



Planning Commission

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

Planning Commission Meeting Agenda
Planning Commission Meeting
Thursday, August 13, 2026
7:00 PM

1. Call to Order
2. Pledge of Allegiance
3. Roll Call
4. Approval of the Agenda
5. Approval of Meeting Minutes
 - a. Planning Commission Work Session Meeting Minutes of July 9, 2026
6. Call to Public
7. Old and New Business
 - a. Site Plan with Special Land Use Application #26-007 (Kroger Automobile Fueling and Convenience Station)
8. Call to Public
9. Planner's Report
10. Committee Reports
11. Adjournment

HARTLAND TOWNSHIP PLANNING COMMISSION **DRAFT** WORK SESSION MEETING
MINUTES

July 9, 2026– 7:00 PM

1. **Call to Order:** Chair Fox called the Work Session meeting to order at 7:00 p.m.
2. **Pledge of Allegiance:**
3. **Roll Call and Recognition of Visitors:**
Present – Commissioners Fox, Mayer, McMullen, Grissim, Mitchell, Murphy & Eckman
Absent – None
4. **Approval of the Meeting Agenda:**
A Motion to approve the July 9, 2026, Planning Commission Work Session Meeting Agenda was made by Commissioner Mitchell and seconded by Commissioner Eckman. Motion carried unanimously.
5. **Approval of Meeting Minutes:**
 - a. Planning Commission Work Session Meeting Minutes of May 14, 2026.
A Motion to approve the Planning Commission Work Session Meeting Minutes of May 14, 2026, was made by Commissioner Grissim and seconded by Commissioner Mitchell. Motion carried unanimously.
6. **Call to the Public:**
None
7. **Work Session**
 - a. Backyard Chickens/Poultry Ordinance Amendment
Director Langer outlined the draft ordinance from the Planning Commission. The Planning Commission discussed the minimum lot size requirement to have backyard chickens and agreed to amend the draft ordinance to require a minimum of one (1) acre. The Planning Commission also agreed to amend the setback for 41-50 chickens to a fifty (50) foot setback.
8. **Call to the Public:**
None
9. **Planner Report:**
Planning Director Langer shared the Township Board’s willingness to increase the hours for the Code Enforcement position to enforce requirements in commercial areas of the Township. The Township Board was not willing to amend their policy to accept anonymous complaints. Planning Director Langer also outlined that the Township Planning Commission needs to review the Comprehensive Development Plan every five (5) years and that time will be on a future meeting agenda.

10. Committee Reports:

None

11. Adjournment:

A Motion to adjourn was made by Commissioner Grissim and seconded by Commissioner Eckman. Motion carried unanimously. The meeting was adjourned at approximately 8:20 PM.

Hartland Township Planning Commission Meeting Agenda Memorandum

Submitted By: Troy Langer, Planning Director

Subject: Site Plan with Special Land Use Application #26-007 (Kroger Automobile Fueling and Convenience Station)

Date: July 29, 2026

Recommended Action

Move to recommend approval of Site Plan with Special Land Use Application #26-007 a request to construct an automobile fueling and convenience station in the Shops at Waldenwoods Planned Development, as outlined in the staff memorandum dated July 29, 2026.

The recommendation for approval is based on the following findings:

1. The proposed special land use, automobile fueling and convenience station, meets the intent and purposes of the Ordinance as well as the specific Special Use standards outlined in Section 6.6 (Special Uses).
2. The proposed use is permitted in the Shops at Waldenwoods PD (Planned Development), as outlined in the PD Agreement, which has references to the GC (General Commercial) standards. Standards for the proposed use are outlined in Section 3.1.14.D.xviii of the Zoning Ordinance. The proposed use is compatible with the existing uses in the vicinity.
3. The proposed use will be served by public sanitary sewer, by existing essential facilities and public services, and the Fire Department has no objection.
4. The proposed use will not create additional requirements at public cost for public facilities as the proposed site will be served by public sanitary sewer and municipal water.

Approval is subject to the following conditions:

1. The proposed Special Land Use, automobile fueling and convenience station, is subject to approval by the Township Board.
2. The applicant shall adequately address the outstanding items noted in the Planning Department's memorandum, dated July 29, 2026, on the Construction Plan set, subject to an administrative review by the Planning staff prior to the issuance of a land use permit.
3. No outdoor storage is permitted on the site except in the area designated as outdoor storage on the approved plans.
4. A land use permit is required after approval of the Site Plan and Special Use Permit and prior to construction.
5. Applicant complies with any requirements of the Department of Public Works Director, Township Engineering Consultant (SDA), Fire code requirements, and all other government agencies, as applicable.

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

Discussion

Applicant: Garrett Foley (The Kroger Company of Michigan)

Site Description

The Shops at Waldenwoods Planned Development (PD) is located at the northwest corner of Highland Road (M-59) and Old US-23 in Section 20 and 21 of Hartland Township. The entire commercial development is approximately 61 acres in size and is comprised of multiple parcels. The PD was approved in 1999 and is to be completed in several phases. Phase 1 is completed with one multitenant commercial building which includes eleven (11) tenants plus Kroger; and two stand-alone buildings, CVS Pharmacy and Huntington Bank. Target was constructed as part of Phase 2. The LOC Credit Union is currently under construction, located south of Target, and was approved under Site Plan Application #25-009.

The subject parcel, approximately 1.3 acres in size, is zoned PD (Planned Development) and is associated with the Shops at Waldenwoods PD. The vacant parcel is situated north of Highland Road and west of the Target entry drive from Highland Road.

Access to the subject site is via existing internal drive lanes within the development, as the subject parcel does not have frontage nor direct access from Highland Road.

Stormwater detention basins associated with the Shops at Waldenwoods are located within the commercial development, east and south of the subject site.

To the west and north, vacant land exists that is within the subject PD and could be developed in the future.

The 2020-2021 Future Land Use Map designates this parcel and adjacent parcels as Commercial.

Background Information on the Shops at Waldenwoods Planned Development (PD)

Site Plan Application #270 (2000)

The Shops at Waldenwoods Planned Development was approved by the Township in April 2000 under Site Plan application #270. The approved plans for the PD include the Planned Development Agreement (the “Agreement”) dated September 15, 2000, and the Conceptual Master Plan dated September 3, 2000 (Exhibit B).

A Supplemental Agreement occurred in 2001 and several amendments to the PD occurred between 2000 and 2017 as outlined below.

Supplemental Agreement (2001)

In a letter dated October 30, 2001, the developer and the Township entered into a mutual agreement regarding the joint interpretation of certain provisions outlined in the original PD Agreement regarding rear yard setbacks within the development. The letter is referred to in the proposed 3rd Amendment as the “Supplemental Agreement” which was not recorded.

1st Amendment to PD Agreement (2002)

The first amendment to the PD, approved on April 25, 2002, provided additional standards for wall signs under Paragraph 3 of the PD Agreement.

Site Plan Application #354 – 2nd Amendment to PD Agreement (2004)

The Second Amendment to the PD was approved by the Township Board on March 2, 2004, which amended the legal description of the PD property and modified the development phasing schedule in Paragraph 4 of the PD Agreement. Additionally, modifications were made to the original Conceptual Master Plan (approved under SP Application #270). The revised Conceptual Master Plan, Exhibit B-1, dated September 17, 2003, included several modifications to the original Conceptual Master Plan including changes to the detention areas, greenspace layout improvements, and Phase 2 anchor store footprint was enlarged.

3rd Amendment (2006)

A Third Amendment was proposed in 2006, which was related to the proposal by the Michigan Department of Transportation (MDOT) to widen a section of M-59. The proposal required additional right-of-way along the north side of M-59 within the PD property (Shops at Waldenwoods), thus an amendment to the PD Master Plan was necessary. The Planning Commission discussed the proposal between 2006 and 2007; however, a revised development plan was not approved nor was the Third Amendment approved. Details on the Third Amendment, as approved under SP #17-001, are outlined in this section.

Site Plan Application #479C – Conceptual Site Plan (2009)

A site plan application was submitted to the Township by Kroger in 2009 (Site Plan Application #479C), as a proposed amendment to the Shops at Waldenwoods Planned Development. The request was to amend the PD Agreement to allow for the installation of a fuel station/kiosk and other outdoor sales and display areas for Kroger. A conceptual site plan was presented to the Planning Commission on March 26, 2009, for their feedback. The applicant was seeking input to determine if the Township was receptive to amending the PD to include the fueling station and/or outdoor display and sales areas, prior to the submittal of a formal application.

As background information to SP #479C, permitted land uses are identified in the original Planned Development Agreement (September 15, 2000), which includes the principal permitted uses listed in the General Commercial (GC) zoning district, from the previous zoning ordinance (Section 24.02 Zoning Ordinance No.37). Additionally, the PD Agreement listed specific land uses to be permitted by right that are listed as special land uses in the GC zoning district. If not specifically listed in the PD Agreement, other uses requiring special approval are not permitted. All automotive related uses and commercial outdoor display sales or storage of items outside require special approval. Those uses are not included in the Planned Development Agreement and thus are not permitted. This is consistent with the GC regulations outlined in Section 3.1.14. of the current Zoning Ordinance.

The Planning Commission reviewed the proposed conceptual plan under SP #479C in 2009 but the project did not proceed to the next step.

Site Plan Application #17-001 (3rd Amendment to the Shops at Waldenwoods PD Agreement – modify Project Identification Sign)

On February 23, 2017, the Planning Commission recommended approval of SP #17-001, a request to modify the existing monument sign for the development (Project Identification Sign) and Exhibit E of the PD Agreement. The Township Board approved SP #17-001 on March 27, 2017.

Site Plan Application #21-008 (Amend previously approved Conceptual Master Plan (Sheet B-1) for the Shops at Waldenwoods PD)

On May 27, 2021, the Planning Commission approved SP #21-008, a request to amend the previously approved Conceptual Master Plan (Sheet B-1) for the Shops at Waldenwoods PD. The amended plan included the creation of four (4) individual parcels for future development along Highland Road, in the

southwest corner of the development; site modifications to address future Highland Road expansion plans; and modifications to the storm water management system and detention basins.

Land Use Permit #23-243 (issued on October 2, 2023)

The plans approved under PLU #23-243 included improvements to the storm water management system and detention basins, with site work occurring in the southwest corner of the development (generally south of the Target parking area) and on vacant land west of the Target entry drive, for future development.

Land Use Permit #24-082 (issued May 29, 2024)

This was an amendment to the plans approved PLU #23-243, as related to storm water management plans and included grading for an internal drive lane on the land west of the Target entry drive.

Land Use Permit #25-109 (issued June 10, 2025)

The plans approved under PLU #25-109 included plans for the installation of water and sanitary sewer infrastructure for future development along the southwest corner of the development and vacant land west of the Target entry drive. Paving of the internal drive lane (on land west of the Target entry drive) was approved as well.

Site Plan Application #25-009 (LOC Credit Union)

On July 24, 2025, the Planning Commission approved Site Plan Application #25-009, a request to construct an approximate 2,100 square foot building for LOC Credit Union, with drive-through service, on a vacant parcel, located in the Shops at Waldenwoods Planned Development. The project is currently in the construction phase.

Proposed Use

The applicant is requesting to construct an automobile fueling and convenience station on a vacant parcel in the Shops at Waldenwoods Planned Development (PD).

Per the Planned Development Agreement for the Shops at Waldenwoods PD, an automobile fueling and convenience station was not specifically listed as a permitted principal use or special land use, nor was it listed in the previous zoning ordinance (Hartland Township Zoning Ordinance No. 37) for the GC (General Commercial) zoning district. For the current request, the project will be reviewed under the current regulations outlined in the Hartland Township Zoning Ordinance No. 76.

Per Section 3.1.14.D.xv.iii., of the current Zoning Ordinance, an automobile fueling and convenience station is considered a special land use in the GC (General Commercial) zoning district. Additional standards for this special land use are provided in Section 4.58 of the Zoning Ordinance.

The proposed project also requires site plan approval thus there are two application elements: special land use and site plan approval for an automobile fueling and convenience station. Although there are technically two elements, all are incorporated into one combined site plan which will be reviewed and approved concurrently.

Per the Hartland Township Zoning Ordinance and the State Enabling Act, a public hearing is required for the special land use application. Given the requirements for publishing a notice for the special land use, the public hearing has been scheduled for the August 13, 2026, Planning Commission meeting.

Request and Project Summary

The applicant is requesting site plan with special land use approval to construct an automobile fueling and convenience station. The approximately 532 square foot convenience store is located under a fuel island

canopy that faces Highland Road. The store will offer typical merchandise found in a convenience store setting. The hours of operation are 6:00 a.m. to 10:00 p.m. seven (7) days a week. There will be 1 to 2 Kroger employees per shift for a total of six (6) employees.

The façade materials on the building and columns on the fuel canopy are intended to match the products used on the Kroger grocery store, regarding the type of products and product colors. An outdoor storage area is shown on the west side of the building. The outdoor storage area is screened on each end with a masonry screen wall. The screen wall is 8'-6" tall and 3'-0" wide. Each screen wall is comprised of split face CMU for the base and brick above. Additional discussion of the outdoor storage area and façade materials for the building and fuel canopy are provided in other sections of this memorandum.

A propane bottle cage is shown on the north side of the site west of the dumpster enclosure. Three (3) large evergreen shrubs are placed on the north side of the propane bottle cage.

An air tower is shown on the north side of the site. Details on the air tower are not provided (elevation drawing with height stated). Screening around the air tower is not provided.

A DEF (Diesel Exhaust Fluid) pump/dispenser is shown on the south side of the site and screened on the south side of the pump with six (6) large evergreen shrubs.

The fueling station has six (6) pump islands with two (2) parking spaces per pump island (12 parking spaces total). The canopy is approximately forty-three (43) feet wide by one hundred and twenty-six (126) feet long. The overall height of the fuel canopy is nineteen (19) feet.

Four (4) off-street parking spaces are provided along the north side of the site, which includes one (1) van accessible barrier free parking space and access aisle.

Two (2) access drives (each are 2-way) are on the north side of the site, coming from an internal drive lane within the commercial development. A one-way, exit-only access drive is shown on the east side of the subject site. This connects to the north-south internal drive lane within the commercial development. The drive lane connects to Highland Road to the south.

Approval Procedure

The proposed use, automobile fueling and convenience station, requires approval from the Township Board for the special land use. The Planning Commission will review the special land use and make a recommendation to the Township Board.

The project also requires the site plan to be reviewed by the Planning Commission who will make a final decision on the site plan. The plans will be reviewed using the development standards of the GC (General Commercial) zoning district (Section 3.1.14.), standards associated with automobile fueling and convenience station (Section 4.58), and all applicable zoning standards in the Zoning Ordinance.

SPECIAL LAND USE REVIEW – General Standards

In accordance with Section 6.6, Special Uses, of the Hartland Township Zoning Ordinance, the following standards shall serve the Planning Commission and Township Board as the basis for decisions involving such uses. The standards are provided below, and the applicant has submitted a letter, as a separate attachment, which addresses the special use criteria.

- A. Be harmonious and in accordance with the objectives, intent, and purposes of this Ordinance.
- B. Be compatible with the natural environment and existing and future land uses in the vicinity.

- C. Be compatible with the Hartland Township Comprehensive Plan.
- D. Be served adequately by essential facilities and public services, such as highways, streets, police and fire protection, drainage ways and structures, refuse disposal, or that the persons or agencies responsible for the establishment of the proposed use shall be able to adequately provide any such service.
- E. Not be detrimental, hazardous, or disturbing to the existing or future neighboring uses, person, property, or the public welfare.
- F. Not create additional requirements at public cost for public facilities and services that will be detrimental to the economic welfare of the community.

The Planning Department believes the proposed use can and will meet the criteria listed above for the special land use request. The applicant has provided responses to the Special Land Use general standards as an attachment, in the summary dated June 30, 2026. The applicant will be responsible for all applicable approvals and permits from other agencies and departments for the proposed use.

SPECIAL LAND USE REVIEW – Applicable Site Standards

In addition to a finding by the Planning Commission and Township Board that the criteria above have been satisfied, the Use Standards of Section 4.58, Automobile Fueling and Convenience Station, apply. Those standards are listed below, followed by staff's findings on each standard.

Automobile Fueling and Convenience Station (Section 4.58)

1. Frontage. Such uses shall have access to and front upon a hard surface, major thoroughfare.

The subject site does not have frontage on a public or private street. The site has access from internal drive lanes that are associated with the Planned Development. Access to Highland is available via multiple driveways within the Planned Development.

Highland Road is a hard surfaced thoroughfare and is under the jurisdiction of the Michigan Department of Transportation (MDOT).

2. Minimum Lot Width. The minimum lot width required for such uses shall be 200 feet.

The parcel on which the fueling station is located is 247 feet in width along the north property line and 200 feet along the east property line.

3. Minimum Setbacks. Pump islands shall be a minimum of forty (40) feet from any public right-of-way or lot line. Tanks, propane, and petroleum products shall be set back at least fifteen (15) feet from any lot line. Overhead canopies shall be setback at least twenty (20) feet from the right-of-way with materials consistent with the principal building. The proposed clearance of any canopy shall be noted on the site plan. Details on all lighting under the canopy shall be provided.

The subject site does not have frontage along Highland Road. The measurements for the pump islands and fuel island canopy are taken from the structure to the applicable lot line of the subject parcel. The pump islands under the fuel island canopy are approximately 85 feet from the south lot line and approximately 84 feet from the north lot line.

The fuel island canopy is approximately 78 feet from the south lot line and approximately 78 feet from the north lot line. The canopy has a clearance of 15'-6". The columns are constructed with split face

CMU at the base and brick veneer above that matches the building façade materials on the convenience store. A photometric plan and light fixture details are provided.

4. Ingress and Egress. Ingress and egress drives shall be a minimum of thirty (30) feet and a maximum of forty (40) feet in width. No more than one (1) such drive or curb opening shall be permitted for every seventy-five (75) feet of frontage or fraction thereof, along any street. The nearest edge of any such drive shall be located at least twenty-five (25) feet from the nearest point of any property zoned or used for residential purposes. Curb openings for drives shall not be permitted where the drive would create a safety hazard or traffic nuisance because of its location in relation to other ingress and egress drives, its location in relation to the traffic generated by other buildings or uses, or its location near vehicular or pedestrian entrances or crossings.

Internal drive lanes within the commercial development provide vehicular access to the site, thus standard does not apply.

5. Layout. Gasoline pumps shall be located so that motor vehicles do not park on or extend over abutting landscaped areas, sidewalks, streets, buildings or adjoining property while being served. Vehicle washing shall occur completely within an enclosed building. Doors/openings shall be oriented so they face away from an abutting residential district or adjacent thoroughfares unless screened.

The proposal complies with the layout relative to the location of the gasoline pumps. No vehicle washing is proposed.

6. Screening. Where adjoining a residential district, a solid fence or wall six (6) feet in height shall be erected along any common lot line consistent with the applicable standards of Sections 5.11 and 5.20. Such fence or wall shall be continuously maintained in good condition. The Planning Commission may require landscaping, including a berm, as an alternative.

The site is surrounded by PD (Planned Development) zoned land on all sides; thus this requirement does not apply.

7. Outdoor Storage. There shall be no outdoor storage or display, except within an area defined on the site plan approved by the Planning Commission and which extends no more than ten (10) feet beyond the building.

A defined area for outdoor storage is provided on the west side of the building, which has a tall screen wall at each end of the storage area (wall is 8'-6" in height). The storage area between the screen walls is approximately fourteen (14) feet long by three (3) feet wide. Each screen wall is comprised of split face CMU on the base of the column and brick veneer above to match the building.

Per Sheet C1.20 an ice merchandiser and spill cabinet are shown in the outdoor storage area. Sheet A1.1 (Floor plan of the building), a note states exterior merchandisers are to be installed in the storage area, however the specifics on the types of products are not provided. The outdoor storage area should be labeled as such and be consistent on all sheets. Specific merchandiser units, cabinets with items for sale, or other items should not be specified on the plans. The understanding is that one (1) outdoor storage area is permitted on the west side of the building, between the two (2) screen walls, as shown on the plans. Specific merchandise/products within the outdoor storage area do not need to be identified on the plans. All products must be placed within the designated outdoor storage area.

A DEF (Diesel Exhaust Fluid) pump/dispenser is shown on the south side of the site. An air tower and propane bottle cage are shown on the north side of the site.

8. Traffic Impact. An analysis of the traffic impacts shall be provided in conjunction with the site plan.

A Traffic Impact Study (TIS), dated July 15, 2026, was submitted and the executive summary is provided as an attachment as part of this memorandum. The full TIS document is available upon request (PDF version).

9. Lighting. A canopy is subject to lighting standards provided in Section 5.13 – Lighting.

A photometric plan has been provided and details will be discussed within the context of the site plan review. The average illumination level allowed under a fuel island canopy is 20 footcandles. The average illumination level under the fuel island canopy is shown to be 18.82 footcandles.

10. Groundwater Protection. The applicant shall submit a detailed Pollution Incidence Protection Plan (PIPP). The PIPP shall describe measures to prevent groundwater contamination caused by accidental gasoline spills or leakages, such as special check valves, drain back catch basins and automatic shut off valves, as approved by the Fire Department.

The applicant will be required to provide the PIPP as part of the land use permit for the construction phase of the project. The PIPP will be reviewed by the Fire Department and the Department of Public Works (DPW) in coordination with State and County agencies.

SITE PLAN REVIEW – Applicable Site Standards

The applicable site standards include those standards related to the proposed use, automobile fueling and convenience station, as outlined in Section 3.1.14 (GC-General Commercial); Section 4.58 of the Zoning Ordinance, as discussed above; and all applicable zoning standards in the Zoning Ordinance.

In this case the applicant is requesting site plan with special land use approval to construct an automobile fueling and convenience station that includes a convenience store, approximately 532 square feet in size, and six (6) fuel pumps equating to twelve (12) fueling spaces.

Impact Assessment

An impact assessment was not provided.

Traffic Generation

The applicant submitted a Traffic Impact Study (TIS), dated July 15, 2026. An executive summary is provided. The full TIS document is available upon request (PDF version).

Dimensional Requirements (GC-General Commercial; Section 3.1.14)

Lot Size (Sec. 3.1.14)

- Required – 40,000 sq. ft. w/o sewer; or 20,000 sq. ft. with sewer
- Proposed – 1.3 acres (56,628 sq. ft.) with sewer
- Meets Requirement? Yes
- Comment – (none)

Frontage (Sec. 3.1.14)

- Required – Minimum lot width of 120 feet
- Proposed – 247 lineal feet along the north property line and approximately 200 lineal feet along the east property line. The parcel does not have frontage along a public or private road.
- Meets Requirement? – Yes
- Comment – (none)

Building Setbacks (Sec. 3.1.14 for parcel with public sewer) – For convenience store building

The parcel does not have frontage along a private or public street. The building setbacks are measured from the leading edge of the building to the appropriate property line, for each side of the building.

Setback	Required	Proposed	Meets Requirements? (Y / N)
Front (north)	50	103'	Yes
Rear (south)	40'	60'	Yes
Side (east)	15'	143'	Yes
Side (west)	15'	90'	Yes

Building Height (Sec. 3.1.14)

- Required – 35 feet or 2½ stories, whichever is less
- Proposed – 13'-6" to top of convenience store building; fuel canopy height is 19'-0" (overall height)
- Meets Requirement? – Yes
- Comment – (none)

Lot Coverage (Sec. 3.1.14)

- Required – Principal structure: 75% max.
- Proposed – 0.9% (building sq. ft. ÷ lot area; 532 sq. ft. ÷ 56,628 sq. ft. = 0.9%).
- Meets Requirement? – Yes
- Comment – (none)

Site Requirements**Dumpster Enclosure (Sec. 5.7)**

- Required – Dumpster designed, enclosed, and screened per requirements; decorative masonry screen wall on 3 sides to match exterior façade materials of the building; and steel reinforced, opaque, lockable wooden gates. Enclosure height sufficient to screen dumpsters; minimum enclosure height is 6 feet. Bottom surface of enclosure to have 8" thick reinforced concrete and extend minimum of 10 feet in front of enclosure.
- Proposed – 12'-7" by 19'-4" concrete pad in front of dumpster (single stall), with 6'-8" high enclosure comprised of brick veneer with a cast stone cap that matches the building products; and solid, galvanized steel gates, in a tan color (Oyster Shell/Canvas Tan color).
- Meets Requirement? – Yes
- Comment – (none)

Off-Street Parking (Sec. 5.8.4.H – Automobile Fueling and Convenience Station)

- Required – 2 spaces per pump (6 pumps = 12 spaces); PLUS 1 space for every 200 sq. ft. of gross floor area devoted to retail sales (retail sales area: 14'-2" by 24'-6" = 374 sq. ft.). $374 \div 200 = 2$ sp.); PLUS 1 space for each employee (2 employees per shift = 2 spaces)
EQUATES TO: 16 parking spaces REQUIRED TOTAL

- Proposed – 16 spaces total. 3 standard parking spaces, 10' X 20' in dimension plus 1 van accessible barrier free parking space and aisle at the north side of the site (4 parking spaces total); and 2 spaces are provided at each of 6 pumps (12 spaces total at pumps).
- Meets Requirement? – Yes
- Comment – (none)

Barrier-Free Parking

- Required – 1 barrier-free space in a location most accessible to the building entrance, with at least 1 space van-accessible (1 barrier-free space required per 25 parking spaces)
- Proposed – 1 van accessible, barrier-free spaces in the row of parking along the north side of the site.
- Meets Requirement? – Yes
- Comment – (none)

Parking Lot / Driveway / Internal Roads Setbacks (Sec. 5.8.3.)

- Required – off-street parking in commercial districts may only be located in a side or rear yard or non-required front yard; may not be permitted within 20' of a single-family district, nor within 10' of a road ROW, or 25' from a front lot line, nor 10' from a side or rear lot line.

Setback	Required	Proposed	Meets Requirements? (Y / N)
Front (north)	25'	20'	No
Side (east)	10'	139'	Yes
Side (west)	10'	65'	Yes
Rear (south)	10'	160'	Yes

- Meets Requirement? – TBD, 4 parking spaces are located approximately 20 feet from the front (north) lot line.
- Comment – The site does not have frontage along a public or private street; however, if the north side of the site is considered the front yard, the off-street parking does not meet the 25-foot setback from the north lot line. Planning Commission to determine if the proposed plan is acceptable.

Loading (Sec. 5.9)

- Required – 1 loading space (10' X 50') required for up to 5,000 square feet of gross floor area (for commercial use)
- Proposed – Loading space is not shown.
- Meets Requirement? – TBD
- Comment – Typically this has not been required to be shown on a plan. Planning Commission to determine if a loading space is necessary.

Access Management and Non-Residential Driveway Standards (Sec. 5.10) – Not Applicable

A curb cut/vehicular access directly from Highland Road is not proposed, thus these standards do not apply.

Landscaping (Sec. 5.11 – Updated Landscape Ordinance version)

Applicable sections of Section 5.11 (Landscaping and Screening), updated version, will be applied to the landscape plan, as outlined below.

A. Landscape plan requirements (Sec. 5.11.1.D.)

- Required – Landscape plans are to be prepared by a Registered Landscape Architect (plans with seal and signature).

- Proposed – Landscape plans are prepared by a Registered Landscape Architect.
 - Meets Requirement? – Yes
 - Comment – (none)
- B. Irrigation (Sec. 5.11.2.A.viii.)
- Required – All landscaped areas (including lawns) shall be provided with an automatic, underground or drip irrigation system.
 - Proposed – Irrigation plan is provided.
 - Meets Requirement? – Yes
 - Comment – (none)
- C. Greenbelt Landscaping (Sec. 5.11.2. C.) – Not applicable as subject site does not have direct frontage along a private or public street.
- D. Foundation Landscaping (Sec. 5.11.2.D.)
- Required – Length of planting area must equal at least 60% of the front and sides of the building length where facing a road or adjacent parking lot or other areas which provide access to building; must be 8 ft. in width and located adjacent to building, and consist of 1 ornamental or columnar tree, and 6 large or 8 small shrubs for every 30 lineal feet of building length or portion thereof. Total building perimeter used for calculations (North: 18 ft.; South: 18 ft. East: 37'-4 ½"; West 37'-4 ½". Total = 110.7 ft. total)
Foundation perimeter calcs.: 60% of perimeter = 66 ft. (.60 x 110.6 ft.)
EQUATES TO: 2 ornamental/columnar trees (66 ÷ 30 = 2); PLUS 12 large shrubs or 16 small shrubs REQUIRED
 - Proposed – Landscaping is not provided
 - Meets Requirement? – TBD
 - Comment – Planning Commission to determine if the absence of Foundation Landscaping is acceptable.
- E. Parking Lot Landscaping (Sec. 5.11.2.E.i.) – Not Applicable if less than 10 parking spaces (4 standard parking spaces are proposed).
- F. Perimeter Landscaping (Sec. 5.11.2.E.ii.b.) – For areas not visible from a public road that do not have other screening requirements such as screening between properties – applicable for areas along north, south, east, and west sides of site.
- Required – 15-foot-wide perimeter area to include 1 canopy tree with 4 large shrubs or 1 evergreen tree per 30 lineal ft.
- North: 247 lineal ft.
EQUATES TO: 8 canopy trees PLUS 33 large shrubs; or 8 evergreen trees REQUIRED.
- Proposed – 8 canopy trees and 35 large shrubs. Landscape planting area width: varies between 20 ft. to 38 ft.
 - Meets Requirement? – Yes
 - Comment – (none)
- South: 247 lineal ft.
EQUATES TO: 8 canopy trees PLUS 33 large shrubs; or 8 evergreen trees REQUIRED.
- Proposed – 8 canopy trees and 23 large shrubs. Landscape planting area width: 30.5 ft.
 - Meets Requirement? – Yes, for the number of trees; no for the number of large shrubs.
 - Comment – Planning Commission to determine if the plan is acceptable as presented.
-

East: 200 lineal ft.

EQUATES TO: 7 canopy trees PLUS 27 large shrubs; or 7 evergreen trees REQUIRED.

- Proposed – 7 canopy trees and 22 large shrubs. Landscape planting area width: varies between 20 ft. to 45 ft.
- Meets Requirement? – Yes, for the number of trees; no for the number of large shrubs
- Comment – Planning Commission to determine if the plan is acceptable as presented.

West: 200 lineal ft.

EQUATES TO: 7 canopy trees PLUS 27 large shrubs; or 7 evergreen trees REQUIRED.

- Proposed – 7 canopy trees and 17 large shrubs. Landscape planting area width: 21 ft.
- Meets Requirement? – Yes, for the number of trees; no for the number of large shrubs
- Comment – Planning Commission to determine if the plan is acceptable as presented.

G. Screening of Ground Mounted Equipment (Sec. 5.11.2.G.iii.)

- Required – Screening on three sides for utility cabinets (if 30 inches or more in height).
- Proposed – Utility cabinets are not shown.
- Meets Requirement? – Yes
- Comment – If proposed, utility cabinets and required screening shall be shown on the Construction Plan set. Screening for the air tower is not required and can be eliminated from the landscape plan, on the Construction Plan set.

Sidewalks and Pathways (Sec. 5.12)

- Required – the Planning Commission may require sidewalks or safety paths as a condition of site plan approval
- Proposed – Sidewalk/safety paths are not proposed for this site or nor along the internal drive in this area of the Shops at Waldenwoods PD.
- Meets Requirement? – TBD
- Comment – Planning Commission to determine if sidewalks or safety paths are necessary.

Lighting (Sec. 5.13)

A. Intensity

- Required – Light intensity to be measured 5 ft. above ground level; max. 0.5 fc along property line adjacent to residential; or max.1.0 fc along property line adjacent to non-residential; average fc between 2.4 and 3.6 in main parking area and an average of 5.0 fc at main building entrance and at exit/entry drive; may not exceed 10 fc on site; average lighting for automotive fueling canopies shall not exceed 20 fc and canopy light fixtures shall be installed so that the lens is recessed and adequately shielded.
- Proposed – photometric plan indicates average of 4.66 fc in the parking area and trash; average of 7.75 fc at building entrance; average of 3.49 fc at driveways; and average of 18.82 fc under the fuel island canopy. Footcandle value less than 10 fc throughout the site (except under fuel canopy). Housing of light fixtures under the fuel island canopy has a slim profile design and nearly flush with canopy ceiling.
- Meets Requirement? – No, where light intensity exceeds the maximum average allowed at the building entrance (proposed is 7.75 fc) and in the parking area (proposed is 4.66 fc).
- Comment – The photometric plan should be revised to comply on the Construction Plan set.

B. Fixture Height

- Required – 25’ or the height of the principal building, whichever is less, measured from the ground level to the centerline of the light source
- Proposed – 17.5’ total height (light poles plus base)
- Meets Requirement? – Yes
- Comment – (none)

C. Fixture Type

- Required – details of all lighting fixtures needed including specifications for shielding, wattage, and illumination
- Proposed – specifications for proposed LED light fixtures are shown on the photometric plan for light pole fixture and wall mounted/sconce light fixtures
- Meets Requirement? – Yes
- Comment – (none)

Water Supply and Wastewater Disposal (Sec. 5.16)

The proposed development will be served by municipal sanitary sewer and municipal water.

Architecture / Building Materials (Sec. 5.24)

Architecture Comments:

- Façade Materials Calculation – Façade materials must comply with the specifications for Façade Materials Group #1; percentages are proposed as follows:

Materials Group #1: Proposed Façade Materials by Percentage by Elevation for Building

Elevation	Clay Brick (30% min.) Smooth Face Brick Veneer prop.	Decorative concrete masonry unit (Split-faced block 25% max.) CMU veneer on plan	Glass (50% max.)	Aluminum Composite Material (ACM) (20% max.)* Stated % is combined total of 2 colors of ACM	Precast sill (25% max.) (Used “Precast Other” in Ord.)
North	10%	23%	22%	43%	2%
East	14%	30%	12%	40%	4%
West	15%	30%	11%	40%	4%
South	23%	13%	0%	62%	2%

*Using Flat Metal Panel (in Ord.) as similar façade material to ACM

- Roof-mounted equipment (HVAC units): The outlines of the roof-mounted equipment (HVAC units) are shown and are screened by the ACM fascia.
- Colors: Specific product information for each façade material is stated on the building elevations. The intent is to match the façade materials and colors on the existing Kroger grocery store in the Shops at Waldenwoods development.
- Materials: Percentages are listed for each elevation side as indicated by the table; specifications on all materials are provided. Some of the proposed façade materials do not meet the required percentage standards as stated in Sec. 5.24.
- A digital materials board was submitted. The applicant is researching the products on the Kroger grocery store to find appropriate façade material products and color matches.

