

# A G E N D A

## REGULAR MEETING OF THE MIDLAND CITY PLANNING COMMISSION, TO TAKE PLACE ON TUESDAY, FEBRUARY 23, 2016, 7:00 P.M., COUNCIL CHAMBERS, CITY HALL, MIDLAND, MICHIGAN

1. Call to Order
2. Pledge of Allegiance to the Flag
3. Roll Call
4. [Approval of the Minutes](#)

Regular Meeting – February 9, 2016

5. Public Hearings
  - a. **Site Plan No. 343** – initiated by LSG Engineers & Surveyors on behalf of The Kroger Co. of Michigan for site plan review and approval for a 124,942 square foot Kroger Marketplace and fuel station, located at 315 Joe Mann Boulevard.
  - b. **Site Plan No. 345** – initiated by D & M Site, Inc. for revised site plan for a 6,672 square foot Lucky's Steakhouse Restaurant, located at 830 Joe Mann Boulevard.

### Public Hearing Process

1. Staff presentation and overview of petition
  2. Petitioner presentation
  3. Public comments in support of the petition
  4. Public comments in opposition to the petition
  5. Opportunity for petitioner rebuttal and final comments
  6. Closing of public hearing
  7. Deliberation and possible decision by Planning Commission
6. Old Business
  7. Public Comments (unrelated to items on the agenda)
  8. New Business
  9. Communications
  10. Report of the Chairperson
  11. Report of the Planning Director
  12. Items for Next Agenda – March 22, 2016
  13. Adjournment

**MINUTES OF THE MEETING OF THE  
MIDLAND CITY PLANNING COMMISSION  
WHICH TOOK PLACE ON  
TUESDAY, FEBRUARY 9, 2016, 7:00 P.M.,  
COUNCIL CHAMBERS, CITY HALL, MIDLAND, MICHIGAN**

1. The meeting was called to order at 7:00 p.m. by Chairman McLaughlin
2. The Pledge of Allegiance was recited in unison by the members of the Commission and the other individuals present.

3. **Roll Call**

**PRESENT:** Bain, Hanna, Mayville, McLaughlin, Pnacek, Senesac, and Tanzini

**ABSENT:** Heying and Stewart

**OTHERS PRESENT:** Brad Kaye, Assistant City Manager for Development Services; Grant Murschel, Community Development Planner; and three (3) others.

4. **Approval of Minutes**

Moved by Pnacek and seconded by Hanna to approve the minutes of the regular meeting of January 26, 2016 as written. Motion passed unanimously.

5. **Public Hearing**

**Site Plan No. 344** – initiated by Fisher Contracting Co. for site plan review and approval for a 16,400 square foot storage and shop addition, located at 3401 Contractor Drive.

Murschel gave the staff presentation on the proposal. He indicated that the site plan meets all district requirements. Landscaping has been satisfied by the previous development of the site. Excess stormwater detention volume exists in the current pond in an amount that will adequately serve the proposed building. A stormwater permit amendment will need to be approved by the City Engineering Department. The fire hydrant request noted in the staff report has been addressed by the applicant through the submission of revised plans. The required easement documents are needed at time of construction around the hydrant and water main.

Erik Forshee, of Fisher Contracting Company, presented as the applicant. He indicated that the development would likely take place in two phases. The cold storage area would likely proceed in advance of the staff area.

The public hearing was opened. No comments in support or opposition to the proposal were received. The public hearing was closed.

A motion was made by Senesac to waive the procedural requirements to delay a decision on the proposal until the next meeting. The motion was seconded by Hanna. The motion was approved unanimously.

Senesac commented that he thought the site plan was well designed and prepared to meet the requirements for approval. He indicated his support of the plan. Pnacek agreed.

It was moved by Hanna and supported by Pnacek to recommend approval of Site Plan No. 344 initiated by Fisher Contracting Co. for site plan review and approval to City Council contingent on:

1. A final stormwater management permit amendment must be approved by the City Engineering Department.
2. A final soil and sedimentation control plan must be approved by the City Building Department.

3. Required water utility easement documents shall be submitted for review and approval by the City Engineering Department and the City Attorney.

YEAS: Bain, Hanna, Mayville, McLaughlin, Pnacek, Senesac, and Tanzini  
NAYS: None  
ABSENT: Heying and Stewart

**6. Old Business**

- a. North Saginaw Road – Future Land Use Plan Designation Update

Kaye presented the staff memorandum to the Commission regarding the informal public hearing that took place on the future land use plan in the North Saginaw Road area. The report was mailed to all persons that presented at the previous meeting. No response or further comments were received in response to that mailing. No action was necessary to receive the memorandum.

**7. Public Comments (unrelated to items on the agenda)**

None

**8. New Business**

None

**9. Communications**

None

**10. Report of the Chairperson**

None

**11. Report of the Planning Director**

None

**12. Items for Next Agenda – February 23, 2016**

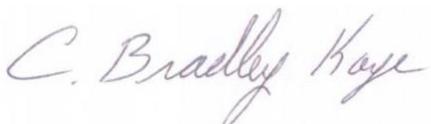
- a. Site Plan No. 343 – initiated by LSL Engineers & Surveyors on behalf of The Kroger Co. of Michigan for site plan review and approval for a 124,942 square foot Kroger Marketplace and fuel station, located at 315 Joe Mann Boulevard
- b. Site Plan No. 3454 – initiated by D & M Site, Inc. for a revised site plan for a 6,672 square foot Lucky's Steakhouse restaurant, located at 830 Joe Mann Boulevard.

Kaye commented that traffic and access management concerns are continued to be worked out with the Kroger team. A revised Lucky's Steakhouse site plan will be in front of the Commission with a revised access drive proposed directly onto Joe Mann Boulevard.

**13. Adjourn**

Motion by Mayville and seconded by Hanna to adjourn at 7:20 p.m. Motion passed unanimously.

Respectfully submitted,



C. Bradley Kaye, AICP, CFM  
Assistant City Manager for Development Services



Site Plan SP #343

Date: February 17, 2016

**STAFF REPORT TO THE PLANNING COMMISSION**

SUBJECT: Kroger Marketplace & Fuel Center

APPLICANT: LSG Engineers & Surveyors on behalf of The Kroger Co. of Michigan

LOCATION: 315 Joe Mann Boulevard

ZONING: (RC) Regional Commercial

ADJACENT ZONE: North, south & west: (RC) Regional Commercial  
 East: (COM) Community & (OS) Office Service

ADJACENT DEV: North: Auto dealership and bank  
 East: Soccer complex  
 South: U.S. 10 freeway  
 West: ATM site (partially vacant) and cinema complex

**REPORT**

The proposed site plan includes a 125,190 square foot Kroger Marketplace and fuel center on approximately 17.06 acres. The proposal includes 559 parking spaces between the marketplace grocery store and the fuel center. The site plan proposes shared access between the site and the existing Chemical Bank to the northeast of the new development. In addition to utilization of the existing Chemical Bank access to Jefferson Avenue, a second limited-access driveway is proposed on Jefferson Avenue to the south as well as a third full access driveway onto Joe Mann Boulevard. Stormwater detention facilities are proposed fully onsite. Substantial landscaping is proposed throughout the site including along the street frontages and west property line, and within the parking areas. One existing cell tower is proposed to remain on the site.

The subject property is zoned (RC) Regional Commercial by the City of Midland Zoning Ordinance. A grocery store is identified as a principal permitted use in the RC district. Site plan review and approval under Section 27.02(A) of the Zoning Ordinance is required for this proposed use. Section 27.06(A) of the Zoning Ordinance states that: "The following criteria shall be used as a basis upon which site plans will be reviewed and approved:"

## **BASIS FOR ACTION**

### **1. Adequacy of Information**

The site plan shall include all required information in sufficiently complete and understandable form to provide an accurate description of the proposed uses and structures.

The site plan contains most of the information required for site plan approval but is deficient in the following areas, all of which are proposed as contingencies and are usually addressed at time of construction:

- A final stormwater management plan and permit application must be approved by the City Engineering Department.
- A final soil erosion and sedimentation control permit must be approved by the City Building Department.
- Shared/cross access easement agreements must be submitted for review and approval to the City Planning Department and the City Attorney, and executed and recorded at the Midland County Register of Deeds upon approval.
- Public water utility easement documents shall be submitted for review and approval by the City Engineering Department and City Attorney, and executed and recorded at the Midland County Register of Deeds upon approval
- An agreement indicating the City is not responsible for maintenance or restoration of landscaping along Joe Mann Boulevard within the future right-of-way expansion area shall be approved by the City Engineering Department and City Attorney.
- Access modification to the south side of the Chemical Bank site must meet ordinance standards.

### **2. Site Design Characteristics**

All elements of the site design shall be harmoniously and efficiently organized in relation to topography, the size and type of parcel, the character of adjoining property, and the type and size of buildings. The site shall be developed so as not to impede the normal and orderly development or improvement of surrounding property for uses permitted by this Ordinance.

The proposed development includes a 125,190 square foot Kroger Marketplace oriented with the main entrances facing towards the east. The proposed fuel station is proposed on the southeast side of the site along the street frontage of Jefferson Avenue. Shared access is proposed with the existing Chemical Bank to the northeast of the subject development area. One of the two existing cell towers is proposed to remain on the site with a new access easement proposed through the interior parking lot driveways. The site plan design utilizes the existing topography with minor modifications.

### **3. Appearance**

Landscaping, earth berms, fencing, signs, walls and other similar site features shall be designed and located on the site so that the proposed development is aesthetically pleasing and harmonious with nearby existing or future developments.

The building orientation and internal layout of the parking areas are considered appropriate for the site. The proposed landscaping plan has addressed and in some areas exceeded ordinance standards.

Discussed further under Ingress/Egress, additional road right-of-way will be needed in order to accommodate lane improvements on Joe Mann Boulevard and a future traffic signal at the intersection of the proposed driveway at Joe Mann Boulevard and Alan Ott Drive. The site plan has been designed with this right-of-way expansion in mind for building and parking lot setback but a portion of the proposed street frontage landscaping is located within the future right of way. The applicant has been informed that the ideal situation would be to move the landscaping back from the potential right-of-way but it is understood that adequate space might not exist to accommodate all of the required plantings. As such, staff is recommending that if the landscaping cannot be relocated that an agreement be established that removes the City from being responsible for restoration of any landscaping as a result of street or utility construction work.

**4. Compliance with District Regulations**

The site plan shall comply with the district requirements for height of building, lot size, lot coverage, density, and all other requirements set forth in the Schedule of Regulations (Article 26.00) unless otherwise provided in this Ordinance.

The project meets all setbacks, lot area, height and other dimensional requirements for the proposed use.

**5. Preservation and Visibility of Natural Features**

Natural features shall be preserved as much as possible, by minimizing tree and soil removal alteration to the natural drainage course and the amount of cutting, filling, and grading.

Currently, this site consists of an agricultural field on the west and a collection of houses and apartments on the east, with a row of trees separating the two. All of the existing residences and the existing trees will be removed to accommodate the proposed development and the associated parking and stormwater detention facilities. The site design is minimizing the amount of grading and soil alternation needed in order to utilize the existing drainage patterns and courses that exist on the site. Preservation of the existing trees does not appear feasible.

**6. Privacy**

The site design shall provide reasonable visual and sound privacy. Fences, walls, barriers, and landscaping shall be used, as appropriate if permitted, for the protection and enhancement of property and the safety and privacy of occupants and uses.

There are no required standards for privacy screening for this type of development given its location within the business district, other than the dumpster screening which as proposed meets ordinance standards. The proposed development is considered appropriate for this vehicle-oriented commercial area of the city.

**7. Emergency Vehicle Access**

All buildings or groups of buildings shall be so arranged as to permit convenient and direct emergency vehicle access.

The Fire Department has reviewed the proposed site plan for adequate emergency vehicle access and is satisfied with the plan as proposed. Adequate access exists on all sides of the proposed building and fuel station, and within all proposed parking areas.

## 8. **Ingress and Egress**

Every structure or dwelling unit shall be provided with adequate means of ingress and egress via public or private streets and pedestrian walkways.

A traffic study was required as part of the site plan submission given the high traffic volumes anticipated with a development of this nature. The City's traffic consultant has been engaged during the site plan review period and has provided guidance to the applicant's team and city staff on the site plan and traffic study. City staff has worked with the applicant on addressing the concerns raised by the traffic consultant. While a final indication from the traffic consultant has not yet been received, it is anticipated that the traffic consultant will be in attendance at the February 23 Planning Commission meeting to indicate his final thoughts on the site plan and traffic study.

The site plan includes three access points, which will be discussed in further detail: a full access driveway onto Joe Mann Boulevard, directly aligned with the intersection of Alan Ott Drive; utilization of the existing Chemical Bank full access driveway onto Jefferson Avenue, with some modifications; and a second access driveway onto Jefferson Avenue, south of the shared access with Chemical Bank, with a limiting geometry.

### *Full Access Driveway – Joe Mann Boulevard*

This full access driveway is proposed onto Joe Mann Boulevard with direct alignment with Alan Ott Drive. The traffic study indicated that a full access driveway could be accommodated here. The study recommended that a future traffic signal could be installed here if traffic volumes warranted the intersection be controlled.

In order to accommodate a future signal, additional road right-of-way is needed. An agreement addressing the installation of any needed traffic light and providing for the conveyance of this additional right-of-way to the city is therefore required. Anticipating this future right-of-way expansion, the site plan has been designed with this in mind, including building and parking lot setback distances.

Beyond the actual signalized intersection, widening and increasing the number of travel lanes on Joe Mann Boulevard is expected to be necessary to accommodate this development. Road widening along the full length of Joe Mann Boulevard adjacent to the property, as well as the Chemical Bank site, is therefore necessary to respond to the traffic impacts anticipated from this proposal. As stated above, the site has been designed to accommodate this road widening and fully comply with setback requirements of the RC zoning district. The agreement referenced above will therefore need to include conveyance of additional right-of-way, beyond that needed to accommodate the signalized driveway, along Joe Mann Boulevard.

### *Shared Full Access Driveway with Chemical Bank – Jefferson Avenue (Northern Driveway)*

This full access driveway is proposed to utilize the existing curb cut onto Jefferson Avenue that was built when the Chemical Bank site was developed. During the site plan approval process for Chemical Bank in 2007, the shared driveway was required to be located on the common property line between Chemical Bank and the vacant property to the south in order to accommodate future development. Kroger is proposing to utilize this shared access driveway.

The traffic study submitted supported the utilization of this existing driveway. To address the concerns of the City's traffic consultant, this driveway is proposed to be modified to accommodate additional left-hand outbound stacking. Given the nature of stacking that exists within the north-bound left-turn lane on Jefferson Avenue, the City's traffic consultant has indicated that left turns leaving the site will be naturally limited out of this driveway onto Jefferson Avenue during most parts of the day. Despite this natural limitation, the City's traffic consultant does not recommend that left turns be prohibited at this intersection.

*Limited Access Driveway – Jefferson Avenue (Southern Driveway)*

A second access driveway is proposed onto Jefferson Avenue south of the shared access with Chemical Bank and near the proposed fuel center. The existence of this additional access point was supported by the traffic study. To address the concerns of the City's traffic consultant, this driveway has been modified from an original proposal of full access to one with limited egress. Specifically, left turns out of this driveway are restricted by the driveway design through the inclusion of a center island 'pork-chop'. This driveway will be able to accommodate both left and right hand turns into the driveway but will only allow right-hand turns out.

*Shared Access Easement Agreements*

A shared/cross access easement agreement, to the satisfaction of the City Planning Department and City Attorney, is required to ensure shared access is provided in perpetuity between the Chemical Bank and Kroger sites. The City should keep final discretion over whether shared access is removed on the site due to a change of circumstances in the future.

A current shared access easement agreement exists between the subject property and the ATM site to the west. Due to concerns over trucks utilizing a shared driveway, a curb and sign prohibiting cross access between the sites has been proposed on the site plan. City staff have meet with the ATM property owner to better understand his concerns. While shared access is usually beneficial to abutting businesses, in this case it appears that only minor benefits would be achieved while opening up the potential for trucks to utilize this connection. Planning Commission discussion of this connection and whether or not sufficient need for it exists is encouraged. Even if no connection is required, staff would recommend that the easement at least be maintained to allow for the potential of future shared access if warranted at a later date when the full extent of the ATM site is further developed.

**9. Pedestrian Circulation**

Each site plan shall provide a pedestrian circulation system, which is insulated as completely as is reasonably possible from the vehicular circulation system.

Adequate pedestrian walkways have been provided within the interior of the site as well as connecting to the public sidewalk along Joe Mann Boulevard and Jefferson Avenue. The main pedestrian connections into the site are provided with one to the immediate west of the proposed driveway onto Joe Mann Boulevard, a second to the south of the proposed marketplace connecting to the existing non-motorized pathway, and a third from the sidewalk along Jefferson Avenue directly to the fuel center.

10. **Vehicular and Pedestrian Circulation Layout**

The layout of vehicular and pedestrian circulation systems shall respect the pattern of existing or planned streets or pedestrian or bicycle pathways in the vicinity of the site. The width of streets and drives shall be appropriate for the volume of traffic they will carry in accordance with subsection 3.10. In order to insure public safety and promote efficient traffic flow and turning movements, the applicant may be required to limit street access points or construct a secondary access road.

All internal driveway width standards within the Kroger site have been met. Appropriate accommodations for truck deliveries, customer traffic, pedestrians and bicyclists have been made on the site. As previously discussed in the Ingress/Egress portion, the applicant has worked with city staff and the City's traffic consultant to modify the site plan to address various concerns.

As part of the proposal, a modification to the Chemical Bank ATM access drive is proposed. The site plan does not indicate the resulting width of this driveway modification or the intended vehicle maneuvering pattern. If the driveway is intended to be a two-way access, it appears to be too narrow. Staff is asking for clarification by the applicant on this matter.

11. **Parking.**

The proposed development shall provide adequate off-street parking in accordance with the requirements in Article 5.00 of this ordinance.

At this time, the parking proposed for the marketplace and fuel center is compliant with Article 5.00 of the Zoning Ordinance. A total number of 556 parking spaces are proposed, including 15 barrier-free spaces, to meet the requirement of 1 space per 180 square feet of usable floor area. Of this total, three spaces, one being barrier-free, are proposed at the fuel station. The parking area on the north side of the site, located on property intended to be purchased from Chemical Bank, is intended to be used for employee parking.

A bike rack is proposed to the north of the marketplace.

12. **Drainage**

The project must comply with the City's Stormwater Ordinance.

The City Engineering Department has reviewed the stormwater management plan and is satisfied with the submitted designs. Stormwater throughout the site is proposed to be collected and detained in a basin at the southwestern portion of the site. This design utilizes the existing grading patterns on the site. Due to the steepness of the slope on the sides of the detention basin, a fence encompassing the basin is required.

Ultimately, a final stormwater management permit must be approved by the City's Engineering Department. Final stormwater permitting is typically addressed at the time of construction.

13. **Soil Erosion and Sedimentation**

The proposed development shall include measures to prevent soil erosion and sedimentation during and upon completion of construction, in accordance with current State, County, and City standards.

Soil erosion and sedimentation control details have been submitted for review and approval by the City Building Department. Final design detail and permitting is typically addressed at the time of construction.

14. **Exterior Lighting**

Exterior lighting shall be designed so that it is deflected away from adjoining properties and so that it does not impede vision of drivers along adjacent streets and comply with the provisions in Section 3.12.

The applicant has submitted photometric plans and lighting fixture details that demonstrate compliance with city standards.

15. **Public Services**

Adequate services and utilities, including water, sewage disposal, sanitary sewer, and storm water control services, shall be available or provided, and shall be designed with sufficient capacity and durability to properly serve the development. All streets and roads, water, sewer, and drainage systems, and similar facilities shall conform to the design and construction standards of the City.

As previously discussed, a final storm water management permit must be approved by the City Engineering Department. This is typically addressed at final permitting stage.

The City Fire and Utility Departments have indicated that they are satisfied with the proposed utility plans. Ultimately, easement documentation will need to be submitted, approved, and recorded encompassing the public water main loop through the site.

Dial-A-Ride transportation has been accommodated through the proposed inclusion of a bench outside the north entrance of the marketplace. Additionally, the site plan notes that users of DART may wait just inside the main entry. These provisions are similar to other grocery stores within the city and are satisfactory to the City Public Services Department.

16. **Screening**

Off-street parking, loading and unloading areas, outside refuse storage areas, and other storage areas shall be screened by walls or landscaping of adequate height and shall comply with Articles 6.00 and 7.00 of this Ordinance. All roof-top mechanical equipment shall be screened from view from all residential districts and public roadways.

The proposed dumpster screening, being located within the northernmost loading dock, fully meets the City's screening requirements. A staggered row of Serbian Spruce, Eastern White Pine, and maple trees is proposed along the western property line to provide screening of the rear of the marketplace, which contains the loading and unloading areas.

**17. Health and Safety Concerns**

Any use in any zoning district shall comply with all applicable public health, pollution, and safety laws and regulations.

No health and safety concerns have been identified.

**18. Sequence of Development**

All development phases shall be designed in logical sequence to insure that each phase will independently function in a safe, convenient and efficient manner without being dependent upon subsequent improvements in a later phase or on other sites.

The applicant has indicated that this will be built in one phase with the possibility that the fuel center will open before the marketplace construction has been completed.

**19. Coordination with Adjacent Sites**

All site features; including circulation, parking, building orientation, landscaping, lighting, utilities, common facilities, and open space shall be coordinated with adjacent properties.

Modification of the shared access drive will require coordination with the adjoining Chemical Bank parcel. Additionally, the applicant will need to finalize the acquisition of the Chemical Bank property that contains the access driveway onto Joe Mann Boulevard and the northern parking lot.

**20. Signs.**

All proposed signs shall be in compliance with the regulations in Article 8.00 of this Ordinance

Ground and wall signage concepts have been submitted with the site plan. Signage will be required to comply with Article 8 and will be permitted through the signage permitting process administered by the City Building Department.

**TRAFFIC CONSULTANT REPORT**

The staff comments included in this report have been based on the applicant submittals, including their original and supplemented traffic studies, as well as the comments and advice of the city traffic consultant received throughout our review process. Note, however, that the final review and recommendation of the traffic consultant had not been received by planning staff at the time this report was prepared. That final report is anticipated prior to the public hearing. Additionally, staff are making arrangements for the traffic consultant to be present at the public hearing and to present his final review and recommendations at that time.

In light of the above, there may be additional comments forthcoming from the traffic consultant that staff are not aware of at this time. While every effort has been made to reflect his known recommendations and concerns herein, careful attention will need to be paid to the final report and recommendation received at the time of the public hearing. Should anything in the final report differ from comments contained herein, or if additional changes to the site plan are necessitated by the final report, these differences will be specifically highlighted by planning staff and/or the traffic consultant at the time of the public hearing.

## CONTINGENCY ITEMS

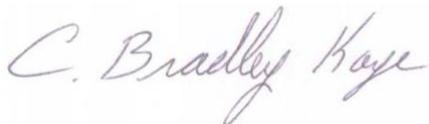
Based on consideration of the site plan thus far, staff is of the opinion that the proposal generally meets city requirements and is designed in a manner which is harmonious with the campus. Should the Planning Commission be ready to move forward with a recommendation on the plan following receipt of the traffic consultant's final report and completion of the public hearing, approval of the site plan could be considered subject to the following contingencies:

1. A final stormwater management plan and permit application must be approved by the City Engineering Department.
2. A final soil erosion and sedimentation control permit must be approved by the City Building Department.
3. Shared/cross access easement agreements must be submitted for review and approval by the City Planning Department and City Attorney, and executed and recorded at the Midland County Register of Deeds upon approval.
4. Public water utility easement documents shall be submitted for review and approval by the City Engineering Department and City Attorney, and executed and recorded at the Midland County Register of Deeds upon approval.
5. An agreement addressing City and applicant responsibilities for maintenance and restoration of landscaping along Joe Mann Boulevard within the right-of-way area shall be approved by the City Engineering Department and City Attorney, and executed and recorded at the Midland County Register of Deeds upon approval.
6. Access modification to the south side of the Chemical Bank site shall be completed to the satisfaction of the City Planning and Engineering Departments to meet ordinance standards.
7. An agreement regarding future installation of a traffic signal and conveyance of additional right-of-way along the south side of Joe Mann Boulevard to address the traffic impacts of the proposal shall be entered into between the City and applicant.

## PLANNING COMMISSION ACTION

Staff currently anticipates that the Planning Commission will hold a public hearing on this request during its regular meeting on February 23, 2016 and will formulate a recommendation to City Council thereafter. If all concerns of the Planning Commission have been met, a recommendation to City Council may be made the same evening. If so decided, we anticipate that on February 29, 2016 the City Council will consider the site plan and Planning Commission recommendation. Please note that these dates are merely preliminary and may be adjusted due to Planning Commission action and City Council agenda scheduling.

Respectfully Submitted,



C. Bradley Kaye, AICP  
Assistant City Manager for Development Services

/grm

# KROGER MARKETPLACE TRAFFIC IMPACT STUDY

CITY OF MIDLAND, MICHIGAN

DECEMBER 28, 2015

PREPARED FOR:



40399 GRAND RIVER AVENUE  
NOVI, MI 48375

PREPARED BY:



27725 STANSBURY BLVD., SUITE 150  
FARMINGTON HILLS, MI 48834

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## REFERENCES

- Institute of Transportation Engineers. (2012). *Trip Generation Manual, 9th Edition*. Washington DC.
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## 1 INTRODUCTION

This report presents the results of a Traffic Impact Study (TIS) for the proposed Kroger Marketplace development in the City of Midland, Michigan. The subject site is located in an area near the southwest corner of Jefferson Avenue & Joe Mann Boulevard, as shown on **Figure 1**. All study roadways are under the jurisdiction of the City of Midland and a TIS is required in accordance with the City of Midland Zoning Ordinance for approval of driveway permits and site plan.

The proposed development includes a Kroger Marketplace store and 14 pump fuel station. The proposed site access will be provided via Joe Mann Boulevard and Jefferson Avenue; with two access driveways on Joe Mann and either one or two driveways to Jefferson Avenue. The site access to Jefferson Avenue was evaluated in this study and summarized below:

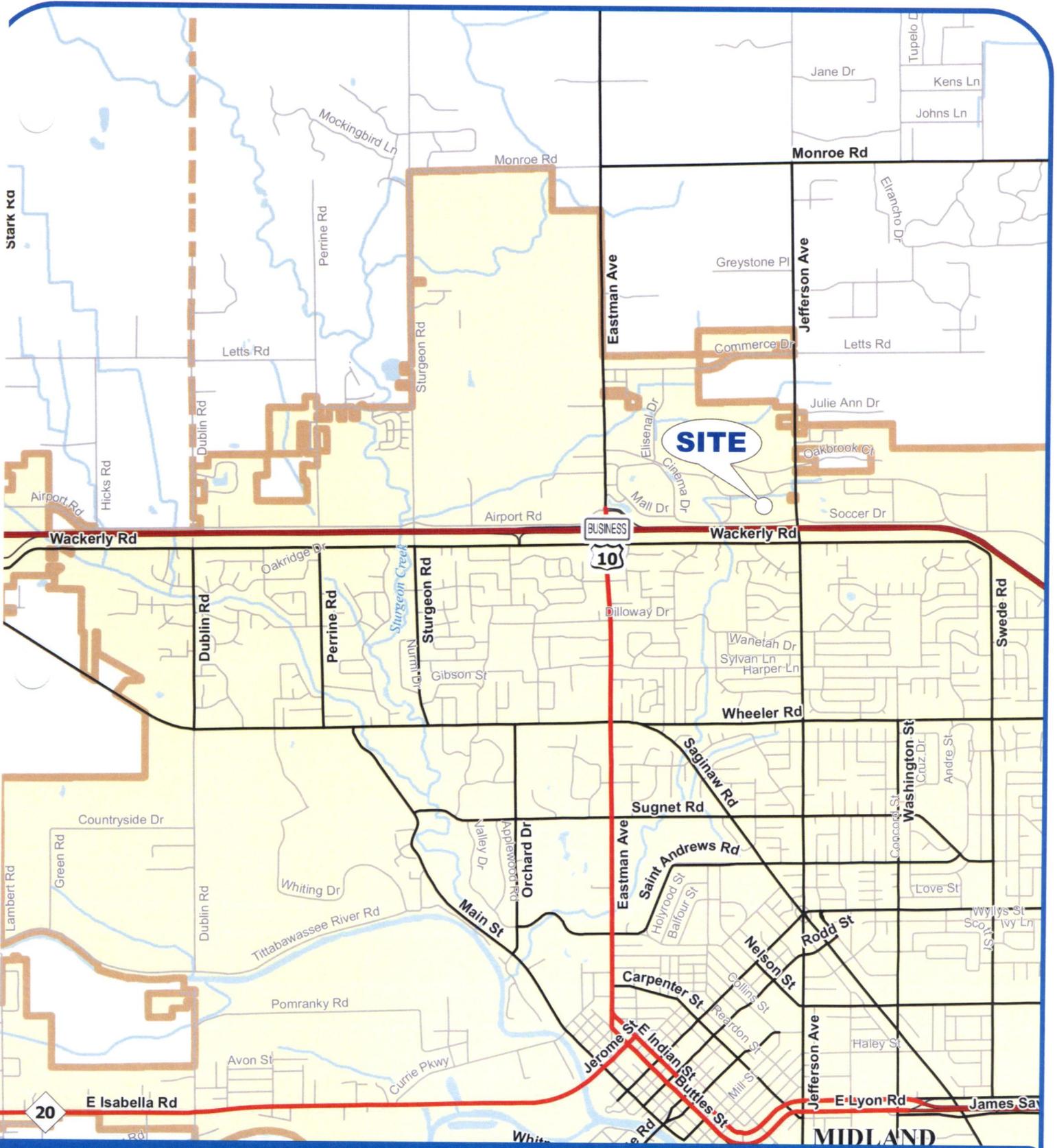
1. Alternative 1: Two site driveways to Jefferson Avenue
2. Alternative 2: One site driveway to Jefferson Avenue

The scope of this study was developed based on Fleis & VandenBrink's (F&V) knowledge of the study area, understanding of the development program, accepted traffic engineering practice, and information published by the Institute of Transportation Engineers (ITE). Additionally, F&V solicited input regarding scope of work for this study from the City of Midland and their traffic consultant (OHM). The study analyses were completed using Synchro and SimTraffic, Version 9 traffic analysis software. The study intersections analyzed for this TIS include:

- Jefferson Avenue & Wackerly Street,
- Jefferson Avenue & Joe Mann Boulevard / Joseph Drive,
- Jefferson Avenue & Chemical Bank Drive / Credit Union Drive,
- Joe Mann Boulevard & Alan Ott Drive,
- Joe Mann Boulevard & Firehouse Car Wash Drive / Ford Midland Drive, and
- The proposed site access locations.

The purpose of this study is to identify the traffic related impacts, if any, of the proposed project on the adjacent road network. Specific tasks undertaken for this study include the following:

1. Review of the proposed development plans, adjacent road network, and other background information.
2. Field reconnaissance of existing roadway and intersection geometrics, traffic controls, and speed limits, and acquisition of traffic signal timing information from the City of Midland.
3. Collection of weekday PM (4:00 PM to 6:00 PM) and Saturday (11:00 AM to 1:00 PM) peak period turning movement counts at the study intersections.
4. Identify the Existing PM and Saturday peak hour traffic volumes at the study intersections based on turning movement count data collected.
5. Calculate the **Existing** vehicle delays, Levels of Service (LOS), and vehicle queues at the study intersections based on the methodologies of the *Highway Capacity Manual, 2010* using Synchro, Version 9 traffic analysis software.
6. Calculate the future background traffic volumes based on an appropriate traffic growth rate to the project build-out year and/or any applicable background developments in the vicinity of this project.
7. Calculate the **Background (without the proposed development)** vehicle delays, LOS, and vehicle queues at the study intersections and identify improvements (if any) that would be required to mitigate any unacceptable background traffic conditions.
8. Forecast the number of PM and Saturday peak hour trips that would be generated by the proposed development based on information provided by Kroger for the proposed land use and data published by the Institute of Transportation Engineers (ITE) in *Trip Generation, 9<sup>th</sup> Edition*.
9. Assign the trips that would be generated by the proposed development to the adjacent road network based on the area of influence methodology for two site access alternatives, 1) site access with all four site access driveways, 2) site access with three site access driveways, excluding the proposed south site driveway on Jefferson Ave.



**FIGURE 1**  
**SITE LOCATION MAP**

KROGER MARKETPLACE - MIDLAND, MI

**LEGEND**

 **SITE** SITE LOCATION



**NORTH**  
 SCALE: NOT TO SCALE



10. Combine the site-generated traffic assignments with the background traffic forecasts to establish the Future PM peak hour traffic volumes for the two site access alternatives.
11. Calculate the Future (with the proposed development) vehicle delays, LOS, and vehicle queues at the study intersections for the two site access alternatives.
12. Identify improvements (if any) for the study road network that would be required to accommodate the site-generated traffic volumes for the two site access alternatives.
13. Complete a technical report consistent with accepted practice and suitable for submission to the City of Midland which outlines the methodologies, analyses, results, and recommendations of the traffic study.

Sources of data for this study include traffic counts conducted by F&V subconsultant Traffic Data Collection, Inc. (TDC), information provided by the developer, Michigan Department of Transportation (MDOT), City of Midland, and ITE. All background information is provided in **Appendix A**.

## 2 BACKGROUND DATA

Access to and from the proposed development is provided via Jefferson Avenue and Joe Mann Boulevard. The study intersections of Jefferson Avenue & Joe Mann Boulevard and Jefferson Avenue & Wackerly Street are signalized, while the intersection of Joe Mann Boulevard & Alan Ott Drive and the existing / proposed site driveways are currently STOP controlled on the minor street approaches. The lane use and traffic control at the study intersections for Alternatives 1 and 2 are shown on **Figures 2-1 and 2-2** respectively. The study roadways are further described below. For the purposes of this study, all minor streets and driveways are assumed to have an operating speed of 25 miles per hour (mph).

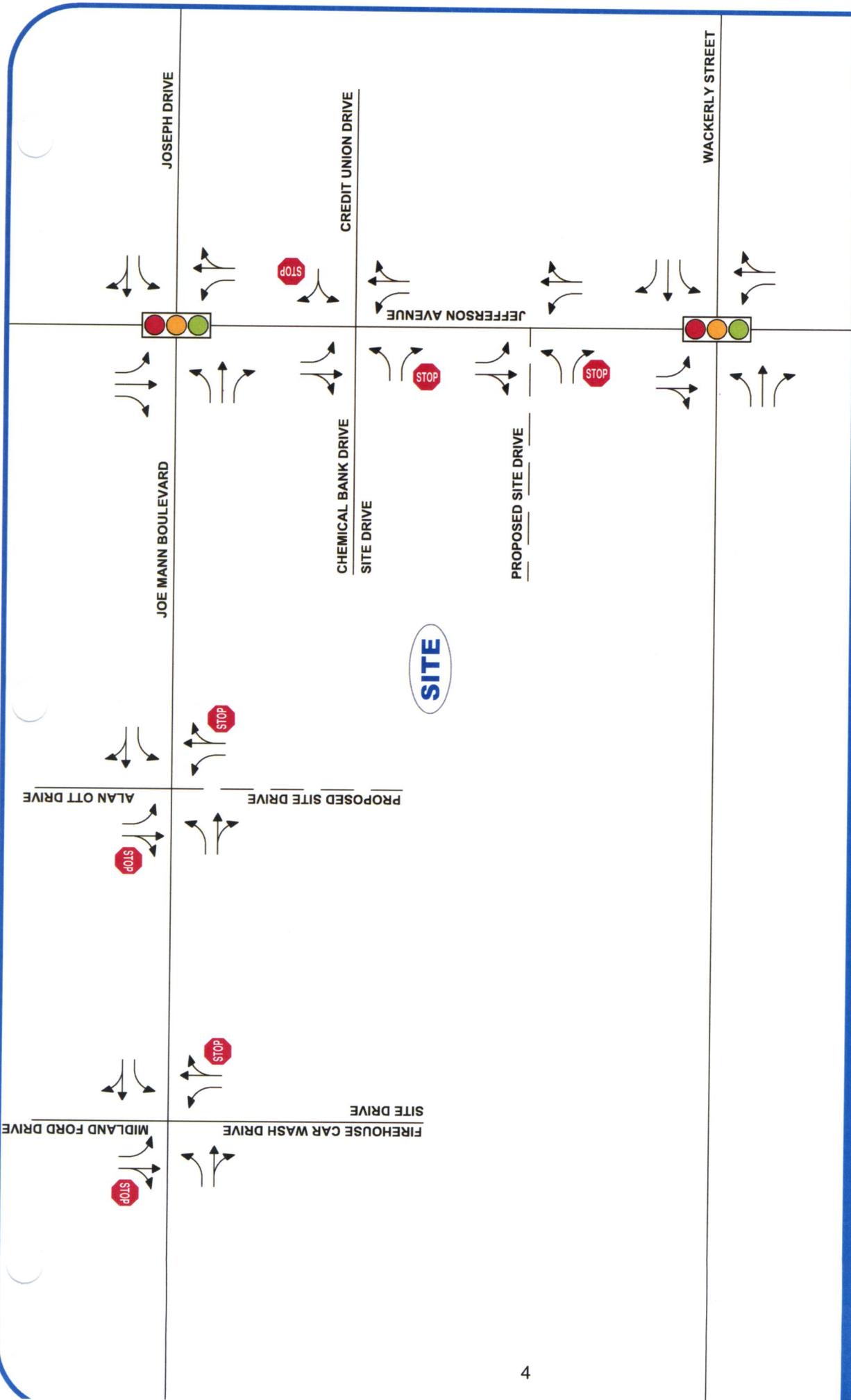
**Jefferson Avenue** runs in the north and south directions with a posted speed limit of 45 mph and 35 mph to the north and south of Joe Mann Boulevard, respectively. The study section of Jefferson Avenue is under the jurisdiction of the City of Midland and has a typical three-lane cross section, with one lane in each direction and a center lane for left turns. Additionally, at the intersection of Jefferson Avenue & Wackerly Street the *City of Midland Master Plan, Chapter 8* recommended to improve existing signal operations with the addition of left-turn phasing at this intersection.

**Joe Mann Boulevard** runs generally in the east and west directions with a posted speed limit of 35 mph and 30 mph to the east and west of Jefferson Road, respectively. The study section of Joe Mann Boulevard is under the jurisdiction of the City of Midland and has a typical three-lane cross section, with one lane in each direction and a center lane for left turns. Additionally, at the intersection of Jefferson Avenue & Joe Mann Boulevard the *City of Midland Master Plan, Chapter 6* has recommended a roundabout at this intersection, in conjunction with the installation of a boulevard along Joe Mann Boulevard between Jefferson Avenue and Eastman Avenue.

### 2.1 EXISTING TRAFFIC VOLUMES

Existing traffic volume data at the study intersections were collected by F&V subconsultant Traffic Data Collection, Inc. (TDC). Vehicular turning movement count data were collected in 15-minute intervals on Thursday November 19, 2015 from 4:00 PM to 6:00 PM, and Saturday November 21, 2015 from 11:00 AM to 1:00 PM. This data was used as a baseline to establish the current peak hour traffic volumes for the existing traffic conditions analysis. The PM and Saturday peak hours of existing network traffic were identified to generally occur between 4:45 PM to 5:45 PM for a typical weekday and 11:15 AM to 12:15 PM for a typical Saturday.

The peak hour volumes for each intersection were utilized for this study and the volumes were balanced upward through the study network. Peak Hour Factors (PHF) were also calculated for each study intersection approach. In addition, at the intersection of Jefferson Avenue & Joe Mann Boulevard the number of right-turn-on-red vehicles were quantified and included in the peak hour analysis. The traffic volume data are included in **Appendix A** and the existing peak hour traffic volumes are summarized on **Figure 3**.



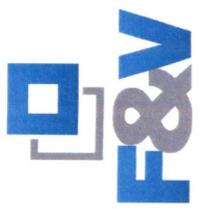
**LEGEND**

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- ROADS
- LANE USE

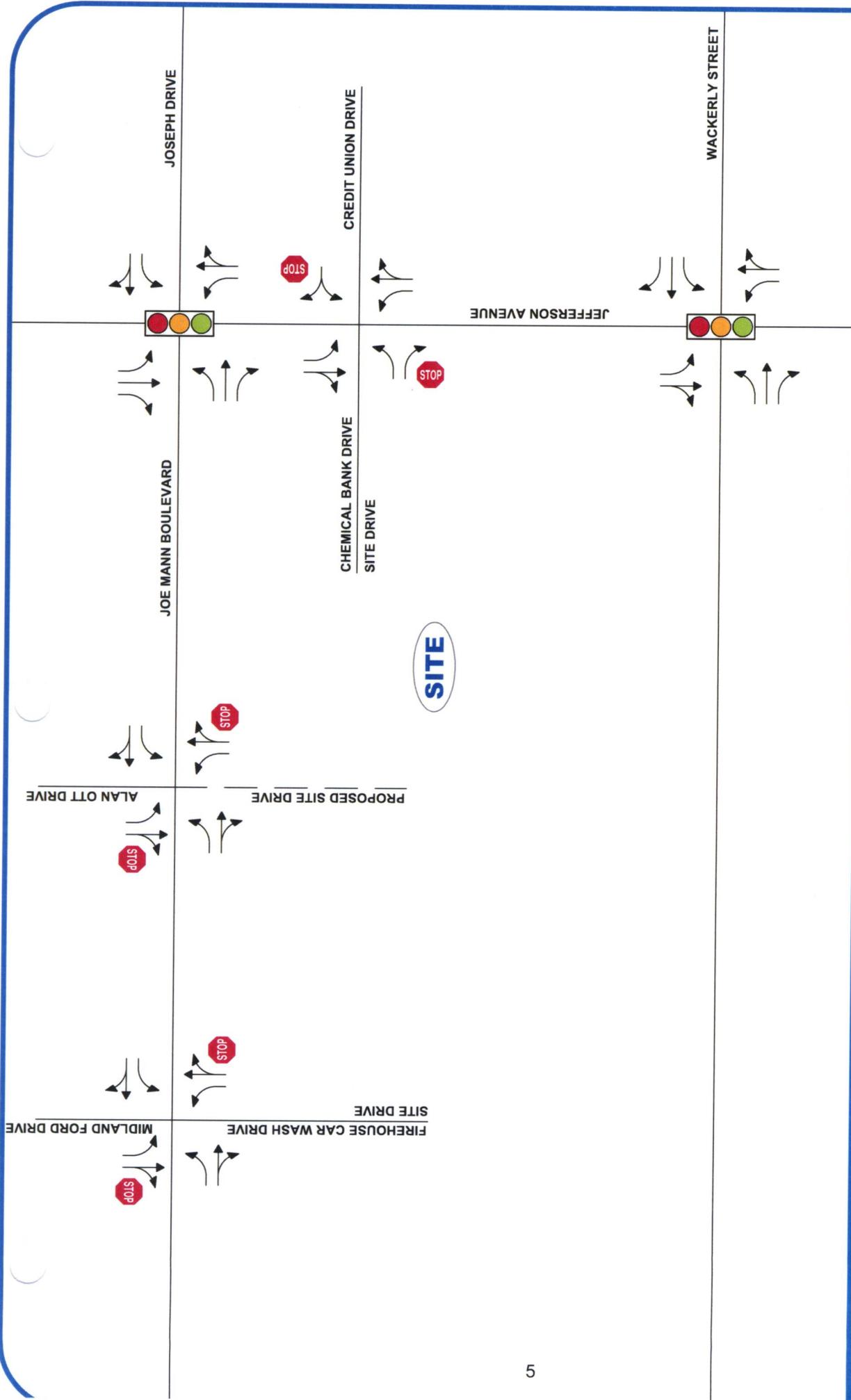
# FIGURE 2-1

## LANE USE AND TRAFFIC CONTROL

KROGER MARKETPLACE - MIDLAND, MI



2015



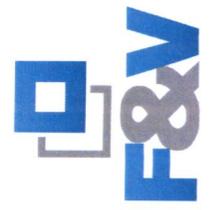
**LEGEND**

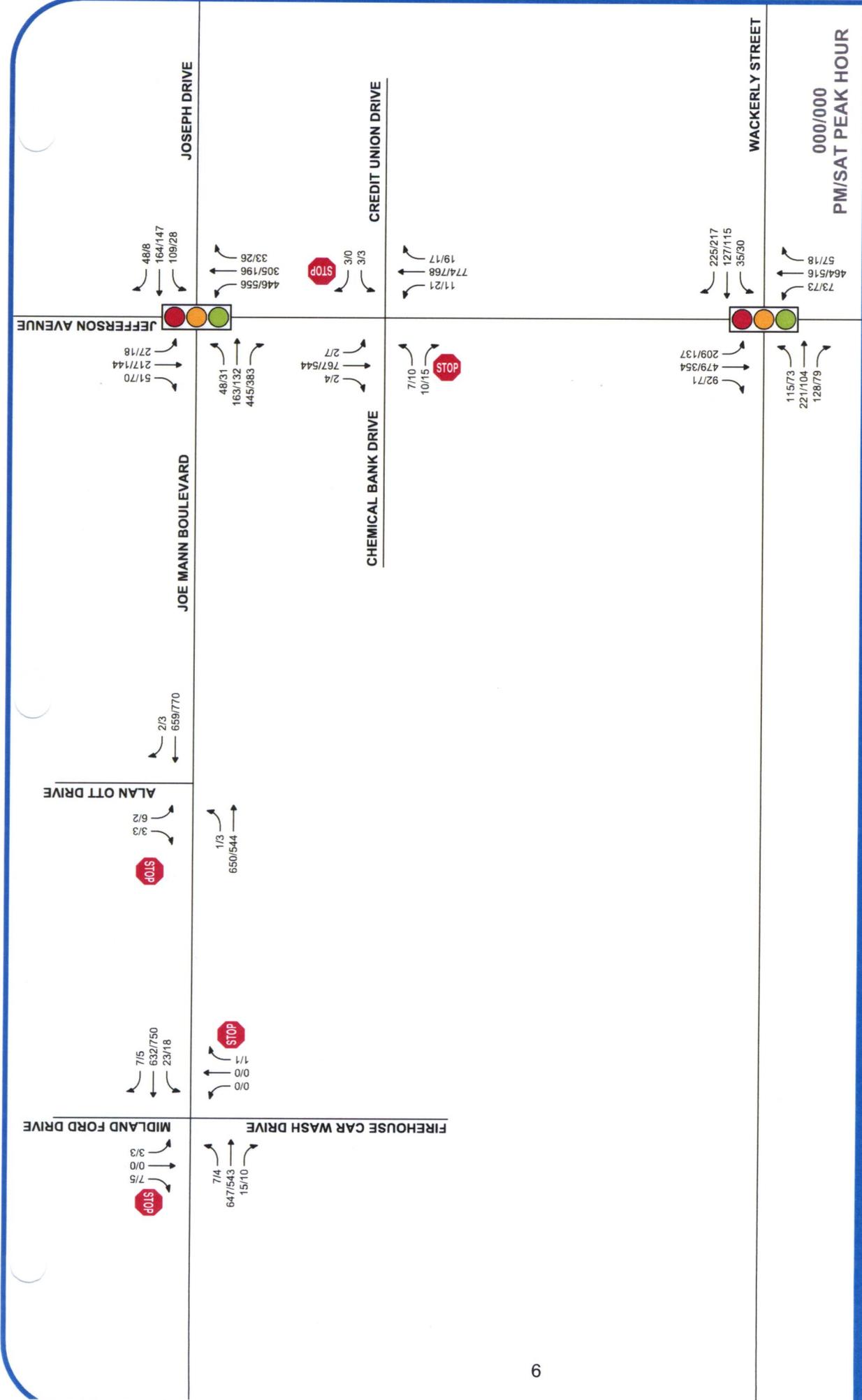
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- ROADS
- LANE USE

2015

NORTH  
SCALE: NOT TO SCALE

**FIGURE 2-2**  
**LANE USE AND TRAFFIC CONTROL**  
KROGER MARKETPLACE - MIDLAND, MI





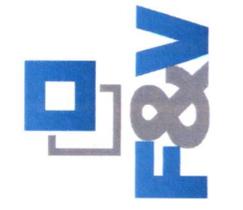
**LEGEND**

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- TRAFFIC VOLUMES (AM/PM)
- ROADS

**2015**

**NORTH**  
SCALE: NOT TO SCALE

**FIGURE 3**  
**EXISTING TRAFFIC VOLUMES**  
KROGER MARKETPLACE - MIDLAND, MI



### 3 ANALYSIS

#### 3.1 EXISTING CONDITIONS

Existing PM and Saturday peak hour vehicle delays and Levels of Service (LOS) were calculated at the study intersections using Synchro traffic analysis software. The results of the analysis of existing conditions were based on the existing lane use and traffic control shown on Figures 2-1 & 2-2, the existing traffic volumes shown on Figure 3, and the methodologies presented in the Highway Capacity Manual (HCM), 2010. Additionally, SimTraffic traffic simulations were utilized to evaluate network operations and vehicle queues.

Descriptions of LOS "A" through "F" as defined in the HCM are provided in Appendix B for signalized and unsignalized intersections. Typically, LOS D is considered acceptable, with LOS A representing minimal delay, and LOS F indicating failing conditions. The results of the analysis of existing conditions are presented in **Appendix B** and are summarized in **Table 1**.

**Table 1: Existing Intersection Operations**

Intersection	Control	Approach	PM Peak		SAT Peak	
			Delay (s/veh)	LOS	Delay (s/veh)	LOS
1. Jefferson Avenue & Joe Mann Boulevard	Signalized	EB	35.5	D	29.3	C
		WB	29.1	C	28.7	C
		NB	19.7	B	38.7	D
		SB	<u>27.7</u>	<u>C</u>	<u>17.1</u>	<u>B</u>
		<b>Overall</b>	<b>26.5</b>	<b>C</b>	<b>32.2</b>	<b>C</b>
2. Jefferson Avenue & Wackerly Street	Signalized	EB	32.3	C	26.5	C
		WB	34.6	C	28.3	C
		NB	23.0	C	24.3	C
		SB	<u>32.3</u>	<u>C</u>	<u>30.0</u>	<u>C</u>
		<b>Overall</b>	<b>30.2</b>	<b>C</b>	<b>27.2</b>	<b>C</b>
3. Joe Mann Boulevard & Alan Ott Drive	STOP (Minor)	EB LT	9.0	A	9.5	A
		WB	Free		Free	
		SB	16.1	C	16.1	C
4. Joe Man Boulevard & Firehouse Car Wash Drive / Midland Ford Drive	STOP (Minor)	EB LT	8.9	A	9.3	A
		WB LT	9.1	A	8.7	A
		NB	13.1	B	12.1	B
		SB	20.8	C	23.5	C
5. Jefferson Avenue & Chemical Bank Drive / Credit Union Drive	STOP (Minor)	EB	36.6	E	26.0	D
		WB	39.6	E	44.6	E
		NB LT	9.5	A	8.8	A
		SB LT	9.7	A	9.5	A

The results of the existing conditions analysis indicates that all approaches and movements at the signalized study intersections operate acceptably at a LOS D or better during both peak hours. Furthermore, all unsignalized study intersection STOP controlled approaches will operate acceptably at a LOS D or better during both peak hours; except for the eastbound approach at the Jefferson Avenue & Chemical Bank intersection operating at a LOS E during the PM peak hour and the westbound approach operating at a LOS E during both peak periods.

Review of the SimTraffic network simulations indicates acceptable traffic operations during the PM peak hour. During the Saturday peak hour a long vehicle queue is observed for the northbound left turn movement at the

intersection of Jefferson Avenue & Joe Mann Boulevard which lasts for approximately 30 minutes of the peak period.

### 3.2 BACKGROUND CONDITIONS

In order to determine the applicable traffic growth rate for the existing traffic volumes to project build-out, historical traffic data in the vicinity of the project was referenced. Historical traffic volumes data was available from the Michigan Department of Transportation (MDOT) Traffic Monitoring Information System (TMIS) for US-10, located just south of the proposed site. The average annual growth rate from 2010 to 2014 was approximately 0.6%; therefore, this growth rate was applied to the existing 2015 traffic volumes to determine the background traffic volumes at the project build-out year of 2017 shown on **Figure 4**.

Future peak hour vehicle delays and LOS *without the proposed development* were calculated based on the existing lane use and traffic control, the background traffic volumes shown on Figure 4, and the methodologies presented in the HCM. The results of the analysis of background conditions are presented in **Appendix C** and are summarized in **Table 2**.

**Table 2: Background Intersection Operations**

Intersection	Control	Approach	PM Peak		SAT Peak	
			Delay (s/veh)	LOS	Delay (s/veh)	LOS
1. Jefferson Avenue & Joe Mann Boulevard	Signalized	EB	35.9	D	29.4	C
		WB	29.2	C	28.8	C
		NB	21.0	C	41.4	D
		SB	<u>27.9</u>	<u>C</u>	<u>17.1</u>	<u>B</u>
		<b>Overall</b>	<b>27.1</b>	<b>C</b>	<b>33.6</b>	<b>C</b>
2. Jefferson Avenue & Wackerly Street	Signalized	EB	32.5	C	26.6	C
		WB	35.0	C	28.4	C
		NB	23.4	C	24.6	C
		SB	<u>32.8</u>	<u>C</u>	<u>30.2</u>	<u>C</u>
		<b>Overall</b>	<b>30.6</b>	<b>C</b>	<b>27.5</b>	<b>C</b>
3. Joe Mann Boulevard & Alan Ott Drive	STOP (Minor)	EB LT	9.0	A	9.6	A
		WB	Free		Free	
		SB	16.3	C	16.3	C
4. Joe Man Boulevard & Firehouse Car Wash Drive / Midland Ford Drive	STOP (Minor)	EB LT	9.0	A	9.4	A
		WB LT	9.1	A	8.7	A
		NB	13.2	B	12.1	B
		SB	21.2	C	24.0	C
5. Jefferson Avenue & Chemical Bank Drive / Credit Union Drive	STOP (Minor)	EB	37.6	E	26.4	D
		WB	41.0	E	45.9	E
		NB LT	9.5	A	8.8	A
		SB LT	9.7	A	9.5	A

The background conditions results indicate that all signalized study intersections will continue to operate at an overall LOS D or better during the peak periods. At the STOP controlled driveways all approaches and movements will continue to operate in a manner similar to existing conditions. Review of the network simulations indicates acceptable traffic operations and significant vehicle queues are not observed.



**FIGURE 4**  
**BACKGROUND TRAFFIC VOLUMES**  
 KROGER MARKETPLACE - MIDLAND, MI

2015

NORTH  
 SCALE: NOT TO SCALE

### 3.3 SITE TRIP GENERATION

The number of PM and Saturday peak hour vehicle trips that would be generated by the proposed development was forecast based on data published by ITE in Trip Generation, 9<sup>th</sup> Edition as well as data provided by Kroger. The ITE land use "Supermarket" best describes the proposed Kroger Marketplace store. However, the majority of data available for this land use is for supermarkets with less than 100,000 SF of Gross Floor Area (GFA). Therefore, the ITE data were compared to customer count data provided by Kroger for three Kroger Marketplace stores to determine an appropriate rate.

#### 3.3.1 Weekday Trip Generation

Daily customer counts were provided for Tuesday, Wednesday, and Thursday of three different stores for two separate weeks. The average number of daily customers was calculated from the data provided and was used to forecast the average daily traffic for a Marketplace Store. This forecast indicates that the Kroger Marketplace store generates approximately 8,800 vehicle trips per day. As shown in **Table 3**, application of the ITE rate significantly over-estimates the number of daily trips that would be generated by the proposed Kroger.

**Table 3: Site Trip Generation Comparison**

Land Use	ITE Code	Amount	Units	Average Daily Traffic
Site Forecast Trips	850	123,000	SF	12,576
Site Actual Trips		123,000	SF	8,775
<b>% DIFFERENCE</b>				<b>-30%</b>

In order to determine the number of PM peak hour trips that would be generated by the proposed Kroger Marketplace, ITE data for land uses 850 (Supermarket) and 813 (Free-Standing Discount Superstore) were evaluated as they most closely match the proposed use of the Kroger Marketplace store. This data indicates that approximately 9.3% and 8.6% of daily trips occur during the PM peak hour for a Supermarket and Free-Standing Discount Superstore, respectively. Further, the average directional distribution during the PM peak hour for the two uses indicates that approximately 50% of trips are inbound and 50% are outbound. Therefore, trip generation for the proposed Kroger Marketplace during the PM peak hour was calculated to be 9.3% of the 8,800 daily trips with 50% entering and 50% exiting. The pass-by rate at the Kroger Marketplace store was calculated based on the average of the pass-by rates for the Supermarket and Free-Standing Discount Superstore land uses.

#### 3.3.2 Saturday Trip Generation

Saturday customer counts were provided by Kroger for 52 weeks (Dec. 2014-Dec. 2015) for a similar Kroger Marketplace between the hours of 11:00 AM to 1:00 PM. During the Saturday mid-day peak hour the store has an average of 437 transactions. It was assumed that each transaction is two trips, one entering and one exiting. Further, the directional distribution from ITE data for land use Supermarket indicates 51% of trips are inbound and 49% are outbound. Therefore, trip generation for the proposed Kroger Marketplace during the Saturday peak hour was calculated to be 874 peak hour trips with 51% entering and 49% exiting.

The number of PM and Saturday peak hour vehicle trips that would be generated by the fuel station was forecast based on data published by ITE in *Trip Generation, 9<sup>th</sup> Edition* and the *Trip Generation Handbook, 3<sup>rd</sup> Edition*. The total site trip generation forecast for the proposed development is shown in **Table 4**.

**Table 4: Site Trip Generation**

Land Use	ITE Code	Amount	Units	Average Daily Traffic	PM Peak Hour			Saturday Peak Hour		
					In	Out	Total	In	Out	Total
Supermarket	850	123,000	SF	8,800	409	409	818	446	428	874
<i>Pass-By</i>	<i>32% PM, 25% SAT</i>			3,168	131	131	262	112	107	219
				5,632	278	278	556	334	321	655
Gas Station	944	14	Pumps	2,360	97	97	194	109	110	219
<i>Pass-By</i>	<i>42%</i>			802	41	40	81	46	46	92
New Trips				1,558	56	57	113	63	64	127
<b>TOTAL</b>				<b>11,160</b>	<b>506</b>	<b>506</b>	<b>1,012</b>	<b>555</b>	<b>538</b>	<b>1,093</b>
<i>Pass-By</i>				<b>3,970</b>	<b>172</b>	<b>171</b>	<b>343</b>	<b>158</b>	<b>153</b>	<b>311</b>
<b>New Trips</b>				<b>7,190</b>	<b>334</b>	<b>335</b>	<b>669</b>	<b>397</b>	<b>385</b>	<b>782</b>

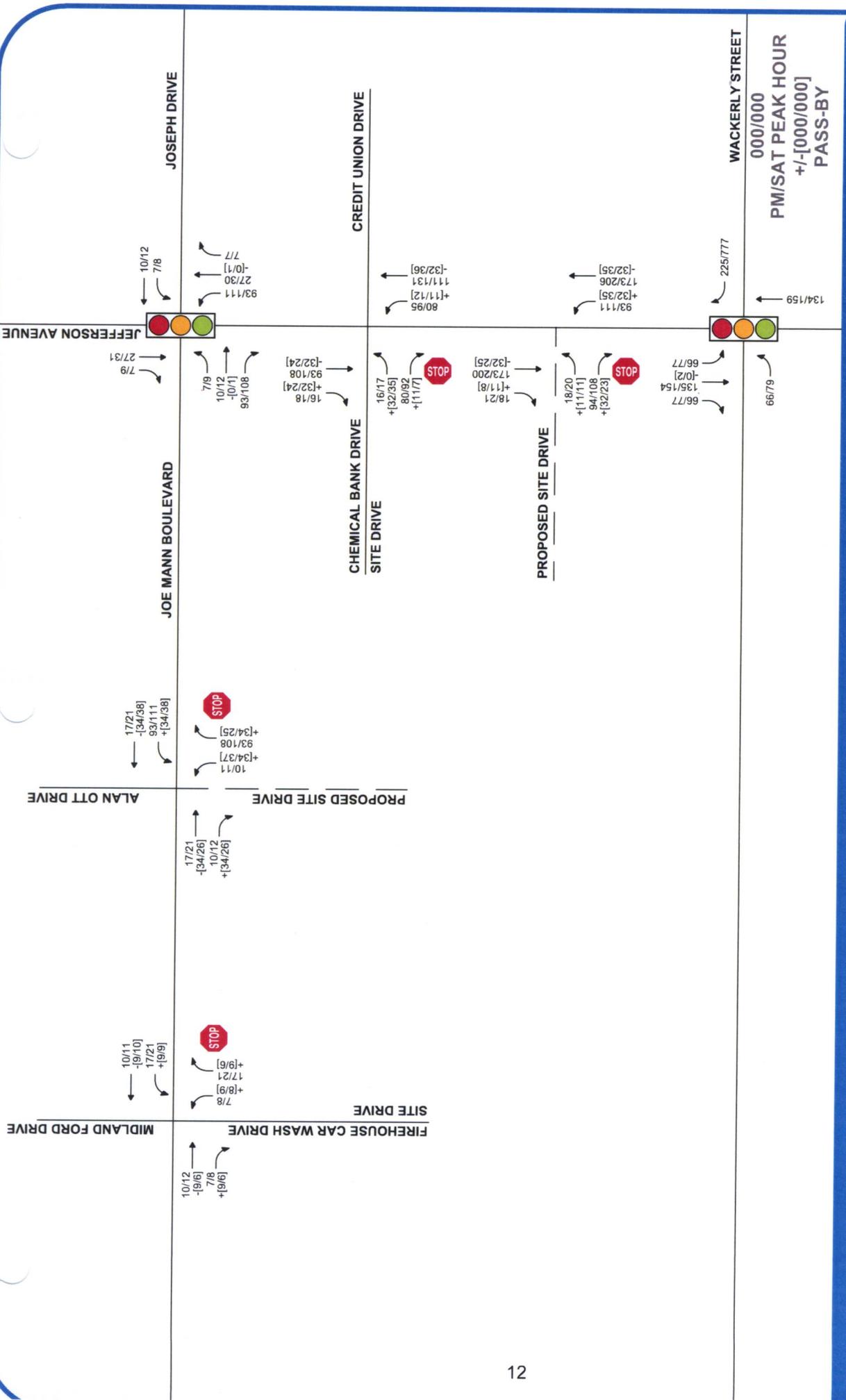
As is typical of retail uses, a portion of the site-generated trips are already present on the adjacent road network and are interrupted to visit the site. These trips are known as “pass-by” trips and account for a percentage of the total site-generated traffic. Pass-by trips result in turning movements at the site driveways, but do not increase traffic volumes on the adjacent road network. The pass-by rate for each use was determined based on data published in the *Trip Generation Handbook, 3<sup>rd</sup> Edition*. The pass-by trip rate for Saturday was calculated based on the Supermarket the PM pass-by rate, which when compared to the Saturday pass-by rates of a Free-Standing Discount Superstore resulted in a 30% reduction in pass-by trips between PM and Saturday. Therefore, the PM Supermarket pass-by rate was averaged with the Saturday Free-Standing Discount Superstore (30% reduction), resulting in an average 25% pass-by trip rate for Saturday.

**3.4 SITE TRAFFIC ASSIGNMENT**

The vehicle trips that would be generated by the proposed development were assigned to the study road network based on the area of influence methodology using the City of Midland 2010 Census population data. The pass-by trips were distributed to the site driveways based on existing traffic patterns on the Jefferson Avenue and Joe Mann Boulevard. The site-generated and pass-by traffic distributions are shown in **Table 5**. The site generated traffic in Table 4 was assigned to the study intersections based on the site distribution shown in Table 5 and is shown on **Figures 5-1, and 5-2** for Alternatives 1 and 2 respectively.

