREEN SHRUBS	
BGM	Buxus x 'Green Mountain'
JUK	Juniperus chinensis 'Kallays Compact'
JUS	Juniperus chinensis 'Sea Green'
TAX	Taxus x media 'Densiformis'
FERNS	
AL	Athyrium filix-femina 'Lady in Red'
OC	Osmunda cinnamomea
ORNAMENTAL GRASSES	
AB2	Andropogon gerardii 'Blackhawks'
CB2	Calamagrostis brachytricha
HA2	Hakonechloa macra 'All Gold'
PSH	Panicum virgatum 'Cheyenne Sky'
PN	Panicum virgatum 'Northwind'
PLB	Pennisetum alopecuroides 'Little Bunny'
PT	Pennisetum alopecuroides 'Love and Rockets'
SA	Sesleria autumnalis
SG	Sesleria x 'Greenlee'
SH	Sporobolus heterolepis
GROUND COVERS	
CP	Ceratostigma plumbaginoides
VC2	Vinca minor
PERENNIALS	
AS	Allium x 'Serendipity'
BJ	Brunnera macrophylla 'Jack Frost'
CN	Calamintha nepeta nepeta
CZ	Coreopsis verticillata 'Zagreb'
GM	Geranium sanguineum 'Max Frei'
HG	Hemerocallis x 'Going Bananas'
HA3	Hosta x 'Autumn Frost'
NC	Nepeta x 'Cat's Pajamas'

Note: Full Plant Schedule on Sheet L7

0 10 20 40

Scale: 1"= 20'-0"

Manhard CONSULTING
Manhard TM
mhinc.com
303 East Butterfield Road, Suite 600, Lombard, IL 60148
ph 630.691.8200 fax 630.691.8585
Civil Engineers • Water Resource Engineers • Water Utility Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY | REVISIONS | DATE

SEASONS AT CREST HILL
CREST HILL, ILLINOIS
LANDSCAPE PLAN NORTHWEST

PROJ. MGR.: PM
PROJ. ASSOC.: ----
DRAWN BY: JSH
DATE: 1/14/2026
SCALE: AS SHOWN

SHEET
L3 OF L8
FRD.CRIL01

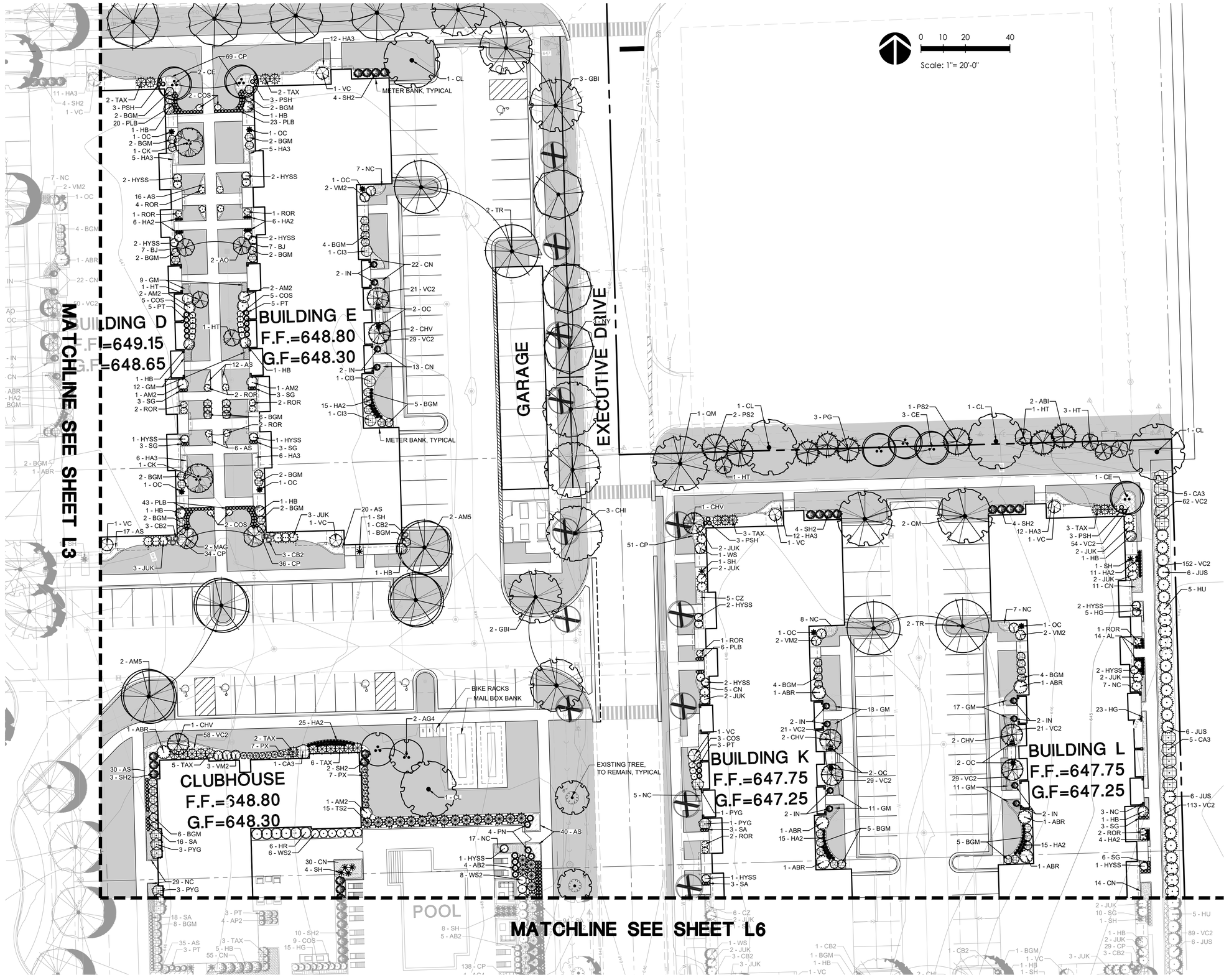
© COPYRIGHT MANHARD CONSULTING, INC. ALL RIGHTS RESERVED

January 15, 2026 - 16:16 Dwg Name: P:\Frdcr01\Dwg\Landplan\02-Final\03-Final-Landscape.dwg Updated By: JHendricks

