AGENDA

CHARTER TOWNSHIP OF MERIDIAN
PLANNING COMMISSION – REGULAR MEETING
May 13, 2019 7PM

1. CALL MEETING TO ORDER
2. PUBLIC REMARKS
3. APPROVAL OF AGENDA
4. APPROVAL OF MINUTES
   A. April 22, 2019 Regular Meeting

5. COMMUNICATIONS
   A. Meridian Township Economic Development Director Chris Buck RE: Mixed Use Planned Unit Development #19024
   B. Erin O'Donnell RE: Mixed Use Planned Unit Development #19024
   C. Letters RE: Medical Marihuana (listed on separate page)

6. PUBLIC HEARINGS
   A. Mixed Use Planned Unit Development #19024 (Village of Okemos, LLC), construct Village of Okemos mixed use project at Okemos Road/Hamilton Road.
   B. Special Use Permit #19051 (Village of Okemos, LLC), construct group of buildings greater than 25,000 square feet in size at Okemos Road/Hamilton Road.
   C. Special Use Permit #19081 (Delta Dental), work in floodplain to construct deck at 4100 Okemos Road.
   D. Special Use Permit #19031 (Okemos Retail Mgmt. LLC), develop shopping center with drive-through window at 2085 Grand River Avenue.
   E. Special Use Permit #19071 (Okemos Retail Mgmt. LLC), work in floodplain to construct shopping center at 2085 Grand River Avenue.

7. UNFINISHED BUSINESS
   A. None.

8. OTHER BUSINESS
   A. Haslett Feasibility Study.

9. TOWNSHIP BOARD, PLANNING COMMISSION OFFICER, COMMITTEE CHAIR, AND STAFF COMMENTS OR REPORTS
10. PROJECT UPDATES
   A. New Applications – None
   B. Site Plans Received – None
   C. Site Plans Approved
      1. Site Plan Review #18-95-14 (Lansing Mart Associates LLC), parking lot reconfiguration at 2020 Grand River Avenue.
      2. Site Plan Review #19-05 (Fedewa Holdings), construct 13 unit townhouse complex comprised of two buildings totaling 18,955 square feet at 1730 Chief Okemos Circle.

11. PUBLIC REMARKS
12. ADJOURNMENT
13. POST SCRIPT: KEN LANE

TENTATIVE PLANNING COMMISSION AGENDA
May 20, 2019

1. PUBLIC HEARINGS
   A. Commercial Planned Unit Development #19034 (Meridian Township Parks Department), establish Marketplace on the Green/Farmers' Market on the south side of Central Park Drive, west of Marsh Road.

2. UNFINISHED BUSINESS
   A. Mixed Use Planned Unit Development #19024 (Village of Okemos, LLC), construct Village of Okemos mixed use project at Okemos Road/Hamilton Road.
   B. Special Use Permit #19051 (Village of Okemos, LLC), construct group of buildings greater than 25,000 square feet in size at Okemos Road/Hamilton Road.
   C. Special Use Permit #19081 (Delta Dental), work in floodplain to construct deck at 4100 Okemos Road.
   D. Special Use Permit #19031 (Okemos Retail Mgmt. LLC), develop 9,316 square foot shopping center with drive-through window at 2085 Grand River Avenue.
   E. Special Use Permit #19071 (Okemos Retail Mgmt. LLC), work in floodplain to construct shopping center at 2085 Grand River Avenue.

3. OTHER BUSINESS
   A. None.

CHARTER TOWNSHIP OF MERIDIAN
PLANNING COMMISSION
REGULAR MEETING MINUTES

DRAFT

April 22, 2019
5151 Marsh Road, Okemos, MI 48864-1198
517-853-4560, Town Hall Room, 7:00 P.M.

PRESENT: **Commissioners Lane, Scott-Craig, Hendrickson, Trezise, Cordill, Premoe, Shrewsbury and Richards**
ABSENT: **None**
STAFF: **Principal Planner Peter Menser**

1. Call meeting to order

Chair Scott-Craig called the regular meeting to order at 7:00 P.M.

2. Public Remarks - None

3. Approval of Agenda

Commissioner Premoe moved to approve the agenda as written.
Seconded by Commissioner Cordill.
VOICE VOTE: Motion approved unanimously.

4. Approval of Minutes

A. March 25, 2019 Regular Meeting
B. April 8, 2019 Regular Meeting

Commissioner Lane moved to approve both sets of minutes as written.
Seconded by Commissioner Trezise.
VOICE VOTE: Motion approved unanimously.

5. Communications - None

6. Public Hearings - None

7. Unfinished Business

A. Rezoning #19050 (Fedewa Builders), rezone approximately 1.12 acres from RR (Rural Residential) to RX (One and Two Family Residential) at 5921 and 5929 Okemos Road.

Commissioner Trezise asked if the conditions related to the variance provided 20 years ago would remain in effect and Principal Planner Menser stated staff will ensure the conditions of the variances are followed upon future development.

Motion by Commissioner Trezise to recommend approval of Rezoning Amendment #19050.
Supported by Commissioner Hendrickson.

ROLL CALL VOTE:
YEAS: Commissioners Trezise, Hendrickson, Richards, Shrewsbury, Lane, Cordill, Premoe, and Scott-Craig.
NAYS: None
MOTIONED CARRIED: 8-0

8. Other Business

A. Content neutral sign policy

Principal Planner Menser noted the Planning Commission would continue to work on reviewing the sign ordinance at future meetings and staff will work with the Township attorney to identify areas where changes need to be made to address the Supreme Court ruling in 2015.

B. 2020 Master Plan update.

Chair Scott-Craig noted it might be helpful when reviewing sections of the Future Land Use Map to visit the areas to see the land uses and ownership and to evaluate future land opportunities.

Principal Planner Menser stated the Township Board adopted the revised Master Plan in 2017 and the Michigan Planning Enabling Act requires the document to be considered for updates every five years. The Future Use Land Map is a part of the Master Plan and 2020 is the goal for the next Master Plan Update.

Chair Scott-Craig suggested engaging residents as well for insight on the Future Use Land Map.

Commissioner Premoe suggested forming a sub-committee to assist Principal Planner Menser with the Future Land Use Map update.

Commissioner Trezise and Chair Scott-Craig also supported the sub-committee initiative and aim to begin work sessions in June. Principal Planner Menser will assist with mapping support and research for the sub-committee.

C. Form-Based Code update.

Principal Planner Menser provided an overview of the Form-Based Code initiative to date and potential next steps.

9. Township Board, Planning Commission Officer, Committee Chair, and staff comments or reports

Commissioner Hendrickson provided an update from attending the special Township Board meeting on April 16, 2019 regarding the Road Millage and the Camel Back Bridge on Okemos Road.

Chair Scott-Craig noted he will be attending the Michigan Association Planning Institute Spring Conference on April 25, 2019.

Principal Planner Menser provided an explanation of the upcoming Planning Commission Meetings scheduled for May 13th and 22nd. The May 13th meeting will have 5 public hearings but a couple will be grouped together. He noted there will be some big projects coming for future agendas.

Commissioner Trezise noted there will be a breakfast meeting for business owners of downtown Okemos on May 6, 2019 after the Downtown Development Authority meeting.

10. Project Updates

A. New Applications – None
B. Site Plans Received - None
C. Site Plans Approved – None

11. Public Remarks - None

12. Adjournment

Commissioner Hendrickson moved to adjourn the meeting.
Supported by Commissioner Trezise.
VOICE VOTE: Motion carried unanimously.

Chair Scott-Craig adjourned the regular meeting at 7:35 P.M.

Respectfully Submitted,

Debbie Budzynski
Recording Secretary

To: **Planning Commission**

From: **Chris Buck, Economic Development Director**

Date: **5.13.2019**

Re: **The Village of Okemos**

I am thrilled that this day has come - that we finally begin the approval process for a mixed-use village at the four corners of Okemos. The Township has walked a long road to get to this point and a significant portion of my nearly two years working in the Township has been focused on this project. In those two years there have been several changes to the Planning Commission roster, so for their benefit I would like to briefly outline the work that has occurred to allow us to get to this point:

- July 2017 – Meridian Township establishes its Brownfield Redevelopment Authority to more efficiently control the process to clean up environmental contamination within the Township.
- November 2017 – Master Plan is adopted identifying the mixed-use core and Okemos PICA concept announcing the Townships desire for a walkable, densely populated community of residences, offices and boutique shopping and dining options.
- May 2018 – The Township adopts the updated MUPUD ordinance to allow for buildings up to 60 feet and 5-stories with uncapped residential density so long as conditions are met.
- August 2018 – Meridian establishes its first ever redevelopment fund to be used exclusively for development projects within the Okemos and Haslett PICA areas.
- November 2018 – Meridian Township is named a certified Redevelopment Ready Community via the MEDC, allowing for development projects within the Township to participate in state funded grants and loans.
- December 2018 – The Township Board adopts a new DDA TIF plan with the support of four additional taxing jurisdictions to allows funding assistance for infrastructure upgrades and environmental contamination funding shortfalls.
- February 2019 – The MDEQ awards the Village of Okemos project $2.3 million in grants and loans, plus nearly $1 million in self-funded and performed work by the MDEQ itself to ensure the property is sufficiently cleaned and safe for residents.
- April 2019 – MUPUD and SUP application is submitted for the Village of Okemos.

While all projects of this size require careful vetting to ensure the design, quality and ordinances are met, I am enthusiastic about the developer's selection of teammates and transparency throughout the creation of the project you are reviewing this evening. There has been extensive outreach to neighborhood associations, the business community and the public as a whole. In addition, township staff and appointed & elected officials have been invited and encouraged to be a part of the design process along the way.

I look forward to the process and am hopeful that the Township and its residents will get nearly exactly what is called for in the Master Plan.

Peter Menser

From: Erin O'Donnell <erin28r@gmail.com>
Sent: Friday, May 10, 2019 12:51 PM
To: Peter Menser
Subject: support for the Village of Okemos site plan

Hi,

I'd like to voice my support for the Village of Okemos site plan (Mixed-Use Planned Unit Development and Special Use Permitting). I can't make it to the meeting, so I'm sending this email. Thanks!