**Table 4: Site Trip Distribution**

New Trips		To / From	via	Pass-By	
PM	Saturday			PM	Saturday
10%	10%	North	Jefferson Avenue	25%	30%
5%	5%	East	Joe Mann Boulevard	25%	20%
20%	20%	East	Wackerly Street	0%	0%
40%	40%	South	Jefferson Avenue	25%	20%
5%	5%	West	Joe Mann Boulevard	25%	30%
20%	20%	West	Wackerly Street	0%	0%
<b>100%</b>	<b>100%</b>			<b>100%</b>	<b>100%</b>



000/000  
PM/SAT PEAK HOUR  
+/-[000/000]  
PASS-BY

**LEGEND**

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- TRAFFIC VOLUMES (AM/PM)
- ROADS

2015

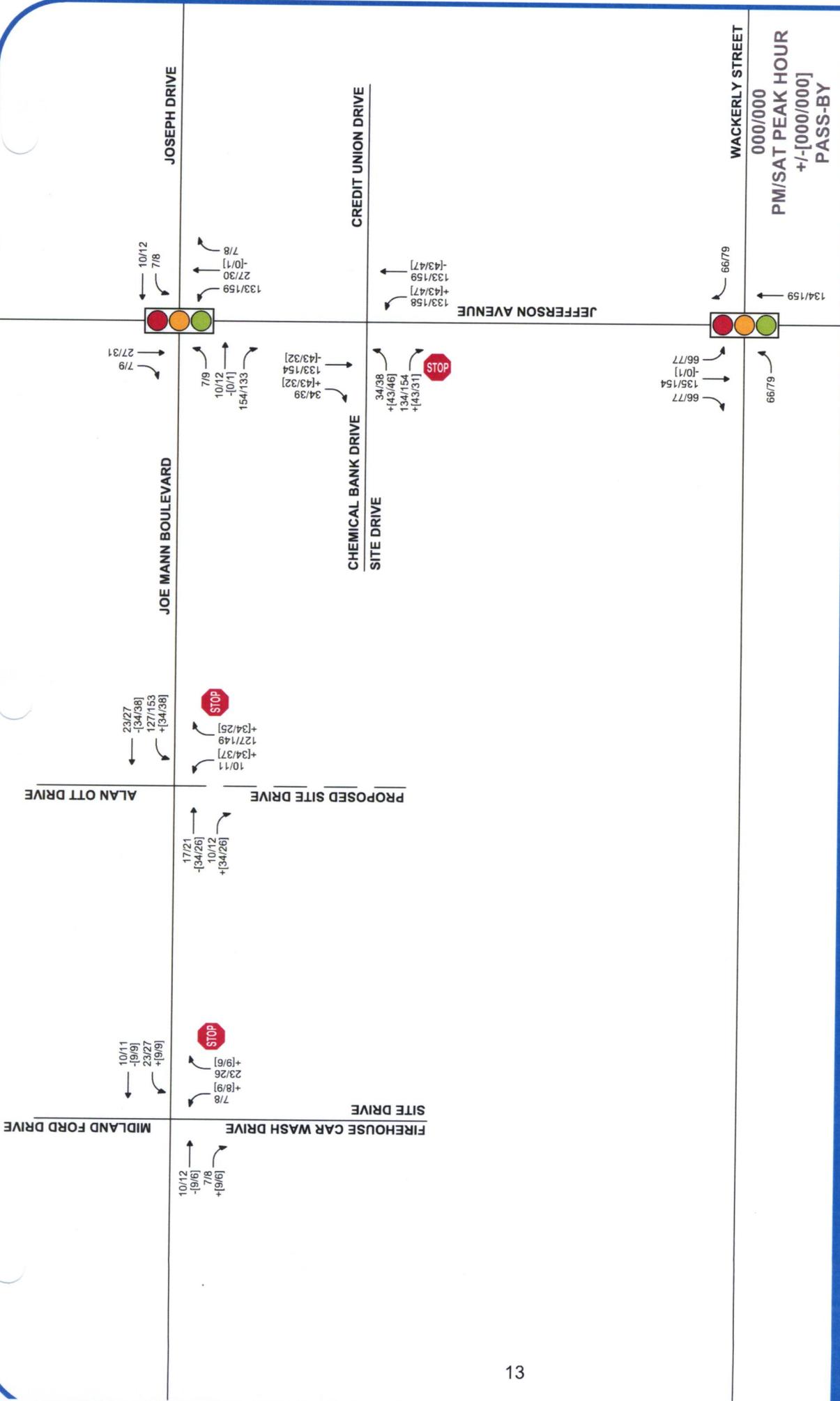
NORTH  
SCALE: NOT TO SCALE

# FIGURE 5-1

## SITE-GENERATED TRAFFIC VOLUMES

KROGER MARKETPLACE - MIDLAND, MI





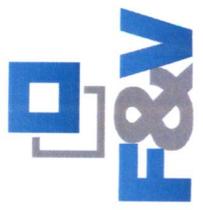
**LEGEND**

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- TRAFFIC VOLUMES (AM/PM)
- ROADS

NORTH  
SCALE: NOT TO SCALE

2015

**FIGURE 5-2**  
**SITE-GENERATED TRAFFIC VOLUMES**  
KROGER MARKETPLACE - MIDLAND, MI



### 3.5 FUTURE CONDITIONS

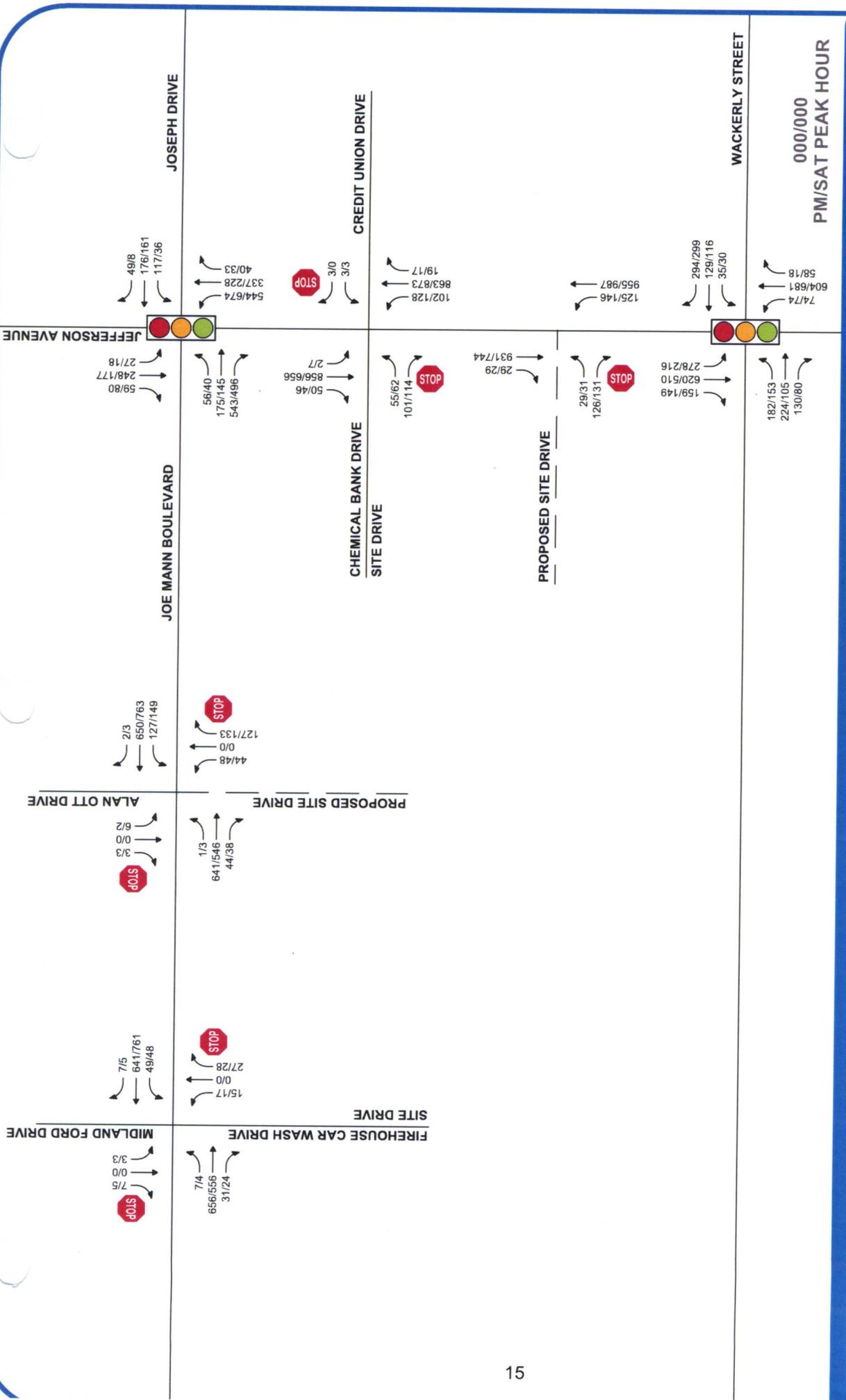
#### 3.5.1 Alternative 1: Two Site Driveways to Jefferson Avenue

The site generated traffic volumes on Figure 5-1 were added to the background traffic volumes shown in Figure 4 to calculate the Future traffic volumes shown on **Figure 6-1**.

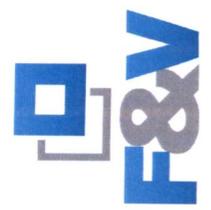
Future peak hour vehicle delays and LOS *with the proposed development* were calculated based on the existing lane use and traffic control shown on Figure 2-1, the proposed site access plan, the future traffic volumes shown on Figure 6-1, and the methodologies presented in the HCM. Additionally, SimTraffic simulations were utilized to evaluate network operations and vehicle queues. The results of the future conditions analysis are presented in Appendix D and are summarized in **Table 6**.

**Table 5: Future Intersection Operations – Alternative 1**

Intersection	Control	Approach	PM Peak		SAT Peak	
			Delay (s/veh)	LOS	Delay (s/veh)	LOS
1. Jefferson Avenue & Joe Mann Boulevard	Signalized	EB	54.8	D	34.5	C
		WB	30.1	C	29.0	C
		NB	52.4	D	110.2	F
		SB	<u>29.3</u>	<u>C</u>	<u>17.8</u>	<u>B</u>
		<b>Overall</b>	<b>45.2</b>	<b>D</b>	<b>69.7</b>	<b>E</b>
2. Jefferson Avenue & Wackerly Street	Signalized	EB	41.1	D	33.6	C
		WB	48.9	D	33.7	C
		NB	35.3	D	42.0	D
		SB	<u>68.9</u>	<u>E</u>	<u>61.8</u>	<u>E</u>
		<b>Overall</b>	<b>50.9</b>	<b>D</b>	<b>46.4</b>	<b>D</b>
3. Joe Mann Boulevard & Alan Ott Drive / Site Drive	STOP (Minor)	EB LT	8.9	A	9.4	A
		WB LT	10.0	A	9.6	A
		NB	53.7	F	69.4	F
		SB	86.2	F	53.3	F
4. Joe Man Boulevard & Firehouse Car Wash Drive / Midland Ford Drive / Site Drive	STOP (Minor)	EB LT	9.0	A	9.4	A
		WB LT	9.3	A	8.9	A
		NB	29.9	D	31.3	D
		SB	24.7	C	28.7	D
5. Jefferson Avenue & Chemical Bank Drive / Credit Union Drive / Site Drive	STOP (Minor)	EB	423.9	F	214.4	F
		WB	184.2	F	166.5	F
		NB LT	10.9	B	10.2	B
		SB LT	10.1	B	9.9	A
6. Jefferson Avenue & Site Drive	STOP (Minor)	EB	31.3	D	24.5	C
		NB LT	11.8	B	10.7	B
		SB	Free		Free	



**FIGURE 6-1**  
**FUTURE TRAFFIC VOLUMES**  
KROGER MARKETPLACE - MIDLAND, MI



The future traffic operations were evaluated with the addition of the site generated traffic volumes. The results of the future conditions analysis indicates that all approaches at the signalized study intersections will continue to operate acceptably at a LOS D or better during both peak hours except, the southbound approach at Jefferson Avenue & Wackerly Street operating at a LOS E during both peak periods and the northbound approach at Jefferson Avenue & Joe Mann Boulevard operating at a LOS F during the Saturday peak period.

Furthermore, all approaches and movements at the intersection of Jefferson Avenue & Site Drive and Joe Mann Boulevard & Firehouse Car Wash / Site Drive will operate acceptably at a LOS D or better during the peak periods. The egress movements at Jefferson Avenue & Chemical Bank / Site Drive and Joe Mann Boulevard & Alan Ott Drive / Site Drive will operate at a LOS F during the peak periods, while the ingress movements will continue to operate acceptably at LOS C or better.

The SimTraffic simulations were reviewed for the PM and Saturday peak hours. During the PM peak hour, the results indicate long vehicle queues for the eastbound left turn, southbound and northbound movements at the intersection of Jefferson Avenue & Wackerly Street. Additionally, long vehicle queues are observed for the egress left turn movement at Jefferson Avenue & Chemical Bank Drive / Site Drive throughout the peak period.

During the Saturday peak hour, long vehicle queues are observed on eastbound and southbound approaches at the intersection of Jefferson Avenue & Wackerly Street. The northbound left turn queue at the intersection of Jefferson Avenue & Joe Mann Boulevard extends through the intersection of Jefferson Avenue & Chemical Bank Drive / Site Drive, blocking the egress left turn movement from this driveway.

In order to provide acceptable network traffic conditions, including site ingress and egress operations, improvements were investigated as detailed below. The results of the future conditions analysis with the recommended improvements are presented in Appendix D and are summarized in **Table 7**.

- A signal warrant analysis was completed at the intersection of Joe Mann Boulevard & Alan Ott Drive / Site Drive. The results of this analysis indicate **Warrant 3 is met** during both peak periods.
- The signal timing at the intersection of Jefferson Avenue & Wackerly Street was optimized, including the addition of permissive / protected left turns and right turn overlap phasing were added for the eastbound and westbound approaches.
- The signal timing was optimized at the intersection of Jefferson Avenue & Joe Mann Boulevard and an eastbound right turn overlap phase was added.

**Table 6: Future Intersection Operations – Alternative 1 with Improvements**

Intersection	Control	Approach	PM Peak		SAT Peak	
			Delay (s/veh)	LOS	Delay (s/veh)	LOS
1. Jefferson Avenue & Joe Mann Boulevard	Signalized	EB	41.9	D	27.4	C
		WB	40.1	D	39.4	D
		NB	33.7	C	35.3	D
		SB	<u>30.7</u>	<u>C</u>	<u>27.1</u>	<u>C</u>
		<b>Overall</b>	<b>36.8</b>	<b>D</b>	<b>32.6</b>	<b>C</b>
2. Jefferson Avenue & Wackerly Street	Signalized	EB	51.1	D	44.4	D
		WB	56.4	E	45.1	D
		NB	54.8	D	42.8	D
		SB	<u>29.9</u>	<u>C</u>	<u>18.2</u>	<u>B</u>
		<b>Overall</b>	<b>45.5</b>	<b>D</b>	<b>34.5</b>	<b>C</b>
3. Joe Mann Boulevard & Alan Ott Drive / Site Drive	Signalized	EB	5.7	A	5.2	A
		WB	5.5	A	6.0	A
		NB	51.0	D	48.9	D
		SB	<u>45.6</u>	<u>D</u>	<u>42.5</u>	<u>D</u>
		<b>Overall</b>	<b>10.7</b>	<b>B</b>	<b>10.5</b>	<b>B</b>

The results of the future conditions analysis with the recommended improvements indicates all approaches at the signalized intersections will operate at a LOS D or better except the westbound approach at the intersection of Jefferson Avenue & Wackerly Street which will operate at a LOS E during the PM peak period. Additionally,

site traffic will utilize the signalized intersection of Joe Mann Boulevard & Alan Ott Drive, improving egress delays at Jefferson Avenue & Chemical Bank Drive / Site Drive.

Review of network simulations with these improvements indicates a northbound queue on Jefferson Avenue at Wackerly Street will be present for the peak 30 minutes of both peak periods while vehicle queues on the westbound approach are processed acceptably during each signal cycle. Additionally, due to the high traffic volumes along Jefferson Avenue the egress left turn queue on the Chemical Bank Drive / Site Drive will still be present. There is additional capacity at the intersection of Joe Mann Boulevard & Alan Ott Drive / Site drive, so vehicles traveling north on Jefferson Avenue or east on Joseph Drive will take advantage of the signalized site driveway during peak periods. The northbound left turn queue will block the intersection of Jefferson Avenue & Chemical Bank Drive / Site Drive for approximately 2 minutes during the PM peak period and 8 minutes during the Saturday peak period, which is not significant.

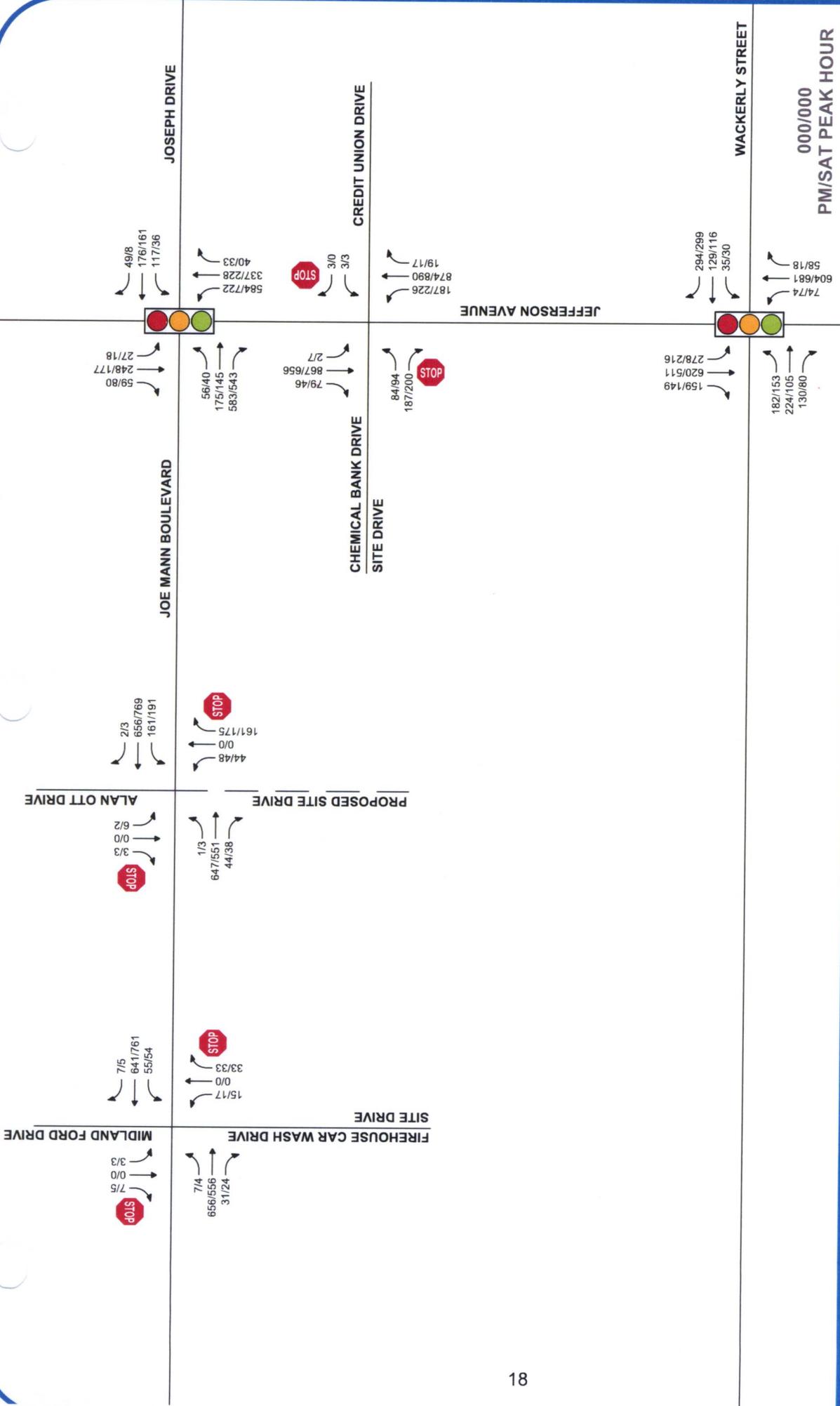
**3.5.2 Alternative 2: One Site Driveway to Jefferson Avenue**

The site generated traffic volumes on Figure 5-2 were added to the background traffic volumes shown in Figure 4 to calculate the Future traffic volumes shown on Figure 6-2.

Future peak hour vehicle delays and LOS *with the proposed development* for Alternative 2 were calculated based on the existing lane use and traffic control shown on Figure 2-2, the proposed site access plan, the future traffic volumes shown on Figure 6-2, and the methodologies presented in the HCM. Additionally, SimTraffic simulations were utilized to evaluate network operations and vehicle queues. The results of the future conditions analysis are presented in Appendix D and are summarized in Table 8.

**Table 8: Future Intersection Operations – Alternative 2**

Intersection	Control	Approach	PM Peak		SAT Peak	
			Delay (s/veh)	LOS	Delay (s/veh)	LOS
1. Jefferson Avenue & Joe Mann Boulevard	Signalized	EB	77.3	E	40.5	D
		WB	30.1	C	29.0	C
		NB	70.9	E	139.2	F
		SB	<u>29.3</u>	<u>C</u>	<u>17.8</u>	<u>B</u>
		<b>Overall</b>	<b>58.8</b>	<b>E</b>	<b>86.0</b>	<b>F</b>
2. Jefferson Avenue & Wackerly Street	Signalized	EB	41.1	D	33.6	C
		WB	48.9	D	33.7	C
		NB	35.3	D	42.0	D
		SB	<u>68.9</u>	<u>E</u>	<u>62.0</u>	<u>E</u>
		<b>Overall</b>	<b>50.9</b>	<b>D</b>	<b>46.5</b>	<b>D</b>
3. Joe Mann Boulevard & Alan Ott Drive / Site Drive	STOP (Minor)	EB LT	9.0	A	9.4	A
		WB LT	10.3	B	9.9	A
		NB	62.3	F	81.4	F
		SB	139.2	F	76.7	F
4. Joe Man Boulevard & Firehouse Car Wash Drive / Midland Ford Drive / Site Drive	STOP (Minor)	EB LT	9.0	A	9.4	A
		WB LT	9.4	A	9.0	A
		NB	28.9	D	28.2	D
		SB	25.6	D	29.4	D
5. Jefferson Avenue & Chemical Bank Drive / Credit Union Drive / Site Drive	STOP (Minor)	EB	1072.9	F	644.2	F
		WB	17.2	C	558.5	F
		NB LT	12.3	B	11.4	A
		SB LT	10.1	A	10.0	A



**LEGEND**

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- TRAFFIC VOLUMES (AM/PM)
- ROADS

**FIGURE 6-2**  
**FUTURE TRAFFIC VOLUMES**  
 KROGER MARKETPLACE - MIDLAND, MI



2015

The future traffic operations were evaluated with the addition of the site generated traffic volumes. The results of the future conditions analysis indicates that all approaches at the intersection of Jefferson Avenue & Wackerly Street will continue to operate acceptably at a LOS D or better during both peak hours except for the southbound approach operating at a LOS E during both peak periods. The intersection of Jefferson Avenue & Joe Mann Boulevard will operate at an overall LOS E and F during the PM and Saturday peak periods, respectively. The northbound approach at this intersection will operate at a LOS E and F during the PM and Saturday peak periods respectively and the eastbound approach will operate at a LOS E during the PM peak period.

Furthermore, all approaches at the intersection of Joe Mann Boulevard & Firehouse Car Wash / Site Drive will operate acceptably at a LOS D or better during the peak periods. The egress movements at Jefferson Avenue & Chemical Bank / Site Drive and Joe Mann Boulevard & Alan Ott Drive / Site Drive will operate at a LOS F during the peak periods, while the ingress movements will continue to operate acceptably at LOS C or better.

The SimTraffic simulations were reviewed for the PM and Saturday peak hours. During the PM peak period, the results indicate long vehicle queues for the eastbound left turn movement at the intersection of Jefferson Avenue & Wackerly Street. Additionally, long vehicle queues are observed for the egress left turn movement at Jefferson Avenue & Chemical Bank Drive / Site Drive throughout the peak period.

During the Saturday peak hour, long vehicle queues are observed on the eastbound approach throughout the peak period and periodic queues northbound at the intersection of Jefferson Avenue & Wackerly Street. A long northbound left turn queue at the intersection of Jefferson Avenue & Joe Mann Boulevard extends through the intersection of Jefferson Avenue & Chemical Bank Drive / Site Drive, blocking the egress left turn movement from the site during both peak periods.

In order to provide acceptable network traffic conditions, including site ingress and egress operations, improvements were investigated as detailed below. The results of the future conditions analysis with the recommended improvements are presented in Appendix D and are summarized in **Table 7**.

- A signal warrant analysis was completed at the intersection of Joe Mann Boulevard & Alan Ott Drive / Site Drive. The results of this analysis indicate **Warrant 3 is met** during both peak periods.
- The signal timing at the intersection of Jefferson Avenue & Wackerly Street was optimized, including the addition of permissive / protected left turns and right turn overlap phasing were added for the eastbound and westbound approaches.
- The signal timing was optimized at the intersection of Jefferson Avenue & Joe Mann Boulevard and an eastbound right turn overlap phase was added.

**Table 9: Future Intersection Operations – Alternative 2 with Improvements**

Intersection	Control	Approach	PM Peak		SAT Peak	
			Delay (s/veh)	LOS	Delay (s/veh)	LOS
1. Jefferson Avenue & Joe Mann Boulevard	Signalized	EB	29.6	C	26.5	C
		WB	39.9	D	39.4	D
		NB	40.5	D	44.4	D
		SB	<u>33.6</u>	<u>C</u>	<u>28.8</u>	<u>C</u>
		<b>Overall</b>	<b>36.4</b>	<b>D</b>	<b>37.2</b>	<b>D</b>
2. Jefferson Avenue & Wackerly Street	Signalized	EB	51.1	D	44.4	D
		WB	56.4	E	45.1	D
		NB	54.8	D	42.8	D
		SB	<u>29.9</u>	<u>C</u>	<u>18.2</u>	<u>B</u>
		<b>Overall</b>	<b>45.5</b>	<b>D</b>	<b>34.5</b>	<b>C</b>
3. Joe Mann Boulevard & Alan Ott Drive / Site Drive	Signalized	EB	6.9	A	6.5	A
		WB	7.1	A	7.7	A
		NB	52.7	D	51.1	D
		SB	<u>44.8</u>	<u>D</u>	<u>40.9</u>	<u>D</u>
		<b>Overall</b>	<b>12.8</b>	<b>B</b>	<b>12.9</b>	<b>B</b>

The results of the future conditions analysis with the recommended improvements indicates all approaches at the signalized intersections will operate at a LOS D or better except the westbound approach at the intersection of Jefferson Avenue & Wackerly Street which will operate at a LOS E during the PM peak period. Additionally, site traffic will utilize the signalized intersection of Joe Mann Boulevard & Alan Ott Drive, improving egress delays at Jefferson Avenue & Chemical Bank Drive / Site Drive.

Review of network simulations with these improvements indicates a northbound queue on Jefferson Avenue at Wackerly Street will be present for the peak 30 minutes of both peak periods, while vehicle queues on the westbound approach are processed acceptably during each signal cycle. Additionally, due to the high traffic volumes along Jefferson Avenue the egress left turn queue on the Chemical Bank Drive / Site Drive will still be present. Northbound approach vehicle queues on Jefferson Avenue at Joe Man Boulevard will block the intersection of Jefferson Avenue & Chemical Bank Drive / Site Drive for approximately 6 minutes during the PM peak period and 14 minutes during Saturday peak period.

### 3.6 PLANNED IMPROVEMENTS

The recommended intersection improvements at Jefferson Avenue & Wackerly Street and Jefferson Avenue & Joe Mann Boulevard included herein were also previously identified by the City in the Master Plan. In addition, the City also identified that improvements were need on Jefferson Avenue, stating "If/when the overpass is reconstructed, correct alignment of Jefferson north of intersection." Additionally, the City also identified existing traffic delays at the intersection of Jefferson Avenue & Joe Mann Boulevard and there noted the need for improvements under existing conditions. The City's additional mitigation measures include a roundabout at the intersection of Jefferson Avenue & Joe Mann Boulevard, in conjunction with the installation of a boulevard along Joe Mann Boulevard between Jefferson Avenue and Eastman Avenue.

## 4 CONCLUSIONS

*The conclusions of this Traffic Impact Study (TIS) are as follows:*

1. All signalized study intersection approaches and movements currently operate acceptably at an overall LOS D or better during both peak periods.
2. At the unsignalized study intersections the eastbound approach of Chemical Bank Drive operates at a LOS E during the PM peak and the westbound approach operates at a LOS E during both peaks.
3. An average annual background growth rate of 0.6% was applied to the existing 2015 traffic volumes to calculate the 2017 background traffic volumes.
4. All signalized study intersections will continue to operate at an overall LOS D or better during the peak periods with background traffic volumes. At the STOP controlled minor streets, all approaches and movements will continue to operate in a manner similar to existing conditions
5. The recommended intersection improvements at Jefferson Avenue & Wackerly Street and Jefferson Avenue & Joe Mann Boulevard included herein were also previously identified by the City in the Master Plan. The City's additional mitigation measures include a roundabout at the intersection of Jefferson Avenue & Joe Mann Boulevard, in conjunction with the construction of a boulevard along Joe Mann Boulevard between Jefferson Avenue and Eastman Avenue.

#### *Alternative 1: Two Site Driveways on Jefferson*

6. Future traffic operations indicate the southbound approach at Jefferson Avenue & Wackerly Street will operate at a LOS E during both peak periods and the northbound approach at Jefferson Avenue & Joe Mann Boulevard will operate at a LOS F during the Saturday peak period.
7. With the recommended improvements, all study network intersections and site driveways will operate acceptably during the PM and Saturday peak hours except the intersections of Jefferson Avenue & Wackerly Street, Jefferson Avenue & Chemical Bank / Site Drive, and Alan Ott Drive / Site Drive which will have several approaches and movements operate at a LOS F.

#### *Alternative 2: One Site Driveway on Jefferson*

8. Future traffic operations with the proposed development indicate the southbound approach at Jefferson Avenue & Wackerly Street will operate at a LOS E during the both peak periods. The intersection of

Jefferson Avenue & Joe Mann Boulevard will operate at an overall LOS E and F during the PM and Saturday peak periods, respectively, with several movements operating at LOS E or F.

9. The egress movements at Chemical Bank / Site Drive and Alan Ott Drive / Site Drive will operate at a LOS F during the peak periods.
10. With the recommended improvements, all study network intersections and site driveways of Alternative 2 will operate acceptably during the PM and Saturday peak hours, except at the intersection of Jefferson Avenue & Chemical Bank / Site Drive which will continue to have several approaches and movements operate at a LOS F.

## 5 RECOMMENDATIONS

*The following are recommended based on the results of this TIS:*

1. Based on the results of this analysis the proposed site plan evaluated with Alternative 1: *Two Site Driveways on Jefferson* is recommended. This development plan provides the necessary site access for the proposed development. Limiting the site access to one driveway on Jefferson Avenue creates extensive on-site queuing
2. The recommended intersection improvements with the proposed site development are summarized below:
  - Signalize the intersection of Joe Mann Boulevard & Alan Ott Drive / Site Drive with an actuated traffic signal.
  - Provide permissive/protected left turns for the eastbound and westbound approaches on Wackerly Street at Jefferson Avenue intersection.
  - Provide right turn overlap phasing for the eastbound and westbound approaches on Wackerly Street at Jefferson Avenue intersection.
  - Provide right turn overlap phasing for the eastbound approach on Joe Mann Boulevard at the Jefferson Avenue intersection.
3. Optimize signal timings at the study intersections with the addition of the proposed site development traffic.

# Memo

VIA EMAIL

**To:** Mr. Daniel Carper  
Kroger Company of Michigan

**From:** Michael J. Labadie, PE  
Julie M. Kroll, PE, PTOE  
Fleis & VandenBrink

**Date:** February 9, 2016

**Re:** Proposed Kroger Development  
City of Midland, Michigan  
Traffic Impact Study Addendum

## Introduction

This memorandum is intended as an addendum to the original Traffic Impact Study (TIS) dated December 28, 2015 completed by Fleis & VandenBrink (F&V) for the proposed Kroger Marketplace development in the City of Midland. The City of Midland's traffic consultant (OHM) provided a review letter dated January 18, 2016 with questions and comments regarding F&V's traffic impact study. F&V subsequently met with OHM, the City of Midland, Kroger and LSG Engineers & Surveyors (LSG) on January 29, 2016 in the City of Midland.

A follow-up meeting was held on February 3, 2016 at F&V's Farmington Hills office with OHM, Kroger and LSG in attendance. The focus of this meeting included the following topics:

- Trip generation methodology and calculations.
- South site driveway to Jefferson Avenue operations.
- North site driveway to Jefferson Avenue egress queue length.

The purpose of this memorandum is to provide further information relative to the trip generation methodology utilized for the proposed Kroger Marketplace store and a summary of the items discussed regarding the site driveways on Jefferson Avenue.

## Site Trip Generation

The Institute of Transportation Engineers (ITE) *Trip Generation, 9<sup>th</sup> Edition (current)* is the standard reference manual used to estimate traffic generated by new developments. However, ITE data does not sufficiently represent a 123,000 SF Kroger Marketplace store. Land use #850 (Supermarket) is illustrative of traditional grocery stores with an average size of approximately 60,000 square feet (SF) and which sells ancillary household items in addition to groceries. Land use #813 (Free-Standing Discount Superstore) includes a full service grocery department and a discount store under the same roof with an average size of approximately 200,000 square feet (SF). The Kroger Marketplace store is a hybrid of these two land uses; with a traditional grocery store which sells ancillary household items. As such, customer count data was provided by Kroger from existing Marketplace stores and was utilized to estimate the trip generation for the store. Detailed information regarding the trip generation calculations is summarized below:

27725 Stansbury Boulevard, Suite 150  
Farmington Hills, MI 48334  
P: 248.536.0080  
F: 248.536.0079  
www.fveng.com

### **Weekday PM Peak Hour Trip Generation**

The number of weekday PM Peak hour trips generated by the proposed Kroger Marketplace store was calculated as follows:

1. Daily customer count information was provided by Kroger for two separate weeks from the following three Kroger Marketplace located in suburban Little Rock, Arkansas.
 

a. 855 Salem Road, Conway, AR 72034 14 fueling positions	b. 16105B Chenal Parkway, Little Rock, AR 72223 14 fueling positions	c. 14000 Cantrell Little Rock, AR 72212 10 fueling positions
--	--	--
2. The weekday Tuesday, Wednesday, and Thursday counts from each store were averaged together to calculate approximately 4,400 customers per day.
3. Assuming two vehicle trips (one ingress, one egress) per customer resulted in 8,800 daily trips for an average weekday.
4. To determine the PM peak hour trips, the ratio of PM peak hour to daily trips were than calculated from the average trip generation rates for both ITE land use #850 (Supermarket) and #813 (Free-Standing Discount Superstore) as they were determined to most closely match the operations of the Kroger Marketplace store.

$$\frac{PM\ trip\ gen\ rate}{Daily\ trip\ gen\ rate} \quad ITE\ Land\ Use\ 813 \quad \frac{4.35\ vph}{50.75\ vpd} = 8.6\% \quad ITE\ Land\ Use\ 850 \quad \frac{9.48\ vph}{102.24\ vpd} = 9.3\%$$

5. The results of this comparison indicate that 8.6% and 9.3% of daily trips occur during the PM peak hour for land use #813 and #850, respectively.
6. As a conservative approach the 9.3% ratio was utilized and applied to the 8,800 daily trips to calculate a total weekday PM peak hour trip generation of 818 trips.  $\{8,800vpd \times 9.3\% = 818\ vph\}$
7. The directional distribution of inbound vs. outbound trips was calculated as the average between land uses #813 and #850 resulting in a directional distribution of 50% inbound and 50% outbound.
8. The pass-by percentage was also calculated as an average between land use #813 and #850 and results in a pass-by rate of 32%.

### **Saturday Mid-day Peak Hour Trip Generation**

The number of Saturday mid-day peak hour trips generated by the proposed Kroger Marketplace store was calculated as follows:

1. Saturday hourly customer count information for two hours between 11:00 AM to 1:00 PM for 52 weeks was provided by Kroger for the following existing Kroger Marketplace location:
 

a. 14945 23 Mile Road Shelby Township, MI 48315 14 fueling positions
--
2. The higher hourly count from each of the 52 weeks were averaged together to determine an average Saturday mid-day peak of 437 customers per hour.
3. Assuming two vehicle trips (one ingress, one egress) per customer resulted in 874 peak hour trips.
4. The directional distribution of inbound vs. outbound trips was calculated as the average between land uses #813 and #850 resulting in a directional distribution of 51% inbound and 49% outbound.
5. Saturday pass-by data is not available for land use #850; therefore, in order to develop a Saturday pass-by rate, weekday PM peak hour pass-by rates were compared to Saturday mid-day pass-by rates for land uses #813 and #820 (Shopping Center). The results of this comparison indicate that there are approximately 30% more pass-by trips during the weekday PM peak hour as compared to the Saturday mid-day peak hour.
6. The 30% increase in pass-by trips was then applied to the weekday pass-by rate (36%) for land use #850 resulting in a Saturday mid-day pass-by rate of 28%.  $\left[ \frac{PM}{\% Increase} \right] \frac{36\%}{1.3} = 28\%$

7. The projected Saturday mid-day pass-by rate for land use #850 was then average with the Saturday mid-day pass-by rate for land use #813 resulting in a pass-by rate of 25%.  $\left[ \frac{\#813 SAT + \#850 SAT}{2} \right] \frac{21\% + 28\%}{2} = 25\%$

### Conclusions

The following is a summary of items discussed during our February 3, 2016 meeting with OHM.

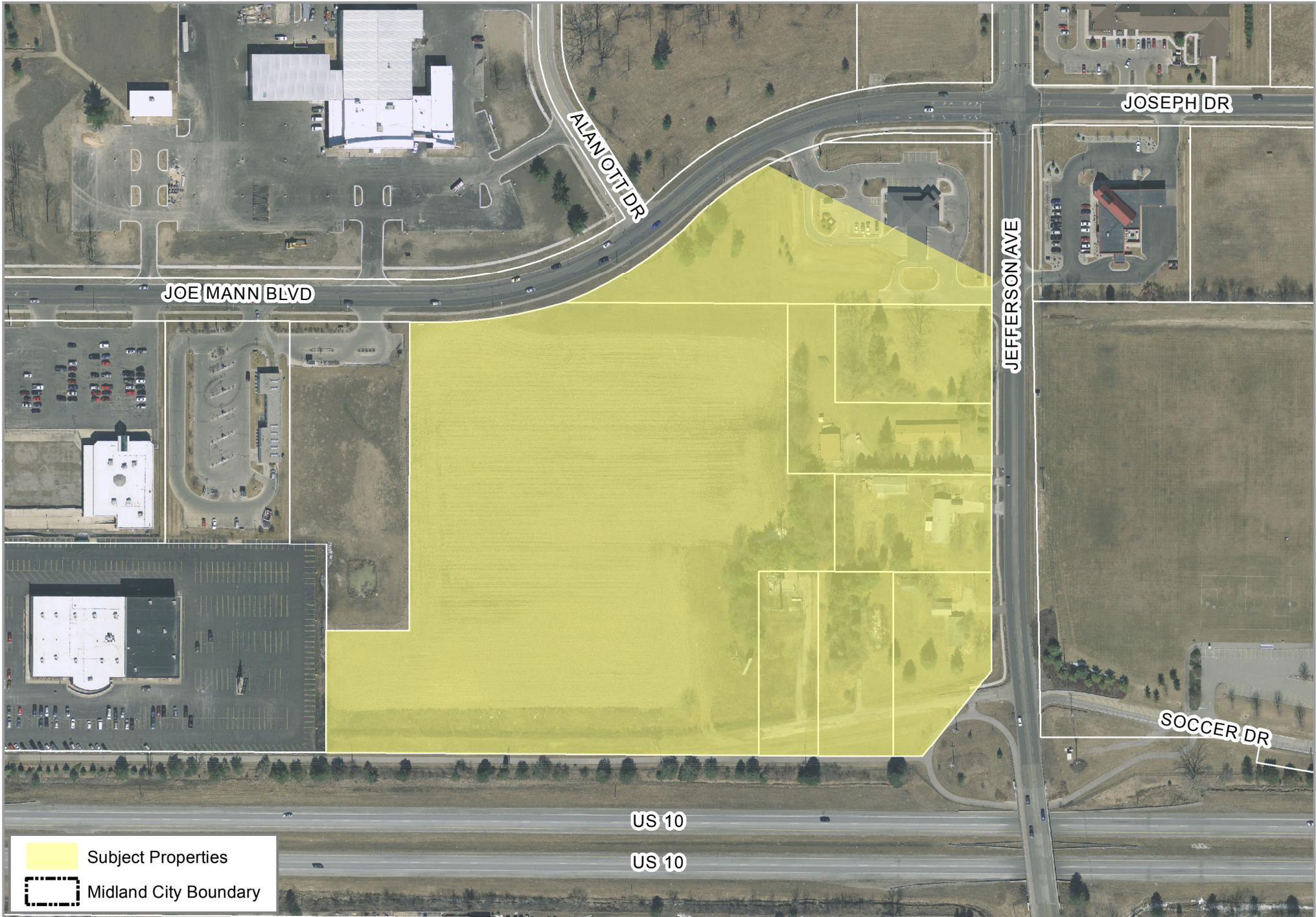
1. F&V presented the trip generation methodology and OHM approved of the trip generation data included in the TIS and as summarized above.
2. OHM requested restriction of egress left turns from the south site driveway to Jefferson Avenue. F&V and Kroger agreed to the prohibition of egress left turns, provided the "pork chop" channelizing island can be designed to adequately accommodate a WB-67. OHM did not require update of the TIS to reflect the restriction of egress left turns.
3. OHM requested increased storage space for the eastbound (egress) right turn lane on the north site driveway to Jefferson Avenue to decrease the likelihood of vehicles in the left turn lane blocking access for right-turns at this driveway. F&V agreed and LSG will redesign the right turn storage to accommodate 5-6 vehicles, with approximately 125-150 feet of queue length.

We hope that this information provides adequate clarification to address the concerns of OHM and the City of Midland. Any questions related to this memorandum, study, analyses, or results should be addressed to Fleis & VandenBrink.

SJR:jmk

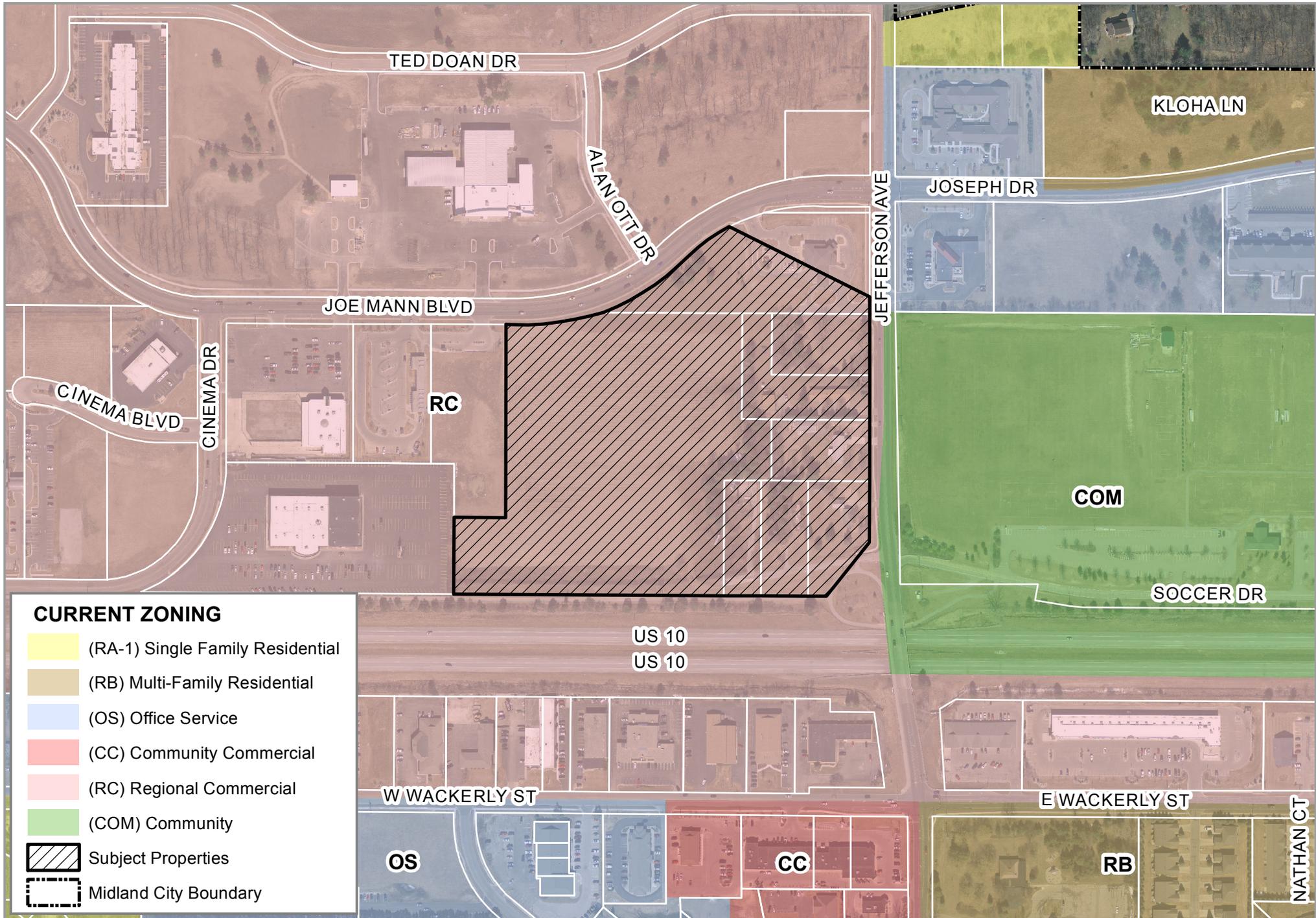
# SP #343 - LSG Engineers & Surveyors

> 315 Joe Mann Blvd - Proposed Kroger Marketplace & Fuel Center



# SP #343 - LSG Engineers & Surveyors

> 315 Joe Mann Blvd - Proposed Kroger Marketplace & Fuel Center



# PLANS FOR CONSTRUCTION OF KROGER MARKETPLACE #D-777

315 JOE MANN BOULEVARD  
MIDLAND, MI 48642

DATE	DESCRIPTION	BY
3/11/16	PER CITY COMMENTS	M.S.
12/30/15	SITE PLAN SUBMITTAL	M.S.
	REVISIONS/SUBMITTALS	

## NOTES

### GENERAL

- CONTROL BENCHMARK:**  
City of Midland Engineering Department Combined Plan for N. Jefferson Avenue. (Sheet 2 of 2) P.K. Nail in power pole on the West side of Jefferson Avenue at house #1589.  
Elevation: 651.40 (Datum not specified)
  - BENCHMARK #1:**  
Northeast flange bolt under "S" in "WORKS" on fire hydrant 7± East of East curb line of Jefferson Avenue, 115± South of the centerline of Chemical Bank driveway.  
Elevation: 650.08
  - BENCHMARK #2:**  
Chiseled "□" on top of East side of Northerly concrete light pole base located 55± South of Northeast corner of parking lot for #6540 Cinema Drive. Also being opposite West side of detention pond West of subject property.  
Elevation: 643.71
  - BENCHMARK #3:**  
Chiseled "□" on Southwest corner of concrete slab under a bench on the South right of way line of Joe Mann Boulevard, 60' West of centerline Alan Ott Drive to the North.  
Elevation: 644.99
- The contractor shall call "MISS DIG" at 811 or 1-800-482-7171 at least 3 working days (excluding weekends and holidays) prior to construction.
  - All work shall be done in accordance with the applicable codes, ordinances, design standards and standard specifications of the following agencies which have the responsibility of reviewing plans and specifications for construction of all items included in these plans:
    - City of Midland
    - Midland County
    - State of Michigan
  - The contractor shall apply for and obtain all necessary permits as required for construction of this project prior to the beginning of work from the previously mentioned agencies.
  - The contractor shall notify the City of Midland a minimum of 24 hours prior to any construction in the road right-of-way of Joe Mann Boulevard or Jefferson Avenue.
  - The contractor agrees that in accordance with generally accepted construction practices, the contractor will be required to assume sole responsibility for job site conditions during the course of construction of the project, including the safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours.
  - The locations and dimensions shown on the plans for existing facilities are in accordance with all available information. The engineer does not guarantee the accuracy of this information or that all existing underground facilities are shown.
  - When any existing utility requires adjustment or relocation, the contractor shall notify the proper utility company and coordinate the work accordingly. There shall be no claim made by the contractor for any costs caused by delays in construction due to the adjustment or relocation of utilities.
  - The contractor is to verify that the plans and specifications that he/she is building from are the very latest plans and specifications that have been approved by all applicable permit-issuing agencies and the owner. All items constructed by the contractor prior to receiving the final approval and permits having to be adjusted or re-done, shall be done at the contractor's expense.
  - Should the contractor encounter conflict between these plans and specifications, either among themselves or with the requirements of any and all reviewing and permit-issuing agencies, he/she shall seek clarification in writing from this engineer before commencement of construction. Failure to do so shall be at the sole expense to the contractor.
  - Unless otherwise noted the contractor shall furnish as-built drawings indicating all changes and deviations from approved drawings.
  - All signs and traffic control measures during construction and maintenance activities shall be constructed and installed per the latest edition of the Michigan Manual of Uniform Traffic Control Devices (M.M.U.T.C.D.).
  - L&S Engineers & Surveyors will not be responsible for field design changes made by the contractor or the contractor's surveyor where L&S Engineers & Surveyors has not approved these design changes.

### GRADING AND SITE WORK

- All sedimentation and soil erosion control measures shall be constructed prior to the commencement of site grading and must conform to Part 91 of Act 451 of the Public Acts of 1994 as amended. All applicable permits shall be obtained before implementing these measures. The contractor shall be responsible for maintaining the sedimentation and soil erosion control measures throughout construction.
- Prior to grading, cutting and filling the contractor shall remove all topsoil, debris, vegetation, etc. from the site. Acceptable material excavated from the cut areas shall be used for fill. Fill shall be placed in layers not exceeding depths of 8 inches if heavy self-propelled compaction equipment is used and 6 inches if hand compaction equipment is used. Fill shall be compacted to 98% of the material's Standard Proctor maximum dry density for structural areas and to 95% of Standard Proctor maximum dry density for landscape areas where long term plans do not include structures. Refer to the Geotechnical Engineering Report prepared by TerraCon Consultants for additional compaction information.

- The contractor shall proof-roll the existing subgrade to determine its suitability. If, in the opinion of the engineer, the subgrade is unsuitable that portion of the subgrade shall be excavated and replaced with a minimum of 12" M.D.O.T. Class II granular material.
- All site grading must be performed to insure positive drainage across the entire site, throughout the period of construction and after project completion.

### STORM DRAINAGE SYSTEM

- Unless otherwise noted all storm drain pipe shall be ASTM C-76 Class III or better, with premium joints. All storm drain with less than 3 feet of cover below paved areas shall be ASTM C-76 Class IV, with premium joints.
- All storm drain service leads shall be 4" minimum Schedule 40 or SDR-35 unless otherwise noted on these plans.
- All storm drain manholes and catch basins shall conform to the City of Midland Standard Details included in these plans.
- All storm drain within the influence of roads, drives, walks, structures and foundations shall be backfilled with 100% granular material (or approved other) and compacted to 98% of its maximum unit weight (see typical trench details included in these plans).
- All frames and covers on drainage structures shall be non-racking, made of heavy duty cast iron and shall conform to the casting schedule on sheet C1.3.1.
- All rim elevations in outtown areas are approximate only and shall be adjusted by the contractor after final grades are established.
- See Storm Drain Details on sheets C1.3.1 & C5.3.1.

### SANITARY SEWER SYSTEM

- All construction of the sanitary sewer system shall conform to the sanitary sewer construction plans and specifications approved by the City of Midland.
- All sanitary sewer pipe shall be PVC SDR-26 unless otherwise noted on these plans.
- All rim elevations in outtown areas are approximate only and shall be adjusted by the contractor after final grades are established.
- All sanitary sewer within the influence of roads, drives, walks, structures and foundations shall be backfilled with 100% granular material (or approved other) and compacted to 98% of its maximum dry density (see typical trench details included in these plans).
- All sanitary sewer manholes shall conform to the City of Midland standards.
- See Sanitary Sewer Details on sheets C1.3.1 & C5.3.1.

### WATER MAIN SYSTEM

- All water main shall be Class 50 ductile iron unless otherwise noted on these plans.
- All construction of the water main service system shall conform to the water main construction plans and specifications approved by the City of Midland.
- All water main shall be installed with a minimum of 5.5 feet of cover from finished grades.
- A full length of water main pipe shall be centered from the point of crossings of all sewers with a minimum vertical clearance of 1.5 feet. In the event a clearance of less than 1.5 feet is constructed, the intersection shall be encased in concrete.
- All elevations in outtown areas are approximate only and shall be adjusted by the contractor after finish grades are established.
- All water main within a 45' zone of influence of roads, drives, walks, structures and foundations shall be backfilled with 100% granular material (or approved other) and compacted to 95% of its maximum unit weight (see typical trench details included in these plans).
- All water main shall have a minimum 10' horizontal separation from any storm or sanitary sewer.
- Water services shall be 1" type K copper pipe with corporation stop and 1" curb stop and box at rear of 10' utility easement.
- See Water Main Details on sheets C1.3.1 & C5.3.1.
- Hydrants shall be painted with a red upper barrel and the specifications.

### GEOTECHNICAL NOTE

Refer to the Geotechnical Engineering Report prepared by TerraCon Consultants, Project No. N4155202, dated November 12, 2015, for additional geotechnical and paving information.



## LOCATION MAP

## LEGEND

(E) SPOT ELEVATION	(P) SPOT ELEVATION	(P) 1' CONTOUR	(P) 5' CONTOUR
(E) 1' CONTOURS	(P) 1' CONTOUR	(P) 5' CONTOUR	(P) GAS LINE
(E) 5' CONTOURS	(P) 5' CONTOUR	(P) TELEPHONE LINE	(P) ELECTRIC LINE
(E) GAS LINE	(P) TELEPHONE LINE	(P) ELECTRIC LINE	(P) STORM DRAIN
(E) TELEPHONE LINE	(P) ELECTRIC LINE	(P) STORM DRAIN	(P) SANITARY SEWER
(E) STORM DRAIN	(P) SANITARY SEWER	(P) SANITARY SEWER	(P) WATER MAIN
(E) WATER MAIN	(P) WATER MAIN	(P) WATER MAIN	(P) CHAIN LINK FENCE
(E) CHAIN LINK FENCE	(P) CHAIN LINK FENCE	(P) CHAIN LINK FENCE	(P) WOOD FENCE
(E) WOOD FENCE	(P) WOOD FENCE	(P) WOOD FENCE	(P) GUARD RAIL
(E) WATER WELL	(P) GUARD RAIL	(P) GUARD RAIL	(P) FIRE HYDRANT ASSEMBLY
(E) FIRE HYDRANT	(P) FIRE HYDRANT ASSEMBLY	(P) FIRE HYDRANT ASSEMBLY	(P) WATER MAIN VALVE
(E) WATER VALVE	(P) WATER MAIN VALVE	(P) WATER MAIN VALVE	(P) WATER MAIN BEND
(E) SANITARY MANHOLE	(P) WATER MAIN BEND	(P) WATER MAIN BEND	(P) CURB INLET
(E) STORM MANHOLE	(P) CURB INLET	(P) CURB INLET	(P) CATCH BASIN
(E) CATCH BASIN	(P) CATCH BASIN	(P) CATCH BASIN	(P) TRENCH DRAIN
(E) CULVERT	(P) TRENCH DRAIN	(P) TRENCH DRAIN	(P) FLARED END SECTION
(E) LIGHT POLE	(P) FLARED END SECTION	(P) FLARED END SECTION	(P) MANHOLE
(E) UTILITY POLE	(P) MANHOLE	(P) MANHOLE	(P) LIGHT POLE
(E) SIGN	(P) LIGHT POLE	(P) LIGHT POLE	(P) SANITARY SEWER CLEANOUT
(E) MAILBOX	(P) SANITARY SEWER CLEANOUT	(P) SANITARY SEWER CLEANOUT	(P) UTILITY CROSSING
(E) CONIFEROUS TREE	(P) UTILITY CROSSING	(P) UTILITY CROSSING	(P) BUILDING WALLPACK
(E) DECIDUOUS TREE	(P) BUILDING WALLPACK	(P) BUILDING WALLPACK	(P) SIGN
(P) SIDE SLOPE	(P) SIGN	(P) SIGN	(P) PARKING COUNT
(P) DRAINAGE SWALE	(P) PARKING COUNT	(P) PARKING COUNT	(P) BARRIER-FREE PARKING
(P) DRAINAGE FLOW ARROW	(P) BARRIER-FREE PARKING	(P) BARRIER-FREE PARKING	(P) BARRIER-FREE VAN ACCESSIBLE
(P) RIP RAP	(P) BARRIER-FREE VAN ACCESSIBLE	(P) BARRIER-FREE VAN ACCESSIBLE	(P) TRAFFIC FLOW
LOW POINT	(P) TRAFFIC FLOW	(P) TRAFFIC FLOW	(P) MODIFIED CURB & GUTTER
HIGH POINT	(P) MODIFIED CURB & GUTTER	(P) MODIFIED CURB & GUTTER	(P) REGULAR CURB & GUTTER
FINISH FLOOR	(P) REGULAR CURB & GUTTER	(P) REGULAR CURB & GUTTER	(P) SCREEN WALL OR RETAINING WALL
BENCHMARK	(P) SCREEN WALL OR RETAINING WALL	(P) SCREEN WALL OR RETAINING WALL	
WATER SURFACE			
GRADE BREAK			
(P) HEAVY DUTY ASPHALT AREA			
(P) LIGHT DUTY ASPHALT AREA			
(P) CONCRETE SURFACE			
(P) AGGREGATE SURFACE			
(P) DRAINAGE BASIN BOUNDARY			
(P) BASIN DESIGNATION			
(P) BASIN AREA IN ACRES			

NOTE:  
(E) - INDICATES EXISTING  
(P) - INDICATES PROPOSED

E-1a  
2.52

## INDEX

- C0 COVER
- CD1.1 TOPOGRAPHIC & ALTA/ASCM LAND TITLE SURVEY
- CD1.2 TOPOGRAPHIC & ALTA/ASCM LAND TITLE SURVEY
- CD1.3 TOPOGRAPHIC SURVEY - CHEMICAL BANK
- CD1.4 DEMOLITION PLAN
- C1.1 SITE PLAN
- C1.1.1 CELL TOWER DETAIL PLAN
- C1.1.2 INTERSECTION TRUCK PLAN
- C1.2 GRADING AND SESC PLAN
- C1.2.1 DRAINAGE AREA CALCULATIONS AND DETAILS
- C1.2.2 DRAINAGE AREA PLAN
- C1.3 UTILITY PLAN
- C1.3.1 UTILITY DETAILS
- C1.3.2 SANITARY SEWER PLAN AND PROFILE
- C1.3.3 SANITARY SEWER PLAN AND PROFILE
- C1.3.4 WATER MAIN PLAN AND PROFILE
- C1.3.5 WATER MAIN PLAN AND PROFILE
- C1.3.6 WATER MAIN PLAN AND PROFILE
- C1.4 SESC NOTES AND DETAILS
- C5.1 MISCELLANEOUS DETAILS
- C5.2.1 CIVIL STANDARD DETAILS
- C5.3.1 CITY OF MIDLAND STANDARD DETAILS
- E1.7 SITE LIGHTING PLAN
- L1.1 LANDSCAPE PLAN
- TPC FUEL PLANS

## CONTACT LIST

**OWNER/DEVELOPER CONTACTS**  
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MIDLAND COUNTY DRAIN COMMISSIONER  
DOUGLAS ENOS, DRAIN COMMISSIONER  
2220 W. ELLSWORTH STREET  
MIDLAND, MI 48640  
PH: 969-832-6770

### UTILITY CONTACTS

CONSUMERS ENERGY (GAS & ELECTRIC)  
THOMAS SCOTT  
1100 WASHINGTON  
MIDLAND, MI 48640  
PH: 969-839-8626  
PH: 800-477-5050 (TO SET UP THE PROJECT IN THEIR SYSTEM AND HAVE IT ASSIGNED TO A LOCAL CONTACT.)