PLANT SCHEDULE

CODE	BOTANICAL NAME
DECIDUOUS TREES	
AA	Acer rubrum 'Armstrong'
AMS	Acer x freemanii 'Marmo'
CB	Carpinus betulus
CA	Carpinus caroliniana
CHI	Celtis occidentalis 'Chicagoland'
CJ	Cercidiphyllum japonicum
CL	Cladrastis lutea
CK	Cornus kousa
GBI	Ginkgo biloba
GY	Gymnocladus dioica
LT	Liriodendron tulipifera
NY	Nyssa sylvatica
OV	Ostrya virginiana
PAM	Platanus x acerifolia 'Morton Circle' TM
QM	Quercus macrocarpa
QE	Quercus x 'Crimschmidt'
TR	Tilia x euchlora 'Redmond'
UE	Ulmus davidiana japonica 'Morton' TM
EVERGREEN TREES	
ABI	Abies concolor
PG	Picea pungens 'Glauca'
PS2	Pinus sylvestris
TS2	Thuja occidentalis 'Smaragd'
ORNAMENTAL TREES	
AO	Acer palmatum dissectum 'Orangeola'
AG4	Amelanchier x grandiflora 'Autumn Brilliance'
CE	Cercis canadensis
CHV	Chionanthus virginicus
HT	Hepfacodium miconioides 'SMNHMRF'
MAG	Magnolia x 'Jane'
SYR	Syringa reticulata 'Ivory Silk'
SHRUBS	
VM2	Viburnum dentatum 'Blue Muffin'
DECIDUOUS SHRUBS	
ABR	Aronia arbutifolia 'Brilliantissima'
AP2	Aronia melanocarpa 'SMNAMPEM'
AGH	Aronia melanocarpa 'UCONNAM012' TM
AM2	Aronia melanocarpa elata
COS	Cephalanthus occidentalis 'SMCOSS' TM
CI3	Cornus sericea 'Isanti'
CA3	Cotoneaster acutifolius
PX	Diervilla x splendens 'SMNDSD'
HU	Hydrangea paniculata 'Renba'
HYSS	Hydrangea paniculata 'Rensun' TM
HB	Hydrangea quercifolia 'Brenhill'
HR	Hydrangea quercifolia 'Ruby Slippers'
IN	Itea virginica 'SMNIVDFC'
PYG	Physocarpus opulifolius 'SMNPOBLR' TM
ROR	Rosa x 'Radcon' TM
SH2	Sorbaria sorbifolia 'Bococal'
VC	Viburnum carlesii
VU	Viburnum dentatum deamii
WS2	Weigela florida 'Bokrasopin'
WS	Weigela x 'Slingco 2'
EVERGREEN SHRUBS	
BGM	Buxus x 'Green Mountain'
JUK	Juniperus chinensis 'Kallays Compact'
JUS	Juniperus chinensis 'Sea Green'
TAX	Taxus x media 'Densiformis'
FERNS	
AL	Athyrium filix-femina 'Lady in Red'
OC	Osmunda cinnamomea
ORNAMENTAL GRASSES	
AB2	Andropogon gerardii 'Blackhawks'
CB2	Calamagrostis brachytricha
HA2	Hakonechloa macra 'All Gold'
PSH	Panicum virgatum 'Cheyenne Sky'
PN	Panicum virgatum 'Northwind'
PLB	Pennisetum alopecuroides 'Little Bunny'
PT	Pennisetum alopecuroides 'Love and Rockets'
SA	Sesleria autumnalis
SG	Sesleria x 'Greenlee'
SH	Sporobolus heterolepis
GROUND COVERS	
CP	Ceratostigma plumbaginoides
VC2	Vinca minor
PERENNIALS	
AS	Allium x 'Serendipity'
BJ	Brunnera macrophylla 'Jack Frost'
CN	Calamintha nepeta nepeta
CZ	Coreopsis verticillata 'Zagreb'
GM	Geranium sanguineum 'Max Frei'
HG	Hemerocallis x 'Going Bananas'
HA3	Hosta x 'Autumn Frost'
NC	Nepeta x 'Cat's Pajamas'

Note: Full Plant Schedule on Sheet L7



Manhard CONSULTING
303 East Butterfield Road, Suite 600, Lombard, IL 60148 ph:(630)691-8000 fx:(630)691-8585 manhard.com
Civil Engineers • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY | REVISIONS | DATE

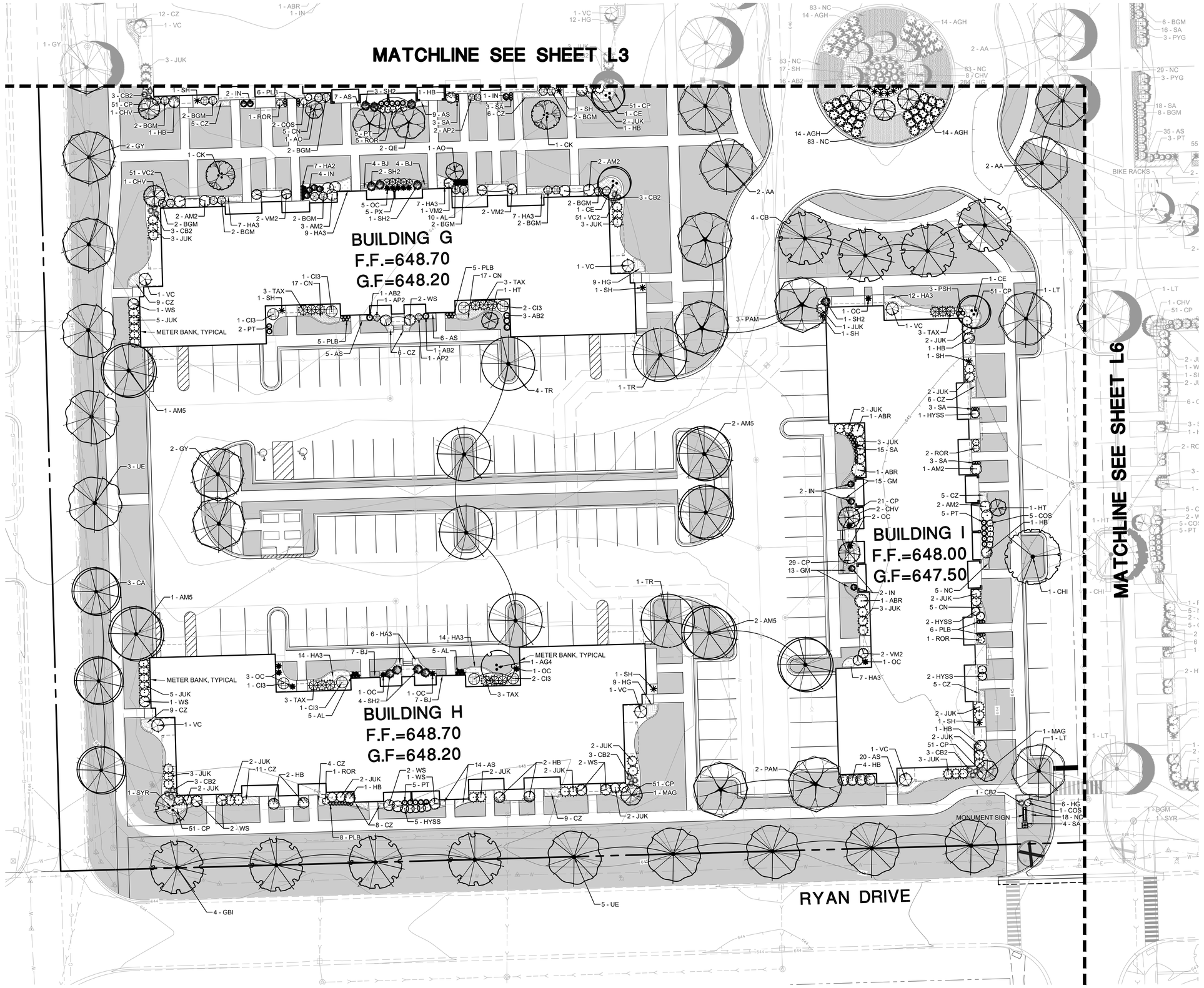
SEASONS AT CREST HILL
CREST HILL, ILLINOIS
LANDSCAPE PLAN NORTHEAST

PROJ. MGR.: PM
PROJ. ASSOC.: ----
DRAWN BY: JSH
DATE: 1/14/2026
SCALE: AS SHOWN

SHEET
L4 OF L8
FRD.CRIL01

© 2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

January 15, 2026 - 16:16 Dwg Name: P:\Fdcrl01\01\dwg\Landplan\02-final\01-final\Landscape.dwg Updated By: JHendricks