Erin ODonnell

Medical Marihuana Correspondence

Planning Commission (May 13, 2019)

1. Mike Cui
2. Cindy Liu
3. Peng Zhang & Hui Liu
4. Qing Zhou
5. Guangming He
6. Yingxin Zhou & Wei Li
7. Xin Liu
8. Ketan Patel
9. Justin Stojsih
10. Manoj & Smriti Zutshi
11. Hui Liu
12. Henbry Chen & Yuan Wang
13. Chelsea Yao
14. Xiaobo Tan
15. Zhen Qiu & Jing Chen
16. Wei Zhang
17. Pat Calore
18. Yangfan & Yuying Liu
19. Cingwei Xu
20. D.A. Kunisada
21. Robert A. Ference
22. Candace Minette
23. Jim Goodheart
24. Yimin Xiao
25. Preetha & Subir Biswas
26. Xiaoman Yan
27. Anonymous
28. Yiming Deng
29. Kirk
30. Anonymous
31. Hui Liu
32. Robert Schikorra
33. Olivia Fang
34. Wi Li & Yingxin Zhou
35. Tze-Lan Sang
36. Tze-Lan Sang
37. Lingling Wu
38. Robert Schikorra
39. Tze-Lan Sang
40. Sunil Varghese
41. Youyu Feng
42. Susan Nickel-Gregory
43. Candy Parker
44. Mary Lou Huddleston
45. Yingxin Zhou

Peter Menser

From: cuiyh0126@gmail.com
Sent: Saturday, April 20, 2019 11:15 PM
To: Board; Peter Menser
Cc: cuiyh0126@gmail.com
Subject: NO Marijuana Store in Meridian Township

Importance: High

Dear Meridian Township Board,

As a resident in Okemos for nearly 15 years, I am writing to express my MOST STRONGEST concern about the recent Meridian Township marijuana zoning ordinances. The reason we choose to live in Okemos is because of its high quality schools, safe neighborhood, and family friendly communities. Opening any marijuana business in Okemos will completely change the current environment, and ultimately have severe negative consequences.

According to the United States Drug Enforcement Administration (DEA) (https://www.dea.gov/drug-scheduling), marijuana is classified as schedule I drug which has "a high potential for abuse and the potential to create severe psychological and/or physical dependence". I understand the purpose is for medical use. However, no one can guarantee this. I am more worried about our younger generations. They will be inevitably exposed to such drug and any unintentional try could lead to long-term addiction and dependency, and subsequently ruin their life.

I know many families with kids have similar concerns. I sincerely hope you can consider my concern. Please KEEP MARIJUANA AWAY from our kids and our neighborhood!

Sincerely,

Mike Cui
1925 Atherton Way, Okemos

Peter Menser

From: Cindy Liu <cindyliu66ps@gmail.com>
Sent: Sunday, April 21, 2019 12:21 AM
To: Peter Menser; Board
Subject: No marijuana in Meridian township

Dear board members,

I'm writing this email to ask you please vote NO on the marihuana proposal.

Okemos is famous for its good education quality, and because of that attracted lots of parents to this community. Please don't ruin it with marijuana! The marijuana and good education environment for kids is incompatible by nature.

We really need to seriously thinking about what kind of community we want to build? What kind of legacy do we want to leave to our future generations? 30 years later, do we want our kids to inherit a community with a booming marijuana industry with lots of social problems? Or do we want to keep this good education system and clean & safe environment for our kids to enjoy? What kind of community do we want to built and maintain? Do we really want to sacrifice our bright future for the slight possibility of short term financial gains from marijuana?

Sometimes certain values can not be measured by money in the short term, such as culture. But in the long run, it will define the community. I believe if we keep the marijuana out of our community that will help keep our environment clean and safe, will keep our property value high, and attract more people to move to this prestige community. What you vote today well shape our community in the future. So PLEASE make the right choice and keep our Okomos "pure" for our kids and grandkids! Thank you!

Cindy Liu
1575 Maiden Lane

Peter Menser

From: Zhang野道人 <pengmzhang2011@gmail.com>
Sent: Sunday, April 21, 2019 11:09 PM
To: Peter Menser; Board
Subject: Opposition to marijuana zoning ordinances

Dear Sir or Madam:

This is Peng Zhang. I am writing this email to show my concern to the Meridian Township marijuana zoning ordinances. As a resident in the Meridian Township and a father of two kids, I am strongly against any plan to establish marijuana zoning ordinances in Meridian Township.
Any these projects may increase revenue in short term. However, in long term, the crime rate will increase, and more and more families will be moving out. And then property value will decrease, the revenue from the tax will decrease too. Thus, the impact to the township will be negative in long term.

I hope that your board members as our leaders, can not only think about revenue but also the long term interest of all the residents living in the township, and stop this plan or project.

Best

Peng

Here is our information:

Peng Zhang and my wife Hui Liu
1338 Spicewood Dr, Okemos, MI 48864

Peter Menser

From: Qing Zhou <qing.zhou1205@gmail.com>
Sent: Monday, April 22, 2019 11:09 AM
To: Board; Peter Menser
Subject: Marijuana Stores Should Not Be Opened In Meridian Township

To Whom It May Concern,

My name is Qing Zhou. I strongly disagree with opening Marijuana stores in Meridian township for the following reasons:

It will lower the quality of our community.

It will make the area unsafe.

We live in a school district with a strong educational programs. The existence of marijuana stores would impose a poor impression on our community, affecting real estate prices, causing our homes values to go down. Meridian twp would lose attraction to most normal people/families. I do not wish our community to be viewed as a cheap place.

If we allow marijuana stores to be opened, it would be difficult to control the amount of consumers purchasing products. I do not wish for drugs to have a negative effect on our community. Slowly our community would become unsafe, and people would start moving out.

Okemos is mainly a resident community for long-term living and raising children, with few big companies and businesses. We should protect the safety and health of our schools as a priority. Opening a marijuana store would impose a negative impression on our children. I'm afraid this would influence our children to inhabitant the drug.

To satisfy a small group of people with marijuana needs, we would be sacrificing our community's high reputation. On niche, Okemos is ranked as the #4 best place to live in United States. I wish for the upward progress of our community.

https://www.lansingstatejournal.com/story/life/2017/04/21/okemos-ranked-no-4-best-places-live/100750394/

While I understand and respect the need of others in my community who seek marijuana, I believe the opening of marijuana stores in a public busy area would have a negative impact on our community as a whole and the impression on our children growing up. Marijuana, is not grocery; we do not need a grocery store for marijuana. If someone needs it, they can purchase online from other places.

I know you have worked hard to improve our community, and I believe in the future you will continue to make Meridian Township a better place to live. My family and I thank you for your efforts towards our community.

Sincerely,

Qing Zhou

2550 Lupine Ct.,
Okemos, MI

Peter Menser

From: He, Guangming <heguangm@msu.edu>
Sent: Monday, April 22, 2019 11:11 AM
To: Board
Cc: Peter Menser
Subject: Marijuana Stores Should Not Be Opened In Meridian Township

To Whom It May Concern,

My name is Guangming He. I strongly disagree with opening Marijuana stores in Meridian township for the following reasons:

It will lower the quality of our community.
It will make the area unsafe.

We live in a school district with a strong educational programs. The existence of marijuana stores would impose a poor impression on our community, affecting real estate prices, causing our homes values to go down. Meridian twp would lose attraction to most normal people/families. I do not wish our community to be viewed as a cheap place.

If we allow marijuana stores to be opened, it would be difficult to control the amount of consumers purchasing products. I do not wish for drugs to have a negative effect on our community. Slowly our community would become unsafe, and people would start moving out.

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I know you have worked hard to improve our community, and I believe in the future you will continue to make Meridian Township a better place to live. My family and I thank you for your efforts towards our community.

Sincerely,

Guangming He

2550 Lupine Ct.,
Okemos, MI

Information Management Developer / Analyst

Business Connect, MSU Innovation Center
Room 311, 325 E. Grand River Ave, Suite 350 (@MSU Technologies)
East Lansing MI 48823

Peter Menser

From: Yingxin Zhou <zhou0824@gmail.com>
Sent: Monday, April 22, 2019 12:04 PM
To: Board; Peter Menser
Subject: Oppose Medical Marijuana Ordinance
Attachments: Oppose medical marijuana Letter.docx

Dear Board and Planning Commission,

Please see the attached letter. Thank you.

Yingxin Zhou

Peter Menser

From: xin liu <xinliu.co@gmail.com>
Sent: Monday, April 22, 2019 1:29 PM
To: Board; Peter Menser
Subject: say NO to Marijuana Stores

to whom it may concern

my name is Xin Liu, and I am a resident in 2536 Kevern Way, Okemos, 48864
as a resident and a middle schooler's mom, I strongly say NO to the township proposal to open any Marijuana stores close to our neighborhood and public schools. . thank you a lot

home address: 2536 Kevern Way

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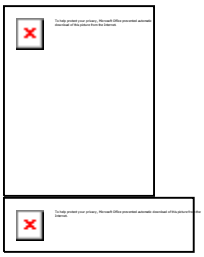
Have a good day!

Xin Liu



300 West Lake Lansing Rd.
East Lansing, MI, 48823
Cell: 517-292-4069
http://www.xinliu.remax-michigan.com/

Peter Menser

From: Ketan Patel <pratham_corp@yahoo.com>
Sent: Monday, April 22, 2019 4:00 PM
To: Peter Menser
Cc: Board
Subject: Marijuana Business in Meridian Township

Respected Planning Commission and Township board members,

I just want to convey my thoughts about Marijuana Business in Meridian Township. We all know from statistics that this is leading to more negatives things then positive. In terms of crimes, accidents, fights, rapes, etc.. We in this community never needed marijuana then why now? Just because it became legal? Please think over it again for sake of kids future.

I strongly oppose having Marijuana business in meridian township.

Thanks for the opportunity to raise my voice and listening.

Ketan Patel
2708 Laforet Cir
Okemos

Peter Menser

From: Justin Stojsih <jstojsih722@gmail.com>
Sent: Monday, April 22, 2019 4:12 PM
To: Peter Menser
Subject: Marijuana Businesses

Hi,

Someone canvassed my neighborhood today trying to get people to submit negative feedback about the proposed medical marijuana ordinances in Meridian Township.

I voted for recreational marijuana to be legalized in this state. I have no problem with medical marijuana. I certainly am not a NIMBY.

Please allow these businesses to open in our township and contribute to our tax base.

Thanks,
Justin Stojsih
2669 Lupine Dr.

Peter Menser

From: Smriti Kaw <manoj.smriti@gmail.com>
Sent: Monday, April 22, 2019 7:38 PM
To: Peter Menser; board@merdian.mi.us
Subject: Concerns about Marijuana Businesses

Hello Mr. Menser,

We are residents on Championship neighborhood in Okemos. It is our understanding that the Meridian Township is considering ordinance to allow medical marijuana businesses in the Township.

We are reaching out to you expressing pur concerns regarding passage of such as ordinance. We chose to live and raise our family in Okemos given better quality of quality of life, low or non-existent crime and better education. We sincerely believe that bringing marijuana in the communities will jeopardize all of these.