- Meets Requirement? – TBD
- Comment – The Planning Commission to determine if the proposed façade material percentages are acceptable as listed.

Fuel Island Canopy Design

The fueling station canopy extends over the convenience store. There are six (6) pump islands, for a total of twelve (12) fueling stations. The canopy is approximately forty-three (43) feet wide by one hundred and twenty-six (126) feet long. The overall height of the fuel canopy is nineteen (19) feet.

The support posts are faced with split-face block at the base and brick veneer above to match the building. The brick material covers the majority of each support post. The canopy fascia is comprised of an aluminum composite material (ACM) in two-tones of beige (light and medium beige). The fascia is not illuminated.

Other Requirements-Zoning Ordinance Standards/Comments

The following revisions shall be provided on the Construction Plan set:

Sheet C1.20 (Site Dimension Plan)

- Note #22 should be revised to state “Outdoor Storage Area” and should only be shown on the west side of the building, between the two (2) proposed kiosk wing/screen walls.
- Note #22 (ice merchandiser) shall be removed from the site plan on the east side of the building.
- Note #25 (Kiosk Wing Wall) should be added to the north kiosk wing wall (on the west side of the building).
- Note #26 (spill cabinet) shall be removed from the plan.

Sheet A1.0 (Floor Plan)

- The façade materials listed on this sheet for the two (2) kiosk wing walls/screen walls shall match the façade materials stated on Sheet A0.0 (Exterior Color Elevations).
- The note “Screen walls to shield outdoor equipment” on the west side of the building, shall be removed and replaced with a note that states “Outdoor Storage Area” (for the area between the two (2) screen walls).

Sheet A1.1 (Proposed Equipment Plan)

- The note “Exterior merchandisers. GC to install per FM/OPS direction” on the west side of the building, shall be removed and replaced with a note that states “Outdoor Storage Area” (area between the two (2) screen walls).
- The note “Exterior merchandisers. GC to install per FM/OPS direction” on the east side of the building, shall be removed.

Signage

All signs will be reviewed administratively under a sign permit application(s).

Hartland Township DPW Review

A review letter is provided from the Hartland Township DPW Director, dated July 7, 2026.

Hartland Township Engineer’s Review (SDA)

The Township Engineer (SDA) has reviewed the plans and recommends approval subject to items being addressed in the letter dated July 6, 2026.

Hartland Deerfield Fire Authority Review

The Hartland Deerfield Fire Authority has reviewed the plans and provided comments in the letter dated July 7, 2026.

Attachments:

1. Hartland Township DPW review letter, dated 07.07.2026 – PDF version
2. Township Engineer (SDA) review letter dated 07.06.2026 – PDF version
3. Hartland Deerfield Fire Authority review letter, dated 07.07.2026 – PDF version
4. Applicant's summary dated 06.30.2026 – PDF version
5. Kroger TIS Executive Summary 07.15.2026 – PDF version
6. Fuel canopy luminaire cut sheet – PDF version
7. Profile view fuel canopy luminaire – PDF version
8. Light fixture cut sheet for light pole – PDF version
9. Wall sconce cut sheet – PDF version
10. Color rendering of site – PDF version
11. Color elevations dated 07.22.2026 – PDF version
12. Floor plans – PDF version
13. Exterior Façade Materials Board – PDF version
14. Photograph of Kroger Grocery Store – PDF version
15. Site Plans dated 06.10.2026

CC:

SDA, Twp Engineer (via email)

S. Hable, Twp DPW Director (via email)

A. Carroll, Hartland FD Fire Chief (via email)

T:\PLANNING DEPARTMENT\PLANNING COMMISSION\2026 Planning Commission Activity\Site Plan Applications\SP SUP #26-007 Kroger Gas Station\Staff reports\PC\SP SUP #26-007 PH staff report PC 07.29.2026.docx



DEPARTMENT OF PUBLIC WORKS

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

TO: Planning Department
DATE: 7/7/2026
DEVELOPMENT NAME: Kroger Gas Station
APPLICATION #: SP/SUP #26-007
REVIEW TYPE: Site Plan

Site Plans for the proposed Kroger gas station propose 12 nozzles (6 islands with 2 nozzles on each), in addition to a small, approximately 600 square foot building. REUs are assigned for service stations as 1.0 per premise plus 0.15 per nozzle. Parcel 4708-20-400-021 currently owns no REU's.

Nozzles (12): $1.0 + (0.15 * 12) = 2.80$
TOTAL: 2.80

	Sewer REUs	Water REUs
Owned	0	0
Required	2.80	2.80
# REUs Needed	2.80	2.80
Cost Each	\$9,439.20	\$5,816.01
Total Due Each	\$26,429.76	\$16,284.83
TOTAL REU COST	\$42,714.59	

Hartland Township Public Works approves the Kroger site plan subject to purchase of above REU's as well as inclusion of the following details on the construction plans:

1. Water main material, sizes and connection detail sheet.
2. Water service lead location, size and materials including fittings.
3. Sanitary sewer material and sizes and connection detail sheet.
4. Monitoring manhole for sewer connection and location if required.
5. Utility easements noted as public or private.

Appropriate size water meters, horns, and MXU's will need to be purchased from the township at time of installation. Please feel free to contact me with any further questions or comments regarding this matter and thank you for your time.

Scott Hable
Public Works Director

Site Plan Review

July 6, 2026

Troy Langer
Planning Director
Hartland Township, MI

Re: Kroger Gas Station – Site Plan Review
SDA Review No. HL25-101

Dear Troy:

We have received the preliminary site plan submittal for the above referenced project prepared by Sevan Engineering dated June 10, 2026, and received by our office on July 1, 2026. A concept review email was provided on March 18, 2026. The plans were reviewed in accordance with Hartland Township Engineering Standards and the following comments are our observations.

Recommendation

Approval of the Site Plan is recommended with the conditions listed below.

Project Summary

- Construction of a Kroger Gas Station located north of Highland Road (M-59) at Shops of Waldenwoods. Site access would be provided with access drives from private drives. It is noted that the site is 1.05 acres.
- Water service would be provided from the existing 8-inch water main within the Shops at Waldenwoods. A water service will be provided to serve the building.
- Sanitary sewer service would be provided from the existing 8-inch sanitary sewer within the Shops at Waldenwoods. A sanitary service would be provided to serve the building.
- Storm water would be collected by a storm sewer collection system with outlet to a recently constructed Forebay A and Detention #4 within the Shops at Waldenwoods.

General

1. A topo survey and utility plan were not provided. These sheets shall be provided with the next submittal identifying all existing and proposed utility layout.
2. There are two existing wells indicated as type I near the site. A variance would need to be requested for the installation of underground storage tanks within public wells. It is prohibited to install storage tanks within 2,000 ft of an existing type I community public water well. It will need to be confirmed with the local health department or EGLE Water Division (Drinking Water) the type and location of said wells. The applicant will need to coordinate with the Bureau of Fire Services and EGLE directly.

Storm Drainage & Site Grading

1. The recently constructed detention basin #4 was designed assuming a drainage coefficient of 0.7. Calculations will need to be provided to confirm that the C-coefficient for the site did not increase. Any development project with a land disturbance area of 1.0 acre will require a permit from Livingston County. LCDC's current standards shall govern all storm and detention improvements within the Township. We do not anticipate additional stormwater

improvements given that the Shops at Waldenwoods development was redeveloped to account for all developments within the site.

Paving

1. A circulation plan will be required to confirm that garbage trucks and emergency vehicles can access the site.

Sanitary Sewer

1. All sanitary sewer design requirements are to follow current Livingston County Drain Commissioner's (LCDC) standards and details. LCDC sanitary sewer detail sheets shall be attached to the proposed plans when applicable.

Permits and Agreements Required

Based on those improvements depicted on the plans, the following permits and agreements may be needed to be provided for review and approval:

- A draft copy of the Storm Drain Agreement.
- A Land Use Permit will be granted after the pre-construction meeting.
- Livingston County Drain Commissioner approval and permit. (Storm and Sanitary)
- Soil Erosion and Sedimentation permit from Livingston County Drain Commissioner.

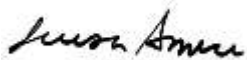
Please be aware that additional comments may arise with the submittal of the requested revisions and/or additional information.

The comments are not to be construed as approvals and are not necessarily conclusive. The final engineering plans for this development are to be prepared in accordance with the Hartland Township Engineering Design Standards and the latest Hartland Township Standard Details. Sanitary sewer and water benefit fees may be applicable for this project.

If you have any questions regarding this letter, please contact Luisa Amici at (248) 844-5400 with any questions.

Sincerely,

SPALDING DEDECKER



Luisa Amici
Engineer



Mark Collins, PE
Project Manager

cc: Martha Wyatt, Hartland Township Planning Planner - Landscape Architect (via email)
Scott Hable, Hartland Township Public Works Director (via email)



HARTLAND DEERFIELD FIRE AUTHORITY
HARTLAND AREA FIRE DEPT.

3205 Hartland Road
Hartland, MI. 48353-1825

Voice: (810) 632-7676
E-Mail: firemarshal@hartlandareafire.com

July 7, 2026

To: Hartland Township Planning Commission

Re: Kroger Gas Station

The Hartland Deerfield Fire Authority has reviewed the Site Plan for Kroger Gas Station dated June 10, 2026.

These are the following are recommendations:

1. A minimum of one isle is a minimum of twenty-six feet is preferred, must have at least twenty-four feet.
2. All turning radius is a minimum of fifty feet.
3. Required to purchase a Supra Box, Fire Department has ordering information.
4. Contact the Fire Department for Final Inspection.

This approval is subject to field inspection. This approval shall be valid for one year. If construction has not begun within 12 months of the date on this letter the plans must be resubmitted for approval. This approval does not exempt the project from complying with all applicable codes. Additional submittals and approvals may be required.

Jon Dehanke
Fire Marshal



Comment Response Letter

June 30, 2026

Recipient: Hartland Township
2655 Clark Road
Hartland, MI 48353

Project: The Kroger Co.
Fuel Center D444
10059 Highland Road
Hartland, MI 48843

RE: Special Use Criteria Letter

Special Use Criteria

- A. Be harmonious and in accordance with the objectives, intent, and purpose of the Ordinance.
Response: The project complies with intent of ordinance by meeting use and design criteria associated with commercial properties.
- B. Be compatible with the natural environment and existing and future land use activities.
Response: The project is compatible with the natural environment as well as the land use activities. A fuel center is an extension of the existing Kroger Grocery Store service offerings, therefore, this is in line with the surrounding land use activities.
- C. Be compatible with the Hartland Township Comprehensive Plan.
Response: The Future Land Use Map of Harland Township designates this area for commercial uses, which Kroger Fuel complies with.
- D. Be served adequately by essential public services, such as highways, streets, police and fire protection, drainage ways, and structures, refuse disposal, or that the persons or agencies responsible for the establishment of the proposed use shall be able to adequately provide any such services.
Response: The Kroger Fuel Center and the surrounding developments are all served adequately by public services. The existing facilities have been constructed and approved of as a part of the Shops at Waldenwood plan.
- E. Not be detrimental, hazardous, or disturbing the existing or future neighboring uses, person, property, or the public welfare.
Response: The Kroger Fuel Center will not result in detrimental, hazardous or disturbing activities. It will be developed and constructed in accordance with all applicable federal, state and local regulations.
- F. Not create additional requirements at public facilities and services that will be detrimental to the economic welfare of the community.
Response: The Kroger Fuel Center will not require additional public facilities that would be detrimental to the economic welfare of the community. The existing facilities have been constructed and approved of as a part of the Shops at Waldenwood plan.

Summary and Conclusions

The Traffic Impact Assessment evaluated the proposed Kroger Fuel Center within Township of Hartland, Livingston County, Michigan. The findings of the Traffic Impact Assessment are summarized as follows:

Project Summary

1. It is proposed to raze the site and develop a Kroger Fuel Center consisting of a 518 SF kiosk and 6 gas pumps (12 fueling positions).
2. The site is being developed as part of the existing Kroger shopping center just to the east of the proposed site. Site access is currently provided via internal roadways within the existing Kroger shopping center.
 - i. The proposed fuel center generates approximately 36 new external trips during the weekday AM peak hour and 51 new external trips during the weekday PM peak hour after accounting for internal capture and pass-by reductions.
 - ii. The proposed fuel center utilizes the existing shopping center access and does not require modifications to the surrounding roadway network.
 - iii. The proposed development does not materially affect the operation of the study intersections under either future scenario.
3. Under the 2028 Build – Scenario 1 condition, all movements at the intersection of M-59 (E. Hartland Road) & Old US 23 will continue to operate at or near No-Build Levels of Service during both peak hours studied. The intersection will continue to operate at an overall Level of Service “D” or better during both peak hours studied.
4. Under the 2028 Build – Scenario 2 condition, all movements at the intersection of M-59 (E. Hartland Road) & Old US 23 will continue to operate at or near No-Build with Mitigation Levels of Service during both peak hours studied. The intersection will continue to operate at an overall Level of Service “D” or better during both peak hours studied.
5. Under the 2028 Build – Scenario 1 condition, all movements at the intersection of M-59 (E. Hartland Road) & US 23 Interchange will continue to operate at or near No-Build Levels of Service during both peak hours studied. The intersection will operate at an overall Level of Service “C” or better during both peak hours studied.
6. Under the 2028 Build – Scenario 2 condition, all movements at the intersection of M-59 (E. Hartland Road) & US 23 Interchange will continue to operate at or near No-Build with Mitigation Levels of Service during both peak hours studied. The intersection will continue to operate at an overall Level of Service “C” or better during both peak hours studied.
7. Under the 2028 Build – Scenario 1 conditions, all intersection movements at the intersection of M-59 (E. Hartland Road) & Charyl Stockwell Academy Drive will continue to operate at or near No-Build Levels of Service during both peak hours studied. The intersection will continue to operate at an overall Level of Service “D” or better during both peak hours studied.

8. Under the 2028 Build – Scenario 2 conditions, all intersection movements at the intersection of M-59 (E. Hartland Road) & Charyl Stockwell Academy Drive will continue to operate at or near No-Build with Mitigation Levels of Service during both peak hours studied. The intersection will operate at an overall Level of Service “E” or better during both peak hours studied.
9. Under the 2028 Build – Scenario 1 conditions, all intersection movements at the intersection of M-59 (E. Hartland Road) & Internal Roadway will continue to operate at or near No-Build Levels of Service during both peak hours studied. The intersection will operate at an overall Level of Service “D” or better during both peak hours studied.
10. Under the 2028 Build – Scenario 2 conditions, all intersection movements at the intersection of M-59 (E. Hartland Road) & Internal Roadway will continue to operate at or near No-Build with Mitigation Levels of Service during both peak hours studied. The intersection will continue to operate at an overall Level of Service “D” or better during both peak hours studied.

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Scottsdale® Legacy (CRUS)

LED Canopy Luminaire



OVERVIEW

Lumen Package (lm)	5,000 - 22,000
Wattage Range (W)	38 - 152
Efficacy Range (LPW)	114 -156
Weight lbs (kg)	23 (10.4)

QUICK LINKS

FEATURES & SPECIFICATIONS

Construction

- Features a ultra-slim 11/16" profile die-cast housing, with flat clear or diffused tempered glass lens. Unit is water-resistant, sealed and IP66 rated. Integral designed heat sink does not trap dirt and grime, ensuring cool running performance over the life of the fixture.
- Standard color is white and is finished with LSI's DuraGrip® polyester powder coat process. DuraGrip withstands extreme weather changes without cracking or peeling.
- Luminaire assembly incorporates a pressure stabilizing vent breather to prevent seal fatigue and failure.

Optical System

- Features an array of select, mid-power, high brightness, high efficiency LED; 3000K, 4000K, 5000K color temperature, 80 CRI (nominal).
- Choice of Symmetric or Asymmetric distribution. Asymmetric provides a wider distribution pattern. Optional symmetric with diffused lens also available.
- Forward Throw distribution provides an industry leading unique distribution pattern that illuminates the area under the gas canopy and beyond. The forward through optic directs the light to the forecourt from the gas canopy eliminating the need for supplemental floodlights and extensive perimeter lighting.
- Diffuse lens available as an option to soften brightness of the luminaire.
- Six Lumen Packages: 5,000, 9,000, 10,000, 13,000, 18,000 and 22,000 Lumens.

Electrical

- High performance factory programmable driver features over-voltage, under voltage, short-circuit and over temperature protection with integral 6kV surge protection that meets IEEE C62.41.2 and ANSI C82.77-5 Location Category C Low standards. Additional field replaceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2). Custom lumen and wattage packages available.
- Driver components are fully encased in potting for moisture resistance. Complies with IEC and FCC standards. 0-10 V dimming supplied standard with all drive currents.
- Die-cast aluminum, wet location rated driver/electrical enclosure is elevated above canopy deck to prevent water entry, provide easy "knock-out" connection of primary wiring and acts as the primary heatsink ensuring cool operation of internal components for longer life. Seals to optical housing via one-piece molded silicone gasket.
- Universal voltage power supply, 120-277 VAC, 50/60 HZ and 347-480 VAC, 50/60 HZ input.
- -40°C to 55°C (-40°F to 131°F) ambient operating temperature. (Varies based on lumen package and mounting style see performance data for specifics.)
- Minimum 60,000 to 100,000 hours depending upon the ambient temperature of the installation location (see performance data for specifics.)

Hazardous Location

- Designed for lighter than air fuel applications. Product is suitable for Class 1 Divisions 2 only when properly installed per LSI installation instructions. See lsicorp.com for specific guidance. Not available on SLW.

Installation

- One-person installation.
- Installs in a 12" or 16" deck pan. Deck penetration consists of a 4" hole, simplifying installation and water sealing. Unit is designed to quickly retrofit into existing Scottsdale (4") hole as well as openings for Encore and Encore Top Access and to reconnect wiring for the SC/ECTA without having to relocate the conduit.
- Retro panels are available for existing Encores as well as kits for recessed and 2x2 installations (see separate spec sheets). Support brackets are provided standard, to prevent sagging of deck.

Warranty

- LSI luminaires carry a 5-year limited warranty. Refer to <https://www.lsicorp.com/resources/terms-conditions-warranty/> for more information.

Listings

- UL and ETL listed to UL 1598, UL 8750 and other U.S. and International safety standards. Suitable for wet locations.
- DesignLights Consortium® (DLC) Premium qualified product. Not all versions of this product may be DLC Premium qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.
- Meets Buy American Act requirements.
- IDA compliant with 3000K or lower color temperature.

Scottsdale® Legacy (CRUS) LED Canopy Luminaire

Type : _____

 Have questions? Call us at (800) 436-7800

PHOTOMETRICS

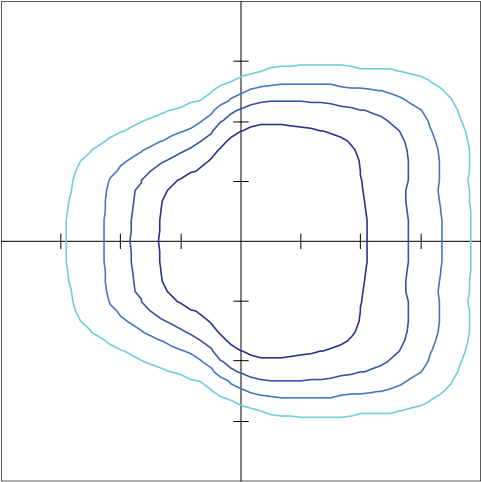
[Back to Quick Links](#)

CRUS-SCFT-SS-50

Luminaire Data	
Type 5 Distribution	
Description	5000 Kelvin, 80 CRI
Delivered Lumens	13,980
Watts	93
Efficacy	150
IES Type	Type VS - Very Short
BUG Rating	B3-U0-G3

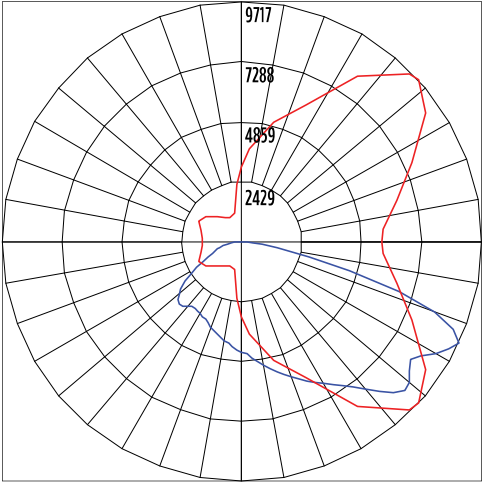
Zonal Lumen Summary		
Zone	Lumens	% Luminaire
Low (0-30°)	2,397.7	10.30%
Medium (30-60°)	8,658.8	37.20%
High (60-80°)	4,914.2	21.10%
Very High (80-90°)	225.7	1.00%
Uplight (90-180°)	0	0%
Total Flux	23,269.3	100%

ISO Footcandle



10' Mounting Height / 10' Grid Spacing
■ 5 FC ■ 2 FC ■ 1 FC ■ 0.5 FC

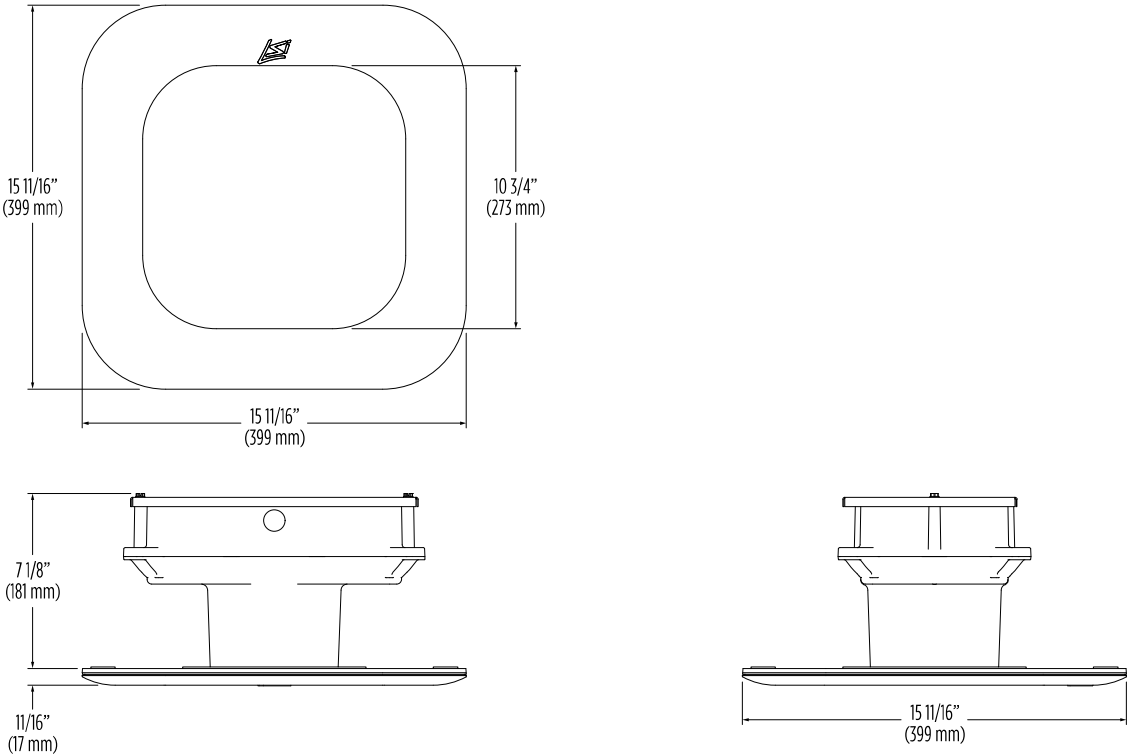
Polar Curve



■ Vertical Plane ■ Horizontal Cone

PRODUCT DIMENSIONS

[Back to Quick Links](#)



Project		Catalog #		Type	
Prepared by		Notes		Date	



McGraw-Edison

GALN Galleon II

Area / Site Luminaire

Product Features



Interactive Menu

- Ordering Information page 2
- Mounting Details page 3
- Optical Distributions page 5
- Product Specifications page 5
- Energy and Performance Data page 6
- Control Options page 17

Product Certifications



Quick Facts

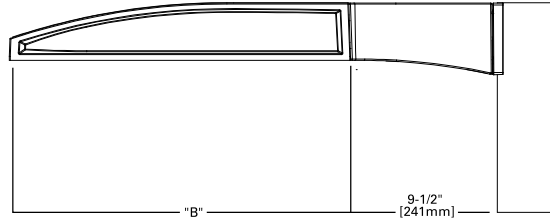
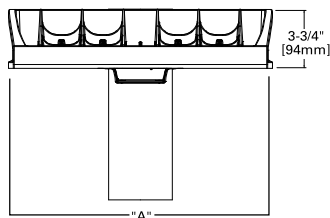
- Lumen packages range from 3,300 - 102,700 (33W - 658W)
- 22 optical distributions
- Efficacy up to 178 LPW

Connected Systems

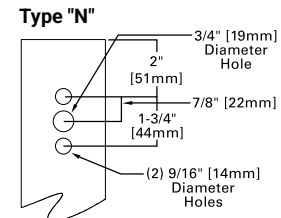
- Wavelinx LITE Wireless
- Wavelinx PRO Wireless
- AirMesh Wireless

Dimensional Details

Standard Pole Mount Arm



Pole Drilling Pattern



Number of Light Squares	Width "A"	Housing Length "B"	Weight with Standard or QM Arm	EPA with Standard or QM Arm
1-4	16"	22"	29 lb	0.95
5-6	22"	22"	39 lb	0.95
7-9	22"	28-1/8"	48 lb	1.1

NOTES: For arm selection requirements and additional line art, see Mounting Details section.

NOTES:

1. IDA Certified (3000K CCT and warmer only, fixed mounting options)



Mirada Small Silicone (XWS SIL)

Outdoor Wall Sconce



OVERVIEW

Lumen Package (lm)	1,000 - 8,000
Wattage Range (W)	10 - 61
Efficacy Range (LPW)	124 - 162
Weight lbs (kg)	10 (4.5)
Control Options	IMSBT, ALB, ALS, PCI

QUICK LINKS

FEATURES & SPECIFICATIONS

Construction

- Rugged die-cast aluminum housing.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Extended housing available with 1/2" threaded hubs for surface conduit and rated wire.
- Standard luminaire shipping weight: TBD lbs in carton.
- Max luminaire shipping weight: 12 lbs in carton (20 lbs w/EH option)

Optical System

- State-of-the-Art one piece silicone optic provides industry leading optical control while also acting as an integrated gasket reducing system complexity and improving fixture reliability.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in distribution types 2, 3, 4, and FT.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93%.
- Zero uplight.
- 5000K, 4000K, 3500K, 3000K, and 2700K color temperatures per ANSI C78.377. Also available in Phosphor Converted Amber with peak intensity at 610nm.
- 70 or 80CRI Minimum.

Electrical

- High-performance programmable driver features over-voltage, under-voltage, short circuit and over temperature protection. Custom lumen and wattage packages available.

- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 VAC) Input 50/60 Hz or optional High Voltage (347-480 VAC).
- L80 Calculated Life: >100k Hours
- Total harmonic distortion (THD): <20%
- Operating temperature: -40°C to 40°C (-40°F to +104°F)
- Power factor (PF): >.90
- Input power stays constant over life.
- Optional 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed via hinged door.
- Optional integral emergency battery pack provides 90-minutes of constant power to the LED system, ensuring code compliance. A test switch/indicator button is installed on the housing for ease of maintenance. The fixture delivers 1500 lumens during emergency mode.

Controls

- Integral passive infrared Bluetooth™ motion sensor options. Fixtures operate independently and can be commissioned via an iOS or Android configuration app. Updates and modifications to the control strategy are easily implemented via an intuitive app.
- AirLink™ Blue wireless control system with technology partner Silvar incorporates Luminaire Level Lighting Controls (LLLC) and high-end trim

Installation

- Universal wall mounting plate mounts directly to vertical surface or 4" junction box (octagonal or square).
- Luminaire hinges to the top of the mounting plate and is secured via two flush mount screws that help to conceal the hardware and prevent over tightening during installation.

Warranty

- LSI luminaires carry a 5-year limited warranty. Refer to <https://www.lsicorp.com/resources/terms-conditions-warranty/> for more information.

Listings

- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- DarkSky approved with 3000K or warmer color temperature selection and fixed mounting.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet locations.
- IP65 rated luminaire per IEC 60598-1.
- 3G rated for ANSI C136.31 high vibration applications when pole mounted (using optional XPM bracket) or wall mounted.
- IK10 rated luminaire per IEC 66262 mechanical impact code.
- DesignLights Consortium® (DLC) Premium qualified product. Not all versions of this product may be DLC Premium qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

Mirada Small Silicone (XWS SIL)

Type : _____

Have questions? Call us at (800) 436-7800

ORDERING GUIDE

[Back to Quick Links](#)

TYPICAL ORDER EXAMPLE: XWS LED 6L SIL FT UNV DIM 40 70CRI ALBMR1LR BLK CWBB						
Prefix	Light Source	Lumen Package	Lens	Distribution	Voltage	Driver
XWS - Mirada Small Wall Sconce	LED	1L - 1,000 (10w) UNV Only 2L - 2,000 (13w) 3L - 3,000 (19w) 5L - 5,000 (35w) 6L - 6,000 (43w) 8L - 8,000 (61w) Custom Lumen Packages ¹	SIL - Silicone	2 - Type 2 3 - Type 3 4 - Type 4 FT - Forward Throw	UNV - Universal Voltage (120-277V) HV - High Voltage (347-480V)	DIM - 0-10v Dimming (10-100%)
Color Temperature	Color Rendering	Controls			Finish	Options
50 - 5,000 CCT 40 - 4,000 CCT 35 - 3,500 CCT (80 CRI only) DarkSky Approved CCT's 30 - 3,000 CCT 27 - 2,700 CCT (80 CRI only)	70CRI - 70 CRI 80CRI - 80 CRI	Blank - None <u>Wireless Controls</u> ALBMR1LR - AirLink Blue Long Range Wireless Multi-Range Sensor Controller (8-15' MH) ^{2,3} ALBMR2LR - AirLink Blue Long Range Wireless Multi-Range Sensor Controller (16 - 40' mounting height) ^{2,3} <u>Standalone Controls</u> EXT - 0-10v Dimming leads extended to housing exterior IMSBT1L - Integral Bluetooth™ Motion Sensor 8-24' MH ^{2,3} <u>Button Type Photocells</u> PCI120 - 120V PCI208-277 - 208 - 277V PCI347 - 347V			BLK - Black BRZ - Dark Bronze GMG - Gun Metal Gray GPT - Graphite MSV - Metallic Silver PLP - Platinum Plus SVG - Satin Verde Green WHT - White	Blank - None BB - 10w Battery Back-up (0°C) ⁴ CWBB - 10w Cold Weather Battery Backup (-20°C) ⁴ BB20 - 20W Battery Back-up (0°C) ⁴ EH - Extended Housing ⁵ SP1 - 10kV Surge Protection Device



Need more information?
[Click here for our glossary](#)

Have additional questions?
Call us at (800) 436-7800



ACCESSORY ORDERING INFORMATION*

Part Number	Description
758274CLR	XWS Extended Housing/Surface Conduit Wiring Box
760159CLR	XWS Spacer Plate/Wiring Box

*Accessories are shipped separately and field installed.

Battery Backup

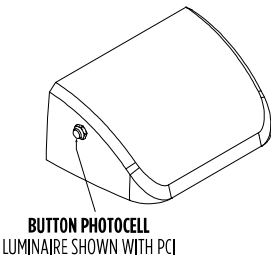
- Emergency battery system provides 90-minutes of constant power to the LED system, ensuring code compliance.
- A test switch/indicator button is installed on the housing for ease of maintenance.
- 10w battery delivers ~1,500 lumens during emergency mode.
- 20w battery delivers ~3,000 lumens during emergency mode.



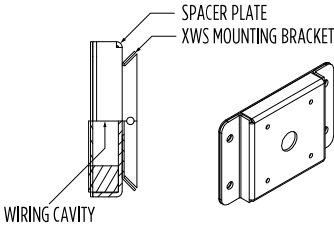
Luminaire shown with battery backup



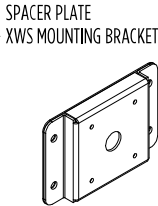
AirLink Wireless Control Luminaire shown with ALBMR1LR



BUTTON PHOTOCCELL LUMINAIRE SHOWN WITH PCI



WIRING CAVITY



SPACER PLATE XWS MOUNTING BRACKET

1 Custom lumen and wattage packages available, consult factory. Values are within industry standard tolerances but not DLC listed.
2 When high voltage (HV) is specified, IMSBT and ALBMRxLR control options are limited to 6L and 8L lumen packages.
3 Sensors are field configurable via a phone app that can be downloaded from your smartphone's native app store.
4 Universal Voltage Only (120-277V). 20W Battery Backup only available 1L - 6L.
5 For applications with surface conduit.