PLANT SCHEDULE

CODE	BOTANICAL NAME
DECIDUOUS TREES	
AA	Acer rubrum 'Armstrong'
AM5	Acer x freemanii 'Marmo'
CB	Carpinus betulus
CA	Carpinus caroliniana
CHI	Celtis occidentalis 'Chicagoland'
CJ	Cercidiphyllum japonicum
CL	Cladrastis lutea
CK	Cornus kousa
GBI	Ginkgo biloba
GY	Gymnocladus dioica
LT	Liriodendron tulipifera
NY	Nyssa sylvatica
OV	Ostrya virginiana
PAM	Platanus x acerifolia 'Morton Circle' TM
QM	Quercus macrocarpa
QE	Quercus x 'Crimschmidt'
TR	Tilia x euchlora 'Redmond'
UE	Ulmus davidiana japonica 'Morton' TM
EVERGREEN TREES	
ABI	Abies concolor
PG	Picea pungens 'Glauca'
PS2	Pinus sylvestris
TS2	Thuja occidentalis 'Smaragd'
ORNAMENTAL TREES	
AO	Acer palmatum dissectum 'Orangeola'
AG4	Amelanchier x grandiflora 'Autumn Brilliance'
CE	Cercis canadensis
CHV	Chionanthus virginicus
HT	Heptacodium miconioides 'SMNHMRF'
MAG	Magnolia x 'Jane'
SYR	Syringa reticulata 'Ivory Silk'
SHRUBS	
VM2	Viburnum dentatum 'Blue Muffin'
DECIDUOUS SHRUBS	
ABF	Aronia arbutifolia 'Brilliantissima'
AP2	Aronia melanocarpa 'SMNAMPEM'
AGH	Aronia melanocarpa 'UCONNAM012' TM
AM2	Aronia melanocarpa elata
COS	Cephalanthus occidentalis 'SMCOSS' TM
CI3	Cornus sericea 'Isanti'
CA3	Cotoneaster acutifolius
PX	Diervilla x splendens 'SMNDSD'
HU	Hydrangea paniculata 'Renhid'
HYSS	Hydrangea paniculata 'Rensun' TM
HB	Hydrangea quercifolia 'Brenhill'
HR	Hydrangea quercifolia 'Ruby Slippers'
IN	Itea virginica 'SMNIVDFC'
PYG	Physocarpus opulifolius 'SMNPOBLR' TM
ROR	Rosa x 'Radcon' TM
SH2	Sorbaria sorbifolia 'Bococot'
VC	Viburnum carlesii
VU	Viburnum dentatum deamii
WS2	Weigela florida 'Bokrasopin'
WS	Weigela x 'Slingco 2'
EVERGREEN SHRUBS	
BGM	Buxus x 'Green Mountain'
JUK	Juniperus chinensis 'Kallays Compact'
JUS	Juniperus chinensis 'Sea Green'
TAX	Taxus x media 'Densiformis'
FERNS	
AL	Athyrium filix-femina 'Lady in Red'
OC	Osmunda cinnamomea
ORNAMENTAL GRASSES	
AB2	Andropogon gerardi 'Blackhawks'
CB2	Calamagrostis brachytricha
HA2	Hakonechloa macra 'All Gold'
PSH	Panicum virgatum 'Cheyenne Sky'
PN	Panicum virgatum 'Northwind'
PLB	Pennisetum alopecuroides 'Little Bunny'
PT	Pennisetum alopecuroides 'Love and Rockets'
SA	Sesleria autumnalis
SG	Sesleria x 'Greenlee'
SH	Sporobolus heterolepis
GROUND COVERS	
CP	Ceratostigma plumbaginoides
VC2	Vinca minor
PERENNIALS	
AS	Allium x 'Serendipity'
BJ	Brunnera macrophylla 'Jack Frost'
CN	Calamintha nepeta nepeta
CZ	Coreopsis verticillata 'Zagreb'
GM	Geranium sanguineum 'Max Frei'
HG	Hemerocallis x 'Going Bananas'
HA3	Hosta x 'Autumn Frost'
NC	Nepeta x 'Cat's Pajamas'

Note: Full Plant Schedule on Sheet L7

0 10 20 40

Scale: 1"= 20'-0"

Manhard CONSULTING
manhard.com
303 East Butterfield Road, Suite 600, Lombard, IL 60148 ph 630.691.8266
Civil Engineers • Water Resource Engineers • Water Utility Engineers • Surveyors
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY | REVISIONS | DATE

SEASONS AT CREST HILL
CREST HILL, ILLINOIS
LANDSCAPE PLAN SOUTHWEST

PROJ. MGR.: PM
PROJ. ASSOC.: ----
DRAWN BY: JSH
DATE: 1/14/2026
SCALE: AS SHOWN

SHEET
L5 OF L8
FRD.CRIL01

©2026MANHARD CONSULTING, ALL RIGHTS RESERVED

January 15, 2026 - 16:16 Dwg Name: P:\Frdcrl\01\dwg\Landplan\V03-Final\01-Final Landscape.dwg Updated By: JHendricks

PLANT SCHEDULE	
CODE	**BOTANICAL NAME**
DECIDUOUS TREES	
AA	Acer rubrum 'Armstrong'
AM5	Acer x freemanii 'Marmo'
CB	Carpinus betulus
CA	Carpinus caroliniana
CHI	Celtis occidentalis 'Chicagoland'
CJ	Cercidiphyllum japonicum
CL	Cladrastis lutea
CK	Cornus kousa
GBI	Ginkgo biloba
GY	Gymnocladus dioica
LT	Liriodendron tulipifera
NY	Nyssa sylvatica
OV	Ostrya virginiana
PAM	Platanus x acerifolia 'Morton Circle' TM
QM	Quercus macrocarpa
QE	Quercus x 'Crimschmidt'
TR	Tilia x euchlora 'Redmond'
UE	Ulmus davidiana japonica 'Morton' TM
EVERGREEN TREES	
ABI	Abies concolor
PG	Picea pungens 'Glauca'
PS2	Pinus sylvestris
TS2	Thuja occidentalis 'Smaragd'
ORNAMENTAL TREES	
AO	Acer palmatum dissectum 'Orangeola'
AG4	Amelanchier x grandiflora 'Autumn Brilliance'
CE	Cercis canadensis
CHV	Chionanthus virginicus
HT	Heptacodium micnioides 'SMNHMRF'
MAG	Magnolia x 'Jane'
SYR	Syringa reticulata 'Ivory Silk'
SHRUBS	
VM2	Viburnum dentatum 'Blue Muffin'
DECIDUOUS SHRUBS	
ABR	Aronia arbutifolia 'Brilliantissima'
AP2	Aronia melanocarpa 'SMNAMPEM'
AGH	Aronia melanocarpa 'UCONNAM012' TM
AM2	Aronia melanocarpa elata
COS	Cephalanthus occidentalis 'SMCOSS' TM
CI3	Cornus sericea 'Isanti'
CA3	Cotoneaster acutifolius
PX	Diervilla x splendens 'SMNDSD'
HU	Hydrangea paniculata 'Renba'
HYSS	Hydrangea paniculata 'Rensun' TM
HB	Hydrangea quercifolia 'Brenhill'
HR	Hydrangea quercifolia 'Ruby Slippers'
IN	Itea virginica 'SMNIVDFC'
PYG	Physocarpus opulifolius 'SMNPOBLR' TM
ROR	Rosa x 'Radcon' TM
SH2	Sorbaria sorbifolia 'Bococot'
VC	Viburnum carlesii
VU	Viburnum dentatum deamii
WS2	Weigela florida 'Bokrasopin'
WS	Weigela x 'Slingco 2'
EVERGREEN SHRUBS	
BGM	Buxus x 'Green Mountain'
JUK	Juniperus chinensis 'Kallays Compact'
JU5	Juniperus chinensis 'Sea Green'
TAX	Taxus x media 'Densiformis'
FERNS	
AL	Athyrium filix-femina 'Lady in Red'
OC	Osmunda cinnamomea
ORNAMENTAL GRASSES	
AB2	Andropogon gerardii 'Blackhawks'
CB2	Calamagrostis brachytricha
HA2	Hakonechloa macra 'All Gold'
PSH	Panicum virgatum 'Cheyenne Sky'
PN	Panicum virgatum 'Northwind'
PLB	Pennisetum alopecuroides 'Little Bunny'
PT	Pennisetum alopecuroides 'Love and Rockets'
SA	Sesleria autumnalis
SG	Sesleria x 'Greenlee'
SH	Sporobolus heterolepis
GROUND COVERS	
CP	Ceratostigma plumbaginoides
VC2	Vinca minor
PERENNIALS	
AS	Allium x 'Serendipity'
BJ	Brunnera macrophylla 'Jack Frost'
CN	Calamintha nepeta nepeta
CZ	Coreopsis verticillata 'Zagreb'
GM	Geranium sanguineum 'Max Frei'
HG	Hemerocallis x 'Going Bananas'
HA3	Hosta x 'Autumn Frost'
NC	Nepeta x 'Cat's Pajamas'