Appreciate your understanding our concerns against this proposed ordinance and help our communities be safe.

Thank you,
Manoj and Smriti Zutshi

Peter Menser

From: Cathy Liu <cathyliu9513@gmail.com>
Sent: Monday, April 22, 2019 8:42 PM
To: Peter Menser; Board
Subject: strongly against marijuana business in Okemos

Dear Meridian Township board member,
I strongly oppose the Meridian Township marijuana business plan, especially in Okemos. There is no scientific evidence this business will boost the economy. Rather, it will create a lot of social problems. Families with children like us will move out of this area. The housing market will go down, and it will hurt the economy in a long run.

Also, I heard many emails sharing our concerns were disregarded. This is unfair and absolutely discrimination, and unacceptable. I request to show all emails to the board. Some people wrote similar emails because people share the concerns, which is like a statement signed by multiple persons. No emails should be disregarded in this way. This is absolutely unacceptable.

I hope you could be responsible for our neighborhood and for our town. Thank you!

Hui Liu (1338 Spicewood Dr., Okemos)

Peter Menser

From: Henry Chen <hchen168@hotmail.com>
Sent: Monday, April 22, 2019 9:12 PM
To: Peter Menser; Board
Cc: Yuan wang
Subject: storng opposition to marijuana business in Meridian township

Importance: High

To Whom It May Concern:

Please consider this email as TWO VOTES against your proposal. We both are educated professors at MSU and know about biology, medicine, and human behaviors. We BOTH STRONGLY OPPOSE your plan to allow marijuana business in the Meridian township. We moved from North Carolina to here in 2016, we chose Okemos because of its suburban environment and convenience, but most importantly its safety and quality schools. We know kids growing out of such environment could not go wrong. Adults may however, if they become selfish, irresponsible and short-sighted.

One thing leads to another - few people start drug abuse with heroin. Marijuana use is the gateway to the abuse of more dangerous illegal drugs. Once addicted, it is likely a life-long label with you health-wise, social-wise, occupation-wide, and financial-wise, until you die. In fact, marijuana itself is illegal in most states. Before you realize, it may destroy your kid's life, love, health, and job.

We therefore strongly oppose your consideration of approval of marijuana business in Meridian Township

Sincerely,

Henry Chen
Yuan Wang
3587 Breezy Point Dr.
Okemos, MI 48864

Peter Menser

From: Chengyin Yao <chengyiny@hotmail.com>
Sent: Monday, April 22, 2019 10:10 PM
To: Peter Menser; Board
Subject: A Concern on the Medical Marijuana Ordinance - Meridian Township

To Whom It May Concern,

My name is Chelsea Yao. I am currently a resident in Okemos, MI. Regarding the Medical Marijuana Ordinance Proposal, I strongly disagree on the opening of marijuana stores in Meridian Township (one grower, one processor and four facilities). Listed below I believe are a few good reasons why in an article by Sean Williams.

"3 Arguments For and Against Legalizing Marijuana" by Sean Williams on The Motley Fool

1. Clinical data suggests concerns
The interesting thing about clinical data is that it swings both ways in the argument over legalization. While there have been studies that have shown promise, marijuana use has also been shown in some university-run studies to be dangerous. For instance, a study published by Northwestern University in the journal Hippocampus showed, through MRIs, an oddly shaped hippocampus in adolescents who'd used marijuana heavily at ages 16 or 17 for a period of three years. The hippocampus is the region of the brain most responsible for short- and long-term memory. Not surprisingly, there was also an accompanied average long-term memory test score reduction of 18% for heavy users compared with those who'd not used marijuana before.

In other words, there's genuine concern that younger adults could see their brains adversely affected if they use marijuana, and there's a greater concern that not enough is known about the long-term impacts on the brain, lungs, and other critical organs to make a call to legalize.

2. There aren't adequate parameters to police marijuana use
Another key argument against legalization ties into regulating the drug. As an example, the U.S. has a well-defined line in the sand when it comes to driving under the influence of alcohol. If you're under a blood-alcohol content (BAC) of 0.08%, you may or may not be arrested for driving impaired. If your BAC is 0.08% or over, you're going for a ride downtown whether you want to or not. The parameters are cut-and-dried. Those same parameters simply don't exist when it comes to marijuana, which makes enforcement a nightmare.

There's pretty solid evidence that marijuana adversely affects one's ability to drive, although some studies have shown that it's less dangerous than being impaired by alcohol. Nevertheless, there is no set level of THC, the psychoactive component of cannabis, that determines whether you're over or under the limit for being impaired. Making this call even more difficult is that THC can stay in the bloodstream for days or weeks, meaning getting an accurate reading of impairment, and determining when marijuana was used, involves some guesswork. Those folks against legalization argue that a lack of proper regulations and parameters are enough evidence to keep marijuana illegal.

3. Environmental and electric grid drains could be enormous
Lastly, there are serious concerns about what could happen to our nation's electric grid and the environment if the government gave marijuana the green light. For instance, a 2012 study from scientist Evan Mills, Ph.D., at the Lawrence Berkeley National Laboratory found that legal indoor marijuana growing farms were accounting for 1% of our nation's electricity usage, totaling about $6 billion a year. As a reminder, this total electrical

usage figure came before eight states legalized recreational marijuana and a handful of others legalized medical cannabis. If pot were legalized, it's possible that electrical demands for growing cannabis crops, from lighting to temperature needs via air-conditioning systems, could overwhelm the nation's electric grids.

There are also concerns that outdoor marijuana grow farms may adversely affect the local environment, including wildlife.

(End of quotation from Sean Williams.)

Lastly as a word of closing, I heard that there are only approximately 1,000 medical marijuana patients in Meridian Township. However, in the township population of about 42 thousands, about one quarter of them are under the age of 18.

So about 10 thousands adolescences will be exposed to marijuana if it is legalized in our community. It would be hard for us to guarantee these young people will stay clear of this drug. We should be working towards a drug free environment for our next generation.

While I understand a growing diversity of needs in our community and I respect the wishes of my neighbors, I believe the current amount of marijuana stores we have in the East Lansing and Lansing areas already fulfills it's purpose. An additional opening in Okemos would be unnecessary. However, overall I trust you are working towards the benefits of our community, and I hope we will be able to work together in the future to secure the well being of the town we love.

Thank you very much for reading and considering my concerns.

Sincerely,

Chelsea Yao
(P): 734-239-4038
(E): chengyiny@hotmail.com
(A): 2586 Lupine Drive, Okemos, MI 48864

Peter Menser

From: Xiaobo Tan <tanxb76@gmail.com>
Sent: Monday, April 22, 2019 10:51 PM
To: Peter Menser; Board
Cc: Xiaobo Tan
Subject: Opposing marijuana business in Meridian Township

Dear Meridian Township board members:

I am writing to express my strong opposition to the proposed establishment of marijuana businesses in Meridian Township. There are only a total of about 1000 medical marijuana patients in the Township -- why would that justify setting up four shops? Multiple dispensaries are already available in Lansing and East Lansing.

My more direct concern is that these medical marijuana facilities, if established, would conceivably become the easy candidates for recreational marijuana facilities in the next step. Overwhelming evidences, both from scientific research on the impact of marijuana on human cognition, and from statistics from states with legalization, show serious consequences on youth development, property value, and community safety. There is little, if any (or not negative), impact on local economy. As a father of two young children, I have grave concerns that the Board is considering establishing marijuana facilities in the Township.

I also learned that over 70 letters of objection were omitted for the last Board meeting, citing the similarity of those concerns. I must emphasize that, even if those letters were similar in nature, they represented voices of individual and each should be fully considered.

I thank you all for reading this email.

Best regards,

Xiaobo Tan (2017 Timberview Dr., Okemos, MI 48864)

Peter Menser

From: qiuzhen <qiuzhen@egr.msu.edu>
Sent: Monday, April 22, 2019 11:10 PM
To: Peter Menser; Board
Subject: about our big concern about the marijuana growing in OUR Meridian Township community

Dear Meridian Township Board,

My name is Zhen Qiu, a faculty member at Michigan State University. Our family is living in the Meridian Township. We are residents here. We have a daughter attending Cornell Elementary School.

I am writing the email to express our strong concerns about the recent Meridian Township marijuana zoning ordinances.

We moved from California to Okemos, Michigan. We wish to contribute to the community here.
Our family really like the community here, where we can feel the warm neighborhood.

Currently, I and my wife are so worried about the allowing marijuana businesses in OUR community. It will be very dangerous to our kids. My daughter is only 6 years old now. We know how bad the influence of the drug is!

We really like to urge the Board to consider our strong concerns and vote to prohibit marijuana businesses in our township.

Thank you for kind consideration!

Zhen Qiu
Faculty member at Michigan State University, Department of Biomedical Engineering, Electrical and Computer Engineering Institute for Quantitative Health Science and Engineering
517-884-6942 (Office)

and
My Wife, Jing Chen

Our Home Address:
1526 Belvedere Ave, Okemos, MI, 48864

Peter Menser

From: Wei Zhang <weizhng@gmail.com>
Sent: Tuesday, April 23, 2019 12:59 AM
To: Peter Menser; Board
Subject: Opposition to opening marijuana business in Meridian Township

Dear Meridian Township Board:

I am writing to strongly oppose plans to open marijuana business in Meridian Township. Statistics have shown that increases in crime rate and car accidents with increasing number of marijuana shops in an area. Any tax revenue generated from such business will be outweighed by expenses on preventing crimes, rehabilitating addicted minors, and regulation. There should be better way to serve the need of about 1000 medical marijuana patients (such as through regulated pharmacy), and there are already several marijuana dispensaries available in Lansing and East Lansing. I do not see the need of marijuana shops in Meridian Township. The Board should not be short-sighted to neglect the long-term prosperity and well-being of the township by jumping on marijuana brand wagon. I hope that the Board will seriously consider my concern. Thank you!

Wei Zhang
at 3585 Hyacinth ST, Okemos, MI 48865

Peter Menser

From: Meridian Township, MI <meridian-mi@enotify.visioninternet.com>
Sent: Tuesday, April 23, 2019 1:05 AM
To: Peter Menser
Subject: Township hearing on ordinance relating to MJ

Message submitted from the <Meridian Township, MI> website.

Site Visitor Name: Pat Calore
Site Visitor Email: Pacmjb2@yahoo.com

I am terminally ill with advanced cancer and have been in discussions with many medical professional personnel about medical marijuana. I have taken synthetic forms of the product to try to alleviate some of my symptoms. Please share my comments with the Board. I am opposed to the zoning.

1. Passing an ordinance just so the product can be regulated is putting the cart before the horse...the first question is whether it is good for our small community.