KROGER D-444
RETAIL FUEL CENTER
HARTLAND, MI

sevan
MULTI-SITE SOLUTIONS
06.29.2026



Kroger
KROGER D-444
RETAIL FUEL CENTER
HARTLAND, MI

M-59 (HIGHLAND ROAD)

sevan
MULTI-SITE SOLUTIONS
06.29.2026

MATERIAL LEGEND:

- | | |
|-------|---|
| (BLD) | "INTERSTATE BRICK," "TERRA COTTA" INTEGRALLY COLORED SMOOTH FACE 4"x16" BRICK WITH MATCHING MORTAR, WITH 4x4 SOLID AT DOOR HEADER OR EQUIVALENT |
| (CSF) | - 33 1/2" LONG PRECAST GROUND FACE CONCRETE SILL TO MATCH "BASALTITE" 923WR WITH MATCHING MORTAR OR EQUIVALENT |
| (BLD) | "BASALTITE," 804WR INTEGRALLY COLORED SPLIT FACE 8"x16" CMU WITH MATCHING MORTAR OR EQUIVALENT |
| (PTI) | "SHERWIN WILLIAMS," "OYSTER SHELL" (CANVAS TAN) SW7531, (G.C. TO PAINT DOORS, FRAMES, TRASH ENCLOSURE GATES, AND ELECTRICAL EQUIPMENT) |

FRONT (NORTH) ELEVATION

SCALE: $3/16"=1'-0"$

CANOPY TOTAL AREA: 592 SQ. FT. OR 100%
SANDSTONE ACM FASCIA: 265 SQ. FT. OR 45%
OYSTER ACM FASCIA: 176 SQ. FT. OR 30%
BRICK VENEER - BL1: 109 SQ. FT. OR 18%
CAST SILL -CS1: 6 SQ. FT. OR 1%
CMU VENEER -BL2: 36 SQ. FT. OR 6%

KIOSK TOTAL AREA (EXCLUDING PT1): 209 SQ. FT. OR 100%
SANDSTONE ACM FASCIA: 47 SQ. FT. OR 22%
OYSTER ACM FASCIA: 43 SQ. FT. OR 21%
BRICK VENEER - BL1: 20 SQ. FT. OR 10%
CAST SILL - CS1: 6 SQ. FT. OR 2%
CMU VENEER - BL2: 48 SQ. FT. OR 23%
GLASS: 45 SQ. FT. OR 22%

LEFT (EAST) ELEVATION

SCALE: $3/16"=1'-0"$

CANOPY TOTAL AREA: 226 SQ. FT. OR 100%
SANDSTONE ACM FASCIA: 71 SQ. FT. OR 32%
OYSTER ACM FASCIA: 79 SQ. FT. OR 35%
BRICK VENEER - BL1: 55 SQ. FT. OR 24%
CAST SILL - CS1: 3 SQ. FT. OR 1%
CMU VENEER - BL2: 18 SQ. FT. OR 8%

KIOSK TOTAL AREA (EXCLUDING PT1): 483 SQ. FT. OR 100%
SANDSTONE ACM FASCIA: 131 SQ. FT. OR 27%
OYSTER ACM FASCIA: 65 SQ. FT. OR 13%
BRICK VENEER – BL1: 70 SQ. FT. OR 14%
CAST SILL – CS1: 17 SQ. FT. OR 4%
CMU VENEER – BL2: 144 SQ. FT. OR 30%
GLASS: 56 SQ. FT. OR 12%

RIGHT (WEST) ELEVATION

SCALE: $3/16" = 1' - 0"$

CANOPY TOTAL AREA: 226 SQ. FT. OR 100%
SANDSTONE ACM FASCIA: 71 SQ. FT. OR 32%
OYSTER ACM FASCIA: 79 SQ. FT. OR 35%
BRICK VENEER - BL1: 55 SQ. FT. OR 24%
CAST SILL - CS1: 3 SQ. FT. OR 1%
CMU VENEER - BL2: 18 SQ. FT. OR 8%

KIOSK TOTAL AREA (EXCLUDING PT1): 495 SQ. FT. OR 100%
SANDSTONE ACM FASCIA: 131 SQ. FT. OR 27%
OYSTER ACM FASCIA: 65 SQ. FT. OR 13%
BRICK VENEER - BL1: 74 SQ. FT. OR 15%
CAST SILL - CS1: 19 SQ. FT. OR 4%
CMU VENEER - BL2: 150 SQ. FT. OR 30%
GLASS: 56 SQ. FT. OR 11%

REAR (SOUTH) ELEVATION

SCALE: 3/16"=1'-0"

CANOPY TOTAL AREA: 558 SQ. FT. OR 100%
SANDSTONE ACM FASCIA: 265 SQ. FT. OR 47%
OYSTER ACM FASCIA: 176 SQ. FT. OR 32%
BRICK VENEER - BL1: 86 SQ. FT. OR 15%
CAST SILL - CS1: 4 SQ. FT. OR 1%
CMU VENEER - BL2: 27 SQ. FT. OR 5%

KIOSK TOTAL AREA (PT1): 145 SQ. FT. OR 100%
SANDSTONE ACM FASCIA: 60 SQ. FT. OR 41%
OYSTER ACM FASCIA: 30 SQ. FT. OR 21%
BRICK VENEER - BL1: 33 SQ. FT. OR 23%
CAST SILL - CS1: 3 SQ. FT. OR 2%
CMU VENEER - BL2: 19 SQ. FT. OR 13%
GLASS: 0 SQ. FT. OR 0%

FRONT ELEVATION

SCALE: 3/16"=1'-0"

LEFT ELEVATION

SCALE: $3/16"=1'-0"$

REAR ELEVATION

SCALE: 3/16"=1'-0"

RIGHT ELEVATION

SCALE: 3/16"=1'-0"

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The Kroger Co.

Supermarket Petroleum Group
Denver, CO 80239
Phone: (303) 715-5901
Fax: (303) 715-5905



KROGER D-444
FUELING CONSTRUCTION DOCUMENTS
6 (GD) 540 KIOSK W/ VENEER

10000 MICHELAND ROAD
HARTLAND, MICHIGAN 48843

[illegible]

Project No:	KroD00444.40
Drawn By:	CFS
Checked By:	BSS
Date:	JUNE 2026

FUEL CENTER
EXTERIOR COLOR ELEVATIONS

A0.1

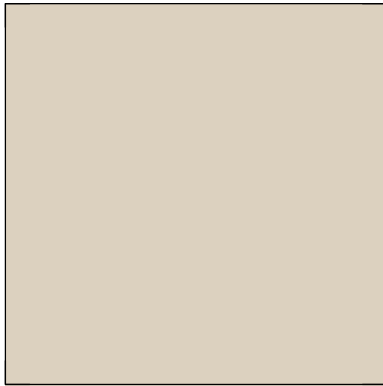
EXTERIOR COLORS/MATERIALS

KROGER FUELING D-444
10059 HIGHLAND ROAD
HARTLAND, MICHIGAN

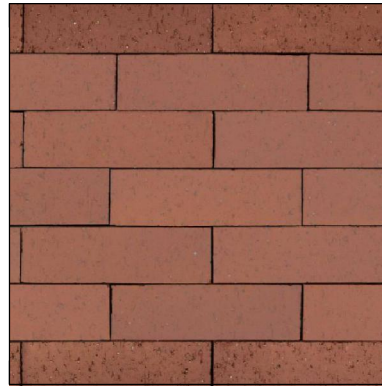


OYSTER
CANOPY & KIOSK ACM FASCIA

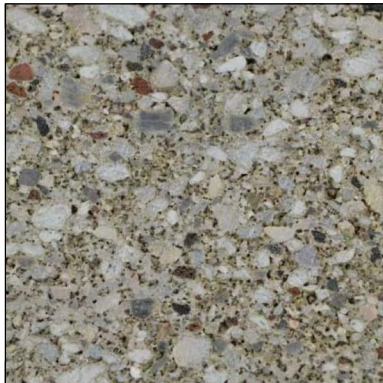
SANDSTONE



SHERWIN-WILLIAMS
"OYSTER", CANVAS TAN,
SW 7531 FOR EXPOSED
METAL & RTU SCREEN



SMOOTH FACE 4"x16" BRICK,
"INTERSTATE", TERRA COTTA,
FOR KIOSK & TRASH ENCLOSURE
W/ MORTAR TO MATCH OR
EQUIVALENT



33 1/2" LONG PRECAST
GROUND FACE SILL,
"BASALITE", 923WR FOR
KIOSK W/ MORTAR TO
MATCH OR EQUIVALENT



SPLIT FACE 8"x16"
CMU, "BASALITE",
840WR FOR KIOSK
W/ MORTAR TO
MATCH OR
EQUIVALENT



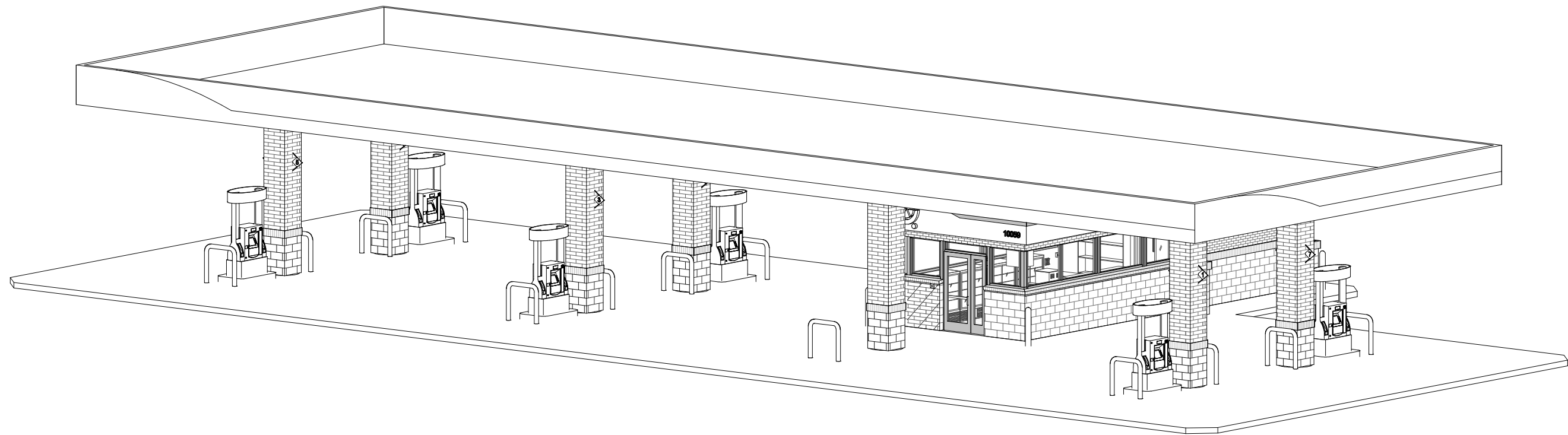
DATE: JULY, 2026

Galloway

5500 Greenwood Plaza Blvd., Suite 200
Greenwood Village, CO 80111
303.770.8884
GallowayUS.com

KroD00444

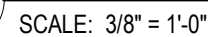
HARTLAND, MI 48843



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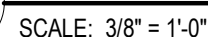
Supermarket Petroleum Group
Denver, CO 80239
Phone: (303) 715-5901
Fax: (303) 715-5905



INTERIOR MATERIAL AND FINISH LEGEND

WRG - WATER RESISTANT GYPSUM BOARD

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06-15-2026

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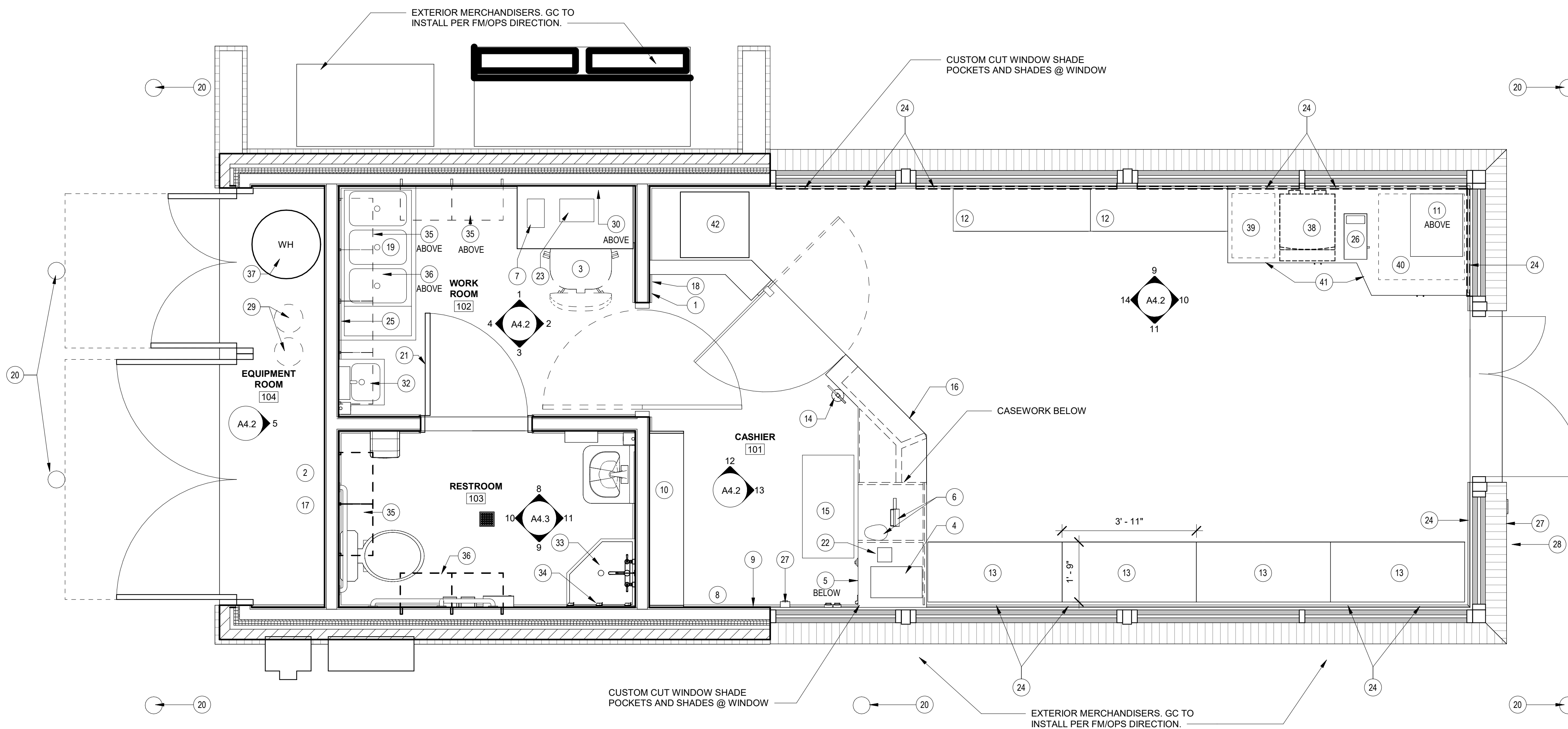
10059 HIGHLAND ROAD
HARTLAND, MI 48843

[illegible]

Project No:	KROD00444
Drawn By:	CCS
Checked By:	TAA
Date:	JUNE 2026

PROPOSED EQUIPMENT PLAN

A1.1



SCALE: 1/2" = 1'-0"

EQUIPMENT / FIXTURES SCHEDULE				
MK	ITEM	FURN. BY	INST. BY	REMARK
1	SECURITY SYSTEM KEYPAD	OWNER	OWNER	GC TO COORDINATE WITH VENDOR
2	PANTHER BOX	OWNER	GC	-
3	OFFICE CHAIR	OWNER	OWNER	LOTH PART #6153
4	LOTTO MACHINE	VENDOR	VENDOR	-
5	SAFE (BELOW COUNTER)	OWNER	GC	GC TO ANCHOR TO CONCRETE FLOOR
6	POS REGISTER	OWNER	OWNER	-
7	POS - OFFICE	OWNER	OWNER	-
8	TANK MONITOR	OWNER	GC	-
9	ALARM CONTROL PANEL	OWNER	GC	-
10	CIGARETTE PACK MERCHANDISER	OWNER	OWNER	60"L X 12"D X 72"T
11	ICE MAKER	OWNER	GC	SCOTSMAN MODEL C0522 ON TOP OF VEVERAGE DISPENSER SINGLE PHASE, 2 WIRE PLUS GROUND, CORD INCL.
12	CONDOLA SHELVING	OWNER	GC	54"L X 15"D X 54"T - VERIFY SIZE IN FIELD
13	REFRIGERATED MERCHANDISER	OWNER	GC	HABCO ESM14SL54
14	FIRE ESTINGUISHER	GC	GC	SEE NOTE 1
15	ANTI-FATIGUE MAT	OWNER	OWNER	-
16	CASHIER COUNTER	OWNER	GC	VENDOR - MURRAY - GC TO VERIFY
17	PANEL BOARD	OWNER	GC	REFER TO ELECTRICAL
18	THERMOSTAT	GC	GC	-
19	3-COMP SINK	GC	GC	ADVANCE TABCO 4-3-36 WITH N-5-18 DRAIN BOARD, LONG SWING ARM FAUCET AND ALL TRIM
20	PIPE BOLLARD	GC	GC	6" DIAMETER BOLLARD, REFER TO STRUCTURAL 5/S4.5
21	BULLETIN BOARD	OWNER	GC	GC TO MOUNT ON WALL
22	INTERCOM MASTER STATION	OWNER	GC	-
23	SECURITY SYSTEM	OWNER	OWNER	GC TO COORDINATE WITH VENDOR
24	SUN SHADES	GC	GC	SEE EQUIPMENT NOTE 2
25	WATER FILTRATION SYSTEM	OWNER	GC	3M MODEL DP295-CL. COORDINATE EXACT BRAND AND MODEL OF FILTER SYSTEM USED WITH KROGER PM AND BEVERAGE EQUIPMENT REP.
26	COFFEE BREWER	OWNER	GC	FRANKE MODEL: A800 FRESH BREW. 208V (30A) 60Hz 4.5-5.3kW (20/30A)
27	EMERGENCY SHUT-OFF SWITCH	OWNER	GC	REFER TO ELECTRICAL FOR SPECIFICATIONS
28	EMERGENCY CALL BOX	OWNER	GC	GC TO MOUNT AT 48" ABOVE WALK SURFACE
29	CO2 TANKS	OWNER	GC	-
30	EQUIPMENT RACK	OWNER	GC	40-1/2"W X 40-7/8" T X 22"D WALL MOUNTED
31	NOT USED			
32	HAND SINK	GC	GC	ADVANCE TABCO 7-PS-EC-SPR, AB1953 FAUCET INCLUDED
33	MOP SERVICE SINK	OWNER	GC	24" X 24" MOLDED-STONE ANGLED CORNER MOP SINK, SEE PLUMBING SCHED.
34	MOP & BROOM HOLDER	OWNER	GC	4-1/4"W X 18"L, MOUNT 48" A.F.F. ON CENTER
35	WALL RACK	OWNER	GC	14"W X 36"L WALL TRACK SYSTEM, MOUNT SHELF SURFACE 80"A.F.F.
36	WALL RACK	OWNER	GC	EAGLEbrite "DOUBLE SHELF KIT" WAL-2-1848
37	WATER HEATER	OWNER	GC	REFER TO PLUMBING SPECIFICATIONS
38	CAPPUCCINO DISPENSER	OWNER	GC	BUNN CAP IMIX #38100.0003
39	CONDIMENT ORGANIZER	OWNER	GC	NLO SERIES MODEL #WLO-1B
40	BEVERAGE DISPENSER	OWNER	GC	COCA-COLA FOUNTAIN ICEBEV COMBO 8V
41	BEVERAGE COUNTER	OWNER	GC	SEE SHEET A4.1 FOR DETAILS, VENDOR - MURRAY - GC TO COORDINATE WITH VENDOR
42	BEVERAGE COOLER	OWNER	GC	ENERGYHYDRATION COOLER - 78"H X 23" W X 24"D

1. FIRE EXTINGUISHERS SUPPLIED BY J-F PETROLEUM AND INSTALLED BY GC PER LOCAL FIRE DEPARTMENT REQUIREMENTS. ANY ADDITIONAL FIRE EXTINGUISHERS REQUIRED BY AHJ OR FIRE MARSHAL WILL NEED TO BE COORDINATED WITH THE PM AND GC.
2. SOLAR SHADE WITH 10% OPACITY. OUTSIDE MOULD, NICKEL PLATED BEADED CHAIN CORD WITH CORD GUIDE, COLOR: SAHARA 10% (SW4100) IN COLOR EBONY, FULL WIDTH & HEIGHT OF WINDOW FRAME. INCLUDE ROLL, TABS & CRAWFORD.
1-800-447-5534 EXT. 142
TCRAWFORD@INSOLROLL.COM, WWW.INSOLROLL.COM
3. "US SLAT WALL" (BOB COLKER - 844-752-8925 - WWW.USSLATWALL.COM)
HPL PL-3, 3" O.C. SLATS WITH BLACK FINISH ALUMINUM INSERTS.
SUPPLY QUANTITIES BELOW:

1/4" SLAT WALL HOOK, 4'L SW/H1
OR
1/4" SLAT WALL HOOK, 4'L 24-104CH

KROGER PM SHALL COORDINATE WITH "US SLAT WALL" TO INSURE THE DESIRED ACCESSORIES AND AN ACESITE SUPPLY LIST OF DATA SHEETS ARE AVAILABLE FOR THIS SITE. SLAT WALL TO BE RECESSED AND SHELVES ADJUSTABLE

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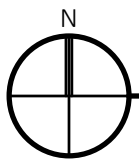
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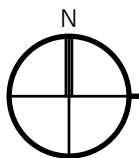
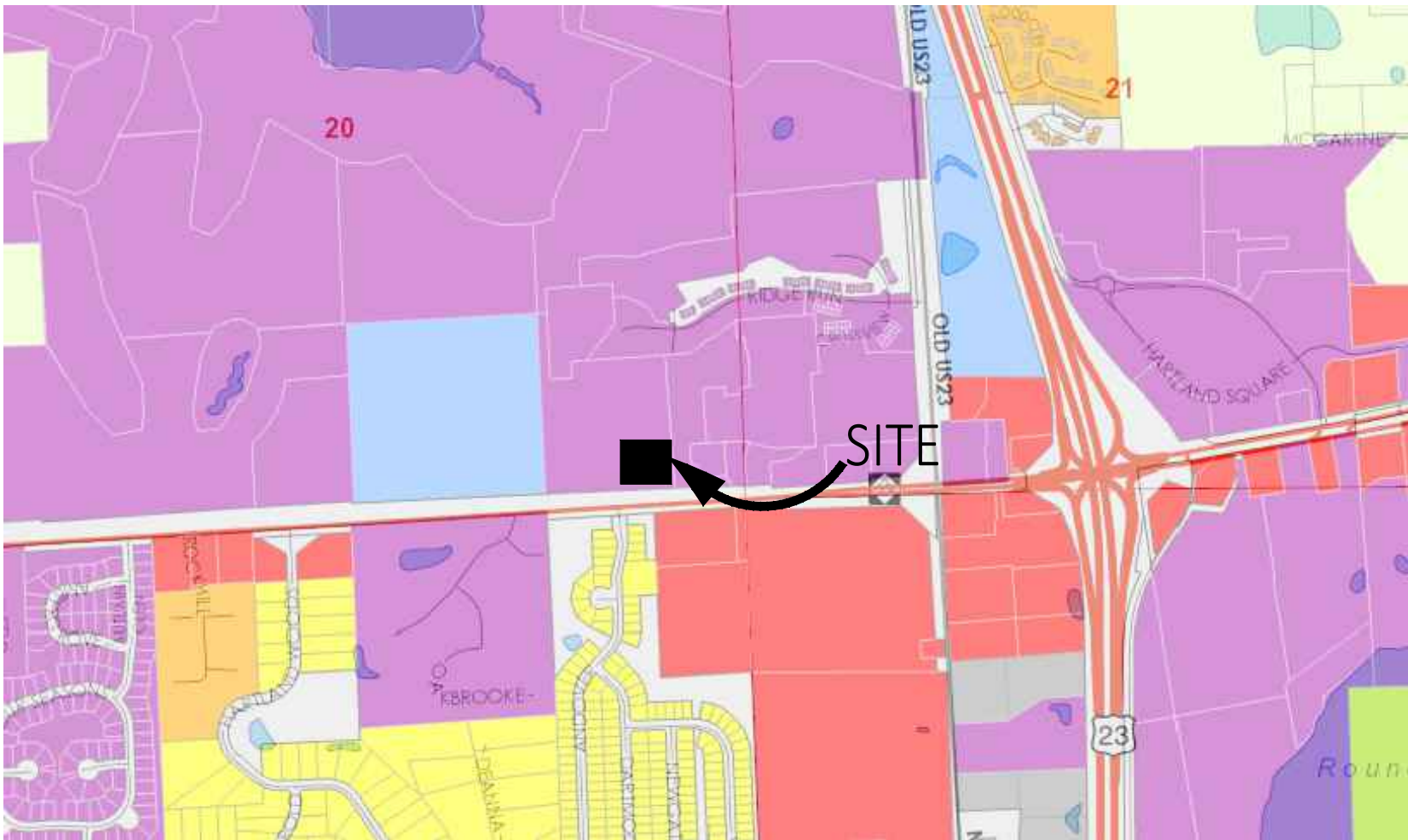
KROGER D444
RETAIL FUEL CENTER

10059 HIGHLAND ROAD
HARTLAND, MI 48843
LIVINGSTON COUNTY



LOCATION MAP

SCALE: NTS



ZONING MAP

SCALE: NTS

MISS
DIG



3 WORKING DAYS
BEFORE YOU DIG
OR DRILL
CALL
1-800-482-7171
(TOLL FREE)

PROJECT DESCRIPTION	
CONSTRUCTION OF A RETAIL FUEL CENTER ON AN EXISTING SITE CONSISTING OF: • ONE (1) 7,200 SF CANOPY • ONE (1) 532 SF KIOSK BUILDING • SIX (6) DISPENSER ISLANDS	
SITE NOTES	
1. THE BOUNDARY LINES AND TOPOGRAPHY FOR THIS PROJECT ARE BASED ON A FIELD SURVEY COMPLETED BY ATWELL-GROUP DATED:	
PARCEL INFORMATION:	
PARCEL NUMBER(S)	08-20-400-021
OWNER/LESSOR:	WALDON & ASSOCIATES, LLC
LESSEE:	THE KROGER CO.
ACRES:	±1.14 AC, (±49,420 SF)

BUILDING CODE REVIEW	
ACCESSIBILITY CODE	ADA STANDARDS
BUILDING CODE	2015 MICHIGAN BUILDING CODE
ELECTRICAL CODE	2017 MEC, MICHIGAN ELECTRICAL CODE (MEC), PART 8 JANUARY 4, 2019
ENERGY CODE	2015 MICHIGAN ENERGY CODE IECC AND ASHRAE 90.1.2013
MECHANICAL CODE	2015 MICHIGAN MECHANICAL CODE
PLUMBING CODE	2018 MICHIGAN PLUMBING CODE
FIRE CODE	2015 INTERNATIONAL FIRE CODE
FUEL GAS CODE	2015 INTERNATIONAL FUEL GAS CODE (2015 IFGC) - MICHIGAN UPDATE
ZONING ORDINANCE REVIEW	
ZONING ORDINANCE	HARTLAND TOWNSHIP ZONING ORDINANCE
ZONING MAP	LIVINGSTON COUNTY
SITE ZONING	GC - GENERAL COMMERCIAL
PERMITTED USE	YES

BULK REGULATIONS			
ITEM	REQUIRED	PROPOSED	ORDINANCE
LOT REQUIREMENTS:			
MIN. LOT AREA	20,000 SF	±49,420 SF (±1.14 AC)	ORD. SEC. 3.1.14 (E)
MIN. LOT DEPTH		200 Ft	
MIN. LOT WIDTH	120 Ft	248 Ft	ORD. SEC. 3.1.14 (E)
BUILDING REQUIREMENTS:			
MAX. BUILDING HEIGHT	35 FT DWELLING UNIT, 15 FT ACCESSORY STRUCTURE	13' (KIOSK) 19' (CANOPY)	ORD. SEC. 3.1.14 (E)
BUILDING SETBACK REQUIREMENTS:			
FRONT SETBACK	20 Ft	30 FT (CANOPY)	ORD. SEC. 4.16 TABLE 4.16.3
SIDE SETBACK	20 Ft	30 FT (CANOPY)	
REAR SETBACK	20 Ft	30 FT (LANDSCAPE)	
TRASH ENCLOSURE SETBACK			
SETBACK FROM PROPERTY LINE	N/A	19'	
SIGN SETBACK	10 Ft	18' (NORTH) 15' (EAST)	ORD. SEC. 5.26 (7)(D)
PARKING REQUIREMENTS:			
MIN. STANDARD SPACE SIZE	10'x20'	10'x20'	ORD. SEC. 5.28
PARKING CALCULATION	2 SPACES PER PUMP PLUS 1 PER 200 SF OF FLOOR AREA PLUS 1 PER EMPLOYEE	3 SPACES PLUS 1 ADA 6 DISPENSERS = 12 SPACES	ORD. SEC. 5.8 TABLE 5.8.4.H
MIN. LOADING ZONE SIZE	10'x50'	10'x50'	ORD. SEC. 5.9 (2)(B)
PARKING SETBACK FROM R.O.W.	10 FT	10 FT	ORD. SEC. 5.8 (3)(A)

	DESCRIPTION	ADDRESS	CONTACT
SITE (FUEL)	DEVELOPER	THE KROGER CO. OF MICHIGAN 40393 GRAND RIVER AVENUE NOVI, MICHIGAN 48375	CARL REGNER 715.416.1371
	PROJECT CONSULTANT	SEVAN MULTI-SITE SOLUTIONS 3025 HIGHLAND PARKWAY SUITE 850 DOWNERS GROVE, IL 60515	MATTHEW PISKO 313.671.7882
DESIGN CONTACTS (FUEL)	CIVIL ENGINEER	SEVAN MULTI-SITE SOLUTIONS 3025 HIGHLAND PARKWAY SUITE 850 DOWNERS GROVE, IL 60515	TIM KRATZ, P.E. 586.630.7212
	FUEL ARCHITECT	GALLOWAY 6162 S. WILLOW DRIVE, SUITE 320 GREENWOOD VILLAGE, CO 80111	DAVID JONES 303.770.8884
	TANK AND PIPING	GALLOWAY 6162 S. WILLOW DRIVE, SUITE 320 GREENWOOD VILLAGE, CO 80111	DAVID JONES 303.770.8884
	EXPANDED KIOSK ARCHITECT	GALLOWAY 6162 S. WILLOW DRIVE, SUITE 320 GREENWOOD VILLAGE, CO 80111	DAVID JONES 303.770.8884
GOVERNMENT	CANOPY VENDOR	MC GEE CORPORATION 12100 STALLINGS COMMERS DRIVE MATTHEWS, NC 28106	TERRY MCMANUS 704.893.3744 EXT. 344
	PLANNING DEPARTMENT	CITY OF HARTLAND PLANNING DEPARTMENT 2655 CLARK ROAD HARTLAND, MI 48353	TROY LANGER 810.632.7498

SHEET INDEX									
		CITY REVIEW							
		06.10.2026							
GENERAL		0	1	2	3	4	5	6	7 8
C0.01	COVER SHEET	●							
CIVIL									
C1.02	COMPOSITE SITE PLAN	●							
C1.20	SITE DIMENSION PLAN	●							
C5.05	SITE DETAILS	●							
PHOTOMETRIC									
1 OF 1	PHOTOMETRIC SITE PLAN	●							
IRRIGATION									
I1.1	IRRIGATION PLAN	●							
I1.2	IRRIGATION DETAILS	●							
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LP.1	LANDSCAPE PLAN	●							
LP.2	LANDSCAPE DETAILS & SPECIFICATIONS	●							

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SEAL

REVISIONS

REV.	DATE	DESCRIPTION
0	06.10.2026	CITY REVIEW

CONSULTANTS

PROJECT INFORMATION

COVER SHEET

KROGER - D444
10059 HIGHLAND ROAD
HARTLAND, MI 48843
LIVINGSTON COUNTY

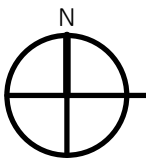
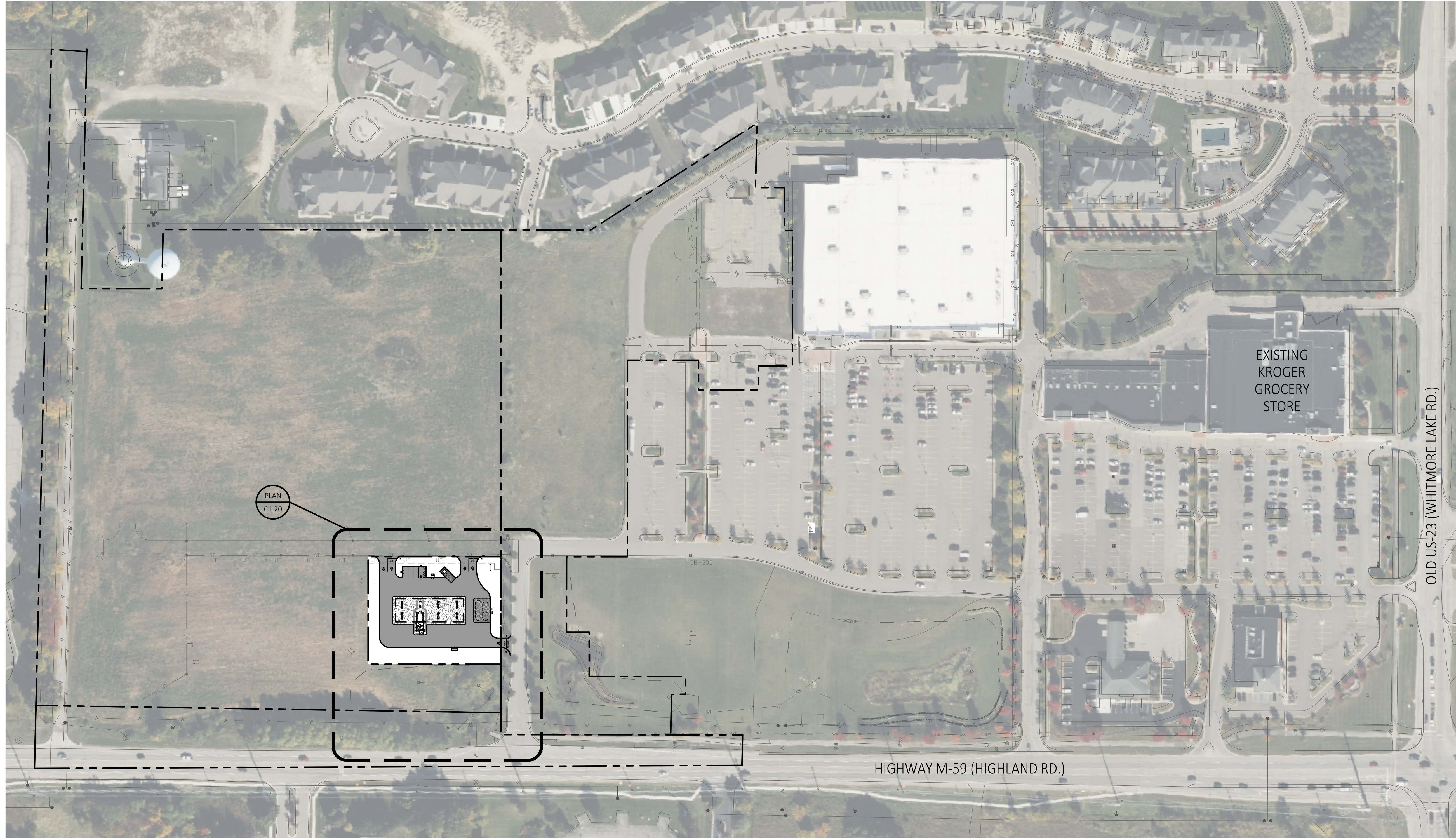
SHEET MANAGEMENT

PROJECT NUMBER:	D444
ISSUED DATE:	02.25.2025
DRAWN BY:	
CHECKED BY:	MV
PROJ. MGR:	MP
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SHEET NUMBER

C0.01

FILE: Z:\SharedAccounts\The Kroger Co\Opportunities\726-118 Michigan-Full\CDP\KRO-C2P-D444-Hartland-MI\CDP\Doc\C1.02.dwg
PLOT: 6/17/2026 8:59 AM BY: Builders, Jack



COMPOSITE SITE PLAN

SCALE: 1" = 100'-0"



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REVISIONS

REV.	DATE	DESCRIPTION
0	06.10.2026	CITY REVIEW

CONSULTANTS

PROJECT INFORMATION

COMPOSITE SITE PLAN

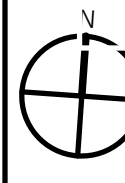
KROGER - D444
10059 HIGHLAND ROAD
HARTLAND, MI 48843
LIVINGSTON COUNTY

SHEET MANAGEMENT

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SHEET NUMBER

C1.02

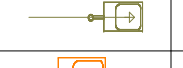


	HEAVY DUTY ASPHALT PAVEMENT
	CONCRETE PAVEMENT TANK MAT
	CONCRETE PAVEMENT DISPENSER MAT
	CONCRETE TRASH ENCLOSURE MAT
	CONCRETE SIDEWALK
	CONCRETE CURB AND GUTTER SPILL

1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL VERIFY SITE CONDITIONS AND DIMENSIONS BEFORE BEGINNING WORK AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. CONTRACTOR SHALL REFER TO SURVEY FOR ALL INFORMATION REGARDING EXISTING CONDITIONS.
4. ALL WORK THAT OCCURS WITHIN THE PUBLIC RIGHT OF WAY SHALL BE IN ACCORDANCE WITH ALL STATE AND LOCAL REQUIREMENTS AND STANDARDS.
5. SITE GEOMETRY IS PARALLEL AND PERPENDICULAR TO THE NORTH PROPERTY LINE.
6. ALL RADII ARE 3' UNLESS NOTED OTHERWISE.