AT&T (TELEPHONE)  
JOE  
PH: 800-288-2020  
jb784p@att.com

PREPARED FOR:

**THE KROGER CO. OF MICHIGAN**  
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NOVI, MI 48375  
PHONE: (248) 536-1500

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Engineers & Surveyors

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LANSING, MI 48911  
PH: (517) 393-2902  
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www.lsg-es.com

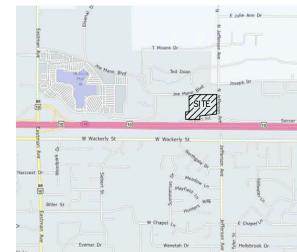
DATE: DECEMBER 30, 2015  
PROJECT NO.:  
1636  
SHEET NO.:  
C0

**STRUCTURE INVENTORY:**

<b>STORM SEWER</b>	STM MH 5 RIM ELEVATION: 640.17 E 54" CONC. - 632.53 W - (UNABLE TO VERIFY)	STM MH 1 RIM ELEVATION: 640.17 E 54" CONC. - 632.53 W - (UNABLE TO VERIFY)	STM MH 2 RIM ELEVATION: 642.42 E 54" CONC. - 634.1± W 54" CONC. - 634.1± NE 18" CONC. - 635.52	STM MH 3 RIM ELEVATION: 643.66 E 54" CONC. - 635.5± W 54" CONC. - 634.6±	STM MH 4 RIM ELEVATION: 642.91 E 54" CONC. - 636.01 W 54" CONC. - 636.01 S 6" PLASTIC - 637.91 N 6" PLASTIC - 637.91	STM MH 5 RIM ELEVATION: 645.35 S 12" SLOPP - 638.05 E 54" CONC. - 637.4± W 54" CONC. - 637.3± N 12" CONC. - 638.1± SW 6" PLASTIC - 639.75	STM MH 14 RIM ELEVATION: 648.69 W 54" CONC. - 639.1± E - (UNABLE TO VERIFY) N - (UNABLE TO VERIFY)	STM MH 15 RIM ELEVATION: 648.25 W 18" CONC. - 642.58	<b>SANITARY SEWER</b>	SAN MH A RIM ELEVATION: 640.62 W 15" CONC. - 628.20 E 15" CONC. - 628.20 N 6" PVC - 630.22 S 6" PVC - 630.17 SW 6" PVC - 630.87	SAN MH B RIM ELEVATION: 642.84 W 15" CONC. - 629.98 E 15" CONC. - 629.98 N 6" PVC - 631.56 S 6" PVC - 631.60	SAN MH C RIM ELEVATION: 644.28 NE 15" CONC. - 631.58 SW 15" CONC. - 631.58 NW 6" PVC - 633.43 SE 6" PVC - 633.48
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**CURVE TABLE**

NUMBER	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD DIRECTION	CHORD LENGTH
C1	206.52'	633.00' (R/M)	18°41'37" (R/M)	S81°02'52"W (R/M)	205.61' (R/M)



**LINE TABLE**

NUMBER	DIRECTION	DISTANCE	(R/M)
L1	N00°01'06"W	234.31'	(R/M)
L2	S89°28'06"E	175.00'	(R/M)
L3	N00°01'06"W	165.00'	(R/M)
L4	N89°28'06"W	160.00'	(R/M)
L5	N89°28'06"W	339.00'	(R/M)
L6	N89°28'04"W	100.00'	(R/M)
L7	S00°01'06"E	234.30'	(R)
L8	N89°28'06"W	101.32'	(R)
L9	N89°28'06"W	101.38'	(R)
L10	N00°01'06"W	216.72'	(R)
L11	N00°01'06"W	216.61'	(R)
L12	WEST (R)	212.00'	(R/M)
L13	WEST (R)	127.00'	(R/M)
L14	WEST (R)	216.61'	(R)
L15	S00°01'06"E	216.61'	(M)
L16	NORTH (R)	128.83'	(R)
L17	NORTH (R)	128.74'	(R)
L18	NORTH (R)	194.32'	(R)
L19	WEST (R)	212.00'	(R/M)
L20	WEST (R)	194.5'	(R)
L21	WEST (R)	194.32'	(R)
L22	NORTH (R)	214.90'	(R)
L23	WEST (R)	264.00'	(R/M)
L24	NORTH (R)	165.00'	(R/M)
L25	NORTH (R)	165.00'	(R/M)
L26	WEST (R)	344.00'	(R/M)
L27	WEST (R)	264.00'	(R/M)
L28	WEST (R)	264.00'	(R/M)

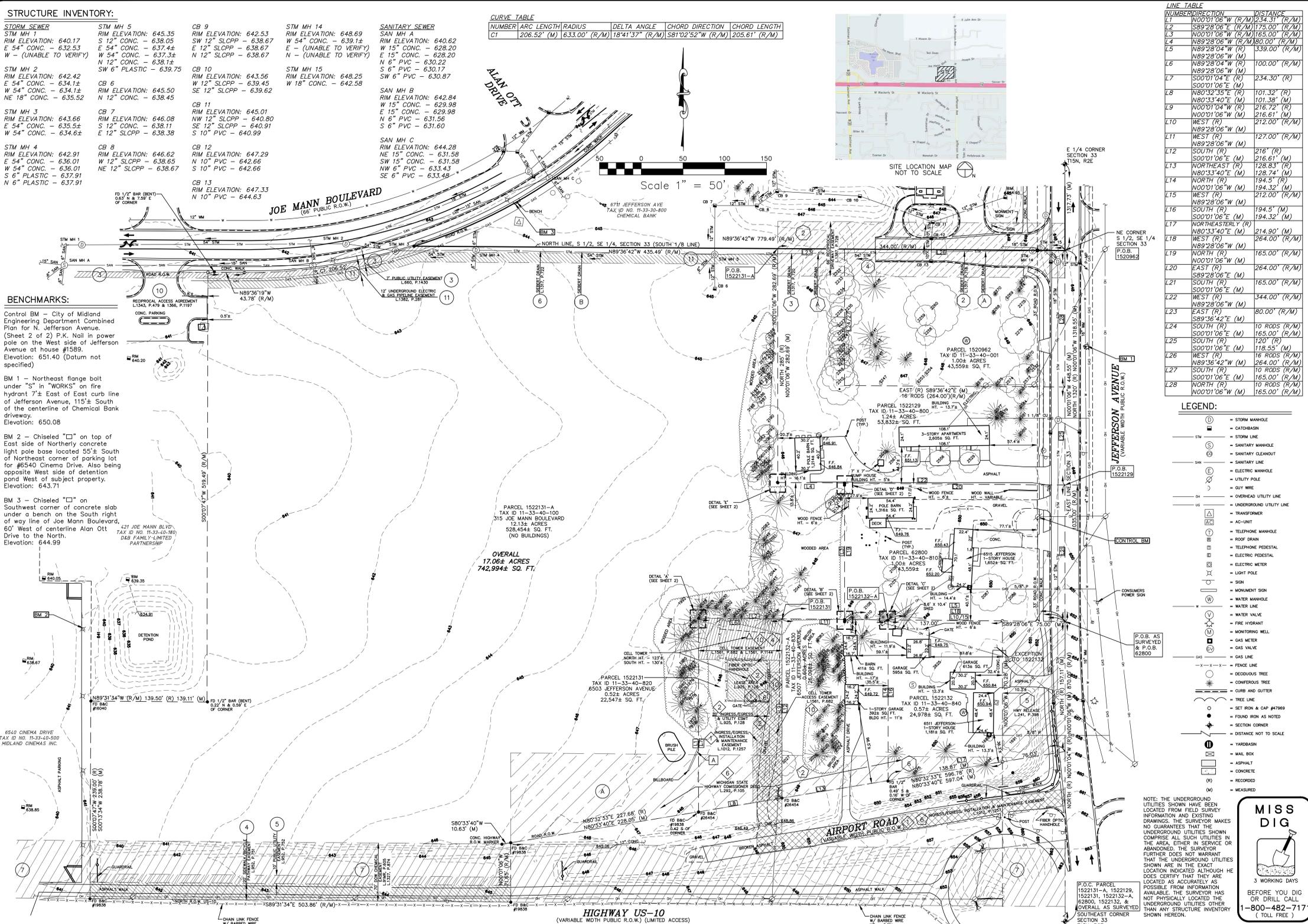
**BENCHMARKS:**

Control BM - City of Midland Engineering Department Combined Plan for N. Jefferson Avenue. (Sheet 2 of 2) P.K. Nail in power pole on the West side of Jefferson Avenue at house #1589. Elevation: 651.40 (Datum not specified)

BM 1 - Northeast flange bolt under "S" in "WORKS" on fire hydrant 7± East of East curb line of Jefferson Avenue, 115± South of the centerline of Chemical Bank driveway. Elevation: 650.08

BM 2 - Chiseled "□" on top of East side of Northerly concrete light pole base located 55± South of Northeast corner of parking lot for #6540 Cinema Drive. Also being opposite West side of detention pond West of subject property. Elevation: 643.71

BM 3 - Chiseled "□" on Southwest corner of concrete slab under a bench on the South right of way line of Joe Mann Boulevard, 60± West of centerline Alan Ott Drive to the North. Elevation: 644.99



**LEGEND:**

- ⊕ = STORM MANHOLE
- ⊖ = CATCHBASIN
- SW — = STORM LINE
- ⊕ = SANITARY MANHOLE
- SAN — = SANITARY CLEANOUT
- SAN — = SANITARY LINE
- ⊕ = ELECTRIC MANHOLE
- U — = UTILITY POLE
- ⊕ = GUY WIRE
- OH — = OVERHEAD UTILITY LINE
- U — = UNDERGROUND UTILITY LINE
- ⊕ = TRANSFORMER
- AC — = AC-UNIT
- ⊕ = TELEPHONE MANHOLE
- ⊕ = ROOF DRAIN
- ⊕ = TELEPHONE PEDESTAL
- ⊕ = ELECTRIC PEDESTAL
- ⊕ = ELECTRIC METER
- ⊕ = LIGHT POLE
- ⊕ = SIGN
- ⊕ = MONUMENT SIGN
- ⊕ = WATER MANHOLE
- ⊕ = WATER VALVE
- ⊕ = FIRE HYDRANT
- ⊕ = MONITORING WELL
- ⊕ = GAS METER
- ⊕ = GAS VALVE
- ⊕ = GAS LINE
- ⊕ = FENCE LINE
- ⊕ = DECIDUOUS TREE
- ⊕ = CONIFEROUS TREE
- ⊕ = CURB AND GUTTER
- ⊕ = TREE LINE
- ⊕ = SET IRON & CAP #1789
- ⊕ = FOUND IRON AS NOTED
- ⊕ = SECTION CORNER
- ⊕ = DISTANCE NOT TO SCALE
- ⊕ = YARDASIN
- ⊕ = MAIL BOX
- ⊕ = ASPHALT
- ⊕ = CONCRETE
- (R) = RECORDED
- (M) = MEASURED

NOTE: THE UNDERGROUND UTILITIES SHOWN ARE LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES OTHER THAN ANY STRUCTURE INVENTORY SHOWN HEREON.

P.O.B. AS SURVEYED & P.O.B. 62800

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

DATE	DESCRIPTION	REVISIONS

**LSG**  
Engineers & Surveyors

3135 PINE TREE ROAD  
SUITE D  
LANSING, MI 48911  
PH: (313) 393-2902  
FAX: (313) 393-2608  
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PREPARED FOR:  
**Kroger**

THE KROGER CO.  
OF MICHIGAN  
40399 GRAND RIVER AVENUE,  
SUITE 110  
NOVI, MICHIGAN 48375

TOPOGRAPHIC & ALTA/ACSM LAND TITLE SURVEY FOR  
**KROGER D-777 PROPOSED STORE**  
315 JOE MANN BOULEVARD  
MIDLAND, MICHIGAN

FILE: L:\1538 (KROGER D-777 MIDLAND)\C\B PLANS\CD-1-CD1-3.DWG - PLOT DATE: 2/11/2016 2:45 PM BY: Midland\_Summerscale SCALE: 1:1

FILE	CD1-1-CD1-3.DWG
FIELD WORK	JZ / DT
DRAWN BY	JML
CHECKED BY	DKR
DATE OF SURVEY	4/28/2015
SCALE	1" = 50'
HOR.	N/A
VERT.	N/A
PROJECT NO.	1636
SHEET NO.	CD1.1

FILE: L:\1508 (KROGER D-777 MIDLAND) \CADD\PLANS\CD-1-CD1-3.DWG - PLOT DATE: 2/21/2016 2:45 PM 8th Minimum Summer SCALE: 1:1

**LEGAL DESCRIPTION:** 315 JOE MANN BLVD TAX ID #11-33-40-100

Situated in the City of Midland, Midland County, Michigan: Part of the Southeast 1/4 of the Southeast 1/4 of Section 33, T15N, R2E, described as: Commencing at the Southeast corner of said Section 33; thence North 00°01'06" West 1318.55 feet along the East Section line; thence North 89°36'42" West 344.00 feet along the South 1/8 line to the Point of Beginning; thence North 89°36'42" West 435.49 feet along the South 1/8 line; thence along a 633.00 foot radius curve to the right, having a central angle of 18°41'37" and a long chord bearing and distance of South 81°02'52" West 205.61 feet along the South right of way line of Joe Mann Boulevard; thence North 89°36'19" West 43.78 feet along said South right of way line; thence South 00°07'47" West 519.49 feet; thence North 89°31'34" West 139.50 feet; thence South 00°07'47" West 239.00 feet; thence South 89°31'34" East 503.86 feet along the North right of way line of US-10 Highway; thence North 00°01'06" West 71.65 feet along the said North right of way line; thence North 80°32'33" East 227.68 feet along said North right of way line; thence North 00°01'06" West 234.31 feet; thence South 89°28'08" East 175.00 feet; thence North 00°01'06" West 165.00 feet; thence North 89°28'08" East 80.00 feet; thence North 00°01'06" West 282.69 feet to the Point of Beginning.

Assurance Note: The above legal description describes the same property as in Schedule A of Title Commitment No. 1522131-A of Superior Title and Settlement Agency bearing an effective date of April 15, 2015 at 8:00 A.M.

**NOTES CORRESPONDING TO SCHEDULE B:** 315 JOE MANN BLVD, TAX ID #11-33-40-100

- 3 Public Utility Easement in favor of the City of Midland recorded in Liber 660 at Page 1430. (Affects subject property and is plotted hereon.)
- 4 Easement Grant in favor of the City of Midland recorded in Liber 952 at Page 751. (Affects subject property and is plotted hereon.)
- 5 Utility Easement Agreement in favor of the City of Midland recorded in Liber 952 at Page 752. (Affects subject property and is plotted hereon.)
- 6 Terms and Conditions contained in Easement Agreement recorded in October 31, 2005 in Liber 1317 at Page 722. (Affects subject property and the enclosed drain is shown hereon. Easement width is undefined.)
- 7 Easement in favor of Dow Chemical Company and the Covenants, Conditions and the Restrictions contained in instrument recorded in the Liber 91 of Misc Records, Page 605. Partial Release of Right of Way recorded in Liber 1327 at Page 874. (Affects subject property and is plotted hereon.)
- 8 Terms and Conditions contained in Land Division Affidavit recorded in Liber 1331 at Page 1184. (Affects subject property in its entirety and gives "permission for a representative of the City of Midland, Midland County, and/or the State of Michigan to enter the property where this parcel division was proposed for purposes of inspection to verify the information on the application is correct.")
- 9 Restrictive Covenant recorded in Liber 1335 at Page 901. (Affects the subject property in its entirety and prohibits the use of the site as an automated car wash. See document for additional details.)
- 10 Terms and Conditions contained in Reciprocal Access Agreements recorded in Liber 1343 at 479 and in Liber 1366 at Page 1197. (Benefits subject property and includes agreement to use of a curb cut and access drive. Does not include plottable easement description and its approximate location is plotted hereon.)
- 11 Terms and Conditions contained in Easement in favor of Consumers Energy Company recorded in Liber 1382 at Page 281. (Affects subject property and is plotted hereon.)

**DOCUMENTS NOT INCLUDED IN SCHEDULE B EXCEPTIONS:**

- A Terms and Conditions contained in Warranty Deed as disclosed by instrument recorded in Liber 292 at page 105. (Affects subject property, is plotted hereon and includes restrictive covenants and rights to maintain public utility facilities.)
- B Siebert Drain right of way per Minutes of Survey dated May 22, 1913 and Minutes of Survey dated May 15, 1913. (Affects and benefits subject property. Width undefined - 3 rods each side of the centerline recommended by Drain Commissioner.)

**LEGAL DESCRIPTION:** 6503 JEFFERSON AVE. TAX ID #11-33-40-820

Situated in the City of Midland, Midland County, Michigan: Commencing at the Southeast corner of Section 33, Town 15 North, Range 2 East, thence North 00 degrees 01 minutes 04 seconds West, 870 feet; thence North 89 degrees 28 minutes 04 seconds West, 339 feet for the place of beginning; running thence North 89 degrees 28 minutes 04 seconds West, 100 feet; thence South 01 minutes 01 minutes 04 seconds East, 234.30 feet; thence North 80 degrees 32 minutes 35 seconds East, 101.32 feet; thence North 00 degrees 01 minutes 04 seconds West, 216.72 feet to the place of beginning being a part of the Southeast 1/4 of the Southeast 1/4 of said Section 33. 6503 Jefferson Ave., Midland, MI, 48642 11-33-40-820

Assurance Note: The above legal description describes the same property as in Schedule A of Title Commitment No. 1522131-A of Superior Title and Settlement Agency bearing an effective date of April 15, 2015 at 8:00 A.M.

**NOTES CORRESPONDING TO SCHEDULE B:** 6503 JEFFERSON AVE., TAX ID #11-33-40-820

- 1 Interest of Cricket Michigan Property company, a Delaware Corporation, Lessee and Terms, Conditions and Provisions of Lease, as evidenced by Memorandum of Site Agreement dated August 28, 2001, recorded September 24, 2001 in Liber 1012 at Page 1257. (Document includes Ingress/Egress, Installation and Maintenance Easements that affect the subject property and are plotted hereon.)
- 2 Interest of Century Cellnet of Saginaw MSA Limited Partnership, Lessee, and Terms, Conditions and Provisions of Lease, as evidenced by Memorandum of Lease, dated July 27, 1999, recorded August 25, 1999 in Liber 925 at Page 128. (Includes Lease Area & Ingress/Egress & Utility Easement for Cell Tower which affects the subject property and is plotted hereon.)
- 4 Interest of STC Five, LLC, a Delaware limited liability company, Lessee, and Terms, Conditions and Provisions of Lease, as evidenced by Memorandum of Lease Agreement recorded February 22, 2001 in Liber 975 at Page 589. Site Designation Supplement to Master Lease and Sublease Agreement recorded July 29, 2005 in Liber 1298 at Page 978 and Affidavit of Facts Relating to Title recorded October 17, 2005 in Liber 1315 at Page 309. First Amendment to Memorandum of PCS Site Agreement recorded July 29, 2010 in Liber 1517 Page 846. Memorandum of Agreement to expand Leased Premises recorded in Liber 1561 at Page 1144. First Amendment of Site Designation supplement to Master Lease and Sublease Agreement recorded in Liber 1561 at Page 1145. (Affects subject property and is plotted hereon.)
- 6 Terms and Conditions contained Warranty Deed as disclosed by instrument recorded in Liber 292 at page 105. (Affects subject property, is plotted hereon and includes restrictive covenants and rights to maintain public utility facilities.)
- 10 Terms and Conditions contained in Grant of Easement recorded in Liber 1561 at Page 682. (Affects subject property and is plotted hereon.)

**LEGAL DESCRIPTION:** 6507 JEFFERSON AVE. TAX ID #11-33-40-830

Situated in the \*Township of Larkin, Midland County, Michigan: Beginning 870 feet North and 212 feet West of the Southeast corner of Section 33, T15N, R2E; thence 124 feet West; thence 216 feet South; thence 128.53 feet North East; thence 194.50 feet North to the point of beginning, being in the Southeast 1/4 of the Southeast 1/4 of Section 33. 6507 Jefferson Ave., Midland, MI, 48642 11-33-40-830

Assurance Note: The above legal description describes the same property as in Schedule A of Title Commitment No. 1522132-A of Superior Title and Settlement Agency bearing an effective date of April 15, 2015 at 8:00 A.M.

**NOTES CORRESPONDING TO SCHEDULE B:** 6507 JEFFERSON AVE., TAX ID #11-33-40-830

- 2 Terms and Conditions and easement contained in instrument recorded in Liber 292 at page 105. (Affects subject property, is plotted hereon and includes restrictive covenants and rights to maintain public utility facilities.)
- 6 Easement as recited in instrument recorded in Liber 1012 at Page 1257. (Does not affect subject property. Easement is the same document recited under Schedule B - Item 10 for Parcel 1522131 and is plotted hereon.)

**LEGAL DESCRIPTION:** 6511 JEFFERSON AVE. TAX ID #11-33-40-840

Situated in the \*Township of Larkin, Midland County, Michigan: Commencing at a point 870 feet North of the Southeast corner of Section 33, T15N, R2E, running thence West 212 feet; thence North 194.5 feet; thence Northeast along the North right of way line of Airport Road to the East Section line; thence North along the East Section line to the Place of Beginning, EXCEPT that part needed for roadway purpose along the East side of subject property. 6511 Jefferson Ave., Midland, MI, 48642 11-33-40-840

Assurance Note: The above legal description describes the same property as in Schedule A of Title Commitment No. 1522132-2 of Superior Title and Settlement Agency bearing an effective date of April 15, 2015 at 8:00 A.M.

**\* Now City of Midland**

**NOTES CORRESPONDING TO SCHEDULE B:** 6511 JEFFERSON AVE., TAX ID #11-33-40-840

- 4 Terms and Conditions in Zoning Board of Appeals recorded in Liber 1247 at Page 649. (Affects subject property but does include any plottable easements or restrictions.)
- 5 Terms and Conditions contained in Highway Easement recorded in Liber 241 at Page 398. (Is adjacent to subject property and is plotted hereon.)
- 6 Terms and Conditions and Easements contained in Instrument recorded in Liber 292 at Page 105. (Affects subject property, is plotted hereon and includes restrictive covenants and rights to maintain public utility facilities.)

**LEGAL DESCRIPTION:** 6615 JEFFERSON AVE. TAX ID #11-33-40-810

Property located in the \*Township of Larkin Charter, County of Midland Midland, State of Michigan: Commencing 870 feet North of the Southeast corner of Section 33, Town 15 North, Range 2 East, thence North West 284 feet; thence North 165 feet; thence East 284 feet; thence South 165 feet to the point of beginning, \*Larkin Township, Midland County, Michigan. 6615 Jefferson Ave., Midland, MI, 48642 11-33-40-810

Assurance Note: The above legal description describes the same property as in Schedule A of Title Commitment No. 62800 of Crossroads Title Agency bearing an effective date of March 26, 2015 at 8:00 A.M.

**\* Now City of Midland**

**NOTES CORRESPONDING TO SCHEDULE B:** 6515 JEFFERSON AVE., TAX ID #11-33-40-810

Schedule B - Section II Exceptions of Crossroads Title Agency, Commitment No.: 62800 of Title Commitment No. 62800, dated March 26, 2015 at 8:00 A.M. does not contain any plottable easements or restrictions.

**LEGAL DESCRIPTION:** 6601 JEFFERSON AVE. TAX ID #11-33-40-800

Situated in the \*Township of Larkin, Midland County, Michigan: Commencing at a point 1035 feet North of the Southeast corner of Section 33, T15N, R2E; running thence West 344 feet; thence North 285 feet; thence East 80 feet; thence South 165 feet; thence East 284 feet; thence South 120 feet to the place of beginning, being part of the Southeast 1/4 of the Southeast 1/4 of said Section 33. 6601 Jefferson Ave., Midland, MI, 48642 11-22-40-800

Assurance Note: The above legal description describes the same property as in Schedule A of Title Commitment No. 1522129 of Superior Title and Settlement Agency bearing an effective date of April 15, 2015 at 8:00 A.M.

**\* Now City of Midland**

**NOTES CORRESPONDING TO SCHEDULE B:** 6601 JEFFERSON AVE., TAX ID #11-33-40-800

- 2 Terms and Conditions in Reciprocal Driveway Easement recorded in Liber 1387 at Page 728. (Affects and benefits subject property and is plotted hereon.)
- 3 Terms and Conditions contained in Easement Agreement recorded in Liber 1317 at Page 720. (Affects subject property and the enclosed drain is shown hereon - Easement width is undefined.)
- A Siebert Drain right of way per Minutes of Survey dated May 22, 1913 and Minutes of Survey dated May 15, 1913. (Affects and benefits subject property. Width undefined - 3 rods each side of the centerline recommended by Drain Commissioner.)

**LEGAL DESCRIPTION:** 6605 JEFFERSON AVE. TAX ID #11-33-40-001

Situated in the City of Midland, Midland County, Michigan: Commencing at the Northeast corner of the South 1/2 of the Southeast 1/4 of Section 33, Township 15 North, Range 2 East, and running thence West on South 1/8 line of Section 14 rods; thence South and parallel with East line of said Section 10 rods; thence East and at right angles with last line 16 rods to the East line of said Section; thence North on East line of said Section 10 rods to the place of beginning, which parcel is also described as: Commencing 1320 feet North of the Southeast corner of Section 33, T15N, R2E; thence West 284 feet; thence South 165 feet; thence East 284 feet; thence North feet to beginning. 6605 Jefferson Avenue, Midland, MI, 48642 11-33-40-001

Assurance Note: The above legal description describes the same property as in Schedule A of Title Commitment No. 1520962 of Superior Title and Settlement Agency bearing an effective date of April 15, 2015 at 8:00 A.M.

**NOTES CORRESPONDING TO SCHEDULE B:** 6605 JEFFERSON AVE., TAX ID #11-33-40-001

- 2 Terms and Conditions contained in Easement Agreement recorded in Liber 1317 at Page 718. (Affects subject property and the enclosed drain is shown hereon. Easement width is undefined.)
- 4 Terms and Conditions contained in Reciprocal Driveway Easement Agreement recorded in Liber 1387 at Page 728. (Affects and benefits subject property and is plotted hereon.)
- A Siebert Drain right of way per Minutes of Survey dated May 22, 1913 and Minutes of Survey dated May 15, 1913. (Affects and benefits subject property. Width undefined - 3 rods each side of the centerline recommended by Drain Commissioner.)

**TREE INVENTORY**

TREE NO.	TYPE	SIZE	CANOPY	CONDITION
1671	SPRUCE	14"	22'	GOOD
1675	SPRUCE	14"	22'	GOOD
1686	SPRUCE	16"	28'	GOOD
1689	BOX ELDER	32"	6'	DEAD
1691	BOX ELDER	32"	33'	GOOD
1694	SPRUCE	17"	20'	GOOD
1972	PINE	16"	20'	GOOD
1973	MAPLE	16"	30'	GOOD
1974	PINE	20"	30'	GOOD
1975	PINE	20"	30'	GOOD
1976	PINE	17"	20'	GOOD
1977	MAPLE	12"	24'	GOOD
1978	MAPLE	8"	30'	GOOD
1979	MAPLE	14"	20'	GOOD
1980	MAPLE	14"	20'	GOOD
1981	PINE	11"	15'	GOOD
1982	PINE	15"	20'	GOOD
1983	PINE	20"	30'	GOOD
1984	MAPLE	18"	25'	GOOD
1985	MAPLE	10"	35'	GOOD
1986	PINE	24"	40'	GOOD
1987	PINE	22"	38'	GOOD
1988	PINE	22"	38'	GOOD
1989	PINE	15"	24'	GOOD
1992	MAPLE	10"	50'	GOOD
1993	PINE	12"	24'	GOOD
1994	PINE	13"	24'	GOOD
1995	PINE	6"	8'	FAIR
1996	PINE	10"	8'	GOOD
1997	PINE	12"	10'	FAIR
1998	PINE	9"	10'	GOOD
1999	PINE	16"	20'	GOOD
2000	PINE	10"	30'	GOOD
2001	PINE	18"	30'	GOOD
2002	PINE	13"	24'	GOOD
2003	PINE	16"	24'	GOOD
2004	PINE	9"	8'	DEAD
2005	PINE	6"	6'	GOOD
2006	SPRUCE	13"	10'	FAIR
2007	PINE	9"	6'	GOOD
2008	PINE	12"	15'	DEAD
2009	PINE	12"	25'	GOOD
2010	PINE	14"	15'	POOR
2011	PINE	18"	15'	DEAD
2012	PINE	16"	25'	GOOD
2014	SPRUCE	6"	15'	GOOD
2015	PINE	9"	10'	DEAD
2016	PINE	14"	15'	GOOD
2017	PINE	10"	4'	DEAD
2018	PINE	18"	15'	DEAD
2019	PINE	14"	15'	DEAD
2020	PINE	8"	4'	DEAD
2021	PINE	14"	15'	DEAD
2022	PINE	18"	15'	DEAD
2023	BOX ELDER	10"	20'	GOOD
2024	BOX ELDER	10"	5'	POOR
2025	PINE	20"	20'	FAIR
2026	PINE	14"	40'	GOOD
2027	ELM	9"	30'	GOOD
2028	PINE	20"	25'	GOOD
2029	PINE	20"	25'	GOOD
2030	PINE	20"	25'	GOOD
2031	PINE	14"	15'	GOOD
2032	PINE	14"	15'	GOOD
2033	PINE	14"	15'	GOOD
2034	PINE	20"	25'	GOOD
2035	PINE	20"	25'	GOOD
2036	PINE	18"	25'	GOOD
2037	PINE	22"	35'	GOOD
2038	PINE	23"	30'	GOOD
2039	PINE	14"	30'	GOOD
2040	PINE	20"	30'	GOOD
2041	PINE	22"	30'	POOR
2042	PINE	22"	30'	GOOD
2043	PINE	22"	30'	GOOD
2044	MAPLE	11"	30'	GOOD
2045	BOX ELDER	10"	35'	GOOD
2046	PINE	9"	20'	GOOD
2047	BOX ELDER	6"	8'	GOOD
2048	PINE	20"	34'	GOOD
2049	PINE	20"	34'	GOOD
2050	MAPLE	8"	20'	GOOD
2051	MAPLE	14"	30'	GOOD
2052	MAPLE	11"	35'	GOOD
2053	PINE	24"	40'	GOOD
2054	BOX ELDER	10"	24'	GOOD
2055	BOX ELDER	10"	24'	GOOD
2056	WILLOW	10"	20'	GOOD
2057	MAPLE	18"	15'	POOR
2058	ASH	10"	12'	DEAD
2059	PINE	22"	30'	GOOD
2060	ASH	10"	20'	GOOD
2061	ASH	15"	20'	GOOD
2062	ASH	15"	28'	POOR
2063	PINE	36"	5'	DEAD
2068	PINE	30"	40'	GOOD

**TREE INVENTORY**

TREE NO.	TYPE	SIZE	CANOPY	CONDITION
2080	PINE	26"	40'	GOOD
2081	CEDAR	12"	1'	DEAD
2082	CEDAR	12"	18'	GOOD
2086	ASH	18"	25'	POOR
2087	MAPLE	24"	45'	FAIR
2106	MAPLE	12"	45'	GOOD
2107	MAPLE	12"	20'	GOOD
2108	OAK	12"	25'	GOOD
2109	SPRUCE	10"	16'	FAIR
2110	SPRUCE	14"	1'	DEAD
2134	POPLAR	12"	20'	GOOD
2135	POPLAR	8"	12'	GOOD
2136	POPLAR	15"	22'	GOOD
2137	POPLAR	12"	30'	GOOD
2138	POPLAR	8"	15'	GOOD
2161	ELM	22"	45'	FAIR
2162	ELM	10"	40'	GOOD
2163	BOX ELDER	18"	52'	GOOD
2166	POPLAR	7"	10'	GOOD
2169	POPLAR	7"	10'	GOOD
2171	POPLAR	7"	10'	GOOD
2172	POPLAR	7"	10'	GOOD
2173	POPLAR	11"	15'	GOOD
2174	POPLAR	11"	15'	GOOD
2175	POPLAR	8"	10'	GOOD
2178	POPLAR	8"	10'	GOOD
2179	POPLAR	8"	10'	GOOD
2180	POPLAR	8"	10'	GOOD
2181	POPLAR	12"	15'	GOOD
2182	POPLAR	12"	15'	GOOD
2183	POPLAR	5"	8'	GOOD
2184	POPLAR	5"	8'	GOOD
2185	POPLAR	6"	8'	GOOD
2186	BIRCH	5"	8'	GOOD
2187	BIRCH	5"	8'	GOOD
2188	BIRCH	5"	8'	GOOD
2190	MAPLE	11"	40'	GOOD
2192	ELM	10"	22'	GOOD
2194	ELM	10"	22'	GOOD
2195	ELM	10"	22'	GOOD
2215	ELM	30"	50'	GOOD
2216	ELM	13"	40'	GOOD
2219	ELM	9"	35'	GOOD
2220	ELM	10"	25'	GOOD
2221	ELM	10"	25'	GOOD
2222	ELM	10"	25'	GOOD
2223	APPLE	10"	25'	GOOD
2224	ELM	10"	25'	GOOD
2225	ELM	10"	25'	GOOD
2226	ELM	10"	25'	GOOD
2227	ELM	10"	25'	GOOD
2228	ELM	10"	25'	GOOD
2232	ELM	24"	45'	GOOD
2233	ELM	12"	45'	GOOD
2234	BOX ELDER	24"	55'	GOOD
2235	ELM	14"	40'	GOOD
2238	SPRUCE	14"	35'	GOOD
2241	SPRUCE	24"	40'	GOOD
2243	SPRUCE	17"	35'	GOOD
2245	SPRUCE			

**STRUCTURE INVENTORY:**

**STORM SEWER**  
 STM MH 5  
 RIM ELEVATION: 645.35  
 S 12" CONC. - 638.05  
 E 54" CONC. - 637.4±  
 W 54" CONC. - 637.3±  
 N 12" CONC. - 638.1±  
 SW 6" PLASTIC - 639.75

CB 6  
 RIM ELEVATION: 645.50  
 N 12" CONC. - 638.45

CB 7  
 RIM ELEVATION: 646.08  
 S 12" CONC. - 638.11  
 E 12" SLOPP - 638.38

CB 8  
 RIM ELEVATION: 646.62  
 W 12" SLOPP - 638.65  
 NE 12" SLOPP - 638.67

CB 9  
 RIM ELEVATION: 642.53  
 SW 12" SLOPP - 638.67  
 E 12" SLOPP - 638.67  
 N 12" SLOPP - 638.67

CB 10  
 RIM ELEVATION: 643.56  
 W 12" SLOPP - 639.45  
 SE 12" SLOPP - 639.62

CB 11  
 RIM ELEVATION: 645.01  
 NW 12" SLOPP - 640.80  
 NE 12" SLOPP - 640.91  
 S 10" PVC - 640.99

CB 12  
 RIM ELEVATION: 647.29  
 N 10" PVC - 642.66  
 S 10" PVC - 642.66

CB 13  
 RIM ELEVATION: 647.33  
 N 10" PVC - 644.63

STM MH 14  
 RIM ELEVATION: 648.69  
 W 54" CONC. - 639.1±  
 E - (UNABLE TO VERIFY)  
 N - (UNABLE TO VERIFY)

STM MH 15  
 RIM ELEVATION: 648.25  
 W 18" CONC. - 642.58

CB 16  
 RIM ELEVATION: 644.95  
 N 6" PLASTIC - 641.40  
 SW 12" SLOPP - 641.10

STM MH 17  
 RIM ELEVATION: 648.49  
 S 43" X 68" CONC. - 639.9±  
 N 8" PVC - 635.52  
 N 43" X 68" CONC. - 641.7±  
 S 8" PVC - 635.52

STM MH 18  
 RIM ELEVATION: 648.99  
 NW 43" X 68" CONC. - 642.5±  
 S 43" X 68" CONC. - 642.5±  
 NNE 12" PVC - 642.5±

**SANITARY SEWER**  
 SAN MH C  
 RIM ELEVATION: 644.28  
 NE 15" CONC. - 631.58  
 SW 15" CONC. - 631.58  
 NW 6" PVC - 633.43  
 SE 6" PVC - 633.48

SAN MH D  
 RIM ELEVATION: 645.06  
 NE 15" CONC. - 632.81  
 SW 15" CONC. - 632.78

SAN MH E  
 RIM ELEVATION: 646.08  
 SW 15" CONC. - 633.63  
 ENE 15" CONC. - 633.63  
 S 43" X 68" CONC. - 639.9±  
 N 8" PVC - 635.52  
 N 43" X 68" CONC. - 641.7±  
 S 8" PVC - 635.52

**LEGAL DESCRIPTION: (LIBER 1392, PAGE 506)**

East 1/2 of South 1/2 of North 1/2 of Southeast 1/4, Section 33, T15N, R2E, lying South of right of way for Joe Mann Boulevard, EXCEPT Beginning 1614.58 feet North & 33 feet West of Southeast Section corner, thence West 117.24 feet, Westery along South line of Joe Mann Boulevard 139.19 feet, East 255.16 feet, North 17 feet to Point of Beginning.

**BENCHMARKS:**

Control BM - City of Midland Engineering Department Combined Plan for N. Jefferson Avenue. (Sheet 2 of 2) P.K. Nail in power pole on the West side of Jefferson Avenue at house #1589.  
 Elevation: 651.40 (Datum not specified)

BM 1 - Northeast flange bolt under "S" in "WORKS" on fire hydrant 7± East of East curb line of Jefferson Avenue, 115± South of the centerline of Chemical Bank driveway.  
 Elevation: 650.08

BM 2 - Chiseled "□" on top of East side of Northerly concrete light pole base located 55± South of Northeast corner of parking lot for #6540 Cinema Drive. Also being opposite West side of detention pond West of subject property.  
 Elevation: 643.71

BM 3 - Chiseled "□" on Southwest corner of concrete slab under a bench on the South right of way line of Joe Mann Boulevard, 60± West of centerline Alan Ott Drive to the North.  
 Elevation: 644.99

**GENERAL NOTES:**

1) A current Title Commitment and Schedule B Section II Supportive Documentation has not been furnished. The effect of easements upon this parcel, other than indicated, are unknown.

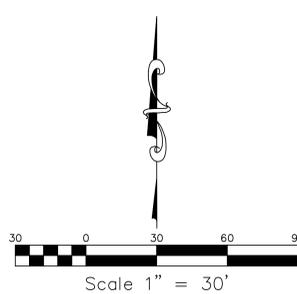
2) Bearings were established by holding a course of N00°01'06"W along the East line of Section 33 per the description of record for 315 Joe Mann Boulevard.

3) By graphic plotting only, this property is in Zone(s) X of the Flood Insurance Rate Map, Community Panel No. 261100188E, panel was not printed and does not bear an effective date and is not in a Special Flood Hazard.

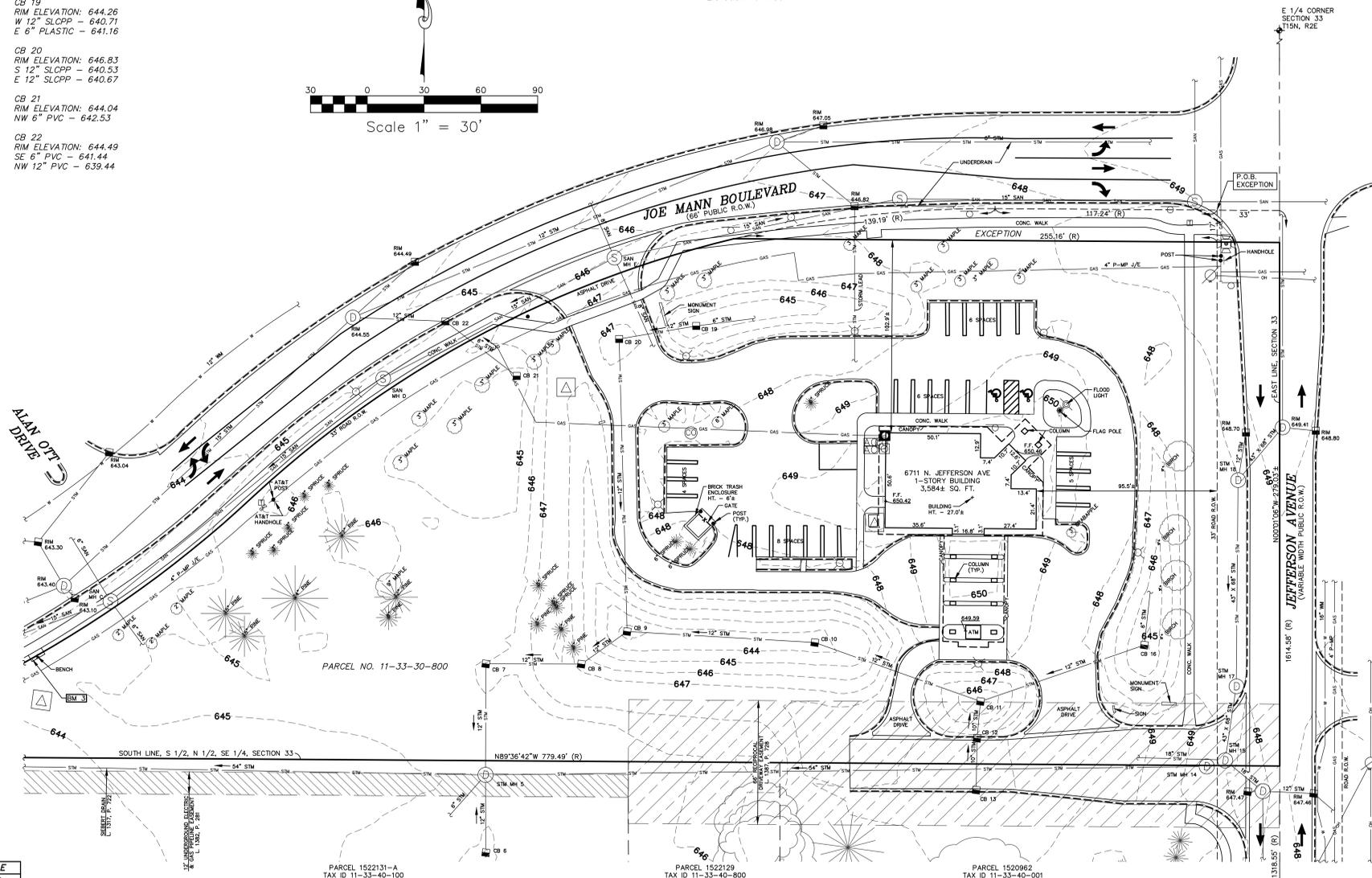
4) A certified boundary survey has not been performed by this office. The relationship of features to the parcel boundaries are approximate.



SITE LOCATION MAP NOT TO SCALE



PARKING SPACE TABLE	
TYPE OF SPACE	EXISTING STRIPED SPACES
REGULAR	29
HANDICAP	2
TOTAL	31



**LEGEND:**

- - STORM MANHOLE
- - CATCH-BASIN
- - STORM LINE
- - SANITARY MANHOLE
- - SANITARY CLEANOUT
- - SANITARY LINE
- - ELECTRIC MANHOLE
- - UTILITY POLE
- - GUY WIRE
- - OVERHEAD UTILITY LINE
- - UNDERGROUND UTILITY LINE
- - TRANSFORMER
- - AC-UNIT
- - TELEPHONE MANHOLE
- - ROOF DRAIN
- - TELEPHONE PEDESTAL
- - ELECTRIC PEDESTAL
- - ELECTRIC METER
- - LIGHT POLE
- - SIGN
- - MONUMENT SIGN
- - WATER MANHOLE
- - WATER METER
- - WATER LINE
- - WATER VALVE
- - FIRE HYDRANT
- - MONITORING WELL
- - GAS METER
- - GAS VALVE
- - GAS LINE
- - FENCE LINE
- - DECIDUOUS TREE
- - CONIFEROUS TREE
- - CURB AND GUTTER
- - TREE LINE
- - SET IRON & CAP #47969
- - FOUND IRON AS NOTED
- - SECTION CORNER
- - DISTANCE NOT TO SCALE
- - YARD-BASIN
- - POST INDICATOR VALVE
- - WALL HYDRANT
- - MAIL BOX
- - SATELLITE DISH
- - ASPHALT
- - CONCRETE
- (R) - RECORDED
- (W) - MEASURED

NOTE: THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES OTHER THAN ANY STRUCTURE INVENTORY SHOWN HEREON.

NO.	DATE	DESCRIPTION

**LSG**  
 Engineers & Surveyors

3135 PINE TREE ROAD  
 SUITE D  
 LANSING, MI 48911  
 PH: (517) 393-2902  
 FAX: (517) 393-2608  
 www.lsg-es.com



THE KROGER CO.  
 OF MICHIGAN  
 40399 GRAND RIVER AVENUE,  
 SUITE 110  
 NOVI, MICHIGAN 48375

TOPOGRAPHIC SURVEY  
 OF  
**CHEMICAL BANK**  
 6711 N. JEFFERSON AVENUE  
 MIDLAND, MICHIGAN 48842

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

FILE: CD1-1\_CD1-3.DWG  
 FIELD WORK: JZ/DT  
 DRAWN BY: JML  
 CHECKED BY: DKR  
 DATE OF SURVEY: 10/20/2015

SCALE:  
 HOR: 1" = 30'  
 VERT: N/A

PROJECT NO.: 1636  
 SHEET NO.: CD1.3

**NOTES**

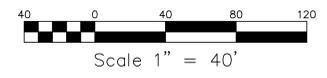
- BENCHMARKS  
CONTROL BENCHMARK - CITY OF MIDLAND ENGINEERING DEPARTMENT COMBINED PLAN FOR N. JEFFERSON AVENUE. (SHEET 2 OF 2) P.K. NAIL IN POWER POLE ON THE WEST SIDE OF JEFFERSON AVENUE AT HOUSE #1582. ELEVATION: 651.40 (DATUM NOT SPECIFIED)  
BENCHMARK #1 - NORTHEAST FLANGE BOLT UNDER "S" IN "WORKS" ON FIRE HYDRANT 7-2. EAST OF EAST CURB LINE OF JEFFERSON AVENUE. 115'± SOUTH OF THE CENTERLINE OF CHEMICAL BANK DRIVEWAY. ELEVATION: 650.08  
BENCHMARK #2 - CHISELED "C" ON TOP OF EAST SIDE OF NORTHERLY CONCRETE LIGHT POLE BASE LOCATED 55'± SOUTH OF NORTHEAST CORNER OF PARKING LOT FOR #0540 CINEMA DRIVE. ALSO BEING OPPOSITE WEST SIDE OF DETENTION POND WEST OF SUBJECT PROPERTY. ELEVATION: 643.71  
BENCHMARK #3 - CHISELED "C" ON SOUTHWEST CORNER OF CONCRETE SLAB UNDER A BENCH ON THE SOUTH RIGHT OF WAY LINE OF JOE MANN BOULEVARD, 60' WEST OF CENTERLINE ALAN OTT DRIVE TO THE NORTH. ELEVATION: 644.99
- THE CONTRACTOR SHALL CALL "MISS DIG" AT 811 OR 1-800-482-7171 AT LEAST THREE (3) WORKING DAYS (EXCLUDING WEEKENDS AND HOLIDAYS) PRIOR TO CONSTRUCTION.
- LSC ENGINEERS & SURVEYORS WILL NOT BE RESPONSIBLE FOR FIELD DESIGN CHANGES MADE BY THE CONTRACTOR OR THE CONTRACTOR'S SURVEYOR WHERE THESE DESIGN CHANGES HAVE NOT BEEN APPROVED BY LSC ENGINEERS & SURVEYORS.
- UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TO THE FACE OF CURB AND ALL BUILDING AND PAVEMENT LINES ARE PARALLEL AND/OR PERPENDICULAR TO THE WEST PROPERTY LINE.

**LEGEND**

- PARKING COUNT
- ACCESSIBLE PARKING
- VAN ACCESSIBLE
- TRAFFIC FLOW
- MODIFIED CURB & GUTTER
- REGULAR CURB & GUTTER
- SCREEN WALL OR RETAINING WALL
- FINISH FLOOR
- HEAVY DUTY ASPHALT AREA
- LIGHT DUTY ASPHALT AREA
- CONCRETE SURFACE

**CURVE TABLE**

NUMBER	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD DIRECTION	CHORD LENGTH
C1	206.52' (M)	6,333.00' (R/M)	18°41'37" (R/M)	S81°02'52" W (R/M)	205.61' (R/M)



DATE	DESCRIPTION	BY
3/17/16	PER CITY COMMENTS	ML
3/27/16	ADDED TORNA	ML
12/29/15	SITE PLAN SUBMITTAL	ML
12/29/15	DATE	ML

REVISIONS/SUBMITTALS

**ZONING NOTES**

CURRENT ZONING IS RC - REGIONAL COMMERCIAL. PERMITTED USES INCLUDE: GROCERY STORES, OUTDOOR SALES OF NURSERY STOCK, GARDEN SUPPLIES, AND PRODUCE, AND PHARMACIES WITH DRIVE UP WINDOWS. FUEL STATIONS ARE A PERMITTED USE SUBJECT TO ADDITIONAL SITE DEVELOPMENT STANDARDS FOR SETBACKS AND SCREENING. ONE ACCESS DRIVE IS PERMITTED. CORNER LOTS MAY HAVE TWO.

SETBACKS:  
FRONT: 25'  
SIDE: 25'  
REAR: 25'

FUEL SETBACKS:  
40' FROM RESIDENTIAL ZONING OR USE  
PUMP ISLANDS: 30' FROM LOT LINE  
OVERHEAD CANOPIES: 20' FROM ROW LINE

**PARKING**

BUILDING AREA - 125,190 S.F. (GROSS)  
PARKING REQUIRED BY ORDINANCE  
USABLE FLOOR AREA IS DEFINED AS 80% OF THE GROSS FLOOR AREA.  
USABLE FLOOR AREA - 100,152  
PLANNING COMMISSION APPROVAL IS REQUIRED TO EXCEED THE REQUIRED PARKING COUNT BY MORE THAN 20%.

REQUIREMENT  
GROCERY OR CONVENIENCE STORES: 1 SPACE PER 180 SQ. FT. USABLE. SPACES MAX. 556 668

PARKING PROVIDED  
KROGER SQUARES 556 (INCLUDING 2 AT FUEL STATION) (4.44 SPACES PER 1000 GROSS S.F.)  
CART CORRALS ARE NOT INCLUDED IN PARKING SPACE COUNT.

ORDINANCE REQUIRES PARKING SPACES TO BE 9'x18' MIN. WITH 20' AISLES  
SPACES SHOWN ARE 10'x20' WITH 23' AISLES. (KROGER STANDARD)

ALL PARKING WILL BE DOUBLE STRIPED PER CITY OF MIDLAND STANDARDS.

**SITE PLAN NOTES**

PROPOSED LAND USE  
THE PROPOSED LAND USE IS COMMERCIAL, INCLUDING A KROGER MARKETPLACE STORE AND FUEL STATION. ONE EXISTING CELL TOWER WILL REMAIN ON SITE.

TOTAL ACREAGE: 17.1± ACRES  
NET ACREAGE: 16.7± ACRES

**LIGHTING NOTES**

ALL LIGHT POLES, FIXTURES, AND ANCHOR BOLTS ARE PROVIDED BY THE OWNER, KROGER, AND MUST BE COORDINATED, RECEIVED, HANDLED, ASSEMBLED, AND INSTALLED BY THE SITE CONTRACTOR. ALL WARRANTY WORK SHALL BE THE SITE CONTRACTOR'S RESPONSIBILITY.

SEE SHEET E1.7 SITE LIGHTING PLAN FOR MOUNTING HEIGHT.

**CONSTRUCTION SEQUENCE**

	PROPOSED CONSTRUCTION START	PROPOSED GRAND OPENING
STORE	SEPTEMBER 2016	AUGUST 2017
FUEL STATION	MAY 2017	AUGUST 2017

**HATCH LEGEND**

- CELL TOWER EASEMENT
- CELL TOWER INGRESS/EGRESS, INSTALLATION & MAINTENANCE EASEMENT
- PROPOSED CELL TOWER ACCESS EASEMENT
- CELL TOWER 20' INGRESS/EGRESS & UTILITY EASEMENT
- CITY OF MIDLAND 20' SIDEWALK/BICYCLE PATHWAY EASEMENT
- 10' PUBLIC UTILITY EASEMENT
- 70' DOW CHEMICAL EASEMENT (TO BE ABANDONED)
- MICHIGAN STATE HIGHWAY COMMISSIONER DEED RESTRICTIONS (MDO)
- MDO RELEASE
- 66' RECIPROCAL DRIVEWAY EASEMENT
- 12' UNDERGROUND ELECTRIC & GAS PIPELINE EASEMENT
- 7' PUBLIC UTILITY EASEMENT

**VARIANCES**

KROGER WILL REQUEST A VARIANCE FOR BUILDING SIGNS

**LSC**  
Engineers & Surveyors

3135 PINE TREE ROAD  
SUITE D  
LANSING, MI 48911  
PH (517) 393-2902  
FAX (517) 393-2608  
www.lsg-es.com

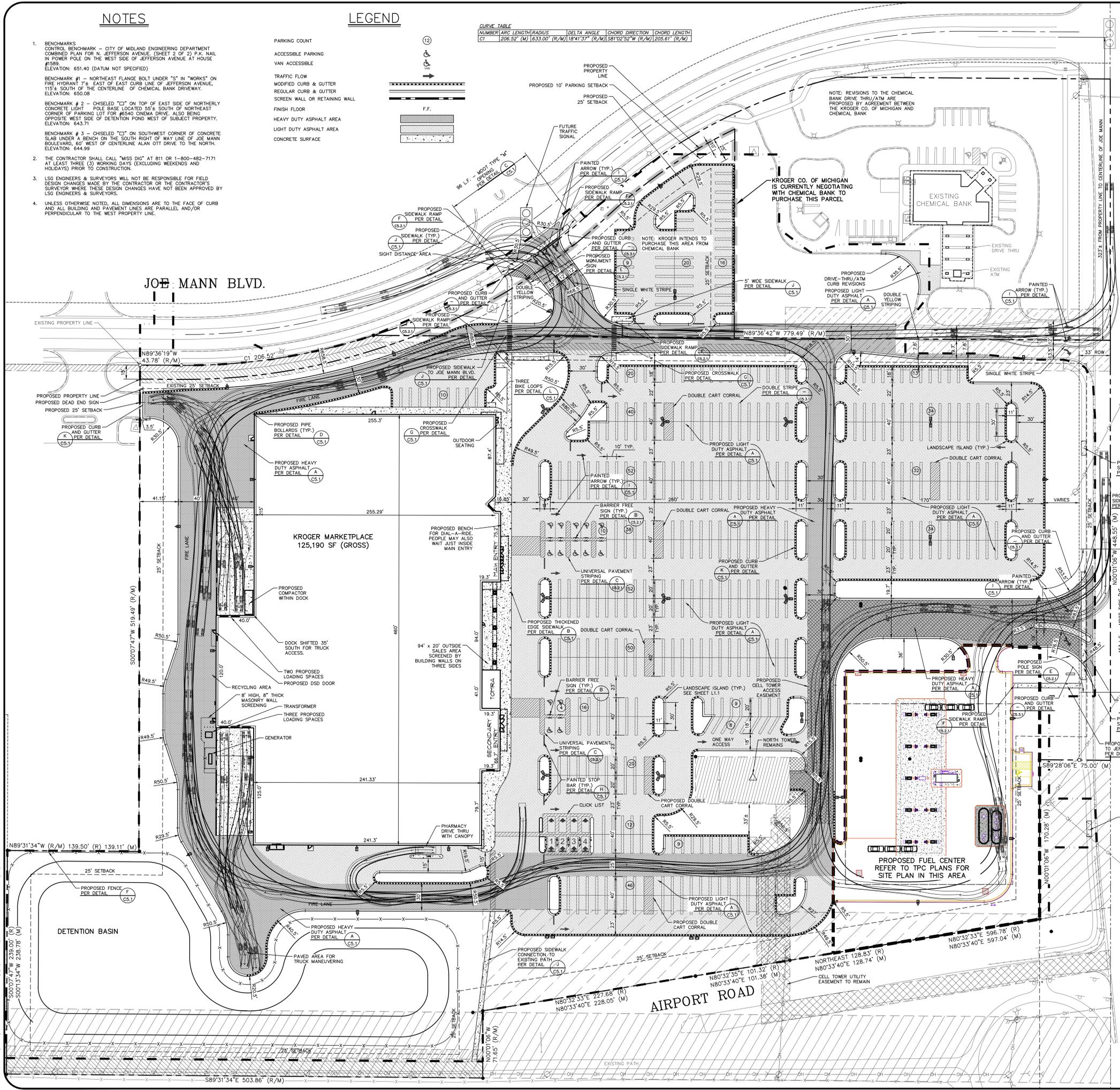


**THE KROGER COMPANY**  
40399 GRAND RIVER AVE.  
NORVI, MI 48375  
PH: (248) 536-1500  
FAX: (248) 957-2255

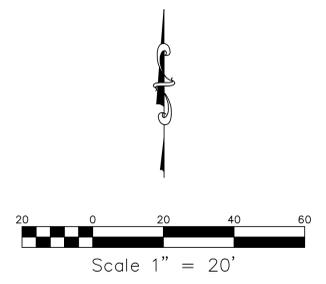
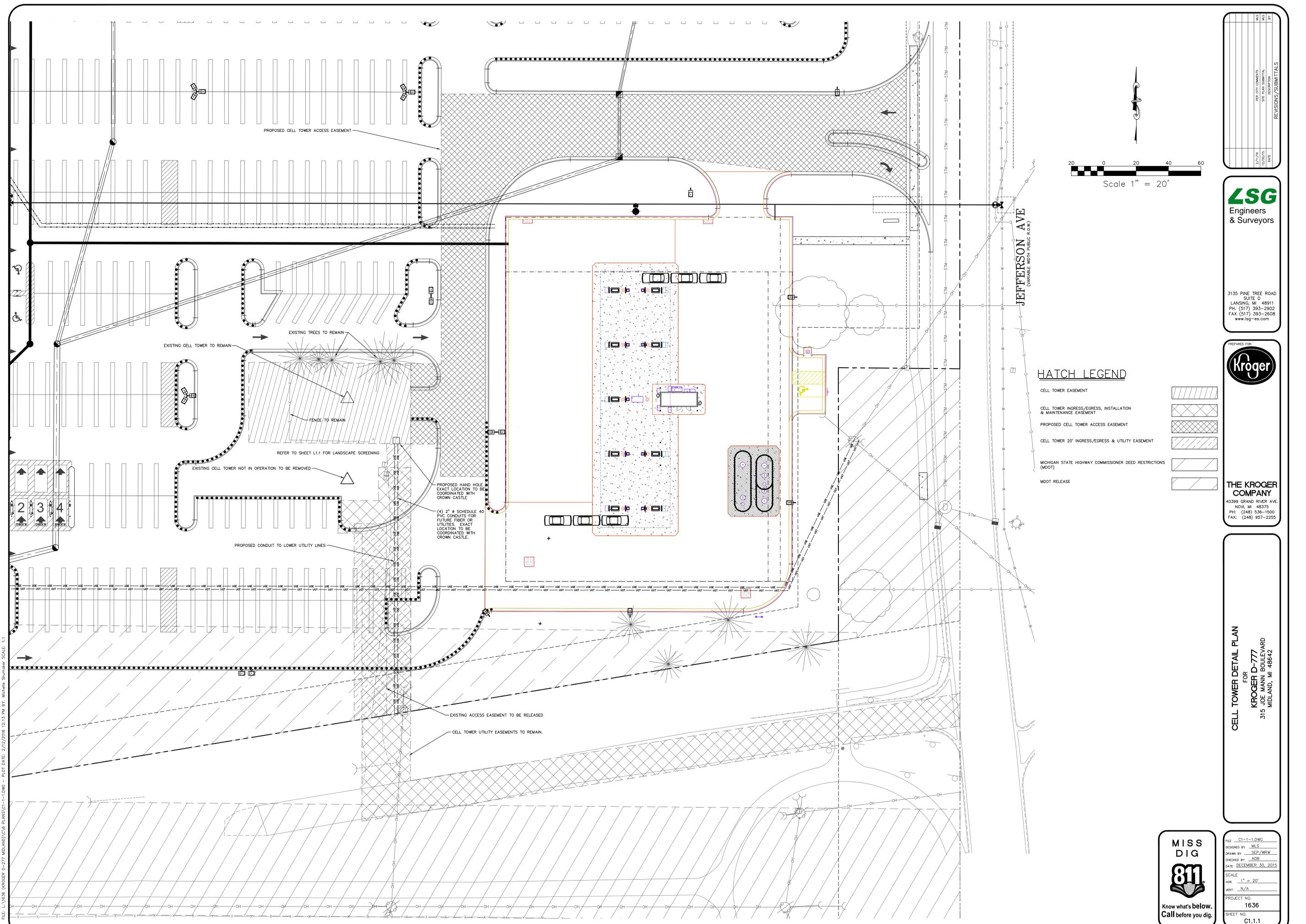
**SITE PLAN FOR**  
**KROGER D-777**  
315 JOE MANN BOULEVARD  
MIDLAND, MI 48642



FILE	C1-1.DWG
DESIGNED BY	ML
DRAWN BY	SEP/WRW
CHECKED BY	ADB
DATE	DECEMBER 30, 2015
SCALE	HOR. 1" = 40'
VERT.	N/A
PROJECT NO.	1636
SHEET NO.	C1.1



FILE: L:\1636 (KROGER D-777 MIDLAND)\C:\P\ANS\C1-1.DWG - PLOT DATE: 2/12/2016 12:12 PM BY: Michelle Shumaker SCALE: 1:1



JEFFERSON AVE  
(VARIABLE WIDTH PUBLIC R.O.W.)

**HATCH LEGEND**

- CELL TOWER EASEMENT
- CELL TOWER INGRESS/EGRESS, INSTALLATION & MAINTENANCE EASEMENT
- PROPOSED CELL TOWER ACCESS EASEMENT
- CELL TOWER 20' INGRESS/EGRESS & UTILITY EASEMENT
- MICHIGAN STATE HIGHWAY COMMISSIONER DEED RESTRICTIONS (MDOT)
- MDOT RELEASE

FILE: L:\V036 (KROGER D-777 MIDLAND)\C\B PLANS\C1-1-1.DWG - PLOT DATE: 2/22/2016 12:15 PM BY: Michael Shumaker SCALE: 1:1

NO.	DATE	DESCRIPTION	BY
1	12/20/15	PREPARED FOR	
2	12/20/15	DESIGNED BY	
3	12/20/15	DRAWN BY	
4	12/20/15	CHECKED BY	
5	12/20/15	DATE	
6	12/20/15	SCALE	
7	12/20/15	HOR.	
8	12/20/15	VERT.	
9	12/20/15	PROJECT NO.	
10	12/20/15	SHEET NO.	
11	12/20/15	REVISIONS/SUBMITTALS	

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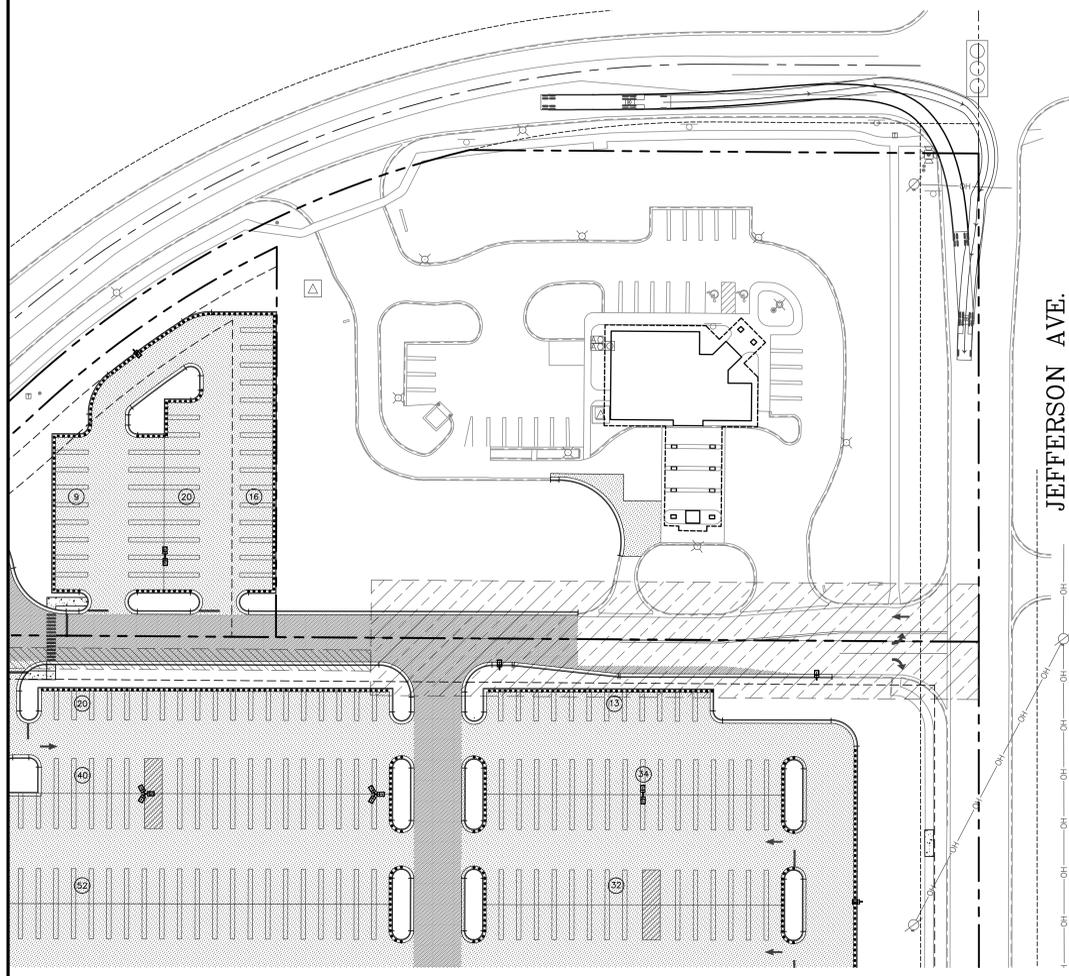
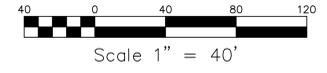
PREPARED FOR

**THE KROGER COMPANY**  
40399 GRAND RIVER AVE.  
NOVI, MI 48375  
PH: (248) 536-1500  
FAX: (248) 957-2255

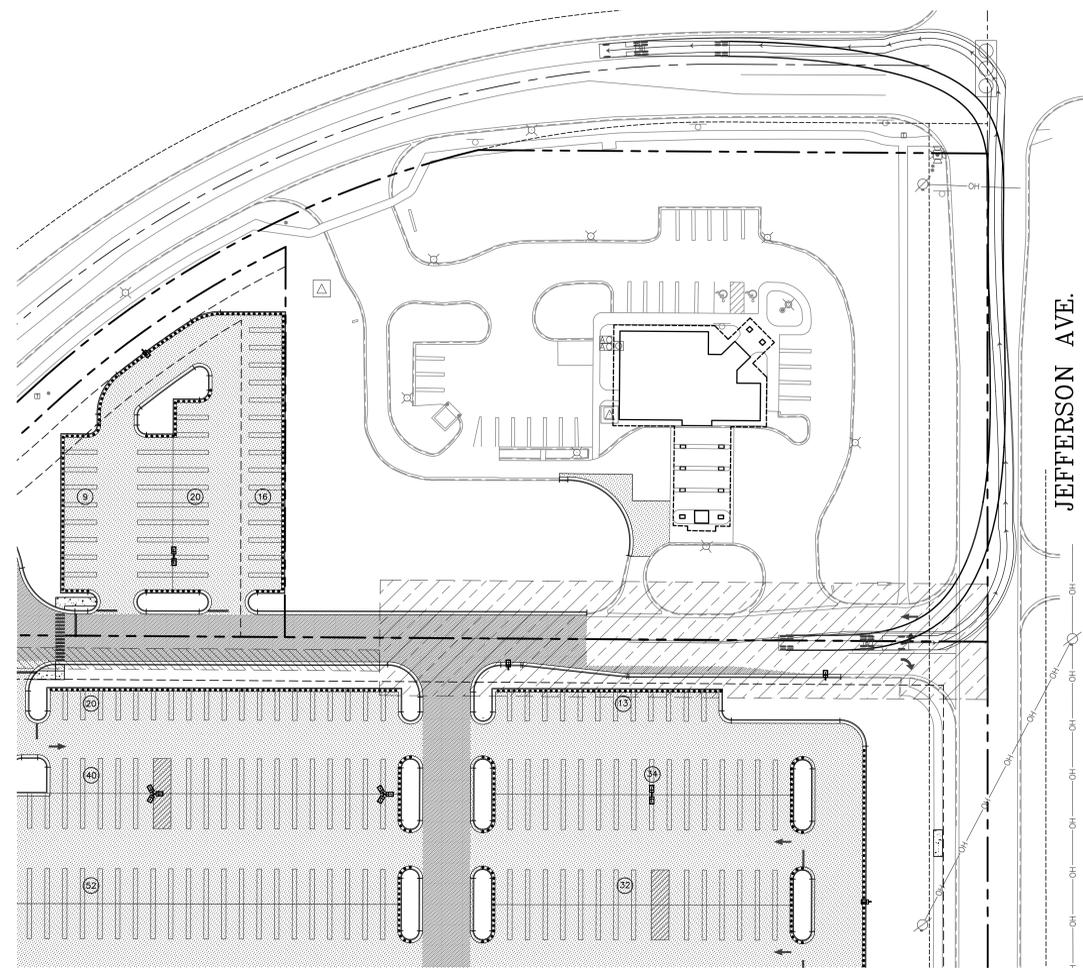
CELL TOWER DETAIL PLAN  
FOR  
KROGER D-777  
315 JOE MANN BOULEVARD  
MIDLAND, MI 48642

Know what's below.  
Call before you dig.