2. Marijuana growers use many different ingredients to create what is ultimately sold to the customer walking into the dispensary or bakery. ..weather it's a brownie, a gummie or whatever. There are all different grades of MJ and some are more potent/dangerous than others. The lack of regulation is and should be a significant concern to those who purchase those products or give them to patients with real medical issues. Even big pharmaceutical companies struggle to meet regulations - why would this product line be any different.

3. I suggest people study Colorado carefully before jumping on the bandwagon that making sales legal will be the way to reign the industry in and control its usage, whether the users be adults or minors. The statistics show a very unpleasant trend and one that should worry most parents and society at large.

4. Marijuana is a mind altering drug. There is no question about that. It means you do not perceive reality the same when under its influence. No one should be driving while under its influence. Texting and alcohol are bad enough...do we really want to compound the problem of distracted driving? Aren't our families dearer to us than that?

Most significantly we need to ask ourselves what do we want our kids to see as they grow up, who do we want their friends and coworkers to be, and ultimately, what kind of community do you want Meridian to mature into.

Peter Menser

From: Yangfan (Phoebe) Liu <liu.yangfan@gmail.com>
Sent: Tuesday, April 23, 2019 1:16 AM
To: Peter Menser; Board
Cc: yuying xie
Subject: Ban marijuana in Okemos, please

Hello,

This is Yangfan Liu and Yuying Xie, the owners of 1265 Long Leaf Trl, Okemos. We emailed you once before, addressing our concerns with medical marijuana in Okemos, including the impacts on the children, crime rates, realtor markets, etc. We are disappointed that the board still propose 4 shops, 1 grower, and 1 processer.

As a town of about 42,000 population, we have only about 1000 legal medical marijuana patients (20-30 per 1000 in MI according to medicalmarijuana.procon.org). Why do we need more shops in Okemos? Are we trying to serve our own residents or develop new business for revenue? To serve residents, even 1 shop is more than enough, considering we have only about 20 pharmacies to serve 42,000 residents and the existence of marijuana shops in East Lansing and Lansing. Not even mention grower and processor. For revenue, this business is a poor choice. According to the experiences from Colorado, the cost to deal with negative effects outweighs the profit from the business.

We seriously hope you can consider the voice of the residence and ban marijuana in Okemos. Thank you for your time.

Best,

Yangfan & Yuying

Peter Menser

From: Bingwei Xu <xubingwei@gmail.com>
Sent: Tuesday, April 23, 2019 2:36 AM
To: Peter Menser; Board
Subject: Disagree with the opening of the Marijuana stores

To Whom It May Concern,

My name is Bingwei Xu. I strongly disagree with opening any Marijuana stores in Meridian township.

As a father of two kids, I am not willing to see my kids living in an environment full of drugs due to the easiness of getting them in the stores, and the crimes triggered by the drugs.

As a 15-year resident in Meridian township, I do hope we have a long term economic development, not a short disaster one. Opening Marijuana stores is obviously to drink poison to quench thirsty and the result is disastrous.

I know you have worked hard to improve our community, and I believe you will continue to make Meridian Township a better place to live. Thank you for your efforts towards our community.

Sincerely,
Bingwei Xu

2691 Laforet Circle, Okemos, MI

Peter Menser

From: ter <terihoy@sbcglobal.net>
Sent: Tuesday, April 23, 2019 10:15 AM
To: Board
Cc: Peter Menser
Subject: Opposition to Marijuana Zoning

As a taxpayer and voter, I have many questions about the economic and social necessity of marijuana zoning in this Township. Until those questions are answered to the point where I can see a long-term benefit to the community as a whole, without an increase in taxes, I am opposed to such zoning.

My questions are as follows:

1. How will having a drug facility in Meridian Township economically and socially benefit more than 98% of the Township population who have no medical need for marijuana.?
2. How does the Township plan to pay for the needed increase in police personnel for increased car accidents and crime, particularly since the Township Police force already assists Williamston Township?
3. What are the potential negative consequences to our current outstanding school system?
4. What is the potential for increased property taxes as a result of negative cost consequences from having a drug facility?
5. How will having a drug facility promote the Master Plan for a walkable community?
6. How will having a drug facility impact property values?
7. What are the potential consequences of increased fires, causing a need for more fire control personnel?
8. Will having a drug facility have negative consequences for other local businesses and their tax revenue?
9. What are the LONG-TERM benefits of having a drug facilty in Meridian Township?
10. What are the LONG-TERM negative consequences for 98% of the Township population and voters ?
11. Once one drug facility is permitted, how can the Township legally prevent an increased growth of other drug facilities?

I look forward to receiving your response.

Sincerely,

D. A. Kunisada

Peter Menser

From: Robert Ference <raference1@gmail.com>
Sent: Tuesday, April 23, 2019 10:53 AM
To: Peter Menser
Subject: Marijuana

I have a health issue and unable to attend the upcoming Meridian Township Board meeting. Let it be know that I am opposed to any marijuana facilities - growers, processors, sellers - for any form of marijuana, medical or otherwise.

Robert A. Ference
2060 Tamarack Drive
Okemos, MI 48864

Peter Menser

From: Candace Minette <candace_minette@hotmail.com>
Sent: Tuesday, April 23, 2019 11:01 AM
To: Peter Menser; Board
Subject: Ban Medical Marijuana Zoning

I am writing this email to express my desire as a meridian township resident to PREVENT the zoning for medical marijuana businesses. As a mother of a child who had significant access to drugs within Okemos as it is, I see this as a detriment to our community and emplore you to prevent this from going through.

Peter Menser

From: Jim Goodheart <jboncoeur@aol.com>
Sent: Tuesday, April 23, 2019 11:09 AM
To: Board; Peter Menser
Cc: cc.boger@gmail.com
Subject: Proposed Marijuana Facility Public Hearing

I am writing to inform the board of our interest in the status of this proposed project. At this time, we are still in the process of gathering information from our Lutheran District and Synod about the potential impacts of such facilities in other areas and states where this has been made legal, while still being illegal from the federal government perspective. Specifically, we may have concerns about potential impacts being so close to our existing land use and values. Especially, we note that Sunday hours of being open for business is part of this plan.
I am president of the Ascension Lutheran Church located about 1/8 mile from this proposed site.

We respectfully request more time to submit formal comments, once we have had time to formulate them based upon our further research, and time for the Michigan District to reply to my request for more information.

Is there any notification requirements that the township must follow like the State DEQ does for nearby landowners when an applicant is applying for a wetlands or aquatic weed control permit? It appears there may possibly also be wetland implications on this site, especially if any expansion beyond use of the existing former road commission buildings is proposed as the site is contiguous to an existing drain. Please let me know if you are willing to allow us more time to submit a formal set of comments.

Thank you,
Jim Goodheart
Jrg.rpc@gmail.com

Sent from my iPad

Peter Menser

From: Xiao, Yimin <xiaoy@msu.edu>
Sent: Tuesday, April 23, 2019 11:22 AM
To: Peter Menser; board@mederian.mi.us
Cc: Yin Zhang (yin_zhang_99@yahoo.com)
Subject: Objection on the proposal on marijuana business in Meridian Township.

Dear Meridian Township Planning Commission and Township Board members,

I am writing to express my concerns over the proposal on marijuana business in Meridian Township.

Marijuana has been proven to be an addictive drug that causes serious negative impacts over not only the user but also the family members of the user and the community. While individuals have the right to make their own choices, the leadership of the township and people of the community have the responsibility to form the right policy that will benefit the majority of the residents and their children.

For these reasons, I strongly object the current proposal on marijuana business in Meridian Township.

Sincerely yours,

Yimin Xiao

4223 Mariner LN
Okemos, MI 48864

Peter Menser

From: Preetha Biswas <preetha.biswas@gmail.com>
Sent: Tuesday, April 23, 2019 12:03 PM
To: Peter Menser; Township Board
Subject: Request to Ban Marijuana Business in Meridian Township

Dear Planning Commission and Meridian Township Board Members,

We would like to request the Meridian Township Board to **NOT GIVE PERMISSION for the cultivation, production and retail sale of medical marijuana in Meridian Township**.

We as people of Meridian Township would like to be facilitators of positive activities and culture in a small community like our Township. It is important that patients who need Medical Marijuana get access to their medication, however, we do not need to have mass producers located in our Township, with access to our infrastructure and resources to make a substance that has time and time again shown to lead to illegal sale, unwanted activities and increase in crime.

Abuse of medical marijuana and illegal sale of these drugs have shown to have detrimental effect on the societies and create unsafe neighborhoods. Younger generation and teens with access to illegal habit forming substances and drugs can have long-term consequences on their growth, brain maturity and in some cases can be fatal, leading to death.

We do not want our tax money be spent supporting businesses that have the potential to encourage illegal activities, lead to increase crime in our neighborhood. We encourage you to not support this resolution
for the short-term benefit of collecting funds for the township, instead keep the long-term health of our younger
generation and the community in mind.

With kind regards,
-Preetha and Subir Biswas
4505 Mistywood Drive
Okemos, MI - 48864
--

Preetha Biswas, Ph.D.
Director of Microbiology, Research and Development
Neogen Corporation

Peter Menser

From: xiaoman yan <yxmm@hotmail.com>
Sent: Tuesday, April 23, 2019 1:18 PM
To: Board; Peter Menser
Subject: Oppose Marijuana ordinance

To whom it may concern,

I would like to convey my opinion here's that I oppose open medical or entertaining marijuana shops any where in meridian Township.

We don't need those around our kids and families. Any one who may need it can go to Lansing or East Lansing.

Please keep space for those who don't need them.

Address:
4094 Breakwater Dr.
Okemos, MI

Sincerely,
Xiaoman Yan

Sent from my iPhone

Meridian Township Board Members,

I am a resident of Meridian Township; I live on 2566 Sundance lane. I'd like to keep my name anonymous due to my job and title. But if you really want to know you could look it up on your property records. I just received a paper taped to my door notifying me about the proposal to allow the selling of medical marijuana. I am completely on board with this and I hope you support its passage. This letter I got which I will quote has many misstatements and blatant lies to mislead you and my neighbors and were backed my no references. I've included facts backed up by sources to help support my stance on this issue. I apologize for some grammar and different fonts of text; I didn't have long to gather this and clean it up.

This letter states:

"Marijuana has proven to be a gateway drug that leads to people harder and more dangerous drugs". This is False.

FACTS:

Here is a statement from National Institute of Drug Abuse, NIDA,

"…. the majority of people who use marijuana do not go on to use other, "harder" substances. Also, cross-sensitization is not unique to marijuana. Alcohol and nicotine also prime the brain for a heightened response to other drugs[52] and are, like marijuana, also typically used before a person progresses to other, more harmful substances.