- 1 DISPENSER CANOPY, COLUMNS, AND FOOTINGS.
- 2 TRANSACTION KIOSK.
- 3 U-SHAPED BOLLARD AT CANOPY COLUMNS.
- 4 KIOSK BOLLARD.
- 5 PEDESTRIAN STRIPING.
- 6 20,000 GALLON DOUBLE-WALL UNDERGROUND STORAGE TANK (UNLEADED).
- 7 18,000 GALLON DOUBLE-WALL SPLIT UNDERGROUND STORAGE TANK 8,000 GALLONS PREMIUM/10,000 GALLONS DIESEL.
- 8 TANK VENT RISER.
- 9 TANK OVERFLOW ALARM.
- 10 CONCRETE TANK MAT.
- 11 3.00' X 5.00' DISPENSER ISLAND.
- 12 AUTOMOBILE MULTI-PRODUCT DISPENSER WITH CARD READER.
- 13 FIRE EXTINGUISHER IN STEEL CABINET ON CANOPY COLUMN.
- 14 CONCRETE DISPENSER MAT.
- 15 HEAVY DUTY BITUMINOUS PAVEMENT.
- 17 WASTE RECEPTACLE / WINDSHIELD SERVICE CENTER.
- 18 AIR TOWER.
- 19 DEF DISPENSER AND PAD.
- 20 PROPANE BOTTLE CAGE.
- 21 CONCRETE CURB AND GUTTER.
- 22 ICE MERCHANTISER. SEE ARCH PLANS.
- 23 TRASH ENCLOSURE AND PAD.
- 24 MONUMENT SIGN.
- 25 KIOSK WING WALL. SEE ARCH PLANS.
- 26 SPILL CABINET. SEE ARCH PLANS.
- 27 VAN ACCESSIBLE PARKING SPACE WITH PAINTED ACCESSIBILITY SPACE SYMBOL AS REQUIRED BY FEDERAL, STATE OR LOCAL CODE.
- 28 4" PAINTED PARKING STRIPE
- 29 PAINTED DIRECTIONAL TRAFFIC ARROWS. COLOR TO MATCH PARKING STRIPING.
- 30 PAINTED STOP BAR. COLOR TO MATCH PARKING STRIPE.
- 31 STOP SIGN.
- 32 STOP AND DO NOT ENTER SIGN.
- 33 ACCESSIBLE RESERVED PARKING SIGN AS REQUIRED BY FEDERAL, STATE OR LOCAL CODE.

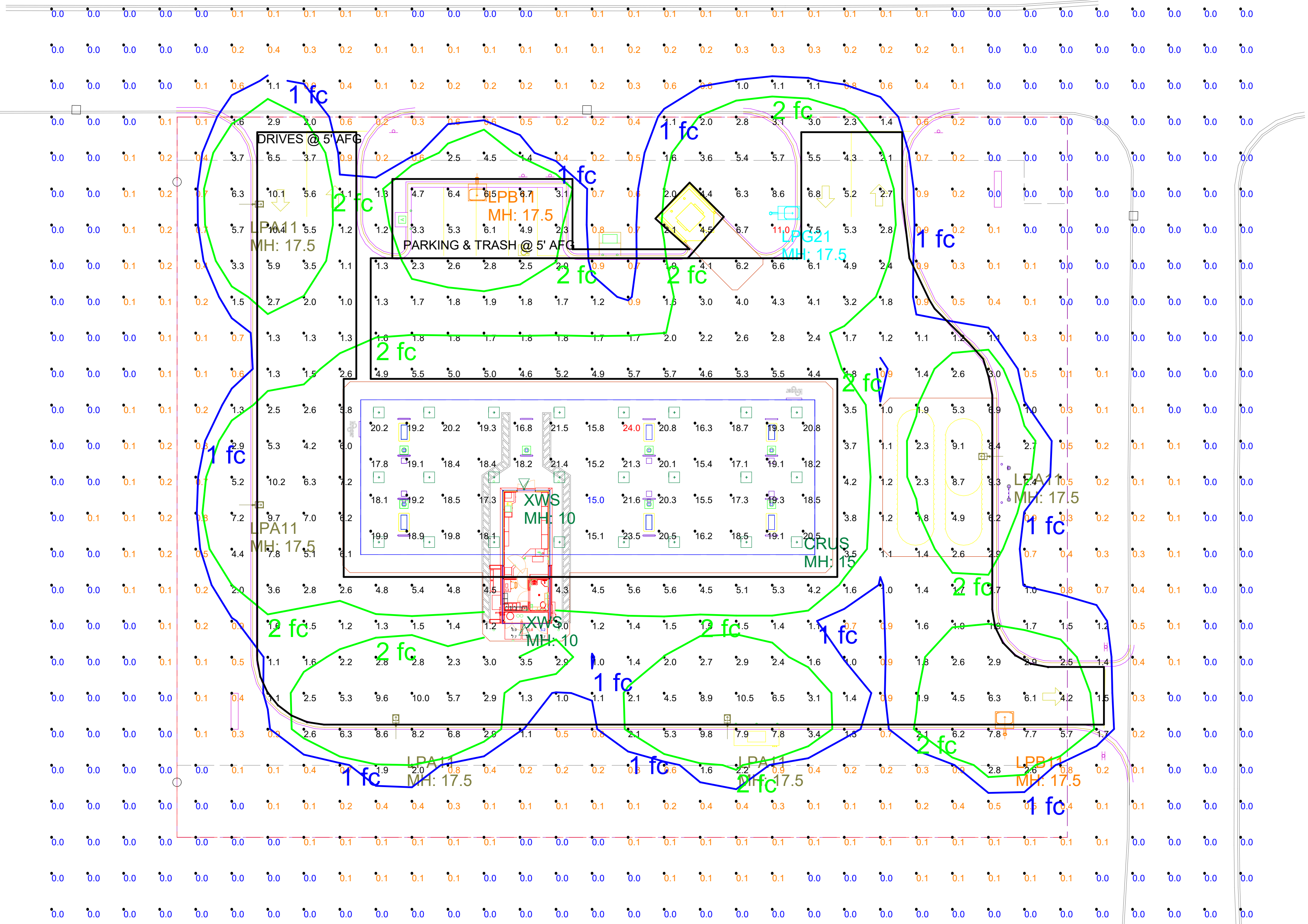
SHEET NUMBER
C1.20

Luminaire Schedule								
Symbol	Qty	Label	Arrangement	Lum. Watts	Total Watts	Lum. Lumens	LLF	Description
	24	CRUS	Single	38	912	5955	1.000	CRUS-SC-SLW-50
	5	LPA11	Single	79.6	398	10777	0.941	GALN-SB1D-740-VOLT-T3-XX
	2	LPB11	Single	79.6	159.2	10644	0.941	GALN-SB1D-740-VOLT-T4FT-XX
	1	LPG21	Single	147.6	147.6	21778	0.941	GALN-SB2D-740-VOLT-5WQ-XX
	2	XWS	Single	13	26	1874	1.000	XWS-LED-02L-SIL-FT-40-80CRI

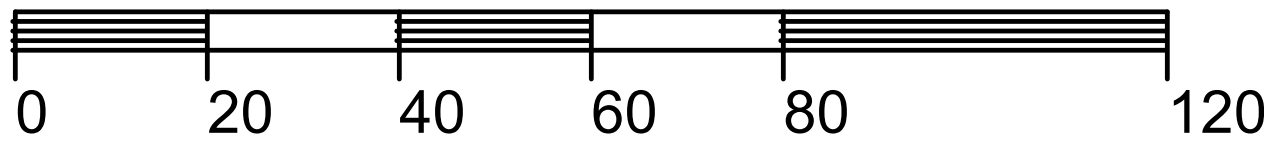
Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
BUILDING ENTRANCE @ 5' AFG	Illuminance	Fc	7.75	10.9	5.2	1.49	2.10
CALC POINTS @ 5' AFG	Illuminance	Fc	1.40	11.0	0.0	N.A.	N.A.
FUEL CANOPY @ 5' AFG	Illuminance	Fc	18.82	24.0	15.0	1.25	1.60
DRIVES @ 5' AFG	Illuminance	Fc	3.49	10.9	0.7	4.99	15.57
PARKING & TRASH @ 5' AFG	Illuminance	Fc	4.66	6.7	2.1	2.22	3.19

Total Watts = 1642.8

Luminaire Location Summary						
LumNo	Label	X	Y	Z	Orient	Tilt
1	CRUS	134.236	144.655	15	0	0
2	CRUS	120.236	144.655	15	0	0
3	CRUS	202.236	144.655	15	0	0
4	CRUS	188.236	144.655	15	0	0
5	CRUS	222.236	144.655	15	0	0
6	CRUS	170.38	144.655	15	0	0
7	CRUS	152.195	144.655	15	0	0
8	CRUS	120.236	162.655	15	0	0
9	CRUS	120.236	180.655	15	0	0
10	CRUS	134.236	162.655	15	0	0
11	CRUS	134.236	180.655	15	0	0
12	CRUS	152.195	162.655	15	0	0
13	CRUS	152.195	180.655	15	0	0
14	CRUS	170.38	162.655	15	0	0
15	CRUS	170.38	180.655	15	0	0
16	CRUS	188.236	162.655	15	0	0
17	CRUS	188.236	180.655	15	0	0
18	CRUS	202.236	162.655	15	0	0
19	CRUS	202.236	180.655	15	0	0
20	CRUS	222.236	162.655	15	0	0
21	CRUS	222.236	180.655	15	0	0
22	CRUS	236.236	162.655	15	0	0
23	CRUS	236.236	180.655	15	0	0
24	CRUS	236.236	144.655	15	0	0
25	LPA11	81.5	155	17.5	0	0
26	LPA11	125	90	17.5	90	0
27	LPA11	293.5	168.5	17.5	180	0
28	LPA11	81.5	238.5	17.5	0	0
29	LPA11	217	90	17.5	90	0
30	LPB11	147.5	247	17.5	270	0
31	LPB11	294	90	17.5	90	0
32	LPG21	229	236	17.5	0	0
33	XWS	160.593	121.784	10	270	0
34	XWS	160.565	159.272	10	90	0
Total Quantity: 34						



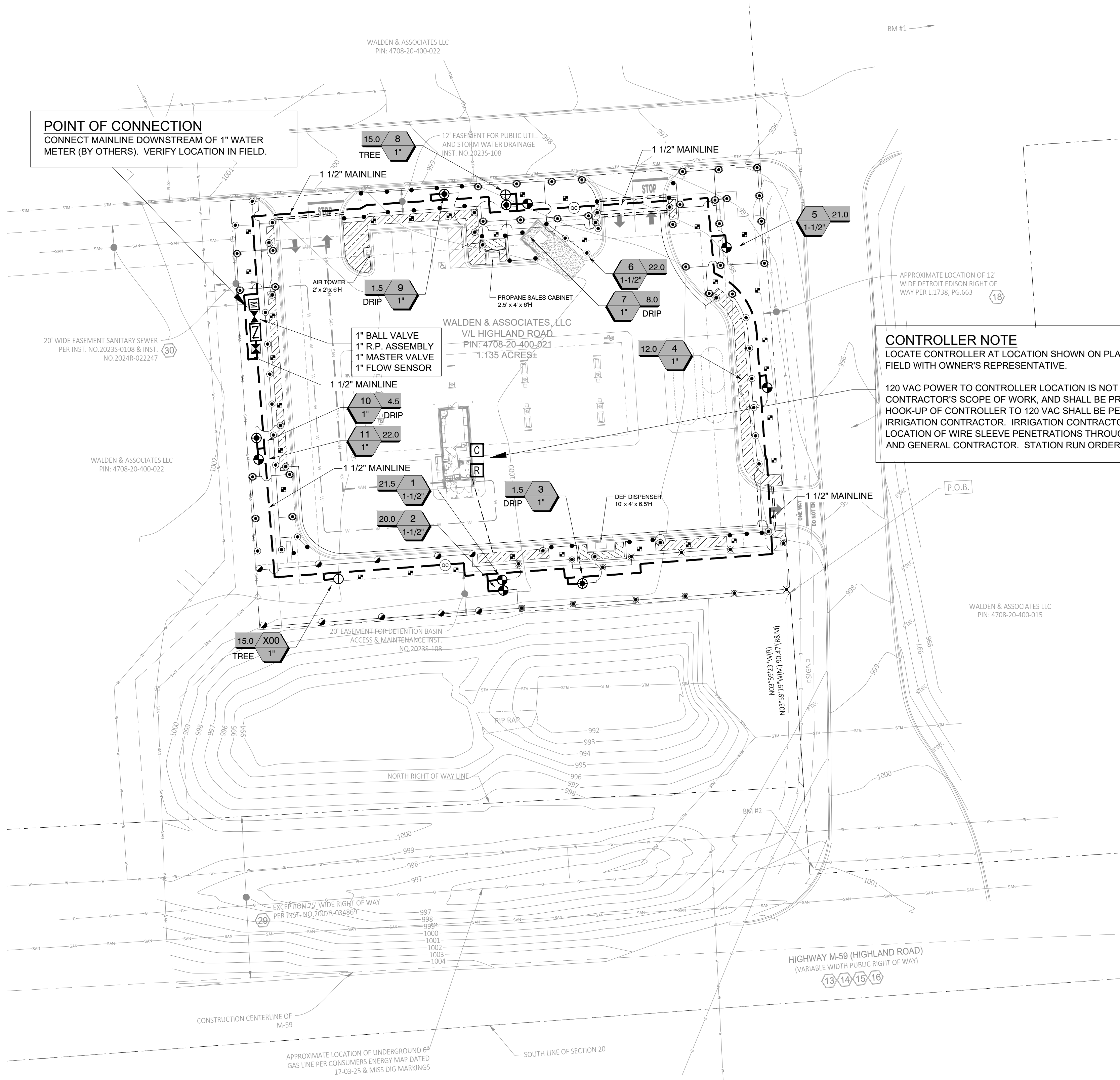
Project manager to specify
fixture voltage for each fixture type



We make no representation as to its completeness, accuracy or sources because of reasons inherent to CAD and the additional digital data used to produce a lighting application. All digital CAD data appear to be accurate, however, it is the user's responsibility for the accuracy and correctness of all measurements, area, inventories or other data extracted from this, either manually or with the use of a computer. This light level analysis is an estimate only, and is based on estimated reflectance values for interior applications or estimated pole locations based on specified light levels for exterior applications. Any variance from reflectance values, obstructions, light loss factors or dimensional data will affect the calculated values. Variance from actual measurements in certain situations due to variances, such as but not limited to, lamp output, input voltage, ballast variances, manufacturing tolerances and application variances. The presence of objects will decrease light levels and may cause some shadowing. Lighting application drawings are being provided to the recipient of this disclaimer.



NOTE:
THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON DESIGN DRAWINGS, RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE DESIGNER DOES NOT GUARANTEE THAT LOCATIONS SHOWN ARE EXACT. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF UTILITIES. AS SUCH, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND UNCOVERING EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED IMPROVEMENTS AND UTILITY CONNECTION POINTS PRIOR TO THE START OF CONSTRUCTION TO ASCERTAIN EXACT MATERIALS, LOCATIONS, ELEVATIONS, ETC. AND THEIR POTENTIAL CONFLICT WITH PROPOSED IMPROVEMENTS. GC SHALL CONSULT WITH CONSTRUCTION MANAGER AND ENGINEER AS APPROPRIATE BEFORE PROCEEDING WITH WORK.



IRRIGATION DISCLAIMER

THIS DESIGN IS DIAGRAMMATIC. ALL PIPING, VALVES, AND OTHER EQUIPMENT SHOWN WITHIN PAVED AREAS OR OUT OF PROPERTY BOUNDARIES ARE FOR DESIGN CLARIFICATION ONLY, AND SHALL BE INSTALLED IN PLANTING AREAS WITHIN THE PROPERTY LINES OR LIMITS INDICATED ON PLAN. THE IRRIGATION CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL ABOVE-GRADE IRRIGATION EQUIPMENT WITH THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION, OR IRRIGATION CONTRACTOR MAY BE REQUIRED TO MOVE SUCH ITEMS AT HIS OWN COST.

IRRIGATION CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL FINAL QUANTITIES PER DRAWINGS AND SPECIFICATIONS. ANY QUANTITIES PROVIDED ARE PROVIDED AS A CONVENIENCE TO THE CONTRACTOR ONLY AND SHALL NOT BE CONSIDERED ABSOLUTE.

AUTOMATIC DRAIN VALVES AND AIR RELIEF VALVES

INSTALL AUTOMATIC DRAIN VALVES AT THE LOW POINTS OF EACH LATERAL LINE (MIN. 2 PER VALVE) AS PER DETAIL ON SHEET LI-2. INSTALL AIR RELIEF VALVES ON DRIP SYSTEMS AT THE LOCATIONS SHOWN ON THE PLANS, AS PER DETAILS.

SLEEVING / WIRING NOTES:

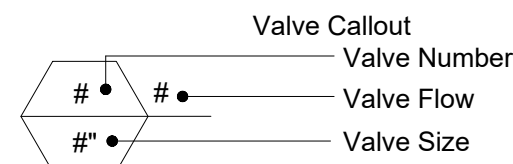
IN ADDITION TO PROVIDING SLEEVES FOR ALL PIPING UNDER ROADWAYS AND WALKWAYS, THE IRRIGATION CONTRACTOR SHALL PROVIDE AND INSTALL SCH. 40 PVC SLEEVES FOR ALL CONTROLLER WIRES OCCURRING UNDER ALL ROADWAYS AND WALKWAYS. SLEEVES FOR CONTROLLER WIRES SHALL BE 2" DIA. AND CONTAIN NO MORE THAN 25 WIRES. **FOR PLAN CLARITY, ONLY SOME REPRESENTATIVE SLEEVES ARE SHOWN; SOME SLEEVES MAY NOT BE SHOWN.**

CONTROLLER NOTE

LOCATE CONTROLLER AT LOCATION SHOWN ON PLAN. VERIFY LOCATION IN FIELD WITH OWNER'S REPRESENTATIVE.

120 VAC POWER TO CONTROLLER LOCATION IS NOT WITHIN THE IRRIGATION CONTRACTOR'S SCOPE OF WORK, AND SHALL BE PROVIDED BY OTHERS. HOOK-UP OF CONTROLLER TO 120 VAC SHALL BE PERFORMED BY THE IRRIGATION CONTRACTOR. IRRIGATION CONTRACTOR SHALL COORDINATE LOCATION OF WIRE SLEEVE PENETRATIONS THROUGH BUILDING WITH OWNER AND GENERAL CONTRACTOR. STATION RUN ORDER SHALL MATCH PLANS.

VALVE KEY



IRRIGATION LEGEND

SYMBOL	MANUFACTURER/MODEL
●	RAIN BIRD R-VAN14 1806-SAM-P45, TURF ROTARY, 8'-14' 45°-270° AND 360° HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 6.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2" NPT FEMALE THREADED INLET.
⊙	RAIN BIRD R-VAN18 1806-SAM-P45, TURF ROTARY, 13'-18' 45°-270° AND 360° HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 6.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2" NPT FEMALE THREADED INLET.
⊙	RAIN BIRD R-VAN24 1806-SAM-P45, TURF ROTARY, 17'-24' 45°-270° AND 360° HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 6.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2" NPT FEMALE THREADED INLET.
☑	RAINBIRD 1806-SAM-PRS SERIES POP UP SPRAY HEADS WITH ADAPTER AND RAINBIRD #1402 SERIES BUBBLER NOZZLES. (TWO PER TREE) SEE INSTALLATION NOTE #N-5 REGARDING TREE BUBBLER LATERAL PIPE
⊗	RAINBIRD 5004PCSAMR, ADJUSTABLE ARC 4" POP UP ROTARY HEAD, PART CIRCLE, #1.5 LA NOZZLE UNLESS NOTED OTHERWISE RAINBIRD 5004PCSAMR, ADJUSTABLE ARC 4" POP UP ROTARY HEAD, PART CIRCLE, #2.5 NOZZLE UNLESS NOTED OTHERWISE
⊕	RAINBIRD XCZ-100-PRB-COM / 150-PRB-COM SERIES AUTOMATIC DRIP VALVE ASSEMBLY WITH 40 PSI PRESSURE REGULATOR XCZ-100-PRB-COM - 1" BALL VALVE WITH 1" PESB VALVE AND 1" PRESSURE REGULATING 40PSI QUICK-CHECK BASKET FILTER. 0.3GPM TO 20GPM. XCZ-150-PRB-LCDR - 1-1/2" PESB-R SCRUBBER GLOBE VALVE WITH SINGLE 1-1/2" PRESSURE REGULATING (40PSI) QUICK-CHECK BASKET FILTERS. FLOW RANGE: 15-62GPM. RAINBIRD PEB SERIES ELECTRIC REMOTE CONTROL, "TREE BUBBLER ZONE" VALVE SEE INSTALLATION NOTE #N-5 REGARDING TREE BUBBLER LATERAL PIPE
⊖	RAINBIRD PEB SERIES 1", 1-1/2", 2" PLASTIC INDUSTRIAL VALVES. LOW FLOW OPERATING CAPABILITY, GLOBE CONFIGURATION.
▬	AREA TO RECEIVE DRIPLINE RAINBIRD XFS-CV-06-12 SERIES DRIP TUBE IN SHRUB BED INSTALLED AT 2" DEPTH
⊙	PIPE TRANSITION POINT ABOVE GRADE PIPE TRANSITION POINT FROM PVC LATERAL TO DRIP TUBING WITH RISER TO ABOVE GRADE INSTALLATION.
⌊	ZURN / WILKINS 375XLB SERIES REDUCED PRESSURE TYPE BACKFLOW PREVENTOR INSTALLED PER CITY CODE WITH HEATED / INSULATED ALUMINUM ENCLASURE AND SAME SIZE BRONZE BALL VALVE INSTALLED ON THE UP-STREAM SIDE. G.C. TO COORDINATE POWER TO BACKFLOW ENCLOSURE LOCATION PRIOR TO CONSTRUCTION BLOW OFF VALVE TO BE INSTALLED BETWEEN THE METER AND BACKFLOW DEVICE FOR SYSTEM WINTERIZATION
⌋	LASCO "V" SERIES SCH. 80 PVC TRUE UNION BALL VALVE, MAINLINE SIZE
⌋	IRRIGATION WATER METER AND TAP (BY OTHERS) SIZE AS NOTED ON THE PLAN
⊙	RAINBIRD 33DLRC QUICK COUPLER, 3/4"
⌊	RAINBIRD ESP12LXMEF2P SERIES AUTOMATIC WALL MOUNT CONTROLLER WITH ONE ESPLXMSM12 STATION MODULE
⌊	RAINBIRD WR2-RFC RAIN / FREEZE SENSOR - CONFIRM SENSOR LOCATION WITH OWNERS REPRESENTATIVE
⌋	1" MASTER VALVE MODEL # 100-EFB-CP WITH RAINBIRD FLOW SENSOR MODEL #FS100P SERIES
—	IRRIGATION LATERAL LINE: CLASS 200 PVC
—	IRRIGATION MAINLINE: SCHEDULE 40 PVC
—	IRRIGATION SLEEVES, SCH. 40 PVC, MIN. TWICE SIZE OF PIPE TO BE INSERTED



Scale 1" = 30'

NOTE: PRINTED DRAWING SIZE MAY HAVE CHANGED FROM ORIGINAL. VERIFY SCALE USING BAR SCALE ABOVE.

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05/19/2026

REVISIONS

REV.	DATE	DESCRIPTION

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LANDSCAPE ARCHITECTURE
LAND PLANNING - IRRIGATION DESIGN

PROJECT INFORMATION

IRRIGATION PLAN

KROGER D444
10059 HIGHLAND ROAD
HARTLAND, MI 48843
LIVINGSTON COUNTY

SHEET MANAGEMENT

PROJECT NUMBER:	D444
ISSUED DATE:	05.07.2026
DRAWN BY:	JP
CHECKED BY:	SM5
PROJ. MGR:	SM5

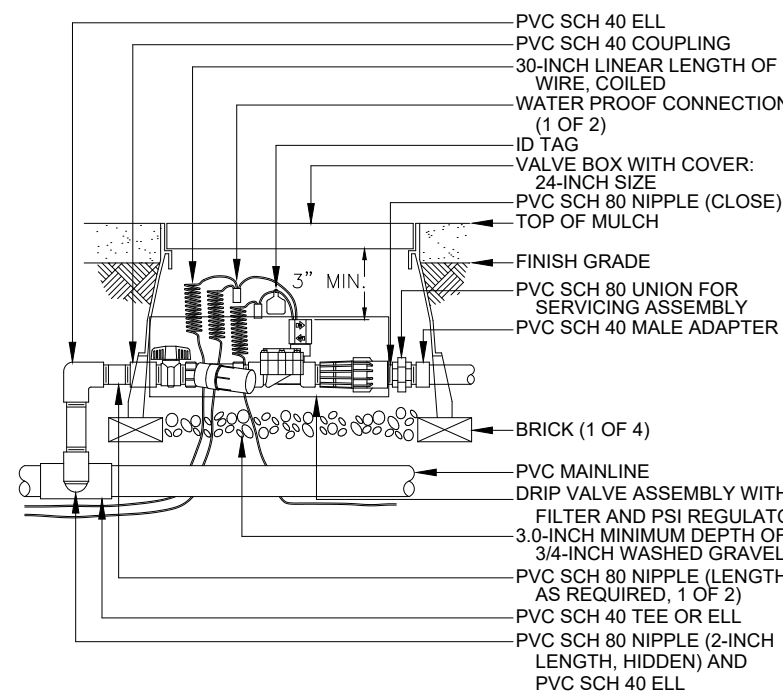
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SHEET NUMBER

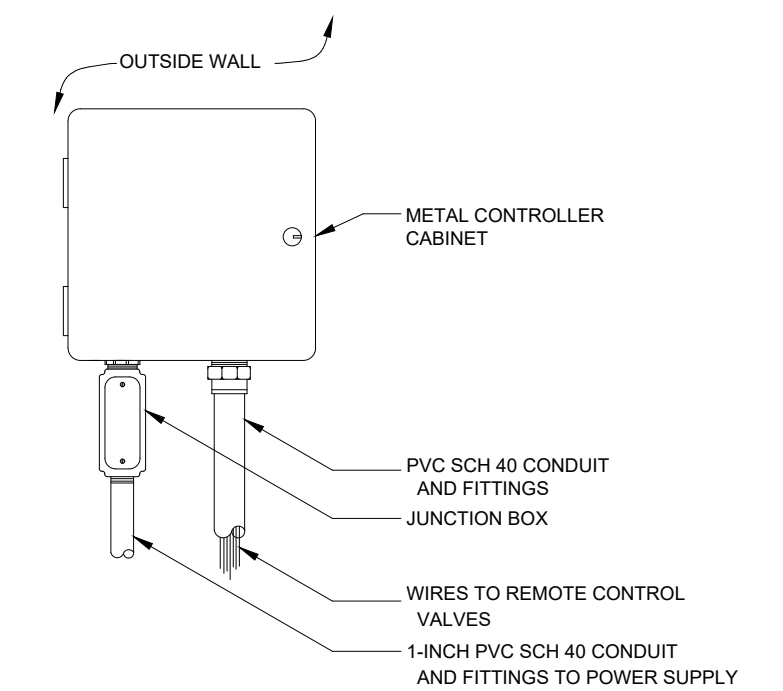
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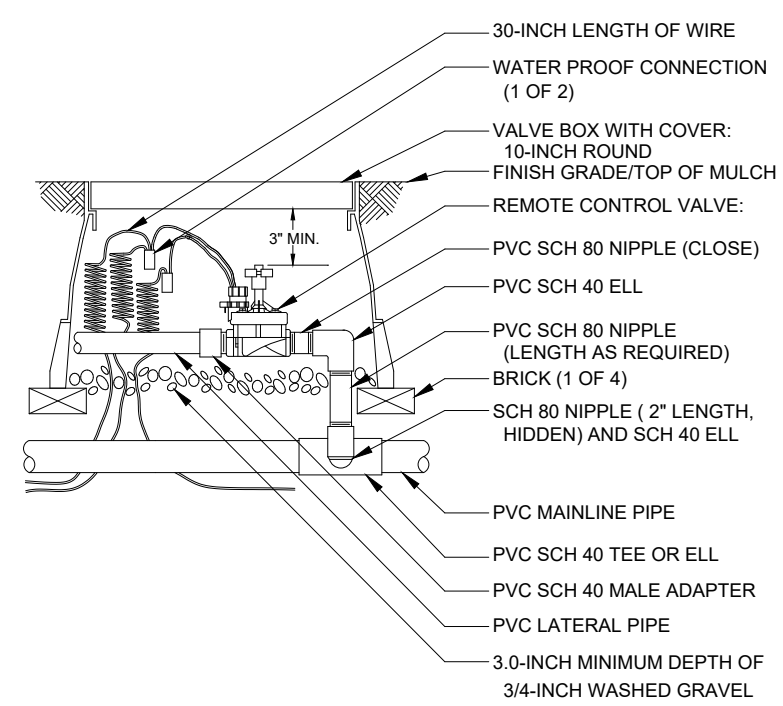
CONTROL ZONE KIT

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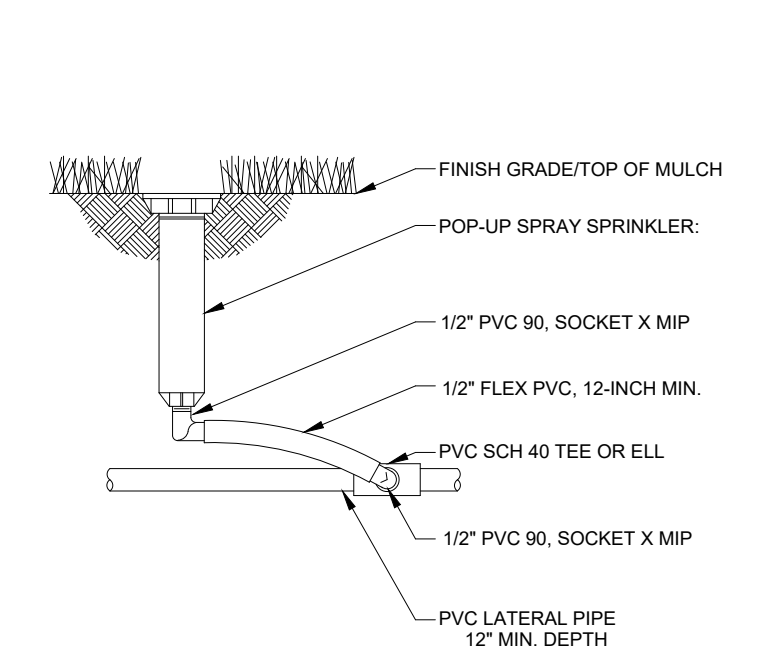
WALL MOUNT CONTROLLER

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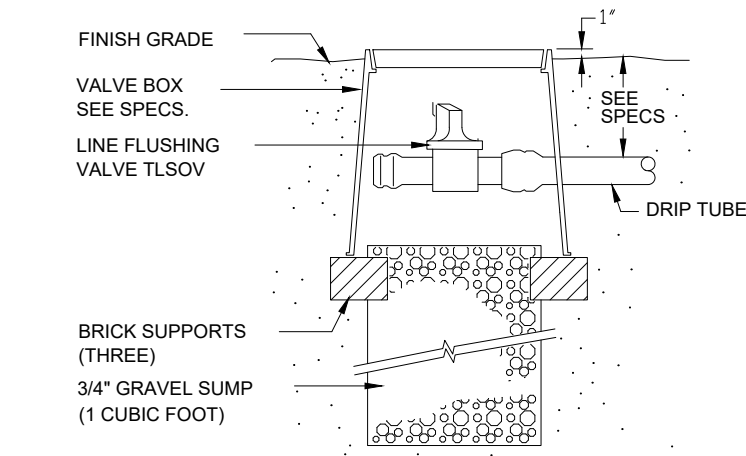
REMOTE CONTROL VALVE

N.T.S.