Note: Full Plant Schedule on Sheet L7

MATCHLINE SEE SHEET L5

MATCHLINE SEE SHEET L4

G.F=648.30

POOL

BUILDING J
F.F.=648.00
G.F=647.50

BUILDING M
F.F.=647.25
G.F=646.75

BUILDING N
F.F.=647.25
G.F=646.75

BIKE RACKS

METER BANK, TYPICAL

EXISTING TREE, TO REMAIN, TYPICAL

0 10 20 40

Scale: 1"= 20'-0"

January 15, 2026 - 16:15 Dwg Name= P:\Frd\R01\Dwg\Landscape\02-Final\03-Final\Landscape.dwg Updated By: jhendricks

DRAWN BY	REVISIONS	DATE

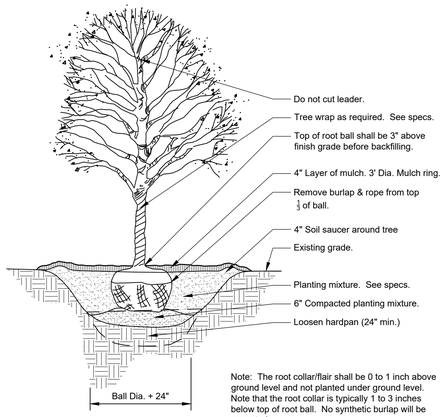
Manhard CONSULTING
303 East Butterfield Road, Suite 600, Lombard, IL 60148 ph 630.691.8200 fx 630.691.8585 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Structural Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL
CREST HILL, ILLINOIS
LANDSCAPE PLAN SOUTHEAST

PROJ. MGR.:	PM
PROJ. ASSOC.:	----
DRAWN BY:	JSH
DATE:	1/14/2026
SCALE:	AS SHOWN

SHEET
L6 OF L8
FRD.CRIL01

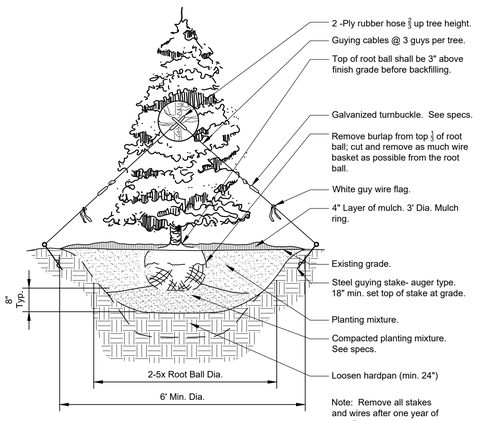
© 2026 MANHARD CONSULTING, ALL RIGHTS RESERVED



Note: The root collar/flair shall be 0 to 1 inch above ground level and not planted under ground level. Note that the root collar is typically 1 to 3 inches below top of root ball. No synthetic burlap will be accepted.

1 DECIDUOUS TREE PLANTING

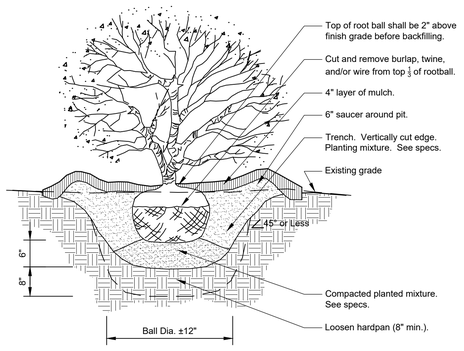
1/4" = 1'-0" 32 9343.33-20



Note: Remove all stakes and wires after one year of growth.

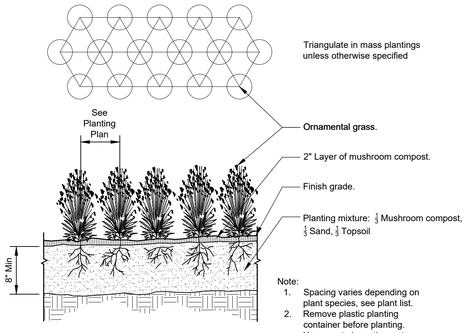
2 CONIFER TREE PLANTING

1/4" = 1'-0" 32 9343.46-01



3 SHRUB PLANTING DETAIL

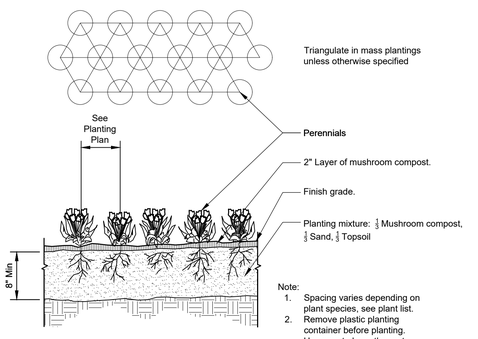
3/4" = 1'-0" 32 9333.16-05



Note:
1. Spacing varies depending on plant species, see plant list.
2. Remove plastic planting container before planting. Use care to keep the root system intact.

4 ORNAMENTAL GRASS PLANTING

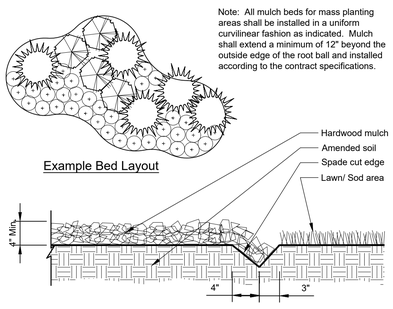
1" = 1'-0" 32 9313-01



Note:
1. Spacing varies depending on plant species, see plant list.
2. Remove plastic planting container before planting. Use care to keep the root system intact.

5 PERENNIAL / ANNUAL PLANTING

1" = 1'-0" 32 9313-02



Note: All mulch beds for mass planting areas shall be installed in a uniform curvilinear fashion as indicated. Mulch shall extend a minimum of 12" beyond the outside edge of the root ball and installed according to the contract specifications.