Basically, alcohol, nicotine is just as likely to lead people to use other forms of mind-altering substances. And remember, Alcohol and nicotine are a drug, we just choose to call them alcohol and nicotine.

The Letter Points out:

"It is illegal under federal law."

FACTS:

Ok yes, it is, but states have the right to legalize it.

States have the right under the constitution to form its own laws: If you look at all the effects that alcohol and nicotine cause, it's more harmful and dangerous if used in excess than

marijuana. But the U.S. Governments has chosen to make this a class one drug even though it's has NEVER caused anyone to die due to an overdose. (This information came from CNN during a special by DR. Sanjay Gupta, WEED 4: Pot VS Pills which aired April 18, 2019). The same CANNOT be said about alcohol or nicotine.

The Letter Also States:

Marijuana's Long-Term effects in the brain, the ability to remember, decreased sperm count in men and delayed ovulation in women, immune problems, emotional problems and depression: May be true if abused, but Alcohol has the same effect plus more.

FACTS:

According the Centers for Disease Control: These are the effects of Alcohol:

Short-Term Health Risks

Excessive alcohol use has immediate effects that increase the risk of many harmful health conditions. These are most often the result of binge drinking and include the following:

- Injuries, such as motor vehicle crashes, falls, drownings, and burns.[6,7]
- Violence, including homicide, suicide, sexual assault, and intimate partner violence.[6-10]
- Alcohol poisoning, a medical emergency that results from high blood alcohol levels.[11]
- Risky sexual behaviors, including unprotected sex or sex with multiple partners. These behaviors can result in unintended pregnancy or sexually transmitted diseases, including HIV.[12,13]
- Miscarriage and stillbirth or fetal alcohol spectrum disorders (FASDs) among pregnant women.[6,12,14,15]

Long-Term Health Risks

Over time, excessive alcohol use can lead to the development of chronic diseases and other serious problems including:

- High blood pressure, heart disease, stroke, liver disease, and digestive problems.[6,16]
- Cancer of the breast, mouth, throat, esophagus, liver, and colon.[6,17]
- Learning and memory problems, including dementia and poor school performance.[6,18]
- Mental health problems, including depression and anxiety.[6,19]
- Social problems, including lost productivity, family problems, and unemployment.[6,20,21]
- Alcohol dependence, or alcoholism.[5]

Here is another statement in the Letter that is misleading:

"Career problems: people cannot conduct some jobs under the influence of marijuana"

FACTS:

Ok, this is a no brainer. Of course, not and we are not allowing people to work when under the influence of alcohol, narcotics or other drugs. So, we are not expecting people who are using marijuana to work under its influence either. As with alcohol and prescription drugs there are warnings and restrictions on when and how to use it. Common sense prevails here.

From the Letter:

“Statistics show that crime rate is correlated with the number of pot shops, therefore, community’s safety is expected to be imperiled.

FACTS:

Ok, according to Colorado Politics…

The Colorado Department of Public Safety report showed a 6 percent decrease in the violent crime rate statewide from 2009 to 2014.

Other jurisdictions that legalized the recreational marijuana industry have experienced similar declines in violent crime. In Washington State, violent crime rates decreased by 10 percent from 2011 to 2014. Portland, Oregon, saw crime rates drop since legalizing the recreational marijuana industry as well.

Conculsion:

I hope you consider the facts when making your vote. I support a yes vote and I hope you do to. It’s time to put the stigma of marijuana behind us, start regulating it, collecting tax on it and allowing people who want to use it to use it. I try to have an opened mind and critically think about issues. I personally cannot use marijuana because of my job. But when compared to alcohol its effects are so much less. Alcohol is so much harder on the body, more abused and causes more violent behavior and medically has no benefits whatsoever. Even if used moderately. Marijuana has many benefits, pain reduction, anxiety reduction, and many benefits to cancer patients undergoing chemotherapy. The prescription drugs out now that could be replaced by marijuana therapy (oils, gummies, and inhaled) have many more serious side effects as well as addiction potential (opioids for example). I think it’s time to open up and get real with the benefits that can be achieved by marijuana, and push away the stereotypical mindsets we have about it.

Peter Menser

From: Meridian Township, MI <meridian-mi@enotify.visioninternet.com>
Sent: Tuesday, April 23, 2019 1:43 PM
To: Peter Menser
Subject: Opposition to open Marijuana business in Meridian Township

Message submitted from the <Meridian Township, MI> website.

Site Visitor Name: Yiming Deng
Site Visitor Email: jerry.deng.colorado@gmail.com

Dear Peter and Meridian Township Board,
I am writing to oppose any plans to start Marijuana business in our township. With several Marijuana dispensaries available in adjacent towns, I am not supporting to open new business in Meridian Township. I hope the Board would consider my concerns.
Thank you.
Dr. Yiming Deng

Peter Menser

From: Kjubeck@yahoo.com <captk2003@gmail.com>
Sent: Tuesday, April 23, 2019 12:11 PM
To: Board; Peter Menser
Subject: Cannabis lies
Attachments: new doc 2019-04-23 10.28.17.pdf

A friend of mine that lives in Meridian Township sent this letter to me today that was left at his house. I live in Boulder, Colorado and can tell you first hand that most of the points outlined in the fear-based letter distributed to Meridian residents are lies. All the "terrible" things they claim are negative outcomes have not come to fruition in Colorado. They are purely scare tactics. All of the things they mention as harmful could be applied to alcohol but there are at least a dozen liquor stores in Meridian and even more places when including restaurants. I think you should look at Colorado as a model. Also I'll point out that restriction of license to a limited number of businesses will likely lead to corruption so would be better to let a free market run. Regulation like distance from schools works better than limiting the number of establishments. Also I know Meridian has strict laws about building signage used for businesses. Use that as a way to make dispensaries less visible. There are a lot of benefits for cannabis users so need to think about them also. There are medicinal benefits that have been proven. Legalization using a free market will subdue the black market that is tied to crime and exposure to other harder drugs. Police offices can spend more time fighting crime rather than cannabis users. The city saves money on incarceration of cannabis users. And dispensaries do raise tax dollars.
In my 21 years in Colorado, medical and recreational cannabis have not lead to the things the fear mongers who wrote the attached letter claim. In fact, auto accidents have fallen in CO since legalization. Federal law will change because so many states have legalized and polls show an overwhelming majority to legalize across the nation. Don't let deceitful fear mongering lead to the wrong decision for your constituents.

Thanks,
Kirk

Peter Menser

From: Naomi M <lotusoar0703@gmail.com>
Sent: Tuesday, April 23, 2019 3:23 PM
To: Board; Peter Menser
Subject: Marijuana Business in Meridian Township

I prefer anonymity my name.

But, I really don't think we need to have some stores in our township. Since we already have some in Lansing. So, if the people who really needs them can get from them. Once we have many store in one county, it should be hard for us to monitor all of the customers and distribution for this business.

Please consider this throughly from the point of resident safe again and don't think only for tax revenue.

Peter Menser

From: Cathy Liu <cathyliu9513@gmail.com>
Sent: Tuesday, April 23, 2019 4:28 PM
To: Township Board; Peter Menser; Board
Subject: Fwd: strongly against marijuana business in Okemos

Dear Meridian Township board member,
I strongly oppose the Meridian Township marijuana business plan, especially in Okemos. There is no scientific evidence this business will boost the economy. Rather, it will create a lot of social problems. Families with children like us will move out of this area. The housing market will go down, and it will hurt the economy in a long run.

Also, I heard many emails sharing our concerns were disregarded. This is unfair and absolutely discrimination, and unacceptable. I request to show all emails to the board. Some people wrote similar emails because people share the concerns, which is like a statement signed by multiple persons. No emails should be disregarded in this way. This is absolutely unacceptable.

I hope you could be responsible for our neighborhood and for our town. Thank you!

Hui Liu (1338 Spicewood Dr., Okemos)

Peter Menser

From: Robert Schikorra <robert.schikorra@gmail.com>
Sent: Tuesday, April 23, 2019 5:04 PM
To: Peter Menser
Cc: Board
Subject: Opposed to Retail Marijuana

Register my opinion as a huge NO to retail pot shops.

It will endanger our community, our kids and our home values.

Let them go somewhere else. The Cost is not worth the "perceived" Gain.

Last thing we need is more impaired drivers and It sends a terrible message to the our children.

Meridian Township Leaders should protect their already over burdened tax payers from the hidden costs that the pot shops will create for our community.

Do the right thing.

Three no votes from this family.

Peter Menser

From: Olivia Fang <fyh727@gmail.com>
Sent: Tuesday, April 23, 2019 5:37 PM
To: Peter Menser
Subject: Fwd: Oppose the marijuana business

---------- Forwarded message ---------
From: Olivia Fang <fyh727@gmail.com>
Date: Tue, Apr 23, 2019 at 5:34 PM
Subject: Oppose the marijuana business
To: menser@meridian.mi <menser@meridian.mi>

As residents in Okemos, we definitely oppose the marijuana business around us, especially for the kids.

Regards,
Fang

Dear Board and Planning Commission members,

We live on 2565 Sophiea Pkwy, Okemos, MI 48864. As expressed in our previous communications, we oppose the draft medical marijuana ordinance in general.