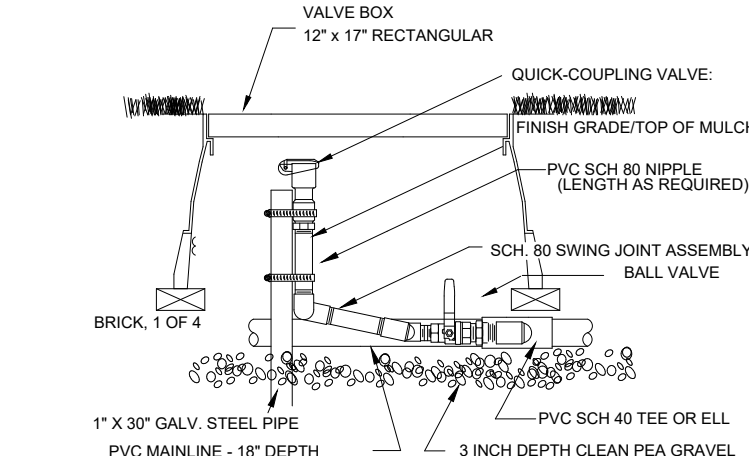
POP-UP SPRAY HEAD

N.T.S.



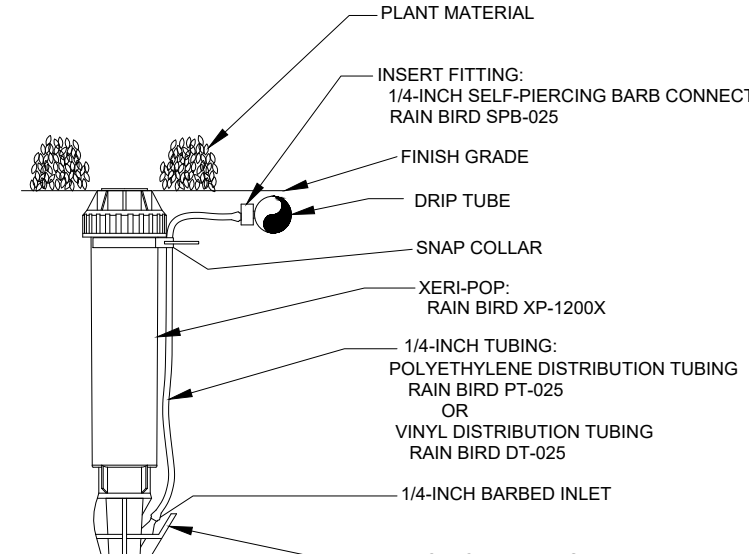
MANUAL LINE FLUSH VALVE

N.T.S.



QUICK COUPLER VALVE WITH PVC BALL VALVE

N.T.S.

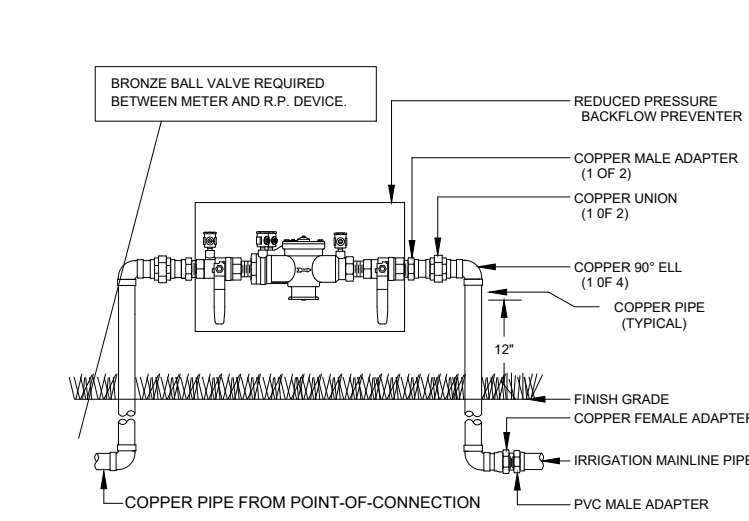


TREE BUBBLER

N.T.S.

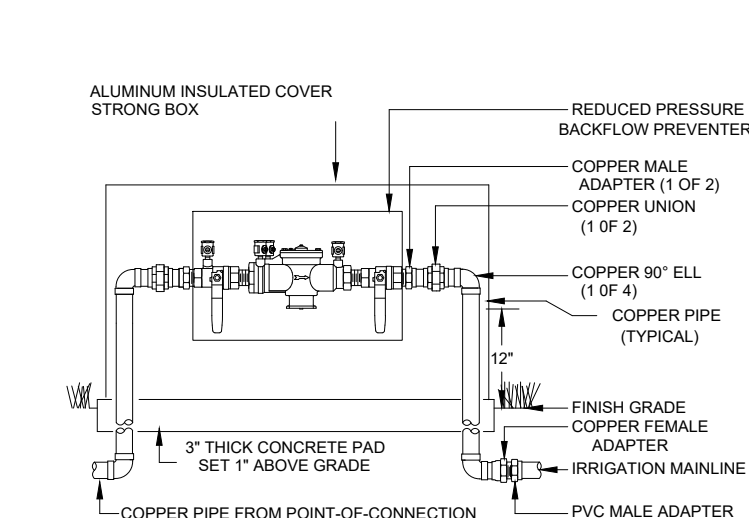
DRIP ZONE INDICATOR

N.T.S.



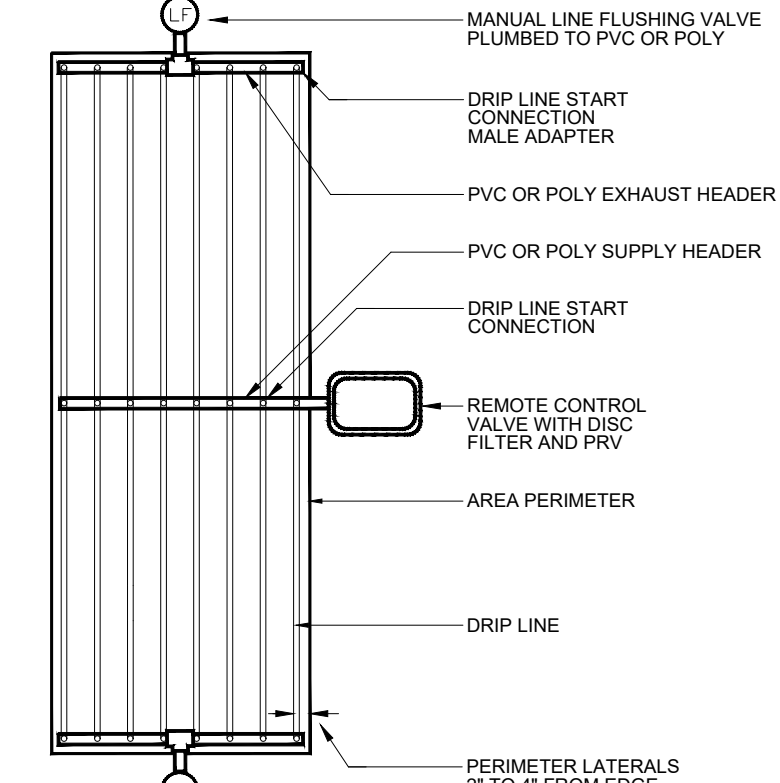
RP DEVICE

N.T.S.



RP DEVICE WITH INSULATED COVER

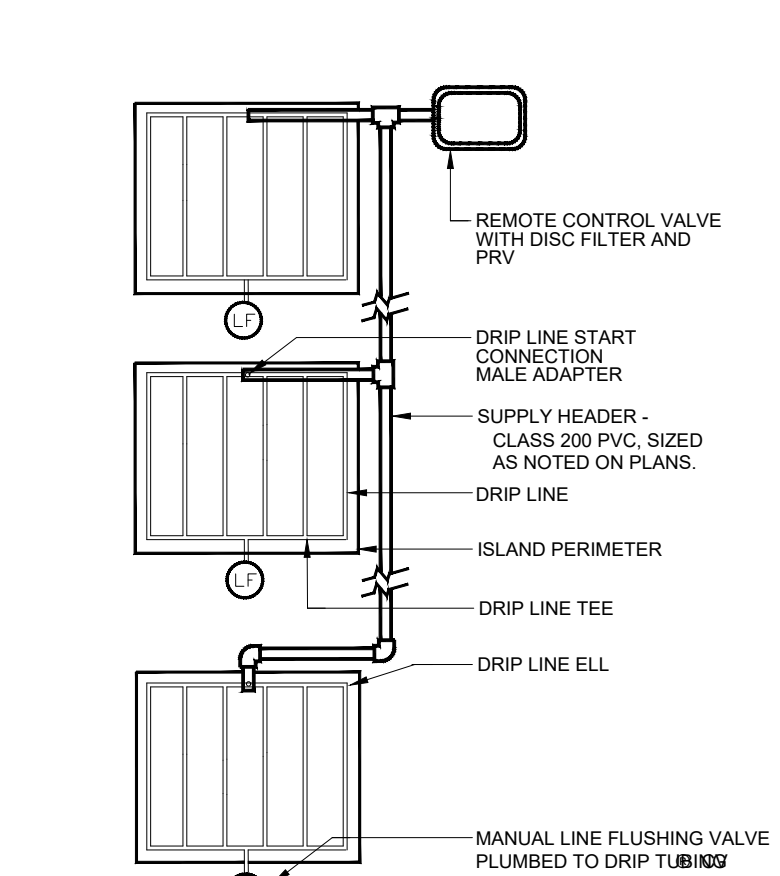
N.T.S.



SUPPLY AND EXHAUST HEADERS SHALL BE CLASS 200 PVC PIPE, OF THE SAME DIAMETER AS THE ZONE VALVE SIZE.
USE DRIP TUBE FOR SUPPLY AND EXHAUST HEADERS ON GRIDS WITH FLOW SMALLER THAN 5 GPM ONLY.

DRIP CENTER FEED LAYOUT

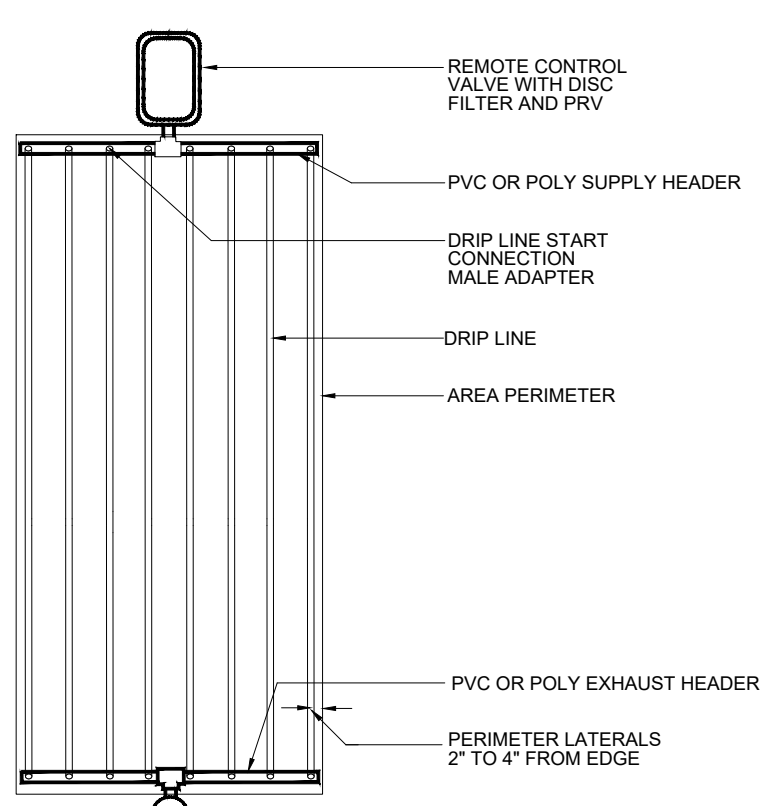
N.T.S.



USE DRIP TUBE FOR SUPPLY AND EXHAUST HEADERS ON GRIDS WITH FLOW SMALLER THAN 5 GPM ONLY.

DRIP ISLAND LAYOUT

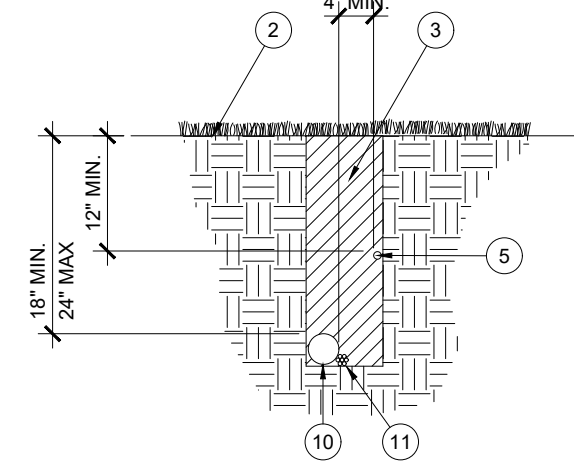
N.T.S.



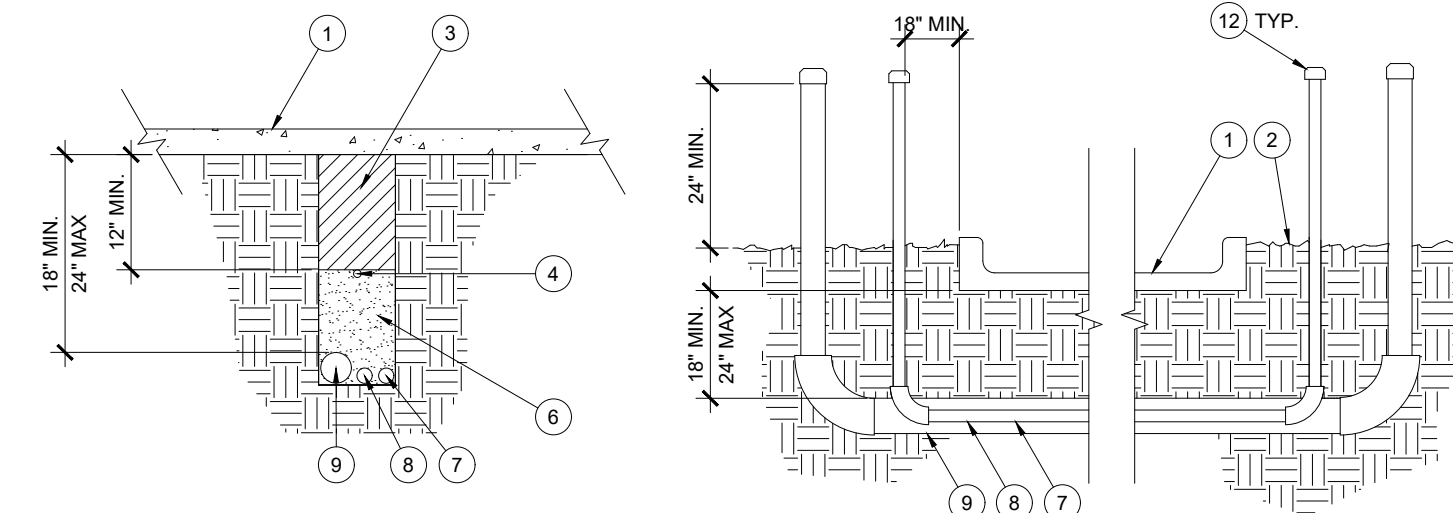
SUPPLY AND EXHAUST HEADERS SHALL BE CLASS 200 PVC PIPE, OF THE SAME DIAMETER AS THE ZONE VALVE SIZE.
USE DRIP TUBE FOR SUPPLY AND EXHAUST HEADERS ON GRIDS WITH FLOW SMALLER THAN 5 GPM ONLY.

DRIP END FEED LAYOUT

N.T.S.



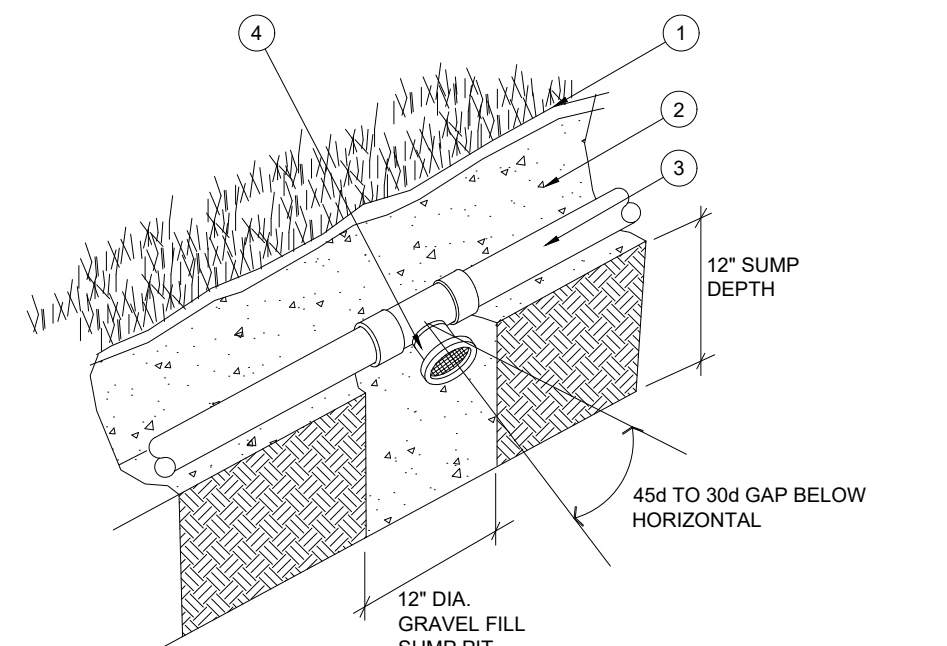
TRENCHING



SLEEING

PIPE AND SLEEVE INSTALLATION

N.T.S.



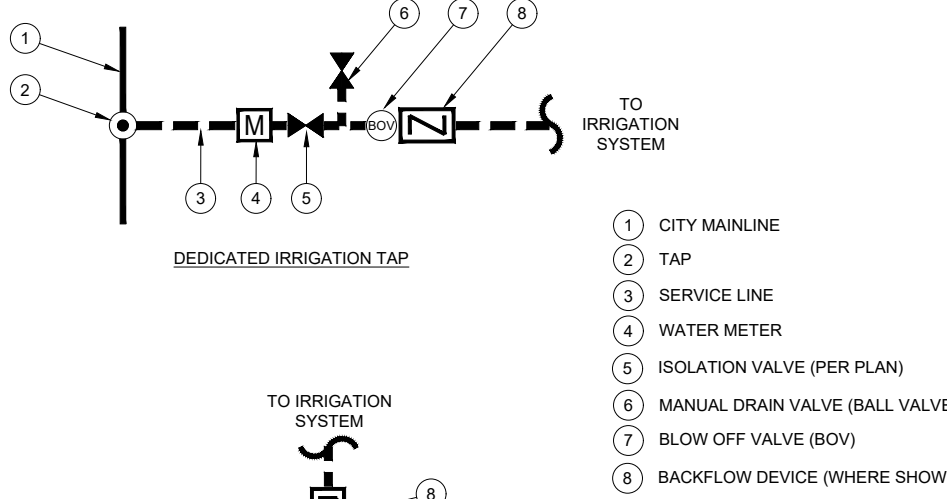
RAIN SENSOR, ROOF MOUNT

N.T.S.

NOTE: AUTOMATIC VALVES ARE TO BE LOCATED AT LOW POINTS OF LATERAL LINES. LOCATE END DRAIN VALVE 12" UPSTREAM FROM LAST HEAD.

AUTOMATIC DRAIN VALVE

N.T.S.



WINTERIZATION PROCEDURE:
1. TURN OFF EITHER THE METER AND ISOLATION VALVE (DEDICATED IRRIGATION METER) OR ISOLATION VALVE (DOMESTIC TAP).
2. OPEN ONE CONTROL VALVE TO RELIEVE PRESSURE.
3. SLOWLY OPEN MANUAL DRAIN VALVE.
4. REPEAT PROCEDURE FOR ALL MANUAL DRAIN VALVES ALONG IRRIGATION MAINLINE.
5. CLOSE MANUAL DRAIN VALVES AND BLOW OUT REMAINING WATER FROM THE BLOWOUT VALVE. SLOWLY INCREASE AIR PRESSURE. NOT TO EXCEED 80 PSI. DO NOT BLOWOUT SYSTEM FROM BACKFLOW. BLOWOUT SYSTEM TWICE BUT NOT TO EXCEED AT MORE THAN 2 MIN. INTERVALS.

WATER TAP DIAGRAM

N.T.S.

CLIENT



SEAL



05/19/2026

REVISIONS

REV.	DATE	DESCRIPTION

CONSULTANTS

National Presence. Local Expertise.



EVERGREEN DESIGN GROUP
800.680.6630
www.evergreendesigngroup.com
LANDSCAPE ARCHITECTURE
LAND PLANNING - IRRIGATION DESIGN

PROJECT INFORMATION

IRRIGATION
DETAILS

KROGER D444
10059 HIGHLAND ROAD
HARTLAND, MI 48843
LIVINGSTON COUNTY

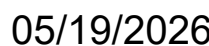
SHEET MANAGEMENT

PROJECT NUMBER:	D444
ISSUED DATE:	05.07.2026
DRAWN BY:	JP
CHECKED BY:	SM5
PROJ. MGR:	SM5

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SHEET NUMBER

LI.2



REV.	DATE	DESCRIPTION
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Valve Callout



IRRIGATION NOTE:

1. L.I.C. SHALL SELECT R-VAN SPRAY NOZZLES FOR "HEAD-TO-HEAD" COVERAGE, ADJUSTED FOR NO OVERSPRAY ONTO WALLS AND WALKS. NO OVERSPRAY INTO STREETS IS PERMITTED
2. ALL PIPE TO BE SIZED SUCH THAT FLOWS WILL NOT EXCEED VELOCITY OF 5 FPS

WATER CONSERVATION

IRRIGATION WATER CONSERVATION SHALL BE ACCOMPLISHED THROUGH THE FOLLOWING EFFORTS

1. SEPARATE TURF / SHRUB ZONES FOR SCHEDULING ADJUSTMENT
2. NO OVERSPRAY ONTO PAVEMENT PERMITTED
3. USE OF RAIN SENSOR SHUT OFF OVER-RIDE DEVICE

LATERAL PIPE SIZE CHART

LATERAL PIPE SHALL BE SIZED TO ALLOW A MAXIMUM FLOW VELOCITY OF FIVE FEET PER SECOND ACCORDING TO THE FOLLOWING CHART:

FLOW IN GPM	LATERAL PIPE SIZE
UP TO 5 GPM	3/4" CLASS 200
6 - 10 GPM	3/4" CLASS 200
11 - 15 GPM	1" CLASS 200
16 - 28 GPM	1 1/4" CLASS 200
29 - 35 GPM	1 1/2" CLASS 200
36 - 54 GPM	2" CLASS 200
55 - 81 GPM	2 1/2" CLASS 200
82 - 120 GPM	3" CLASS 200

- ## IRRIGATION SPECIFICATIONS

GENERAL

- A. QUALIFICATIONS OF IRRIGATION CONTRACTOR
ALL WORK SHOWN ON THESE PLANS SHALL BE PERFORMED BY A SINGLE IRRIGATION CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IRRIGATION PLAN FOR SPECIFIC EQUIPMENT AND SYSTEM LAYOUT.
- B. INSPECTION. THE OWNER SHALL HAVE THE RIGHT TO HAVE ONE OF ITS STAFF A LICENSED IRRIGATION INSTALLER, AS REGULATED BY THE APPROPRIATE LOCAL JURISDICTION, A LICENSED IRRIGATION INSTALLER SHALL BE PRESENT AT THE PROJECT SITE AT ALL TIMES AS WORK IS IN PROGRESS. THE OWNER SHALL HAVE THE RIGHT TO REQUEST THAT AN IRRIGATION INSTALLER PROVIDES FOR A LICENSED IRRIGATION INSTALLER TO BE PRESENT AT THE PROJECT SITE AND SUPERVISING ALL IRRIGATION WORK.
- C. SCOPE OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS OF THIS TYPE, SIZE AND NATURE MAY BE REQUESTED BY THE OWNER FOR FURTHER QUALIFICATION MEASURES.
- D. WORK COVERED BY THESE SECTIONS INCLUDES THE FURNISHING AND PAYMENT OF ALL MATERIALS, LABOR, SERVICES, EQUIPMENT, LICENSES, TAXES, FEES, AND ANY OTHER ITEMS NECESSARY TO COMPLY WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS SPECIFIED HEREIN AND/OR SHOWN ON THE IRRIGATION PLANS, NOTES, AND DETAILS.
- E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION OVER SUCH WORK, INCLUDING ALL INSPECTIONS AND PERMITS REQUIRED BY FEDERAL, STATE AND LOCAL AUTHORITIES IN SUPPLY OF THE NECESSARY PERMITS AND REGULATIONS. IN THE CASE OF CONFLICT BETWEEN THESE PLANS AND LOCAL AND/OR STATE CODES, CODES SHALL PREVAIL.
- F. THE CONTENT OF THE IRRIGATION SYSTEM IS TO PROVIDE 100% COVERAGE OF ALL LANDSCAPE AREAS. THE IRRIGATION PLAN IS GENERALLY DIAGRAMMATIC. COORDINATE IRRIGATION WITH PLANTING SCHEDULES AND PLANTING SPECIFICATIONS. THE IRRIGATION PLAN IS TO FOLLOW BACKFLOW DEVICE, PIPING, VALVES, SPRAY HEADS, DRIP IRRIGATION AND RELATED EQUIPMENT MAY NEED TO BE ADJUSTED BASED ON ACTUAL, SITE CONDITIONS.
- G. SECURITY PURPOSES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL IRRIGATION HARDWARE WITHOUT ACCESS SLEEVES; THESE LINES SHALL BE INSTALLED IN A TRENCH OR AT THE SURFACE OF THE LANDSCAPE AREA. ALL LANDSCAPE AREA FIELD ADJUSTMENTS SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.

PRODUCTS

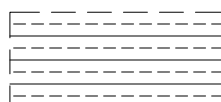
- A. ALL MATERIALS SHALL BE NEW AND WITHOUT FLAWS OR DEFECTS OF ANY TYPE AND SHALL BE THE BEST OF THEIR CLASS AND KIND. ALL MATERIALS SHALL HAVE A MINIMUM GUARANTEE OF FIVE YEARS WITHOUT MATERIAL DEFECTS OR DEFECTIVE WORKMANSHIP. MATERIALS TO BE USED SHALL BE OF THE BRANDS AND TYPE NOTED ON THE DRAWINGS OR AS SPECIFIED HEREIN OR APPROVED EQUAL. THE CONTRACTOR MUST FIRST OBTAIN APPROVAL FROM THE IRRIGATION DESIGNER FOR ANY MATERIALS, BEFORE USING ANY SUCH MATERIALS IN THE FIELD, OR THE CONTRACTOR MAY BE REQUIRED TO OBTAIN APPROVAL FROM EACH MATERIALS MANUFACTURER AT HIS OWN COST.
- B. BACKFLOW PREVENTION DEVICES SHALL BE OF THE SIZE AND TYPE INDICATED ON THE DRAWINGS. INSTALL BACKFLOW PREVENTION UNITS IN ACCORDANCE WITH IRRIGATION CONSTRUCTION STANDARDS AND ALL APPLICABLE STATE AND LOCAL CODES AND ORDINANCES.
- C. PIPING
1. PRESSURE SUPPLY LINES, DOWNSTREAM OF THE POINT-OF-CONNECTION:
 - a. SCHEDULE 40 PVC FOR ALL PIPE 2" OR LESS
 - b. CLASS B15 PVC FOR ALL PIPE 2" TO 2-1/2"
 - c. CLASS 200 PVC, GASKETED, FOR ALL PIPE 3" AND LARGER
 2. SLEEPING AND NON-PRESSURE LATERAL LINES (DOWNSTREAM FROM VALVES): CLASS 200 PVC
 3. FITTINGS: SCH 40 PVC, EXCEPT AS NOTED OTHERWISE
- D. VALVES AND DRAIN VALVES SHALL BE AS SPECIFIED AS NOTED ON PLANS. EACH VALVE SHALL BEAR A PRE-MANUFACTURED, NUMBERED WATERPROOF TAG BEARING A NUMBER WHICH CORRESPONDS TO ITS VALVE SEQUENCE OF OPERATION ON THE CONTROLLER. THE OPERATING SEQUENCE SHALL BE INDICATED ON THE TAGS AS SHOWN ON THE PLANS.
- E. QUICK COUPLERS, BALL VALVES, AND GATE VALVES: TYPE AND SIZE PER PLANS.
- F. VALVE BOXES: TYPE AND SIZE AS NOTED ON DETAILS. ALL VALVE BOXES SHALL BE LOCKING BOLT TYPE, FLUSHED TO THE SURFACE OF THE GROUND. EACH VALVE BOX SHALL BE A FIELD TO CONTAIN THE ENTIRE VALVE AND/OR VALVE ASSEMBLY. THE VALVE BOX LID SHALL HAVE THE VALVE TYPE, MODEL, BRAND-TRADED INTO THE LID WITH 2" HIGH LETTERS.
- G. VALVE HEADS AND ROTARY VALVES SHALL BE OF THE FOLLOWING: UNFOLDABLE PLASTIC SPRAY NOZZLE. EXACT TYPE, MODEL, AND NOZZLE SHALL BE AS INDICATED ON PLANS.
- H. INTEGRAL EMITTER DRIP TUBING: TUBING MODEL AND FLOW RATE AS NOTED ON PLANS, WITH THE TUBING END BEING WELDED TO THE INSIDE WALL OF THE TUBING AS AN INTEGRAL PART OF THE TUBING ASSEMBLY.
- I. AUTOMATIC CONTROLLER: TYPE AND MODEL PER PLANS. PROVIDE VANDAL-PROOF ENCLOSURE WITH REMOTE CONTROLLER INSTALLATIONS. PROVIDE LINE-VOLTAGE DISCONNECT SWITCH WITH GROUND FAULT PROTECTION.
- J. 3/4 VOLT VALVE BRINE SHALL BE A MINIMUM OF #14 GAUGE. U.F. APPROVED FOR DIRECT BURIAL. THE CONTRACTOR SHALL PROVIDE TUBING, EACH CONTROLLER SHALL HAVE A DIFFERENT COLOR TUBING AND COMMON WIRE.
1. STATION WIRE - ANY COLOR EXCEPT WHITE OR BLUE
 2. COMMON WIRE - WHITE
 3. EXTRA COMMON WIRE - BLUE
- K. WIRE SPIRALS SHALL BE ENCASED IN A WATERPROOF COMPOUND OR GEL. ALL FIELD CONNECTIONS SHALL BE MADE WITH 1/2 INCH OR LARGER WIRE BOX.
- L. RAIN SENSOR: TYPE AND MODEL PER PLANS.