FILE	C1-1-1.DWG
DESIGNED BY	MLS
DRAWN BY	SEP/RW
CHECKED BY	ADB
DATE	DECEMBER 30, 2015
SCALE	
HOR.	1" = 20'
VERT.	N/A
PROJECT NO.	1636
SHEET NO.	C1.1.1



EASTBOUND JOE MANN TRUCK DETAIL A  
C1.1.2



NORTHBOUND JEFFERSON TRUCK DETAIL B  
C1.1.2

FILE: L:\636 (KROGER D-277 MIDLAND)\C\0 PLANS\C1-1-2.DWG - PLOT DATE: 2/12/2016 11:49 AM BY: Michele Shumaker SCALE: 1:1

NO.	DATE	DESCRIPTION	BY

**LSG**  
Engineers  
& Surveyors

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THE KROGER  
COMPANY  
40399 GRAND RIVER AVE.  
NOVI, MI 48375  
PH: (248) 536-1500  
FAX: (248) 957-2255

INTERSECTION TRUCK PLAN  
FOR  
KROGER D-777  
315 JOE MANN BOULEVARD  
MIDLAND, MI 48642

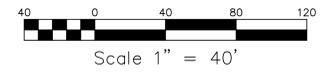


FILE	C1-1-2.DWG
DESIGNED BY	MLS
DRAWN BY	SEP/WRW
CHECKED BY	ADB
DATE	DECEMBER 30, 2016
SCALE	1" = 40'
HOR.	N/A
VERT.	N/A
PROJECT NO.	1636
SHEET NO.	C1.1.2



MICHIGAN DEPARTMENT  
OF MANAGEMENT AND BUDGET  
S-E-S-C KEYING SYSTEM

KEY	BEST MNGT' PRAC.	SYMBOL	WHERE USED
<b>EROSION CONTROLS</b>			
E7	TEMPORARY SEEDING		Stabilization method utilized on construction sites where earth change has been initiated but not completed within a 2 week period.
E8	PERMANENT SEEDING		Stabilization method utilized on sites where earth change has been completed (final grading attained).
E9	MULCH BLANKETS		On exposed slopes, newly seeded areas, new ditch bottoms, or areas subject to erosion.
E12	RIPRAP		Use along shorelines, waterways, or where concentrated flows occur. Slows velocity, reduces sediment load, and reduces erosion.
<b>SEDIMENT CONTROLS</b>			
S51	SILT FENCE		Use adjacent to critical areas, to prevent sediment laden sheet flow from entering these areas.
S53	STABILIZED CONSTRUCTION ACCESS		Used at every point where construction traffic enters or leaves a construction site.
S55	SEDIMENT BASIN		At the outlet of disturbed areas and at the location of a permanent detention basin.
S58	INLET PROTECTION FABRIC DROP		Use at stormwater inlets, especially at construction sites.



**LEGEND**

- INLET PROTECTION AT CB
- REFERS TO THE APPROPRIATE M.D.M.B. S.E.S.C. KEYING SYSTEM DETAIL (SEE THIS SHEET)
- SILT FENCE
- NRCS SOIL BOUNDARY
- LIMITS OF EARTH CHANGE (18.2 ACRES)

**SCS SOIL TYPES**

- Le LENAWEE SILTY CLAY LOAM, 0 TO 1 PERCENT SLOPES
- PsB PIPESTONE SAND, ERIE-HURON LAKE PLAIN, 0 TO 3 PERCENT SLOPES
- WxB WIXOM LOAMY SAND, 0 TO 3 PERCENT SLOPES

JEFFERSON AVE  
(VARIABLE WIDTH PUBLIC R.O.W.)

**NOTES**

IMPORTING FILL MATERIAL FROM AN OFF-SITE LOCATION WITHOUT PRIOR WRITTEN APPROVAL FROM THE KROGER PROJECT MANAGER IS STRICTLY PROHIBITED. IDENTIFICATION OF OFF-SITE BORROW LOCATIONS AND MATERIAL MUST BE COORDINATED AND DOCUMENTED THROUGH THE SWPPP. A KROGER APPROVED TESTING FIRM MUST VERIFY THE SUITABILITY OF ALL OFF-SITE MATERIAL. THIS INCLUDES AN ANALYSIS TO INSURE THAT NO ENVIRONMENTAL CONTAMINATION IS PRESENT. IF ANY MATERIAL IS BOUGHT ON SITE WITHOUT PRIOR WRITTEN APPROVAL OF THE KROGER PROJECT MANAGER, THE CONTRACTOR WILL BEAR ALL COSTS ASSOCIATED WITH REMOVING THE MATERIAL, TESTING FOR CONTAMINATION, MONITORING THE CLEAN-UP OPERATION, DISPOSAL IN AN APPROVED LANDFILL, AND CERTIFYING THAT THE KROGER SITE IS ENVIRONMENTALLY CLEAN.

IF REQUESTED, THE KROGER PROJECT MANAGER OR KROGER'S CONSULTANTS MUST BE GRANTED UNFETTERED ACCESS TO ANY AND ALL BORROW SITES. THE KROGER APPROVED TESTING AGENCY AND PROJECT SURVEYOR MUST CERTIFY THE BUILDING PAD USING THE "PAD CERTIFICATION FORM", INCLUDED IN THE PROJECT SPECIFICATIONS, PRIOR TO THE COMMENCEMENT OF BUILDING FOUNDATIONS.

SITE CONTRACTOR TO COORDINATE ALL ACCESS, PARKING, AND STAGING AREAS WITH THE BUILDING GENERAL CONTRACTOR AND THE KROGER PROJECT MANAGER.

SESC CONTROLS MUST BE INSTALLED PRIOR TO ANY EARTH DISTURBANCE, OR EXTERIOR BUILDING DEMOLITION.

CITY OF MIDLAND S.E.S.C PERMIT NO. PENDING

RECEIVING WATER ENCLOSED SEBERT DRAIN, RUNNING ALONG THE NORTH SIDE OF THE SITE. THE PHASE I REPORT DID NOT IDENTIFY ANY POTENTIAL WETLAND AREAS ON OR IN THE VICINITY OF THE SITE.

**NOTES**

- BENCHMARK CONTROL BENCHMARK - CITY OF MIDLAND ENGINEERING DEPARTMENT COMBINED PLAN FOR N. JEFFERSON AVENUE, (SHEET 2 OF 2) P.K. NAIL IN POWER POLE ON THE WEST SIDE OF JEFFERSON AVENUE AT HOUSE #1588. ELEVATION: 651.40 (DATUM NOT SPECIFIED)  
BENCHMARK #1 - NORTHEAST FLANGE BOLT UNDER "S" IN "WORKS" ON FIRE HYDRANT 7'± EAST OF EAST CURB LINE OF JEFFERSON AVENUE, 115'± SOUTH OF THE CENTERLINE OF CHEMICAL BANK DRIVEWAY. ELEVATION: 650.08  
BENCHMARK #2 - CHISELED "C" ON TOP OF EAST SIDE OF NORTHERLY CONCRETE LIGHT POLE BASE LOCATED 55'± SOUTH OF NORTHEAST CORNER OF PARKING LOT FOR #640 CINEMA DRIVE. ALSO BEING OPPOSITE WEST SIDE OF DETENTION POND WEST OF SUBJECT PROPERTY. ELEVATION: 643.71  
BENCHMARK #3 - CHISELED "C" ON SOUTHWEST CORNER OF CONCRETE SLAB UNDER A BENCH ON THE SOUTH RIGHT OF WAY LINE OF JOE MANN BOULEVARD, 60' WEST OF CENTERLINE ALAN OTT DRIVE TO THE NORTH. ELEVATION: 644.99
- THE CONTRACTOR SHALL CALL "MISS DIG" AT 811 OR 1-800-482-7171 AT LEAST THREE (3) WORKING DAYS (EXCLUDING WEEKENDS AND HOLIDAYS) PRIOR TO CONSTRUCTION.
- LSG ENGINEERS & SURVEYORS WILL NOT BE RESPONSIBLE FOR FIELD DESIGN CHANGES MADE BY THE CONTRACTOR OR THE CONTRACTOR'S SURVEYOR WHERE THESE DESIGN CHANGES HAVE NOT BEEN APPROVED BY LSG ENGINEERS & SURVEYORS.
- UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TO THE FACE OF CURB AND ALL BUILDING AND PAVEMENT LINES ARE PARALLEL AND/OR PERPENDICULAR TO THE WEST PROPERTY LINE.

NO.	DATE	DESCRIPTION	BY
1	12/29/20	ISSUE FOR PERMITS	ML
2	1/7/21	REVISED FOR PERMITS	ML
3	1/27/21	REVISED FOR PERMITS	ML
4	2/17/21	REVISED FOR PERMITS	ML
5	3/1/21	REVISED FOR PERMITS	ML
6	3/1/21	REVISED FOR PERMITS	ML
7	3/1/21	REVISED FOR PERMITS	ML
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98	3/1/21	REVISED FOR PERMITS	ML
99	3/1/21	REVISED FOR PERMITS	ML
100	3/1/21	REVISED FOR PERMITS	ML

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GRADING AND SESC PLAN  
FOR  
KROGER D-777  
315 JOE MANN BOULEVARD  
MIDLAND, MI 48842

MISS DIG  
**811**  
Know what's below.  
Call before you dig.

FILE	C1-2.DWG
DESIGNED BY	ML/S/EA1
DRAWN BY	SEP/WRW
CHECKED BY	ADB
DATE	DECEMBER 30, 2016
SCALE	HOR. 1" = 40'
VERT.	N/A
PROJECT NO.	1636
SHEET NO.	C1.2

FILE: L:\1636 (KROGER D-777 MIDLAND)\C\1636\GRADING\1636-GRADING-2.DWG - PLOT DATE: 12/30/2016 12:32 PM BY: M:\mls\shumaker SCALE: 1:1

# SITE DETENTION CALCULATIONS

Development Data - Postdeveloped Condition (Site) Revised 20160210

SUBAREA	AREA sf	AREA acres	RUNOFF COEFF. C	A x C	AREA sq.mi.
Grass	184352	4.23	0.30	1.27	0.0066
Roof	119926	2.75	0.90	2.48	0.0043
Paved	410452	9.42	0.90	8.48	0.0147
Pond	32058	0.74	1.00	0.74	0.0011
<b>Totals</b>	<b>71,14</b>	<b>acres</b>	<b>12.96</b>	<b>0.0268</b>	<b>sq. mi.</b>
<b>Weighted C</b>	<b>0.756</b>				
<b>% Impervious Area</b>	<b>0.753</b>				
<b>Allowable Outflow (0.2 CFS/Acre)</b>	<b>3.429</b>				

Development Data - Postdeveloped Condition (Offsite) Revised 20160204

SUBAREA	AREA sf	AREA acres	RUNOFF COEFF. C	A x C	AREA sq.mi.
Grass	47641	1.09	0.30	0.33	0.0017
Roof	0	0.00	0.90	0.00	0.0000
Paved	9942	0.23	0.90	0.21	0.0004
Pond	0	0.00	1.00	0.00	0.0000
<b>Totals</b>	<b>1.32</b>	<b>acres</b>	<b>0.53</b>	<b>0.0021</b>	<b>sq. mi.</b>
<b>Weighted C</b>	<b>0.404</b>				

OFFSITE AREA INCLUDES THE AIRPORT ROAD RIGHT OF WAY IN THE SOUTHEAST CORNER. (AREA B ON C1.2.2)

# NORTH PARKING LOT DETENTION CALCULATIONS

KROGER TO PURCHASE LAND FROM CHEMICAL BANK

Development Data - Postdeveloped Condition (UG Storage) Revised 20160204

SUBAREA	AREA sf	AREA acres	RUNOFF COEFF. C	A x C	AREA sq.mi.
Grass	12866	0.30	0.30	0.09	0.0005
Roof	0	0.00	0.90	0.00	0.0000
Paved	27725	0.64	0.90	0.57	0.0019
Pond	0	0.00	1.00	0.00	0.0000
<b>Totals</b>	<b>0.93</b>	<b>acres</b>	<b>0.66</b>	<b>0.0015</b>	<b>sq. mi.</b>
<b>Weighted C</b>	<b>0.710</b>				
<b>% Impervious Area</b>	<b>0.683</b>				
<b>Allowable Outflow (0.2 CFS/Acre)</b>	<b>0.186</b>				

## Pond Report

Hydroflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4 Wednesday, 02/10/2016

Pond No. 1 - Detention Pond

Pond Data  
Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 636.45 ft

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	636.45	32,058	0	0
0.55	637.00	34,473	18,290	18,290
1.05	638.00	38,975	36,907	54,987
1.55	639.00	43,582	41,253	96,240
2.05	640.00	48,296	45,914	142,154
2.55	641.00	53,115	50,681	192,835
3.05	642.00	58,036	55,552	248,387

Culvert / Orifice Structures				Weir Structures					
[A]	[B]	[C]	[Pr/Rsr]	[A]	[B]	[C]	[D]		
Rise (in)	= 8.00	0.00	0.00	0.00	Crest Len (ft)	Inactive	0.00	0.00	0.00
Span (in)	= 8.00	0.00	0.00	0.00	Crest El. (ft)	= 0.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0	Weir Coeff.	= 2.60	3.33	3.33	3.33
Invert El. (ft)	= 636.45	0.00	0.00	0.00	Weir Type	= Broad	—	—	—
Length (ft)	= 0.50	0.00	0.00	0.00	Multi-Stage	= Yes	No	No	No
Slope (%)	= 0.00	0.00	0.00	n/a	Exfil. (in/hr)	= 0.000	(by Contour)	—	—
N-Value	= 0.13	0.13	0.13	n/a	TW Elev. (ft)	= 0.00	—	—	—
Orifice Coeff.	= 0.60	0.60	0.60	0.60					
Multi-Stage	= n/a	No	No	No					

Stage / Storage / Discharge Table														
Stage ft	Storage cuft	Discharge cfs	Elevation ft	Cv A cfs	Cv B cfs	Cv C cfs	Pr/Rsr cfs	W A cfs	W B cfs	W C cfs	W D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	636.45	0.00	—	—	—	—	—	—	—	—	—	—	0.000
0.55	18,290	637.00	0.79	ic	—	—	—	—	—	—	—	—	—	0.778
1.05	54,987	638.00	1.80	ic	—	—	—	—	—	—	—	—	—	1.854
1.55	96,240	639.00	2.50	ic	—	—	—	—	—	—	—	—	—	2.502
2.05	142,154	640.00	3.01	ic	—	—	—	—	—	—	—	—	—	3.014
2.55	192,835	641.00	3.45	ic	—	—	—	—	—	—	—	—	—	3.451
3.05	248,387	642.00	3.84	ic	—	—	—	—	—	—	—	—	—	3.838

## Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time Interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hydro (ft)	Maximum elevation (ft)	Total stage used (cuft)	Hydrograph Description
1	SCS Runoff	109.86	2	718	267,724	—	—	—	Onsite Area
2	SCS Runoff	6,240	2	718	12,822	—	—	—	Offsite Area In
3	Combine	116.05	2	718	280,346	1.2	—	—	Combined Area In
4	Reservoir	3,296	2	848	266,357	1	640.63	174,050	Pond w/ Onsite Only
5	Reservoir	3,367	2	856	278,953	3	640.80	182,583	Pond w/ On & Offsite

Pond Prelim 20151230.gpw Return Period: 100 Year Wednesday, 02/10/2016

LSG ENGINEERS & SURVEYORS  
SCS CN to Rational C Conversion  
Storm Event: 10 YEAR  
Location: Midland, MI

Precipitation (inches) P = 3.34 inches  
(10-year, 24 hour storm)  
Time of Concentration (minutes) Tc = 20 minutes  
Rainfall Intensity (in/hr) I = 3.07 in/hr  
Unit Peak Discharge (cfs/sq.mi/inches) q' = 635 cfs/sq.mi/inches

CN	S	C	CN	S	C
98	0.20	1.00	64	5.63	0.20
97	0.31	0.97	63	5.87	0.19
96	0.42	0.93	62	6.13	0.18
95	0.53	0.90	61	6.39	0.16
94	0.64	0.86	60	6.67	0.15
93	0.75	0.83	59	6.95	0.14
92	0.87	0.80	58	7.24	0.13
91	0.99	0.77	57	7.54	0.12
90	1.11	0.74	56	7.86	0.10
89	1.24	0.71	55	8.18	0.09
88	1.36	0.69	54	8.52	0.09
87	1.49	0.66	53	8.87	0.08
86	1.63	0.63	52	9.23	0.07
85	1.76	0.61	51	9.61	0.06
84	1.90	0.58	50	10.00	0.05
83	2.05	0.56	49	10.41	0.04
82	2.20	0.53	48	10.83	0.04
81	2.35	0.51	47	11.28	0.03
80	2.50	0.49	46	11.74	0.02
79	2.66	0.47	45	12.22	0.02
78	2.82	0.44	44	12.73	0.02
77	2.99	0.42	43	13.26	0.01
76	3.16	0.40	42	13.81	0.01
75	3.33	0.38	41	14.39	0.00
74	3.51	0.36	40	15.00	0.00
73	3.70	0.35	39	15.64	0.00
72	3.89	0.33	38	16.32	0.00
71	4.08	0.31	37	17.03	0.00
70	4.29	0.29	36	17.78	0.00
69	4.49	0.28	35	18.57	0.00
68	4.71	0.26	34	19.41	0.01
67	4.93	0.25	33	20.30	0.01
66	5.15	0.23	32	21.25	0.01
65	5.38	0.22	31	22.26	0.02

## Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time Interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hydro (ft)	Maximum elevation (ft)	Total stage used (cuft)	Hydrograph Description
1	SCS Runoff	6,051	2	716	12,940	—	—	—	North Parking & Drive Area
2	Reservoir	0.184	2	830	12,479	1	641.65	8,268	UG Detention

UG Det Prelim 20151230.gpw Return Period: 100 Year Thursday, 02/11/2016

**DYODS™**  
Design Your Own Detention System

**CONTECH™**  
CMP DETENTION SYSTEMS

For design assistance, drawings, and pricing send completed worksheet to: [dyods@contech-cpi.com](mailto:dyods@contech-cpi.com)

Project Summary	
Date:	2/10/2016
Project Name:	Midland Kroger D-277
City / County:	Midland
State:	MI
Designed By:	EAI
Company:	LSG Engineers & Surveyors
Telephone:	517-593-2902

Corrugated Metal Pipe Calculator	
Storage Volume Required (cf):	8,484
Limiting Width (ft):	45.00
Invert Depth Below Asphalt (ft):	6.00
Slope Or Diameter (in):	Perforated
Number Of Headers:	2
Spacing between Barrels (ft):	1.50
Stone Width Around Perimeter of System (ft):	1
Depth A: Porous Stone Above Pipe (in):	6
Depth C: Porous Stone Below Pipe (in):	0
Stone Porosity (0 to 40%):	30

System Sizing	
Pipe Storage:	6,277 cf
Porous Stone Storage:	2,336 cf
Total Storage Provided:	8,613 cf
Number of Barrels:	9 barrels
Length per Barrel:	90.0 ft
Length Per Header:	39.0 ft
Rectangular Footprint (W x L):	41. ft x 98. ft

CONTECH Materials	
Total CMP Footage:	888 ft
Approximate Total Pieces:	40 pcs
Approximate Coupling Bands:	47 bands
Approximate Truckloads:	4 trucks

Construction Quantities	
Total Excavation:	893 cy
Porous Stone Backfill For Storage:	288 cy stone
Backfill to Grade Excluding Stone:	372 cy fill

System Layout	
Barrel 12	0
Barrel 11	0
Barrel 10	0
Barrel 9	0
Barrel 8	90
Barrel 7	90
Barrel 6	90
Barrel 5	90
Barrel 4	90
Barrel 3	90
Barrel 2	90
Barrel 1	90

Barrel Footage (w/o headers)

© 2007 CONTECH Stormwater Solutions

## UNDERGROUND DETENTION BASIN DETAIL B C1.2.1

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

FILE	C1-2-1-DWG
DESIGNED BY	EAI
DRAWN BY	SEP/WRW
CHECKED BY	ADB
DATE	DECEMBER 30, 2016
SCALE	HOR. N/A
VERT.	N/A
PROJECT NO.	1636
SHEET NO.	C1.2.1

NO.	DATE	DESCRIPTION	BY
1	12/29/15	PRELIMINARY	WRW
2	1/27/16	REVISED	WRW
3	2/10/16	REVISED	WRW

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Engineers & Surveyors

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SUITE D  
LANSING, MI 48911  
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FAX: (517) 393-2608  
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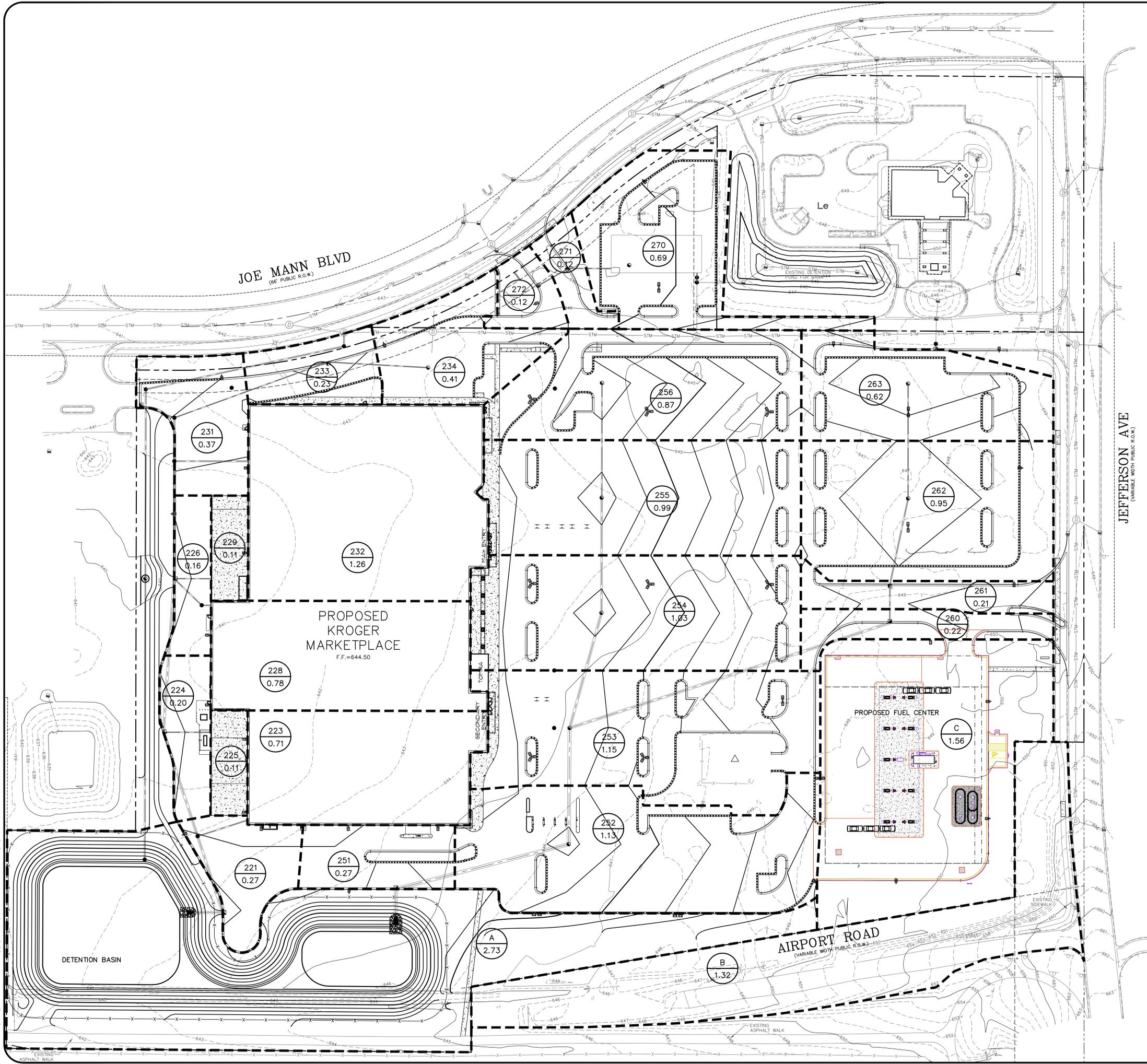
PREPARED FOR:  
**Kroger**

**THE KROGER COMPANY**  
40399 GRAND RIVER AVE.  
NOVA, MI 48375  
PH: (248) 536-1500  
FAX: (248) 957-2255

DRAINAGE AREA CALCULATIONS AND DETAILS FOR KROGER D-777 315 JOE MANN BOULEVARD MIDLAND, MI 48642

FILE: L:\536 (KROGER D-277 MIDLAND)\C:\PLANS\C1-2-1-DWG - PLOT DATE: 2/12/2016 11:10 PM BY: Moham... Drawn by: SCALE: 1:1

FILE: L:\1636 (KROGER D-277 MIDLAND)\C\1\PLANS\C1-2-2.DWG - PLOT DATE: 2/12/2016 12:15 PM BY: Michelle Summer SCALE: 1:1



**LEGEND**

- DRAINAGE BASIN BOUNDARY
- - - - - BASIN DESIGNATION
- BASIN AREA IN ACRES (2.52)

**NOTES**

1. BENCHMARKS  
CONTROL BENCHMARK - CITY OF MIDLAND ENGINEERING DEPARTMENT COMBINED PLAN FOR N. JEFFERSON AVENUE, (SHEET 2 OF 2) P.K. NAIL IN POWER POLE ON THE WEST SIDE OF JEFFERSON AVENUE AT HOUSE #1589  
ELEVATION: 651.40 (DATUM NOT SPECIFIED)  
BENCHMARK # 1 - NORTHEAST FLANGE BOLT UNDER "S" IN "WORKS" ON FIRE HYDRANT 7"± EAST OF EAST CURB LINE OF JEFFERSON AVENUE, 115'± SOUTH OF THE CENTERLINE OF CHEMICAL BANK DRIVEWAY.  
ELEVATION: 650.08  
BENCHMARK # 2 - CHISELED "C" ON TOP OF EAST SIDE OF NORTHERLY CONCRETE LIGHT POLE BASE LOCATED 55'± SOUTH OF NORTHEAST CORNER OF PARKING LOT FOR #6540 ONEMA DRIVE, ALSO BEING OPPOSITE WEST SIDE OF DETENTION POND WEST OF SUBJECT PROPERTY.  
ELEVATION: 643.71  
BENCHMARK # 3 - CHISELED "C" ON SOUTHWEST CORNER OF CONCRETE SLAB UNDER A BENCH ON THE SOUTH RIGHT OF WAY LINE OF JOE MANN BOULEVARD, 60' WEST OF CENTERLINE ALAN OTT DRIVE TO THE NORTH.  
ELEVATION: 644.99
2. THE CONTRACTOR SHALL CALL "MISS DIG" AT 811 OR 1-800-482-7171 AT LEAST THREE (3) WORKING DAYS (EXCLUDING WEEKENDS AND HOLIDAYS) PRIOR TO CONSTRUCTION.
3. LSG ENGINEERS & SURVEYORS WILL NOT BE RESPONSIBLE FOR FIELD DESIGN CHANGES MADE BY THE CONTRACTOR OR THE CONTRACTOR'S SURVEYOR WHERE THESE DESIGN CHANGES HAVE NOT BEEN APPROVED BY LSG ENGINEERS & SURVEYORS.
4. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TO THE FACE OF CURB AND ALL BUILDING AND PAVEMENT LINES ARE PARALLEL AND/OR PERPENDICULAR TO THE WEST PROPERTY LINE.

NO.	DATE	DESCRIPTION	BY

**LSG**  
Engineers  
& Surveyors

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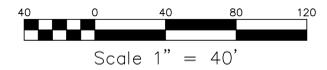


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DRAINAGE AREA PLAN  
FOR  
KROGER D-777  
315 JOE MANN BOULEVARD  
MIDLAND, MI 48842



FILE	C1-2-2.DWG
DESIGNED BY	EAI
DRAWN BY	SEP/WRW
CHECKED BY	ADB
DATE	DECEMBER 30, 2016
SCALE	
HOR.	1" = 40'
VERT.	N/A
PROJECT NO.	1636
SHEET NO.	C1.2.2



### UTILITY NOTES

SITE CONTRACTOR TO COORDINATE ALL UTILITY TIE-INS WITH THE APPROPRIATE BUILDING CONTRACTOR, ARCHITECT, AND KROGER PROJECT MANAGER.

COORDINATE ANY UTILITIES THAT CROSS EXTERIOR WALLS WITH MECHANICAL / ELECTRICAL / PLUMBING PLANS. MAKE SURE LINES ARE NOT UNDER FREEZERS.

CONTRACTOR TO COORDINATE WITH BUILDING ELECTRICIAN AND PROVIDE A MINIMUM TEN FEET (10') EXTRA LENGTH OF CABLES FOR FINAL ELECTRIC CONNECTION.

THE SITE CONTRACTOR MUST COORDINATE THE TIMING AND INSTALLATION OF ALL NATURAL GAS LINES WITH THE GENERAL CONTRACTOR(S) FOR THE BUILDING AND MAKE ALL NECESSARY SCHEDULE ADJUSTMENTS FOR TEMPORARY OR PERMANENT GAS LINE PER THE PROJECT SCHEDULE.

### HATCH LEGEND

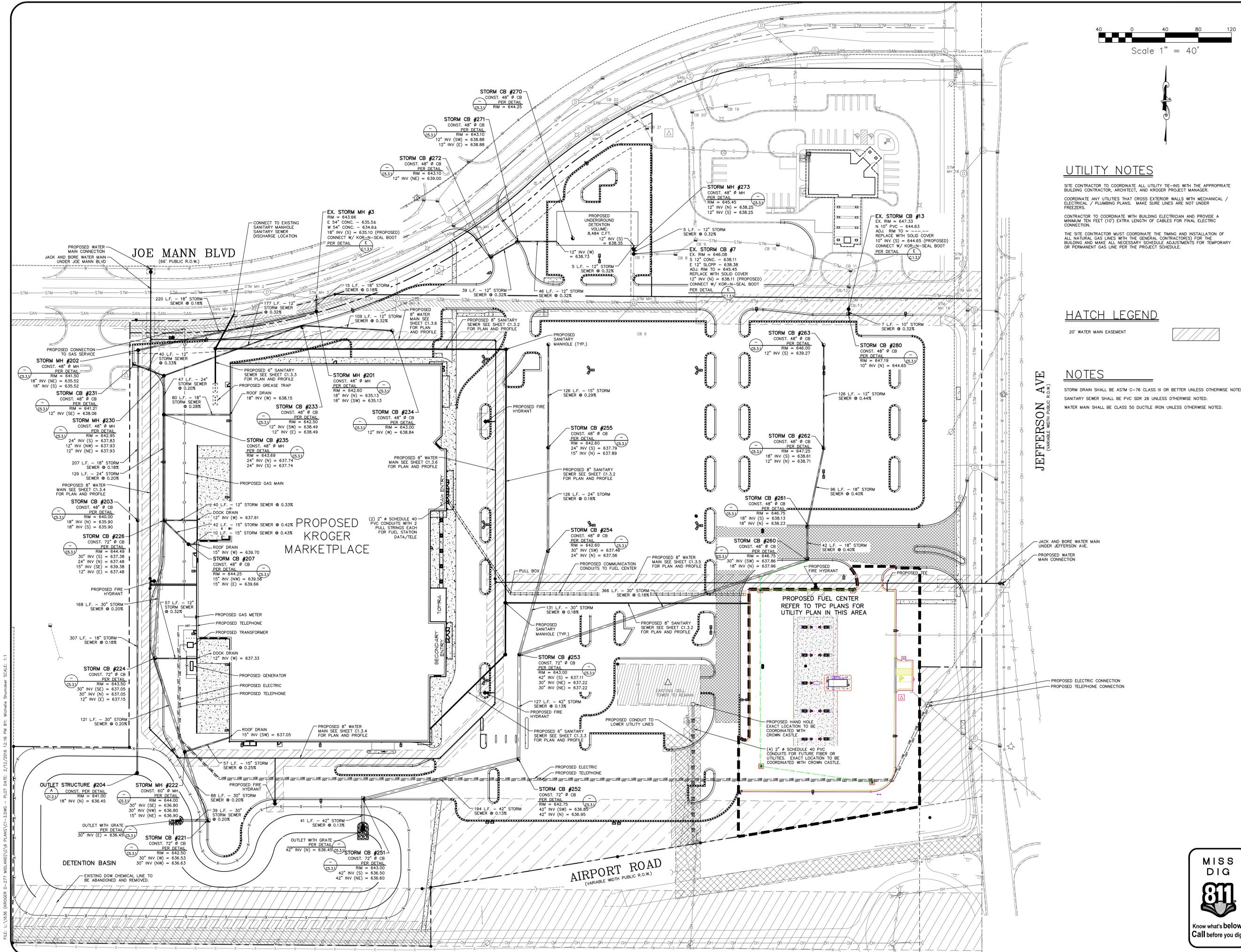
20' WATER MAIN EASEMENT

### NOTES

STORM DRAIN SHALL BE ASTM C-76 CLASS III OR BETTER UNLESS OTHERWISE NOTED.

SANITARY SEWER SHALL BE PVC SDR 26 UNLESS OTHERWISE NOTED.

WATER MAIN SHALL BE CLASS 50 DUCTILE IRON UNLESS OTHERWISE NOTED.



JOE MANN BLVD  
(66' PUBLIC R.O.W.)

PROPOSED  
KROGER  
MARKETPLACE

AIRPORT ROAD  
(VARIABLE WIDTH PUBLIC R.O.W.)

JEFFERSON AVE  
(VARIABLE WIDTH PUBLIC R.O.W.)

NO.	DATE	DESCRIPTION	BY
1	12/29/2016	ISSUE FOR PERMITS	ML
2	1/12/2017	REVISIONS/SUBMITTALS	ML
3	1/25/2017	REVISIONS/SUBMITTALS	ML
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5	2/1/2017	REVISIONS/SUBMITTALS	ML
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99	2/1/2017	REVISIONS/SUBMITTALS	ML
100	2/1/2017	REVISIONS/SUBMITTALS	ML

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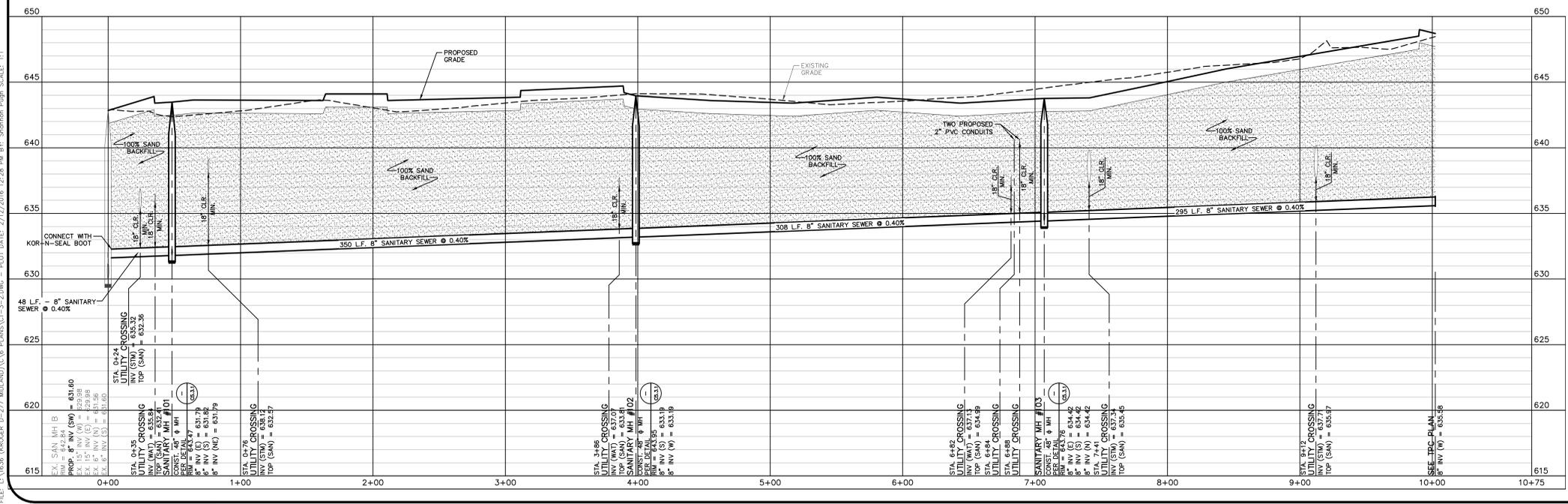
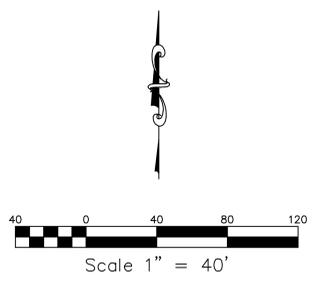
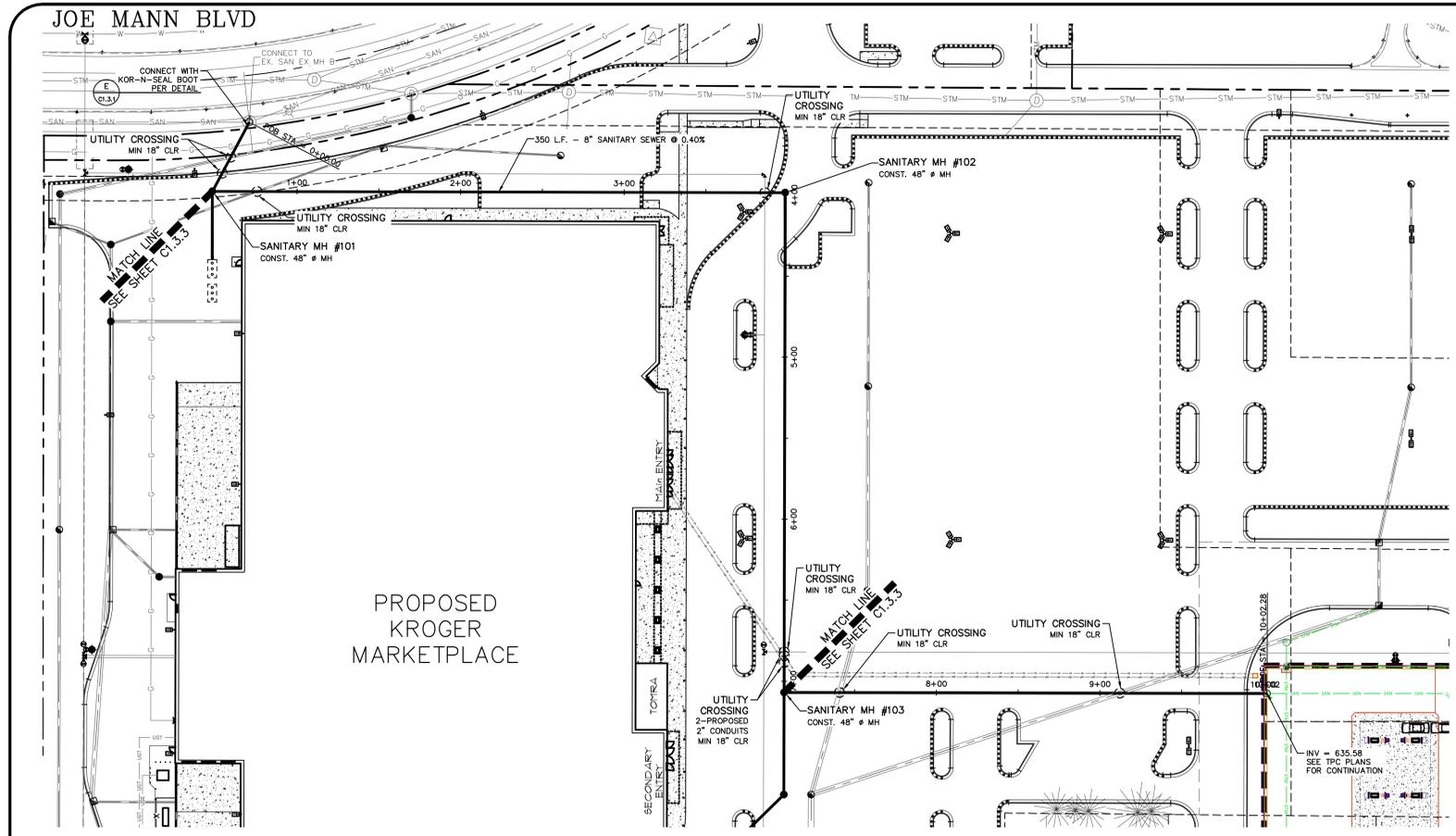
UTILITY PLAN  
FOR  
KROGER D-777  
315 JOE MANN BOULEVARD  
MIDLAND, MI 48642

MISS DIG  
**811**  
Know what's below.  
Call before you dig.

FILE	C1-3.DWG
DESIGNED BY	ML
DRAWN BY	WRW
CHECKED BY	ADB
DATE	DECEMBER 30, 2016
SCALE	HOR. 1" = 40'
VERT.	N/A
PROJECT NO.	1636
SHEET NO.	C1.3

FILE: L:\636 (KROGER D-777 MIDLAND)\C\1 PLANS\C1-3.DWG - PLOT DATE: 2/1/2017 12:16 PM BY: Michael Shumaker SCALE: 1:1





FILE: C:\6308 (KROGER D-777 MIDLAND)\C\6 PLANS\C1-3-2.DWG - PLOT DATE: 2/12/2016 12:28 PM BY: Shannon Pugh SCALE: 1:1

NO.	DATE	BY	REVISIONS/SUBMITTALS

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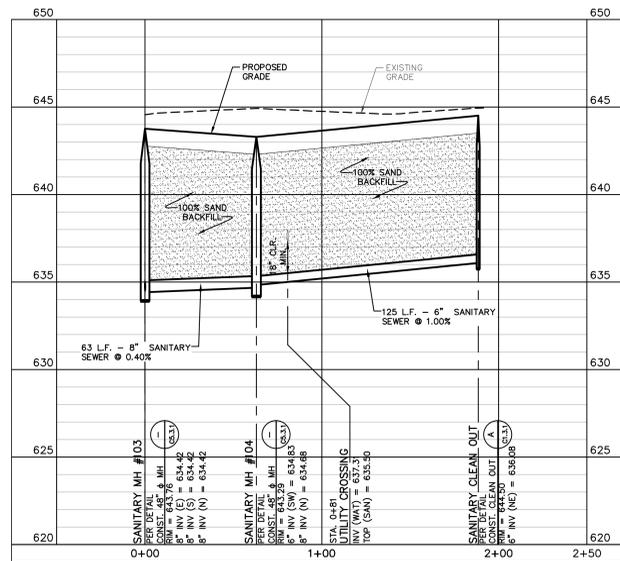
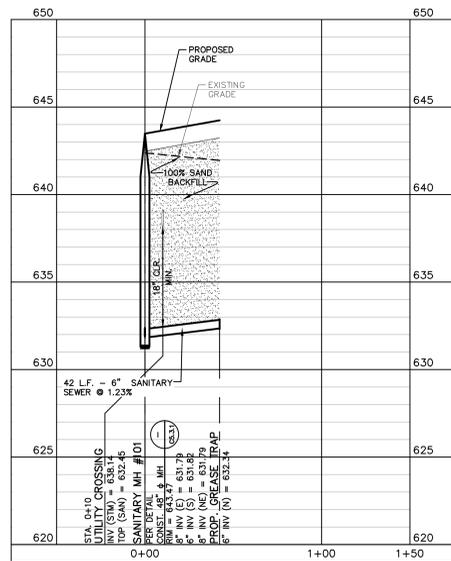
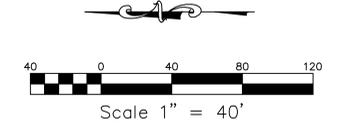
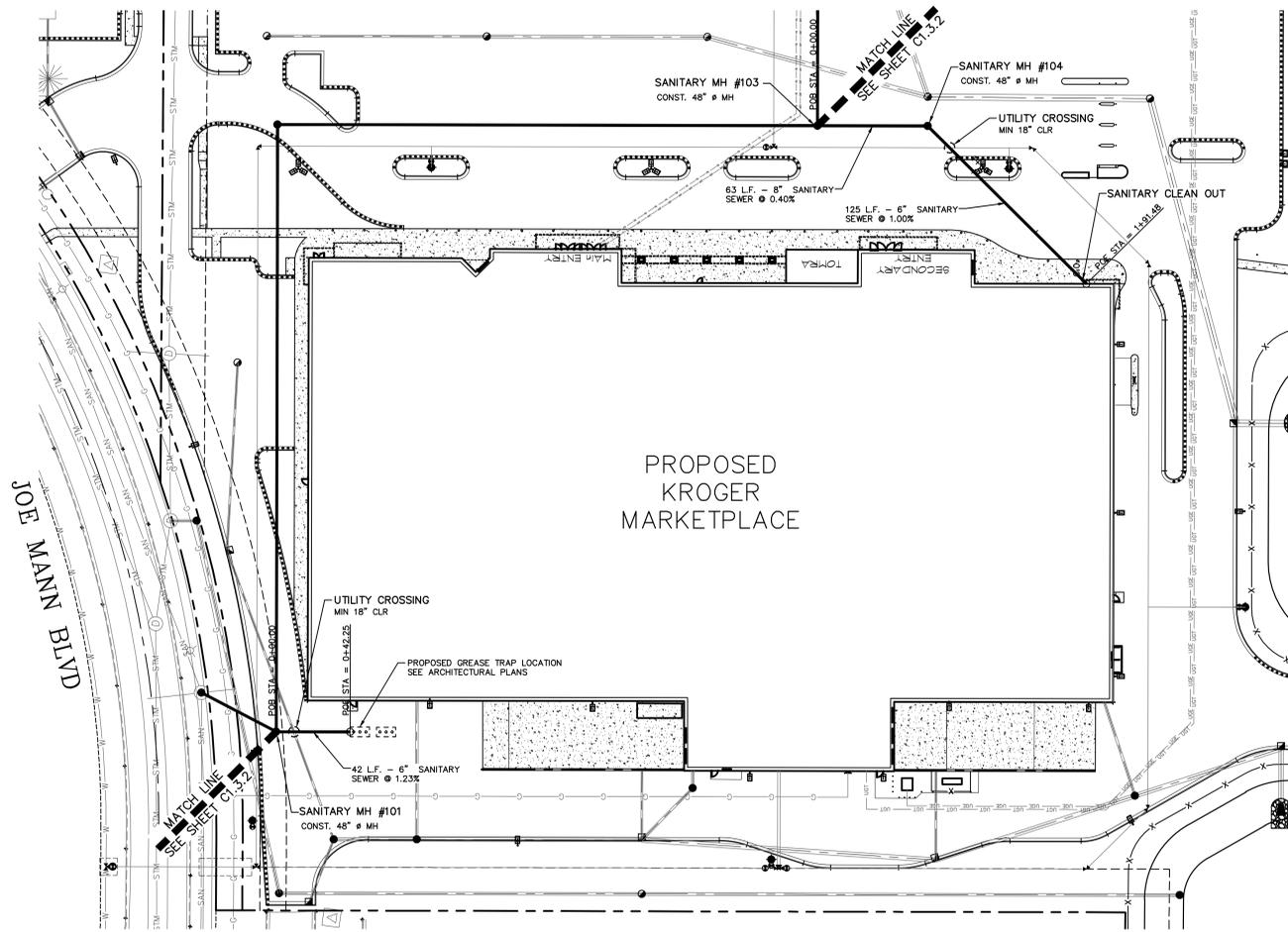
PREPARED FOR:  
**Kroger**

**THE KROGER  
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MICHIGAN**  
40399 GRAND RIVER RD.  
SUITE 110  
NOW, MI 48375  
PHONE: (248) 536-1500

**SANITARY SEWER PLAN AND PROFILE**  
FOR  
**KROGER D-777**  
315 JOE MANN BOULEVARD  
MIDLAND, MI 48642

**MISS  
DIG**  
811  
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FILE: C1-3-2.DWG  
DESIGNED BY: M.L.S.  
DRAWN BY: W.R.W.  
CHECKED BY: A.D.B.  
DATE: DECEMBER 30, 2015  
SCALE:  
HOR. 1" = 40'  
VERT. 1" = 4'  
PROJECT NO.:  
1636  
SHEET NO.:  
C1.3.2



FILE: L:\1636 (KROGER D-777 MIDLAND)\CV\PLANS\C1-3-3.DWG - PLOT DATE: 2/12/2016 12:41 PM BY: Shannon Pugh SCALE: 1:1

REVISIONS/SUBMITTALS			
NO.	DATE	DESCRIPTION	BY

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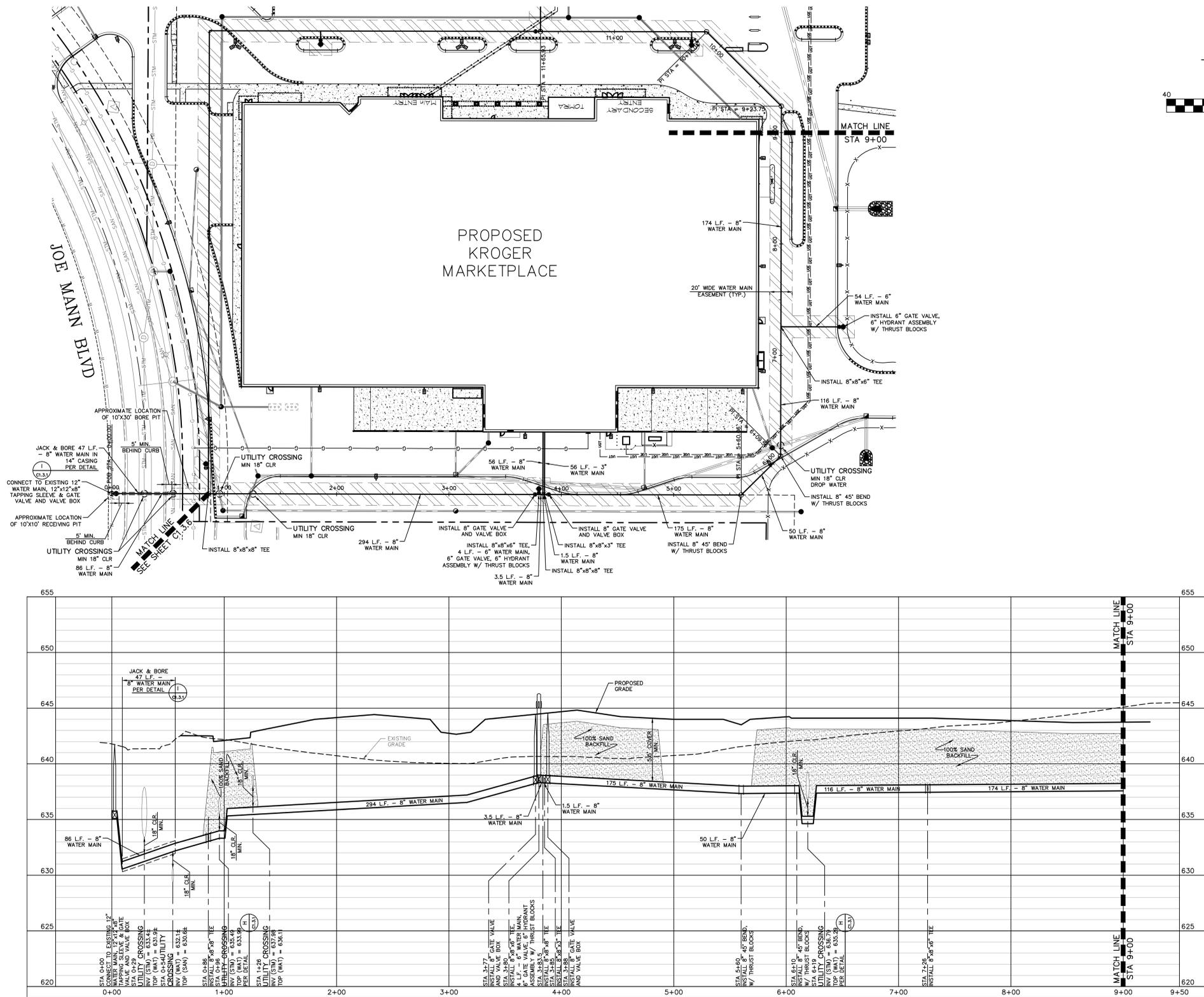
PREPARED FOR:

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CO. OF  
MICHIGAN**  
40399 GRAND RIVER RD.  
SUITE 110  
NOW, MI 48375  
PHONE: (248) 536-1500

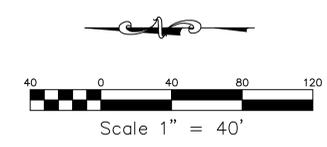
**SANITARY SEWER PLAN AND PROFILE**  
FOR  
**KROGER D-777**  
315 JOE MANN BOULEVARD  
MIDLAND, MI 48642

**MISS  
DIG**  
811  
Know what's below.  
Call before you dig.

FILE	C1-3-3.DWG
DESIGNED BY	MLS
DRAWN BY	WRW
CHECKED BY	ADB
DATE	DECEMBER 30, 2016
SCALE	
HOR.	1" = 40'
VERT.	1" = 4'
PROJECT NO.	1636
SHEET NO.	C1.3.3



FILE: L:\V&B (KROGER D-777 MIDLAND)\CV\PLANS\C1-3-4.DWG - PLOT DATE: 2/12/2016 12:42 PM BY: Shannon Pugh SCALE: 1:1



DATE	BY	REVISIONS/SUBMITTALS
2/17/16 <td>WPM <td>ISSUANCE</td> </td>	WPM <td>ISSUANCE</td>	ISSUANCE
		PER CITY COMMENTS

**LSG**  
Engineers & Surveyors

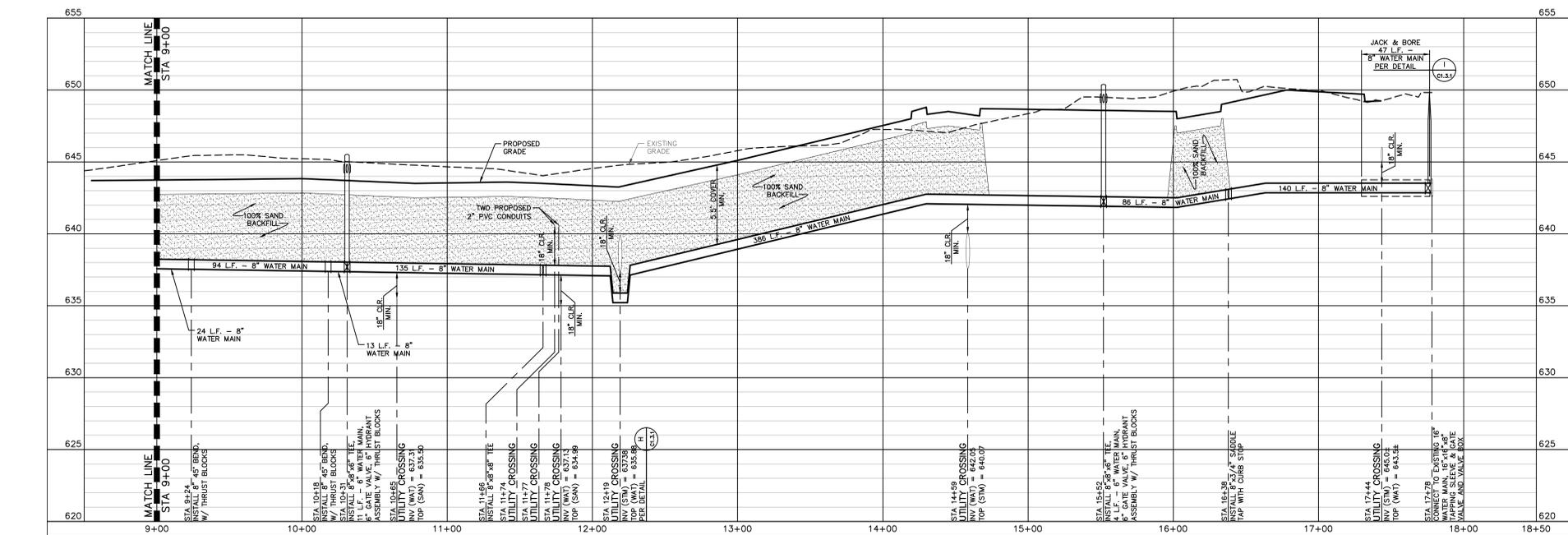
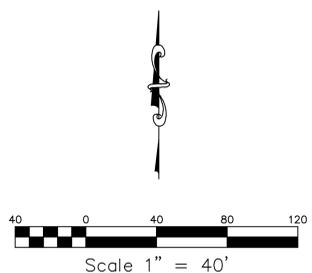
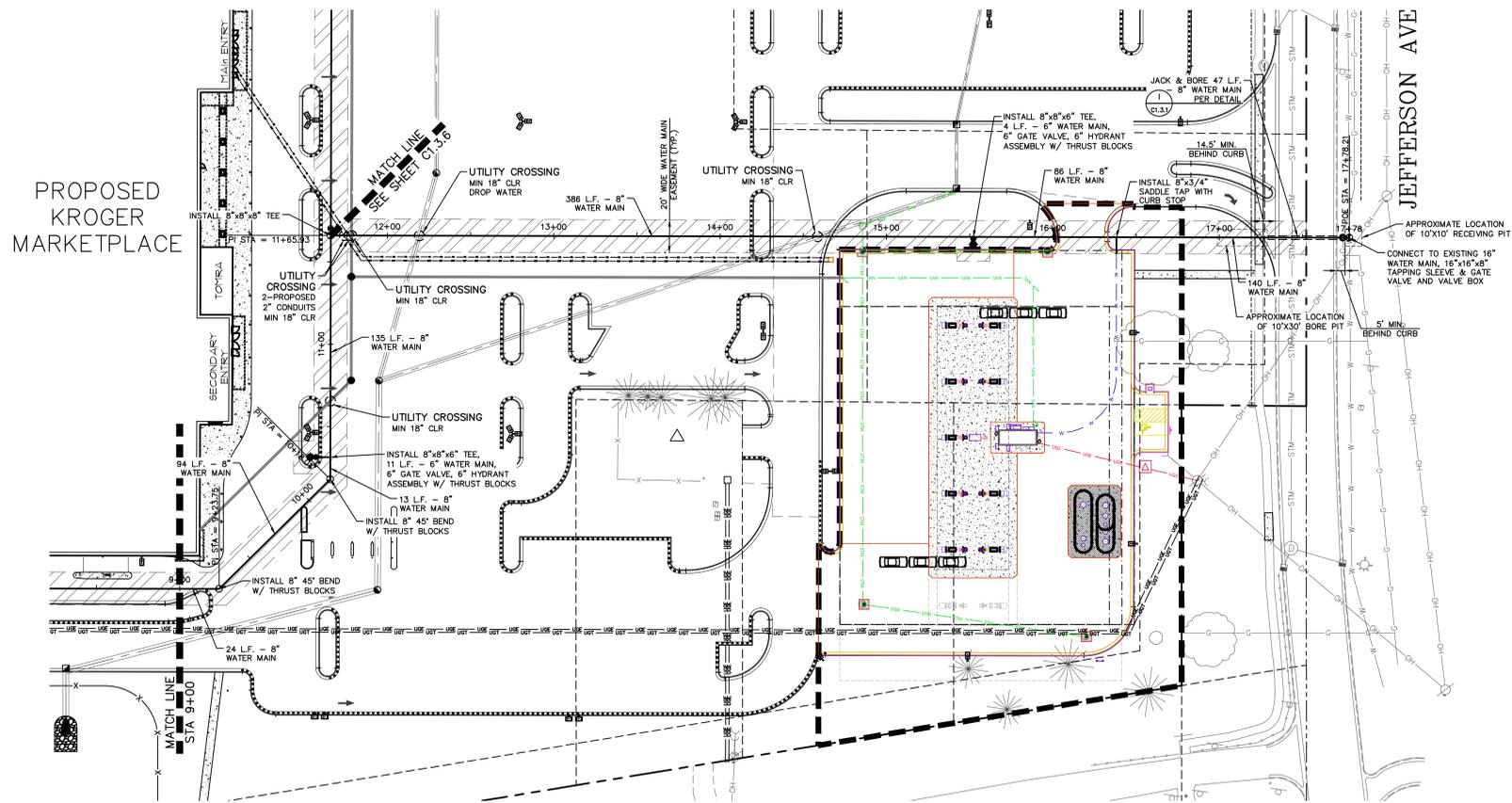
3135 PINE TREE ROAD  
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PREPARED FOR:

**THE KROGER CO. OF MICHIGAN**  
40399 GRAND RIVER RD.  
SUITE 110  
NOW, MI 48375  
PHONE: (248) 536-1500

**WATER MAIN PLAN AND PROFILE**  
FOR  
**KROGER D-777**  
315 JOE MANN BOULEVARD  
MIDLAND, MI 48642

FILE	C1-3-4.DWG
DESIGNED BY	MLS
DRAWN BY	WRW
CHECKED BY	ADB
DATE	DECEMBER 30, 2015
SCALE	
HOR.	1" = 40'
VERT.	1" = 4'
PROJECT NO.	1636
SHEET NO.	C1.3.4



FILE: L:\V&B (KROGER D-777 MIDLAND)\V&B PLANS\C1-3-5.DWG - PLOT DATE: 2/12/2016 12:43 PM BY: Shannon Pugh SCALE: 1:1

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2/17/16	WRW
	ADB
	WRW
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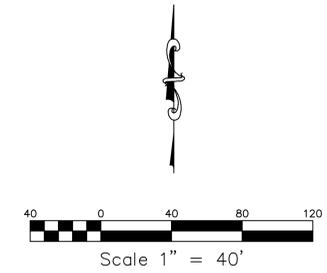
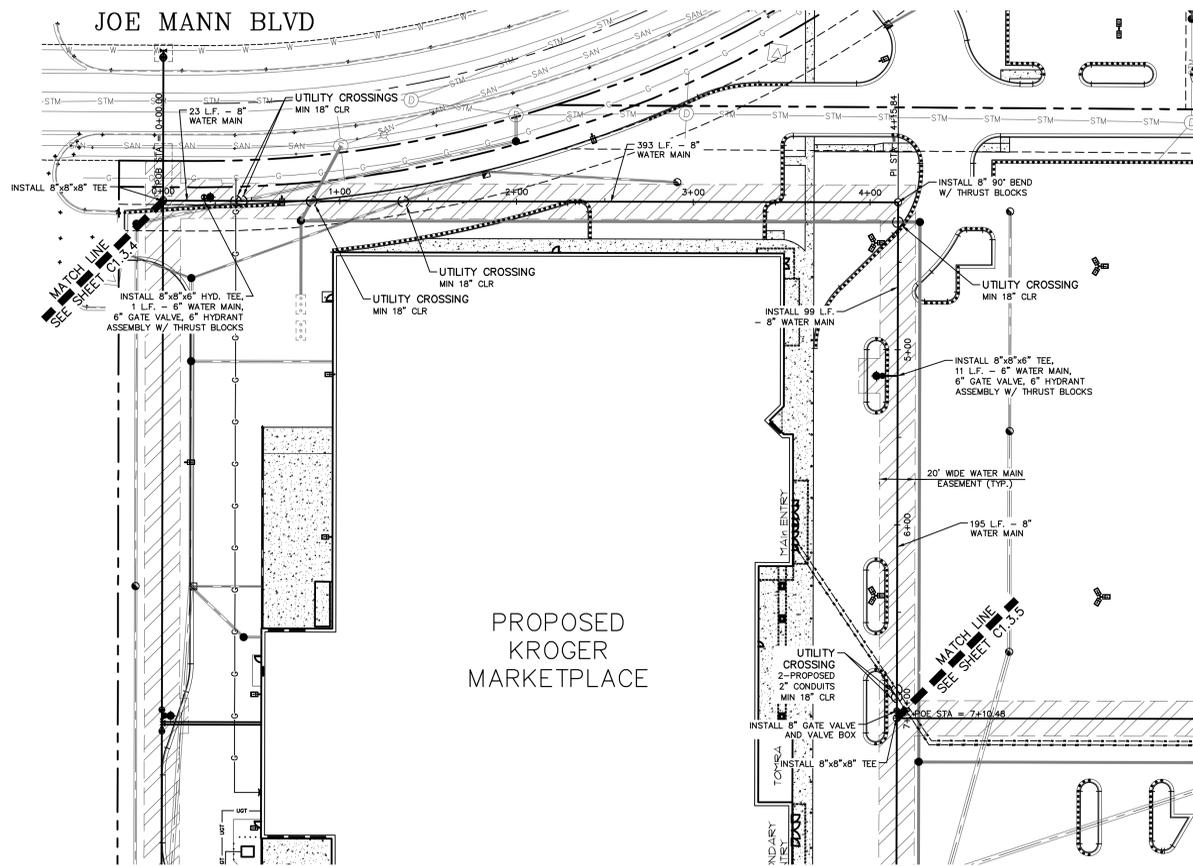
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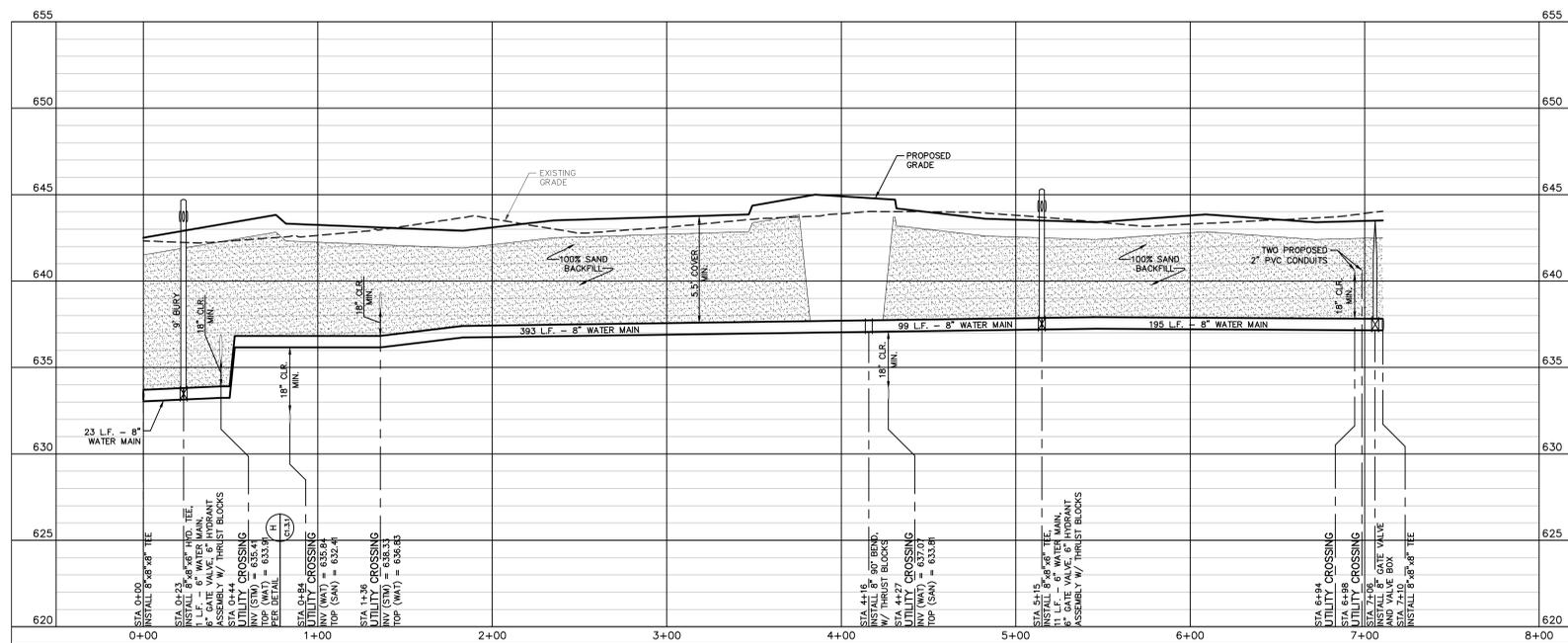
**WATER MAIN PLAN AND PROFILE**  
FOR  
**KROGER D-777**  
315 JOE MANN BOULEVARD  
MIDLAND, MI 48842

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PROJECT NO.	1636
SHEET NO.	C1.3.5



PROPOSED  
KROGER  
MARKETPLACE



FILE: L:\V&B (KROGER D-777 MIDLAND)\V&B PLANS\C1-3-6.DWG - PLOT DATE: 2/12/2016 12:44 PM BY: Shannon Pugh SCALE: 1:1

REVISIONS/SUBMITTALS	
NO.	DATE
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2	2/17/16
3	2/17/16
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5	2/17/16
6	2/17/16
7	2/17/16
8	2/17/16
9	2/17/16
10	2/17/16

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**WATER MAIN PLAN AND PROFILE**  
FOR  
**KROGER D-777**  
315 JOE MANN BOULEVARD  
MIDLAND, MI 48842

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SHEET NO.	C1.3.6

# STANDARD EROSION AND SEDIMENTATION CONTROL PLAN NOTES

- CONTROL BENCHMARK - CITY OF MIDLAND ENGINEERING DEPARTMENT COMBINED PLAN FOR N. JEFFERSON AVENUE. (SHEET 2 OF 2) P.K. NAIL IN POWER POLE ON THE WEST SIDE OF JEFFERSON AVENUE AT HOUSE #1589. ELEVATION: 651.40 (DATUM NOT SPECIFIED)
- SITE BENCHMARK #1 - NORTHEAST FLANGE BOLT UNDER "S" IN "WORKS" ON FIRE HYDRANT 7'± EAST OF EAST CURB LINE OF JEFFERSON AVENUE, 115'± SOUTH OF THE CENTERLINE OF CHEMICAL BANK DRIVEWAY. ELEVATION: 650.08
- SITE BENCHMARK #2 - CHISELED "X" ON TOP OF EAST SIDE OF NORTHERLY CONCRETE LIGHT POLE BASE LOCATED 55'± SOUTH OF NORTHEAST CORNER OF PARKING LOT FOR #6540 CINEMA DRIVE. ALSO BEING OPPOSITE WEST SIDE OF DETENTION POND WEST OF SUBJECT PROPERTY. ELEVATION: 643.71
- SITE BENCHMARK #3 - CHISELED "X" ON SOUTHWEST CORNER OF CONCRETE SLAB UNDER A BENCH ON THE SOUTH RIGHT OF WAY LINE OF JOE MANN BOULEVARD, 60' WEST OF CENTERLINE ALAN OTT DRIVE TO THE NORTH. ELEVATION: 644.99
- CONTRACTOR IS TO CONTACT MIDLAND COUNTY AND THE CITY OF MIDLAND AT LEAST THREE (3) DAYS PRIOR TO THE START OF CONSTRUCTION.
- THE SITE IS MADE UP OF LENAWEE SILTY CLAY LOAM, PIPESTONE SAND, ERIE-HURON LAKE PLAIN, AND WYOM LOAMY SAND WHICH ARE CONSIDERED LOW TO MODERATE ERODIBLE SOILS.
- FOR LAND AREAS POSSESSING SLOPES EXCEEDING 15% THE CONTRACTOR SHALL:
  - PROTECT AND STABILIZE AREAS THAT HAVE A HIGH POTENTIAL FOR SOIL EROSION.
  - ASSURE STRUCTURAL SAFETY AND MINIMIZE HARM TO THE ENVIRONMENT ASSOCIATED WITH THE DEVELOPMENT.
  - MINIMIZE GRADING THROUGHOUT THE SITE.
  - PROTECT AND PRESERVE ANY VALUABLE NATURAL WILDLIFE AND/OR PLANT HABITATS WHICH COINCIDES WITH THE STEEP-SLOPE AREAS OF THE SITE.
  - PROTECT WATER QUALITY ON AND AROUND THE SITE FROM THE ADVERSE EFFECTS OF THE PROPOSED USE.
  - PROTECT ANY STEEP SLOPES ON ADJOINING PROPERTIES.
- ALL SLOPES GREATER THAN 6:1 SHALL BE SEEDED AND STABILIZED IMMEDIATELY AFTER GRADE IS ESTABLISHED.
- CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING ALL SOIL EROSION CONTROL MEASURES ON A WEEKLY BASIS. DURING CONSTRUCTION OWNER SHALL MAINTAIN ALL PERMANENT S.E.C. MEASURES AFTER CONSTRUCTION IS COMPLETE.
- ALL TEMPORARY S.E.C. MEASURES SHALL BE MAINTAINED 30 DAYS AFTER CONSTRUCTION IS COMPLETE OR UNTIL GRADED AREAS ARE STABILIZED. AT THIS TIME OWNER IS RESPONSIBLE FOR REMOVAL AND PROPER DISPOSAL OF THESE S.E.C. MEASURES.

THIS NARRATIVE IS TO ACCOMPANY THE EROSION AND SEDIMENTATION CONTROL PLAN FOR THE KROGER STORE #0-777 PREPARED BY LSG ENGINEERS & SURVEYORS OF LANSING, MICHIGAN, AND SHALL BE CONSIDERED A PART OF THE EROSION AND SEDIMENTATION CONTROL PLAN.

## I. GENERAL STATEMENT OF THE PROJECT

- THE PROPOSED IMPROVEMENTS WITHIN THE SITE INCLUDE DEMOLITION OF EXISTING RESIDENTIAL STRUCTURES, WATER WELLS, AND SEPTIC TANKS; CONSTRUCTION OF BUILDING, INSTALLATION OF UTILITIES, STORM STRUCTURES, DETENTION BASIN, PAVING OF THE PARKING LOT, AND LANDSCAPING.
- THE AREAS OF PROPOSED EARTH DISTURBANCE ARE SHOWN ON THE SOIL EROSION CONTROL PLAN.
- THE STORM WATER MANAGEMENT FACILITIES WILL CONSIST OF A DETENTION BASIN IN THE SOUTHWEST CORNER.
- THE STORM WATER CALCULATIONS FOR THE SITE WERE PREPARED IN ACCORDANCE WITH THE CITY OF MIDLAND STORMWATER REGULATIONS.
- ACCELERATED EROSION AND SEDIMENTATION SHALL BE LIMITED BY THE STABILIZATION OF DISTURBED AREAS AS SOON AS POSSIBLE. IN ADDITION, LIMITS OF EARTHMOVING HAVE BEEN IDENTIFIED FOR EACH PHASE OF THE SOIL EROSION CONTROL PLAN. THE CONTRACTOR SHALL NOTE THE SCHEDULE FOR EARTHMOVING AND INTERIM STABILIZATION AND THE RESTRICTIONS IMPOSED ON STARTING THE NEXT PHASE.
- ALL DISTURBED AREAS INTENDED TO BE LAWN OR GRASS AREAS SHALL IMMEDIATELY AFTER FINAL GRADING, BE SEEDED PER THE PERMANENT STABILIZATION MIX AND MAINTAINED.
- CONSTRUCTION ON THIS PROJECT SHOULD BEGIN IN JULY 2016.

## II. TOPOGRAPHIC FEATURES OF THE PROJECT AREA

THE LOCATION OF THE SITE, CONTOURS, PROPERTY LINES, ACREAGE AND ALL OTHER PHYSICAL FEATURES WERE LOCATED BY THE USE OF GROUND OBSERVATION AND ARE SHOWN ON THE PLAN.

## III. TYPES, DEPTH, SLOPE AND AREAL EXTENT OF SOILS

THE ENTIRE SITE IS MADE UP OF LENAWEE SILTY CLAY LOAM, PIPESTONE SAND, ERIE-HURON LAKE PLAIN, AND WYOM LOAMY SAND.

## IV. PROPOSED ALTERATION TO THE AREA

ALL PROPOSED ALTERATIONS ARE SHOWN ON THE PLAN. PROPOSED GRADES HAVE BEEN SELECTED KEEPING IN MIND THE EXISTING DRAINAGE PATTERNS. THE GRADING PLAN WILL INDICATE THE FINAL GRADES OF THE SITE.

## V. AMOUNT OF RUNOFF FROM THE PROJECT AREA AND THE UPSTREAM WATERSHED

THE AMOUNTS OF RUNOFF FROM THE PROJECT AREA OR FROM THE UPSTREAM WATERSHED WILL BE KEPT TO A MINIMUM BY THE USE OF SOIL EROSION CONTROL MEASURES.

## VI. STAGING OF EARTHMOVING ACTIVITIES

- PHASE I 1 WEEK (SEPTEMBER 2016 - OCTOBER 2016)  
 MASS GRADING.  
 BEGIN CONSTRUCTION OF BUILDING.  
 TEMPORARY AND PERMANENT SEEDING OF AREAS NOTED ON PLAN.  
 PHASE II (OCTOBER 2016 - FEBRUARY 15, 2017)  
 MASS GRADING OPERATION FOR SITE, EXCAVATE DETENTION AREA.  
 BEGIN UTILITY INSTALLATION IN THE ORDER OF SANITARY SEWER, STORM SEWER, AND WATER MAIN.  
 CONTINUE CONSTRUCTION OF BUILDING.  
 CONTINUE TEMPORARY AND PERMANENT SEEDING OF AREAS NOTED ON PLANS.  
 PHASE III (FEBRUARY 16, 2017 - JULY 1, 2017)  
 CONTINUE CONSTRUCTION OF UTILITIES.  
 CONTINUE TEMPORARY AND PERMANENT SEEDING OF AREAS NOTED ON PLANS.  
 COMPLETE CONSTRUCTION OF BUILDING.  
 COMPLETE CONSTRUCTION AND TESTING OF UTILITIES.  
 INSTALL CURB AND GUTTER, AND PAVING.  
 INSTALL LANDSCAPING.

## VII. TEMPORARY CONTROL MEASURES AND FACILITIES FOR USE DURING EARTHMOVING

- TOPSOIL STOCKPILES: STOCKPILES SHALL BE USED TO CONTAIN ALL STRIPPED TOPSOIL IN A LIMITED AREA IN ORDER TO KEEP THE DISTURBED AREA TO A MINIMUM. STOCKPILES THAT WILL EXIST BETWEEN 20 DAYS AND 12 MONTHS SHALL BE STABILIZED WITH A TEMPORARY COVER CROP OF GRASS AS SET FORTH IN THE INTERIM STABILIZATION GUIDELINES.
- STABILIZED CONSTRUCTION ENTRANCES: THIS ENTRANCE PROTECTION FACILITY SHALL BE USED TO KEEP STORMWATER FROM FLOWING UNCHECKED FOR THE SITE AND TO COLLECT SEDIMENT OFF THE CONSTRUCTION VEHICLES.
- SILT FENCES: SILT FENCES SHALL BE LOCATED AS SHOWN ON THE PLAN TO SLOW RUNOFF FROM DRAINAGE WAYS AND EXPOSED BANKS AND TO PREVENT SEDIMENT FROM FLOWING ONTO ADJACENT PROPERTIES.
- TEMPORARY SEEDING: SEE TEMPORARY SEEDING AS NOTED ON THE PLANS.

## VIII. PERMANENT CONTROL MEASURES AND FACILITIES FOR LONG TERM PROTECTION

- PERMANENT STABILIZATION OR PERMANENT SEEDING: SEE PERMANENT STABILIZATION AS NOTED ON PLANS.
- MULCH: HAY OR STRAW MULCH SHALL BE APPLIED TO SEEDING AREAS TO HELP ESTABLISH A PERMANENT GRASS COVER AND TO PREVENT EROSION. IT SHALL BE APPLIED AT THE RATE OF 3 TONS PER ACRE.
- EROSION CONTROL BLANKETS OR FABRIC: IN AREAS WHERE THE SLOPE EXCEEDS 3:1, NORTH AMERICAN GREEN S75 SOIL EROSION CONTROL BLANKET SHALL BE INSTALLED TO PREVENT EROSION.
- SOD: IN AREAS WHERE STABILIZATION IS FOUND TO BE DIFFICULT, THE DEVELOPER MAY INSTALL SOD. SOD MATERIAL, PLACEMENT AND STAKING SHALL CONFORM TO THE GUIDELINE SPECIFICATIONS FOR SODDING BY THE AMERICAN SOD PRODUCERS ASSOCIATION.
- PERMANENT STABILIZATION ENERGY DISSIPATORS OR ROCK RIP RAP SLOPE PROTECTION: SEE PERMANENT STABILIZATION AS NOTED IN THE PLANS. ROCK RIP RAP SLOPE PROTECTION INVOLVES THE PLACEMENT OF ROCK RIP RAP ON GEOTECHNICAL FABRIC.

## IX. MAINTENANCE PROGRAM FOR THE CONTROL FACILITIES INCLUDING DISPOSAL OF MATERIALS REMOVED FROM THE CONTROL FACILITIES

- ALL SEDIMENT AND EROSION CONTROL FACILITIES SHALL BE CHECKED FOR DAMAGE AFTER EACH STORM. ALL FACILITIES THAT ARE DAMAGED, CLOGGED OR CAN NO LONGER PERFORM THE FILTRATION OR SEDIMENTATION OF SUSPENDED SOILS SHALL BE REPLACED.
- ANY PERMANENT SEEDED AREAS THAT BECOME ERODED SHALL HAVE THE TOPSOIL REPLACED, THE GRASS SEED RESEEDING AND MULCH REAPPLIED, OR AT THE DIRECTION OF THE OWNER, SOD MAY BE INSTALLED.

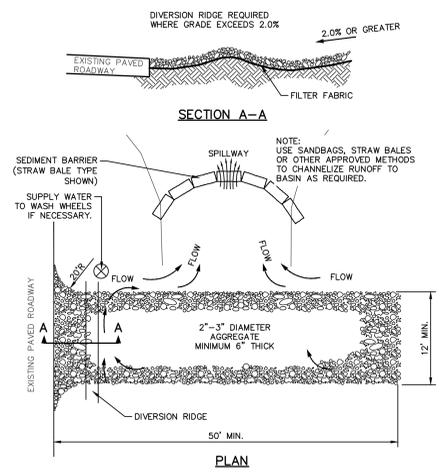
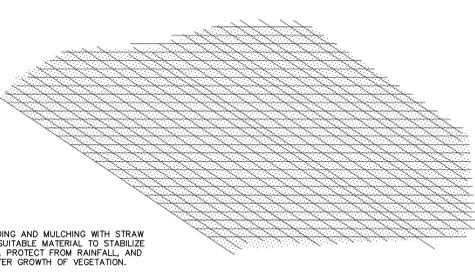
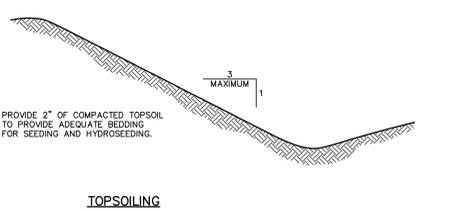
## X. EQUITABLE OWNER / DEVELOPER/RESPONSIBLE PARTY

DANIEL CARRER  
 THE KROGER COMPANY OF MICHIGAN  
 40399 GRAND RIVER AVENUE  
 NOVI, MICHIGAN 48375  
 PHONE: (248) 957-2275  
 FAX: (248) 957-2266

NOTE:  
 ANY DISTURBED AREA ON WHICH ACTIVITY HAS CEASED AND WHICH WILL REMAIN EXPOSED FOR MORE THAN 20 DAYS MUST BE STABILIZED IMMEDIATELY. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE RECOMMENDED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MAY BE STABILIZED IN ACCORDANCE WITH TEMPORARY SEEDING SPECIFICATIONS. DISTURBED AREAS WHICH ARE EITHER AT FINISHED GRADE OR WILL NOT BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH PERMANENT SEEDING SPECIFICATIONS.

## STABILIZATION INFORMATION

SEED	TYPES	% BY WEIGHT	RATES	DATES
<b>INTERIM STABILIZATION (TEMPORARY SEEDING)</b>				
FORMULA E	ANNUAL RYEGRASS	100%	10.0 LBS/100 SY	MARCH 15 TO OCT 15
	LIME PULVERIZED AG. LIMESTONE		800 LBS/ACRE	
	FERTILIZER	10-20-20	140 LBS/ACRE	
	MULCH	HAY OR STRAW	3 TONS/ACRE FOR AREAS EXPOSED MORE THAN 20 DAYS	
<b>PERMANENT STABILIZATION (PERMANENT SEEDING)</b>				
FORMULA B	PERENNIAL RYE GRASS	20%	4.0 LBS/1000 SY	MARCH 15 TO JUNE 1
OR	CREeping RED FESCUE	30%	6.0 LBS/1000 SY	AUGUST 1 TO OCT 15
	KENTUCKY BLUE GRASS	50%	11.0 LBS/1000 SY	
FORMULA D	TALL FESCUE	70%	15.0 LBS/1000 SY	MARCH 15 TO JUNE 1
	CREeping RED FESCUE	30%	6.0 LBS/1000 SY	AUGUST 1 TO OCT 15
	LIME PULVERIZED AG. LIME STONE		800 LBS/ACRE	
	FERTILIZER	10-20-20	140 LBS/ACRE	
	MULCH	HAY OR STRAW	3 TONS/ACRE FOR AREAS EXPOSED MORE THAN 20 DAYS	
<b>PERMANENT STABILIZATION (ROCK RIP-RAP SLOPE PROTECTION)</b>				
WHERE NOTED, PLACE ROCK RIP-RAP SLOPE PROTECTION ON ONE LAYER OF MIRAFI FILTERWEAVE 400 OR EQUAL.				



- NOTES:
- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
  - WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
  - WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.



NO.	DATE	DESCRIPTION	BY

**LSG**  
 Engineers & Surveyors

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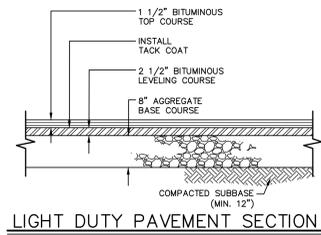


**THE KROGER COMPANY**  
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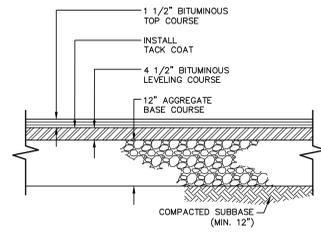
SESC NOTES AND DETAILS FOR KROGER D-777 315 JOE MANN BOULEVARD MIDLAND, MI 48642



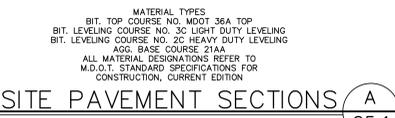
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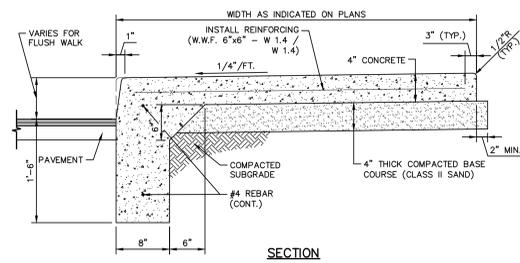
LIGHT DUTY PAVEMENT SECTION



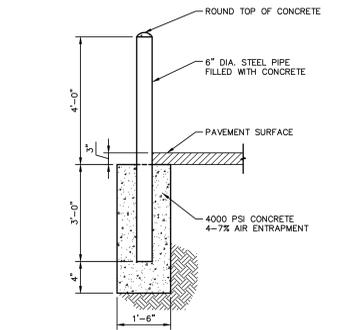
HEAVY DUTY PAVEMENT SECTION



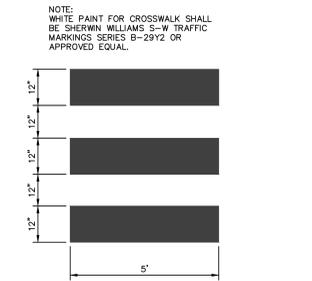
SITE PAVEMENT SECTIONS (A) C5.1



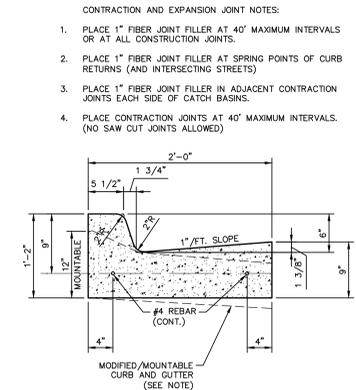
THICKENED EDGE SIDEWALK DETAIL (B) C5.1



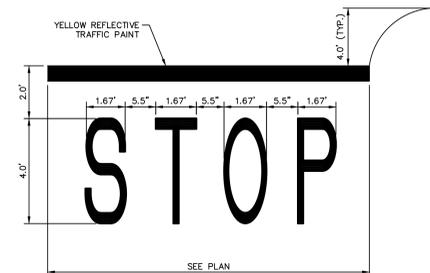
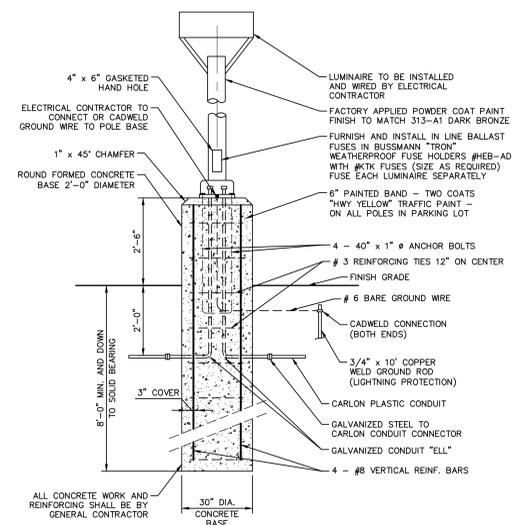
PIPE BOLLARD DETAIL (D) C5.1



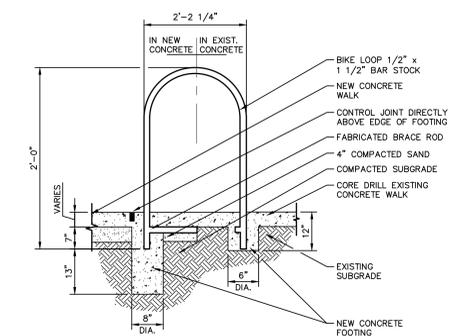
CROSSWALK DETAIL (G) C5.1



M.D.O.T. F-4 CURB & GUTTER DETAIL (K) C5.1



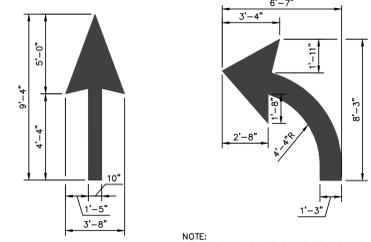
STOP & STOP BAR PAINTING DETAIL (H) C5.1



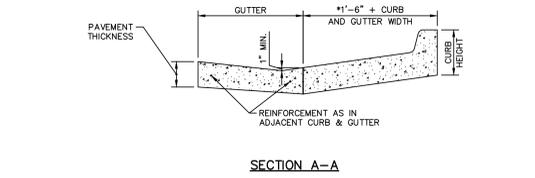
BIKE LOOP (L) C5.1

- NOTES:
1. LIGHTING BASE AND BASE PLATE TO BE PAINTED YELLOW.
  2. LIGHTING POLE MUST HAVE FACTORY FINISH. FIELD PAINTED POLES ARE NOT ACCEPTABLE.
  3. EDGE OF BASE SHALL BE 2' FROM BACK OF CURB FOR POLES LOCATED ALONG CURB LINE.
  4. PLACE PARKING LOT LOCATOR SIGN ON EACH LIGHT POLE WITHIN THE PARKING LOT AT A HEIGHT OF 15' ABOVE FINISH PAVING.

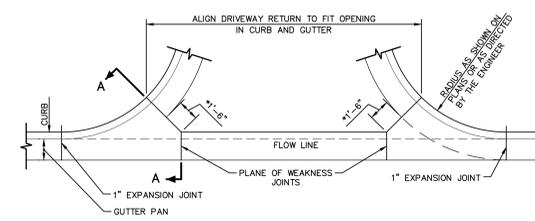
PARKING LOT LIGHTING W/ CONCRETE BASE (E) C5.1



PAINTED ARROW DETAIL (I) C5.1



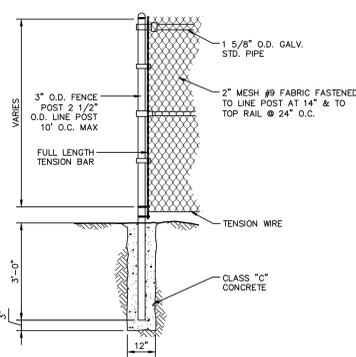
SECTION A-A



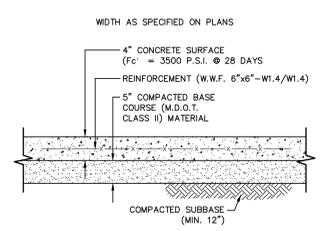
M.D.O.T. CONCRETE DRIVEWAY OPENING DETAIL (M) C5.1

CHAIN LINK FENCE

1. HEIGHT SHALL BE AS REQUIRED BY STANDARD 6'-0" WIRE FABRIC AROUND PERIMETER OF DETENTION BASIN.
2. FABRIC SHALL BE #9 GAUGE, CHAIN LINK OPEN HEARTH STEEL WIRE, HOT-DIPPED GALVANIZED AFTER WEAVING WITH MINIMUM COATING OF 2.0 OUNCE OF ZINC PER SQUARE FOOT OR ALUMINUM COATING WITH 0.40 OUNCE PER SQUARE FOOT, WOVEN IN 2" DIAMOND MESH.
3. CORNER, TERMINAL, GATE AND PULL POSTS SHALL BE 3.5"x3.5" ROLL FORMED STEEL SECTION, WEIGHT 4.8 LBS. PER FOOT.
4. INTERMEDIATE POSTS SHALL BE 2.25"x1.70" ROLL FORMED STEEL "C" SECTION, WEIGHT 2.64 LBS. PER FOOT.
5. TOP, INTERMEDIATE AND BOTTOM RAILS SHALL BE 1.625"x1.25" ROLL FORMED STEEL "C" SECTION, WEIGHT 1.37 LBS. PER FOOT.
6. CONCRETE FOR SETTING POSTS SHALL BE PORTLAND CEMENT COMPLYING WITH ASTM C-150, AGGREGATES COMPLYING WITH ASTM C-33, AND CLEAN WATER. MIX MATERIALS TO OBTAIN CONCRETE WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 2500 PSI.
7. STRETCHER BAR BANDS, TIE WIRES, HOG RINGS, COUPLINGS, NUTS, STRETCHER BARS, BOLTS AND MISCELLANEOUS FASTENING DEVICES SHALL BE MANUFACTURER'S STANDARD FOR HEAVY CONSTRUCTION FENCE.
8. SWING GATES SHALL CONSIST OF THE FOLLOWING COMPONENTS:
  - A. 2" O.D. STEEL PIPE 2.72 LBS. PER FOOT, HOT-DIPPED GALVANIZED, EACH FRAME TO BE EQUIPPED WITH 3/8" DIAMETER ADJUSTABLE TRUSS RODS.
  - B. HINGES SHALL BE HOT-DIPPED GALVANIZED PRESSED STEEL ON MALLEABLE IRON TO SUIT GATE SIZE. NON-LIFT-OFF TYPE HINGES SHALL BE OFFSET TO PERMIT 180 DEGREE OPENING. PROVIDE ONE (1) PAIR OF HINGES PER LEAF.
  - C. LATCH SHALL BE FORKED TYPE TO PERMIT OPERATION FROM EITHER SIDE WITH PROVISIONS TO LOCK BOTH LEAVES WITH PADLOCK.
  - D. AT DOUBLE SWING GATE.
9. PLUNGER ROD W/FLUSH PLATE ANCHOR.
10. ONE AUTOMATIC GATE KEEPER PER LEAF.
11. ACCEPTABLE MANUFACTURERS: ANCHOR FENCE, CYCLONE FENCE, PAGE FENCE AND HAGENY CORPORATION.



CHAIN LINK FENCE DETAIL (F) C5.1



CONCRETE SURFACE (J) C5.1

CONTRACTION AND EXPANSION JOINT NOTES:

1. PLACE 1" FIBER JOINT FILLER AT 40' MAXIMUM INTERVALS OR AT ALL CONSTRUCTION JOINTS.
2. PLACE 1" FIBER JOINT FILLER AT SPRING POINTS OF CURB RETURNS (AND INTERSECTING STREETS)
3. PLACE 1" FIBER JOINT FILLER IN ADJACENT CONTRACTION JOINTS EACH SIDE OF CATCH BASINS.
4. PLACE CONTRACTION JOINTS AT 40' MAXIMUM INTERVALS. (NO SAW CUT JOINTS ALLOWED)

CONTRACTION AND EXPANSION JOINT NOTES:

- NOTE: WHITE PAINT FOR CROSSWALK SHALL BE SHERWIN WILLIAMS S-W TRAFFIC MARKINGS SERIES B-29Y2 OR APPROVED EQUAL.

NOTE: MODIFIED/MOUNTABLE CURB AND GUTTER SHALL BE THE SAME DETAIL BUT THE GUTTER SHALL SLOPE AWAY FROM THE CURB FACE @ 1"/FT.

DATE	DESCRIPTION	REVISIONS/SUBMITTALS
2/17/16	PIPE CITY COMMENTS	
12/29/15	DATE	

**LSG**  
Engineers & Surveyors

3135 PINE TREE ROAD  
SUITE D  
LANSING, MI 48911  
PH: (517) 393-2902  
FAX: (517) 393-2608  
www.lsg-es.com

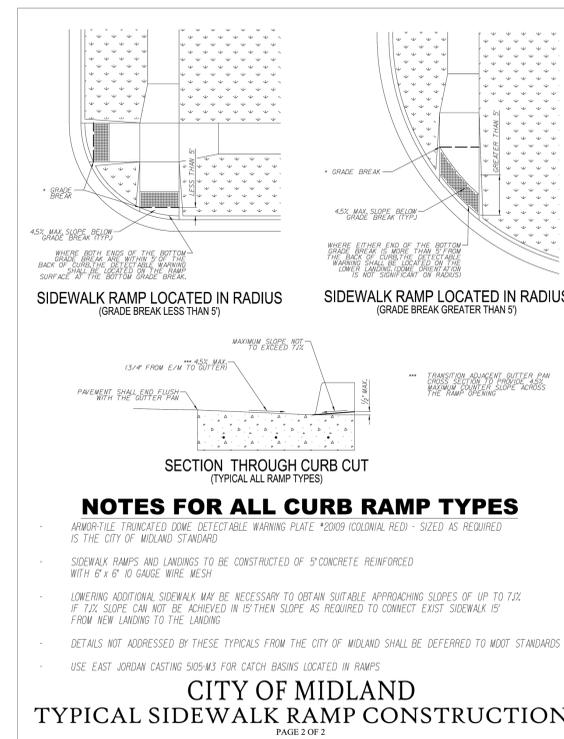
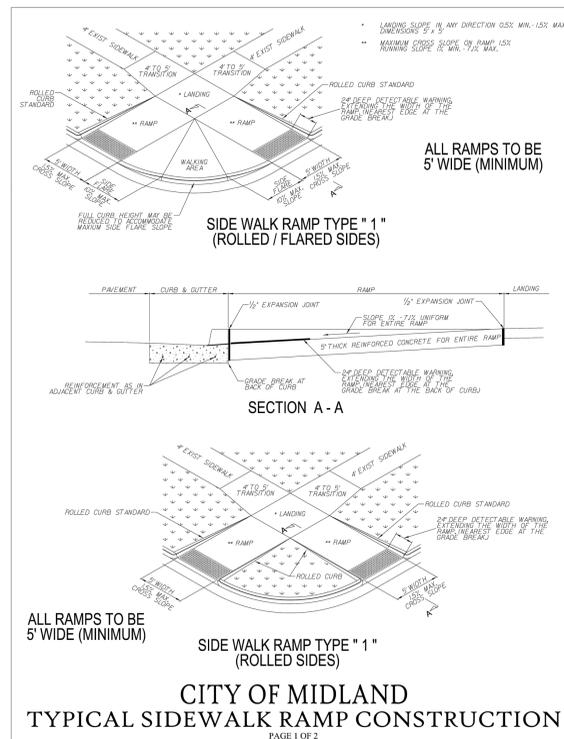
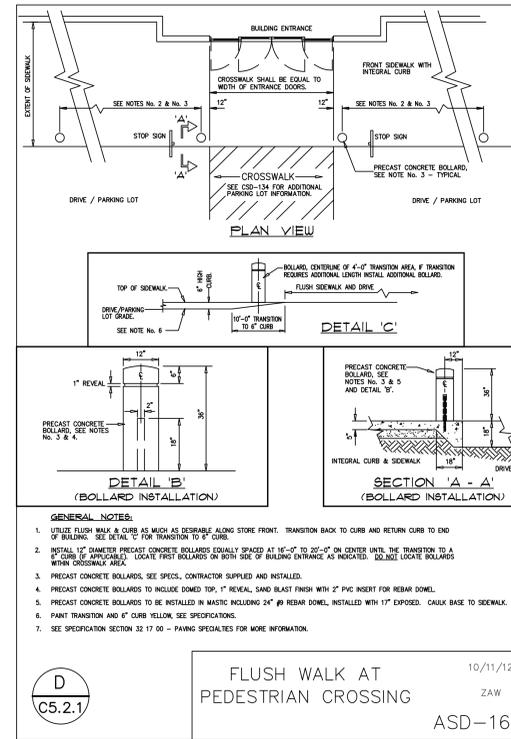
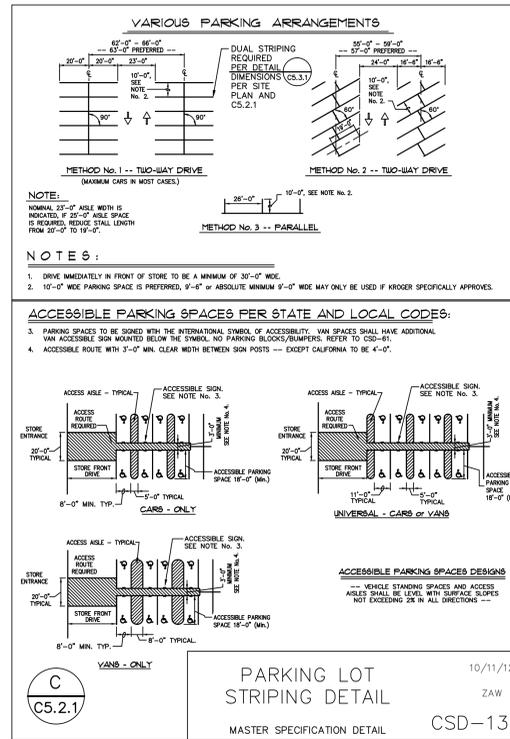
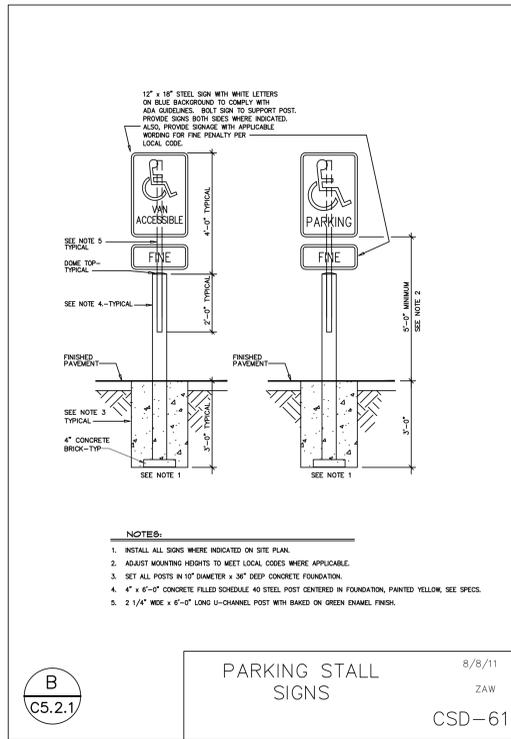
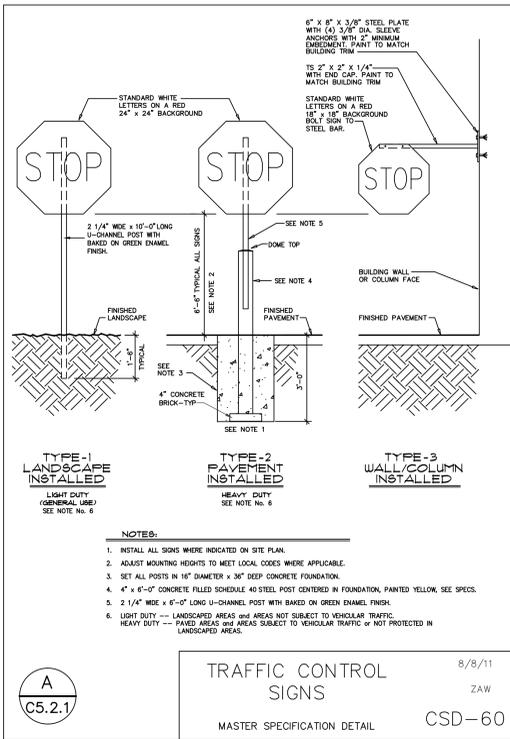
PREPARED FOR:  
**Kroger**

**THE KROGER COMPANY**  
40399 GRAND RIVER AVE.  
NOVA, MI 48375  
PH: (248) 536-1500  
FAX: (248) 957-2255

MISCELLANEOUS DETAILS  
FOR  
**KROGER D-777**  
315 JOE MANN BOULEVARD  
MIDLAND, MI 48642

**MISS DIG**  
811  
Know what's below.  
Call before you dig.

FILE	CS-1.DWG
DESIGNED BY	MLS
DRAWN BY	WEW
CHECKED BY	ADB
DATE	DECEMBER 30, 2015
SCALE	
HOR.	N/A
VERT.	N/A
PROJECT NO.	1636
SHEET NO.	C5.1



**E MARKETPLACE SIGN DETAILS**  
C5.2.1 (NOT TO SCALE)

**F SIDEWALK RAMP DETAIL**  
C5.2.1 (NOT TO SCALE)

NO.	DATE	DESCRIPTION

**LSG**  
Engineers & Surveyors

3135 PINE TREE ROAD  
SUITE D  
LANSING, MI 48911  
PH: (517) 393-2802  
FAX: (517) 393-2608  
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**THE KROGER COMPANY**

40399 GRAND RIVER AVE.  
NOVA, MI 48375  
PH: (248) 536-1500  
FAX: (248) 957-2255

CIVIL STANDARD DETAILS  
FOR  
**KROGER D-777**  
315 JOE MANN BOULEVARD  
MIDLAND, MI 48642

**MISS DIG**  
811

Know what's below.  
Call before you dig.

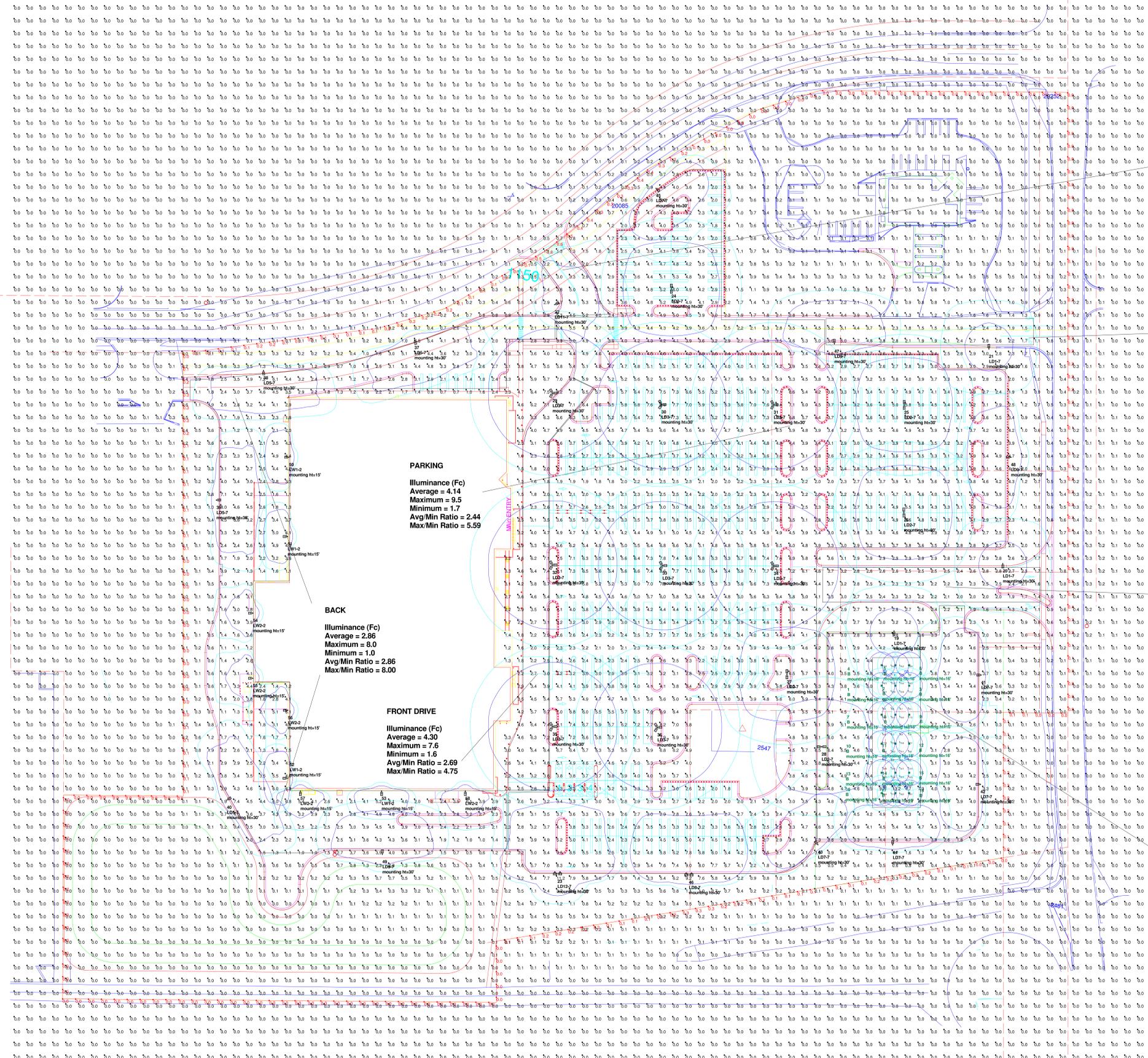
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DESIGNED BY	M.L.S.
DRAWN BY	WEW
CHECKED BY	ADB
DATE	PRELIMINARY
SCALE	N/A
HOR.	N/A
VERT.	N/A
PROJECT NO.	1636
SHEET NO.	C5.2.1

FILE: L:\1636 (KROGER D-777 MIDLAND)\C5.2 PLANS\C5-2-1.DWG - PLOT DATE: 2/11/2016 2:35 PM BY: Michelle Shroeder SCALE: 1:1

Symbol	Qty	Label	Arrangement	Lum. Watts	Lum. Lumens	LLF	Description
	8	LD3-7	3 @ 120 DEGREES	370	38230	0.912	QTY 3 GLEON-AE-07-LED-VOLT-5WQ 3@120
	3	LD9-7	SINGLE	370	36303	0.912	GLEON-AE-07-LED-E1-T3
	4	LD5-7	SINGLE	370	36298	0.912	GLEON-AE-07-LED-VOLT-SL3
	3	LD1-7	SINGLE	370	38230	0.912	GLEON-AE-07-LED-VOLT-5WQ
	5	LD2-7	BACK-BACK	370	38230	0.912	QTY 2 GLEON-AE-07-LED-VOLT-5WQ
	1	LD8-7	ROTATED OPTICS	370	34488	0.912	QTY 2 GLEON-AE-07-LED-VOLT-SL4-L90 & GLEON-AE-07-LED-VOLT-SL4-R90
	1	LD11-7	SINGLE	370	36514	0.912	GLEON-AE-07-LED-VOLT-T4FT
	1	LD12-7	ROTATED OPTICS	370	36514	0.912	QTY 2 GLEON-AE-07-LED-VOLT-T4FT-L90 & GLEON-AE-07-LED-VOLT-T4FT-R90
	5	LD7-7	SINGLE	370	34488	0.912	GLEON-AE-07-LED-VOLT-SL4
	5	LW2-2	SINGLE	107	10562	0.912	GLEON-AE-02-LED-VOLT-T4FT
	4	LW1-2	SINGLE	107	10501	0.912	GLEON-AE-02-LED-VOLT-T3
	18	B	SINGLE	114	13554	0.400	CRUS-SC-LED-SS-CW-UJE DIMMED 60%

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
ALL CALC PTS	Illuminance	Fc	1.21	13.2	0.0	N.A.	N.A.
CANOPY @ 5 FT AFG	Illuminance	Fc	12.10	19.9	4.2	2.88	4.74
PL 5' AFG	Illuminance	Fc	0.10	0.8	0.0	N.A.	N.A.
PUMP_VERTICAL	Illuminance	Fc	5.48	5.6	5.2	1.05	1.08
BACK	Illuminance	Fc	2.86	8.0	1.0	2.86	8.00
ENTRANCE 1	Illuminance	Fc	2.44	3.7	1.4	1.74	2.64
ENTRANCE 2	Illuminance	Fc	2.84	5.2	1.5	1.89	3.47
ENTRANCE 3	Illuminance	Fc	3.73	5.9	2.0	1.87	2.95
FRONT DRIVE	Illuminance	Fc	4.30	7.6	1.6	2.69	4.75
FUEL CENTER	Illuminance	Fc	4.00	5.9	1.8	2.22	3.28
PARKING	Illuminance	Fc	4.14	9.5	1.7	2.44	5.59

LumNo	Label	X	Y	Z	Orient	Tilt
1	B	1027.419	460.572	16	0	0
2	B	1043.419	460.572	16	0	0
3	B	1059.419	460.572	16	0	0
4	B	1027.419	484.616	16	0	0
5	B	1043.419	484.616	16	0	0
6	B	1059.419	484.616	16	0	0
7	B	1027.419	426.6	16	0	0
8	B	1043.419	426.6	16	0	0
9	B	1059.419	426.6	16	0	0
10	B	1027.419	392.568	16	0	0
11	B	1043.419	392.568	16	0	0
12	B	1059.419	392.568	16	0	0
13	B	1027.419	358.595	16	0	0
14	B	1043.419	358.595	16	0	0
15	B	1059.419	358.595	16	0	0
16	B	1027.419	334.67	16	0	0
17	B	1043.419	334.67	16	0	0
18	B	1059.419	334.67	16	0	0
19	LD1-7	1041.76	524.951	30	270	0
20	LD1-7	1168.086	603.956	30	270	0
21	LD1-7	1151.956	855.399	30	90	0
22	LD11-7	647.623	907.401	30	21.593	0
23	LD12-7	650.827	239.994	30	90	0
24	LD2-7	783.124	925.997	30	90	0
25	LD2-7	1053.579	789.782	30	90	0
26	LD2-7	1053.208	663.678	30	90	0
27	LD2-7	917.335	474.052	30	90	0
28	LD2-7	957.615	389.084	30	0	0
29	LD3-7	645.073	803.551	30	0	0
30	LD3-7	771.656	790.241	30	0	0
31	LD3-7	901.952	789.895	30	0	0
32	LD3-7	645.073	602.051	30	0	0
33	LD3-7	772.684	601.341	30	0	0
34	LD3-7	902.095	600.946	30	0	0
35	LD3-7	645.134	412.562	30	0	0
36	LD3-7	766.802	411.727	30	0	0
37	LD5-7	484.698	865.69	30	289.027	0
38	LD5-7	309.374	830.227	30	272.073	0
39	LD5-7	254.646	678.27	30	0	0
40	LD5-7	266.85	326.794	30	27.25	0
41	LD7-7	1143.028	473.178	30	180	0
42	LD7-7	1142.186	345.079	30	180	0
43	LD7-7	953.411	274.288	30	130.463	0
44	LD7-7	1040.214	273.867	30	90	0
45	LD7-7	765.241	1043.898	30	314.635	0
46	LD8-7	803.482	238.741	30	90	0
47	LD9-7	972.451	861.328	30	90	0
48	LD9-7	1177.581	728.529	30	180	0
49	LD9-7	447.492	263.012	30	90	0
50	LW1-2	339.158	728.52	15	180	0
51	LW1-2	337.366	635.578	15	180	0
52	LW1-2	337.267	352.169	15	180	0
53	LW1-2	446.556	337.234	15	270	0
54	LW2-2	297.219	545.724	15	180	0
55	LW2-2	297.12	469.418	15	180	0
56	LW2-2	337.765	431.862	15	180	0
57	LW2-2	352.2	337.234	15	270	0
58	LW2-2	543.717	337.234	15	270	0



**ENTRANCE 3**  
 Illuminance (Fc)  
 Average = 3.73  
 Maximum = 5.9  
 Minimum = 2.0  
 Avg/Min Ratio = 1.87  
 Max/Min Ratio = 2.95

**ENTRANCE 2**  
 Illuminance (Fc)  
 Average = 2.94  
 Maximum = 5.2  
 Minimum = 1.5  
 Avg/Min Ratio = 1.89  
 Max/Min Ratio = 3.47

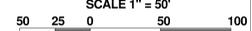
**ENTRANCE 1**  
 Illuminance (Fc)  
 Average = 2.44  
 Maximum = 3.7  
 Minimum = 1.4  
 Avg/Min Ratio = 1.74  
 Max/Min Ratio = 2.64

**FUEL CENTER**  
 Illuminance (Fc)  
 Average = 4.00  
 Maximum = 5.9  
 Minimum = 1.8  
 Avg/Min Ratio = 2.22  
 Max/Min Ratio = 3.28

**PARKING**  
 Illuminance (Fc)  
 Average = 4.14  
 Maximum = 9.5  
 Minimum = 1.7  
 Avg/Min Ratio = 2.44  
 Max/Min Ratio = 5.59

**BACK**  
 Illuminance (Fc)  
 Average = 2.86  
 Maximum = 8.0  
 Minimum = 1.0  
 Avg/Min Ratio = 2.86  
 Max/Min Ratio = 8.00

**FRONT DRIVE**  
 Illuminance (Fc)  
 Average = 4.30  
 Maximum = 7.6  
 Minimum = 1.6  
 Avg/Min Ratio = 2.69  
 Max/Min Ratio = 4.75



**EATON**  
 Applications Engineering  
 1121 Highway 74 South  
 Peachtree City, GA 30289  
 tel no: 770-486-4579  
 fax no: 770-486-4599  
 e-mail: mkt.lightingapplications@eaton.com

**EATON**

Sheet No: **P-1**  
 Project Name: **KROGER D777 MIDLAND, MI**  
 Client: **WENDY NORMAN**

Drawn By: **Arnel Uy**  
 Date: **2/11/2016**  
 Project No: **1502488G2.AGI**

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**Project manager to specify fixture voltage for each fixture type**





# The Project Collaborative

37704 Hills Tech Drive  
Farmington Hills, Michigan 48331  
248.252.1411 Telephone info@projectcoll.com

### REVISIONS

NO.	DATE	DESCRIPTION
0	12.31.2015	SITE PLAN SUBMITTAL
1	02.11.2016	PER CITY COMMENTS

### CONSULTANT

### SEAL



### CUSTOMER



### PROJECT DESCRIPTION

**KROGER D777  
RETAIL FUEL CENTER**

### PROJECT LOCATION

**315 JOE MANN BOULEVARD  
MIDLAND, MI  
48642  
(MIDLAND COUNTY)**

### SHEET TITLE

**DIMENSION CONTROL  
SITE PLAN  
FUEL CENTER**

### SHEET MANAGEMENT

PROJECT NO.: D777.A  
DATE: 10.30.2015  
CAD FILE: C1.20.dwg  
PROJECT MANAGER: M. PISKO  
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### SHEET NUMBER

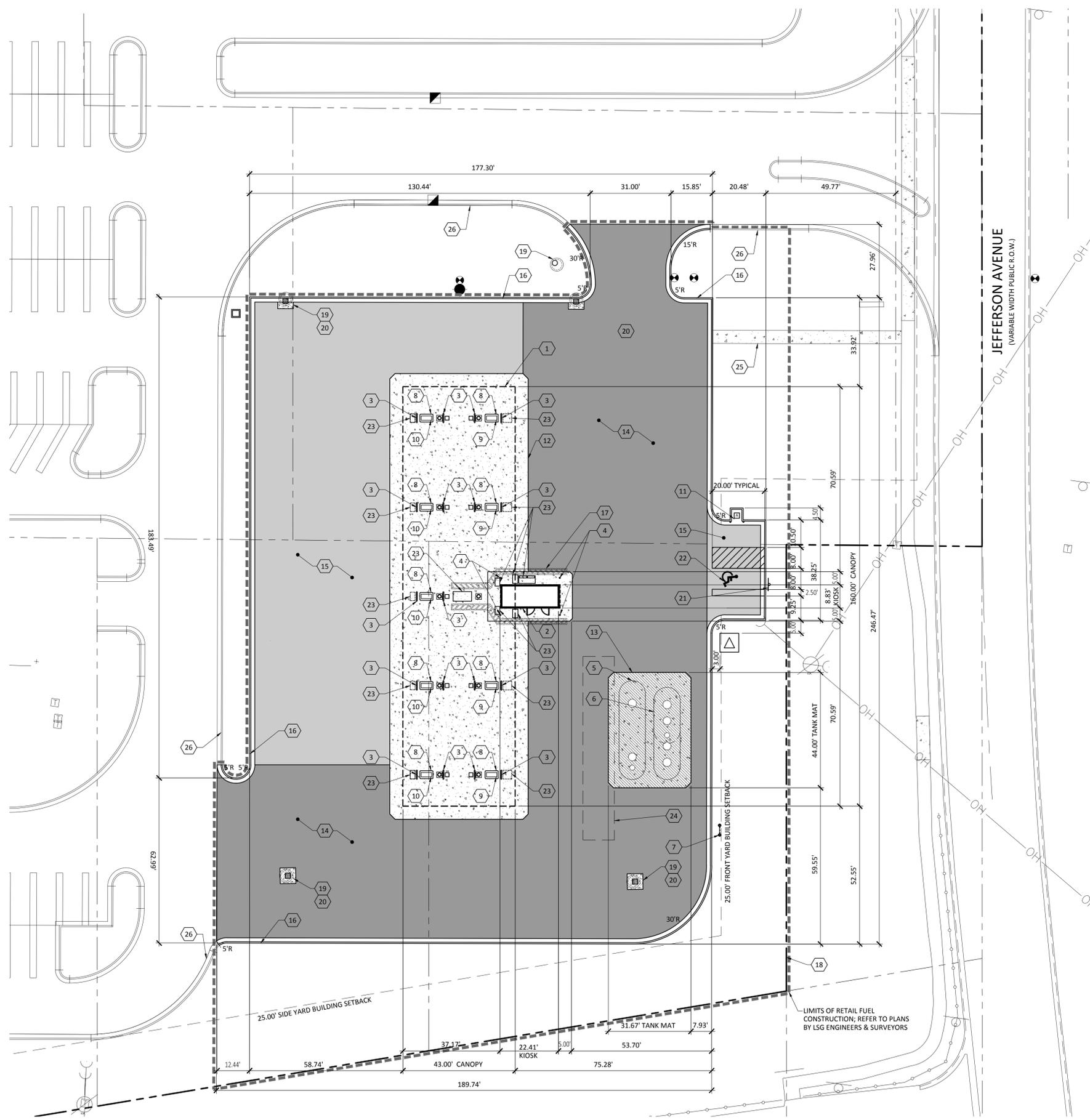
**C1.20**

### PROPOSED SITE IMPROVEMENTS:

- CANOPY, CANOPY COLUMNS AND FOOTINGS. SEE CONSTRUCTION IMPROVEMENT PLAN ON SHEET A1.01.
- TRANSACTION KIOSK. SEE KIOSK EQUIPMENT AND KIOSK FOUNDATION PLANS ON SHEET A1.01.
- U-SHAPED BOLLARD AT CANOPY COLUMNS. SEE DETAILS 2/A1.1, 5/T8.0 AND 5/T8.1.
- KIOSK BOLLARD. SEE KIOSK EQUIPMENT PLAN ON SHEET A1.01 FOR LOCATIONS.
- 20,000 GALLON DOUBLE-WALL UNDERGROUND STORAGE TANK (UNLEADED). SEE SHEET T3.0.
- 18,000 GALLON DOUBLE-WALL SPLIT UNDERGROUND STORAGE TANK 8,000 GALLONS PREMIUM/10,000 GALLONS DIESEL. SEE SHEET T3.1.
- TANK VENT RISER. SEE DETAIL 3/T4.0.
- 3.00' X 5.00' DISPENSER ISLAND WITH STAINLESS STEEL ISLAND FORMS. SEE CONSTRUCTION IMPROVEMENT PLAN ON SHEET A1.1 AND DETAILS 6/T8.0 AND 6/T8.1.
- GASOLINE DISPENSER WITH CARD READER. SEE DISPENSER AND PIPING DETAILS ON SHEET T8.1.
- MULTI-PRODUCT DISPENSER (3+1 GASOLINE/DIESEL) WITH CARD READER. SEE DISPENSER AND PIPING DETAILS ON SHEET T8.1.
- AIR TOWER, ALL ASSOCIATED EQUIPMENT AND UTILITIES REQUIRED TO PROVIDE PROPER SERVICE. SEE DETAIL 1/A3.0.
- CONCRETE DISPENSER MAT. SEE MATERIAL SCHEDULE NOTE 3/T1.0.
- CONCRETE TANK MAT. SEE MATERIAL SCHEDULE NOTE 20/T1.0.
- HEAVY DUTY BITUMINOUS PAVEMENT. SEE DETAIL 2D/CS.00.
- LIGHT DUTY BITUMINOUS PAVEMENT. SEE DETAIL 2C/CS.00.
- CONCRETE CURB AND GUTTER. SEE DETAIL 3/CS.00.
- PAINTED PEDESTRIAN WARNING ZONE. SEE DETAIL 8/A3.0.
- ALL DIMENSIONS ARE PARALLEL OR PERPENDICULAR TO THE EAST PROPERTY LINE UNLESS OTHERWISE NOTED.
- STORM WATER MANAGEMENT STRUCTURE. REFER TO STORM WATER MANAGEMENT PLAN, C1.31.
- CONCRETE COLLAR. SEE DETAIL 5/CS.01.
- PROVIDE AND INSTALL BARRIER-FREE VAN ACCESSIBLE SIGN. SEE DETAIL 5/CS.00.
- BARRIER-FREE VAN ACCESSIBLE PARKING SPACE.
- OUTDOOR SALES. SEE CONSTRUCTION AND EQUIPMENT PLAN ON SHEET A1.01.
- 12.0'X70.0' LOADING ZONE.
- CONCRETE SIDEWALK BY OTHERS.
- CONCRETE CURB BY OTHERS.