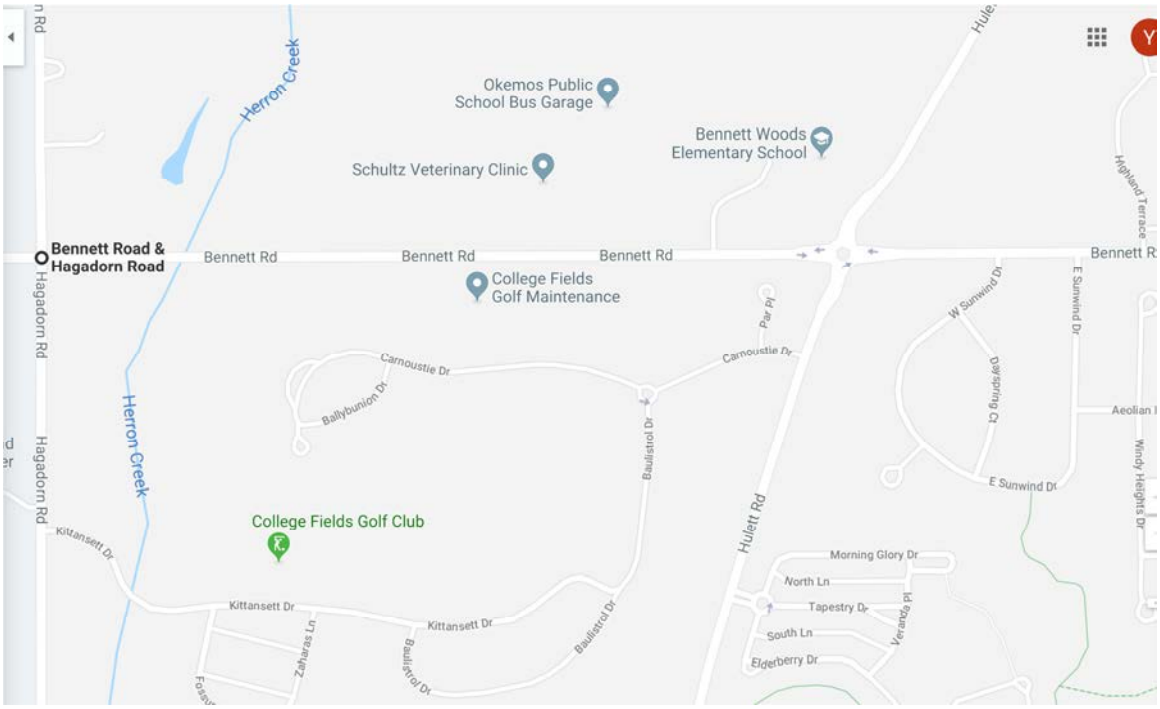
As for provisioning center Location # 5 (Hagadorn and Bennett road), it's too close to Bennett Woods elementary and thus causes safety concerns for the children and teachers at school.

All marijuana transactions are cash based since it's illegal under the federal law. Location #5 is far away from police support but close to the freeways (I496 and I96), making it a target for robbery if a retail store is set up there.

Therefore, we respectfully suggest eliminate provisioning center location #5. Your consideration is greatly appreciated.

Sincerely,

Wei Li and Yingxin Zhou



Peter Menser

From: Tze-Lan Sang <tzelan@gmail.com>
Sent: Tuesday, April 30, 2019 1:13 PM
To: Board; Peter Menser
Subject: Medical Marijuana Zoning Amendment - Overlay District #6

Dear Members of the Meridian Township Board and the Planning Commission:

I am absolutely shocked to learn that the Meridian Township Board at the meeting on April 23 decided to reinstate overlay district #6 at the corner of Jolly and Okemos, which the Planning Commission had explicitly recommended be removed from the the Board's proposed Zoning Amendment #19030 regarding medical marijuana. Not only is overlay district #6 very close to Hiawatha Elementary School and Okemos High School, but it is also right in the area where there are numerous learning centers catering to school children, such as Best Brains Learning Center, Brain Balance Achievement Center of Lansing, Eye Level Learning Center of Okemos, A+ by Design Tutor and Learning Center, and Kumon Math and Reading Learning Center of Okemos. There is also the Rainbow Child Care Center just north of Jolly and Okemos. Indeed, the Board could not have chosen a more inappropriate location to permit medical marijuana businesses. This is outrageous. Many of the aforementioned businesses and the parents that patronize them would strongly object to your idea of overlay district #6 if they become aware of it. It is absolutely wrong to try to change the character of the Okemos community and expose school children to the presence of marijuana in the name of serving just 1,000 patients in the township who might need medical marijuana, which they can already purchase from stores in East Lansing and Lansing if not online. I am saddened to learn about your unwise idea to reinstate overlay district #6, which occurred at the very end of a very long Township Board meeting, after most local residents attending that meeting had already left. This is wrong. The discussion about which overlay districts to keep and which to remove based on the Planning Commission's recommendation should have taken place much earlier at the meeting so that the public could have heard it and given you immediate feedback. I adamantly oppose your idea. I urge you to eliminate overlay district #6 from your zoning proposal once and for all.

Please work on reducing the number of overlay districts and medical marijuana permits instead of constantly trying to add them back to your proposal. Yes, Michigan voters voted to legalize the use of marijuana for medical purposes under doctors' direction in 2008 and the possession of recreational marijuana by adults over the age 21 in 2018. However, to this day marijuana is still a controlled substance under federal law. And even Canada, which has legalized the buying and selling of recreational marijuana, explicitly warns of marijuana's detrimental effects on adolescents' developing brains and adults' work competencies on the government's official website on marijuana. The use of marijuana increases drugged driving, traffic from other townships that ban marijuana businesses, and crime rates. It creates an extra burden on the local law enforcement, which could eventually translate into higher property taxes for local residents even while our homes become less valuable on the real estate market due to the deterioration of the character of our neighborhoods. Allowing marijuana to be grown in the township would lead to environmental pollution from the excessive use of water and electricity. The Township Board cannot ignore all these facts. The Board should work to minimize our children's exposure to the presence of marijuana, not magnify that exposure. Meridian Township voters never voted to allow marijuana businesses in our township. There was no such local vote. It is absolutely misleading for certain Board members to claim that there was majority consensus among township residents about permitting marijuana businesses in our community. The truth is, the Board decided on its own in December 2018 to start the process to create a medical marijuana zoning

amendment proposal. And the proposal has since provoked tremendous concerns and objections from local residents.

Sincerely,

Tze-Lan Sang
Registered Voter
3717 Fairhills Dr.
Okemos, MI 48864

Peter Menser

From: Tze-Lan Sang <tzelan@gmail.com>
Sent: Tuesday, April 30, 2019 3:01 PM
To: Board; Peter Menser
Subject: Medical Marijuana Zoning Amendment - Overlay District #6

Dear Members of the Meridian Township Board and the Planning Commission:

I am absolutely shocked to learn that the Meridian Township Board at the meeting on April 23 decided to reinstate overlay district #6 at the corner of Jolly and Okemos, which the Planning Commission had explicitly recommended be removed from the the Board's proposed Zoning Amendment #19030 regarding medical marijuana. Not only is overlay district #6 very close to Hiawatha Elementary School and Okemos High School, but it is also right in the area where there are numerous learning centers catering to school children, such as Best Brains Learning Center, Brain Balance Achievement Center of Lansing, Eye Level Learning Center of Okemos, A+ by Design Tutor and Learning Center, and Kumon Math and Reading Learning Center of Okemos. There is also the Rainbow Child Care Center just north of Jolly and Okemos. Indeed, the Board could not have chosen a more inappropriate location to permit medical marijuana businesses. This is outrageous. Many of the aforementioned businesses and the parents that patronize them would strongly object to your idea of overlay district #6 if they become aware of it. It is absolutely wrong to try to change the character of the Okemos community and expose school children to the presence of marijuana in the name of serving just 1,000 patients in the township who might need medical marijuana, which they can already purchase from stores in East Lansing and Lansing if not online. I am saddened to learn about your unwise idea to reinstate overlay district #6, which occurred at the very end of a very long Township Board meeting, after most local residents attending that meeting had already left. This is wrong. The discussion about which overlay districts to keep and which to remove based on the Planning Commission's recommendation should have taken place much earlier at the meeting so that the public could have heard it and given you immediate feedback. I adamantly oppose your idea. I urge you to eliminate overlay district #6 from your zoning proposal once and for all.

Please work on reducing the number of overlay districts and medical marijuana permits instead of constantly trying to add them back to your proposal. Yes, Michigan voters voted to legalize the use of marijuana for medical purposes under doctors' direction in 2008 and the possession of recreational marijuana by adults over the age 21 in 2018. However, to this day marijuana is still a controlled substance under federal law. And even Canada, which has legalized the buying and selling of recreational marijuana, explicitly warns of marijuana's detrimental effects on adolescents' developing brains and adults' work competencies on the government's official website on marijuana. The use of marijuana increases drugged driving, traffic from other townships that ban marijuana businesses, and crime rates. It creates an extra burden on the local law enforcement, which could eventually translate into higher property taxes for local residents even while our homes become less valuable on the real estate market due to the deterioration of the character of our neighborhoods. Allowing marijuana to be grown in the township would lead to environmental pollution from the excessive use of water and electricity. The Township Board cannot ignore all these facts. The Board should work to minimize our children's exposure to the presence of marijuana, not maximize it.

Meridian Township voters never voted to allow marijuana businesses in our township. There was no such direct local vote. It is absolutely misleading for certain Board members to claim that there was majority consensus among township residents about allowing marijuana businesses into our

community. The truth is, the Board decided on its own in December 2018 to start the process to create a medical marijuana zoning amendment proposal. And the proposal has since provoked tremendous concerns and objections from local residents.

Sincerely,

Tze-Lan Sang
Registered Voter
3717 Fairhills Dr.
Okemos, MI 48864
--
Sent from Gmail Mobile

Peter Menser

From: Lingling Wu <lindaw125@yahoo.com>
Sent: Tuesday, April 30, 2019 8:05 PM
To: Board; Planning Commision (DG)
Subject: Concern about Medical Marijuana Ordinance

To whom it may concern,

I am writing to express my concern regarding the township board's recent decision on the medical marijuana business. I am surprised to hear that during the board meeting on 4/23/19, it was decided one of the provisioning centers would be built around Okemos High School (Location #6). First of all, as a mother of two, I strongly object to opening any marijuana facilities in the township. As a voter myself, I do understand that the decision to allow commercial marijuana business was the voters' decision and I respect that. But THIS has gone too far.

Meridian Township takes pride in great schools around the area, and specifically, Okemos Public Schools rank very high within the entire Michigan. But Okemos public schools have been suffering from poor conditions. For example, it is ridiculous that with the best Swimming teams around the area and a State Champion winning Water Polo team, Okemos High School has the worst pool (a laughing stock I'm afraid) probably among the entire Michigan Public High Schools. I am disappointed that instead of helping Okemos schools build a new swimming pool, the township chooses to build a marijuana center RIGHT BY THE HIGH SCHOOL. With this decision, our kids could be subject to dangers such as easier access to marijuana, potential crime rate increase, increased traffic flow, etc. This would have a bad impact on the schools that our township has been so proud of, and will destroy the reputation of our great schools.

This is the wrong decision to make for our children and our community. As a concerned parent, I respectfully ask you to please reconsider.

Regards,

Lingling Wu
1312 Silverwood Dr., Okemos

Peter Menser

From: Robert Schikorra <robert.schikorra@gmail.com>
Sent: Friday, May 03, 2019 10:23 AM
To: Board; Peter Menser
Cc: Robert Schikorra
Subject: No Medical Marijuana at Jolly + Okemos Roads

As a resident of Hiawatha Lakes I do no support a Medical Marijuana location in the vicinity of Jolly and Okemos Roads. I fully support the below comments from my neighbor and Meridian Township leaders should act to preserve this highly desirable and attractive area of the township. Any Marijuana businesses located in this area would negatively impact one of the most sought after residential areas in the the township.