METHODS

- THIS DESIGN IS DIAGRAMATIC. ALL PIPING, VALVES, AND OTHER EQUIPMENT SHOWN WITHIN PAVED AREAS OR OUT OF PROPERTY BOUNDARIES ARE FOR DESIGN CLARIFICATION ONLY, AND SHALL BE INSTALLED WITHIN PAVING AREAS WITHIN THE PROPERTY LINES. THIS INDICATES ON PLAN. THE IRRIGATION CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL ABOVE-GRADE IRRIGATION EQUIPMENT WITH THE OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION, OR IRRIGATION CONTRACTOR MAY BE REQUIRED TO MOVE SUCH ITEMS AT HIS OWN COST. ENSURE FIELD COORDINATION IS MADE EARLY ON IN THE CONSTRUCTION PHASE SO PLACEMENT LOCATION IS CORRECT.
- THE IRRIGATION CONTRACTOR SHALL MEET WITH THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT OF WORK, AND SHALL OBTAIN ALL ENGINEERING, LANDSCAPE, AND OTHER APPLICABLE PLANS & DOCUMENTS. THE CONTRACTOR SHALL THOROUGHLY REVIEW THE PLANS AND REPORT ANY CONFLICTS OR DISCREPANCIES TO THE LANDSCAPE ARCHITECT AND OWNER'S REPRESENTATIVE IMMEDIATELY.
- THE IRRIGATION CONTRACTOR SHALL NOT WILLFULLY INSTALL THE IRRIGATION SYSTEM AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN OBSTRUCTIONS, GRADES OR DIMENSIONS EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING, SUCH OBSTRUCTIONS OR DIFFERENCES SHALL BE BROUGHT TO THE ATTENTION OF THE IRRIGATION DESIGNER. IN THE EVENT THAT THIS NOTIFICATION IS NOT PERFORMED, THE IRRIGATION CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ANY REVISIONS AND NECESSARY COSTS.
- THE IRRIGATION CONTRACTOR SHALL PAY ANY AND ALL FEES AND PERMITS ASSOCIATED WITH THE INSTALLATION OF THE IRRIGATION SYSTEM.
- AT LEAST SEVEN DAYS BEFORE BEGINNING WORK, CONFIRM THE STATIC WATER PRESSURE IS AT LEAST 65 PSIG. IF STATIC WATER PRESSURE IS OUTSIDE OF THE STATED RANGE, DO NOT PROCEED WITHOUT FIRST NOTIFYING THE IRRIGATION DESIGNER AND OWNER IN WRITING, AND OBTAINING SUBSEQUENT DIRECTIONAL REVISIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IRRIGATION CONTRACTOR CHOOSING TO BEGIN THE INSTALLATION WITHOUT SUCH NOTIFICATION, THE IRRIGATION CONTRACTOR WILL ASSUME THE RESPONSIBILITY FOR ALL COSTS INCURRED TO CORRECT THE SYSTEM WORKING PROPERLY. NO CHANGE ORDERS WILL BE AUTHORIZED IN SUCH CIRCUMSTANCES.
- THE IRRIGATION CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITY LINES (WATER, ELECTRIC, TELEPHONE, GAS, CABLE, TELEVISION, ETC.) PRIOR TO THE START OF ANY WORK. THE CONTRACTOR SHALL BE FAMILIAR WITH ALL GRADE DIFFERENCES, LOCATIONS OF WALLS, STRUCTURES AND UTILITIES.
- COORDINATE WITH THE ARCHITECT THE PROPOSED LOCATIONS OF THE AUTOMATIC CONTROLLER AND ANY REQUIRED SLEEVES THROUGH THE BUILDING FOR CONTROL WIRES.
- TRENCHING NEAR EXISTING TREES:
- CONTRACTOR SHALL NOT DISTURB ROOTS 1'-1/2" AND LARGER IN DIAMETER WITHIN THE CRITICAL ROOT ZONE (CRZ) OF EXISTING TREES, AND SHALL EXERCISE ALL POSSIBLE CARE AND PRECAUTIONS TO AVOID INJURY TO TREE ROOTS, TRUNKS, AND BRANCHES. THE CRZ IS DEFINED AS A CIRCULAR AREA EXTENDING OUTWARD FROM THE TREE TRUNK, WITH A RADIUS EQUAL TO 1' FOR EVERY INCH OF TRUNK DIAMETER AT BREAST HEIGHT (4.5' ABOVE THE AVERAGE GRADE AT THE TRUNK).
- ALL EXCAVATION WITHIN THE CRZ SHALL BE PERFORMED USING HAND TOOLS. NO MACHINE EXCAVATION OR TRENCHING OF ANY KIND SHALL BE ALLOWED WITHIN THE CRZ.
- ALTER ALIGNMENT OF PIPE TO AVOID TREE ROOTS 1'-1/2" AND LARGER IN DIAMETER, WHERE TREE ROOTS 1'-1/2" AND LARGER IN DIAMETER ARE ENCOUNTERED IN THE FIELD, TUNNEL AROUND SUCH ROOTS, WARP EXPOSED ROOTS WITH SEVERAL LAYERS OF BULP AND KEEP MOIST. CLOSE ALL TRENCHES WITHIN THE CANOPY DRIP LINES WITHIN 24 HOURS.
- ALL SEVERED ROOTS SHALL BE HAND PRUNED WITH SHARP TOOLS AND ALLOWED TO AIR-DRY. DO NOT USE ANY SORT OF SEALERS OR WOUND PANTS.
- THE IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL CONTROL WIRES, SLEEVES AND PIPE SLEEVES UNDER PAVED AREAS PRIOR TO PAVING - SEE SLEEVING NOTES.
- INSTALL THE IRRIGATION EQUIPMENT IN THE VICINITY OF THE OWNER AND COORDINATE LOCATION WITH THE OWNER. PROVIDE MINIMUM 5' CLEARANCE FROM OTHER OUTDOOR EQUIPMENT, FREE AND CLEAR OF ANY TREE CANOPY OR OTHER OVERHEAD OBSTRUCTIONS, AND ABOVE THE HEIGHT OF THE SPRINKLER COVERAGE. IT IS THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO ENSURE THE RAIN SENSOR IS PLACED IN A LOCATION WHERE IT CAN RECEIVE ADEQUATE RAINFALL WITHOUT OBSTRUCTIONS. IF IT IS PLACED IN AN INADEQUATE LOCATION, THE IRRIGATION CONTRACTOR MAY BE REQUIRED TO RELOCATE IT AT NO ADDITIONAL COST TO THE OWNER.
- NO PUMP ON SITE.
- IF IRRIGATION EQUIPMENT NOT OTHERWISE DETAILED OR SPECIFIED SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
- QUALITY CONTROL.
- PERFORM COVERAGE TESTS AFTER IRRIGATION SYSTEM IS COMPLETED, BUT PRIOR TO ANY PLANTING AND BEFORE TESTING IN THE PRESENCE OF THE IRRIGATION DESIGNER AND THE CONSTRUCTION MANAGER.
- THE SYSTEM TO ASSURE THAT ALL LAWN AND PLANTING AREAS ARE WATERED COMPLETELY AND UNIFORMLY.
- MAKE ALL NECESSARY ADJUSTMENTS TO PROVIDE COMPLETE COVERAGE, INCLUDING ALIGNMENT OF HEADS AND REPLACEMENT OF NOZZLES.
- CLEAN UP.
- DURING IRRIGATION EXCAVATION AND INSTALLATION, KEEP ALL PAVEMENT CLEAN AND ALL LAWN AREAS IN A NEAT, ORDERLY CONDITION.
- DISPOSED LEGALLY OF ALL EXCAVATED MATERIALS OFF THE PROJECT SITE.
- INSPECTION AND ACCEPTANCE.
- UPON COMPLETION OF THE WORK, THE IRRIGATION CONTRACTOR SHALL PROVIDE THE SITE CLEAN, FREE OF OBSTRUCTIONS, TRASH, AND SUITABLE FOR USE AS INTENDED. THE IRRIGATION CONTRACTOR SHALL THEN REQUEST AN INSPECTION BY THE OWNER TO DETERMINE FINAL ACCEPTABILITY.
- WHEN THE INSTATED WORK DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL REPLACE AND/OR REPAIR THE REJECTED WORK TO THE OWNER'S SATISFACTION WITHIN 24 HOURS.
- THE MAINTENANCE PERIOD SHALL NOT COMMENCE UNTIL THE WORK HAS BEEN RE-INSPECTED BY THE OWNER AND FOUND TO BE ACCEPTABLE. AT THAT TIME, A WRITTEN NOTICE OF FINAL ACCEPTANCE WILL BE ISSUED BY THE OWNER, AND THE MAINTENANCE AND GUARANTEE PERIODS WILL COMMENCE.
- CONTROLLER CHART: THE IRRIGATION CONTRACTOR SHALL PROVIDE A 11" X 17" COLOR-CODED, LAMINATED COPY OF THE IRRIGATION LAYOUT AND PLACE IT IN THE AUTOMATIC CONTROLLER BOX. THE CONTRACTOR SHALL USE THIS CHART TO DELINEATE THE AREAS COVERED BY EACH VALVE, USING A SEPARATE COLOR FOR EACH ZONE.
- TURN THE FOLLOWING ITEMS IN TO THE OWNER UPON COMPLETION OF THE INSTALLATION:
1. OWNER COPY OF RECORD DRAWINGS
2. CONTROLLER MANUAL (1)
3. CONTROLLER KEYS (2)
4. A RECORD COPY (2 COPIES) OF RECORD DRAWINGS. A RECORD DRAWING IS A RECORD OF ALL CHANGES THAT OCCURRED IN THE FIELD AND THAT ARE DOCUMENTED THROUGH CHANGE ORDERS, ADDENDA, OR CONTRACTOR/CONSULTANT DRAWING MARKUPS.
- REFER TO THE PLANTING SPECIFICATIONS FOR ADDITIONAL CONDITIONS OF FINAL ACCEPTANCE AND START OF THE MAINTENANCE PERIOD.
- WARRANTY.
- THE IRRIGATION SYSTEM SUPPLIED AND INSTALLED SHALL BE WARRANTED (LABOR AND MATERIALS) TO REMAIN OPERATIONAL FOR A PERIOD OF 12 MONTHS AFTER THE DATE OF FINAL ACCEPTANCE. DURING THIS PERIOD, THE CONTRACTOR SHALL ALSO REPAIR ANY SETTLEMENT OF THE IRRIGATION TRENCHES.
- BY THE END OF THE WARRANTY PERIOD, ANY IRRIGATION PART THAT IS EITHER NON-OPERATIONAL, OR THAT IS OPERATING BELOW STANDARDS AS DETERMINED BY THE OWNER, SHALL BE REMOVED FROM THE SITE AND SHALL BE REPLACED AT NO ADDITIONAL COST. THE PARTS SHALL BE OF THE SAME KIND AS SPECIFIED IN THE IRRIGATION LEGEND, AND SHALL BE INSTALLED AS ORIGINALLY SPECIFIED.
- IRRIGATION PARTS DAMAGED OR IMPAIRED DUE TO ACTS OF GOD, VANDALISM, AND/OR THE OWNER'S IMPROPER MAINTENANCE SHALL NOT BE COVERED BY THIS WARRANTY.
- SHOULD THE PERMITTING JURISDICTION REQUIRE AN IRRIGATION AUDIT, THE IRRIGATION CONTRACTOR SHALL BE REQUIRED TO OBTAIN THE SERVICES OF A THIRD-PARTY CERTIFIED LANDSCAPE IRRIGATION AUDITOR, AT NO ADDITIONAL COST TO THE OWNER.

- I. BACKFILL**
1. ALL BACKFILL MATERIAL SHALL BE SUBJECT TO APPROVAL BY THE OWNER. BACKFILL MATERIAL SHALL BE FREE OF ROCKS LARGER THAN 1" LARGE STONES, BRUSH, SOIL, FROZEN MATERIAL OR OTHER UNSUITABLE SUBSTANCES THAT MAY DAMAGE PIPE DURING THE BACKFILLING OPERATIONS. SEPARATE OUT ROCKS LARGER THAN 1 INCH IN ANY SECTION FROM EXCAVATION AND PLACE THEM IN AN AREA AWAY FROM THE WORK AREA. LANDSCAPING COVER FOR BOTH TOP AND SIDES OF PIPE SHALL BE A MINIMUM OF 2 INCHES OF ROCK-FREE SOIL, SAND, OR OTHER APPROVED MATERIAL.
 2. IF AN EVENT TAKES PLACE WHERE THE EXCAVATION OR TRENCHING IS FOUND TO BE UNSUITABLE FOR USE IN BACKFILL, IT SHALL BE REMOVED FROM THE SITE AND PROPERLY AND LEGALLY DISPOSED OF BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL HAVE A BRUSH BOX WITH A MINIMUM OF 1' ABOVE FINISH GRADE CONSISTING OF EARTH, LOAM, SANDY CLAY, SAND OR OTHER APPROVED MATERIALS FREE OF DEBRIS.
- J. BACKFLOW PREVENTER INSTALLATION:** CONTRACTOR SHALL MAKE CONNECTIONS TO EXISTING WATER SOURCES AT LOCATION SHOWN ON PLANS AND AS APPROVED BY THE OWNER, AND SHALL MAKE ANY MINOR CHANGES IN LOCATION AS MAY BE NECESSARY DUE TO ACTUAL SITE CONDITIONS. BACKFLOW PREVENTER HEIGHT SHALL BE AS PER LOCAL CODES AND IRRIGATION SYSTEM MANUAL. ALL BRASS BALL VALVES SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION TO SERVE AS AN ISOLATION VALVE. TO EVERY EXTENT POSSIBLE, INSTALL BACKFLOW PREVENTION INTO A LOCATION SCREENED FROM PUBLIC VIEW (SUCH AS BEHIND A SHRUB ROW).
- K. PIPING**
1. PIPE SIZE SHALL CONFORM TO THOSE SHOWN ON THE DRAWINGS. NO SUBSTITUTIONS OF SMALLER PIPE SIZES SHALL BE PERMITTED, BUT SUBSTITUTIONS FOR LARGER SIZES MAY BE ALLOWED.
 2. MAINLINE PIPE AND WIRES SHALL BE INSTALLED WITH A MINIMUM COVER OF 18" INCHES (24" FOR MAINLINE <5'-0", AND 30" FOR MAINLINE >6' AND GREATER). LATERAL PIPE SHALL BE INSTALLED WITH A MINIMUM COVER OF 18" INCHES.
 3. ASSEMBLE ALL THREADED FITTINGS WITH TEFLON TAPE, WHICH SHALL BE APPLIED TO MALE THREADS ONLY.
 4. ALL EVENT-WELD CONNECTIONS SHALL BE MADE WITH APPROVED SOLWELD-WELD PRIMER AND GLUE.
 5. PIPE SHALL BE INSTALLED WITH A MINIMUM OF 4" HORIZONTAL CLEARANCE FROM ANY ADJACENT PIPE AND 2" VERTICAL CLEARANCE FROM ANY PIPES THAT CROSS OVER OR UNDER.
- L. VALVES**
1. VALVES SHALL BE INSTALLED PER MANUFACTURER'S DIRECTIONS AND THE IRRIGATION SYSTEM MANUAL.
 2. VALVE BOXES SHALL BE INSTALLED FLUSH WITH THE GRADE, WITH CLEAN PEEL GRATE LOCATED BELOW THE VALVE AS NOTED ON THE DETAILS. LOCATE BOXES WITHIN 12" TO 24" FROM SIDEWALKS OR DRIVEWAYS. VALVE BOXES SHALL BE INSTALLED IN AREAS TO RECEIVE TURF, AND 3" ABOVE FINISH GRADE IN SHRUB AREAS (TO AVOID BEING COVERED BY MULCH). EACH VALVE BOX COVER SHALL BE HEAT-BRANDED WITH THE CONTROLLER STATION NUMBER.
 3. DO NOT INSTALL MORE THAN TWO VALVES IN A JUMBO BOX.
- M. DRIP IRRIGATION EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER'S DIRECTIONS AND THE IRRIGATION SYSTEM MANUAL.**
1. SUBSURFACE DRIP LINES SHALL BE BURIED NO MORE THAN 2' BELOW FINISH GRADE.
 2. SECURE LINES MOUNTED ON GRADE SHALL BE LOCATED BENEATH LANDSCAPE FABRIC, AND BE SECURED IN PLACE WITH WIRE STAPLES AT A MAXIMUM OF 24"-36" ON CENTER.
- N. SPRINKLER AND BUBBLER HEADS**
1. ALL SPRAY AND ROTOR HEAD LOCATIONS SHALL BE STAKED, FLAGGED AND/OR OTHERWISE CLEARLY MARKED ON THE GROUND PRIOR TO INSTALLATION. SPRINKLER HEAD STAKING SHALL BE INSPECTED AND APPROVED BY THE OWNER'S REPRESENTATIVE BEFORE INSTALLATION.
 2. ALL SPRAY HEADS SHALL BE CONNECTED WITH A 12 INCH MINIMUM LENGTH OF 1/2 INCH FLEX PIPE. FLEX PIPE SHALL BE USED FOR ALL HEADS. USE 1/2" DIRECT BURIAL SPULGE KIT, WELD-ON #795 SOLVENT AND #P-70 PRIMER. ALL ROTORS SHALL BE CONNECTED TO LATERAL LINES WITH PRE-MANUFACTURED SWING JOINTS.
 3. ALL SPRAY, Rotor, AND BUBBLER HEADS SHALL BE INSTALLED PERPENDICULAR AND FLUSH TO FINISH GRADE AND WITH A CLEARANCE OF FOUR INCHES (MINIMUM) FROM THE EDGE OF ANY BUILDINGS, WALLS, BOULDERS, AND HARDCAPE, WITH A CLEARANCE OF TWELVE INCHES (MINIMUM) FROM SIDEWALKS AND DRIVEWAYS.
 4. ALL ROTOR, SPRAY AND BUBBLER HEADS AND VALVES SHALL BE FLUSHED AND ADJUSTED FOR OPTIMUM COVERAGE WITH MINIMUM OVSERLAY ON WALKS, STREETS, WALLS, ETC.
 5. LAUNCH PIPE TO TEST SYSTEM. SET PRESSURE TO 80 PSI. IRRIGATION CONTRACTOR TO CONNECT TREE BUBBLES HEADS TO VALVES AS SHOWN WITH CLASS 20 PVC PIPE SIZED TO ALLOW A MAXIMUM FLOW VELOCITY OF 5 FEET PER SECOND.
- O. AUTOMATIC CONTROLLER**
1. INSTALL THE CONTROLLER AT THE LOCATION INDICATED BY THE OWNER. INSTALL CONTROLLER WITH A BACKUP BATTERY AS RECOMMENDED BY THE MANUFACTURER.
 2. THE IRRIGATION CONTRACTOR SHALL COORDINATE 120 V AC ELECTRICAL POWER TO THE CONTROLLER AND PROVIDE THE NECESSARY WIRING TO THE CONTROLLER. IT SHALL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO MAKE THE FINAL HOOP-UP FROM THE ELECTRICAL SOURCE TO THE CONTROLLER UNIT ONLY.
 3. VALVE CONTROL CIRCUITS SHALL BE WIRING TYPE "DO NOT TEST, DIRECT BURIAL". NO SPLICES SHALL BE ALLOWED EXCEPT AT VALVES AND CONTROLLER. WHERE SPLICES MAY BE NECESSARY DUE TO EXCESSIVELY LONG WIRE RUNS, THE CONTRACTOR SHALL MAKE ALL SPLICES USING ROUND WALDING BOXES WITH SMS "DB-DIRECT BURIAL SPULGE KIT". THE CONTRACTOR SHALL LABEL ALL WIRES WITH WATERPROOF TAGS AND MARKERS AT ALL SPLICES AND VALVE MANIFOLDS, AND SHALL LEAVE A 24" COIL OF EXCESS WIRE AT EACH CONNECTION.
 4. PROVIDE #10 COMMON WIRE, DIRECT BURIAL, TO ALL REMOTE CONTROL VALVES.
 5. CONNECT ALL DIRECT BURIAL WIRES TO VALVES USING SMS "DB-DIRECT BURIAL SPULGE KIT" WITHOUT EXCESSIVE BENDING.
 6. PROVIDE THREE ADDITIONAL IRRIGATION CONTROL WIRES ALONG EACH BRANCH OF MAINLINE FOR FUTURE EXPANSION. STUB ADDITIONAL CONTROL WIRES INTO BACK OF IRRIGATION CONTROLLER.
 7. THE IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL CONTROL WIRE, SLEEVES AND PIPE SLEEVES UNDER PAVED AREAS PRIOR TO PAVING - SEE SLEEVING NOTES.
- P. INSULATION:** WHEN REQUIRED BY SPECIFICATIONS, THE IRRIGATION CONTRACTOR SHALL COMPLY WITH THE OWNER. PROVIDE MINIMUM 5" CEMENT BASE FROM OUTER OUTSIDE EQUIPMENT, FREE AND CLEAR OF ANY TREE CANOPY OR OTHER OVERHEAD OBSTRUCTIONS, AND ABOVE THE HEIGHT OF THE SPRINKLER HEADS. PROVIDE INSULATION TO THE IRRIGATION CONTRACTOR TO ENSURE THE RAIN SENSOR IS PLACED IN A LOCATION WHERE IT CAN RECEIVE ADEQUATE RAINFALL WITHOUT OBSTRUCTIONS. IF IT IS PLACED IN AN INADEQUATE LOCATION, THE IRRIGATION CONTRACTOR MAY BE REQUIRED TO RELOCATE IT AT NO ADDITIONAL COST TO THE OWNER.
- Q. NO PUMP ON SITE.**
- R. ALL IRRIGATION EQUIPMENT NOT OTHERWISE DETAILED OR SPECIFIED SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.**
- S. QUALITY CONTROL**
1. PERFORM COVERAGE TESTS AFTER IRRIGATION SYSTEM IS COMPLETED, BUT PRIOR TO ANY FINAL ACCEPTANCE AND PERFORMANCE TESTING IN THE PRESENCE OF THE IRRIGATION DESIGNER AND THE CONSTRUCTION MANAGER.
 2. TEST SYSTEM TO ASSURE THAT ALL LAWN AND PLANTING AREAS ARE WATERED.
 3. IDENTIFY AND CORRECT DEFICIENCIES.
 4. MAKE ALL NECESSARY ADJUSTMENTS TO PROVIDE COMPLETE COVERAGE, INCLUDING REALIGNMENT OF HEADS AND REPLACEMENT OF NOZZLES.
- T. CLEAN UP**
1. DURING IRRIGATION EXCAVATION AND INSTALLATION, KEEP ALL PAVEMENT CLEAN AND ALL WORK AREAS IN A NEAT, ORDERLY CONDITION.
 2. REMOVE LEGALLY OF ALL EXCAVATED MATERIALS OFF THE PROJECT SITE.
- U. INSPECTION AND ACCEPTANCE**
1. UPON COMPLETION OF THE WORK, THE IRRIGATION CONTRACTOR SHALL PROVIDE THE SITE TO THE FREED OF THE PROJECT TO THE OWNER. THE USER AS INTENDED. THE IRRIGATION CONTRACTOR SHALL THEN REQUEST AN INSPECTION BY THE OWNER TO DETERMINE FINAL ACCEPTABILITY.
 2. IF THE OWNER INSPECTED WORK DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL REPLACE AND/OR REPAIR THE REJECTED WORK TO THE OWNER'S SATISFACTION WITHIN 24 HOURS.
 3. IF THE MAINTENANCE PERIOD COMMENCES AND DOES NOT COMMENCE UNTIL THE WORK HAS BEEN RE-INSPECTED BY THE OWNER AND FOUND TO BE ACCEPTABLE. AT THAT TIME, A WRITTEN NOTICE OF FINAL ACCEPTANCE WILL BE ISSUED BY THE OWNER, AND THE MAINTENANCE AND GUARANTEE PERIOD WILL COMMENCE.
 4. CONTROLLER CHART: THE IRRIGATION CONTRACTOR SHALL PROVIDE A 11" X 17" COLOR-CODED, LAMINATED COPY OF THE IRRIGATION LAYOUT AND PLACE IT IN THE CONTROLLER'S BOX. THE CONTRACTOR SHALL COLOR-CODE AND ACCURATELY DELINEATE THE AREAS COVERED BY EACH VALVE, USING A SEPARATE COLOR FOR EACH ZONE.
 5. TURN THE FOLLOWING ITEMS IN TO THE OWNER UPON COMPLETION OF THE INSTALLATION:
 - a. COUPLED COULPER KEYS (2)
 - b. IRRIGATION SYSTEM MANUAL
 - c. CONTROLLER KEYS (2)
 - d. A MINIMUM OF (2) COPIES OF RECORD DRAWINGS. A RECORD DRAWING IS A RECORD OF ALL CHANGES TO THE WORK DESCRIBED IN THE FIELD AND THAT ARE DOCUMENTED THROUGH CHANGE ORDERS, ADDENDA, OR CONTRACTOR/CONSULTANT DRAWING MARKUPS.
- V. REFER TO THE PLANNING SPECIFICATIONS FOR ADDITIONAL CONDITIONS OF FINAL ACCEPTANCE AND START OF THE MAINTENANCE PERIOD.**
- W. WARRANTY**
1. THE IRRIGATION SYSTEM SUPPLIED AND INSTALLED SHALL BE WARRANTED (LABOR AND MATERIALS) TO REMAIN OPERATIONAL FOR A PERIOD OF 12 MONTHS AFTER THE DATE OF FINAL ACCEPTANCE. DURING THIS PERIOD, THE CONTRACTOR SHALL ALSO REPAIR ANY DAMAGE TO THE SYSTEM OF THE IRRIGATION CONTRACTOR.
 2. BY THE END OF THE WARRANTY PERIOD, ANY IRRIGATION PART THAT IS EITHER NON-OPERATIONAL OR THAT IS OPERATING BELOW STANDARDS AS DETERMINED BY THE OWNER SHALL BE REMOVED AND REPLACED WITH NEW EQUIPMENT. THE REPLACEMENT SHALL BE OF THE SAME KIND AS SPECIFIED IN THE IRRIGATION LEGEND, AND SHALL BE INSTALLED AS ORIGINALLY SPECIFIED.
 3. THE OWNER PARTY'S DAMAGES INCURRED DUE TO ACTS OF GOD, VANDALISM, AND/OR THE OWNER'S IMPROPER MAINTENANCE SHALL NOT BE COVERED BY THIS WARRANTY.
- X. SHOULD THE PERMITTING JURISDICTION REQUIRE AN IRRIGATION AUDIT, THE IRRIGATION CONTRACTOR SHALL OBTAIN ONE THIRD-PARTY CERTIFIED LANDSCAPE IRRIGATION AUDITOR, AT NO ADDITIONAL COST TO THE OWNER.**

IRRIGATION LEGEND

SYMBOL	MANUFACTURER/MODEL
●	RAIN BIRD R-VAN14 1806-SAM-P45, TURF ROTARY, 8'-14" 45°-270° AND 360° HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 6.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2" NPT FEMALE THREADED INLET.
⊙	RAIN BIRD R-VAN18 1806-SAM-P45, TURF ROTARY, 13'-18" 45°-270° AND 360° HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 6.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2" NPT FEMALE THREADED INLET.
⊙	RAIN BIRD R-VAN24 1806-SAM-P45, TURF ROTARY, 17'-24" 45°-270° AND 360° HAND ADJUSTABLE MULTI-STREAM ROTARY W/1800 TURF SPRAY BODY ON 6.0" POP-UP, WITH CHECK VALVE AND 45 PSI IN-STEM PRESSURE REGULATOR. 1/2" NPT FEMALE THREADED INLET.
✱	RAINBIRD 1806-SAM-PRS SERIES POP UP SPRAY HEADS WITH ADAPTER AND RAINBIRD #1402 SERIES BUBBLER NOZZLES. (TWO PER TREE) SEE INSTALLATION NOTE #N-5 REGARDING TREE BUBBLER LATERAL PIPE
✱	RAINBIRD 5004PCSAMR, ADJUSTABLE ARC 4" POP UP ROTARY HEAD, PART CIRCLE #1.5 LA NOZZLE UNLESS NOTED OTHERWISE RAINBIRD 5004PCSAMR, ADJUSTABLE ARC 4" POP UP ROTARY HEAD, PART CIRCLE #2.5 NOZZLE UNLESS NOTED OTHERWISE
⊕	RAINBIRD XCZ-100-PRB-COM / 150-PRB-COM SERIES AUTOMATIC DRIP VALVE ASSEMBLY WITH 40 PSI PRESSURE REGULATOR XCZ-100-PRB-COM - 1" BALL VALVE WITH 1" PESB VALVE AND 1" PRESSURE REGULATING 40PSI QUICK-CHECK BASKET FILTER. 0.3GPM TO 20GPM. XCZ-150-PRB-LCDR - 1-1/2" PESB-R SCRUBBER GLOBE VALVE WITH SINGLE 1-1/2" PRESSURE REGULATING (40PSI) QUICK-CHECK BASKET FILTERS. FLOW RANGE: 15-62GPM.
⊕	RAINBIRD PEB SERIES ELECTRIC REMOTE CONTROL, "TREE BUBBLER ZONE" VALVE SEE INSTALLATION NOTE #N-5 REGARDING TREE BUBBLER LATERAL PIPE
⊕	RAINBIRD PEB SERIES 1", 1-1/2", 2" PLASTIC INDUSTRIAL VALVES. LOW FLOW OPERATING CAPABILITY, GLOBE CONFIGURATION.
	AREA TO RECEIVE DRIPLINE RAINBIRD XFS-CV-06-12 SERIES DRIP TUBE IN SHRUB BED INSTALLED AT 2" DEPTH
●	PIPE TRANSITION POINT ABOVE GRADE PIPE TRANSITION POINT FROM PVC LATERAL TO DRIP TUBING WITH RISER TO ABOVE GRADE INSTALLATION.
	ZURN / WILKINS 375XLB SERIES REDUCED PRESSURE TYPE BACKFLOW PREVENTOR INSTALLED PER CITY CODE WITH HEATED / INSULATED ALUMINUM ENCLOSURE AND SAME SIZE BRONZE BALL VALVE INSTALLED ON THE UP-STREAM SIDE. G. C. TO COORDINATE POWER TO BACKFLOW ENCLOSURE LOCATION PRIOR TO CONSTRUCTION BLow OFF VALVE TO BE INSTALLED BETWEEN THE METER AND BACKFLOW DEVICE FOR SYSTEM WINTERIZATION
✱	LASCO "V" SERIES SCH. 80 PVC TRUE UNION BALL VALVE, MAINLINE SIZE
	IRRIGATION WATER METER AND TAP (BY OTHERS) SIZE AS NOTED ON THE PLAN
	RAINBIRD 33DLRC QUICK COUPLER, 3/4"
	RAINBIRD ESP12LXMEF2P SERIES AUTOMATIC WALL MOUNT CONTROLLER WITH ONE ESPLXMSM12 STATION MODULE
	RAINBIRD WR2-RFC RAIN / FREEZE SENSOR - CONFIRM SENSOR LOCATION WITH OWNERS REPRESENTATIVE
✱	1" MASTER VALVE MODEL # 100-EFB-CP WITH RAINBIRD FLOW SENSOR MODEL #FS100P SERIES

IRRIGATION LATERAL LINE: CLASS 200 PVC

IRRIGATION MAINLINE: SCHEDULE 40 PV

IRRIGATION SLEEVES, SCH. 40 PVC, MIN. TWICE SIZE OF PIPE TO BE INSERTED

PROJECT INFORMATION

IRRIGATION SPECIFICATIONS

KROGER D444
10059 HIGHLAND ROAD
HARTLAND, MI 48843
LIVINGSTON COUNTY

SHEET MANAGEMENT

PROJECT NUMBER:	D444
ISSUED DATE:	05.07.2026
DRAWN BY:	JF
CHECKED BY:	SMS
PROJ. MGR:	SMS

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SHEET NUMBER

FILE: Z:\Shared\Projects\2025\Kroger D444 - Hartland Twp. MI - Highland Road\Kroger D444 - Hartland Twp. MI - LP 2025-05-29.dwg
PLOT: 5/29/2025 5:59 PM BY: Computer

GENERAL GRADING AND PLANTING NOTES

- BY SUBMITTING A PROPOSAL FOR THE LANDSCAPE PLANTING SCOPE OF WORK, THE CONTRACTOR CONFIRMS THAT HE HAS READ, AND WILL COMPLY WITH, THE ASSOCIATED NOTES, SPECIFICATIONS, AND DETAILS WITH THIS PROJECT.
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL EXISTING VEGETATION (EXCEPT WHERE NOTED TO REMAIN).
- IN THE CONTEXT OF THESE PLANS, NOTES, AND SPECIFICATIONS, "FINISH GRADE" REFERS TO THE FINAL ELEVATION OF THE SOIL SURFACE (NOT TOP OF MULCH) AS INDICATED ON THE GRADING PLANS.
 - BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE ROUGH GRADES OF ALL LANDSCAPE AREAS ARE WITHIN $\pm 0.1'$ OF FINISH GRADE. SEE SPECIFICATIONS FOR MORE DETAILED INSTRUCTION ON TURF AREA AND PLANTING BED PREPARATION.
 - CONSTRUCT AND MAINTAIN FINISH GRADES AS SHOWN ON GRADING PLANS, AND CONSTRUCT AND MAINTAIN SLOPES AS RECOMMENDED BY THE GEOTECHNICAL REPORT. ALL LANDSCAPE AREAS SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURES AT THE MINIMUM SLOPE SPECIFIED IN THE REPORT AND ON THE GRADING PLANS, AND AREAS OF POTENTIAL PONDING SHALL BE REGRADED TO BLEND IN WITH THE SURROUNDING GRADES AND ELIMINATE PONDING POTENTIAL.
 - THE LANDSCAPE CONTRACTOR SHALL DETERMINE WHETHER OR NOT THE EXPORT OF ANY SOIL WILL BE NEEDED, TAKING INTO ACCOUNT THE ROUGH GRADE PROVIDED, THE AMOUNT OF SOIL AMENDMENTS TO BE ADDED (**BASED ON A SOIL TEST**, PER SPECIFICATIONS), AND THE FINISH GRADES TO BE ESTABLISHED.
 - ENSURE THAT THE FINISH GRADE IN SHRUB AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 3" BELOW THE ADJACENT FINISH SURFACE, IN ORDER TO ALLOW FOR PROPER MULCH DEPTH. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
 - ENSURE THAT THE FINISH GRADE IN TURF AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 1" BELOW THE FINISH SURFACE OF THE WALKS. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
 - IF SHOULD ANY CONFLICTS AND/OR DISCREPANCIES ARISE BETWEEN THE GRADING PLANS, GEOTECHNICAL REPORT, THESE NOTES AND PLANS, AND ACTUAL CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY BRING SUCH ITEMS TO THE ATTENTION OF THE LANDSCAPE ARCHITECT, GENERAL CONTRACTOR, AND OWNER.
- ALL PLANT LOCATIONS ARE DIAGRAMMATIC. ACTUAL LOCATIONS SHALL BE VERIFIED WITH THE LANDSCAPE ARCHITECT OR DESIGNER PRIOR TO PLANTING. THE LANDSCAPE CONTRACTOR SHALL ENSURE THAT ALL REQUIREMENTS OF THE PERMITTING AUTHORITY ARE MET (I.E., MINIMUM PLANT QUANTITIES, PLANTING METHODS, TREE PROTECTION METHODS, ETC.).
 - THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR DETERMINING PLANT QUANTITIES. PLANT QUANTITIES SHOWN ON LEGENDS AND CALLOUTS ARE FOR GENERAL INFORMATION ONLY. IN THE EVENT OF A DISCREPANCY BETWEEN THE PLAN AND THE PLANT LEGEND, THE PLANT QUANTITY AS SHOWN ON THE PLAN (FOR INDIVIDUAL SYMBOLS) OR CALLOUT (FOR GROUNDCOVER PATTERNS) SHALL TAKE PRECEDENCE.
 - NO SUBSTITUTIONS OF PLANT MATERIALS SHALL BE ALLOWED WITHOUT THE WRITTEN PERMISSION OF THE LANDSCAPE ARCHITECT.** IF SOME OF THE PLANTS ARE NOT AVAILABLE, THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IN WRITING (VIA PROPER CHANNELS).
 - THE CONTRACTOR SHALL, AT A MINIMUM, PROVIDE REPRESENTATIVE PHOTOS OF ALL PLANTS PROPOSED FOR THE PROJECT. THE CONTRACTOR SHALL ALLOW THE LANDSCAPE ARCHITECT AND THE OWNER/OWNER'S REPRESENTATIVE TO INSPECT, AND APPROVE OR REJECT, ALL PLANTS DELIVERED TO THE JOBSITE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR SUBMITTALS.
- CONTRACTOR SHALL PROVIDE AND INSTALL SOLID SOD IN ALL RIGHT-OF-WAYS AND PARKWAYS (UNLESS NOT ALLOWED BY THE LOCAL JURISDICTION) AND SHALL PROVIDE WATERING AND MAINTENANCE UNTIL THE TURF IS ESTABLISHED AND HAS BEEN ACCEPTED BY OWNER.
- THE CONTRACTOR SHALL MAINTAIN THE LANDSCAPE IN A HEALTHY CONDITION FOR 90 DAYS AFTER ACCEPTANCE BY THE OWNER. REFER TO SPECIFICATIONS FOR CONDITIONS OF ACCEPTANCE FOR THE START OF THE MAINTENANCE PERIOD, AND FOR FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD.
- AFTER FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD, CONTRACTOR IS TO PROVIDE SUGGESTED MAINTENANCE, WATERING SCHEDULE, WEEDING SCHEDULE, AND FERTILIZATION SCHEDULE.
- SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.