### PAVING LEGEND (PHASE 1 FUEL CENTER):

- LIGHT DUTY BITUMINOUS PAVEMENT.
- HEAVY DUTY BITUMINOUS PAVEMENT.
- CONCRETE PAVEMENT TANK MAT.
- CONCRETE PAVEMENT DISPENSER MAT.

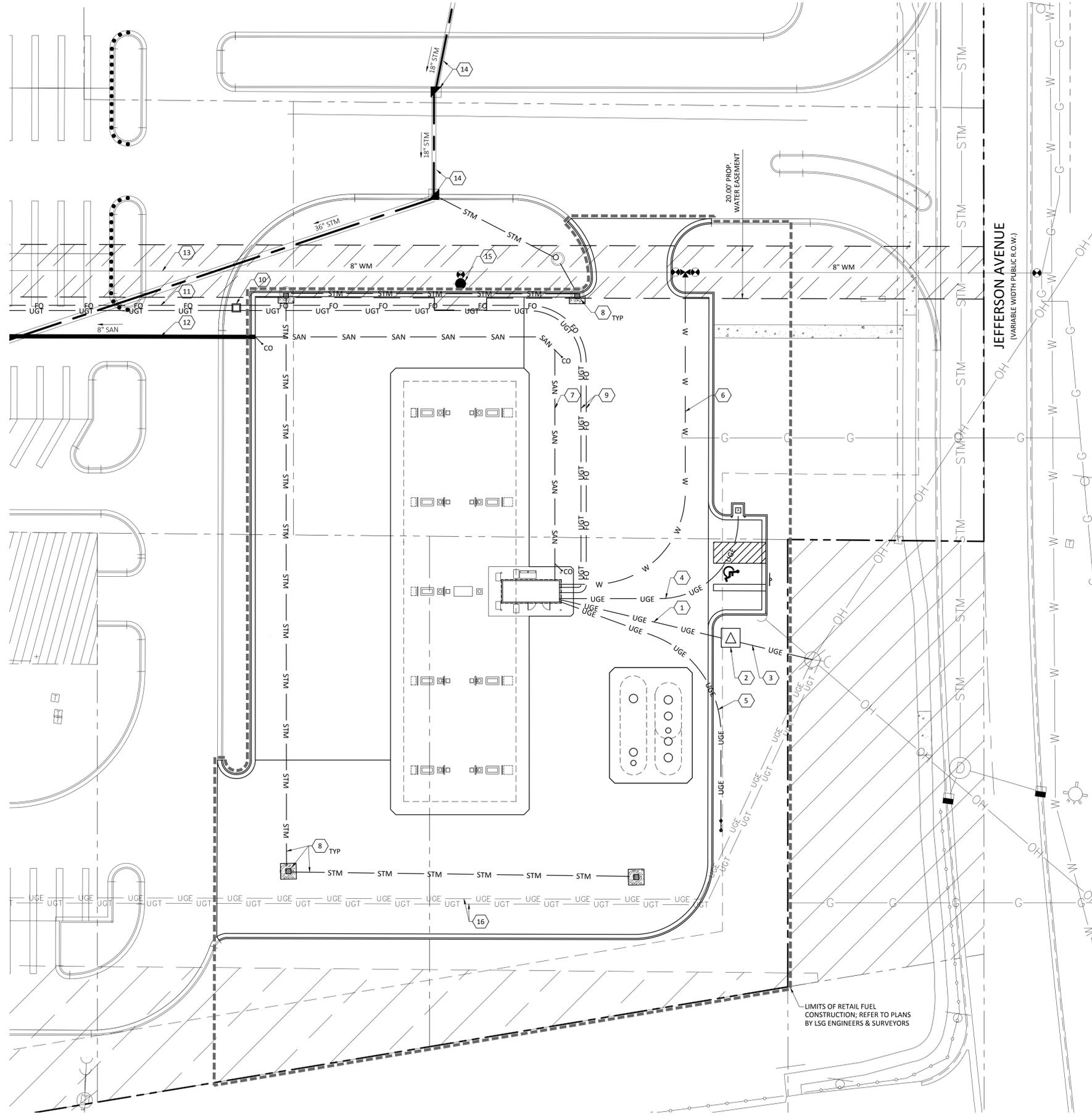


**DIMENSION CONTROL SITE PLAN**  
SCALE: 1" = 20'-0"

FILE NAME: H:\TFC\Projects\Kroger\0777\0777A\ComDocs\C1.20.dwg LAST SAVED BY: Mike Vanderbeek SAVED DATE: 2/11/2016 3:16 PM PLOTTED: 2/11/2016 4:16 PM







- PROPOSED SITE IMPROVEMENTS:**
1. PROVIDE AND INSTALL TWO (2) 4" SCHEDULE 40 PVC CONDUIT (WITH TWO (2) PULL STRINGS EACH) FOR ELECTRIC SUPPLY FROM THE TRANSFORMER TO THE FUEL CENTER KIOSK. FIELD VERIFY AND COORDINATE EXACT CONDUIT ROUTING WITH KROGER CONSTRUCTION REPRESENTATIVE. REFER TO KIOSK POWER AND LIGHTING PLAN ON SHEET E1.0 AND THE LINE DIAGRAM(S) AND PANEL SCHEDULE(S) ON SHEET E2.0 FOR STUB-UP LOCATIONS AND ELECTRICAL LOAD REQUIREMENTS.
  2. PER UTILITY COMPANY TEMPLATE, PROVIDE AND INSTALL 6'-2" WIDE X 5'-2" DEEP X 6" THICK CONCRETE TRANSFORMER PAD. CONCRETE MIX SHALL BE 6-BAG WITH MINIMUM COMPRESSIVE STRENGTH OF 3,500 PSI AT 28 DAYS.
  3. PROVIDE AND INSTALL TWO (2) 4" SCHEDULE 40 PVC CONDUITS FROM UTILITY SERVICE TO TRANSFORMER PAD; COORDINATE SERVICE LOCATION WITH UTILITY. PROVIDE AND INSTALL EMPTY CONDUITS WITH (1) PULL STRING EACH PER UTILITY COMPANY DESIGN STANDARDS. UTILITY COMPANY TO PULL WIRES AND MAKE FINAL CONNECTION AS REQUIRED TO ENERGIZE TRANSFORMER.
  4. PROVIDE AND INSTALL ONE (1) 3/4" SCHEDULE 40 PVC CONDUIT FROM FUEL CENTER KIOSK TO AIR COMPRESSOR FOR 120V POWER.
  5. PROVIDE AND INSTALL TWO (2) 3/4" SCHEDULE 40 PVC CONDUIT FROM FUEL CENTER KIOSK TO TANK VENT.
  6. PROVIDE AND INSTALL 3/4" TYPE K COPPER WATER SERVICE LINE (MIN. DEPTH 5.0'); MAKE CONNECTION TO WATER MAIN INSTALLED BY OTHERS; PROVIDE MINIMUM 18" CLEARANCE AT ALL UTILITY CROSSINGS. INSTALL PER CITY OF MIDLAND REQUIREMENTS.
  7. PROVIDE AND INSTALL SANITARY SEWER SERVICE (MIN SLOPE = 1.0%) WITH CLEANOUTS LOCATED 5.0' OUTSIDE OF FOUNDATION AND AT EVERY HORIZONTAL AND VERTICAL BEND. MAKE CONNECTION TO SANITARY STRUCTURE INSTALLED BY OTHERS. INSTALL PER CITY OF MIDLAND REQUIREMENTS.
  8. STORMWATER MANAGEMENT SYSTEM. REFER TO STORMWATER MANAGEMENT PLAN, C-1.31.
  9. PROVIDE AND INSTALL TWO (2) 2" SCHEDULE 40 PVC CONDUITS (WITH TWO (2) PULL STRINGS EACH) FOR COMMUNICATION LINES FROM ELECTRICAL PULL BOX TO THE FUEL CENTER KIOSK. THERE SHOULD BE NO MORE THAN TWO (2) 90° TURNS (STANDARD FOR FIBER AND TELEPHONE CABLE). REFER TO ELECTRICAL PLANS AND DETAILS ON SHEET E1.0 FOR ADDITIONAL INFORMATION.
  10. 36"x36" ELECTRICAL PULL BOX INSTALLED BY OTHERS.
  11. TWO (2) 2" SCHEDULE 40 PVC CONDUITS FOR COMMUNICATION LINES INSTALLED BY OTHERS.
  12. SANITARY SEWER INSTALLED BY OTHERS.
  13. WATER MAIN INSTALLED BY OTHERS.
  14. STORM SEWER INSTALLED BY OTHERS.
  15. HYDRANT INSTALLED BY OTHERS.
  16. UNDERGROUND ELECTRIC AND TELEPHONE CONDUITS FOR KROGER STORE BY OTHERS.

**NOTE:**  
FOR ALL EXISTING EASEMENT LIBER AND PAGE NUMBERS, REFER TO TOPOGRAPHIC & ALTA/ASCM LAND TITLE SURVEY BY LSG ENGINEERS AND SURVEYORS.

**The Project Collaborative**  
37704 Hills Tech Drive  
Farmington Hills, Michigan 48331  
248.252.1411 Telephone info@projectcoll.com

REVISIONS		
NO.	DATE	DESCRIPTION
0	12.31.2015	SITE PLAN SUBMITTAL
1	02.11.2016	PER CITY COMMENTS

**CONSULTANT**

**SEAL**

**CUSTOMER**

**PROJECT DESCRIPTION**

**KROGER D777  
RETAIL FUEL CENTER**

**PROJECT LOCATION**

**315 JOE MANN BOULEVARD  
MIDLAND, MI  
48642  
(MIDLAND COUNTY)**

**SHEET TITLE**

**UTILITY PLAN  
FUEL CENTER**

**SHEET MANAGEMENT**

PROJECT NO.:	D777.A
DATE:	10.30.2015
CAD FILE:	C1.40.dwg
PROJECT MANAGER:	M. PISKO

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**SHEET NUMBER**

**C1.40**

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# The Project Collaborative

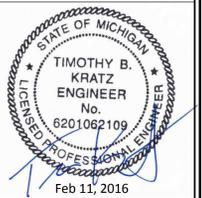
37704 Hills Tech Drive  
Farmington Hills, Michigan 48331  
248.252.1411 Telephone info@projectcoll.com

### REVISIONS

NO.	DATE	DESCRIPTION
0	12.31.2015	SITE PLAN SUBMITTAL
1	02.11.2015	PER CITY COMMENTS

### CONSULTANT

### SEAL



### CUSTOMER



### PROJECT DESCRIPTION

**KROGER D777  
RETAIL FUEL CENTER**

### PROJECT LOCATION

**315 JOE MANN BOULEVARD  
MIDLAND, MI  
48642  
(MIDLAND COUNTY)**

### SHEET TITLE

**SITE DETAILS  
FUEL CENTER**

### SHEET MANAGEMENT

PROJECT NO.:	D777.A
DATE:	10.30.2015
CAD FILE:	C5.01.dwg
PROJECT MANAGER:	M. PISKO

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### SHEET NUMBER

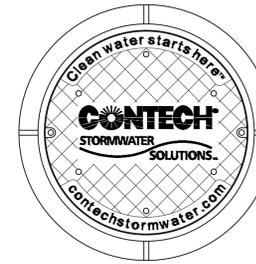
# C5.01

### CDS2015-4 DESIGN NOTES

CDS2015-4 RATED TREATMENT CAPACITY PER LOCAL REGULATIONS. MAXIMUM HYDRAULIC INTERNAL BYPASS CAPACITY IS 10.0 CFS. IF THE SITE CONDITIONS EXCEED 10.0 CFS, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

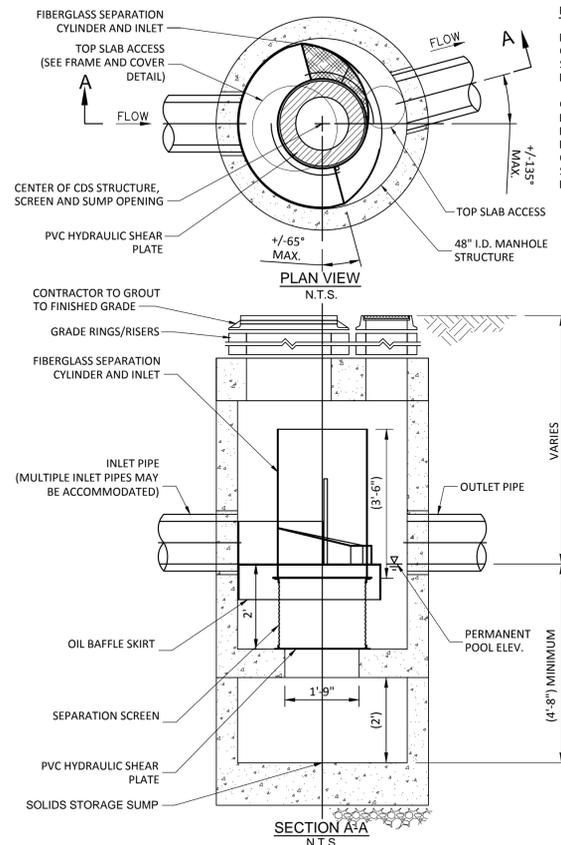
THE STANDARD CDS2015-4 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

DESIGNATION (MODEL SUFFIX)	CONFIGURATION DESCRIPTION
G	GRATED INLET ONLY (NO INLET PIPE)
GP	GRATED INLET WITH INLET PIPE OR PIPES
K	CURB INLET ONLY (NO INLET PIPE)
KP	CURB INLET WITH INLET PIPE OR PIPES

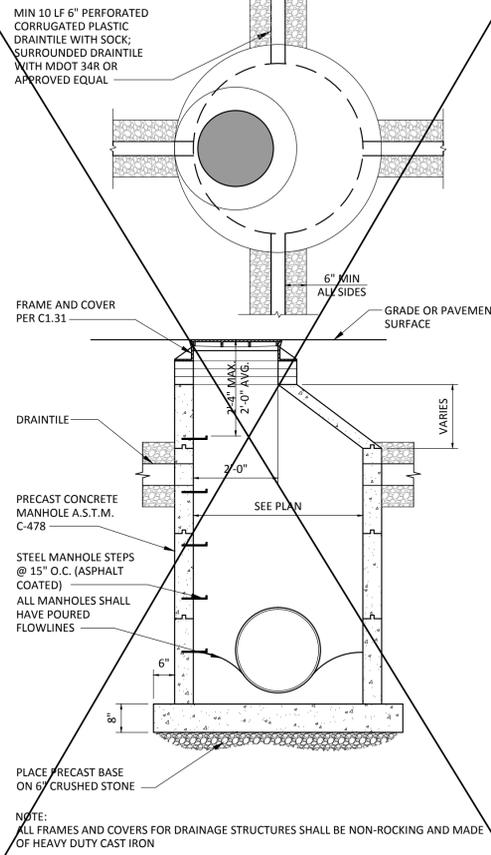


FRAME AND COVER (DIAMETER VARIES) N.T.S.

- ### GENERAL NOTES
- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
  - DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
  - FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH STORMWATER SOLUTIONS REPRESENTATIVE. [www.contechstormwater.com](http://www.contechstormwater.com)
  - CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
  - STRUCTURE AND CASTINGS SHALL MEET AASHTO HS20 LOAD RATING.
  - PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
- ### INSTALLATION NOTES
- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
  - CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
  - CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
  - CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
  - CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

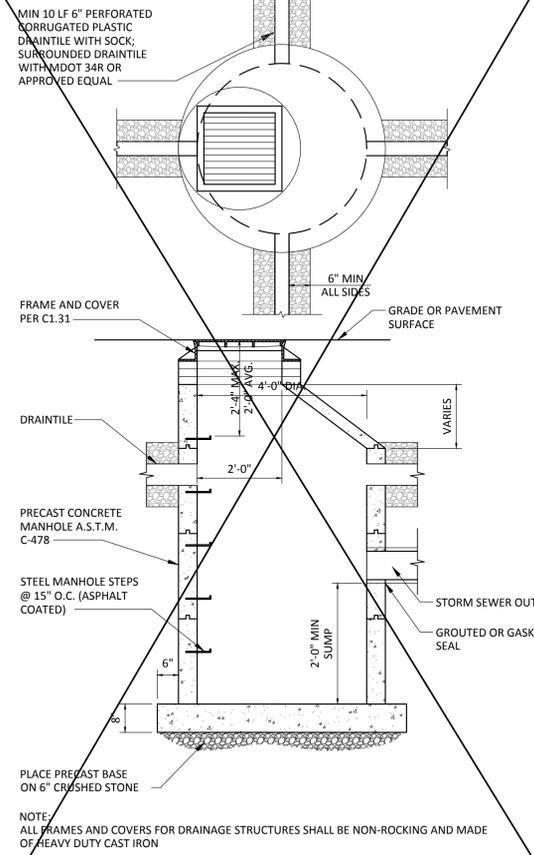


SECTION A-A N.T.S.



1 MANHOLE DETAIL

SCALE: NO SCALE

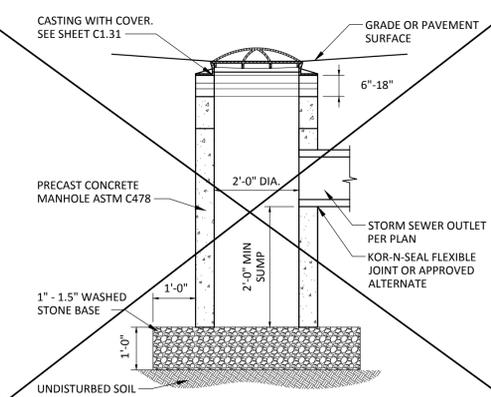


2 CATCH BASIN DETAIL

SCALE: NO SCALE

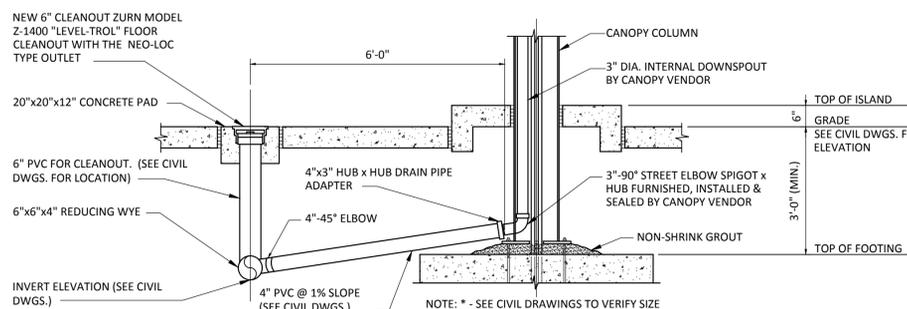
3 PRECAST CONCRETE WATER QUALITY SYSTEM STANDARD DETAIL

SCALE: NO SCALE

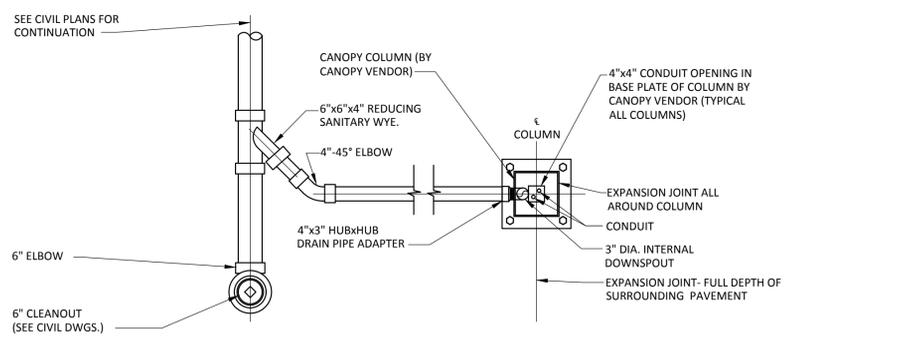


4 LEACH BASIN STRUCTURE

SCALE: NO SCALE



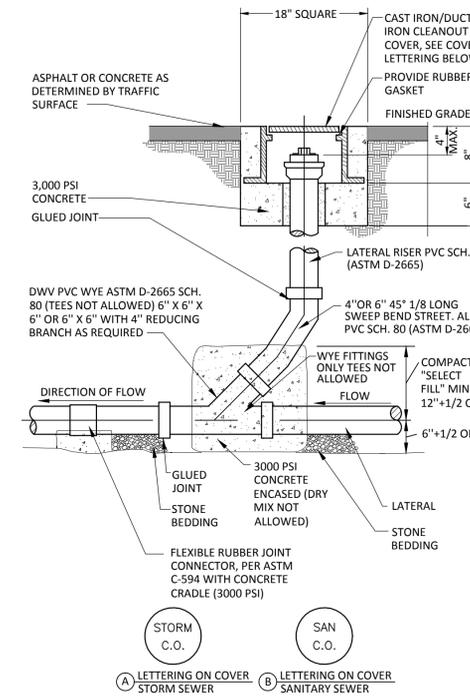
SECTION



PLAN

6 DOWNSPOUT CONNECTION TO STORM LINE DETAIL

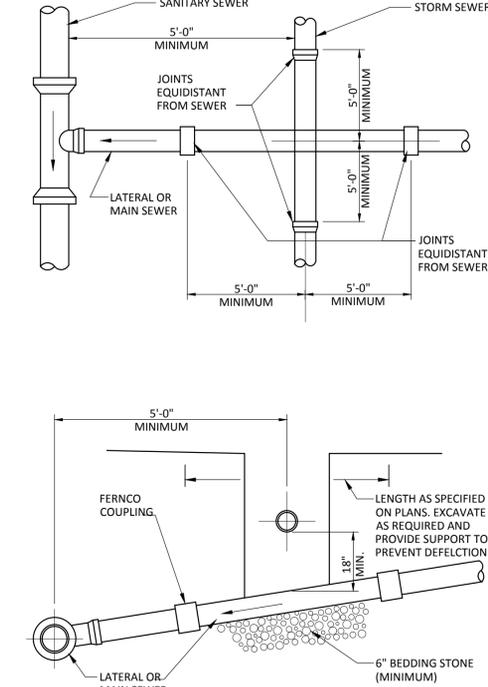
SCALE: NO SCALE



- NOTE: IT IS RECOMMENDED THAT ALL SOLVENT WELD JOINTS BE MADE AS FOLLOWS:
- CLEAN DRY HUBS & SPOTS.
  - PRIMER APPLIED TO PARTS BEING CONNECTED.
  - PVC SOLVENT WELD CEMENT APPLIED DIRECTLY OVER PRIMER.
  - PVC TYPE I IS COMPATIBLE FOR SOLVENT WELDING TO SDR-21 OR ANY OTHER PVC TYPE I PIPE MADE TO "STEEL PIPE" OUTSIDE DIMENSIONS.

7 CLEAN-OUT FOR TRAFFIC AREA ASSEMBLY DETAIL

SCALE: NO SCALE



8 STORM/SANITARY SEWER CROSSING DETAIL

SCALE: NO SCALE

5 CONCRETE COLLAR DETAIL

SCALE: NO SCALE



# The Project Collaborative

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Farmington Hills, Michigan 48331  
248.252.1411 Telephone info@projectcoll.com

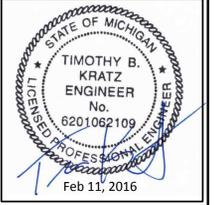
### REVISIONS

NO.	DATE	DESCRIPTION
0	12.31.2015	SITE PLAN SUBMITTAL
1	02.11.2016	PER CITY COMMENTS

### CONSULTANT



### SEAL



### CUSTOMER



### PROJECT DESCRIPTION

**KROGER D777  
RETAIL FUEL CENTER**

### PROJECT LOCATION

**315 JOE MANN BOULEVARD  
MIDLAND, MI  
48642  
(MIDLAND COUNTY)**

### SHEET TITLE

**CONSTRUCTION AND  
EQUIPMENT PLAN  
FUEL CENTER**

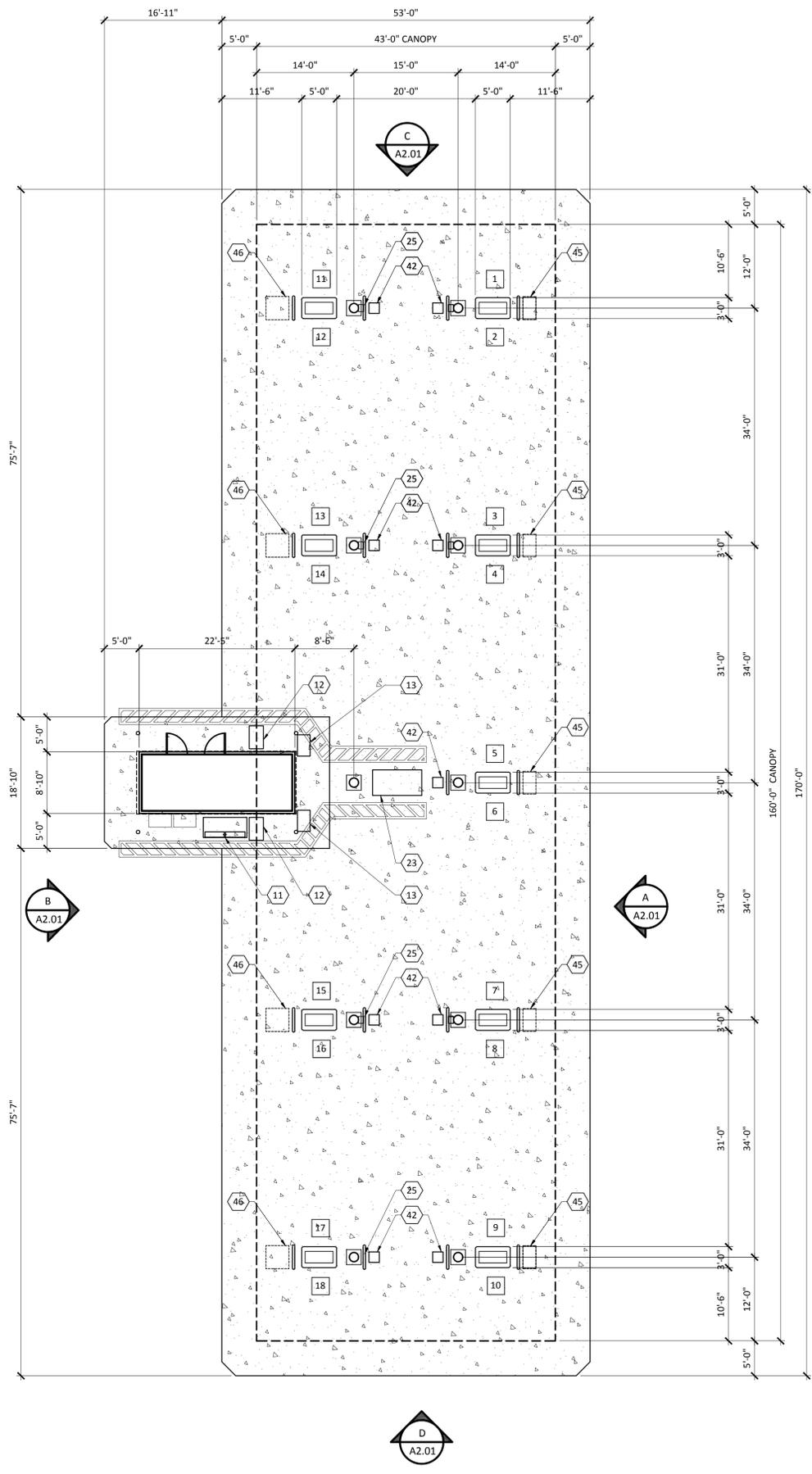
### SHEET MANAGEMENT

PROJECT NO.:	D777.A
DATE:	10.30.2015
CAD FILE:	A1.01.dwg
PROJECT MANAGER:	M. PISKO

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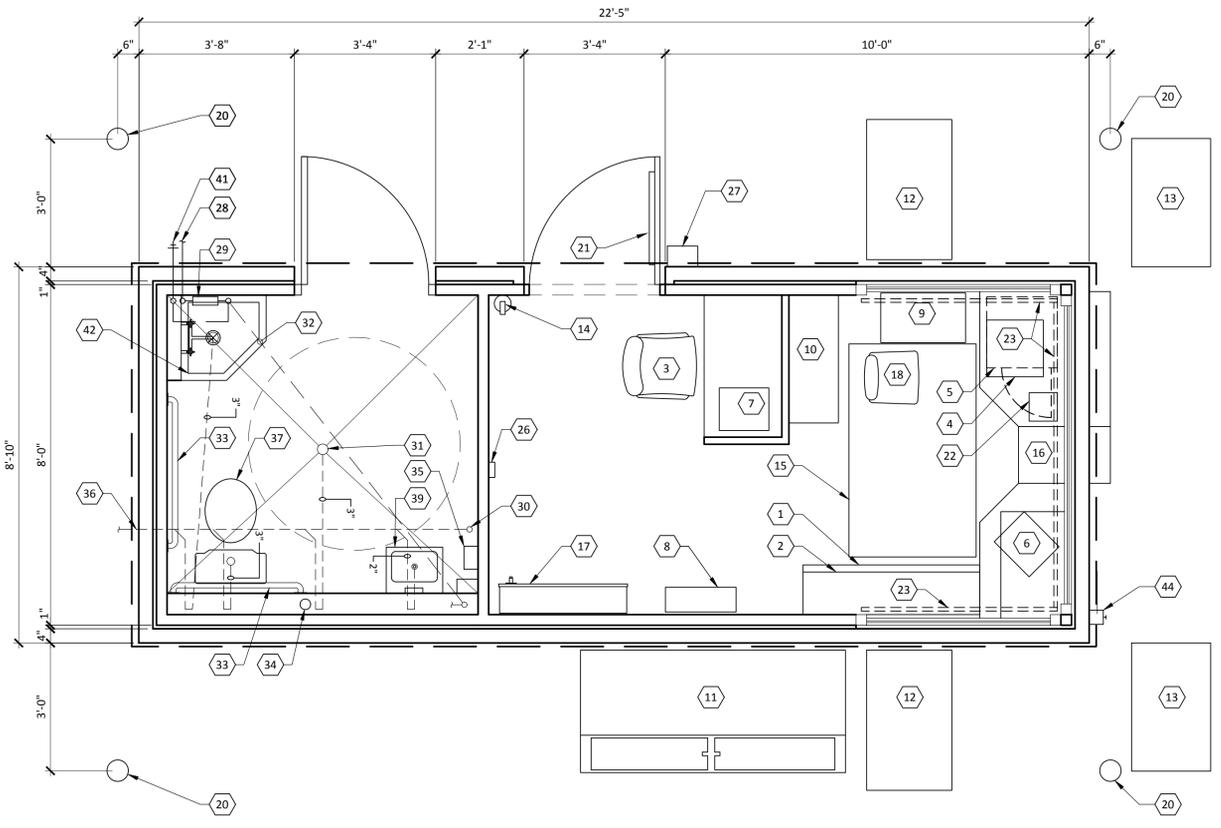
### SHEET NUMBER

# A1.01



### EQUIPMENT LEGEND (ALL EQUIPMENT FURNISHED BY OWNER UNLESS OTHERWISE NOTED.)

- 4' STORAGE RACK (BY GENERAL CONTRACTOR.)
- CANDY RACK.
- CHAIR.
- LOTTO MACHINE.
- SAFE.
- P.O.S. REGISTER.
- P.O.S. - BACK OFFICE UNIT.
- TANK MONITOR.
- CIGARETTE CARTON MERCHANDISER.
- CIGARETTE PACK MERCHANDISER.
- 46 CU. FT. ICE MERCHANDISER. (17.97 SQ. FT. FOOTPRINT)
- LARGE BEVERAGE COOLER. SODA POP - COKE/PEPSI (BY VENDOR). (5.59 SQ. FT. FOOTPRINT).
- SMALL BEVERAGE COOLER ENERGY DRINK/JUICE (BY VENDOR). (6.62 SQ. FT. FOOTPRINT)
- 2A-20BC FIRE EXTINGUISHER (BY GENERAL CONTRACTOR. QUANTITIES AND LOCATIONS INSTALLED PER LOCAL CODE.)
- ANTI-FATIGUE MAT.
- DEAL TRAY / MERCHANDISE DRAWER.
- PANELBOARD.
- STOOL.
- SHelf ABOVE.
- 6"Ø PIPE BOLLARD (TYPICAL 4, BY GENERAL CONTRACTOR.)
- BULLETIN BOARD (GENERAL CONTRACTOR TO MOUNT ABOVE PEEPHOLE.)
- INTERCOM MASTER STATION.
- DOUBLE REACH-IN CABINET. (BY VENDOR) (25.97 SQ. FT. FOOTPRINT.)
- NOT USED.
- 2A-20BC FIRE EXTINGUISHER IN STEEL CABINET (TYPICAL 2.) GENERAL CONTRACTOR TO MOUNT BOTTOM 32" ABOVE FINISH GRADE.
- CIGARETTE MERCHANDISING SIGN PANELS.
- INTRUSION ALARM KEYPAD.
- KNOX-BOX, MODEL 3227. KNOX-BOX 3200 SERIES, HINGED DOOR MODEL, RECESSED MOUNT, WITH DOOR TAMPER SWITCH. FIRE DEPARTMENT AUTHORIZATION REQUIRED PRIOR TO GC ORDERING AND INSTALLATION. (IF REQUIRED)
- GRAB BARS (TYPICAL. INSTALLED BY KIOSK MANUFACTURER.)
- WATER CLOSET (BY GENERAL CONTRACTOR.) AMERICAN STANDARD MODEL #2377.100 (WHITE.) PROVIDE WITH OPEN-FRONT SEAT (WHITE) AND POLISHED CHROME WATER SUPPLY/STOP.
- LAVATORY (INSTALLED BY KIOSK MANUFACTURER.)
- 3/4" COLD WATER SERVICE (BY GENERAL CONTRACTOR) TO PUBLIC CONNECTION. SEE SITE UTILITY PLAN ON SHEET C1.40 FOR CONTINUATION.
- 3/4" BACKFLOW PREVENTER APPROVED BY LOCAL AUTHORITIES (BY GENERAL CONTRACTOR.) INSTALL DEVICE A MINIMUM OF 36" TO A MAXIMUM OF 48" A.F.F. THE DEVICE SHALL HAVE A MINIMUM OF 24" OF CLEAR SPACE IN FRONT OF DEVICE FROM FLOOR TO CEILING.
- 4"Ø FLOOR CLEAN-OUT (BY GENERAL CONTRACTOR.)
- 3"Ø FLOOR DRAIN (BY GENERAL CONTRACTOR.) JAY R. SMITH #2005-B.
- 3/4"Ø COLD WATER LINE UNDERSLAB (BY GENERAL CONTRACTOR.)
- GC TO CONNECT VENT LINES FROM FLOOR DRAINS AND WATER CLOSET TO 3" VENT THROUGH ROOF BY KIOSK MANUFACTURER.
- NOT USED.
- INSTANTANEOUS ELECTRIC WATER HEATER (INSTALLED BY KIOSK MANUFACTURER.)
- CONNECT 4"Ø WASTE LINE (BY GENERAL CONTRACTOR) TO CITY SEWER. SEE SITE UTILITY PLAN ON SHEET C-400 FOR CONTINUATION.
- JANITOR SINK, FAUCET, AND TRIM. SUPPLIED BY KIOSK MANUFACTURER, INSTALLED BY GC.
- WASTE RECEPTACLE / WINDSHIELD SERVICE CENTER.
- EMERGENCY 911 CALL BOX MOUNT CENTERLINE AT +48" A.F.G. (IF REQUIRED)
- E-STOP (BY OTHERS)
- NESTING CAGE WITH 2 PULL OUT SHELVES. (6.09 SQ. FT.)  
SEASONAL SALES:  
-KROGER BOTTLED WATER  
-FIREWOOD  
-5.0 GALLON GAS CANS (EMPTY)  
-WINDSHIELD WASHING SOLVENT  
-ROCK SALT
- PALLET CAGE. (16.88 SQ. FT.)  
SEASONAL SALES:  
-KROGER BOTTLED WATER  
-FIREWOOD  
-5.0 GALLON GAS CANS (EMPTY)  
-WINDSHIELD WASHING SOLVENT  
-ROCK SALT



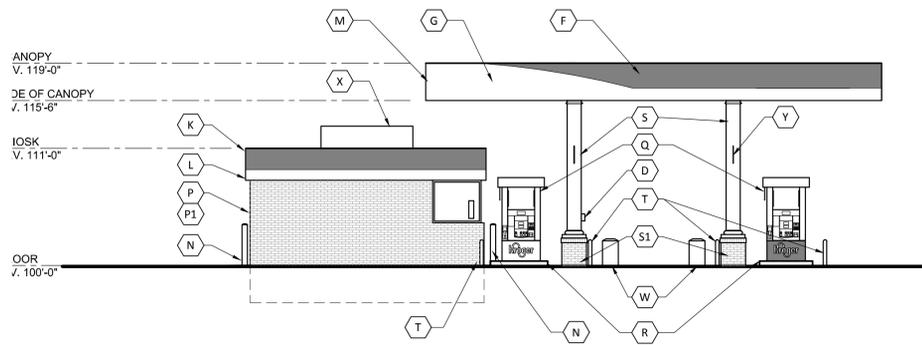
### KIOSK EQUIPMENT PLAN

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

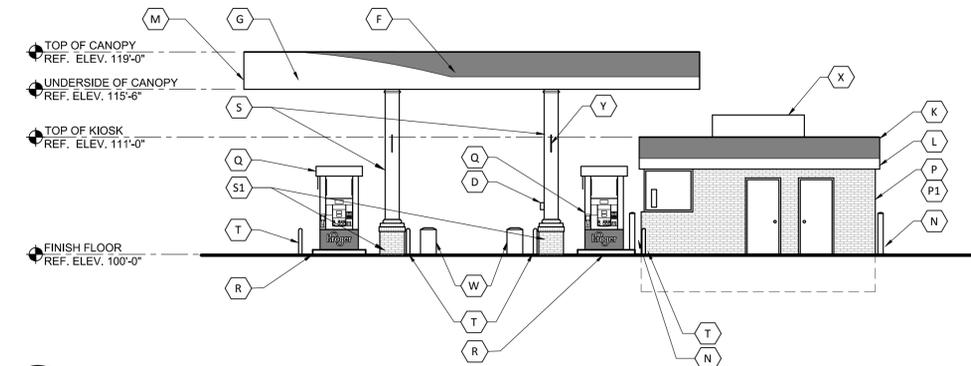
### CONSTRUCTION IMPROVEMENT PLAN

SCALE: 1" = 10'-0"

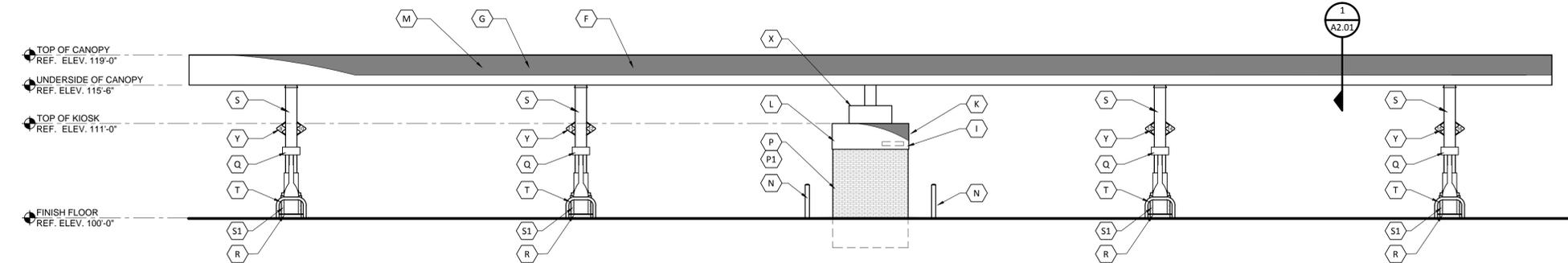
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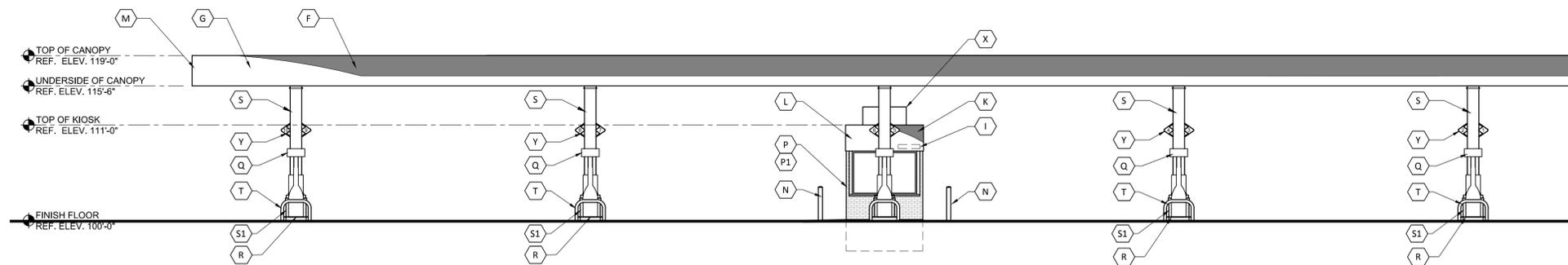
**D NORTH ELEVATION**  
A1.01 SCALE: 1/8" = 1'-0"



**C SOUTH ELEVATION**  
A1.01 SCALE: 1/8" = 1'-0"

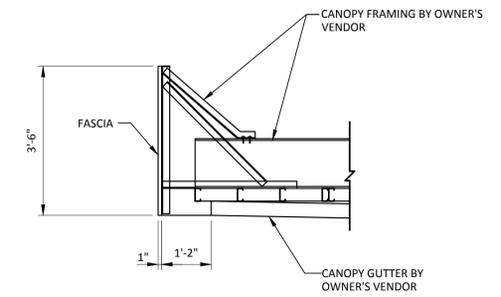


**B EAST ELEVATION**  
A1.01 SCALE: 1/8" = 1'-0"

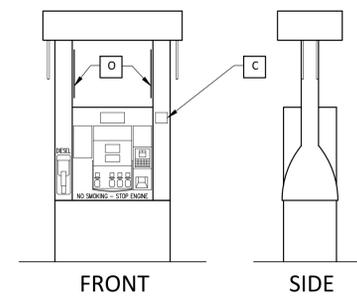


**A WEST ELEVATION**  
A1.01 SCALE: 1/8" = 1'-0"

#	MARK	DESCRIPTION	COLOR	MANUFACTURER	MODEL	FURNISHED BY	INSTALLED BY
A	NOT USED		-	-	-	-	-
B	NOT USED		-	-	-	-	-
C	STATIC WARNING DECAL		-	WAYNE	-	DISPENSER MANUFACTURER	DISPENSER MANUFACTURER
D	REMOTE PRICE SIGN CONTROL BOX		-	LANDMARK/SIGNALANCE, INC.	-	OWNER	SIGN INSTALLER
E	NOT USED		-	-	-	-	-
F	CANOPY FASCIA		RED	-	-	CANOPY FABRICATOR	CANOPY FABRICATOR
G	CANOPY FASCIA		PLATINUM	-	-	CANOPY FABRICATOR	CANOPY FABRICATOR
H	NOT USED		-	-	-	-	-
I	PRE-CUT VINYL ADDRESS DECAL (PER LOCAL ORDINANCE IF REQUIRED)		BLACK	-	-	GENERAL CONTRACTOR	GENERAL CONTRACTOR
J	NOT USED		-	-	-	-	-
K	KIOSK FASCIA		RED	-	-	KIOSK FABRICATOR	KIOSK FABRICATOR
L	KIOSK FASCIA		PLATINUM	-	-	KIOSK FABRICATOR	KIOSK FABRICATOR
M	CANOPY		-	FASHION, INC.	-	CANOPY FABRICATOR	CANOPY FABRICATOR
N	6"Ø BOLLARD		SAFETY RED (G.C. TO PAINT)	-	-	GENERAL CONTRACTOR	-
O	HEALTH AND SAFETY DECAL		-	WAYNE	-	WAYNE	WAYNE
P	KIOSK - PREFABRICATED		ESSENTIAL GRAY - SW6002	SAGEBRUSH	-	KIOSK FABRICATOR	GENERAL CONTRACTOR
P1	KIOSK FACE BRICK VENEER		RED/BROWN	GLEN-GERY BRICK	LAKESHORE SERIES COLOR: WINNETKA OR EQUAL	GENERAL CONTRACTOR	GENERAL CONTRACTOR
Q	DISPENSER		-	WAYNE	-	OWNER	GENERAL CONTRACTOR
R	ISLAND FORMS		GRAPHITE - SW4017 (G.C. TO PAINT)	OPW	-	OWNER	GENERAL CONTRACTOR
S	CANOPY COLUMNS (G.C. TO PAINT)		ESSENTIAL GRAY - SW6002 (G.C. TO PAINT)	FASHION, INC.	-	CANOPY FABRICATOR	CANOPY FABRICATOR
S1	CANOPY COLUMN BASE		RED/BROWN	-	LAKESHORE SERIES COLOR: WINNETKA OR EQUAL	GENERAL CONTRACTOR	GENERAL CONTRACTOR
T	4"Ø U-SHAPED BOLLARD (G.C. TO PAINT)		SAFETY RED (G.C. TO PAINT)	RIVERSIDE	-	OWNER	GENERAL CONTRACTOR
U	NOT USED		-	-	-	-	-
V	NOT USED		-	-	-	-	-
W	WASTE RECEPTACLE / WINDSHIELD SERVICE CENTER		-	DCI MARKETING	-	OWNER	GENERAL CONTRACTOR
X	ROOFTOP UNIT SCREEN		OYSTER SHELL	SAGEBRUSH	-	KIOSK FABRICATOR	GENERAL CONTRACTOR
Y	DISPENSER NUMBER FLAG		-	-	-	CANOPY FABRICATOR	GENERAL CONTRACTOR



**1 SECTION AT CANOPY FASCIA**  
A2.01 SCALE: 3/8" = 1'-0"



**2 DISPENSER ELEVATIONS**  
A2.01 SCALE: 3/8" = 1'-0"

**The Project Collaborative**  
37704 Hills Tech Drive  
Farmington Hills, Michigan 48331  
248.252.1411 Telephone info@projectcollab.com

REVISIONS		
NO.	DATE	DESCRIPTION
0	12.31.2015	SITE PLAN SUBMITTAL
1	02.11.2016	PER CITY COMMENTS

**CONSULTANT**

**SEAL**  
STATE OF MICHIGAN  
TIMOTHY B. KRATZ  
ENGINEER  
No. 6201062109  
Feb 11, 2016

**CUSTOMER**  
Kroger

**PROJECT DESCRIPTION**  
KROGER D777  
RETAIL FUEL CENTER

**PROJECT LOCATION**  
315 JOE MANN BOULEVARD  
MIDLAND, MI  
48642  
(MIDLAND COUNTY)

**SHEET TITLE**  
ELEVATIONS  
EXTERIOR  
FUEL CENTER

**SHEET MANAGEMENT**  
PROJECT NO.: D777.A  
DATE: 10.30.2015  
CAD FILE: A2.01.dwg  
PROJECT MANAGER: M. PISKO

**SHEET NUMBER**  
A2.01

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**The Project Collaborative**

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Farmington Hills, Michigan 48331  
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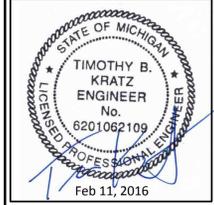
**REVISIONS**

NO.	DATE	DESCRIPTION
0	12.31.2015	SITE PLAN SUBMITTAL
1	02.11.2016	PER CITY COMMENTS

**CONSULTANT**



**SEAL**



**CUSTOMER**



**PROJECT DESCRIPTION**

**KROGER D777  
RETAIL FUEL CENTER**

**PROJECT LOCATION**

**315 JOE MANN BOULEVARD  
MIDLAND, MI  
48642  
(MIDLAND COUNTY)**

**SHEET TITLE**

**SIGN ELEVATIONS  
EXTERIOR  
FUEL CENTER**

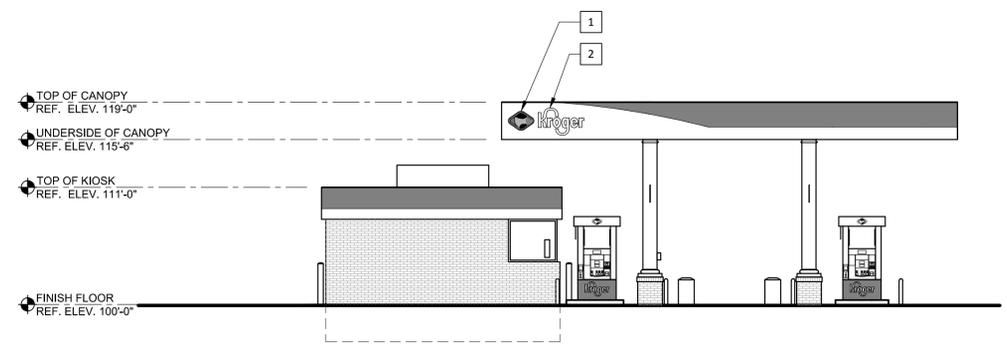
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PROJECT NO.: D777.A  
DATE: 10.30.2015  
CAD FILE: AG2.01.dwg  
PROJECT MANAGER: M. PISKO  
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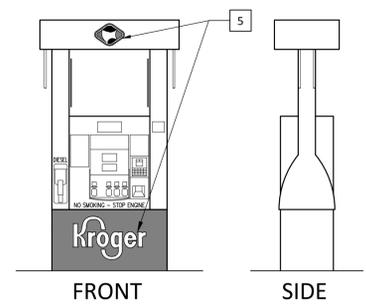
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**AG2.01**

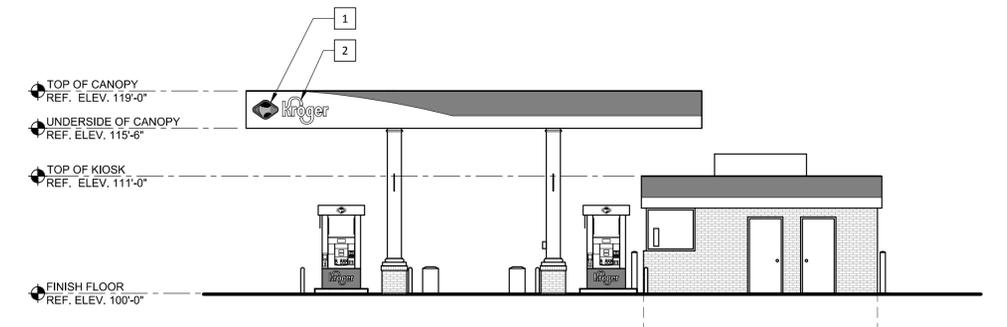
ARCHITECTURAL GRAPHICS SCHEDULE				
MARK	DESCRIPTION	MANUFACTURER / MATERIAL		NOTES
1	ILLUMINATED LOGO SIGN (CANOPY)	CUMMINGS SIGNS	3.00	SEE DRAWINGS KR512901, KR512902 AND KR512903 ON SHEET AG5.01.
2	ILLUMINATED CHANNEL LETTER SIGN (CANOPY)	CUMMINGS SIGNS	10.83	SEE DRAWINGS 74126.05, KR509901 AND KR509902 ON SHEET AG5.01.
3	ILLUMINATED DIGITAL PRICE SIGN (CANOPY)	LANDMARK SIGN ALLIANCE, INC.	45.50	SEE DRAWING 140817.3 ON SHEET AG5.01.
4	NON-ILLUMINATED LOGO SIGN (KIOSK)	CUMMINGS SIGNS	5.26	SEE DRAWING 53154.54 ON SHEET AG5.01.
5	MULTI-PRODUCT DISPENSER GRAPHICS	DRESSER, INC. DRESSER WAYNE "OVATION" FUEL DISPENSER	-	DOOR AND VALANCE GRAPHICS BY DISPENSER MANUFACTURER. SEE DETAIL E ON SHEET AG2.01.
6				



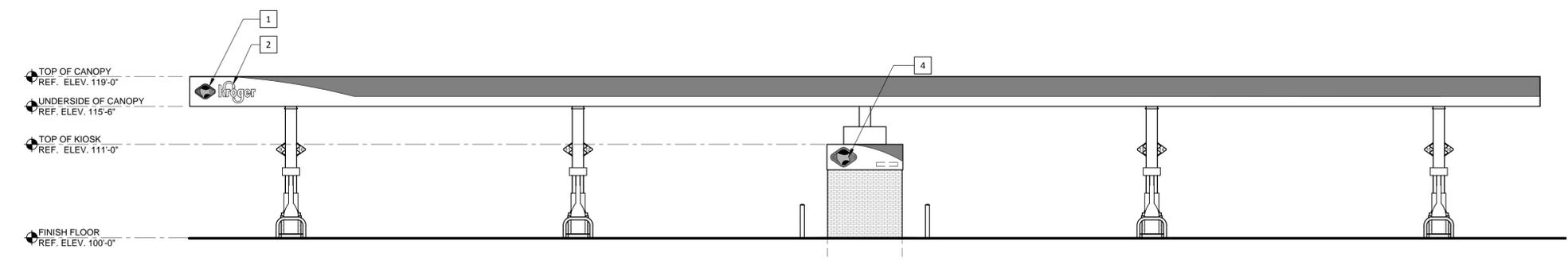
**D NORTH ELEVATION**  
A1.01 SCALE: 1/8" = 1'-0"



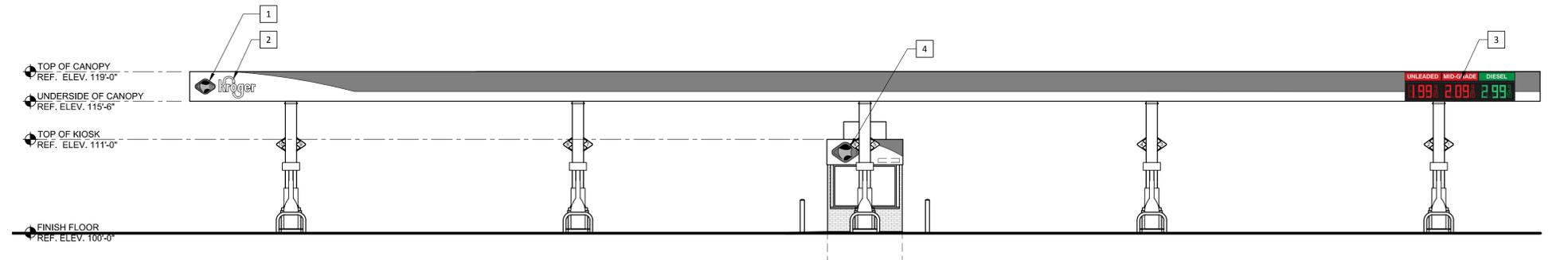
**1 DISPENSER ELEVATIONS**  
AG2.01 SCALE: 3/8" = 1'-0"



**C SOUTH ELEVATION**  
A1.01 SCALE: 1/8" = 1'-0"



**B EAST ELEVATION**  
A1.01 SCALE: 1/8" = 1'-0"



**A WEST ELEVATION**  
A1.01 SCALE: 1/8" = 1'-0"

FILE NAME: H:\TFC\Projects\Kroger\0777\0777-AG2.dwg LAST SAVED BY: Mike Vanderheke SAVED DATE: 2/11/2016 11:39 AM PLOTTED: 2/11/2016 4:18 PM





Site Plan SP #345

Date: February 17, 2016

### **STAFF REPORT TO THE PLANNING COMMISSION**

**SUBJECT:** Lucky's Steakhouse – Revised Access

**APPLICANT:** D & M Site Inc. on behalf of Lucky's Steakhouse

**LOCATION:** 830 Joe Mann Boulevard

**ZONING:** (RC) Regional Commercial

**ADJACENT ZONE:** (RC) Regional Commercial

**ADJACENT DEV:** North: Hotel  
East: Vacant land and hotel  
South: Automobile repair shop and vacant land  
West: Big box retail

---

### **REPORT**

The site plan proposes a Lucky's Steakhouse standalone restaurant of a little under 6,700 square feet on 1.59 acres. The proposal includes 84 parking spaces, of which 4 are barrier-free to meet ordinance requirements. Revised site access is proposed with a driveway directly onto Joe Mann Boulevard. Shared site access with the Residence Inn the north is proposed and internal driveway connections are included with the vacant land to the east. The restaurant will include 244 seats, with 28 of those seats being located on an outdoor patio. Substantial landscaping is also proposed. Stormwater facilities will partially utilize onsite detention as well as the existing detention pond to the north of the Residence Inn, which was originally scaled and built with development of this portion of the site in mind.

The subject property is zoned (RC) Regional Commercial by the City of Midland Zoning Ordinance. Restaurant establishments are identified as a principal permitted use in the RC district. Site plan review and approval under Section 27.02(A) of the Zoning Ordinance is required for this proposed use. Section 27.06(A) of the Zoning Ordinance states that: "The following criteria shall be used as a basis upon which site plans will be reviewed and approved:"

## **BASIS FOR ACTION**

### **1. Adequacy of Information**

The site plan shall include all required information in sufficiently complete and understandable form to provide an accurate description of the proposed uses and structures.

The site plan contains most of the information required for site plan approval but is deficient in the following areas, all of which are proposed as contingencies and are usually addressed at time of construction:

- A final stormwater management plan and permit application must be approved by the City Engineering Department.
- A final soil erosion and sedimentation control permit must be approved by the City Building Department.
- Shared/cross access easement agreements must be submitted for review and approval by the City Planning Department and the City Attorney, and executed and recorded at the Midland County Register of Deeds upon approval.
- Public water utility easement documents shall be submitted for review and approval by the City Engineering Department and the City Attorney, and executed and recorded at the Midland County Register of Deeds upon approval.
- Private stormwater easement documents shall be executed and recorded at the Midland County Register of Deeds to safeguard the stormwater discharge main through the vacant parcel to the east.

### **2. Site Design Characteristics**

All elements of the site design shall be harmoniously and efficiently organized in relation to topography, the size and type of parcel, the character of adjoining property, and the type and size of buildings. The site shall be developed so as not to impede the normal and orderly development or improvement of surrounding property for uses permitted by this Ordinance.

The proposed development design has been revised in a manner to include direct access onto Joe Mann Boulevard. A shared access connection has been included to the Residence Inn to the north and two driveway stubs have been included for future shared access to the site to the east. Proposed site landscaping has addressed and in some instances exceeded ordinance standards. Parking is compliant with ordinance requirements and appropriate provisions are proposed to meet the needs of pedestrians and bicyclists.

### **3. Appearance**

Landscaping, earth berms, fencing, signs, walls and other similar site features shall be designed and located on the site so that the proposed development is aesthetically pleasing and harmonious with nearby existing or future developments.

The building orientation and internal layout of the parking areas are considered appropriate for the site. The proposed landscaping plan has designed appropriately for the site and its surrounding areas.

4. **Compliance with District Regulations**

The site plan shall comply with the district requirements for height of building, lot size, lot coverage, density, and all other requirements set forth in the Schedule of Regulations (Article 26.00) unless otherwise provided in this Ordinance.

The project meets all setbacks, lot area, height and other dimensional requirements for the proposed use.

5. **Preservation and Visibility of Natural Features**

Natural features shall be preserved as much as possible, by minimizing tree and soil removal alteration to the natural drainage course and the amount of cutting, filling, and grading.

Currently, this site is largely void of any substantial natural features, including mature trees. The site plan is designed in a way which minimizes soil removal and utilizes the natural drainage course with some modifications.

6. **Privacy**

The site design shall provide reasonable visual and sound privacy. Fences, walls, barriers, and landscaping shall be used, as appropriate if permitted, for the protection and enhancement of property and the safety and privacy of occupants and uses.

There are no required standards for privacy screening for this development given its location within the business district, other than the dumpster screening which as proposed meets ordinance standards. The proposed development is considered appropriate for this vehicle-oriented commercial area of the city.

7. **Emergency Vehicle Access**

All buildings or groups of buildings shall be so arranged as to permit convenient and direct emergency vehicle access.

The Fire Department has reviewed the proposed site plan for adequate emergency vehicle access and is satisfied with the plan as proposed. Adequate access exists on all sides of the proposed building and within all proposed parking areas. An additional fire hydrant has been added to the site within the right-of-way of Joe Mann Boulevard, per the request of the Fire Marshal, to ensure appropriate emergency vehicle access to the site in the event of a fire emergency.

8. **Ingress and Egress**

Every structure or dwelling unit shall be provided with adequate means of ingress and egress via public or private streets and pedestrian walkways.