There are three voters in my home that will vote accordingly in future elections to suppport this position.

See below:

"The idea of designating the corner of Okemos and Jolly as a medical marijuana overlay district is highly objectionable for the following reasons:

1. Off Highway I-96, Okemos Road is the gateway to Okemos. Okemos should maintain its positive, healthy, highly educated and family friendly image by banning medical marijuana businesses at the corner of Okemos and Jolly.

2. If we allow weed shops to be set up at Okemos and Jolly, people who live in nearby towns that ban marijuana businesses would drive to Okemos from I-96 to buy pot. Do we really want this type of extra traffic and pollution and the deterioration of Okemos's image?

3. To date marijuana is a Schedule 1 drug under federal law. It is a controlled substance and for this reason most banks refuse to do transactions with marijuana businesses. Such businesses are therefore cash only, which leads to higher risks of robberies, money laundering, theft, and other crimes. They do not add anything valuable to Okemos' image and reputation.

4. Marijuana businesses would create an extra burden on the local police, fire department, and medical emergency response teams. The extra costs could translate into higher property taxes for residents. Because the Meridian Charter Township is not a city, it cannot implement a city income tax. And because of a sunset clause in the 2016 state licensing law, on March 6, 2019 the State of Michigan ended sharing the revenue generated from a 3% excise tax on medical marijuana with local municipalities and counties that allow medical marijuana businesses to operate. In other words, Meridian Township does not stand to generate any revenue from either the excise tax of medical marijuana sales or the income tax paid by marijuana business operators. Since there is no financial gain for Meridian Township to speak of, the Township Board should err on the conservative side and proceed with as few overlay districts as possible.

5. According to the 2018 Meridian Township Citizens Survey, residents rated their quality of life as high and especially appreciated the township's safety, school system, and many educational enrichment opportunities. Any new urban development plan must not contradict this established character of the township.

6. Okemos Road and Jolly Road are arterial roads that lead to Hiawatha Elementary School, Chippewa and Kinawa Middle Schools, and Okemos High School. Numerous families and school busses travel these routes every day. In addition, there are many educational enrichment centers that cater to K-12 students in the commercial plazas at Okemos and Jolly, such as Mathnasium, the Eye Level Learning Center of Okemos, Best Brains Learning Center,

A+ by Design Tutor and Learning Center, Victory Martial Arts, All About Art Gallery and Studio, and Kumon Math and Reading Learning Center of Okemos. Allowing commercial medical marijuana businesses to open in close proximity to the public schools and the learning centers is incongruent and inappropriate. The presence of marijuana businesses would maximize impressionable children's exposure to the idea of using (and abusing) marijuana rather than minimize it.

7. Although the Board currently is only discussing medical marijuana, once the special overlay district is in place, it will become where recreational marijuana businesses are allowed to set up too if the Board decides to allow those down the road. This can happen very quickly, in 1-2 years. Even more than medical marijuana, recreational marijuana businesses would contradict the family-friendly and education-focused character of Okemos.
I strongly oppose the Board's idea of zoning the corner of Okemos and Jolly as a medical marijuana overlay district. It should be removed from zoning amendment #19030 once and for all."

Thank you for your time. Robert Schikorra 3682 Powderhorn Drive Okemos, MI 48864

Peter Menser

From: Tze-Lan Sang <tzelan@gmail.com>
Sent: Friday, May 03, 2019 11:23 AM
To: Board; Peter Menser
Subject: Disallow Marijuana Shops at Okemos and Jolly

Dear Board of Trustees and Planning Commission:

Voters in Michigan voted in 2008 to legalize medical marijuana statewide. However, municipalities and counties have the power to opt to either allow or ban commercial medical marijuana businesses. Meridian Township Board decided to opt in in order to serve the needs of (an estimated 1,000) patients in the township who have medical marijuana cards, even though such patients can already purchase from an existing store in Okemos and other stores in East Lansing and Lansing.

In January 2019 the Meridian Township Board drafted zoning amendment #19030, proposing six special zoning districts (i.e. "overlay districts") where commercial medical marijuana provisioning centers, growers, processors, etc. would be permitted.

At the urging of the Planning Commission, the number of overlay districts was recently reduced to four. **However, the commercial area at the corner of Okemos and Jolly (overlay #6 on the map of the January proposal) is among the four overlay districts that the Board wants to keep.** This goes against the explicit recommendation from the Planning Commission to remove Okemos and Jolly from the list.

The idea of designating the corner of Okemos and Jolly as a medical marijuana overlay district is highly objectionable for the following reasons:

1. Off Highway I-96, Okemos Road is the gateway to Okemos. Okemos should maintain its positive, healthy, highly educated and family friendly reputation by banning medical marijuana businesses at the corner of Okemos and Jolly.

2. If we allow weed shops to be set up at Okemos and Jolly, people who live in nearby towns that ban marijuana businesses would drive to Okemos from I-96 to buy weed. Nearby residents do not want this type of extra traffic and pollution, not to mention the deterioration of our neighborhoods' image.

3. To date marijuana is a Schedule 1 drug under federal law. It is a controlled substance and for this reason most banks refuse to do transactions with marijuana businesses. Such businesses are therefore cash only, which leads to higher risks of robberies, money laundering, theft, and other crimes. They do not add anything valuable to Okemos' image and reputation.

4. Marijuana businesses would create an extra burden on the local police, fire department, and medical emergency response teams. The extra costs could translate into higher property taxes for residents. Because the Meridian Charter Township is not a city, it cannot implement a city income tax. And because of a sunset clause in the 2016 state licensing law, on March 6, 2019 the State of Michigan ended sharing the revenue generated from a 3% excise tax on medical marijuana with local municipalities and counties that allow medical marijuana businesses to operate. In other words, Meridian Township does not stand to generate any revenue from either the excise tax of medical marijuana sales or the income tax paid by marijuana business operators. Since there is no financial gain for Meridian Township to speak of, the Township Board should err on the conservative side and proceed with as few overlay districts as possible.

5. According to the 2018 Meridian Township Citizens Survey, residents rated their quality of life as high and especially appreciated the township's safety, school system, and many educational enrichment opportunities. Any new urban development plan should not contradict or imperil this established character of the township.

6. Okemos Road and Jolly Road are arterial roads that lead to Hiawatha Elementary School, Chippewa and Kinawa Middle Schools, and Okemos High School. Numerous families and school busses travel these routes every day.

In addition, there are many education enrichment centers that cater to K-12 students in the commercial plazas at Okemos and Jolly, such as Mathnasium, the Eye Level Learning Center of Okemos, Best Brains Learning Center, A+ by Design Tutor and Learning Center, Victory Martial Arts, All About Art Gallery and Studio, and Kumon Math and Reading Learning Center of Okemos. Allowing commercial medical marijuana businesses to open in close proximity to the public schools and the learning centers is incongruent and inappropriate. The presence of marijuana businesses would maximize impressionable children's exposure to the idea of using (and abusing) marijuana rather than minimize it.

7. Although the Board currently is only discussing medical marijuana, once the special overlay district is in place, it will become where recreational marijuana businesses are allowed to set up too if the Board decides to allow those down the road. This can happen very quickly, in 1-2 years. Even more than medical marijuana, recreational marijuana businesses would contradict the family-friendly and education-focused character of Okemos.

I strongly oppose the Board’s idea of zoning the corner of Okemos and Jolly as a medical marijuana overlay district. It should be removed from zoning amendment #19030 once and for all.

Thank you for your time.

Tze-lan Sang

Resident, parent, and registered voter in Okemos

Peter Menser

From: Sunil Varghese <suniljvarghese@gmail.com>
Sent: Friday, May 03, 2019 12:47 PM
To: Peter Menser
Subject: marijuana shop in okemos

i am concerned about the reputation that Okemos and Meridian township will get if marijuana stores are opened in the area. This will impact the businesses and other residents in the area.

just letting you know of my concerns

Thanks
Sunil Varghese

Peter Menser

From: Youyu Feng <txyouyu@gmail.com>
Sent: Sunday, May 05, 2019 11:53 AM
To: Board; Peter Menser
Subject: Please re-consider the marijuana ordinance zone by Jolly and Okemos

Dear Meridian Township Board and Planning Commission,

Please re-consider the planned marijuana ordinance zone by Jolly and Okemos. This location is within 1-mile walking distance to Hiawatha Elementary School thus no school bus picking-up and dropping-off. Lots of kids and families walk to/from school every day. The proposed marijuana store raises traffic and safety concerns in the school community.

According to John Hopkins's research report https://www.jhsph.edu/departments/international-health/news/experts-weigh-in-on-the-health-effects-of-marijuana.html, while "Patients with **chronic pain** who were treated with cannabis or cannabinoids were more likely to experience a significant reduction in pain symptoms", "Cannabis use prior to driving increases the risk of being involved in a **motor vehicle accident. ".**
And " Sixty-nine percent of marijuana users say they have driven under the influence of marijuana at least once, and 27 percent admit to driving under the influence on a daily basis." as reported here https://www.summitdaily.com/news/co-editorials-marijuana-hurting-co/.

While researches about marijuana use are still developing, Michigan doesn't set a legal limit for how much marijuana someone can have in their body while driving. Until the research result is mature and Michigan has a clear regulation about marijuana use, we urge our board and planning commission to remove the marijuana ordinance zone by Jolly and Okemos intersection.

Thank you for your time and work!

Sincerely,
Youyu Feng
2017 Timberview Dr.

Peter Menser

From: Susan Nickel-Gregory <susannickelgregory@gmail.com>
Sent: Sunday, May 05, 2019 10:10 PM
To: Peter Menser; Board
Cc: 'AS Gregory'
Subject: Zoning of Okemos & Jolly as medical marijuana overly

I urge you to please not proceed with zoning marijuana businesses at Okemos & Jolly.

1. This location is too close to our high school that already has rampant drug use.
2. Traffic flow and frequency of accidents is already challenging at this intersection. I don't have confidence that dispenory customers won't consume marijuana and drive away from this location. 96 has numerous accidents and I believe safety will only decrease.
3. Have you studied the impact Lansing dispenories have had on their surrounding neighborhoods?
4. There are many education enrichment centers that cater to K-12 students in the commercial plazas at Okemos and Jolly, such as Mathnasium, the Eye Level Learning Center of Okemos, Best Brains Learning Center, A+ by Design Tutor and Learning Center, Victory Martial Arts, All About Art Gallery and Studio, and Kumon Math and Reading Learning Center of Okemos. Allowing commercial marijuana businesses to open in close proximity to the public schools and the learning centers is incongruent and inappropriate.
5. Under Federal law marijuana is a Schedule 1 drug, most employers conduct drug screens as part of their pre-employment due diligence. Additional dispensaries with likely reducing the numbers of employable residents which will have a negative economic impact.