ROOT BARRIERS

THE CONTRACTOR SHALL INSTALL ROOT BARRIERS NEAR ALL NEWLY PLANTED TREES THAT ARE LOCATED WITHIN FIVE (5) FEET OF PAVING, CURBS, WATER, STORM, OR SANITARY SEWER UTILITIES. ROOT BARRIERS SHALL BE "CENTURY" OR "DEEP-ROOT" 24" DEEP PANELS (OR EQUAL). BARRIERS SHALL BE LOCATED IMMEDIATELY ADJACENT TO HARDSCAPE. INSTALL PANELS PER MANUFACTURER'S RECOMMENDATIONS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE ROOT BARRIERS OF A TYPE THAT COMPLETELY ENCIRCLE THE ROOTBALL.

MULCHES

AFTER ALL PLANTING IS COMPLETE, CONTRACTOR SHALL INSTALL 3" THICK LAYER OF 1-1/2" SHREDDED WOOD MULCH, NATURAL (UNDYED), OVER LANDSCAPE FABRIC IN ALL PLANTING AREAS (EXCEPT FOR TURF AND SEEDED AREAS). CONTRACTOR SHALL SUBMIT SAMPLES OF ALL MULCHES TO LANDSCAPE ARCHITECT AND OWNER FOR APPROVAL PRIOR TO CONSTRUCTION. ABSOLUTELY NO EXPOSED GROUND SHALL BE LEFT SHOWING ANYWHERE ON THE PROJECT AFTER MULCH HAS BEEN INSTALLED (SUBJECT TO THE CONDITIONS AND REQUIREMENTS OF THE "GENERAL GRADING AND PLANTING NOTES" AND SPECIFICATIONS).

PLANTING & IRRIGATION GUARANTEE

THE LANDSCAPE CONTRACTOR SHALL GUARANTEE THAT ALL NEWLY INSTALLED AND EXISTING PLANTS SHALL SURVIVE FOR ONE YEAR AFTER FINAL OWNER ACCEPTANCE OF THE INSTALLATION WORK. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR APPROPRIATE WATERING OF THE LANDSCAPE THROUGH INSTALLATION OF A PROPERLY DESIGNED IRRIGATION SYSTEM. THE OWNER SHALL APPROVE THE SYSTEM DESIGN BEFORE INSTALLATION OF PLANTS OR IRRIGATION.

IRRIGATION CONCEPT

- AN AUTOMATIC IRRIGATION SYSTEM SHALL BE INSTALLED AND OPERATIONAL BY THE TIME OF FINAL INSPECTION. THE ENTIRE IRRIGATION SYSTEM SHALL BE INSTALLED BY A LICENSED AND QUALIFIED IRRIGATION CONTRACTOR.
- THE IRRIGATION SYSTEM WILL OPERATE ON POTABLE WATER, AND THE SYSTEM WILL HAVE APPROPRIATE BACKFLOW PREVENTION DEVICES INSTALLED TO PREVENT CONTAMINATION OF THE POTABLE SOURCE.
- ALL NON-TURF PLANTED AREAS SHALL BE DRIP IRRIGATED. SODDED AND SEEDED AREAS SHALL BE IRRIGATED WITH SPRAY OR ROTOR HEADS AT 100% HEAD-TO-HEAD COVERAGE.
- ALL PLANTS SHARING SIMILAR HYDROZONE CHARACTERISTICS SHALL BE PLACED ON A VALVE DEDICATED TO PROVIDE THE NECESSARY WATER REQUIREMENTS SPECIFIC TO THAT HYDROZONE.
- THE IRRIGATION SYSTEM SHALL BE DESIGNED AND INSTALLED, TO THE MAXIMUM EXTENT POSSIBLE, TO CONSERVE WATER BY USING THE FOLLOWING DEVICES AND SYSTEMS: MATCHED PRECIPITATION RATE TECHNOLOGY ON ROTOR AND SPRAY HEADS (WHEREVER POSSIBLE), RAIN SENSORS, AND MULTI-PROGRAM COMPUTERIZED IRRIGATION CONTROLLERS FEATURING SENSORY INPUT CAPABILITIES.

LANDSCAPE CALCULATIONS

JURISDICTION: HARTLAND TWP, MI
ZONING: PD (PLANNED DEVELOPMENT)
PROJECT AREA: 49,421 SF (1.13 AC)

PERIMETER AREAS
SCREENING FROM PUBLIC RIGHT-OF-WAY
M-59/HIGHLAND RD - 247 LF
REQUIRED:
3' HT. EVERGREEN HEDGE
PROVIDED:
3' HT. CONTINUOUS EVERGREEN HEDGE

PERIMETER AREAS NOT VISIBLE FROM PUBLIC RD
NORTH - 247 LF
TREES REQUIRED: 8 TREES (1 PER 30 LF)
TREES PROVIDED: 8 TREES
SHRUBS REQUIRED: 33 LARGE SHRUBS (4 PER 30 LF)
SHRUBS PROVIDED: 35 LARGE SHRUBS

EAST - 200 LF
TREES REQUIRED: 7 TREES (1 PER 30 LF)
TREES PROVIDED: 7 TREES
SHRUBS REQUIRED: 27 LARGE SHRUBS (4 PER 30 LF)
SHRUBS PROVIDED: 35 LARGE SHRUBS

WEST - 200 LF
TREES REQUIRED: 7 TREES (1 PER 30 LF)
TREES PROVIDED: 7 TREES
SHRUBS REQUIRED: 27 LARGE SHRUBS (4 PER 30 LF)
SHRUBS PROVIDED: 31 LARGE SHRUBS

SOUTH - 247 LF
TREES REQUIRED: 8 TREES (1 PER 30 LF)
TREES PROVIDED: 8 TREES
SHRUBS REQUIRED: 33 LARGE SHRUBS (4 PER 30 LF)
SHRUBS PROVIDED: 33 LARGE SHRUBS

SCREENING OF GROUND MOUNTED EQUIPMENT
SCREENED ON AT LEAST THREE (3) SIDES USING EVERGREEN PLANTINGS
PROVIDED AS REQUIRED

PLANT SCHEDULE

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL/DBH	HEIGHT	SPREAD
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TREES

	GT	10	Gleditsia triacanthos inermis 'Skycole' TM	Skyline Thornless Honey Locust	Cont. or B&B	3" cal.	8-10' Ht. Min.	
	LG	9	Liriodendron tulipifera 'Glen Gold'	Glen Gold Tulip Poplar	Cont. or B&B	3" cal.	10'-12'	
	TC	11	Tilia cordata 'Greenspire'	Greenspire Littleleaf Linden	Cont. or B&B	3" cal.	8-10' Ht. Min.	

EVERGREENS

	TH2	9	Taxus x media 'Hicksii'	Hicks Anglo-Japanese Yew	Cont. or B&B		4' ht.	
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SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING	HEIGHT	SPREAD
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SHRUBS

	IS	10	Ilex glabra 'Shamrock'	Shamrock Inkberry Holly	Cont.	36" O.C.	30" Min	24' Min
	PL	18	Physocarpus opulifolius 'Little Devil' TM	Dwarf Ninebark	Cont.	36" O.C.	30" Min	24' Min
	TT	60	Taxus x media 'Tauntonii'	Taunton's Anglo-Japanese Yew	Cont.	60" O.C.	30" Min	24' Min

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
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SHRUB AREAS

	RG	8	Rhus aromatica 'Gro-Low'	Gro-Low Fragrant Sumac	Cont.	18" spd.
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SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING	HEIGHT	SPREAD
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TURF

	RTF	14,650 sf	RTF® Sod	Rhizomatous Tall Fescue	Sod			
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INTEGRITY | RESPECT | TEAMWORK
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05/29/2026

REVISIONS

REV.	DATE	DESCRIPTION

CONSULTANTS

National Presence. Local Expertise.



EVERGREEN DESIGN GROUP
800.680.6630
www.evergreendesigngroup.com

LANDSCAPE ARCHITECTURE
LAND PLANNING REGISTRATION DESIGN

PROJECT INFORMATION

LANDSCAPE PLAN

KROGER D444
10059 HIGHLAND ROAD
HARTLAND, MI 48843
LIVINGSTON COUNTY

SHEET MANAGEMENT

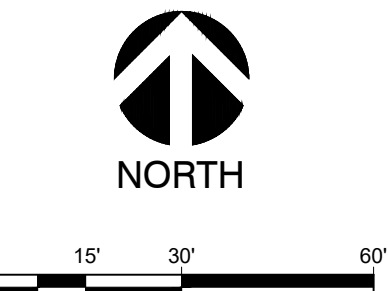
PROJECT NUMBER: D444
ISSUED DATE: 05.07.2026
DRAWN BY: JP
CHECKED BY: SMS
PROJ. MGR: SMS

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SHEET NUMBER

LP.1



Scale 1" = 30'

NOTE: PRINTED DRAWING SIZE
MAY HAVE CHANGED FROM
ORIGINAL. VERIFY SCALE USING
BAR SCALE ABOVE.

PLANTING SPECIFICATIONS

GENERAL

- A. QUALIFICATIONS OF LANDSCAPE CONTRACTOR
1. ALL LANDSCAPE WORK SHOWN ON THESE PLANS SHALL BE PERFORMED BY A SINGLE FIRM SPECIALIZING IN LANDSCAPE PLANTING.
 2. A LIST OF SUCCESSFULLY COMPLETED PROJECTS OF THIS TYPE, SIZE AND NATURE MAY BE REQUESTED BY THE OWNER FOR FURTHER QUALIFICATION MEASURES.
 3. THE LANDSCAPE CONTRACTOR SHALL HOLD A VALID CONTRACTOR'S LICENSE ISSUED BY THE APPROPRIATE LOCAL JURISDICTION.
- B. SCOPE OF WORK
1. WORK COVERED BY THESE SECTIONS INCLUDES THE FURNISHING AND PAYMENT OF ALL MATERIALS, LABOR, SERVICES, EQUIPMENT, LICENSES, TAXES AND ANY OTHER ITEMS THAT ARE NECESSARY FOR THE EXECUTION, INSTALLATION AND COMPLETION OF ALL WORK, SPECIFIED HEREIN AND / OR SHOWN ON THE LANDSCAPE PLANS, NOTES, AND DETAILS.
 2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION OVER SUCH WORK, INCLUDING ALL INSPECTIONS AND PERMITS REQUIRED BY FEDERAL, STATE AND LOCAL AUTHORITIES IN SUPPLY, TRANSPORTATION AND INSTALLATION OF MATERIALS.
 3. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITY LINES (WATER, SEWER, ELECTRICAL, TELEPHONE, GAS, CABLE, TELEVISION, ETC.) PRIOR TO THE START OF ANY WORK.

PRODUCTS

- A. ALL MANUFACTURED PRODUCTS SHALL BE NEW.
- B. CONTAINER AND BALLED-AND-BURLAPPED PLANTS:
1. FURNISH NURSERY-GROWN PLANTS COMPLYING WITH ANSI Z60.1-2014. PROVIDE WELL-SHAPED, FULLY BRANCHED, HEALTHY, VIGOROUS STOCK FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN SCALD, INJURIES, ABRASIONS, AND DISFIGUREMENT. ALL PLANTS WITHIN A SPECIES SHALL HAVE SIMILAR SIZE, AND SHALL BE OF A FORM TYPICAL FOR THE SPECIES. ALL TREES SHALL BE OBTAINED FROM SOURCES WITHIN 200 MILES OF THE PROJECT SITE, AND WITH SIMILAR CLIMATIC CONDITIONS.
 2. ROOT SYSTEMS SHALL BE HEALTHY, DENSELY BRANCHED ROOT SYSTEMS, NON-POT-BOUND, FREE FROM ENCIRCLING AND/OR GIRDLING ROOTS, AND FREE FROM ANY OTHER ROOT DEFECTS (SUCH AS J-SHAPED ROOTS).
 3. TREES MAY BE PLANTED FROM CONTAINERS OR BALLED-AND-BURLAPPED (B&B), UNLESS SPECIFIED ON THE PLANTING LEGEND. BARE-ROOT TREES ARE NOT ACCEPTABLE.
 4. ANY PLANT DEEMED UNACCEPTABLE BY THE LANDSCAPE ARCHITECT OR OWNER SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND SHALL BE REPLACED WITH AN ACCEPTABLE PLANT OF LIKE TYPE AND SIZE AT THE CONTRACTOR'S OWN EXPENSE. ANY PLANTS APPEARING TO BE UNHEALTHY, EVEN IF DETERMINED TO STILL BE ALIVE, SHALL NOT BE ACCEPTED. THE LANDSCAPE ARCHITECT AND OWNER SHALL BE THE JUDGES TO THE ACCEPTABILITY OF PLANT MATERIAL.
 5. ALL TREES SHALL BE STANDARD IN FORM, UNLESS OTHERWISE SPECIFIED. TREES WITH CENTRAL LEADERS WILL NOT BE ACCEPTED IF LEADER IS DAMAGED OR REMOVED. PRUNE ALL DAMAGED TWIGS AFTER PLANTING.
 6. CALIPER MEASUREMENTS FOR STANDARD (SINGLE TRUNK) TREES SHALL BE AS FOLLOWS: SIX INCHES ABOVE THE ROOT FLARE FOR TREES UP TO AND INCLUDING FOUR INCHES IN CALIPER, AND TWELVE INCHES ABOVE THE ROOT FLARE FOR TREES EXCEEDING FOUR INCHES IN CALIPER.
 7. MULTI-TRUNK TREES SHALL BE MEASURED BY THEIR OVERALL HEIGHT, MEASURED FROM THE TOP OF THE ROOT BALL, WHERE CALIPER MEASUREMENTS ARE USED, THE CALIPER SHALL BE CALCULATED AS ONE-HALF OF THE SUM OF THE CALIPER OF THE THREE LARGEST TRUNKS.
 8. ANY TREE OR SHRUB SHOWN TO HAVE EXCESS SOIL PLACED ON TOP OF THE ROOT BALL, SO THAT THE ROOT FLARE HAS BEEN COMPLETELY COVERED, SHALL BE REJECTED.
- C. SOD: PROVIDE WELL-ROOTED SOD OF THE VARIETY NOTED ON THE PLANS. SOD SHALL BE CUT FROM HEALTHY, MATURE TURF WITH SOIL THICKNESS OF 3/4" TO 1". EACH PALLET OF SOD SHALL BE ACCOMPANIED BY A CERTIFICATE FROM SUPPLIER STATING THE SOURCE OF THE SOD.
- D. TOPSOIL: SANDY TO CLAY LOAM TOPSOIL, FREE OF STONES LARGER THAN 1/2 INCH, FOREIGN MATTER, PLANTS, ROOTS, AND SEEDS.
- E. COMPOST: WELL-COMPOSTED, STABLE, AND WEED-FREE ORGANIC MATTER, pH RANGE OF 5.5 TO 8; MOISTURE CONTENT 35 TO 55 PERCENT BY WEIGHT; 100 PERCENT PASSING THROUGH 3/4-INCH SIEVE; SOIL-BLE SALT CONTENT OF 5 TO 10 DECIGRMS/M; NOT EXCEEDING 0.5 PERCENT NITRIT CONTAMINANTS AND FREE OF SUBSTANCES TOXIC TO PLANTINGS. NO MANURE OR ANIMAL-BASED PRODUCTS SHALL BE USED.
- F. FERTILIZER: GRANULAR FERTILIZER CONSISTING OF NITROGEN, PHOSPHORUS, POTASSIUM, AND OTHER NUTRIENTS IN PROPORTIONS, AMOUNTS, AND RELEASE RATES RECOMMENDED IN A SOIL REPORT FROM A QUALIFIED SOIL-TESTING AGENCY (SEE BELOW).
- G. MULCH: SIZE AND TYPE AS INDICATED ON PLANS, FREE FROM DELETERIOUS MATERIALS AND SUITABLE AS A TOP DRESSING OF TREES AND SHRUBS.
- H. TREE STAKING AND GUYING
1. STAKES: #10 LONG GREEN METAL T-POSTS.
 2. GUY AND TIE WIRE: ASTM A 641, CLASS 1, GALVANIZED-STEEL WIRE, 2-STRAND, TWISTED, 0.106 INCH DIAMETER.
 3. STRAP CHAFING GUARD: REINFORCED NYLON OR CANVAS AT LEAST 1-1/2 INCH WIDE, WITH GROMMETS TO PROTECT TREE TRUNKS FROM DAMAGE.
- I. STEEL EDGING: PROFESSIONAL STEEL EDGING, 14 GAUGE THICK X 4 INCHES WIDE, FACTORY PAINTED DARK GREEN. ACCEPTABLE MANUFACTURERS INCLUDE COL-MET OR APPROVED EQUAL.
- J. PRE-EMERGENT HERBICIDES: ANY GRANULAR, NON-STAINING PRE-EMERGENT HERBICIDE THAT IS LABELED FOR THE SPECIFIC ORNAMENTALS OR TURF ON WHICH IT WILL BE UTILIZED. PRE-EMERGENT HERBICIDES SHALL BE APPLIED PER THE MANUFACTURER'S LABEL RATES.

METHODS

- A. SOIL PREPARATION
1. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE GRADE OF ALL LANDSCAPE AREAS ARE WITHIN +/- 1" OF FINISH GRADE. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY SHOULD ANY DISCREPANCIES EXIST.
 2. SOIL TESTING:
 - a. AFTER FINISH GRADES HAVE BEEN ESTABLISHED, CONTRACTOR SHALL HAVE SOIL SAMPLES FROM THE PROJECTS LANDSCAPE AREAS TESTED BY AN ESTABLISHED SOIL TESTING LABORATORY. EACH SAMPLE SUBMITTED TO THE LAB SHALL CONTAIN NO LESS THAN ONE QUART OF SOIL, TAKEN FROM BETWEEN THE SOIL SURFACE AND 6" DEPTH. IF NO SAMPLE LOCATIONS ARE INDICATED ON THE PLANS, THE CONTRACTOR SHALL TAKE A MINIMUM OF THREE SAMPLES FROM REPRESENTATIVE LOCATIONS FOR TESTING.
 - b. THE CONTRACTOR SHALL HAVE THE SOIL TESTING LABORATORY PROVIDE RESULTS FOR THE FOLLOWING: SOIL TEXTURAL CLASS, GENERAL SOIL FERTILITY, pH, ORGANIC MATTER CONTENT, SALT (EC), LIMES, SODIUM ADSORPTION RATIO (SAR), AND BORON CONTENT.
 - c. THE CONTRACTOR SHALL ALSO SUBMIT THE PROJECT'S PLANT LIST TO THE LABORATORY ALONG WITH THE SOIL SAMPLES.
 - d. THE SOIL REPORT PRODUCED BY THE LABORATORY SHALL CONTAIN RECOMMENDATIONS FOR THE FOLLOWING (AS APPROPRIATE): SEPARATE SOIL PREPARATION AND BACKFILL MIX RECOMMENDATIONS FOR GENERAL ORNAMENTAL PLANTS, XERIC PLANTS, TURF, AND NATIVE SEED, AS WELL AS PRE-PLANT FERTILIZER APPLICATIONS AND RECOMMENDATIONS FOR ANY OTHER SOIL RELATED ISSUES. THE REPORT SHALL ALSO PROVIDE A FERTILIZER PROGRAM FOR THE ESTABLISHMENT PERIOD AND FOR LONG-TERM MAINTENANCE.
 3. THE CONTRACTOR SHALL INSTALL SOIL AMENDMENTS AND FERTILIZERS PER THE SOILS REPORT RECOMMENDATIONS. ANY CHANGE IN COST DUE TO THE SOIL REPORT RECOMMENDATIONS, EITHER INCREASE OR DECREASE, SHALL BE SUBMITTED TO THE OWNER WITH THE REPORT.
 4. FOR BIDDING PURPOSES ONLY, THE SOIL PREPARATION SHALL CONSIST OF THE FOLLOWING:
 - a. TURF: INCORPORATE THE FOLLOWING AMENDMENTS INTO THE TOP 8" OF SOIL BY MEANS OF ROTOTILLING AFTER CROSS-RIPPING:
 - i. NITROGEN STABILIZED ORGANIC AMENDMENT - 4 CU. YDS. PER 1,000 S.F.
 - ii. PREPLANT TURF FERTILIZER (10-20-10 OR SIMILAR, SLOW RELEASE, ORGANIC) - 15 LBS PER 1,000 S.F.
 - iii. "CLAY BUSTER" OR 1/2" LANDSCAPERS COMPOST - USE MANUFACTURER'S RECOMMENDED RATE FOR TREES, SHRUBS, AND PERENNIALS. INCORPORATE THE FOLLOWING AMENDMENTS INTO THE TOP 8" OF SOIL BY MEANS OF ROTOTILLING AFTER CROSS-RIPPING:
 - i. NITROGEN STABILIZED ORGANIC AMENDMENT - 4 CU. YDS. PER 1,000 S.F.
 - ii. 12-12-12 FERTILIZER (OR SIMILAR, ORGANIC, SLOW RELEASE) - 10 LBS. PER CU. YD.
 - iii. "CLAY BUSTER" OR 1/2" LANDSCAPERS COMPOST - USE MANUFACTURER'S RECOMMENDED RATE
 - iv. IRON SULPHATE - 2 LBS. PER CU. YD.
 5. IN THE CONTEXT OF THESE PLANS, NOTES, AND SPECIFICATIONS, "FINISH GRADE" REFERS TO THE FINAL ELEVATION OF THE SOIL SURFACE (NOT TOP OF MULCH) AS INDICATED ON THE GRADING PLANS.
 - a. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE ROUGH GRADES OF ALL LANDSCAPE AREAS ARE WITHIN +/- 0.1' OF FINISH GRADE. SEE SPECIFICATIONS FOR MORE DETAILED INSTRUCTION ON TURF AREA AND PLANTING BED PREPARATION.
 - b. CONSTRUCT AND MAINTAIN FINISH GRADES AS SHOWN ON GRADING PLANS, AND CONSTRUCT AND MAINTAIN SLOPES AS RECOMMENDED BY THE GEOTECHNICAL REPORT. ALL LANDSCAPE AREAS SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURES AT THE MINIMUM SLOPE SPECIFIED IN THE REPORT AND ON THE GRADING PLANS, AND AREAS OF POTENTIAL PONDING SHALL BE REGRADED TO BLEND IN WITH THE SURROUNDING GRADES AND ELIMINATE PONDING POTENTIAL.
 - c. THE LANDSCAPE CONTRACTOR SHALL DETERMINE WHETHER OR NOT THE EXPORT OF ANY SOIL WILL BE NEEDED, TAKING INTO ACCOUNT THE ROUGH GRADE PROVIDED, THE AMOUNT OF SOIL AMENDMENTS TO BE ADDED BASED ON A SOIL TEST, PER SPECIFICATIONS, AND THE FINISH GRADES TO BE ESTABLISHED.
 - d. ENSURE THAT THE FINISH GRADE IN SHRUB AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 3" BELOW THE ADJACENT FINISH GRADE, IN ORDER TO ALLOW FOR PROPER MULCH DEPTH. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 10" AWAY FROM THE WALKS.
 - e. ENSURE THAT THE FINISH GRADE IN TURF AREAS IMMEDIATELY ADJACENT TO WALKS AND OTHER WALKING SURFACES, AFTER INSTALLING SOIL AMENDMENTS, IS 1" BELOW THE FINISH GRADE OF THE WALKS. TAPER THE SOIL SURFACE TO MEET FINISH GRADE, AS SPECIFIED ON THE GRADING PLANS, AT APPROXIMATELY 18" AWAY FROM THE WALKS.
 - f. SHOULD ANY CONFLICTS AND/OR DISCREPANCIES ARISE BETWEEN THE GRADING PLANS, GEOTECHNICAL REPORT, THESE NOTES AND PLANS, AND ACTUAL CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY BRING SUCH ITEMS TO THE ATTENTION OF THE LANDSCAPE ARCHITECT, GENERAL CONTRACTOR, AND OWNER.
 6. ONCE SOIL PREPARATION IS COMPLETE, THE LANDSCAPE CONTRACTOR SHALL ENSURE THAT THERE ARE NO DEBRIS, TRASH, OR STONES LARGER THAN 1" REMAINING IN THE TOP 6" OF SOIL.

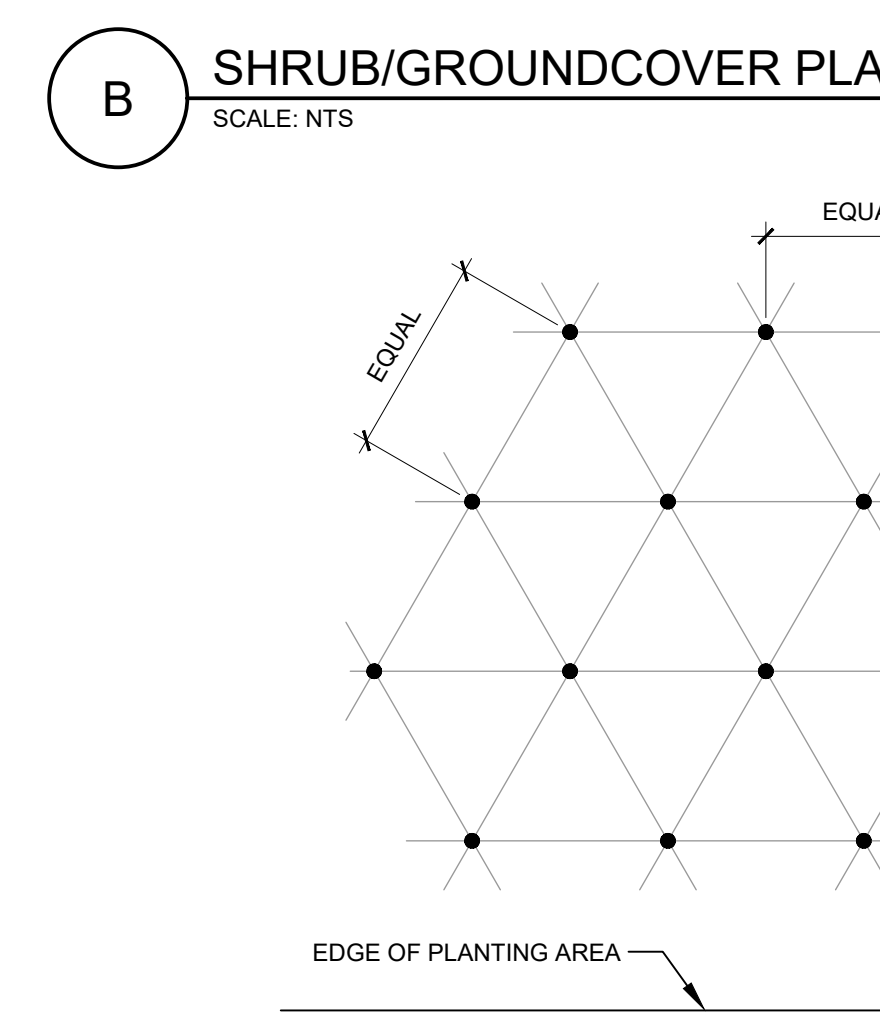
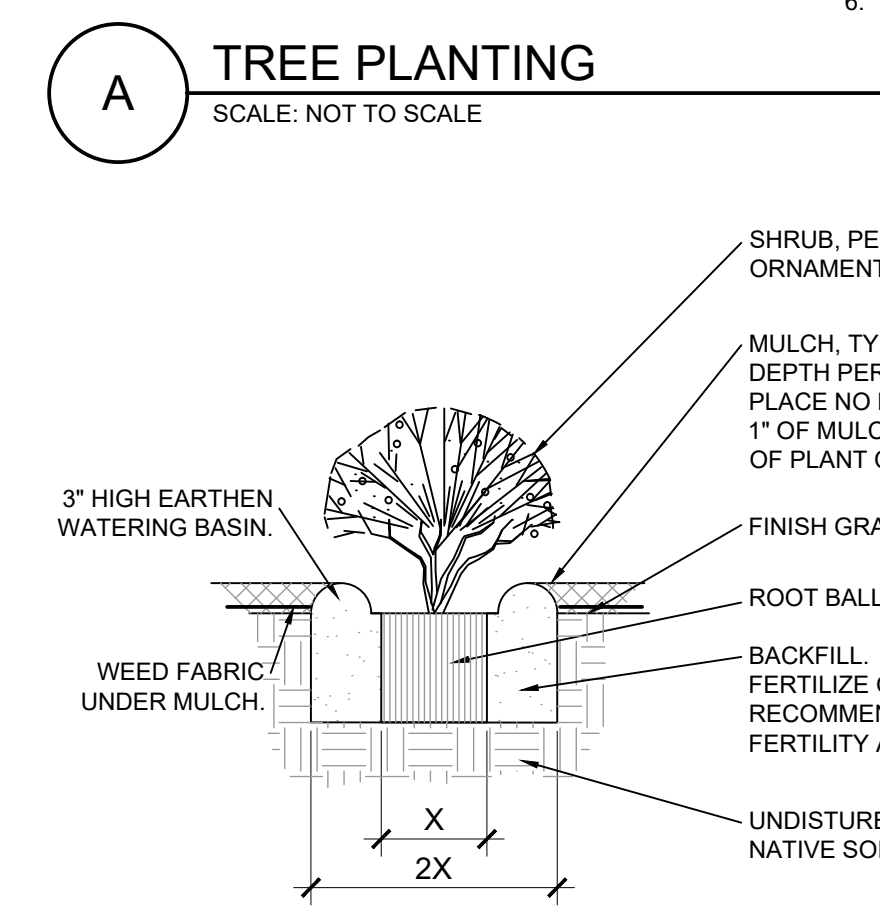
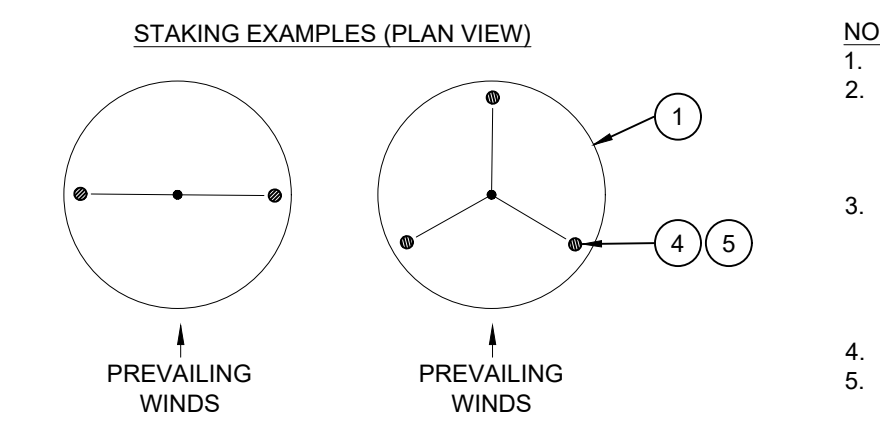
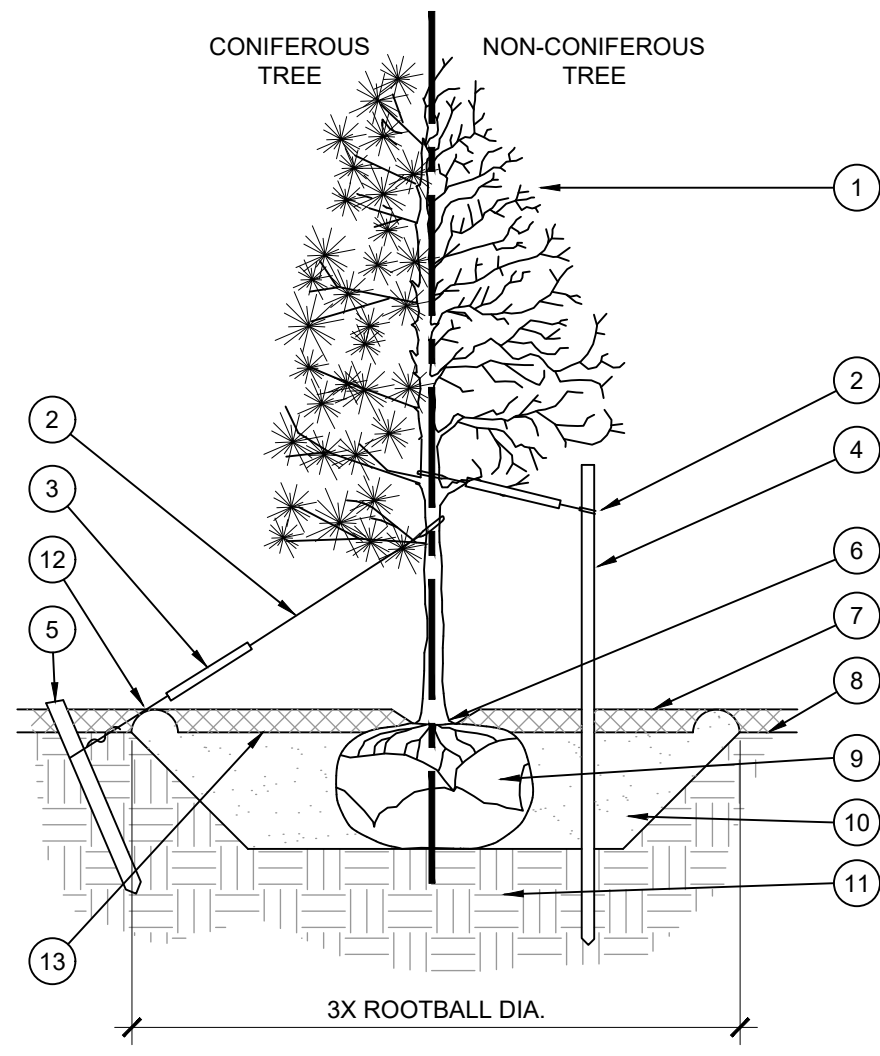
- B. SUBMITTALS
1. THE CONTRACTOR SHALL PROVIDE SUBMITTALS AND SAMPLES, IF REQUIRED, TO THE LANDSCAPE ARCHITECT, AND RECEIVE APPROVAL IN WRITING FOR SUCH SUBMITTALS BEFORE WORK COMMENCES.