6 CONTINUOUS MULCH EDGING

1" = 1'-0" 32 9113.26-01

PLANT SCHEDULE

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	
DECIDUOUS TREES						
AA	18	Acer rubrum 'Armstrong'	Armstrong Red Maple	2.5" Cal.	B&B	
AM5	15	Acer x freemanii 'Marmo'	Marmo Freeman Maple	3" Cal.	B&B	
CB	8	Carpinus betulus	European Hornbeam	2" Cal.	B&B	
CA	3	Carpinus caroliniana	American Hornbeam	2.5" Cal.	B&B	
CHI	13	Celtis occidentalis 'Chicagoland'	Chicagoland Hackberry	2.5" Cal.	B&B	
CJ	1	Cercidiphyllum japonicum	Katsura Tree	3" Cal.	B&B	
CL	7	Cladrastis lutea	American Yellowwood	3" Cal.	B&B	
CK	6	Cornus kousa	Kousa Dogwood	6` Ht.	Pot	
GBI	13	Ginkgo biloba	Maidenhair Tree	2.5" Cal.	B&B	
GY	12	Gymnocladus dioica	Kentucky Coffeetree	2" Cal.	B&B	
LT	11	Liriodendron tulipifera	Tulip Poplar	2.5" Cal.	B&B	
NY	11	Nyssa sylvatica	Tupelo	2" Cal.	B&B	
OV	3	Ostrya virginiana	American Hophornbeam	2" Cal.	Pot	
PAM	9	Platanus x acerifolia 'Morton Circle' TM	Exclamation! London Plane Tree	2.5" Cal.	B&B	
QM	8	Quercus macrocarpa	Burr Oak	3" Cal.	B&B	
QE	2	Quercus x 'Crimschmidt'	Crimson Spire™ Oak	2" Cal.	B&B	
TR	13	Tilia x euchlora 'Redmond'	Redmond Crimean Linden	3" Cal.	B&B	
UE	20	Ulmus davidiana japonica 'Morton' TM	Accolade Elm	2.5" Cal.	B&B	
EVERGREEN TREES						
ABI	8	Abies concolor	White Fir	6` Ht.	B&B	
PG	7	Picea pungens 'Glauca'	Blue Colorado Spruce	6` Ht.	B&B	
PS2	9	Pinus sylvestris	Scotch Pine	6` Ht.	B&B	
TS2	57	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	6` Ht.	B&B	
ORNAMENTAL TREES						
AO	8	Acer palmatum dissectum 'Orangeola'	Orangeola Japanese Maple	5 gal.	Pot	
AG4	4	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Apple Serviceberry	8` Ht.	B&B	
CE	13	Cercis canadensis	Eastern Redbud Multi-trunk	8` Ht.	B&B	
CHV	34	Chionanthus virginicus	White Fringetree	2" Cal.	B&B	
HT	10	Heptacodium miconioides 'SMNHMRF'	Temple of Bloom® Seven Son Flower	6` Ht.	B&B	
MAG	7	Magnolia x 'Jane'	Jane Magnolia	8` Ht.	B&B	
SYR	9	Syringa reticulata 'Ivory Silk'	Ivory Silk Japanese Tree Lilac	8` Ht.	B&B	
SHRUBS						
VM2	31	Viburnum dentatum 'Blue Muffin'	Blue Muffin Arrowwood Viburnum	5 gal.		
DECIDUOUS SHRUBS						
ABR	22	Aronia arbutifolia 'Brilliantissima'	Brilliant Red Chokeberry	3 gal.	Pot	
AP2	8	Aronia melanocarpa 'SMNAMPEM'	Low Scape Snowfire™ Black Chokeberry	3 gal.	Pot	
AGH	56	Aronia melanocarpa 'UCONNAM012' TM	Ground Hug Black Chokeberry	3 gal.	Pot	
AM2	24	Aronia melanocarpa elata	Glossy Black Chokeberry	3 gal.	Pot	
COS	64	Cephalanthus occidentalis 'SMCOSS' TM	Sugar Shack Buttonbush	3 gal.	Pot	
CI3	23	Cornus sericea 'Isanti'	Isanti Red Twig Dogwood	3 gal.	Pot	
CA3	26	Cotoneaster acutifolius	Peking Cotoneaster	3 gal.	Pot	
PX	19	Diervilla x splendens 'SMNDSD'	Kodiak® Red 2.0 Diervilla	3 gal.	Pot	
HU	23	Hydrangea paniculata 'Renba'	Berry White® Panicle Hydrangea	3 gal.	Pot	
HYSS	54	Hydrangea paniculata 'Rensun' TM	Strawberry Sundae Panicle Hydrangea	3 gal.	Pot	
HB	47	Hydrangea quercifolia 'Brenhill'	Gatsby Gal® Oakleaf Hydrangea	3 gal.	Pot	
HR	6	Hydrangea quercifolia 'Ruby Slippers'	Ruby Slippers Oakleaf Hydrangea	3 gal.	Pot	
IN	55	Itea virginica 'SMNIVDFC'	Scentlandia® Sweetspire	3 gal.	Pot	
PYG	18	Physocarpus opulifolius 'SMNPOBLR' TM	Ginger Wine Ninebark	3 gal.	Pot	
ROR	46	Rosa x 'Radcon' TM	Pink Knock Out Rose	3 gal.	Pot	
SH2	59	Sorbaria sorbifolia 'Bococot'	Cherry On Top™ False Spiraea	3 gal.	Pot	
VC	29	Viburnum carlesii	Koreanspice Viburnum	3 gal.	Pot	
VU	1	Viburnum dentatum deamii	Glitters & Glows® Arrowood Viburnum	3 gal.	Pot	
WS2	14	Weigela florida 'Bokrasopin'	Sonic Bloom® Pink Weigela	3 gal.	Pot	
WS	32	Weigela x 'Slingco 2'	Maroon Swoon® Weigela	3 gal.	Pot	
EVERGREEN SHRUBS						
BGM	156	Buxus x 'Green Mountain'	Green Mountain Boxwood	18" Ht.	Pot	
JUK	184	Juniperus chinensis 'Kallays Compact'	Kallay Compact Pfitzer Juniper	18" Ht.	Pot	
JUS	54	Juniperus chinensis 'Sea Green'	Sea Green Juniper	18" Ht.	Pot	
TAX	68	Taxus x media 'Densiformis'	Dense Anglo-Japanese Yew	18" Ht.	Pot	
FERNS						
AL	54	Athyrium filix-femina 'Lady in Red'	Lady in Red Fern	1 gal.	Pot	
OC	62	Osmunda cinnamomea	Cinnamon Fern	1 gal.	Pot	
ORNAMENTAL GRASSES						
AB2	33	Andropogon gerardii 'Blackhawks'	Blackhawks Big Bluestem	1 gal.	Pot	
CB2	59	Calamagrostis brachytricha	Korean Feather Reed Grass	1 gal.	Pot	
HA2	184	Hakonechloa macra 'All Gold'	All Gold Japanese Forest Grass	1 gal.	Pot	
PSH	30	Panicum virgatum 'Cheyenne Sky'	Cheyenne Sky Switch Grass	1 gal.	Pot	
PN	5	Panicum virgatum 'Northwind'	Northwind Switch Grass	1 gal.	Pot	
PLB	208	Pennisetum alopecuroides 'Little Bunny'	Little Bunny Dwarf Fountain Grass	1 gal.	Pot	
PT	57	Pennisetum alopecuroides 'Love and Rockets'	Love and Rockets Fountain Grass	1 gal.	Pot	
SA	204	Sesleria autumnalis	Autumn Moor Grass	1 gal.	Pot	
SG	69	Sesleria x 'Greenlee'	Greenlee Moor Grass	1 gal.	Pot	
SH	61	Sporobolus heterolepis	Prairie Dropseed	1 gal.	Pot	
CODE	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**CONTAINER**	**SPACING**
GROUND COVERS						
CP	121 flats	Ceratostigma plumbaginoides	Dwarf Plumbago	flat	Plug	12" o.c.
VC2	1,721	Vinca minor	Common Periwinkle	flat	Plug	12" o.c.
PERENNIALS						
AS	389	Allium x 'Serendipity'	Serendipity Ornamental Onion	1 gal.	Pot	15" o.c.
BJ	62	Brunnera macrophylla 'Jack Frost'	Jack Frost Siberian Bugloss	1 gal.	Pot	15" o.c.
CN	322	Calamintha nepeta nepeta	Lesser Calamint	1 gal.	Pot	18" o.c.
CZ	182	Coreopsis verticillata 'Zagreb'	Zagreb Tickseed	1 gal.	Pot	20" o.c.
GM	242	Geranium sanguineum 'Max Frei'	Max Frei Bloodred Geranium	1 gal.	Pot	20" o.c.
HG	397	Hemerocallis x 'Going Bananas'	Going Bananas Daylily	1 gal.	Pot	20" o.c.
HA3	256	Hosta x 'Autumn Frost'	Autumn Frost Hosta	1 gal.	Pot	20" o.c.
NC	550	Nepeta x 'Cat's Pajamas'	Cat's Pajamas Catmint	1 gal.	Pot	20" o.c.