Revised site access is the main change from the previous site plan approved in December 2015 for this site. The property owner has indicated that shared access from T Moore Drive, as previously approved, negatively impacts the marketability of the vacant land east of the proposed Lucky's Steakhouse restaurant. According to the property owner and his real estate broker, other businesses have indicated interest in the vacant site but expressed dissatisfaction with a shared access driveway across the front portion of the site. Therefore, they are proposing that the site plan be revised to include direct access onto Joe Mann Boulevard. The proposed driveway will service both the Lucky's restaurant and a future use when developed on the vacant property to the east.

City staff maintains the position that shared access via T Moore Drive is the most ideal means of ingress and egress to the subject site as it would not require an additional curb cut onto Joe Mann Boulevard. However, the newly proposed driveway directly onto Joe Mann Boulevard meets ordinance standards for spacing on the same side of the street. Additionally, the driveway is also proposed to be directly-aligned across the street from the existing Belle Tire driveway, meeting ordinance standards for spacing on opposite sides of the street.

The City's traffic consultant has reviewed the revised plans and is satisfied as long as the driveway matches the width of the opposing Belle Tire driveway. To address this concern, the applicant has narrowed the proposed driveway from an original width of 35' down to 28' to match the width of the Belle Tire driveway.

Subsection 27.04.B.1 of the City of Midland Zoning Ordinance states that "upon determination that a site plan is in compliance with the standards and requirements of this Ordinance and other applicable ordinances and laws, the City Council shall approve the site plan". As stated above, the proposed driveway is in compliance with the standards of the Zoning Ordinance. Staff further point out, however, that no additional driveway access to Joe Mann Blvd will be possible in compliance with those same Zoning Ordinance standards for the adjacent and vacant land to the east. Driveway access to that parcel will therefore be required to utilize the driveway proposed by this site plan. Additional site access for the adjacent vacant area will be available via T. Moore Drive, but only opposite the intersection of T. Moore Drive and Ted Doan Drive.

To ensure that shared/cross access is provided in perpetuity between all three sites (including the existing Residence Inn), easement agreements to the satisfaction of the City Planning Department and City Attorney will be required. These agreements will need to provide for permanent easements unless this requirement is waived through further site plan review and approval of the City.

**9. Pedestrian Circulation**

Each site plan shall provide a pedestrian circulation system, which is insulated as completely as is reasonably possible from the vehicular circulation system.

Adequate pedestrian walkways have been provided within the interior of the site as well as connecting to the public sidewalk along Joe Mann Boulevard. The applicant has also included a sidewalk connection to the Residence Inn to the north alongside the proposed shared access driveway, per request of the Planning Commission.

**10. Vehicular and Pedestrian Circulation Layout**

The layout of vehicular and pedestrian circulation systems shall respect the pattern of existing or planned streets or pedestrian or bicycle pathways in the vicinity of the site. The width of streets and drives shall be appropriate for the volume of traffic they will carry in accordance with subsection 3.10. In order to insure public safety and promote efficient traffic flow and turning movements, the applicant may be required to limit street access points or construct a secondary access road.

All internal driveway width standards have been met. Shared/cross access between the Residence Inn, the vacant property to the east, and the Lucky's Steakhouse site is necessary to provide adequate vehicular circulation.

11. **Parking.**

The proposed development shall provide adequate off-street parking in accordance with the requirements in Article 5.00 of this ordinance.

At this time, the parking proposed for the new development is compliant with Article 5.00 of the Zoning Ordinance. A bike rack is also proposed near the front entrance.

12. **Drainage**

The project must comply with the City's Stormwater Ordinance.

When the Residence Inn was originally designed and approved, storm water management plans called a storm water detention pond north of the hotel. This facility was designed and constructed based on an engineering assumption that up to 55% of the total site could be developed as hard surface. Total site, in this context, includes the area on which the Residence Inn has been built, the area on which this proposal has been submitted and the vacant area located immediately east of the now-proposed restaurant. Any additional hard surface area on any of these three sites will be required to provide some form of on-site storm water management.

Development of the subject parcel as proposed would cover well in excess of 55% of the property in hard surface (building, pavement, concrete walks). Additional on-site stormwater management is therefore required and is proposed in the form of surface storage in the parking areas. As shown on Sheet C3.1, the dark shaded areas generally located at each corner of the parcel and centered on the proposed catch basins, would provide this storage. City Engineering standards permit depths of up to 12 inches during a 1% storm event. The proposed storage would be no greater than 9 inches.

Identical to the previous site plan, it should be noted that the stormwater management plans submitted applies only to the subject parcel, which will be divided from the overall site upon site plan approval. At such time as any development occurs on the vacant area to the east of this site, further stormwater management calculations and plans will be required to ensure that the stormwater management capacity of the overall parcel is not exceeded. It is likely that underground storage will be required for the future development to meet required standards. As the adjacent area remains vacant at this time, however, such plans need not be addressed until further development is proposed. Consideration and approval of the current proposed plans as submitted may therefore proceed.

The City Engineering Department has reviewed the revised stormwater management plan and is satisfied with the designs as proposed. Notably, the discharge of a portion of the site to the stormwater main within the Joe Mann Boulevard right-of-way has been removed. All stormwater on the site is now directed to the north via an underground stormwater connection across the vacant parcel to the east and ultimately discharging into the stormwater main within the right-of-way of T Moore Drive. This stormwater main discharges into the pond, noted above, north of the Residence Inn.

Ultimately, a final stormwater management permit must be approved by the City's Engineering Department. Easements providing for the stormwater outlet across the vacant portion of the property will also be required. Final stormwater permitting is typically addressed at the time of construction.

13. **Soil Erosion and Sedimentation**

The proposed development shall include measures to prevent soil erosion and sedimentation during and upon completion of construction, in accordance with current State, County, and City standards.

Soil erosion and sedimentation control details have been submitted for review and approval by the City Building Department. Final design detail and permitting is typically addressed at the time of construction.

14. **Exterior Lighting**

Exterior lighting shall be designed so that it is deflected away from adjoining properties and so that it does not impede vision of drivers along adjacent streets and comply with the provisions in Section 3.12.

The applicant has submitted photometric plans and lighting fixture details that have been reviewed by city staff. The submitted plans demonstrate compliance with city standards.

15. **Public Services**

Adequate services and utilities, including water, sewage disposal, sanitary sewer, and storm water control services, shall be available or provided, and shall be designed with sufficient capacity and durability to properly serve the development. All streets and roads, water, sewer, and drainage systems, and similar facilities shall conform to the design and construction standards of the City.

As previously discussed, a final storm water management permit must be approved by the City Engineering Department. This is typically addressed at final permitting stage.

The City Fire and Utility Departments have indicated that they are satisfied with the proposed utility plans. At the request of the Fire Marshal, two fire hydrants have been added to the site to provide adequate coverage, one in the northwest corner and one within the right-of-way of Joe Mann Boulevard near the proposed driveway.

16. **Screening**

Off-street parking, loading and unloading areas, outside refuse storage areas, and other storage areas shall be screened by walls or landscaping of adequate height and shall comply with Articles 6.00 and 7.00 of this Ordinance. All roof-top mechanical equipment shall be screened from view from all residential districts and public roadways.

The proposed dumpster screening fully meets the City's screening requirements. There are no other screening requirements for the development.

17. **Health and Safety Concerns**

Any use in any zoning district shall comply with all applicable public health, pollution, and safety laws and regulations.

No health and safety concerns have been identified.

**18. Sequence of Development**

All development phases shall be designed in logical sequence to insure that each phase will independently function in a safe, convenient and efficient manner without being dependent upon subsequent improvements in a later phase or on other sites.

The applicant has indicated that this will be built in one phase.

**19. Coordination with Adjacent Sites**

All site features; including circulation, parking, building orientation, landscaping, lighting, utilities, common facilities, and open space shall be coordinated with adjacent properties.

Construction of the proposed access drives will require coordination with the adjoining development and the future development site. The subject site and the surrounding lands are currently under common ownership.

**20. Signs.**

All proposed signs shall be in compliance with the regulations in Article 8.00 of this Ordinance

No specific signage is proposed with this project but location of the proposed ground sign has been given. Signage will be required to comply with city standards and will be permitted through the signage permitting process administered by the City Building Department.

**CONTINGENCY ITEMS**

Based on consideration of the site plan thus far, staff is of the opinion that the proposal adequately meets city requirements and is designed in a manner which is harmonious with the campus. That said, however, approval of the site plan could be considered subject to the following contingencies:

1. A final stormwater management permit must be approved by the City Engineering Department.
2. A final soil and sedimentation control plan must be approved by the City Building Department.
3. Shared/cross access easement agreements must be submitted for review and approval to the City Planning Department and the City Attorney, and executed and recorded at the Midland County Register of Deeds upon approval,
4. Public water utility easement documents shall be submitted for review and approval by the City Engineering Department and the City Attorney, and executed and recorded at the Midland County Register of Deeds upon approval.
5. Private stormwater easement documents shall be executed and recorded at the Midland County Register of Deeds to safeguard the stormwater discharge main through the vacant parcel to the east.

**PLANNING COMMISSION ACTION**

Staff currently anticipates that the Planning Commission will hold a public hearing on this request during its regular meeting on February 23, 2016 and will formulate a recommendation to City Council thereafter. If recommended to City Council the same evening, we anticipate that on February 29, 2016 the City Council will consider the site plan and Planning Commission

recommendation. Please note that these dates are merely preliminary and may be adjusted due to Planning Commission action and City Council agenda scheduling.

Respectfully Submitted,

A handwritten signature in cursive script that reads "C. Bradley Kaye". The signature is written in a dark ink on a light-colored background.

C. Bradley Kaye, AICP  
Director of Planning and Community Development

/grm

# SP #345 - D & M Site, Inc.

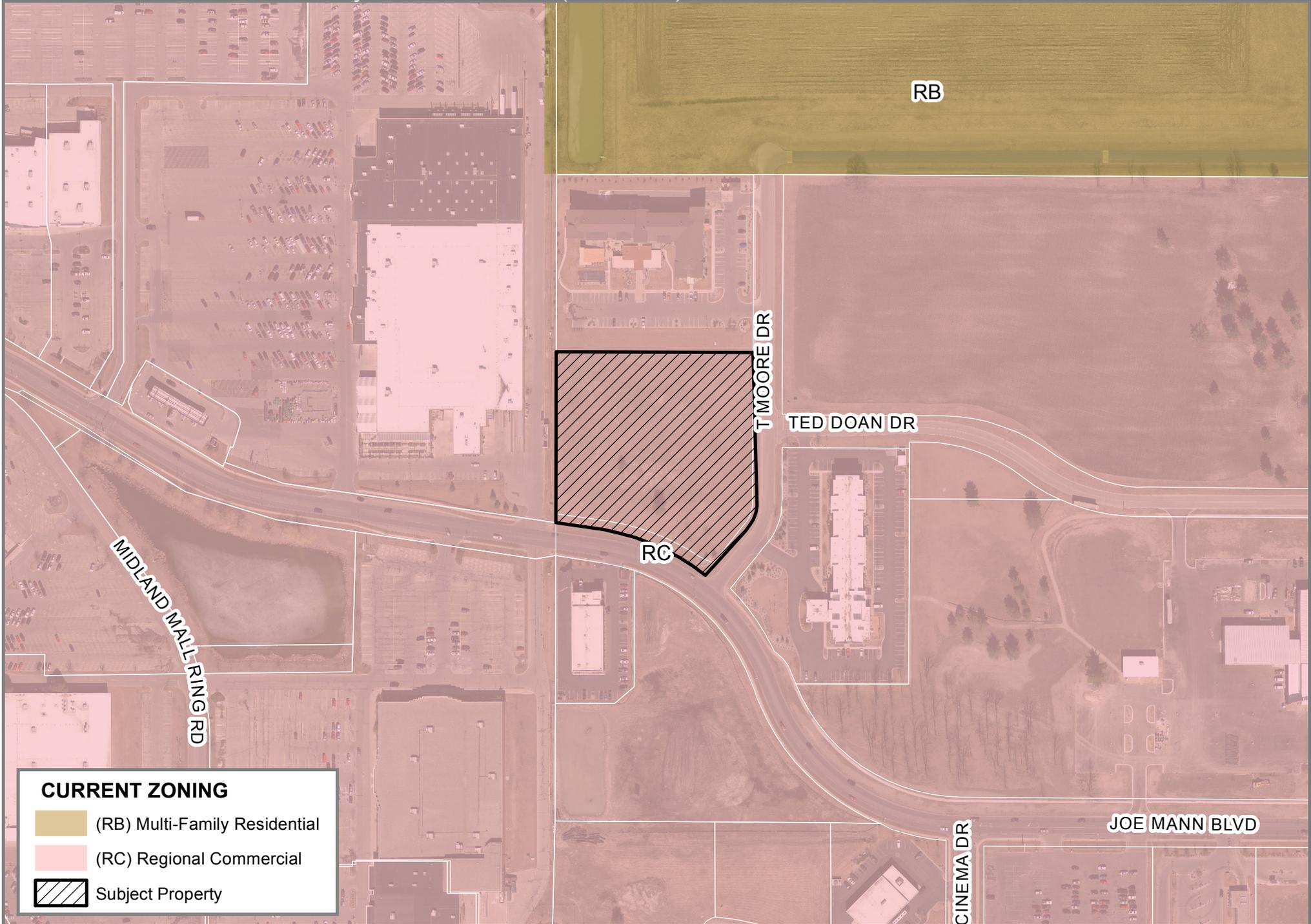
> 830 Joe Man Blvd - Lucky's Steakhouse (Revised)



 Subject Property

# SP #345 - D & M Site, Inc.

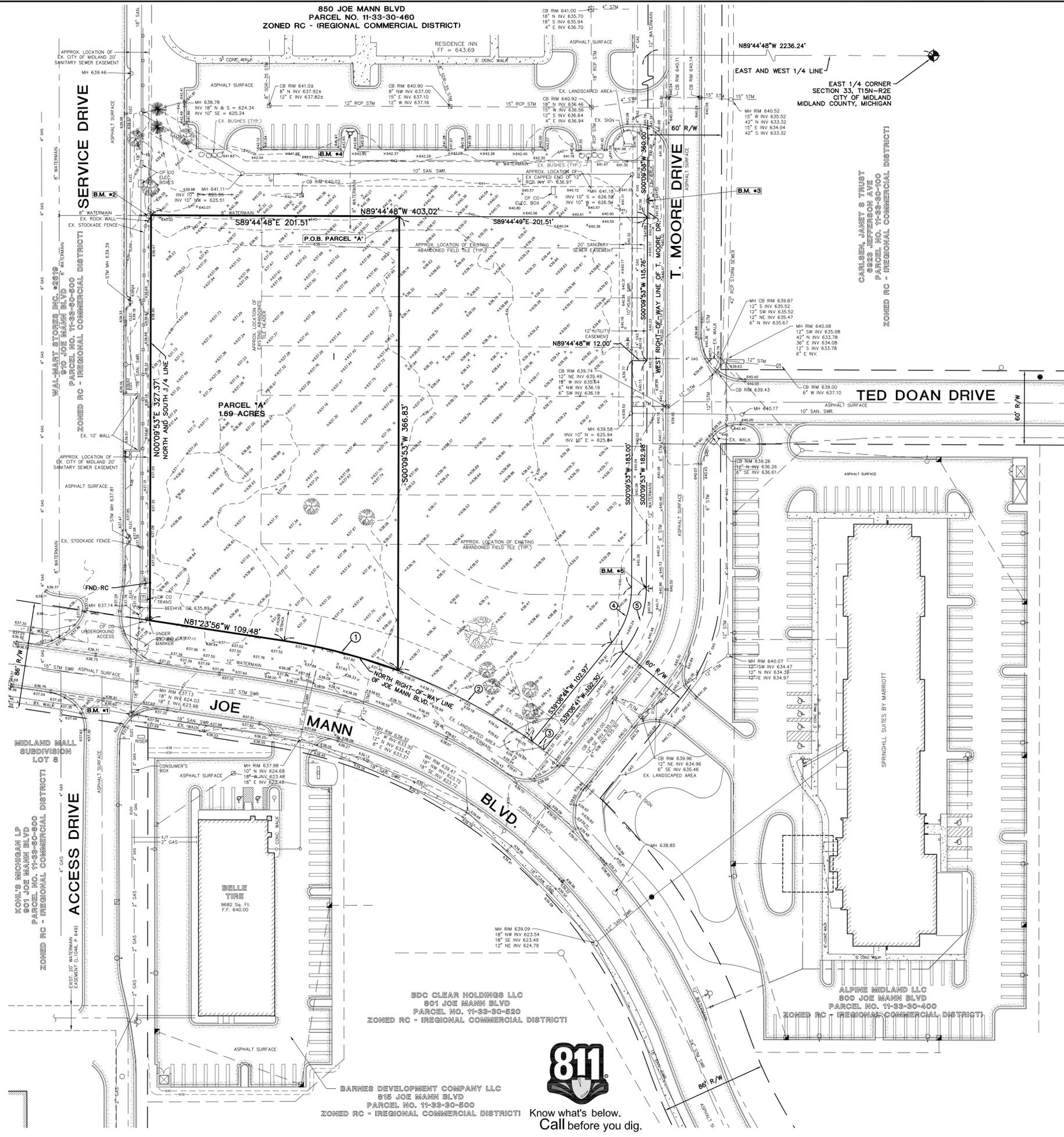
> 830 Joe Man Blvd - Lucky's Steakhouse (Revised)



### CURRENT ZONING

-  (RB) Multi-Family Residential
-  (RC) Regional Commercial
-  Subject Property





**CURVE TABLE**

NO.	CHD.	BRG.	CHD.	ARC	RADIUS	DELTA ANGLE
1	N75°33'48" W	96.18'	96.35'	473.00'	11'40'16"	
2	N62°15'32" W	122.97'	123.32'	473.00'	14°56'17"	
3	N54°03'42" W	12.02'	12.02'	473.00'	1°27'22"	
4	S19°38'18" W	47.34'	48.26'	71.00'	38°56'53"	
5	S19°38'18" W	55.34'	56.42'	83.00'	38°56'53"	

**UTILITY NOTE**

THE UTILITY LOCATIONS AS HEREON SHOWN ARE BASED ON FIELD OBSERVATIONS AND A CAREFUL REVIEW OF MUNICIPAL AND UTILITY RECORDS. HOWEVER, IT IS NOT POSSIBLE TO DETERMINE THE PRECISE SIZE, LOCATION, DEPTH, PRESSURE, OR ANY OTHER CHARACTERISTICS OF UNDERGROUND UTILITIES, TANKS OR SEPTIC FIELDS WITHOUT EXCAVATION. THEREFORE, WE CANNOT GUARANTEE THE ACCURACY OF COMPLETENESS OF THE BURIED UTILITY INFORMATION HEREON SHOWN. THE CONTRACTOR SHALL CALL MISS DIG (1-800-482-7171) A MINIMUM OF THREE WORKING DAYS PRIOR TO ANY EXCAVATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THESE UTILITY LOCATIONS PRIOR TO CONSTRUCTION AND MAKE EVERY EFFORT TO PROTECT AND/OR RELOCATE THEM AS REQUIRED. THE CONTRACTOR SHALL NOTIFY THE ENGINEER/SURVEYOR AS SOON AS POSSIBLE IN THE EVENT A DISCREPANCY IS FOUND.

**UTILITY CONTACTS**

**TELEPHONE**  
AT & T  
C/O ENGINEERING DEPARTMENT  
ROOM 525A  
309 S. WASHINGTON AVE.  
SAGINAW, MICHIGAN 48607  
ROB AUGUSTINE  
(989) 771-5404

**GAS AND ELECTRIC**  
CONSUMERS ENERGY  
2400 WEISS STREET  
SAGINAW, MICHIGAN 48602  
KEVIN COUTURIER - GAS DIV.  
(989) 791-5855  
GREG SQUANDA ELEC. DIV.  
(989) 791-5353

**WATER DEPT.**  
CITY OF MIDLAND  
333 W. ELLSWORTH ST.  
MIDLAND, MICHIGAN 48640  
ANDY PARROT  
(989) 837-3348

**WASTE WTR. DEPT.**  
CITY OF MIDLAND  
333 W. ELLSWORTH ST.  
MIDLAND, MICHIGAN 48640  
STEVE SMITH  
(989) 837-3504

**ENGINEERING DEPT.**  
CITY OF MIDLAND  
333 W. ELLSWORTH ST.  
MIDLAND, MICHIGAN 48640  
JOSH FEDRICKSON  
(989) 837-3352

**CABLE TELEVISION**  
CHARTER COMMUNICATIONS  
MARK KELLY  
(989) 233-9404

**STORM SEWER**  
MIDLAND COUNTY ROAD COMM.  
ENGINEERING DEPT.  
2334 NORTH MERIDIAN RD.  
MIDLAND, MICHIGAN 48657  
(989) 687-9060

**DRAIN**  
MIDLAND COUNTY DRAIN COMM.  
ENGINEERING DEPT.  
220 W. ELLSWORTH ST.  
MIDLAND, MICHIGAN 48640  
(989) 832-6770

**ZONING INFORMATION**

ZONED - RC - (REGIONAL COMMERCIAL DISTRICT)

LOT MINIMUM:  
AREA: - NONE  
WIDTH: - NONE  
MAX HEIGHT:  
FEET: - NONE  
FRONTS:  
REAR: - 25'  
SIDE: - 0'

**BENCHMARKS**

B.M. #1 - TOP OF RIM ON MANHOLE AT THE SOUTHEAST CORNER OF JOE MANN BLVD. AND ACCESS DRIVE. CITY OF MIDLAND ELEV. 637.13

B.M. #2 - ARROW ON HYDRANT LOCATED AT THE NORTHWEST CORNER OF PROPERTY. CITY OF MIDLAND ELEV. 640.50

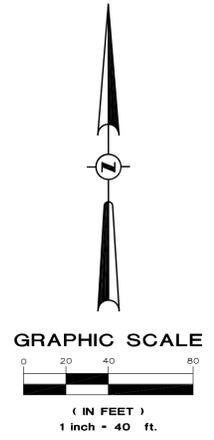
B.M. #3 - TOP OF NUT ON HYDRANT LOCATED AT THE NORTHEAST CORNER OF PROPERTY. CITY OF MIDLAND ELEV. 643.80

B.M. #4 - TOP OF NUT ON HYDRANT LOCATED NORTH OF THE NORTH PROPERTY LINE. CITY OF MIDLAND ELEV. 645.31

B.M. #5 - TOP OF NUT ON HYDRANT LOCATED AT THE SOUTHEASTERLY CORNER OF PROPERTY. CITY OF MIDLAND ELEV. 643.04

**FLOODPLAIN INFORMATION**

CITY OF MIDLAND - COMMUNITY NUMBER 260140  
COUNTY OF MIDLAND, MICHIGAN  
MAP NUMBER: 26111C0186E (PANEL NOT PRINTED)



**LEGEND**

⊙	MONUMENT / SECTION CORNER
○	FOUND PROPERTY IRON
⊕	SET PROPERTY IRON
⊕	EXISTING CATCHBASIN
⊕	EXISTING MANHOLE/CATCHBASIN
⊕	EXISTING VALVE
⊕	EXISTING HYDRANT
⊕	EXISTING WATERMAIN
⊕	EXISTING SANITARY SEWER
⊕	EXISTING STORM SEWER
⊕	EXISTING UNDERGROUND GAS LINE
⊕	EXISTING UNDERGROUND ELECTRIC LINE
⊕	EXISTING UNDERGROUND TELEPHONE LINE
⊕	EXISTING CENTERLINE
⊕	EXISTING OVERHEAD ELECTRICAL WIRES
⊕	EXISTING MAILBOX / NEWSPAPER BOX
⊕	EXISTING SIGN
⊕	EXISTING DECIDUOUS TREES
⊕	EXISTING CONIFEROUS TREES
⊕	EXISTING UTILITY POWER POLE
⊕	EXISTING TELEPHONE RISER
⊕	EXISTING CONCRETE SURFACE
⊕	EXISTING BIT SURFACE

**FURNISHED LEGAL DESCRIPTIONS**

PARCEL A DESCRIPTION:  
A PARCEL OF LAND IN SOUTHEAST 1/4 OF SECTION 33, T.15N-R.2E., CITY OF MIDLAND, MIDLAND COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS: TO FIX THE POINT OF BEGINNING COMMENCE AT THE EAST 1/4 CORNER OF SAID SECTION 33, N. 89°-44'-48" W., ON THE EAST AND WEST 1/4 LINE OF SAID SECTION, 2236.24 FEET TO THE INTERSECTION OF SAID EAST AND WEST 1/4 LINE WITH THE WEST RIGHT-OF-WAY LINE OF T. MOORE DRIVE (SO-CALLED); THENCE S. 00°-09'-53" W., ON AND ALONG SAID WEST RIGHT-OF-WAY LINE, 360.00 FEET; THENCE N. 89°-44'-48" W., PARALLEL WITH SAID EAST AND WEST 1/4 LINE, 201.51 FEET TO THE POINT OF BEGINNING OF THIS DESCRIPTION; THENCE S. 00°-09'-53" W., PARALLEL WITH THE NORTH AND SOUTH 1/4 LINE, 366.83 FEET TO A POINT ON A 473.00 FOOT RADIUS CURVE, BEING THE NORTH RIGHT-OF-WAY LINE OF JOE-MANN BOULEVARD; THENCE NORTHWESTERLY ON AND ALONG THE ARC OF SAID CURVE AND SAID NORTH RIGHT-OF-WAY LINE, 96.35 FEET TO THE POINT OF TANGENCY, SAID ARC BEING SUBTENDED BY A CHORD BEARING N. 75°-33'-48" W., 96.18 FEET TO SAID POINT OF TANGENCY; THENCE CONTINUING ALONG SAID NORTH RIGHT-OF-WAY LINE OF SAID JOE-MANN BOULEVARD N. 81°-23'-56" W., 109.48 FEET TO THE INTERSECTION OF SAID NORTH RIGHT-OF-WAY LINE OF JOE-MANN BOULEVARD AND NORTH AND SOUTH 1/4 LINE; THENCE N. 00°-09'-53" E., ON AND ALONG SAID NORTH AND SOUTH 1/4 LINE, 327.37 FEET; THENCE S. 89°-44'-48" E., PARALLEL WITH SAID EAST AND WEST 1/4 LINE, 201.51 FEET BACK TO THE POINT OF BEGINNING, CONTAINING 1.59 ACRES OF LAND AND BEING SUBJECT TO AND TOGETHER WITH EASEMENTS AND/OR RESTRICTIONS OF RECORD.

**CERTIFICATION**

I, BRIAN D FERGUSON A PROFESSIONAL SURVEYOR, BEING DULY LICENSED BY THE STATE OF MICHIGAN, DO HEREBY CERTIFY THAT I HAVE CAUSED THE PROPERTY HEREON SHOWN, TO BE SURVEYED AND MAPPED IN ACCORDANCE WITH ALL LOCAL AND STATE ACCEPTED PRACTICES FOR THE ACCURACY OF A SURVEY OF THIS TYPE. I ALSO CERTIFY THAT THE EXISTING CONDITIONS OF THE PROPERTY ARE AS SHOWN HEREON.

BRIAN D FERGUSON, PS #26454 DATE

**BENCHMARKS**

B.M. #1 - TOP OF RIM ON MANHOLE AT THE SOUTHEAST CORNER OF JOE MANN BLVD. AND ACCESS DRIVE. CITY OF MIDLAND ELEV. 637.13

B.M. #2 - ARROW ON HYDRANT LOCATED AT THE NORTHWEST CORNER OF PROPERTY. CITY OF MIDLAND ELEV. 640.50

B.M. #3 - TOP OF NUT ON HYDRANT LOCATED AT THE NORTHEAST CORNER OF PROPERTY. CITY OF MIDLAND ELEV. 643.80

B.M. #4 - TOP OF NUT ON HYDRANT LOCATED NORTH OF THE NORTH PROPERTY LINE. CITY OF MIDLAND ELEV. 645.31

B.M. #5 - TOP OF NUT ON HYDRANT LOCATED AT THE SOUTHEASTERLY CORNER OF PROPERTY. CITY OF MIDLAND ELEV. 643.04

**FLOODPLAIN INFORMATION**

CITY OF MIDLAND - COMMUNITY NUMBER 260140  
COUNTY OF MIDLAND, MICHIGAN  
MAP NUMBER: 26111C0186E (PANEL NOT PRINTED)

**PROJECT LOG**

STARTUP CONSTRUCTION SUBMITTAL	9-30-15
STORMWATER SUBMITTAL	11-20-15
PLANNING COMMISSION RESUBMITTAL	11/20/15
DESIGNED BY: SAL	1/7/16
DRAWN BY: M.M.D.	1/7/16
CHECKED BY: M.M.D.	1/29/16
STORMWATER SUBMITTAL	2/2/16

FILE: 2015-358\_REV\_1-7-16

PROJECT MGR: JDM

DESIGNED BY: SAL

DRAWN BY: M.M.D.

CHECKED BY: M.M.D.

SCALE: 1"=40'

SHEET: 2 OF 13

**LUCKY'S STEAKHOUSE**  
LUCKY VASILAKIS  
5281 BARRINGTON DRIVE  
ROCHESTER, MI 48306  
(248) 379-2106

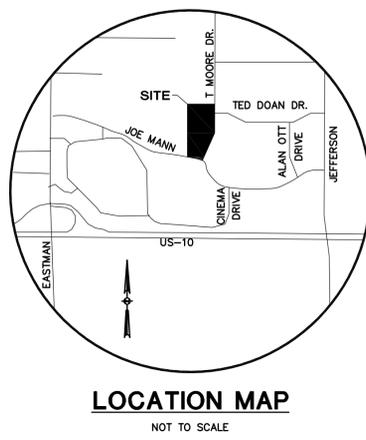
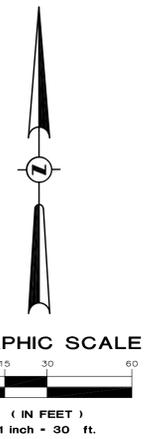
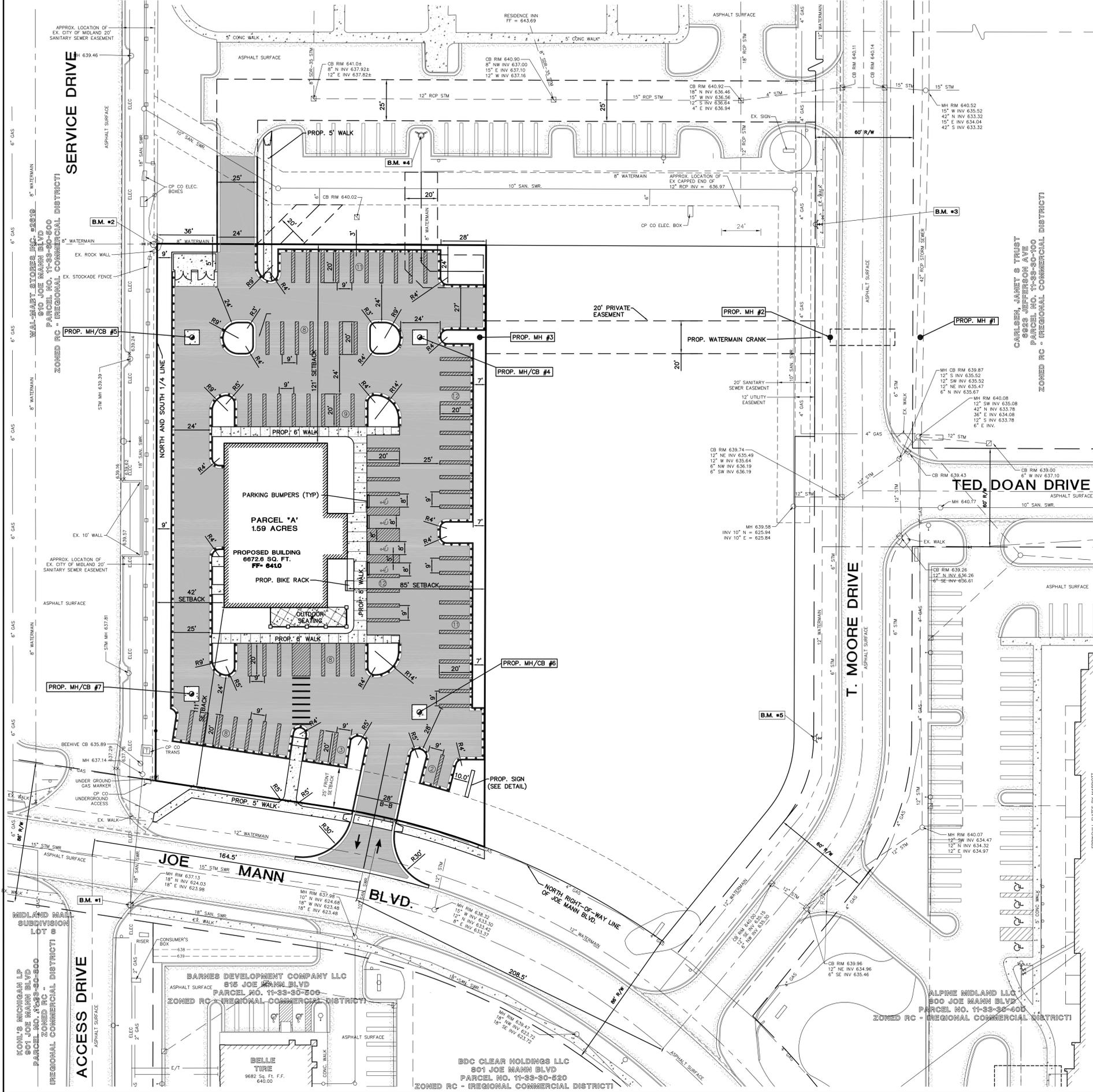
**LUCKY'S STEAKHOUSE**  
JOE MANN BLVD.  
SECTION 33, T15N-R2E  
CITY OF MIDLAND  
MIDLAND COUNTY, MI

**TOPOGRAPHIC SURVEY**

**D&M SITE INC.**  
Surveying, Inspection, Testing, Engineering  
401 BALSAM STREET PO BOX 159, CARROLLTON, MICHIGAN 48724  
PHONE (989) 752-0880-1744 (989) 752-8666

**C2.0**  
2015.358

RI HOSPITALITY LLC  
850 JOE MANN BLVD  
PARCEL NO. 11-33-30-460  
ZONED RC - (REGIONAL COMMERCIAL DISTRICT)



**LEGEND**

	MONUMENT / SECTION CORNER
	FOUND PROPERTY IRON
	SET PROPERTY IRON
	EXISTING CATCHBASIN
	PROPOSED CATCHBASIN
	EXISTING MANHOLE/CATCHBASIN
	PROPOSED MANHOLE/CATCHBASIN
	EXISTING MANHOLE
	PROPOSED MANHOLE
	PROPOSED SANITARY SEWER
	EXISTING SANITARY SEWER
	PROPOSED STORM SEWER
	EXISTING STORM SEWER
	EXISTING WATERMAIN
	PROPOSED WATERMAIN
	EXISTING LIGHT POLES
	PROPOSED LIGHT POLES
	PROPOSED ASPHALT
	PROPOSED CONCRETE
	EXISTING CONCRETE SURFACE
	EXISTING BIT SURFACE
	EXISTING FENCE LINE
	UNDERGROUND ELECTRIC LINE
	UNDERGROUND GAS LINE
	UNDERGROUND TELEPHONE LINE
	OVERHEAD ELECTRICAL WIRES
	EXISTING DECIDUOUS TREES
	EXISTING CONIFEROUS TREES
	EXISTING SIGN
	EXISTING UTILITY POWER POLE
	EXISTING TELEPHONE RISER
	PROPOSED FLOW ARROW
	PROPOSED CONTOURS
	PROPOSED MODIFIED CURB AND GUTTER
	TC 647.0
	FS 646.9
	TW 646.9

**PARKING**

LAND USE	REQUIREMENT	# OF SEATS	# OF EMPLOYEES
RESTAURANT	1 SPACE PER 4 SEATS + 1 SPACE PER EMPLOYEE	244 SEATS	20 PER SHIFT

REQUIRED NUMBER OF PARKING SPACES: 81 PARKING SPACES, INCLUDING 4 ADA SPACES  
PROVIDED NUMBER OF PARKING SPACES: 84 PARKING SPACES, INCLUDING 4 ADA SPACES

**BENCHMARKS**

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**FURNISHED LEGAL DESCRIPTIONS**

PARCEL A DESCRIPTION:  
A PARCEL OF LAND IN SOUTHEAST 1/4 OF SECTION 33, T15N-R2E, CITY OF MIDLAND, MIDLAND COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS: TO FIX THE POINT OF BEGINNING COMMENCE AT THE EAST 1/4 CORNER OF SAID SECTION 33, N. 89°-44'-48" W., ON THE EAST AND WEST 1/4 LINE OF SAID SECTION, 2236.24 FEET TO THE INTERSECTION OF SAID EAST AND WEST 1/4 LINE WITH THE WEST RIGHT-OF-WAY LINE OF T. MOORE DRIVE (SO-CALLED); THENCE S. 00°-09'-53" W., ON AND ALONG SAID WEST RIGHT-OF-WAY LINE, 360.00 FEET; THENCE N. 89°-44'-48" W., PARALLEL WITH SAID EAST AND WEST 1/4 LINE, 201.51 FEET TO THE POINT OF BEGINNING OF THIS DESCRIPTION; THENCE S. 00°-09'-53" W., PARALLEL WITH THE NORTH AND SOUTH 1/4 LINE, 366.83 FEET TO A POINT ON A 473.00 FOOT RADIUS CURVE, BEING THE NORTH RIGHT-OF-WAY LINE OF JOE-MANN BOULEVARD; THENCE NORTHWESTERLY ON AND ALONG THE ARC OF SAID CURVE AND SAID NORTH RIGHT-OF-WAY LINE, 96.35 FEET TO THE POINT OF TANGENCY, SAID ARC BEING SUBTENDED BY A CHORD BEARING N. 75°-33'-48" W. 96.18 FEET TO SAID POINT OF TANGENCY; THENCE CONTINUING ALONG SAID NORTH RIGHT-OF-WAY LINE OF SAID JOE-MANN BOULEVARD N. 81°-23'-56" W., 109.48 FEET TO THE INTERSECTION OF SAID NORTH RIGHT-OF-WAY LINE OF JOE-MANN BOULEVARD AND NORTH AND SOUTH 1/4 LINE; THENCE N. 00°-09'-53" E., ON AND ALONG SAID NORTH AND SOUTH 1/4 LINE, 327.37 FEET; THENCE S. 89°-44'-48" E., PARALLEL WITH SAID EAST AND WEST 1/4 LINE, 201.51 FEET BACK TO THE POINT OF BEGINNING, CONTAINING 1.59 ACRES OF LAND AND BEING SUBJECT TO AND TOGETHER WITH EASEMENTS AND/OR RESTRICTIONS OF RECORD.

**ZONING INFORMATION**

ZONED - RC - (REGIONAL COMMERCIAL DISTRICT)	
REQUIRED LOT MINIMUM AREA - NONE	PROVIDED LOT MINIMUM AREA - 1.59 ACRES
REQUIRED WIDTH - NONE	PROVIDED WIDTH - 200'
REQUIRED MAX HEIGHT - NONE	PROVIDED MAX HEIGHT - 26'-8"
REQUIRED SETBACKS - FRONT: 25', REAR: 0', SIDE: 0'	PROVIDED SETBACKS - FRONT: 25', REAR: 0', SIDE: 0'



**PROJECT LOG**

STARTUP SUBMITTAL	8-30-15
STATUS SUBMITTAL	11-20-15
PLANNING COMMISSION RESUBMITTAL	11/20/15
DESIGNED BY: SAL	1/7/16
DRAWN BY: M.M.D.	1/29/16
REVISION: T. MOORE DR. ACCESS	1/29/16
CITY OF MIDLAND PC RESUBMITTAL - NEW DRIVE	1/29/16
CITY OF MIDLAND PC RESUBMITTAL - NEW DRIVE	2/2/16
STATUS SUBMITTAL	2/2/16

FILE: 2015-358\_REV\_1-7-16  
PROJECT MGR: JDM  
DESIGNED BY: SAL  
DRAWN BY: M.M.D.  
CHECKED BY: M.M.D.  
SCALE: 1"=30'  
SHEET: 3 OF 13

**LUCKY'S STEAKHOUSE**  
LUCKY VASILAKIS  
5281 BARRINGTON DRIVE  
ROCHESTER, MI 48306  
(248) 379-2106

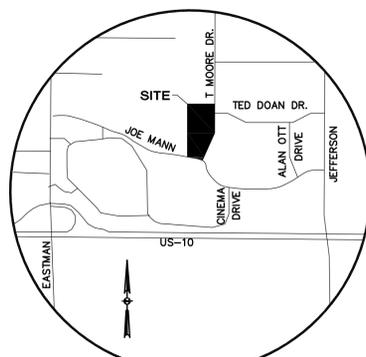
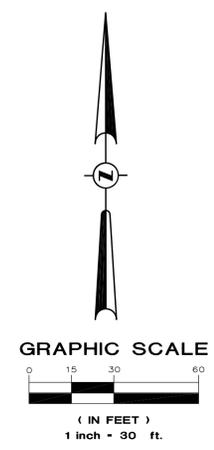
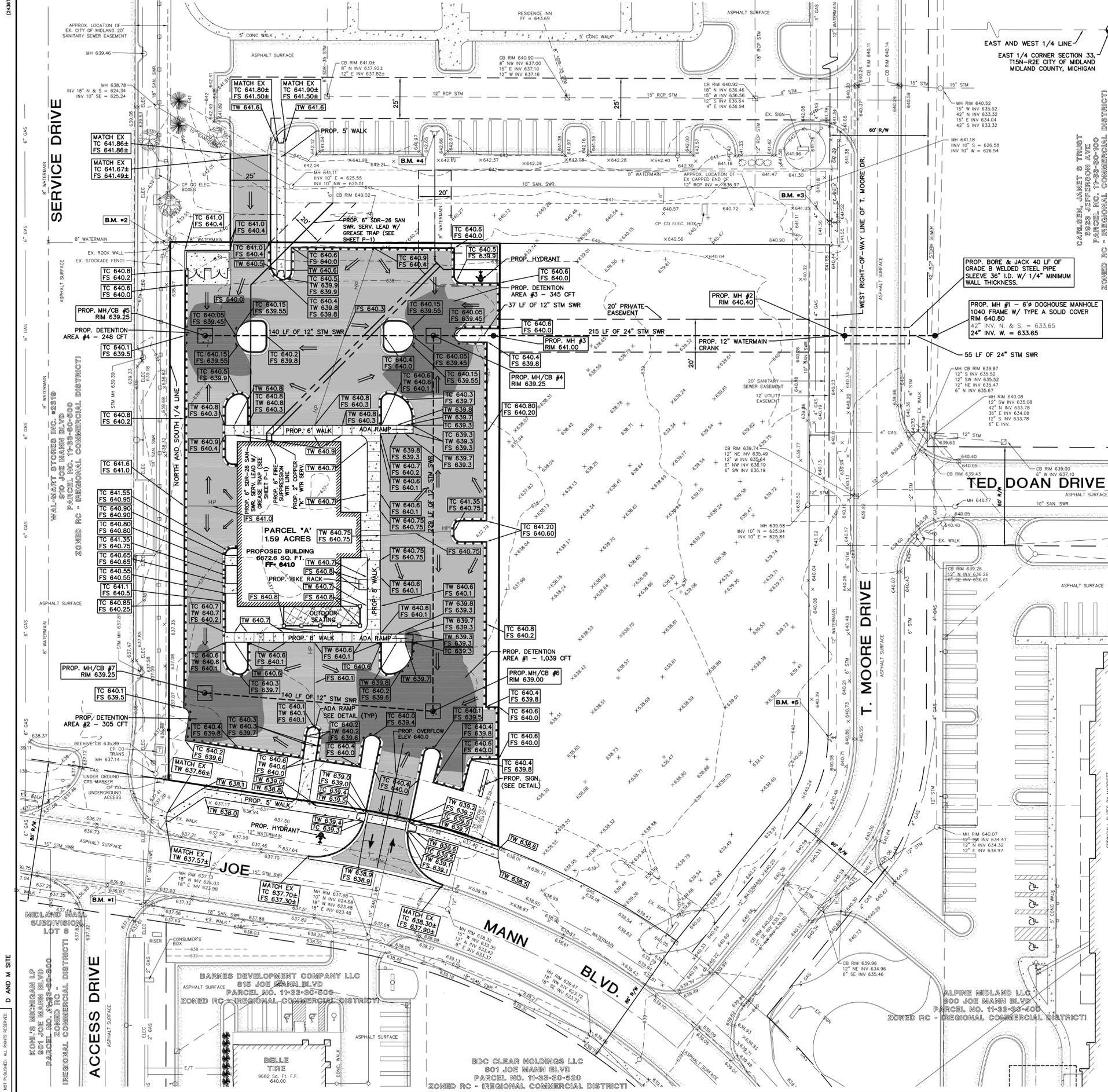
**LUCKY'S STEAKHOUSE**  
JOE MANN BLVD.  
SECTION 33, T15N-R2E  
CITY OF MIDLAND  
MIDLAND COUNTY, MI

**D&M SITE INC.**  
Surveying, Inspection, Testing, Engineering  
401 BALSAM STREET, PO BOX 159, CARROLLTON, MICHIGAN 48724  
Phone: (989) 752-0880 FAX: (989) 752-8660

**C3.0**  
2015.358

**SITE PLAN**

RI HOSPITALITY LLC  
850 JOE MANN BLVD  
PARCEL NO. 11-33-30-600  
ZONED RC - (REGIONAL COMMERCIAL DISTRICT)



LOCATION MAP  
NOT TO SCALE

**LEGEND**

	MONUMENT / SECTION CORNER
	FOUND PROPERTY IRON
	SET PROPERTY IRON
	EXISTING CATCHBASIN
	PROPOSED CATCHBASIN
	EXISTING MANHOLE/CATCHBASIN
	PROPOSED MANHOLE/CATCHBASIN
	EXISTING MANHOLE
	PROPOSED MANHOLE
	PROPOSED HYDRANT
	EXISTING HYDRANT
	PROPOSED VALVE
	EXISTING VALVE
	PROPOSED SANITARY SEWER
	EXISTING SANITARY SEWER
	PROPOSED STORM SEWER
	EXISTING STORM SEWER
	EXISTING WATERMAIN
	EXISTING LIGHT POLES
	PROPOSED LIGHT POLES
	PROPOSED ASPHALT
	EXISTING CONCRETE SURFACE
	EXISTING BIT SURFACE
	EXISTING FENCE LINE
	UNDERGROUND ELECTRIC LINE
	UNDERGROUND GAS LINE
	UNDERGROUND TELEPHONE LINE
	UNDERGROUND CABLE T.V. LINE
	OVERHEAD ELECTRICAL WIRES
	EXISTING DECIDUOUS TREES
	EXISTING CONIFEROUS TREES
	EXISTING SIGN
	EXISTING UTILITY POWER POLE
	EXISTING TELEPHONE RISER
	PROPOSED FLOW ARROW
	PROPOSED CONTOURS
	PROPOSED MODIFIED CURB AND GUTTER
	TC 647.0
	FW 646.9
	TW 646.9

**UTILITY CONTACTS**

<b>TELEPHONE</b> AT & T CITY OF MIDLAND ENGINEERING DEPARTMENT 2400 WESS STREET ROOM 525A 309 S. WASHINGTON AVE. SAGINAW, MICHIGAN 48607 ROB AUGUSTINE (989) 771-5404	<b>GAS AND ELECTRIC</b> CONSUMERS ENERGY 2400 WESS STREET SAGINAW, MICHIGAN 48602 KEVIN COUTURIER - GAS DIV. (989) 791-5855 GREG SQUANDRA ELEC. DIV. (989) 791-5353
<b>ZONING</b> CITY OF MIDLAND 333 W. ELLSWORTH ST. MIDLAND, MICHIGAN 48640 (989) 837-3300	<b>WATER DEPT.</b> CITY OF MIDLAND 333 W. ELLSWORTH ST. MIDLAND, MICHIGAN 48640 ANDY PARROT (989) 837-3348
<b>WASTE WTR. DEPT.</b> CITY OF MIDLAND 333 W. ELLSWORTH ST. MIDLAND, MICHIGAN 48640 STEVE SMITH (989) 837-3504	<b>ENGINEERING DEPT.</b> CITY OF MIDLAND 333 W. ELLSWORTH ST. MIDLAND, MICHIGAN 48640 JOSH FEDRICKSON (989) 837-3352
<b>SIGNS AND SIGNALS</b> CITY OF MIDLAND 333 W. ELLSWORTH ST. MIDLAND, MICHIGAN 48640 JEFF MURPHY (989) 837-3354	<b>CABLE TELEVISION</b> CHARTER COMMUNICATIONS MARK KELLY MIDLAND, MICHIGAN 48640 (989) 233-9404
<b>STORM SEWER</b> MIDLAND COUNTY ROAD COMM. ENGINEERING DEPT. 2334 NORTH MERIDIAN RD. MIDLAND, MICHIGAN 48657 (989) 687-9060	<b>DRAIN</b> MIDLAND COUNTY DRAIN COMM. ENGINEERING DEPT. 220 W. ELLSWORTH ST. MIDLAND, MICHIGAN 48640 (989) 832-6770

**BENCHMARKS**

<b>B.M. #1</b> - TOP OF RIM ON MANHOLE AT THE SOUTHEAST CORNER OF JOE MANN BLVD. AND ACCESS DRIVE. CITY OF MIDLAND ELEV. 637.13
<b>B.M. #2</b> - ARROW ON HYDRANT LOCATED AT THE NORTHWEST CORNER OF PROPERTY. CITY OF MIDLAND ELEV. 640.50
<b>B.M. #3</b> - TOP OF NUT ON HYDRANT LOCATED AT THE NORTHEAST CORNER OF PROPERTY. CITY OF MIDLAND ELEV. 643.80
<b>B.M. #4</b> - TOP OF NUT ON HYDRANT LOCATED NORTH OF THE NORTH PROPERTY PROPERTY LINE. CITY OF MIDLAND ELEV. 645.31
<b>B.M. #5</b> - TOP OF NUT ON HYDRANT LOCATED AT THE SOUTHEAST CORNER OF PROPERTY. CITY OF MIDLAND ELEV. 643.04



**PROJECT LOG**

8-30-15	STARTUP CONSTRUCTION SUBMITTAL
11-20-15	STORMWATER SUBMITTAL
11-20-15	PLANNING COMMISSION RESUBMITTAL
11/20/15	DESIGNED BY: SAL
1/7/16	REVISION: T. MOORE DR. ACCESS
1/29/16	REVISION: ADDED JOE MANN ACCESS
1/29/16	CITY OF MIDLAND FC RESUBMITTAL - NEW DRIVE
2/22/16	STORMWATER SUBMITTAL

FILE: 2015-358.RV.17-7-16  
PROJECT MGR: JDM  
DESIGNED BY: SAL  
DRAWN BY: M.M.D.  
CHECKED BY:  
SCALE: 1"=30'  
SHEET: 4 OF 13

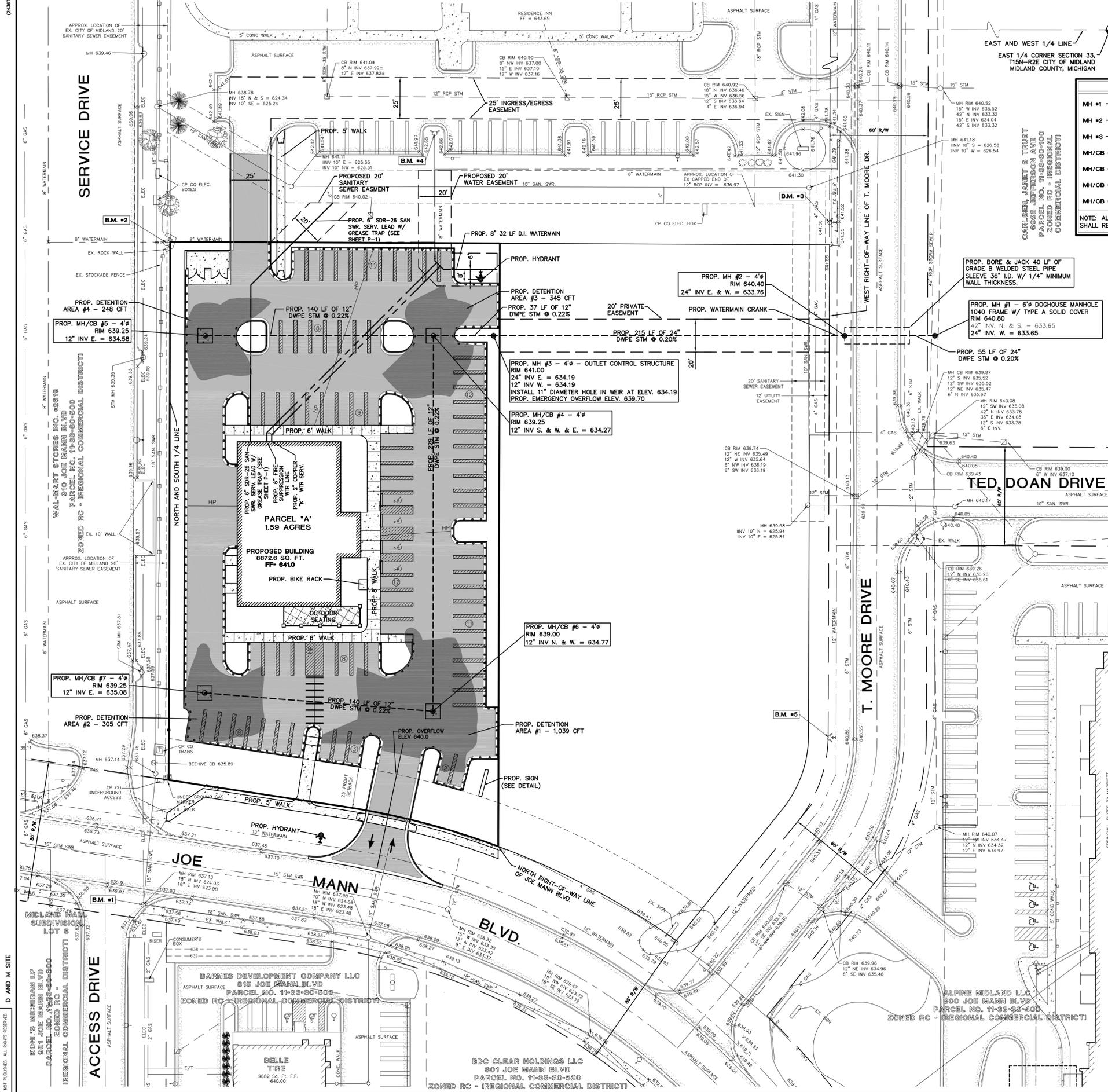
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**LUCKY'S STEAKHOUSE**  
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**C3.1**  
2015.358

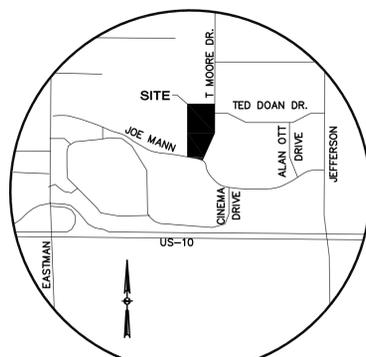
RI HOSPITALITY LLC  
850 JOE MANN BLVD  
PARCEL NO. 11-33-30-460  
ZONED RC - (REGIONAL COMMERCIAL DISTRICT)



**MANHOLE / CATCHBASIN NOTE**

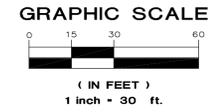
MH #1	1040 FRAME W/ TYPE A SOLID COVER
MH #2	1040 FRAME W/ TYPE A SOLID COVER
MH #3	NO FRAME W/ TYPE N OVAL GRATE
MH/CB #4	1040 FRAME W/ TYPE M1 FLAT GRATE
MH/CB #5	1040 FRAME W/ TYPE M1 FLAT GRATE
MH/CB #6	1040 FRAME W/ TYPE M1 FLAT GRATE
MH/CB #7	1040 FRAME W/ TYPE M1 FLAT GRATE

NOTE: ALL PERMANENT CASTINGS SHALL READ "DUMP NO WASTE"



**LEGEND**

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	EXISTING CATCHBASIN
	PROPOSED CATCHBASIN
	EXISTING MANHOLE/CATCHBASIN
	PROPOSED MANHOLE/CATCHBASIN
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	EXISTING HYDRANT
	PROPOSED VALVE
	EXISTING VALVE
	EXISTING SANITARY SEWER
	PROPOSED SANITARY SEWER
	EXISTING STORM SEWER
	PROPOSED STORM SEWER
	EXISTING WATERMAIN
	EXISTING LIGHT POLES
	PROPOSED LIGHT POLES
	PROPOSED ASPHALT
	EXISTING CONCRETE SURFACE
	EXISTING BIT SURFACE
	EXISTING FENCE LINE
	UNDERGROUND ELECTRIC LINE
	UNDERGROUND GAS LINE
	UNDERGROUND TELEPHONE LINE
	UNDERGROUND CABLE T.V. LINE
	OVERHEAD ELECTRICAL WIRES
	EXISTING DECIDUOUS TREES
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	EXISTING SIGN
	EXISTING UTILITY POWER POLE
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	PROPOSED FLOW ARROW
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	PROPOSED MODIFIED CURB AND GUTTER
	PROPOSED TOP OF CURB ELEVATION
	PROPOSED FINISH SURFACE ELEVATION
	PROPOSED TOP OF WALK ELEVATION



**PROPOSED ON SITE DETENTION**

DETENTION AREA VOLUME #1 -	1,039 CFT
DETENTION AREA VOLUME #2 -	305 CFT
DETENTION AREA VOLUME #3 -	345 CFT
DETENTION AREA VOLUME #4 -	248 CFT
PIPE VOLUME -	429 CFT
STRUCTURE VOLUME -	227 CFT
TOTAL VOLUME -	2,593 CFT

**BORE AND JACK NOTE**

THE STORM WATER CASING SHALL CONSIST OF FURNISHING AND PLACING A 30" EPOXY COATED STEEL CASING PIPE WITH A MINIMUM WALL THICKNESS OF 1/4 (0.25) INCH 5' BEHIND THE CURB ON EACH SIDE OF THE ROADWAY. ALL JOINTS ON THE CASING PIPE SHALL BE WELDED. THE BORE PIT SHALL BE PROTECTED WITH STEEL SHEET PILING TO MINIMIZE DAMAGE TO THE SURROUNDING AREAS. THE BORING SHALL BE COMPLETED IN ACCORDANCE WITH M.D.O.T. "PROVISIONS FOR BORE AND JACK CONSTRUCTION IN CONNECTION WITH PERMIT OPERATIONS". THE ANNUAL SPACE BETWEEN THE STORM SEWER PIPE AND CASING SHALL BE FILLED WITH PEA STONE. BOTH ENDS OF THE CASING SHALL BE BULKHEADED WITH 12" OF COMMERCIAL GRADE CONCRETE. THE STORM SEWER PIPE SHALL BE INSTALLED IN THE CENTER OF THE CASING PIPE WITH CASING SPACERS (WOOD SPACERS WILL NOT BE ALLOWED). THE METHOD OF PLACEMENT OF THE STORM SEWER WITHIN THE CASING PIPE SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

**UTILITY CONTACTS**

<b>TELEPHONE</b> AT & T CITY OF MIDLAND 333 W. ELLSWORTH ST. MIDLAND, MICHIGAN 48640 (989) 837-3300	<b>GAS AND ELECTRIC</b> CONSUMERS ENERGY 2400 WEISS STREET SAGINAW, MICHIGAN 48602 KEVIN COUTURIER - GAS DIV. (989) 791-5885 GREG AUGUSTINE ELEC. DIV. (989) 791-5353
<b>ZONING</b> CITY OF MIDLAND 333 W. ELLSWORTH ST. MIDLAND, MICHIGAN 48640 (989) 837-3300	<b>WATER DEPT.</b> CITY OF MIDLAND 333 W. ELLSWORTH ST. MIDLAND, MICHIGAN 48640 ANDY PARROT (989) 837-3348
<b>WASTE WTR. DEPT.</b> CITY OF MIDLAND 333 W. ELLSWORTH ST. MIDLAND, MICHIGAN 48640 STEVE SMITH (989) 837-3504	<b>ENGINEERING DEPT.</b> CITY OF MIDLAND 333 W. ELLSWORTH ST. MIDLAND, MICHIGAN 48640 JOSH FEDRICKSON (989) 837-3352
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<b>STORM SEWER</b> MIDLAND COUNTY ROAD COMM. ENGINEERING DEPT. 2334 NORTH MERIDIAN RD. MIDLAND, MICHIGAN 48657 (989) 687-9060	<b>DRAIN</b> MIDLAND COUNTY DRAIN COMM. ENGINEERING DEPT. 220 W. ELLSWORTH ST. MIDLAND, MICHIGAN 48640 (989) 832-6770

**BENCHMARKS**

B.M. #1 - TOP OF RIM ON MANHOLE AT THE SOUTHEAST CORNER OF JOE MANN BLVD. AND ACCESS DRIVE.	CITY OF MIDLAND ELEV. 637.13
B.M. #2 - ARROW ON HYDRANT LOCATED AT THE NORTHWEST CORNER OF PROPERTY.	CITY OF MIDLAND ELEV. 640.50
B.M. #3 - TOP OF NUT ON HYDRANT LOCATED AT THE NORTHEAST CORNER OF PROPERTY.	CITY OF MIDLAND ELEV. 643.80
B.M. #4 - TOP OF NUT ON HYDRANT LOCATED NORTH OF THE NORTH PROPERTY LINE.	CITY OF MIDLAND ELEV. 645.31
B.M. #5 - TOP OF NUT ON HYDRANT LOCATED AT THE SOUTHEAST CORNER OF PROPERTY.	CITY OF MIDLAND ELEV. 643.04



**LUCKY'S STEAKHOUSE**  
JOE MANN BLVD.  
SECTION 33, T1EN-RE  
CITY OF MIDLAND  
MIDLAND COUNTY, MI

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401 BALSAM STREET, PO BOX 159, CARROLLTON, MICHIGAN 48724  
Phone: (989) 752-0884 FAX: (989) 752-0880

**C3.2**  
2015.358

PROJECT LOG

STARTUP COMMISSION SUBMITTAL	8/30/15
STAMPING SUBMITTAL	11/20/15
PLANNING COMMISSION SUBMITTAL	11/20/15
DESIGNED BY: SAL	1/7/16
DRAWN BY: M.M.D.	1/29/16
REVISION - ADDED JOE MANN ACCESS	1/29/16
CITY OF MIDLAND FC RESUBMITTAL - NEW DRIVE	1/29/16
STORMWATER SUBMITTAL	2/2/16

PREPARED UNDER THE SUPERVISION OF:

FILE: 2015-358\_REV\_1-7-16

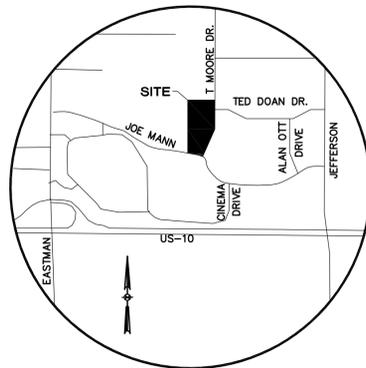
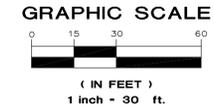
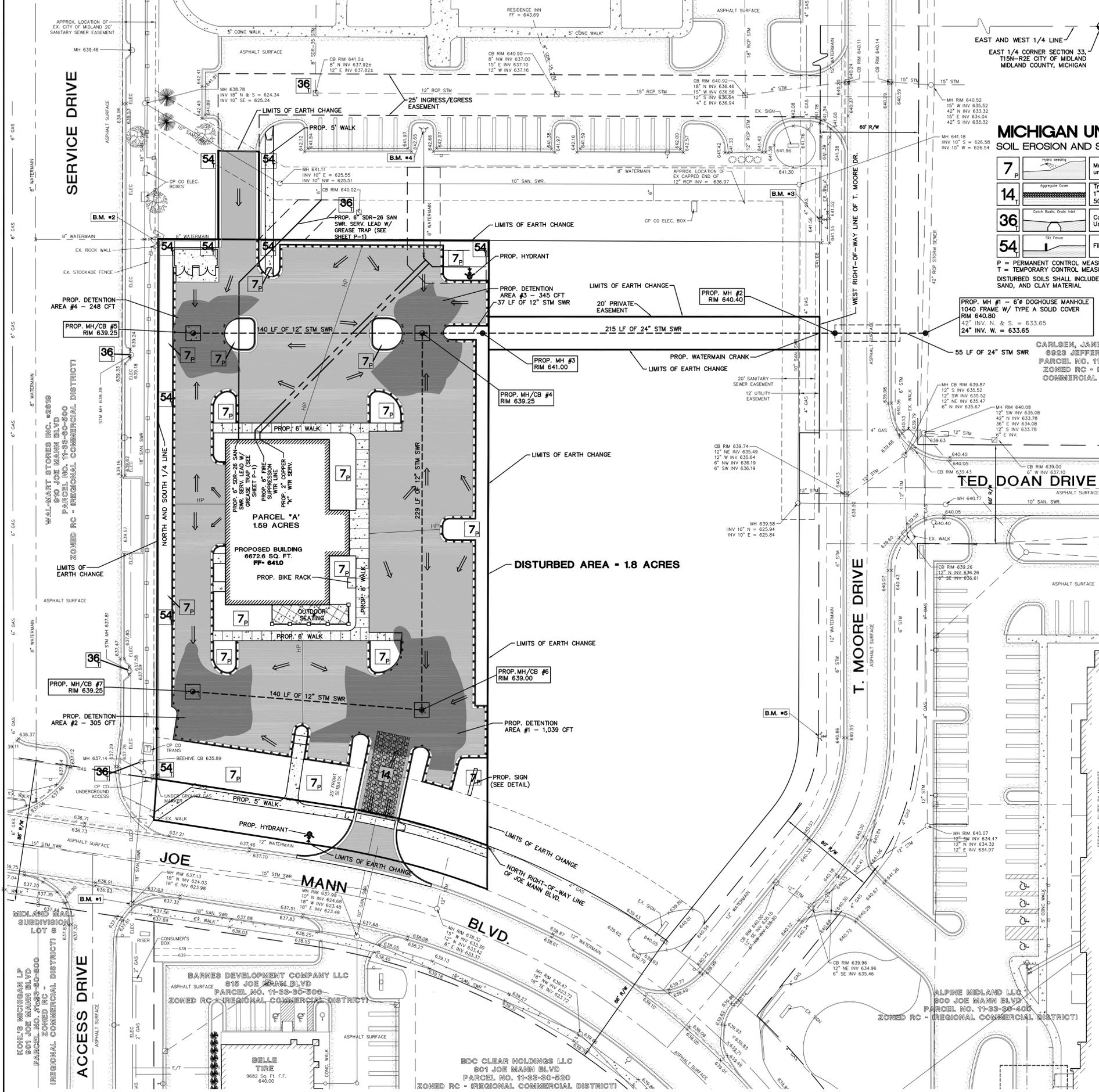
PROJECT MGR: JDM

SCALE: 1"=30'

SHEET: 5 OF 13

UTILITY PLAN

RI HOSPITALITY LLC  
850 JOE MANN BLVD  
PARCEL NO. 11-33-30-460  
ZONED RC - (REGIONAL COMMERCIAL DISTRICT)



### MICHIGAN UNIFIED KEYING SYSTEM SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

- 7<sub>P</sub>** Mulch tackling agent used to provide immediate protection until grass is rooted. Should include prepared topsoil bed.
- 14<sub>T</sub>** Tracking Mat - Replenish stone as required due to rutting. 1'-3" crushed concrete 8" thick on geo-fabric. 30' wide by 50' long. Temporary measure, remove after completion of construction.
- 36** Collects high velocity concentrated runoff. Use Silt-Sac
- 54** Filters and detains runoff.