2. SUBMITTALS SHALL INCLUDE PHOTOS OF PLANTS WITH A RULER OR MEASURING STICK FOR SCALE, PHOTOS OR SAMPLES OF ANY REQUIRED MULCHES, AND SOIL TEST RESULTS AND PREPARATION RECOMMENDATIONS FROM THE TESTING LAB (INCLUDING COMPOST AND FERTILIZER RATES AND TYPES, AND OTHER AMENDMENTS FOR TREES/SHRUB, TURF, AND SEED AREAS AS MAY BE APPROPRIATE).
 3. SUBMITTALS SHALL ALSO INCLUDE MANUFACTURER CUT SHEETS FOR PLANTING ACCESSORIES SUCH AS TREE STAKES AND TIES, EDGING, AND LANDSCAPE FABRICS (IF ANY).
 4. WHERE MULTIPLE ITEMS ARE SHOWN ON A PAGE, THE CONTRACTOR SHALL CLEARLY INDICATE THE ITEM BEING CONSIDERED.
- C. GENERAL PLANTING
1. REMOVE ALL NURSERY TAGS AND STAKES FROM PLANTS.
 2. EXCEPT IN AREAS TO BE PLANTED WITH ORNAMENTAL GRASSES, APPLY PRE-EMERGENT HERBICIDES AT THE MANUFACTURER'S RECOMMENDED RATE.
 3. TRENCHING NEAR EXISTING TREES:
 - a. CONTRACTOR SHALL NOT DISTURB ROOTS 1-1/2' AND LARGER IN DIAMETER WITHIN THE CRITICAL ROOT ZONE (CRZ) OF EXISTING TREES, AND SHALL EXERCISE ALL POSSIBLE CARE AND PRECAUTIONS TO AVOID INJURY TO TREE ROOTS, TRUNKS, AND BRANCHES. THE CRZ IS DEFINED AS A CIRCULAR AREA EXTENDING OUTWARD FROM THE TREE TRUNK, WITH A RADIUS EQUAL TO 1" FOR EVERY 1" OF TRUNK DIAMETER AT BREAST HEIGHT (4' & ABOVE, THE AVERAGE GRADE AT THE TRUNK).
 - b. ALL EXCAVATION WITHIN THE CRZ SHALL BE PERFORMED USING HAND TOOLS. NO MACHINE EXCAVATION OR TRENCHING OF ANY KIND SHALL BE ALLOWED WITHIN THE CRZ.
 - c. ALTER ALIGNMENT OF PIPE TO AVOID TREE ROOTS 1-1/2' AND LARGER IN DIAMETER, WHERE TREE ROOTS 1-1/2' AND LARGER IN DIAMETER ARE ENCOUNTERED IN THE FIELD, TUNNEL UNDER SUCH ROOTS. WRAP EXPOSED ROOTS WITH SEVERAL LAYERS OF BURLAP AND KEEP MOIST. CLOSE ALL TRENCHES WITHIN THE CANOPY DRIP LINES WITHIN 24 HOURS.
 - d. ALL SEVERED ROOTS SHALL BE HAND PRUNED WITH SHARP TOOLS AND ALLOWED TO AIR-DRY. DO NOT USE ANY SORT OF SEALERS OR WOUND PAINTS UNLESS IF LOCAL JURISDICTION REQUIRES OR OAK TREES LOCATED IN OAK WILT SUSCEPTIBLE AREAS.

4. TREE PLANTING
 1. TREE PLANTING HOLES SHALL BE EXCAVATED TO MINIMUM WIDTH OF TWO TIMES THE WIDTH OF THE ROOTBALL, AND TO A DEPTH EQUAL TO THE DEPTH OF THE ROOTBALL LESS TWO TO FOUR INCHES. SCARIFY THE SIDES AND BOTTOM OF THE PLANTING HOLE PRIOR TO THE PLACEMENT OF THE TREE.
 2. REMOVE ANY GLAZING THAT MAY HAVE BEEN CAUSED DURING THE EXCAVATION OF THE HOLE.
 3. FOR CONTAINER AND BOX TREES, TO REMOVE ANY POTENTIALLY GIRDLING ROOTS AND OTHER ROOT DEFECTS, THE CONTRACTOR SHALL SHAVE A 1" LAYER OFF OF THE SIDES AND BOTTOM OF THE ROOTBALL OF ALL TREES JUST BEFORE PLACING INTO THE PLANTING PIT. DO NOT "TEASE" ROOTS OUT FROM THE ROOTBALL.
 4. INSTALL THE TREE ON UNDISTURBED SUBGRADE SO THAT THE TOP OF THE ROOTBALL IS TWO TO FOUR INCHES ABOVE THE FINISHING GRADE.
 5. BACKFILL THE TREE HOLE UTILIZING THE EXISTING TOPSOIL FROM ON-SITE. ROCKS LARGER THAN 1" DIA. AND ALL OTHER DEBRIS SHALL BE REMOVED FROM THE SOIL PRIOR TO THE BACKFILL. SHOULD ADDITIONAL SOIL BE REQUIRED TO ACCOMPLISH THE PLANTING, IMPORT ADDITIONAL TOPSOIL FROM OFF-SITE AT NO ADDITIONAL COST TO THE OWNER. IMPORTED TOPSOIL SHALL BE OF SIMILAR TEXTURAL CLASS AND COMPOSITION IN THE ON-SITE SOIL.
 6. TREES SHALL NOT BE STAKED UNDER LOCAL CONDITIONS (SUCH AS HEAVY WINDS OR SLOPES) REQUIRE STAKES TO KEEP TREES UPRIGHT. SHOULD STAKING BE REQUIRED, THE TOTAL NUMBER OF TREE STAKES (BEYOND THE MINIMUMS LISTED BELOW) WILL BE LEFT TO THE LANDSCAPE CONTRACTOR'S DISCRETION. SHOULD ANY TREES FALL OR LEAK THE LANDSCAPE CONTRACTOR SHALL STRAIGHTEN THE TREE, OR REPLACE IT SHOULD IT BECOME DAMAGED. TREE STAKING SHALL ADHERE TO THE FOLLOWING GUIDELINES:
 - a. 1-1/2" TREES TWO STAKES PER TREE
 - b. 2-1/2"-4" TREES THREE STAKES PER TREE
 - c. TREES OVER 4" CALIPER GUY AS NEEDED
 - d. MULTI-TRUNK TREES THREE STAKES PER TREE MINIMUM. QUANTITY AND POSITIONS AS NEEDED TO STABILIZE THE TREE
 - e. #16 CONT. - 24" BOX TREES TWO STAKES PER TREE
 - f. 36"-48" BOX TREES THREE STAKES PER TREE
 - g. OVER 48" BOX TREES GUY AS NEEDED
 - h. MULTI-TRUNK TREES THREE STAKES PER TREE MINIMUM. QUANTITY AND POSITIONS AS NEEDED TO STABILIZE THE TREE
 7. UPON COMPLETION OF PLANTING, CONSTRUCT AN EARTH WATERING BASIN AROUND THE TREE, COVER THE INTERIOR OF THE TREE RING WITH THE WEED BARRIER CLOTH AND TOPDRESS WITH MULCH (TYPE AND DEPTH PER PLANS).
5. SHRUB, PERENNIAL, AND GROUNDCOVER PLANTING
 1. DIG THE PLANTING HOLES TWICE AS WIDE AND 2" LESS DEEP THAN EACH PLANT'S ROOTBALL. INSTALL THE PLANT IN THE HOLE. BACKFILL AROUND THE PLANT WITH SOIL AMENDED PER SOIL TEST RECOMMENDATIONS.
 2. INSTALL THE WEED BARRIER CLOTH, OVERLAPPING IT AT THE ENDS. UTILIZE STEEL STAPLES TO KEEP THE WEED BARRIER CLOTH IN PLACE.
 3. WHEN PLANTING IS COMPLETE, INSTALL MULCH (TYPE AND DEPTH PER PLANS) OVER ALL PLANTING BEDS, COVERING THE ENTIRE PLANTING AREA.

- E. SODDING
1. SOD VARIETY TO BE AS SPECIFIED ON THE LANDSCAPE PLAN.
 2. LAY SOD WITHIN 24 HOURS FROM THE TIME OF STRIPPING. DO NOT LAY IF THE GROUND IS FROZEN.
 3. LAY THE SOD TO FORM A SOLID MAT WITH TIGHTLY FITTED JOINTS. JOINTS OF SOD STRIPS - DO NOT OVERLAP. STAGGER STRIPS TO OFFSET JOINTS IN ADJACENT COURSES.
 4. ROLL THE SOD TO ENSURE GOOD CONTACT OF THE SOD'S ROOT SYSTEM WITH THE SOIL UNDERNEATH.
 5. WATER THE SOD THOROUGHLY WITH A FINE SPRAY IMMEDIATELY AFTER PLANTING TO OBTAIN AT LEAST SIX INCHES OF PENETRATION INTO THE SOIL BELOW THE SOD.
- F. MULCH
1. INSTALL MULCH TOPDRESSING, TYPE AND DEPTH PER MULCH NOTE, IN ALL PLANTING AREAS AND TREE RINGS.
 2. DO NOT INSTALL MULCH WITHIN 6" OF TREE ROOT FLARE AND WITHIN 24" OF HABITABLE STRUCTURES, EXCEPT AS MAY BE NOTED ON THESE PLANS. MULCH COVER WITHIN 6" OF CONCRETE WALKS AND CURBS SHALL NOT PENETRATE ABOVE THE FINISH SURFACE OF THE WALKS AND CURBS. MULCH COVER WITHIN 12" OF WALLS SHALL BE AT LEAST 3" LOWER THAN THE TOP OF WALL.
- G. CLEAN UP
1. DURING LANDSCAPE PREPARATION AND PLANTING, KEEP ALL PAVEMENT CLEAN AND ALL WORK AREAS IN A NEAT, ORDERLY CONDITION.
 2. LEGALLY DISPOSE ALL EXCAVATED MATERIALS OFF THE PROJECT SITE.
- H. INSPECTION AND ACCEPTANCE
1. UPON COMPLETION OF THE WORK, THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE SITE CLEAN, FREE OF DEBRIS AND TRASH, AND SUITABLE FOR USE AS INTENDED. THE LANDSCAPE CONTRACTOR SHALL THEN REQUEST AN INSPECTION BY THE OWNER TO DETERMINE FINAL ACCEPTABILITY.
 2. WHEN THE INSPECTED PLANTING WORK DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS, THE LANDSCAPE CONTRACTOR SHALL REPLACE AND/OR REPAIR THE REJECTED WORK TO THE OWNER'S SATISFACTION WITHIN 24 HOURS.
 3. THE LANDSCAPE MAINTENANCE PERIOD WILL NOT COMMENCE UNTIL THE LANDSCAPE WORK HAS BEEN RE-INSPECTED BY THE OWNER AND FOUND TO BE ACCEPTABLE. AT THAT TIME, A WRITTEN NOTICE OF FINAL ACCEPTANCE WILL BE ISSUED BY THE OWNER, AND THE MAINTENANCE AND GUARANTEE PERIODS WILL COMMENCE.

- I. LANDSCAPE MAINTENANCE
1. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL WORK SHOWN ON THESE PLANS FOR 90 DAYS BEYOND FINAL ACCEPTANCE OF ALL LANDSCAPE WORK BY THE OWNER. LANDSCAPE MAINTENANCE SHALL INCLUDE WEEKLY SITE VISITS FOR THE FOLLOWING ACTIONS (AS APPROPRIATE): PROPER PRUNING, RESTAKING OF TREES, RESETTling OF PLANTS THAT HAVE SETTLED, MOVING AND AERATION OF LAWNS, WEEDING, RESEEDING AREAS WHICH HAVE NOT GERMINATED WELL, TREATING FOR INSECTS AND DISEASES, REPLACEMENT OF MULCH, REMOVAL OF LITTER, REPAIRS TO THE IRRIGATION SYSTEM DUE TO FAULTY PARTS AND/OR WORKMANSHIP, AND THE APPROPRIATE WATERING OF ALL PLANTINGS. THE LANDSCAPE CONTRACTOR SHALL MAINTAIN THE IRRIGATION SYSTEM IN PROPER WORKING ORDER, WITH SCHEDULING ADJUSTMENTS BY SEASON TO MAXIMIZE WATER CONSERVATION.
 2. SHOULD SEEDING AND/OR SODDED AREAS NOT BE COVERED BY AN AUTOMATIC IRRIGATION SYSTEM, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING THESE AREAS AND OBTAINING A FULL, HEALTHY STAND OF PLANTS AT NO ADDITIONAL COST TO THE OWNER.
 3. TO ACHIEVE FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD, ALL OF THE FOLLOWING CONDITIONS MUST OCCUR:
 - a. THE LANDSCAPE SHALL SHOW ACTIVE, HEALTHY GROWTH (WITH EXCEPTIONS MADE FOR SEASONAL DORMANCY), ALL PLANTS NOT MEETING THIS CONDITION SHALL BE REJECTED AND REPLACED BY HEALTHY PLANT MATERIAL PRIOR TO FINAL ACCEPTANCE.
 - b. ALL HARDSCAPE SHALL BE CLEANED PRIOR TO FINAL ACCEPTANCE.
 - c. SODDED AREAS MUST BE ACTIVELY GROWING AND MUST REACH A MINIMUM HEIGHT OF 1 1/2 INCHES BEFORE FIRST MOWING. HYDROMULCHED AREAS SHALL SHOW ACTIVE, HEALTHY GROWTH. BARE AREAS LARGER THAN TWELVE SQUARE INCHES MUST BE RESEDED OR RESEED (AS APPROPRIATE) PRIOR TO FINAL ACCEPTANCE. ALL SODDED TURF SHALL BE NEATLY MOWED.
- J. WARRANTY PERIOD, PLANT GUARANTEE AND REPLACEMENTS
1. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL TREES, SHRUBS, PERENNIALS, SOD, SEEDING, HYDROMULCHED AREAS, AND IRRIGATION SYSTEMS FOR A PERIOD OF ONE YEAR FROM THE DATE OF THE OWNER'S FINAL ACCEPTANCE (90 DAYS FOR ANNUAL PLANTS). THE CONTRACTOR SHALL REPLACE, AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE OWNER, ANY PLANTS WHICH DIE IN THAT TIME, OR REPAIR ANY PORTIONS OF THE IRRIGATION SYSTEM WHICH OPERATE IMPROPERLY.
 2. AFTER THE INITIAL MAINTENANCE PERIOD AND DURING THE GUARANTEE PERIOD, THE LANDSCAPE CONTRACTOR SHALL ONLY BE RESPONSIBLE FOR REPLACEMENT OF PLANTS WHEN PLANT DEATH CANNOT BE ATTRIBUTED DIRECTLY TO OVERWATERING OR OTHER DAMAGE BY HUMAN ACTIONS.
- K. PROVIDE A MINIMUM OF (2) COPIES OF RECORD DRAWINGS TO THE OWNER UPON COMPLETION OF WORK. A RECORD DRAWING IS A RECORD OF ALL CHANGES THAT OCCURRED IN THE FIELD AND THAT ARE DOCUMENTED THROUGH CHANGE ORDERS, ADDENDA, OR CONTRACTOR/CONSULTANT DRAWING MARKUPS.



NOTE: ALL PLANTS SHALL BE PLANTED AT EQUAL TRIANGULAR SPACING (EXCEPT WHERE SHOWN ON PLANS AS INFORMAL GROUPINGS). REFER TO PLANT LEGEND FOR SPACING DISTANCE BETWEEN PLANTS.

1) STEP 1: DETERMINE TOTAL PLANTS FOR THE AREA WITH THE FOLLOWING FORMULA:
TOTAL AREA / AREA DIVIDER = TOTAL PLANTS

PLANT SPACING	AREA DIVIDER	PLANT SPACING	AREA DIVIDER
6"	0.22	18"	1.06
8"	0.39	24"	3.46
10"	0.60	30"	5.41
12"	0.87	36"	7.79
15"	1.35		

2) STEP 2: SUBTRACT THE ROW (S) OF PLANTS THAT WOULD OCCUR AT THE EDGE OF THE PLANTED AREA WITH THE FOLLOWING FORMULA: TOTAL PERIMETER LENGTH / PLANT SPACING = TOTAL PLANT SUBTRACTION

EXAMPLE: PLANTS AT 18" O.C. IN 100 SF PLANTING AREA, 40 LF PERIMETER
STEP 1: 100 SF / 1.95 = 51 PLANTS
STEP 2: 51 PLANTS - (40 LF / 1.95 = 21 PLANTS) = 30 PLANTS TOTAL

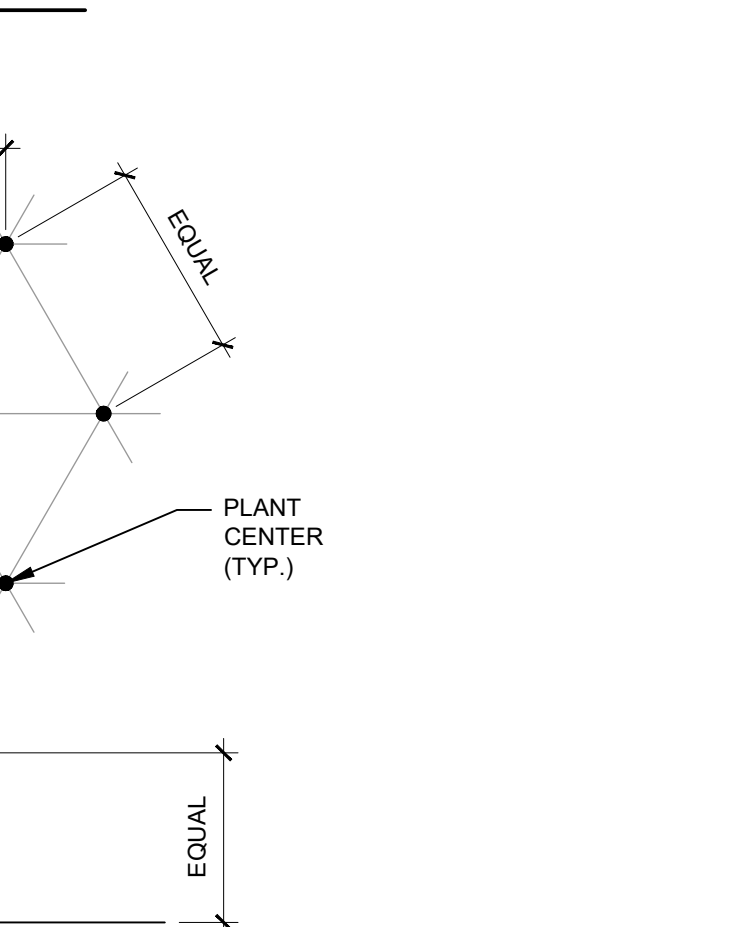


NOTES:
1) INSTALL ROOT BARRIERS NEAR ALL NEWLY-PLANTED TREES THAT ARE LOCATED WITHIN FIVE (5) FEET OF PAVING OR CURBS. BARRIERS SHALL BE LOCATED IMMEDIATELY ADJACENT TO HARDSCAPE. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE ROOT BARRIERS OF A TYPE THAT COMPLETELY ENCIRCLE THE ROOTBALL.

1. TREE CANOPY.
2. CINCH-TIES (24" BOX/2" CAL. TREES AND SMALLER) OR 12 GAUGE GALVANIZED WIRE WITH NYLON TREE STRAPS AT TREE AND STAKE (36" BOX/2.5" CAL. TREES AND LARGER). SECURE TIES OR STRAPS TO TRUNK JUST ABOVE LOWEST MAJOR BRANCHES.
3. 24" X 3/4" P.V.C. MARKERS OVER WIRES.
4. GREEN STEEL T-POSTS. EXTEND POSTS 12" MIN. INTO UNDISTURBED SOIL.
5. PRESSURE-TREATED WOOD DEADMAN, TWO PER TREE (MIN.). BURIED OUTSIDE OF PLANTING PIT AND 18" MIN. INTO UNDISTURBED SOIL.
6. TRUNK FLARE.
7. MULCH, TYPE AND DEPTH PER PLANS. DO NOT PLACE MULCH WITHIN 6" OF TRUNK.
8. FINISH GRADE.
9. ROOT BALL.
10. BACKFILL. AMEND AND FERTILIZE ONLY AS RECOMMENDED IN SOIL FERTILITY ANALYSIS.
11. UNDISTURBED NATIVE SOIL.
12. 4" HIGH EARTHEN WATERING BASIN.
13. FINISH GRADE.

- NOTES:
1. SCARIFY SIDES OF PLANTING PIT PRIOR TO SETTING TREE.
 2. REMOVE EXCESS SOIL APPLIED ON TOP OF THE ROOTBALL THAT COVERS THE ROOT FLARE. THE PLANTING HOLE DEPTH SHALL BE SUCH THAT THE ROOTBALL RESTS ON UNDISTURBED SOIL, AND THE ROOT FLARE IS 2"-4" ABOVE FINISH GRADE.
 3. FOR B&B TREES, CUT OFF BOTTOM 1/3 OF WIRE BASKET BEFORE PLACING TREE IN HOLE. CUT OFF AND REMOVE REMAINDER OF BASKET AFTER TREE IS SET IN HOLE. REMOVE ALL NYLON TIES, TWINE, ROPE, AND OTHER PACKING MATERIAL. REMOVE AS MUCH BURLAP FROM AROUND ROOTBALL AS IS PRACTICAL.
 4. REMOVE ALL NURSERY STAKES AFTER PLANTING.
 5. FOR TREES 8" BOX/2.5" CAL. AND LARGER, USE THREE STAKES OR DEADMEN (AS APPROPRIATE), SPACED EVENLY AROUND TREE. STAKING SHALL BE TIGHT ENOUGH TO PREVENT TRUNK FROM BENDING, BUT LOOSE ENOUGH TO ALLOW SOME TRUNK MOVEMENT IN WIND.

- 1) STEP 1: DETERMINE TOTAL PLANTS FOR THE AREA WITH THE FOLLOWING FORMULA:
TOTAL AREA / AREA DIVIDER = TOTAL PLANTS
- 2) STEP 2: SUBTRACT THE ROW (S) OF PLANTS THAT WOULD OCCUR AT THE EDGE OF THE PLANTED AREA WITH THE FOLLOWING FORMULA: TOTAL PERIMETER LENGTH / PLANT SPACING = TOTAL PLANT SUBTRACTION
- EXAMPLE: PLANTS AT 18" O.C. IN 100 SF PLANTING AREA, 40 LF PERIMETER
STEP 1: 100 SF / 1.95 = 51 PLANTS
STEP 2: 51 PLANTS - (40 LF / 1.95 = 21 PLANTS) = 30 PLANTS TOTAL



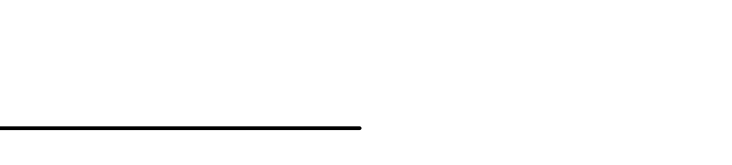
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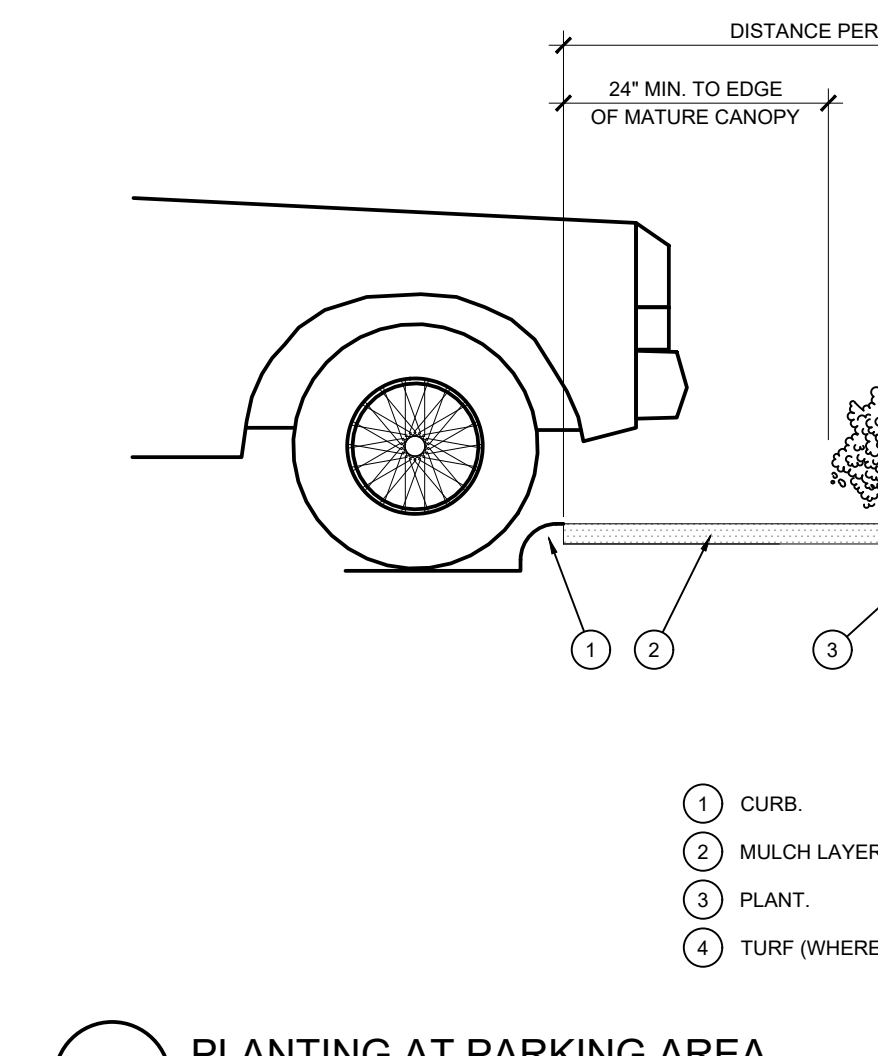
PLANT SPACING	AREA DIVIDER	PLANT SPACING	AREA DIVIDER
6"	0.22	18"	1.06
8"	0.39	24"	3.46
10"	0.60	30"	5.41
12"	0.87	36"	7.79
15"	1.35		

2) STEP 2: SUBTRACT THE ROW (S) OF PLANTS THAT WOULD OCCUR AT THE EDGE OF THE PLANTED AREA WITH THE FOLLOWING FORMULA: TOTAL PERIMETER LENGTH / PLANT SPACING = TOTAL PLANT SUBTRACTION

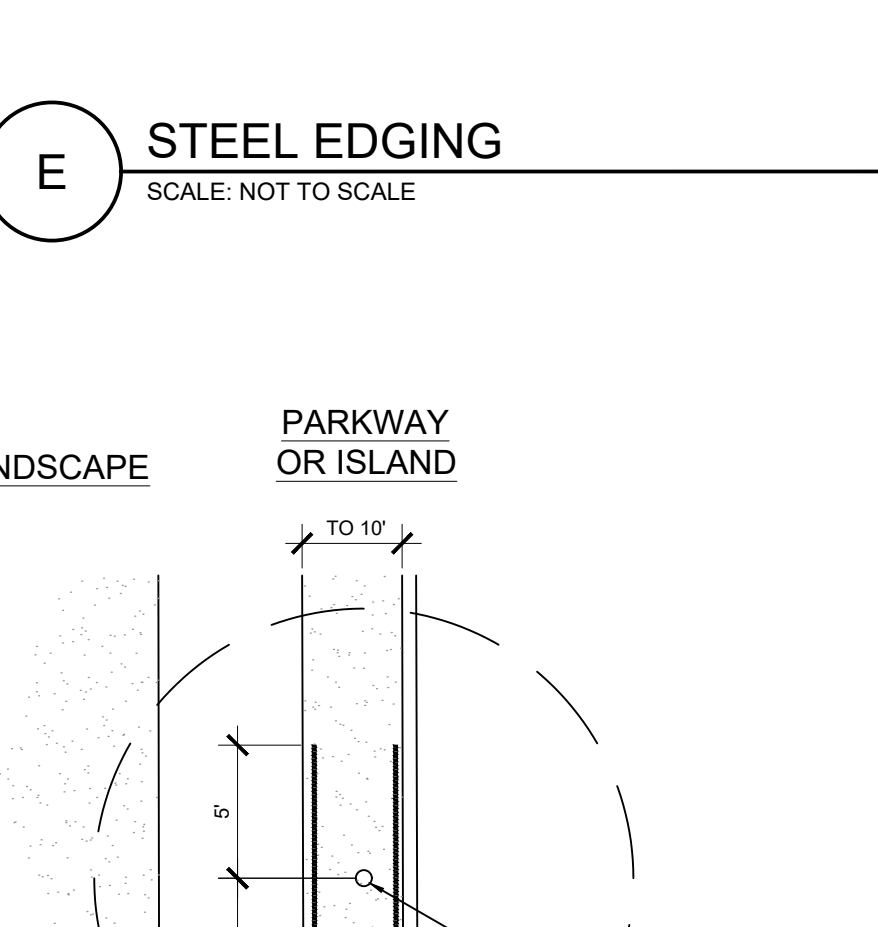
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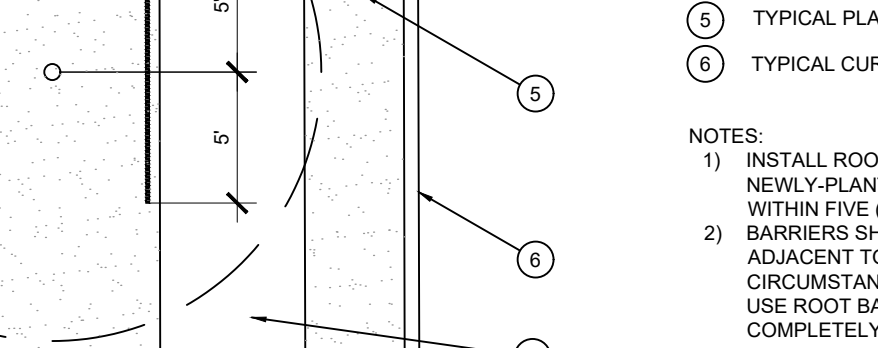
- NOTES:
1. INSTALL EDGING SO THAT STAKES WILL BE ON INSIDE OF PLANTING BED.
 2. BOTTOM OF EDGING SHALL BE BURIED A MINIMUM OF 1" BELOW FINISH GRADE.
 3. TOP OF MULCH SHALL BE 1" LOWER THAN TOP OF EDGING.



NOTES:
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05/29/2026

REVISIONS

REV.	DATE	DESCRIPTION

CONSULTANTS

National Presence. Local Expertise.

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www.evergreendesigngroup.com

LANDSCAPE ARCHITECTURE
LAND PLANNING REGULATION DESIGN

PROJECT INFORMATION

LANDSCAPE DETAILS & SPECIFICATIONS

KROGER D444
10059 HIGHLAND ROAD
HARTLAND, MI 48843
LIVINGSTON COUNTY

SHEET MANAGEMENT

PROJECT NUMBER: D444

ISSUED DATE: 05.07.2026

DRAWN BY: JP

CHECKED BY: SMS

PROJ. MGR: SMS

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SHEET NUMBER

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