DRAWN BY | REVISIONS | DATE

Manhard CONSULTING
303 East Butterfield Road, Suite 600, Lombard, IL 60148 ph 630.691.8200 fx 630.691.8686 manhard.com
Civil Engineers • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SEASONS AT CREST HILL
CREST HILL, ILLINOIS
LANDSCAPE DETAILS

PROJ. MGR.: PM
PROJ. ASSOC.: ----
DRAWN BY: JSH
DATE: 1/14/2026
SCALE: AS SHOWN

SHEET L7 OF L8

FRD.CRIL01

© 2026 MANHARD CONSULTING, LTD. ALL RIGHTS RESERVED

January 15, 2026 - 16:16 Dwg Name: P:\Projects\01\dwg\Landplan\02-Final\01-Final Landscape.dwg Updated By: jHendricks

GENERAL PLANTING SPECIFICATIONS:

PART 1 - GENERAL

1-01 DESCRIPTION:

A. Provide trees, shrubs, perennials and groundcovers as shown and specified. This work includes:
   1. Spreading of topsoil or soil preparation
   2. Trees, shrubs, perennials and groundcovers
   3. Planting mixes
   4. Mulch and planting accessories
   5. Fertilizer and herbicide
   6. Maintenance
   7. Warranty of plant material

B. The Contractor shall verify all existing conditions and dimensions in the field prior to bidding and report any discrepancies to the Owner or his/her representative.

1-02 QUALITY ASSURANCE:

A. Comply with site work requirements

B. Plant names indicated must comply with 'Standardized Plant Names' as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties which are not listed should conform with those generally accepted by the nursery trade. Stock should be legibly tagged.

C. All plant materials shall conform to the 'American Standards for Nursery Stock' (ASNS), latest edition, published by the American Association of Nurserymen, Washington, D.C.

D. All plant material shall be grown and supplied within a 50 mile radius of the project for a minimum of two full growing seasons.

E. Adhere to sizing requirements as listed in the plant list and/or bid form for the project. A plant shall be measured in its natural standing position.

F. Stock that is furnished shall be at least the minimum size shown. With permission of the landscape architect, substitution from the specified plant list will be accepted only when satisfactory evidence in writing is submitted to the landscape architect, showing that the plant specified is not available. Requests for approval of substitute plant material shall include common and botanical names and size of substitute material. Only those substitutions of at least equivalent size and character to that of the specified material will be approved. Stock which is larger than that which is specified is acceptable with permission of the landscape architect, providing there is no additional cost and that the larger plant material will not be cut down in order to conform to the size indicated.

G. All shrubs shall be dense in form. Shrub liners do not meet these specifications. Shrubs specified by height shall have a spread that is equal to the height measurement. Shrubs which are specified by spread shall exhibit the natural growth habit of the plant by having a greater spread than height.

H. All plant materials are subject to inspection and approval. The landscape architect and Owner reserve the right to select and tag all plant material at the nursery prior to planting. The landscape architect and Owner reserve the right to inspect plant material for size and condition of root systems, the presence of insects and diseases, injuries and latent defects (due to Contractor negligence or otherwise), and to reject unacceptable plant material at any time during progress of the project.

I. Container grown deciduous and/or evergreen shrubs will be acceptable in lieu of balled and burlapped shrubs subject to specified limitations for container grown stock. Size of container grown material must conform to size/height requirements of plant list.

1-03 DELIVERY, STORAGE & HANDLING:

A. Fertilizer shall be delivered in original, unopened and undamaged packaging. Containers shall display weight, analysis and manufacturer's name. Store fertilizer in a manner that will prevent wetting and deterioration.

B. Take all precautions customary concerning proper trade practice in preparing plants for transport. Plants shall be dug, packed and transported with care to ensure protection against injury. Inspection certificates required by law shall accompany each shipment invoice or order to stock and on arrival, the certificate shall be filed with the landscape architect . All plants must be protected from drying out. If plant material cannot be planted immediately upon delivery, said material should be properly protected in a manner that is acceptable to the landscape architect . Heeled-in plants must be watered daily. No plant shall be bound with rope or wire in a manner that could strip bark or break or shear branches.

C. Plant material transported on open vehicles should be covered with a protective covering to prevent wind burn.

D. Dry, loose topsoil shall be provided for planting bed mixes. Muddy or frozen topsoil is unacceptable as working with medium in this condition will destroy its structure, making root development more difficult.

1-04 PROJECT CONDITIONS:

A. Notify landscape architect at least seven (7) working days prior to installation of plant material.

B. It shall be the Contractor's responsibility to locate and protect all existing above and below ground utilities. Utilities can be located and marked (in Illinois) by calling J.U.L.I.E. at (800)892-0123.

C. The Contractor shall provide, at his/her own expense, protection against trespassing and damage to seeded areas, planted areas, and other construction areas until the preliminary acceptance. The Contractor shall provide barricades, temporary fencing, signs, and written warning or policing as may be required to protect such areas. The Contractor shall not be responsible for any damage caused by the Owner after such warning has been issued.

D. The Contractor shall be responsible for the protection of crowns, trunks and roots of existing trees, plus shrubs, lawns, paved areas and other landscaped areas that are to remain intact. Existing trees, which may be subject to construction damage, shall be boxed, fenced or otherwise protected before any work is started. The Owner desires to preserve those trees within and adjacent to the limits of construction except those specifically indicated to be removed on the Drawings. The contractor shall erect protective tree fencing and tree armor at locations indicated on the drawings and around all trees on site which are to be preserved. Protective fencing shall be erected between the limits of construction and any tree preservation areas shown on the Drawings.

E. A complete list of plants including a schedule of sizes, quantities and other requirements is shown on the Drawings and on the bid form. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern.

1-05 PRELIMINARY ACCEPTANCE:

A. All plantings shall be maintained by the Contractor for a period of 90 days after preliminary acceptance by the Owner or his/her representative. Maintenance shall include, but is not limited to: mowing and edging turf, pulling weeds, watering turf and plant material and annual flower maintenance.

1-06 WARRANTY:

A. All plant material (excluding annual color), shall be warranteed for one (1) year after the end of the 90 day maintenance period. The end of the maintenance period is marked by the final acceptance of the Contractor's work by the Owner or his/her representative. Plant materials will be warranteed against defects including death and unsatisfactory growth, except for defects resulting from abuse or damage by others, or unusual phenomena or incidents which are beyond the control of the Contractor. The warranty covers a maximum of one replacement per item.