P = PERMANENT CONTROL MEASURE  
T = TEMPORARY CONTROL MEASURE  
DISTURBED SOILS SHALL INCLUDE TOPSOIL, SAND, AND CLAY MATERIAL.



#### UTILITY CONTACTS

<b>TELEPHONE</b> AT & T 2400 ENGINEERING DEPARTMENT ROOM 525A 309 S. WASHINGTON AVE. SAGINAW, MICHIGAN 48607 ROB AUGUSTINE (989) 771-5404	<b>GAS AND ELECTRIC</b> CONSUMERS ENERGY 2400 WEISS STREET SAGINAW, MICHIGAN 48602 KEVIN COUTURIER - GAS DIV. (989) 791-5885 GREG SQUANDA ELEC. DIV. (989) 791-5353
<b>ZONING</b> CITY OF MIDLAND 333 W. ELLSWORTH ST. MIDLAND, MICHIGAN 48640 (989) 837-3300	<b>WATER DEPT.</b> CITY OF MIDLAND 333 W. ELLSWORTH ST. MIDLAND, MICHIGAN 48640 ANDY PARROT (989) 837-3348
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<b>STORM SEWER</b> MIDLAND COUNTY ROAD COMM. ENGINEERING DEPT. 2334 NORTH MERIDIAN RD. MIDLAND, MICHIGAN 48657 (989) 687-9060	<b>DRAIN</b> MIDLAND COUNTY DRAIN COMM. ENGINEERING DEPT. 220 W. ELLSWORTH ST. MIDLAND, MICHIGAN 48640 (989) 832-6770

#### LEGEND

MONUMENT / SECTION CORNER
FOUND PROPERTY IRON
SET PROPERTY IRON
EXISTING CATCHBASIN
PROPOSED CATCHBASIN
EXISTING MANHOLE/CATCHBASIN
PROPOSED MANHOLE/CATCHBASIN
EXISTING MANHOLE
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PROPOSED TOP OF CURB ELEVATION
PROPOSED FINISH SURFACE ELEVATION
PROPOSED TOP OF WALK ELEVATION

#### SOIL EROSION AND SEDIMENTATION CONTROL OPERATION TIME SCHEDULE

CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
STRIP & STOCKPILE TOPSOIL / ROUGH GRADE												
TEMPORARY EROSION CONTROL MEASURES												
INSTALL SANITARY SEWER SYSTEM												
INSTALL STORM SEWER w/ REARLOT + DETENTION												
INSTALL WATERMAIN												
ROADWAY, CURB/GUTTER, & PAVEMENT												
PERMANENT EROSION CONTROL MEASURES												
FINISH GRADING												

#### SOIL EROSION AND SEDIMENTATION CONTROL MAINTENANCE SCHEDULE

TASK	FREQUENCY	TRACKING MAT	SILT FENCE	INLET FILTERS	STORM SEWER	CB SUMPS	VEGETATION
INSPECT FOR SEDIMENT ACCUMULATION	WEEKLY	X	X	X	X	X	X
REMOVE ACCUMULATED SEDIMENT	AS NEEDED						
INSPECT FOR FLOATABLES AND DEBRIS	WEEKLY		X	X	X	X	X
REMOVE FLOATABLES AND DEBRIS	AS NEEDED						
INSPECT FOR PERMIT CONFORMANCE	AFTER RAIN	X	X	X	X	X	X
RESTORE TO PERMIT CONFORMANCE	AS NEEDED	X	X	X	X	X	X
INSPECT FOR SOIL EROSION	AFTER RAIN						X
RESTORE TO PREVENT EROSION	AS NEEDED						X
SCRAPE STREET	DAILY						
SWEEP PINE ROAD AS NECESSARY	WEEKLY						
FOR TRACK OUT							

STORM WATER CONSTRUCTION SITE MANAGEMENT TO BE ADMINISTERED BY SCOTT A. LENHART, OPERATOR #C-11110

PREPARED UNDER THE SUPERVISION OF:

PROJECT LOG	9-30-15
STARTUP CONSTRUCTION SUBMITTAL	11-20-15
STORMWATER SUBMITTAL	11/20/15
PLANNING COMMISSION RESUBMITTAL	1/7/16
DESIGNED BY: SAL	M.M.D.
DRAWN BY: M.M.D.	1/29/16
REVISION - ADDED JOE MANN ACCESS	1/29/16
CITY OF MIDLAND FC RESUBMITTAL - NEW DRIVE	1/29/16
STORMWATER SUBMITTAL	2/2/16

FILE: 2015-358\_REV\_1-7-16

PROJECT MGR: JDM

DESIGNED BY: SAL

DRAWN BY: M.M.D.

CHECKED BY:

SCALE: 1"=30'

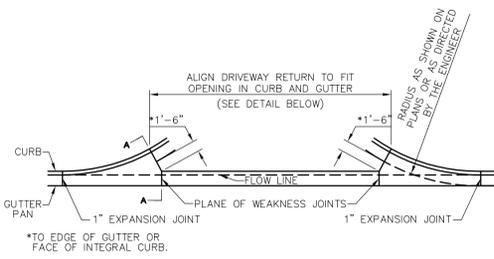
SHEET: 6 OF 13

**LUCKY'S STEAKHOUSE**  
LUCKY VASILAKIS  
5281 BARRINGTON DRIVE  
ROCHESTER, MI 48306  
(248) 379-2106

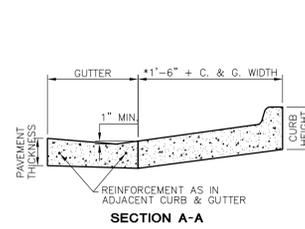
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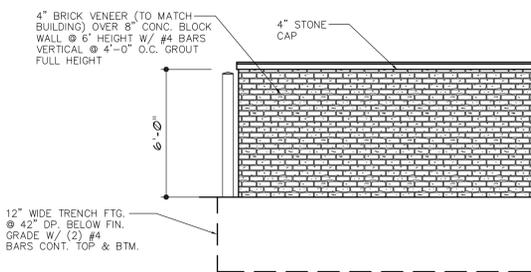
**C3.3**  
2015.358



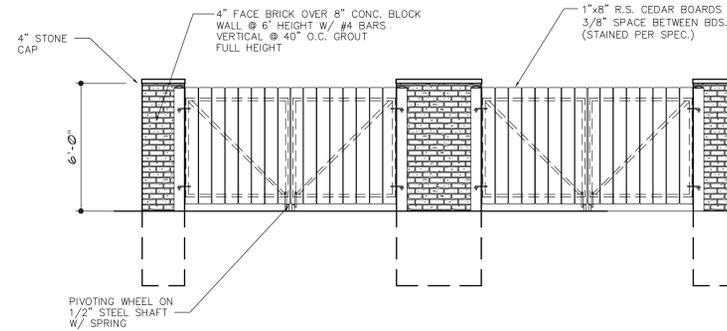
**MDOT CONCRETE DRIVEWAY OPENING-DETAIL M**  
NO SCALE



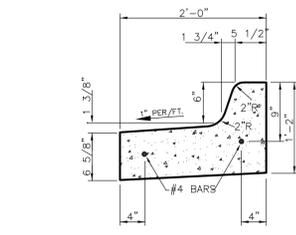
**SECTION A-A**



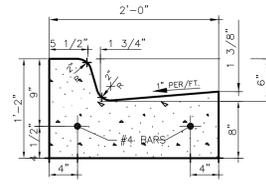
**TRASH ENCLOSURE SIDE ELEVATION**  
SCALE: 1/4" = 1'-0"



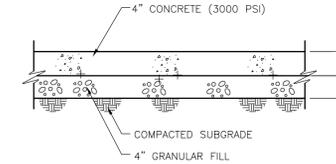
**TRASH ENCLOSURE FRONT ELEVATION**  
SCALE: 1/4" = 1'-0"



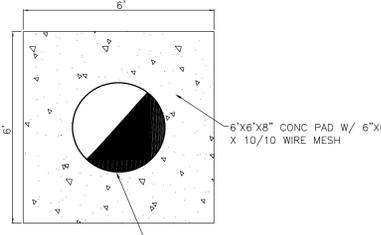
**CONCRETE CURB & GUTTER DETAIL M.D.O.T. F-4 MODIFIED**  
NO SCALE



**CONCRETE CURB & GUTTER DETAIL M.D.O.T. F-4**  
NO SCALE

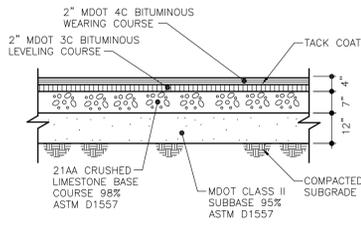


**CONCRETE WALK**  
NO SCALE

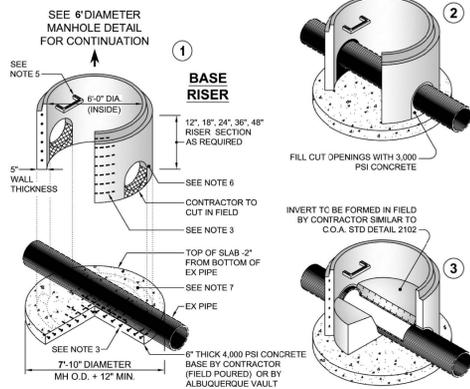


**MANHOLE / CATCHBASIN CONCRETE SLAB**  
NOT TO SCALE

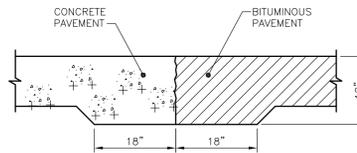
- GENERAL NOTES:**
1. Manhole design specifications conform to latest ASTM C478 specifications for "Precast Reinforced Concrete Manhole Sections" and MDOT or C.O.A.
  2. Concrete compressive strength 4,000 psi minimum.
  3. Steel reinforcing designed to conform to the requirements of ASTM C478 or per C.O.E. conforming to the requirements of ASTM A615 or WWF conforming to the requirements of ASTM A185 or drawn wire conforming to the requirements of ASTM A62 or a combination thereof.
  4. Additional reinforcing at all openings.
  5. Steps shall be steel reinforced copolymer polypropylene and meet the requirements of ASTM C478. See typical step detail.
  6. Pipe penetration to be per job requirements. Pipe to be installed by contractor.
  7. Joints to be sealed with preformed butyl rubber joint sealant meeting requirements of ASTM C890. See typical manhole section joint detail.



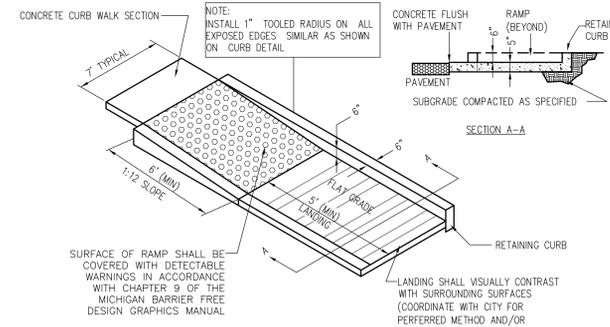
**HMA ACCESS DRIVE SECTION**  
NO SCALE



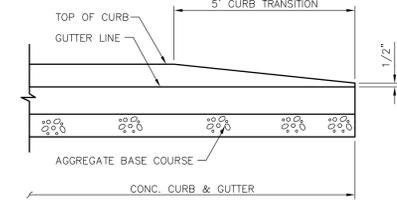
**MH #1: 6\"/>**



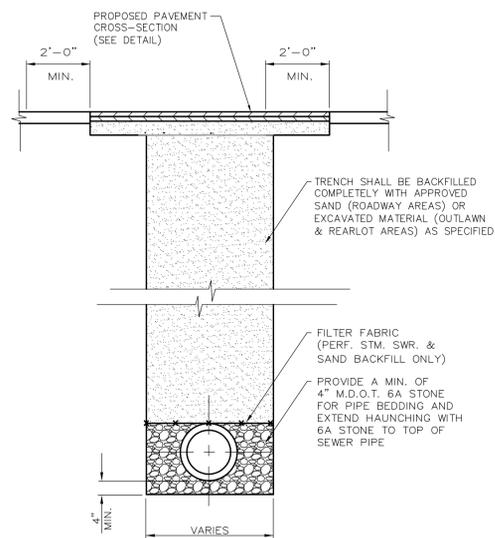
**TURNDOWN PAVEMENT SECTION**  
NO SCALE



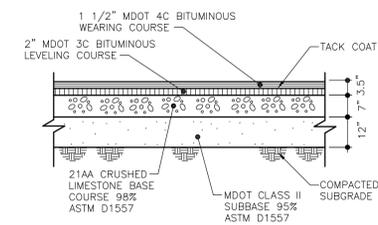
**BARRIER FREE RAMP**  
NO SCALE



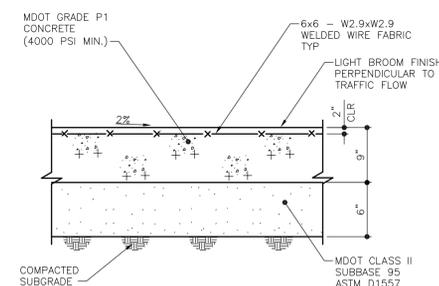
**TYPICAL CURB END TRANSITION**  
NO SCALE



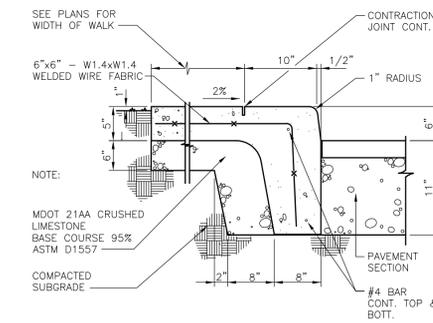
**D.W.P.E., P.E., PVC AND A/D 2000 SEWER TRENCH DETAIL**  
SCALE: 1/2"=1'-0"



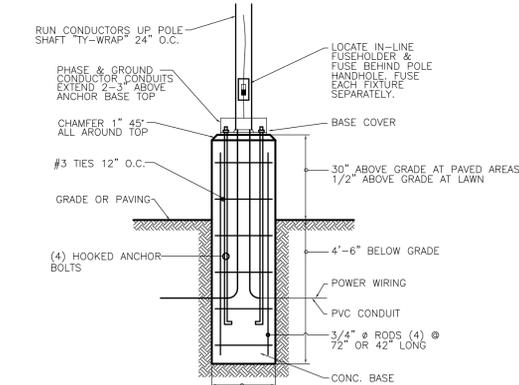
**HMA PARKING LOT SECTION**  
NO SCALE



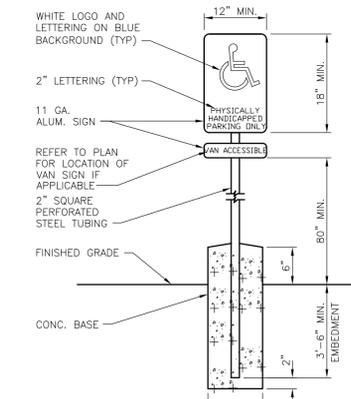
**CONCRETE DUMPSTER PAD**  
NO SCALE



**CONCRETE CURB WALK**  
NO SCALE



**ANCHOR BASE DETAIL FOR LIGHT POLES**  
NOT TO SCALE



**TYPICAL HANDICAP SIGN**  
NO SCALE

PREPARED UNDER THE SUPERVISION OF:

STARTUP SUBMITTAL	9-30-15
CONSTRUCTION SUBMITTAL	11-20-15
STORMWATER SUBMITTAL	11/20/15
PLANNING COMMISSION RESUBMITTAL	11/20/15
DESIGNED BY:	SAL
DRAWN BY:	M.M.D.
CHECKED BY:	1/29/16
SCALE:	1/29/16
PROJECT LOG	2/22/16

FILE: 2015-358\_REV.1-7-16

PROJECT MGR: JDM

DESIGNED BY: SAL

DRAWN BY: M.M.D.

CHECKED BY: 1/29/16

SCALE: 1/29/16

SHEET: 7 OF 13

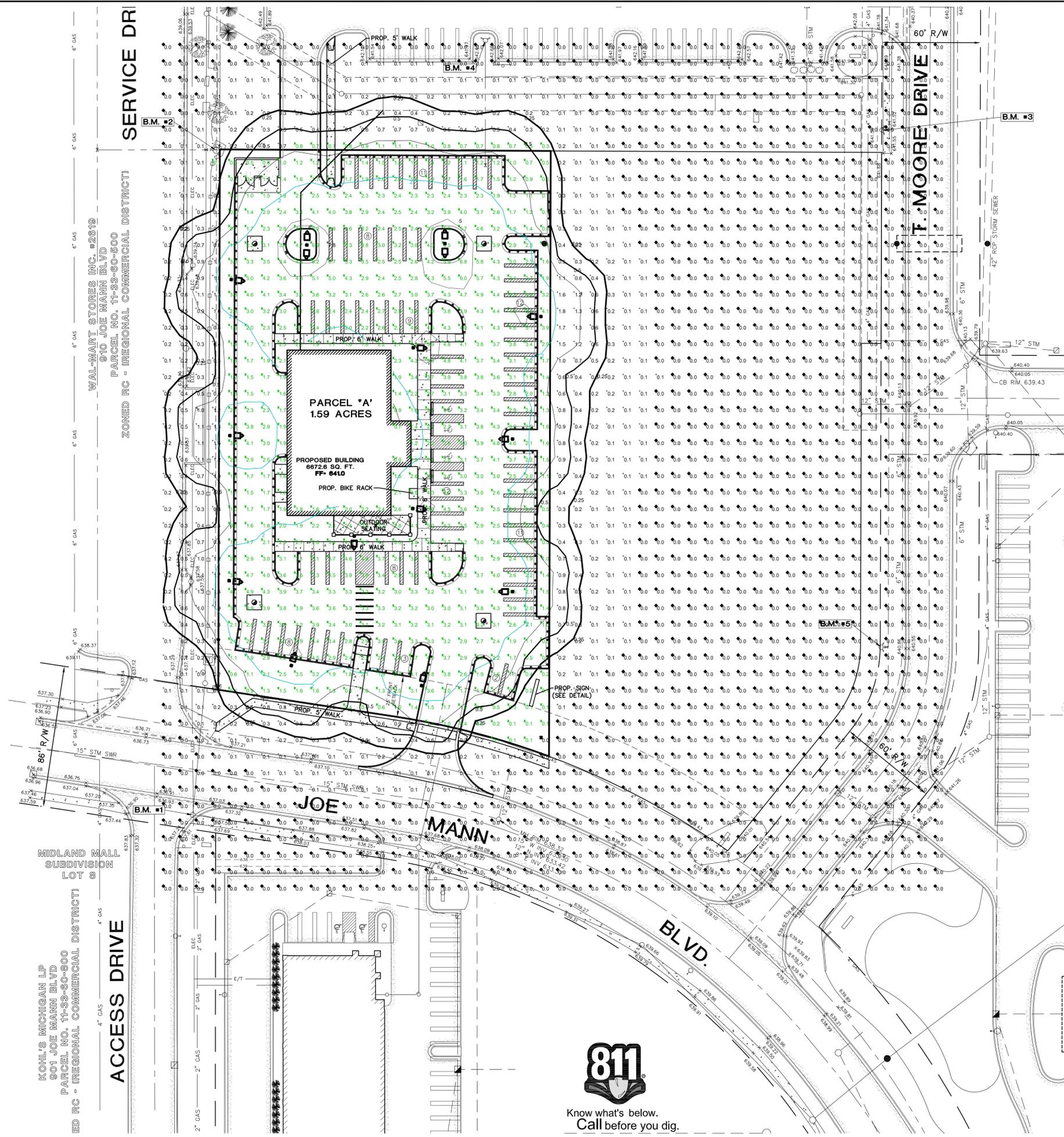
**LUCKY'S STEAKHOUSE**  
LUCKY VASILAKIS  
5281 BARRINGTON DRIVE  
ROCHESTER, MI 48306  
(248) 379-2106

**LUCKY'S STEAKHOUSE**  
JOE MANN BLVD.  
SECTION 99, TIER 2  
CITY OF MIDLAND  
MIDLAND COUNTY, MI

DETAIL SHEET

**D&M SITE INC.**  
Surveying • Inspection • Testing • Engineering  
401 BALSAM STREET PO BOX 159, CARROLLTON, MICHIGAN 48724  
PHONE: (989) 752-0860 • FAX: (989) 752-0860





KOHL'S MICHIGAN LP  
 501 JOE MANN BLVD  
 PARCEL NO. 11-33-60-800  
 ED RC - REGIONAL COMMERCIAL DISTRICT

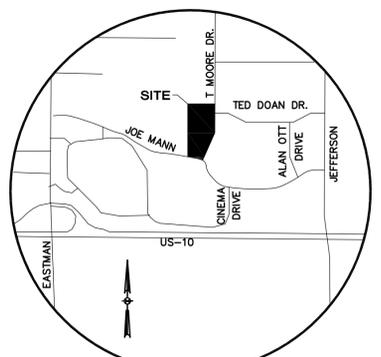
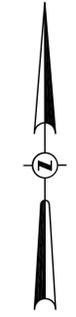
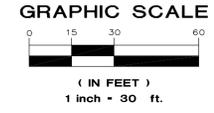
ACCESS DRIVE

WAL-MART STORES INC. #2610  
 910 JOE MANN BLVD  
 PARCEL NO. 11-33-60-500  
 ZONED RC - REGIONAL COMMERCIAL DISTRICT

SERVICE DRIVE



Know what's below.  
 Call before you dig.



LOCATION MAP  
 NOT TO SCALE



**D-Series Size 1  
 LED Area Luminaire**

**Specifications**  
 Size: 24" x 24"  
 Length: 24"  
 Width: 24"  
 Height: 2.5"  
 Weight (max): 15 lbs

**Ordering Information**

Order #	Qty	Manufacturer	Part Number	Part Name	Notes	Order #	Qty	Manufacturer	Part Number	Part Name	Notes
951818	1	LED	DSX1	LED 40C	1000 50K TFTM MVOLT	951818	1	LED	DSX1	LED 40C	1000 50K TFTM MVOLT



**STATISTICS**

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #2	+	0.8 fc	7.8 fc	0.0 fc	N/A	N/A
Lucky's Site Area	X	2.7 fc	7.8 fc	0.0 fc	N/A	N/A

**LUMINAIRE LOCATIONS**

No.	Label	X	Y	Z	MH	Orientation	Tilt	X	Aim Y	Z
1	A	44.5	14.6	20.0	20.0	16.3	0.0	44.8	15.7	0.0
2	A	123.9	2.4	20.0	20.0	11.7	0.0	124.1	3.5	0.0
3	A	7.1	153.9	20.0	20.0	90.4	0.0	8.2	153.9	0.0
4	B	65.7	269.4	20.0	20.0	181.8	0.0			
5	B	145.1	270.3	20.0	20.0	0.0	0.0			
6	A	196.5	226.1	20.0	20.0	-89.6	0.0	195.3	226.1	0.0
7	A	118.8	207.2	20.0	20.0	91.6	0.0	119.9	207.1	0.0
8	A	118.5	109.7	20.0	20.0	93.7	0.0	119.6	109.6	0.0
9	A	8.0	248.5	20.0	20.0	96.9	0.0	9.1	248.3	0.0
10	A	82.8	93.0	20.0	20.0	181.0	0.0	82.8	91.9	0.0
11	A	6.6	66.0	20.0	20.0	96.5	0.0	7.8	65.9	0.0
12	A	179.2	151.6	20.0	20.0	-90.0	0.0	178.1	151.6	0.0
13	A	179.2	59.4	20.0	20.0	269.5	0.0	178.1	59.4	0.0

**LUMINAIRE SCHEDULE**

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
A	A	11	DSX1 LED 40C C_1000_50K_TFTM MVOLT	DSX1 LED WITH (2) 20 LED LIGHT ENGINES, TYPE TFTM OPTIC, 5000K, @ 700mA	LED	DSX1_LED_40 C_1000_50K_T FTM_MVOLT.J 65	Absolute	1.00	138
B	B	2	DSX1 LED 40C 1000 50K TFTM MVOLT	DSX1 LED WITH (2) 20 LED LIGHT ENGINES, TYPE TFTM OPTIC, 5000K, @ 700mA	LED	DSX1_LED_40 C_1000_50K_T FTM_MVOLT.J 65	Absolute	1.00	276

**PROJECT LOG**

START/AS CONSTRUCTION SUBMITTAL	9/30/15
STORMWATER SUBMITTAL	11/20/15
PLANNING COMMISSION RESUBMITTAL	11/20/15
DESIGNED BY: SAL	1/7/16
DRAWN BY: M.MKD.	1/29/16
CHECKED BY: J. MANN	1/29/16
CITY OF MIDLAND FC RESUBMITTAL - NEW DRIVE	1/29/16
STORMWATER SUBMITTAL	2/2/16

FILE: 2015-358\_REV\_1-7-16  
 PROJECT MGR: JDM  
 DESIGNED BY: SAL  
 DRAWN BY: M.MKD.  
 CHECKED BY: J. MANN  
 SCALE: 1"=30'  
 SHEET: 9 OF 13

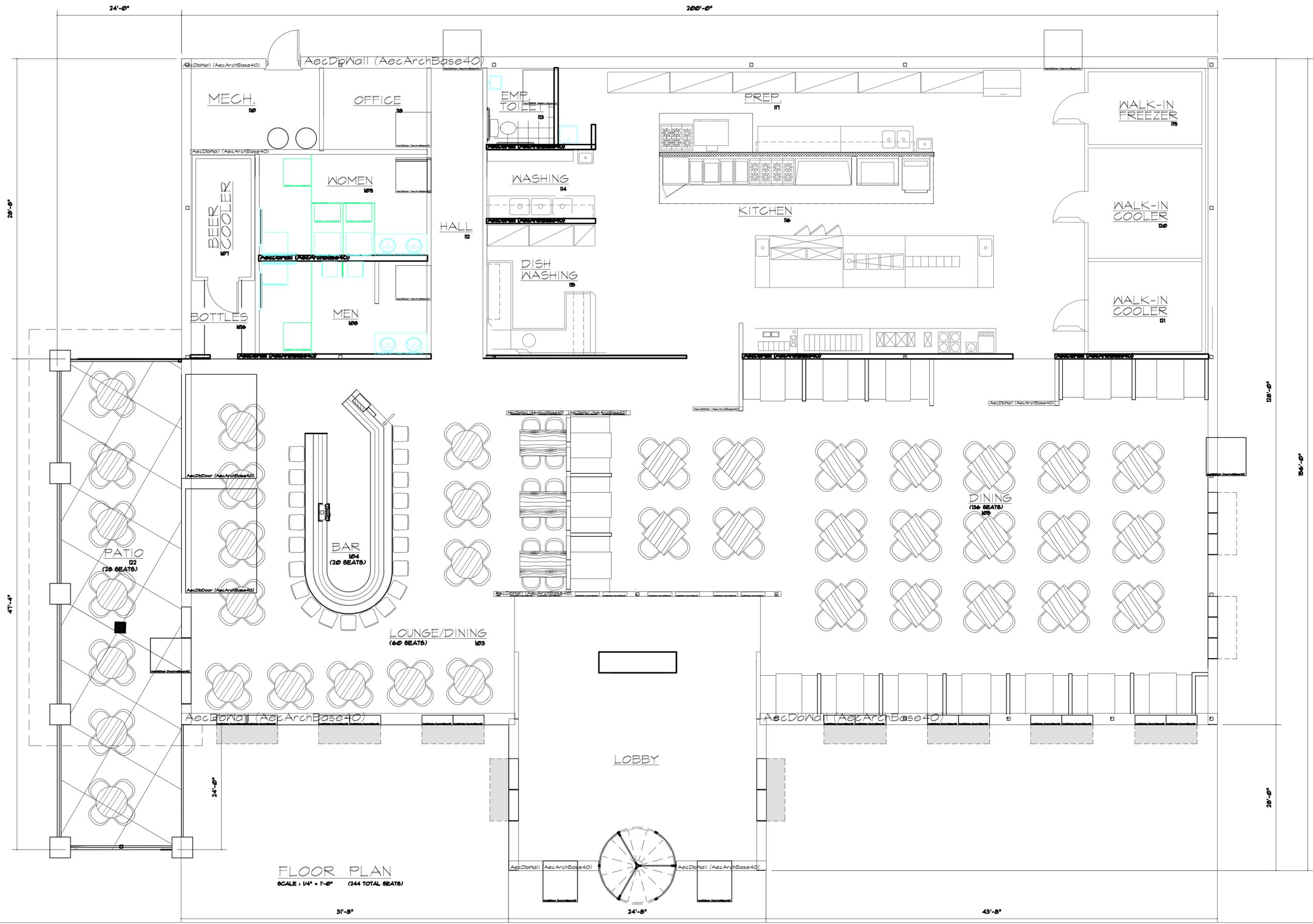
**LUCKY'S STEAKHOUSE**  
**LUCKY VASILAKIS**  
 5281 BARRINGTON DRIVE  
 ROCHESTER, MI 48306  
 (248) 379-2106

**LUCKY'S STEAKHOUSE**  
**JOE MANN BLVD.**  
 SECTION 99, TIER 2E  
 CITY OF MIDLAND  
 MIDLAND COUNTY, MI

**D&M SITE INC.**  
 Surveying • Inspection • Testing • Engineering  
 401 BALSAM STREET PO BOX 159, CARROLLTON, MICHIGAN 48724  
 Phone: (989) 752-0860 • Fax: (989) 752-0860

**C5.0**  
 2015.358

PHOTOMETRIC PLAN



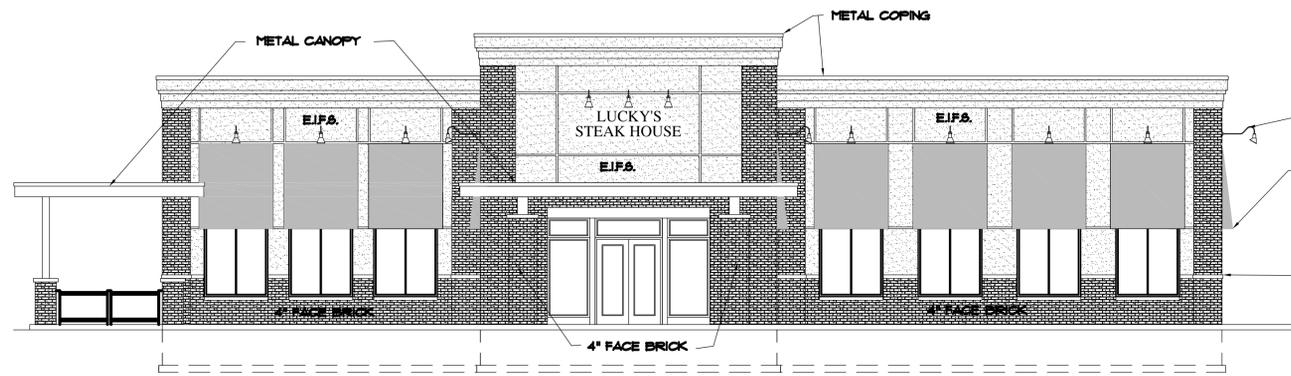
FLOOR PLAN  
SCALE: 1/4" = 1'-0" (244 TOTAL SEATS)

PROJECT: **NEW LUCKY'S STEAKHOUSE**  
 DRAWN BY: J.S.B.  
 CHECKED BY: R.A.S.  
 JOB NO.: 11052  
 DATE: 12 NOV. 15  
 SHEET NO.: **A1** of 2

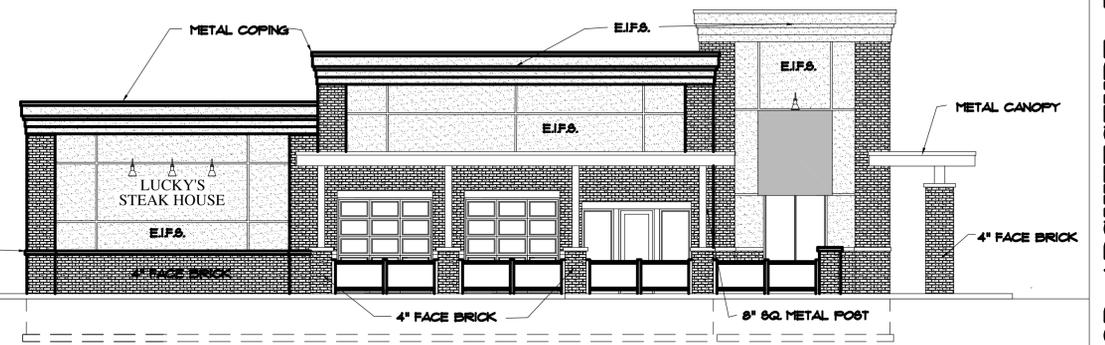
SHEET TITLE: FLOOR PLAN

CREEKWOOD ARCHITECTURE, INC.  
 burton, michigan 48609  
 tel. (810) 742-0480 fax (810) 742-8393

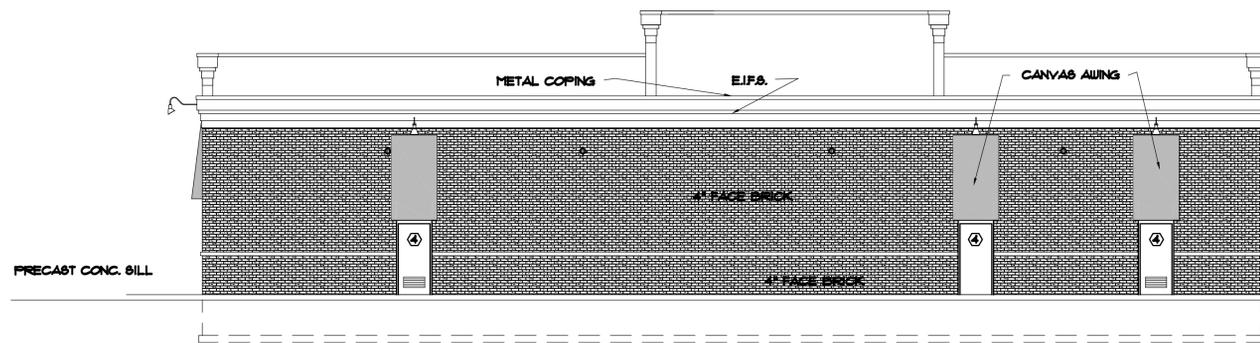
REVISIONS



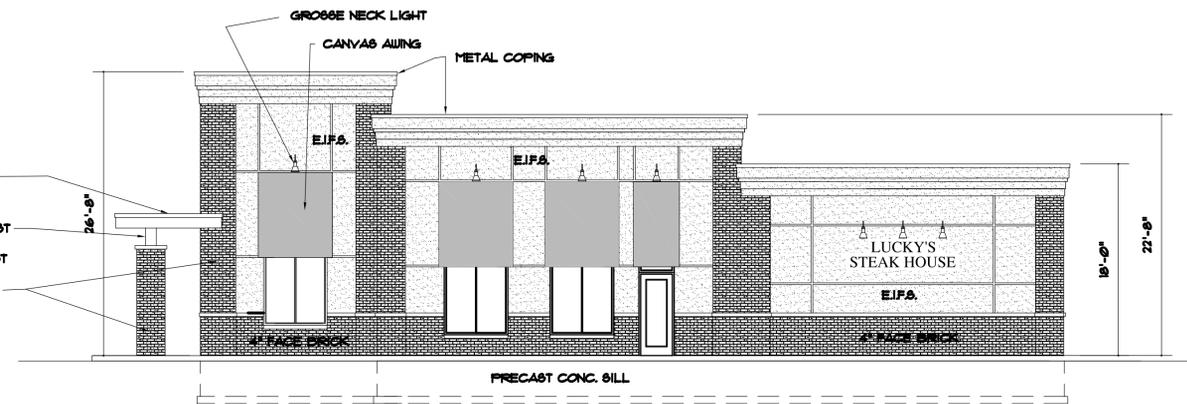
**EAST ELEVATION**  
SCALE: 1/8" = 1'-0"



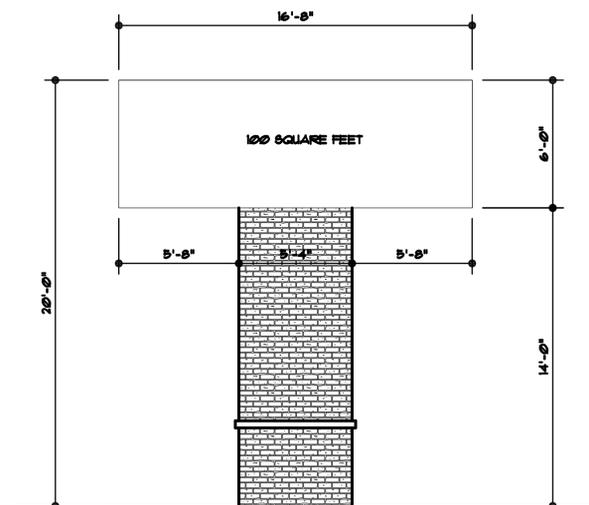
**SOUTH ELEVATION**  
SCALE: 1/8" = 1'-0"



**WEST ELEVATION**  
SCALE: 1/8" = 1'-0"



**NORTH ELEVATION**  
SCALE: 1/8" = 1'-0"



**SIGN DETAIL**  
SCALE: 1/4" = 1'-0"

REVISIONS

**CREEKWOOD ARCHITECTURE, INC.**  
burton, michigan 48609  
1.11.11 s. creekwood  
tel. (810) 742-0480 fax (810) 742-8393

SHEET TITLE  
PROPOSED ELEVATIONS

PROJECT  
**NEW LUCKY'S STEAKHOUSE**  
DRAWN BY: J.S.B.  
CHECKED BY: J.S.B.

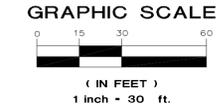
JOB NO. 15052  
DATE 12 OCT 15  
SHEET NO.

**A2**  
2

RI HOSPITALITY LLC  
850 JOE MANN BLVD  
PARCEL NO. 11-33-30-460  
ZONED RC - (REGIONAL COMMERCIAL DISTRICT)

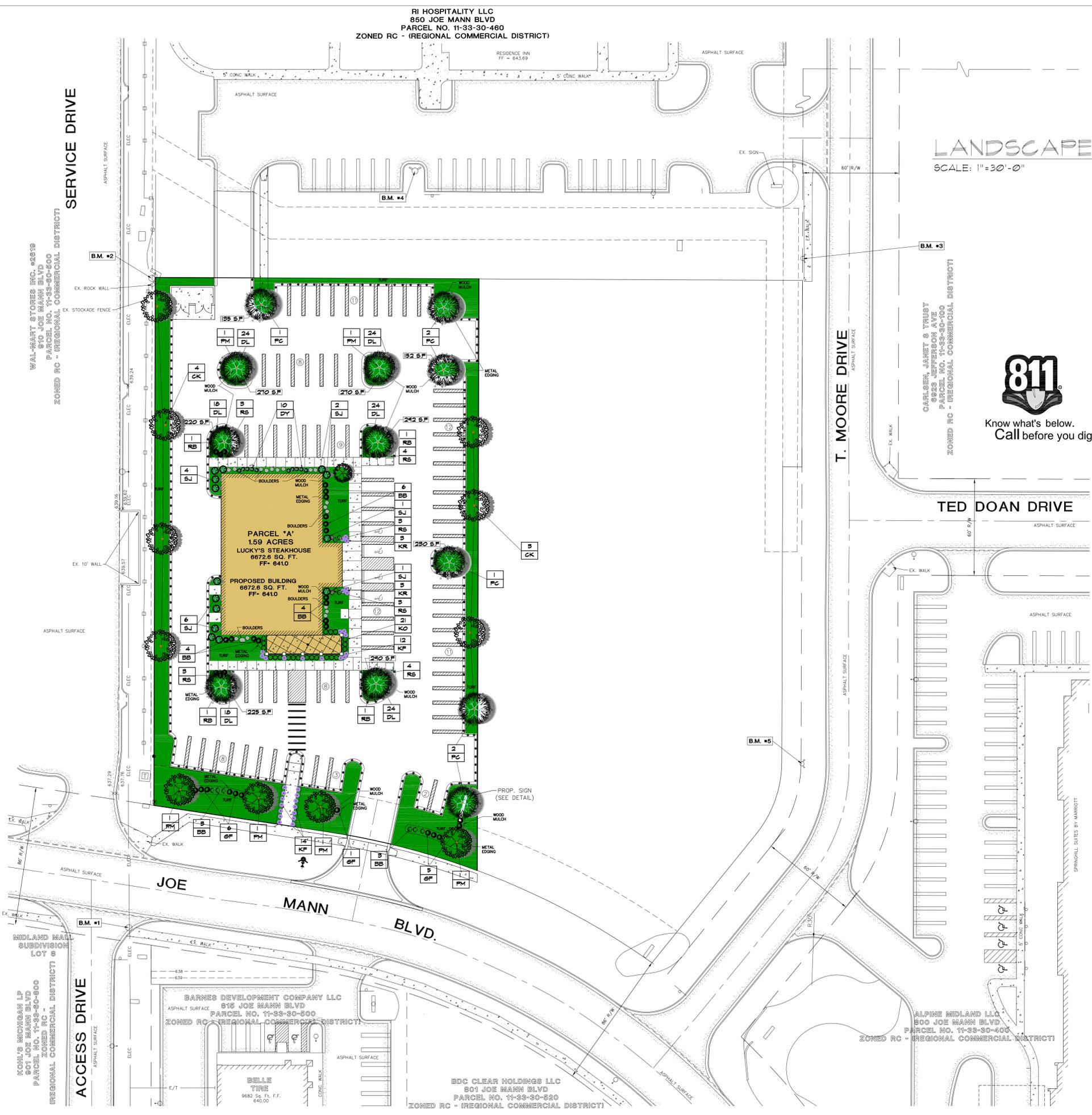
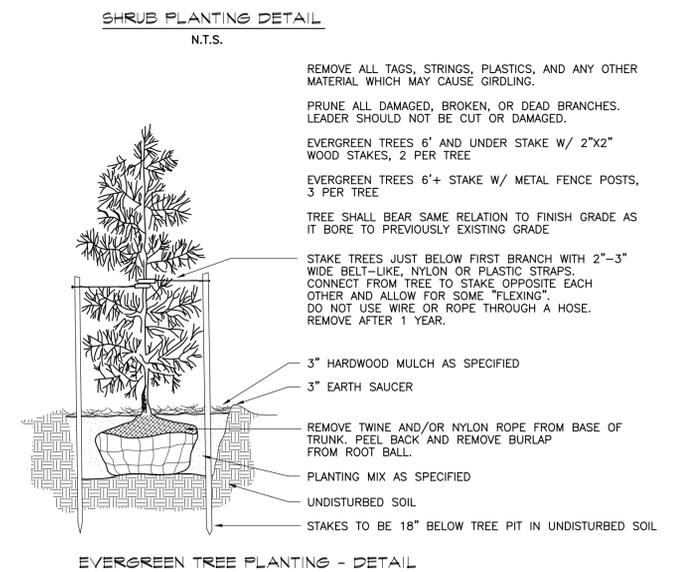
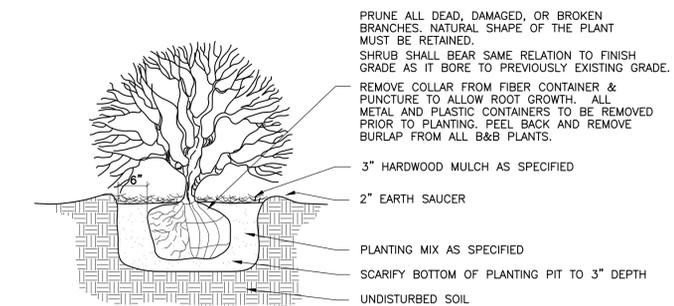
# LANDSCAPE PLAN

SCALE: 1" = 30'-0"



## LANDSCAPE LEGEND

QTY.	BOTANICAL / COMMON NAME	SIZE	SPACING	ROOT	COMMENTS
<b>TREES</b>					
FB	6 ACER GRiseum - PAPERBARK MAPLE	23" CAL.	AS SHOWN	B&B	
CK	7 ACER PLATANOIDES - "CRIMSON SENTRY" CRIMSON SENTRY NORWAY MAPLE	23" CAL.	AS SHOWN	B&B	
PC	6 PRYUS CALLERYANA "SLEN FORM" PP2484 PEAR "CHANTLEEN"	23" CAL.	AS SHOWN	B&B	
RB	4 CERCIS CANADENSIS "FOREST PANSY" FOREST PANSY REDBUD	23" CAL.	AS SHOWN	B&B	
SJ	14 JINIPERUS CHINENSIS - "SPARTAN" SPARTAN JUNIPER	4'-5' HT.	AS SHOWN	CONT.	
<b>SHRUBS</b>					
RS	20 PEROVSKIA ATRIFLIGIFOLIA RUSSIAN SAGE	2 GAL	30" O.C.	CONT.	
KO	21 ROSE, SHRUB, DOUBLE KNOCKOUT PP16202	2 GAL	30" O.C.	CONT.	
GF	12 SPIREA X BUMALDA - "GOLDFLAME" GOLDFLAME SPIREA	2 GAL	30" O.C.	CONT.	
BB	20 BUONYS ALATA - "COMPACTA" DYARF BURNING BUSH	2 GAL	30" O.C.	CONT.	
DY	10 TAXUS X MEDIA DENSIFORMIS DENSE SPREADING YEW	2 GAL	30" O.C.	CONT.	
<b>GROUND COVERS/ PERENNIALS/ ORNAMENTAL GRASSES</b>					
KP	26 CALAMAGROSTIS ACUTIFLORA "KARL FOERSTER" RUSSIAN SAGE	2 GAL	30" O.C.	CONT.	
KR	6 PENNSETUM ORIENTAL "KARLEY ROSE PP2404 FOUNTAIN KARLEY ROSE	2 GAL	30" O.C.	CONT.	
RS	20 PEROVSKIA ATRIFLIGIFOLIA RUSSIAN SAGE	24-30"	30" O.C.	CONT.	
DL	152 HEMEROCALLIS - "HAPPY RETURNS" HAPPY RETURNS DAYLILY	2 GAL	2' O.C.	CONT.	
18	MICHIGAN BOULDERS	2'-3'			



REVISIONS

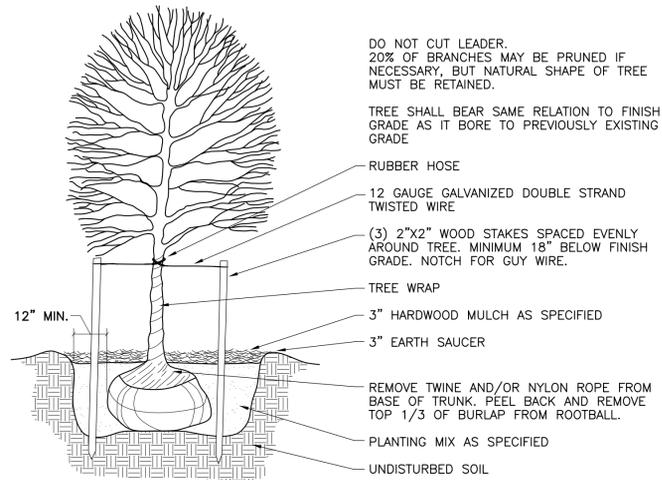
CREEKWOOD ARCHITECTURE, INC.  
burton, michigan 48509

1111 s. creekwood  
tel. (810) 742-0480  
fax (810) 742-6393

SHEET TITLE  
LANDSCAPE PLAN

PROJECT  
NEW LUCKY'S STEAKHOUSE  
DRAWN BY J.S.B.  
CHECKED BY R.A.S.

JOB NO. 15052  
DATE 12 NOV. 15  
SHEET NO. 11 OF 12



**DECIDUOUS TREE PLANTING - DETAIL**  
N.T.S.

DO NOT CUT LEADER.  
20% OF BRANCHES MAY BE PRUNED IF NECESSARY, BUT NATURAL SHAPE OF TREE MUST BE RETAINED.

TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE TO PREVIOUSLY EXISTING GRADE

RUBBER HOSE

12 GAUGE GALVANIZED DOUBLE STRAND TWISTED WIRE

(3) 2"x2" WOOD STAKES SPACED EVENLY AROUND TREE, MINIMUM 18" BELOW FINISH GRADE. NOTCH FOR GUY WIRE.

TREE WRAP

3" HARDWOOD MULCH AS SPECIFIED

3" EARTH SAUCER

REMOVE TWINE AND/OR NYLON ROPE FROM BASE OF TRUNK. PEEL BACK AND REMOVE TOP 1/3 OF BURLAP FROM ROOTBALL.

PLANTING MIX AS SPECIFIED

UNDISTURBED SOIL

REMOVE ALL TAGS, STRINGS, PLASTICS, AND ANY OTHER MATERIAL WHICH MAY CAUSE GIRDLING.

PRUNE ALL DAMAGED, BROKEN, OR DEAD BRANCHES. LEADER SHOULD NOT BE CUT OR DAMAGED.

EVERGREEN TREES 6' AND UNDER STAKE W/ 2"x2" WOOD STAKES, 2 PER TREE

EVERGREEN TREES 6'+ STAKE W/ METAL FENCE POSTS, 3 PER TREE

TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE TO PREVIOUSLY EXISTING GRADE

STAKE TREES JUST BELOW FIRST BRANCH WITH 2"-3" WIDE BELT-LIKE, NYLON OR PLASTIC STRAPS. CONNECT FROM TREE TO STAKE, OPPOSITE EACH OTHER AND ALLOW FOR SOME "FLEXING". DO NOT USE WIRE OR ROPE THROUGH A HOSE. REMOVE AFTER 1 YEAR.

3" HARDWOOD MULCH AS SPECIFIED

3" EARTH SAUCER

REMOVE TWINE AND/OR NYLON ROPE FROM BASE OF TRUNK. PEEL BACK AND REMOVE TOP 1/3 OF BURLAP FROM ROOT BALL.

PLANTING MIX AS SPECIFIED

UNDISTURBED SOIL

STAKES TO BE 18" BELOW TREE PIT IN UNDISTURBED SOIL

**EVERGREEN TREE PLANTING - DETAIL**

PRUNE ALL DEAD, DAMAGED, OR BROKEN BRANCHES. NATURAL SHAPE OF THE PLANT MUST BE RETAINED.

SHRUB SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE TO PREVIOUSLY EXISTING GRADE.

REMOVE COLLAR FROM FIBER CONTAINER & PUNCTURE TO ALLOW ROOT GROWTH. ALL METAL AND PLASTIC CONTAINERS TO BE REMOVED PRIOR TO PLANTING. PEEL BACK AND REMOVE TOP 1/3 OF BURLAP FROM ALL B&B PLANTS.

3" HARDWOOD MULCH AS SPECIFIED

2" EARTH SAUCER

PLANTING MIX AS SPECIFIED

SCARIFY BOTTOM OF PLANTING PIT TO 3" DEPTH

UNDISTURBED SOIL

**SHRUB PLANTING DETAIL**

N.T.S.

**HYDRO-SEEDING SPECIFICATIONS:**

1) THE CONTRACTOR SHALL REMOVE ALL WEEDS, STONES OVER 1" IN DIAMETER, ROOTS, BRUSH, STAKES, BUILDING MATERIAL AND OTHER DEBRIS.

2) AREAS INDICATED "TURF" SHALL BE HYDRO-SEEDED WITH A PUMP RATED AND OPERATED AT NO LESS THAN 100 GPM AND NO LESS THAN 100 PSI, WITH A MECHANICAL AGITATOR THAT WILL ENSURE UNIFORM SUSPENSION OF SEED AND FERTILIZER IN WATER. EACH 1000 GALLONS OF SLURRY MIX SHALL CONTAIN 1500 LBS. OF APPROVED CELLULOSE FIBER, 200 LBS. OF THE SPECIFIED SEED MIXTURE AND 500 LBS. OF AN APPROVED 12/12/12 COMMERCIAL FERTILIZER.

APPLY SEED AND FERTILIZER AT A RATE OF NOT LESS THAN 1000 GALLONS OF SLURRY PER ACRE.

3) FINISH GRADING - AFTER CLEAN UP AND PRIOR TO TOP SOILING, THE CONTRACTOR SHALL FINE GRADE WITH MECHANICAL EQUIPMENT AND HAND RAKING IF REQUIRED TO BRING ALL AREAS TO THE DESIGN GRADES INDICATED ON THE SITE PLAN AND NECESSARY TO MAINTAIN POSITIVE DRAINING.

4) TOPSOIL SHALL BE UNIFORMLY SPREAD TO SUPPORT SEED GERMINATION AND PROCEDURE TURF. TOPSOIL SAMPLE MAY BE REQUIRED BY THE LANDSCAPE ARCHITECT AND THE SOURCE DESIGNATION BY THE CONTRACTOR.

5) SEED MIXTURE  
A. 40% KENTUCKY BLUEGRASS  
B. 30% "PENNLAWN" RED FESCUE  
C. 30% "PENNFINE" PERENNIAL REGRESS

6) SEED AND FERTILIZER SHALL BE DELIVERED TO THE SITE IN THE MANUFACTURER'S ORIGINAL SEALED CONTAINERS, STATING MIXTURE COMPONENTS AND PERCENTAGES. SEED AND FERTILIZER OTHERWISE DELIVERED WILL NOT BE ACCEPTED.

7) WATERING

THE CONTRACTOR HAS THE RESPONSIBILITY OF IRRIGATING THE SEED BED.

8) GUARANTEE

THE CONTRACTOR SHALL OVERSEED ALL AREAS THAT HAVE BARE SPOTS IN EXCESS OF ONE SQ. FT. IN SIZE.

9) INSPECTION

THE LANDSCAPE ARCHITECT SHALL BE THE OWNER'S AGENT FOR THIS WORK AND WILL DETERMINE COMPLETION AND ACCEPTANCE OF WORK PERFORMED, AND WILL MAKE CASUAL INSPECTION DURING SEEDING OPERATIONS. PROMPT CLEAN-UP OF THE SITE UPON COMPLETION WILL BE REQUIRED. WALKS AND DRIVES SHALL BE KEPT CLEAN AND PASSABLE.

**SITE CONDITIONS:**

THE LANDSCAPE CONTRACTOR SHALL NOT OBSTRUCT ROADS, PARKING AREAS OR WALKS WITH MATERIALS, EQUIPMENT OR DEBRIS. THE ENTIRE PARKING AREA MUST BE AVAILABLE FOR CAPACITY USE DURING WORKING HOURS. SPECIAL ARRANGEMENTS WILL BE MADE TO ISOLATE SPECIFIC AREAS REQUIRED FOR CONSTRUCTION. THESE AREAS WILL BE PRE-ARRANGED WITH HIGH ADMINISTRATION BY THE LANDSCAPE ARCHITECT.

**GENERAL NOTES:**

- ALL PLANTING AREAS TO RECEIVE EITHER 3" WASHED "COLORADO" RIVER ROCK (3/4" - 1 1/2" DIA.) OR SHREDDED WOOD MULCH AS SPECIFIED ON THE LANDSCAPE PLAN W/ DE-KIT FABRIC WEED BARRIER UNDERLAYMENT, UNLESS OTHERWISE NOTED.
- ALL LAWN EDGING TO BE COMMERCIAL GRADE METAL
- GROUND COVER PLANTS TO BE PLANTED IN SOIL MIX (NO STONE AROUND.)

**NOTE:**

ALL LAWN AND LANDSCAPED AREAS ARE TO BE FULLY IRRIGATED. - SUPPLIER TO PROVIDE SHOP DRAWINGS

**GENERAL NOTES**

ALL LANDSCAPE AREAS ADJACENT TO DRIVES OR PARKING AREAS ARE TO BE CURBED WITH A MINIMUM 6" CONCRETE CURBING.

ALL PLANTING BEDS ARE TO BE EDGED.

ALL LANDSCAPING IS TO BE CONTINUOUSLY MAINTAINED.

ALL SITE IMPROVEMENTS DETAILED ON THIS PLAN ARE TO BE COMPLETED PRIOR TO THE ISSUANCE OF A FINAL CERTIFICATE OF OCCUPANCY.

ALL RIGHT OF WAY AREAS ARE TO BE SEEDED OR SODDED.

ALL LANDSCAPE AREAS ARE TO BE IRRIGATED WITH AN UNDERGROUND IRRIGATION SYSTEM.

**LANDSCAPE NOTES**

ALL PLANT MATERIAL SHALL BE TRUE TO NAME, FREE FROM PHYSICAL DAMAGE AND WIND BURN. PLANTS SHALL BE FULL, WELL-BRANCHED, AND IN HEALTHY VIGOROUS GROWING CONDITION.

PLANTS SHALL BE WATERED BEFORE AND AFTER PLANTING IS COMPLETE.

ALL TREES MUST BE STAKED, FERTILIZED AND MULCHED AND SHALL BE GUARANTEED TO EXHIBIT A NORMAL GROWTH CYCLE FOR AT LEAST ONE (1) FULL YEAR FOLLOWING PLANTING.

ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED IN THE MOST RECENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

PROVIDE CLEAN BACK FILL SOIL, USING MATERIAL STOCKPILED ON SITE. SOIL SHALL BE SCREENED AND FREE OF ANY DEBRIS, FOREIGN MATERIAL, AND STONE. "AGRIFORM" TABS OR SIMILAR SLOW-RELEASE FERTILIZER SHALL BE ADDED TO THE PLANTING PITS BEFORE BEING BACKFILLED.

ALL PLANTINGS SHALL BE MULCHED WITH SHREDDED HARDWOOD BARK, SPREAD TO A MINIMUM DEPTH OF 4". MULCH IS TO BE FREE FROM DEBRIS AND FOREIGN MATERIAL, AND SHALL CONTAIN NO PIECES OF INCONSISTENT SIZE.

THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK SHOWN ON THE LANDSCAPE DRAWINGS AND SPECIFICATIONS.

NO SUBSTITUTIONS OR CHANGES OF LOCATION, OR PLANT TYPES SHALL BE MADE WITHOUT THE APPROVAL OF THE LANDSCAPE ARCHITECT. THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS PRIOR TO INSTALLATION.

THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL PLANT MATERIAL IN A VERTICAL CONDITION THROUGHOUT THE GUARANTEED PERIOD.

THE LANDSCAPE ARCHITECT SHALL HAVE THE RIGHT, AT ANY STAGE OF THE INSTALLATION, TO REJECT ANY WORK OR MATERIAL THAT DOES NOT MEET THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS, IF REQUESTED BY OWNER.

CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING PLANT QUANTITIES TO ENSURE QUANTITIES ON DRAWINGS AND PLANT LIST ARE THE SAME. IN THE EVENT OF A DISCREPANCY, THE QUANTITIES ON THE PLANS SHALL PREVAIL.

THE LANDSCAPE CONTRACTOR SHALL SEED AND MULCH ALL AREAS DISTURBED DURING CONSTRUCTION, THROUGHOUT THE DEVELOPMENT.

A PRE-EMERGENT WEED CONTROL AGENT, "PREEN" OR EQUAL, SHALL BE APPLIED UNIFORMLY TO ALL PLANTING BEDS PRIOR TO MULCHING.

REVISIONS

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SHEET TITLE  
LANDSCAPE DETAILS

PROJECT  
**NEW LUCKY'S STEAKHOUSE**  
DRAWN BY J.S.B.  
CHECKED BY R.A.S.

JOB NO. 15052

DATE 12 NOV. 15

SHEET NO.

**L2**

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