PART 2 - PRODUCTS

2-01 PLANT MATERIALS:

A. Plants: Provide typical of their species or variety, with normal, densely developed branches and vigorous, fibrous root systems. Only sound, healthy, vigorous plants which are free from sunscald injuries, disfiguring knots, frost cracks, abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation shall be provided. All plants shall have a fully developed form without voids and open patches.
   1. Balled and burlapped plants shall have a firm natural ball of earth of sufficient diameter and depth to encompass a root system necessary for a full recovery of the plant. Root ball sizes shall comply with the latest edition of the 'American Standards for Nursery Stock' (ASNS). Root balls that are cracked or mushroomed are unacceptable.
   2. Container grown stock should be grown for an amount of time that is of sufficient length for the root system to have developed enough to hold its soil togehter, firm and whole. Plants will not be loose in their containers, nor shall they be pot-bound and all container grown stock will comply with the sizes stated on the plant list.
   3. No evidence of wounds or pruning cuts shall be allowed unless approved by the Landscape Architect.
   4. Evergreen trees shall be branched to the ground. The height of evergreen trees are determined by measuring from the ground to the first lateral branch closest to the top. Height and/or width of other trees are measured by the mass of the plant not the very tip of the branches.
   5. Shrubs and small plants shall meet the requirements for spread and/or height indicated in the plant list. The height measurement shall be taken from ground level to the average height of the top of the plant, not the longest branch. Single stem or thin plants will not be accepted. Side branches shall be flushed with growth and have good form to the ground. Plants shall be in a moist, vigorous condition, free from dead wood, bruises or other root or branch injuries.

2-02 ACCESSORIES:

A. Topsoil:
   1. Topsoil shall be fertile, natural topsoil of a loamy character, without admixture of subsoil material. Topsoil shall be reasonably free from clay, lumps, coarse sand, stones, plants, roots, sticks and other foreign materials with a pH between 6.5 to 7.0.

B. Topsoil for seed areas shall be a minimum of 6".

C. Soil amendments shall be as follows:
   1. For trees and shrubs the plant pit will be backfilled with pulverized black dirt.
   2. For perennials and ornamental grasses the soil mixture will be as follows: $\frac{1}{3}$ mushroom compost, $\frac{1}{3}$ sand, $\frac{1}{3}$ topsoil, mixed thoroughly. Top beds with 8" of this mix and till into existing beds to a depth of 8".

D. Fertilizer:
   1. For trees and shrubs use: 14-4-6 briquettes 17 g or equivalent available from Arthur Clesen, Inc. Follow manufacturer's recommendation for application. Arthur Clesen, Inc. 543 Diens Drive, Wheeling, IL 60090 (847)537-2177
   2. For turf areas use 6-24-16 Clesen Fairway with micronutrients with minor elements 3.0 % S, .02% B, .05% Cu, 1.0% Fe, .0006% Mo, .10% Mn available from Arthur Clesen or approved equal.

E. Herbicide:
   1. Round-Up or approved equal

F. Mulch:
   1. Bark mulch shall be finely shredded hardwood bark which has been screened and is free of any green foliage, twigs, rocks, sawdust, wood shavings, growth or germination inhibiting ingredients, or other foreign materials. Bark mulch is available from Midwest Trading.
   2. Mushroom compost as available from Midwest Trading. Midwest Trading, St. Charles, IL 60174 (630) 365-1990

G. Water:
   1. Water service will be available on the site, with the cost of water being paid by the Owner. Transporting of the water from the source to the work areas shall be the responsibility of the Landscape Contractor. All necessary hose, piping, tank truck, etc. shall be supplied by the Landscape Contractor.

H. Guying:
   1. Stakes: 5/8" x 40" steel eye anchor with 4" helix
   2. Cable:
      a. Trees under 5": flexible 1/8" galvanized aircraft cable, 7x7 strand or approved equal
      b. Trees 5" and over: flexible 3/16" galvanized aircraft cable, 7x7 strand or approved equal.
   3. Turnbuckles: 5/16", eye and eye, with 4" takeup.
   4. Hose: new two-ply reinforced rubber hose, minimum 1/2" I.D.

I. Tree wrap: Burlap tree wrap 4" wide.

J. Twine: Soft nursery jute.

PART 3 - INSTALLATION OF PLANT MATERIAL

3-01 FIELD VERIFICATION:

A. Examine proposed planting areas and conditions of installation. Do not start planting work until unsatisfactory conditions are corrected.

3-02 PREPARATION:

A. All planting techniques and methods shall be consistent with the latest edition of 'Horticulture Standards of Nurserymen, Inc.' and as detailed on these Drawings.

B. Planting shall be performed by experienced workmen familiar with planting procedures under the supervision of a qualified supervisor.

C. All underground utilities must be located and marked clearly.

D. Apply Round-Up or approved equivalent to kill any existing vegetation in all areas to be planted. Confirm length of waiting period between chemical application and plant installation with manufacturer. Do not begin planting operations until prescribed post-application waiting period has elapsed. Take extreme care to avoid chemical drift to adjoining properties of landscape plantings.

E. Prior to all planting, rototill all areas to be landscaped to prepare for plant installation to a minimum depth of 12". Eliminate uneven areas and low spots. Maintain lines, levels, profiles and contour. Changes in grade are to be gradual. Blend slopes into level areas. Remove all debris, weeds and undesirable plants and their roots from areas to be planted. Remove all concrete slag larger than 2" in diameter.

F. Topsoil shall be spread over the site at a minimum depth of 6". Those areas which are indicated as prairie or natural areas on the Drawings shall have a minimum topsoil depth of 18".

G. It shall be the responsibility of the landscape contractor to prepare all seeded areas by disking and raking prior to planting seed. Soil shall be loosened and scarified to a minimum depth of 6". Fine grading of all seeded areas is required. Maximum size of stone or topsoil lump is 1".

H. Locate all plant material as indicated or as approved in the field by the Landscape Architect. If obstructions are encountered which are not shown on the drawings, then do not proceed with planting operations until alternate plant locations have been selected.

I. Planting holes shall be constructed as shown on the planting details. Holes shall be hand dug or machine dug. Great care will be taken to not excavate the hole deeper than the root ball and the diameter shall be a minimum of two times the root ball width. Remove any materials encountered in excavation that may be injurious to plant growth, including stones larger than 2" in diameter or other debris. Soil to be used as backfill should be pulverized.

J. Provide pre-mixed planting mixture for use around root systems and root balls of the plants. The mixtures are outlined in section B of part 2-02.

K. Prior to planting, provide additional topsoil to all planting beds to bring the finish grade of the bed to 2" above lawn grade and to finish grade of adjacent hard surface grades.

L. Add 2" thickness of mushroom compost to all annual, perennial and groundcover beds. Finish grade bed and install plants.

3-03 PLANTING PROCEDURES:

A. Set plant material in the planting hole to proper grade and alignment. Set plants upright and plumb. Set plant material root flare 2" above the adjacent finish grade. Remove burlap from top 1/3 of root ball. Remove treated burlap (green). Cut and remove or cut and fold down upper half of wire basket, dependent upon tree size. Backfill hole by firmly tamping soil to avoid any air pockets or voids. All ropes/cords shall be removed from base of trunk.

B. Set balled and burlapped plants in the planting hole and compact 8" of soil around the base of the ball. Backfill remaining space with planting mixture. Water plants immediately after planting to eliminate all voids and thoroughly soak the plant root ball.

C. Space groundcover plants according to dimensions given on the plans. Adjust spacing as necessary to evenly fill planting bed with indicated number of plants. Plant to within 18" of the trunks of trees and shrubs or at the edge of the plant ball, whichever is closest. Plant to within 12" of edge of bed.

D. Mulching:
   1. Install 4" depth of mulch around all tree and shrub beds as indicated on drawings or planting details. Mulch shrub planting areas as continuous beds. Do not place mulch directly against tree trunk; form mulch to create an inverted cone around trunk.
   2. Mulch perennial, groundcover and annual planting beds with 2" mushroom compost. Water mulched areas thoroughly after placing mulch.

E. Tree wrapping is not required, unless the Contractor feels it is necessary due to characteristics of a particular species or past experience with the species. The landscape architect will be notified as to which trees are to be wrapped and shall inspect the trunk(s) before wrapping. Tree wrap will not be used to cover damage or defects. When wrapping is done, trunks will be wrapped spirally with approved tree wrapping tape that is not less than 4" wide, and securely tied with suitable cord at the top, bottom and 2" intervals along the trunk. Wrap from ground to the height of the first branch.

F. Staking and guying of trees is optional. If the Contractor chooses to stake all or part of the trees, he/she shall use the method specified in the planting details. One (1) stake is to be used on trees of 1" caliper and under, or 4' height and under. Two (2) stakes are to be used on trees of 1" to 2 3/4" caliper. Guy trees of 3" caliper or larger at three (3) per tree. The root ball will not be pierced with a stake. Stakes are to be driven at least eighteen (18) inches into subsoil below the planting hole. Stakes and wire attachments shall be removed after three months for spring planted material and by the following May for fall planted stock by the Contractor. Staking and guying should be done immediately after lawn seeding or sodding operations.

G. Seeding of specified lawn areas on plans will be treated as follows:
   1. Topsoil shall be spread over all areas to be seeded to a minimum depth of 6" when compacted (to be performed by others).
   2. Seed mixture and application rate - use Premium seed mix as supplied by Arthur Clesen, Inc. Apply at a rate of 5 lbs./1000 s.f.
   3. Apply fertilizers and conditioners at the rate specified per soil test findings. In lieu of soil test results, apply two (2) tons of ground agricultural limestone and 1000 lbs. 10-10-10 or equivalent analysis fertilizer per acre. At least 40% of the fertilizer nitrogen shall be of an organic origin.
   4. Soil preparation areas where vehicular traffic has compacted the soil shall be loosened/scarified to a minimum depth of 6" before fertilizing and seeding. Fine grading of all seeded areas is required. Maximum size of stone or topsoil lump is 1".
   5. Watering seeded areas shall be done to ensure proper germination. Once seeds have germinated, watering may be decreased but the seedlings must never be allowed to dry out completely. Frequent watering should be continued approximately four (4) weeks after germination or until grass has become sufficiently established to warrant watering on an 'as needed' basis.
   6. Turf is being established on a variety of slope conditions. It shall be the Contractor's responsibility to determine and implement whatever procedures he/she deems necessary to establish the turf as part of his/her work. Seeded areas will be accepted when all areas show a uniform stand of the specified grass in healthy condition and at least 90 days have elapsed since the completion of this work. The Contractor shall submit with his/her bid a description of the methods and procedures he/she intends to use.

H. Erosion Control Blanket
   1. Erosion Control Blanket shall be installed per manufacturer's recommendation in all areas shown on the plan.
   2. Install S-75 Erosion Control Blanket as manufactured by North American Green or approved equal.
   3. Blanket should be premarked with staple pattern.
   4. Staples should be 8" wire staples, applied at two (2) per square yard minimum.
   5. Suitable erosion control practices shall be maintained by the CONTRACTOR in accordance with Illinois Urban Manual and all applicable Soil Erosion and Sedimentation Control ordinances and the PLANS.

I. Sodding of specified lawn areas on plans will be completed as follows:
   1. Rake soil surface to receive sod to completely remove any soil crust no more than one day prior to laying sod.
   2. Moisten prepared surface immediately prior to laying sod. Water thoroughly and allow surface moisture to dry before planting lawns. Do not create a muddy soil condition.
   3. Sod shall be laid within 24 hours from the time of stripping. Do not plant dormant sod or if the ground is frozen.
   4. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips; do not overlap. Stagger strips to offset joints in adjacent courses. Work from boards to avoid damage to subgrade or sod. Work sifted soil into minor cracks between pieces of sod; remove excess to avoid smothering of adjacent sod.
   5. Place top elevation of sod 1/2 inch below adjoining edging or paving.
   6. Water sod thoroughly with a fine spray immediately after planting.
   7. After sod and soil have dried, roll seeded areas to ensure a good bond between the sod and soil, and to remove minor depressions and irregularities.
   8. Sodded slopes 3:1 or greater shall be staked to prevent erosion and washout.
   9. Warranty sodding for a period of one (1) year from the end of the 90 day maintenance period. If sod fails or lacks vigor and full growth as determined by the Landscape Architect, the Contractor will repeat site preparation operations and re-sod affected areas at the Contractor's expense.
   10. Note: Sod shall be a premium Kentucky Bluegrass blend, and is required in all areas indicated on the plans as well as areas which have been affected by construction. Sod can be placed as long as water is available and the ground surface can be properly prepared. Sod shall not be laid on frozen or snow-covered ground. Sod shall be strongly rooted, not less than two (2) years old and free of weeds and undesirable native grasses. Sod should be machine cut to pad thickness of 3/4" (plus or minus 1/4"), excluding top growth and thatch. Provide only sod capable of vigorous growth and development when planted (viable, not dormant). Provide sod of uniform pad sizes with maximum 5% deviation in either length or width. Broken pads or pads with uneven ends will not be acceptable. Sod pads incapable of supporting their own weight when suspended vertically with a firm grasp on the upper 10% of pad will not be accepted.

J. Timing of plant material and seeding operations:
   1. Seeding of specified areas shall occur when the soil temperature is above 55° F. No seed shall be sown during periods of high winds, or when the ground is not in proper condition for seeding (see section 3-02 (G)). Seeding operations for the specified mixes shall occur in the spring time frame of April 15 through June 30 and in the summer time frame of August 15 through December 1. The mixes containing bluegrass and fescue seed must have six weeks to harden off for winter survival.
   2. Sod shall be installed when the ground is not frozen or snow covered and temperatures are less than 80° F. It shall not be placed during a period of extended drought.
   3. Herbaceous ornamental plants shall be planted between May 1 and June 15 or between August 15 and December 1.
   4. Spring planting of woody ornamental plants shall be performed from the time the soil can be easily worked until June 1, except that evergreen planting shall end on May 15. Oak, hawthorn and red maple species will only be planted during this spring planting period. Fall planting will begin August 15 and will continue until the ground cannot be worked satisfactorily, except that evergreen planting shall be performed between August 15 and December 1.

3-04 MAINTENANCE:

A. All plantings shall be maintained by the Contractor for a period of 90 days after preliminary acceptance by the Owner or his/her representative. Maintenance shall include but is not limited to: mowing and edging turf, pulling weeds, watering turf areas and plant material plus annual flower maintenance. The Contractor will reset settled plants to proper grade and position. Dead material will be removed. Stakes and guy wires will be tightened and repaired as required.

3-04 ACCEPTANCE:

A. All plant material (excluding annual color), shall be warranteed for one (1) year after the end of the 90 day maintenance period. The end of the maintenance period is marked by the final acceptance of the Contractor's work by the Owner or his/her representative.

3-06 SITE CLEAN-UP:

A. The Contractor shall protect the property of the Owner and the work of other contractors. The Contractor shall also be directly responsible for all damage caused by the activities and for the daily removal of all trash and debris from his/her work area to the satisfaction of the landscape architect .

Manhard CONSULTING
303 East Butterfield Road, Suite 600, Lombard, IL 60148 ph 630.691.8000 fx 630.691.8585 manhard.com
Civil Engineers • Water Resource Engineers • Municipal Engineers • Surveyors
Construction Managers • Environmental Scientists • Landscape Architects • Planners

DRAWN BY | REVISIONS | DATE

SEASONS AT CREST HILL
CREST HILL, ILLINOIS
LANDSCAPE SPECIFICATIONS

PROJ. MGR.: PM
PROJ. ASSOC.: ----
DRAWN BY: JSH
DATE: 1/14/2026
SCALE: AS SHOWN

SHEET
L8 OF L8
FRD.CRIL01

© 2026 MANHARD CONSULTING, INC. ALL RIGHTS RESERVED

January 15, 2026 - 16:16 Dwg Name: P:\Frdcrl01\Dwg\Landplan\02-Final\01-Final\Landscape.dwg Updated By: JHendricks