I urge you to please consider the greater welfare and safety of the residents you represent. Surely there are better locations than Okemos & Jolly for dispensaries.

Sincerely,

Susan Nickel-Gregory
517-331-3805

Sent from Mail for Windows 10

Peter Menser

From: Candy Parker <candypar@comcast.net>
Sent: Saturday, May 04, 2019 3:03 PM
To: Peter Menser
Subject: Medical Marijuana Busines

Dear Sir,

I must let you know that I am opposed to medical marijuana businesses in the Jolly/Okemos Rd. area. This area is already congested and, also, the Okemos High School is nearby. Having a medical marijuana business in such close proximity to a high school does not seem appropriate.

This does not seem to be the type of business that is in keeping with the quality of life desired by the current residents. Additionally, there is no tax benefit to be derived from such a business.

Please do not allow this type of business in the Jolly/Okemos Rd. area.

Respecttully,

Candy Parker

4361 Aztec Way

Okemos, Mi 4864

Peter Menser

From: Mary Lou Huddleston <huddles3@msu.edu>
Sent: Tuesday, May 07, 2019 6:59 AM
To: Board
Cc: Peter Menser
Subject: marijuana shops

I am against marijuana shops in Okemos, but especially against a marijuana shop on Jolly Rd. It is close to the expressway which makes it a target for criminals because of the easy escape.

On livability and area vibes Okemos gets an 84 rating which is very high, making Okemos a top area in the country to live. Crime gets an A rating. Why would we want to spoil such a wonderful place to live and raise children? Many of our grown children live in Okemos already or come back here to live because it is such a special place. Do we want to ruin it for them?

University of Colorado-CU Denver Today:

"A new study found an association between marijuana dispensaries and increases in rate of crime and disorder in neighborhoods in Denver, Colorado. The study by researchers appears in Justice Quarterly, a publication of the Academy of Criminal Justice Sciences. It states that we found that neighborhoods with one or more medical or recreational dispensaries saw increases in crime rates that were between 26 and 1452% higher than in neighborhoods without them without any commercial marijuana activity. Although this weakened over time, possibly because police targeted those areas, any added crime can affect an area. Do we want the police busy targeting those areas instead of giving us an A rating in crime and protecting us?!!

Mary Lou Huddleston

Peter Menser

From: Yingxin Zhou <zhou0824@gmail.com>
Sent: Thursday, May 09, 2019 6:08 AM
To: Board; Ronald Styka; Brett Dreyfus; Phil Deschaine; Patricia Herring Jackson; Dan Opsommer; Kathy Ann Sundland; winsinski@meridian.mi.us; Peter Menser
Subject: Opposition to Medical Marijuana Zoning Non Zoning Ordinances
Attachments: Opposition to Medicial Marijuana Zoning Non Zoning Ordinance.pdf; Attachement # 1 End of tax mystifies, shortchanges medical pot communities.pdf; Attachement # 2 Notice_Regulation_and_Taxation_of_Marihuana_Act_644844_7.pdf; Attachment # 3 General Fund Budget 2019.pdf; Attachement # 4 USCIS-ControlledSubstanceViolations.pdf

Dear Township Supervisor, Clerk, Treasurer, Trustees, and Planning Commission Chair, Vice Chair, Secretary and Commissioners,

I have many concerns over the proposed medical marijuana ordinances. Please see the attached letter and supports.

Your time and consideration is much appreciated. Have a great day!

Yingxin Zhou

May 8, 2019

Dear Meridian Township Board and Planning Commission:

I respectfully oppose the adoption of the proposed Commercial Medical Marijuana Non-Zoning and Zoning Ordinances that allow cultivation, production and retail sale of medical cannabis in Meridian Township (the Township). In my opinion permitting 9 facilities in order to serve approximately 1,000 resident patients places a big and unnecessary burden on the Township and its local residents. Medical cannabis is expensive for the Township. The local residents will be out of pocket for the increased costs of public safety and the additional financial burden on them is real.

Zero tax revenue for the Township

- The Marijuana Facilities Act (MFA) imposes a 3 percent excise tax on the gross retail receipts of medical marijuana "provisioning centers". 25% of the excise fund must be allocated to municipalities in which a marijuana facility is located. But the MFA passed by the Legislature in 2016 included language that if voters decided to legalize marijuana for adult recreational use, the 3 percent excise tax would go away 90 days after the effective date of a law "authorizing the recreational use of marijuana in this state". Voters in Michigan approved the ballot proposal on December 6, 2018 and the tax ended on March 6, 2019. Please refer to *Attachment #1 and #2* for more details.

- Medical marijuana sales are subject to Michigan's 6 percent sales tax. The sales tax is imposed by and remitted directly to the State of Michigan.

- Because it is not a city, the Township cannot levy income/city tax from medical marijuana businesses or their employees. Therefore, it will generate zero tax revenue from medical marijuana businesses.

High maintenance/monitoring cost

- Cannabis is still illegal under the federal law. Banks that handle marijuana money can be charged with money laundering. As a result, marijuana facilities must operate on cash only basis. There would be a very good likelihood that there could be criminal activity if you've got a lot of people walking around with handfuls of cash.

- At the February 5, 2019 meeting of the Township Board, the Township Chief of Police Ken Plaga testified that commercial marijuana businesses would impact law enforcement operations and increase the burden on calls for service. The proposed medical marijuana facilities will consume a lot of the Township's resources on public safety and infrastructure.

- Per the Township Treasurer Mr. Phil Deschaine in the Township board meeting on April 23, 2019, for medical marijuana businesses the best-case scenario for the Township is breakeven and most likely will lose money.

- The General Fund is the major fund for the Township. It is the mechanism to pay for core services such as police, fire, tax collection, assessing, elections, cemeteries, parks and administration. The General Fund Financial Summary from 2019 Township Budget (*Attachment #3*) reflects budget of $13,353,340 for Public Safety (it should not have included budget for medical cannabis). It is a big number and represents 61.67% of the total estimated expenditures & financing uses for 2019 ($21,852,705). Therefore, the application fees ($5,000 per permit per year) are insufficient to cover the costs to the Township for police, fire, emergency services and staffing associated with medical marijuana businesses.

Additional financial burden on local residents

- The personal property tax rate in the Township is high, especially on properties located in Okemos. It already causes financial burden on many families.

- The largest revenue source for the Township is tax collected. Since the Township doesn't collect city/income taxes from businesses or individuals, the majority of its tax revenue is property taxes. For General Fund, the tax revenue budget for 2019 is $12,784,200 (Attachment #3) while the budget for Public Safety is $13,353,340. To cover the increased cost on Public Safety related to medical marijuana businesses the Township will highly likely increase property tax rate, resulting in additional financial burden on local residents. Also there is already anticipated deficit of $591,660 for 2019 General Fund.

- For our family the property tax increased by 3.9% from 2016 to 2017 and 4.6% from 2017 to 2018 while the salary raise had been below 1%. We don't mind paying extra for medical marijuana like what we've been doing for libraries and Lansing Community College etc., which actually serve much larger population. But permitting 9 medical marijuana facilities is clearly not cost effective.

Does it really have to start with seeds?

- Marijuana, the plant, to some extent stinks. The odors have triggered many lawsuits. The proposed ordinance allows growing and processing of marijuana in overlay district #3. Though the area is zoned as I (industrial), it is very close to residential areas in the RA and RAA zoning, and thus will negatively impact the residents in the surrounding areas, depending on the strength and direction of the wind.

- Prescription drug Marinol is already available for marijuana patients. At pharmacy with Kroger, CVS at Target, and Rite Aid along Grand River Avenue in the Township, the prescription can be filled as soon as same day or on the following day.

Provisioning centers

- Meridian Township has estimated population of 42,636 as of 2017 and around 15 pharmacies (2000 people/pharmacy). Establishing 4 provisioning centers in order to serve approximately 1,000 resident patients is excessive. There is just not enough business.

- Proposed Overlay district # 5 (Okemos & Jolly Rd) is highly objectionable. This location is at the gateway to the Township, and its proximity to numerous schools and the I-96 expressway raises significant concerns in relation to public safety.

- A medical marijuana dispensary will be set up near Costco in East Lansing. It's located right on the border of East Lansing and the Township and thus could be used to serve both communities. Another dispensary will be set up at Grand River & Hagadorn in East Lansing. Both dispensaries are only 6 miles from the Township building at 5151 Marsh road.

- If the Board feels it is imperative to provide access to medical marijuana, vote to permit a single provisioning center located away from schools and the highway, and easily accessible to law enforcement. Limiting the number of facilities will not affect competitive pricing because the facility can compete with several dispensaries in Lansing and East Lansing, which are located in close proximity to the Township.

Last but not least, immigrants with ties to marijuana, including in states where it has been legalized, can be denied U.S. citizenship. Per the policy alert released on April 19. 2019 by USCIS (*Attachment # 4*), violation of federal controlled substance law, including for marijuana, remains a conditional bar to establishing good moral character for naturalization even where that conduct would not be an offense under state law. Since there are many new immigrants in our community, the Township might want to caution its residents on marijuana use for any purposes.

Please create an ordinance that disallows cultivation and processing of medical cannabis and limits the number of provisioning center to one.

Sincerely,

Yingxin Zhou
517-708-7983
zhou0824@gmail.com

Were You MISTREATED by USC GYN Dr. George Tyndall?
WE CAN HELP
J|J|S Janet, Janet & Suggs, LLC Attorneys at Law

End of tax mystifies, shortchanges medical pot communities

Beth LeBlanc, The Detroit News Published 11:00 p.m. ET April 10, 2019 | **Updated 11:33 p.m. ET April 10, 2019**

Buy Photo

Marijuana like these varieties sold at Utopia Gardens in Detroit include a 6% state sales tax for medical marijuana users. But for recreational use, there will be a 6 percent sales tax plus a 10 percent excise tax. *(Photo: Clarence Tabb Jr., The Detroit News)*

Michigan's foray into recreational marijuana use has cut off an anticipated source of revenue for pot-friendly communities, the result of a little-noticed stipulation slipped into the state's medical marijuana licensing law.

Dozens of municipalities and counties no longer share the cash generated by a 3% excise tax on medical pot from the dispensaries operating in their communities.

It ended March 6 as required by the 2016 licensing law, which contained amendments requiring the medical pot excise tax end three months after Michigan's recreational marijuana law took effect. A key Republican lawmaker who shepherded the bill through the Legislature didn't remember why or how the conditional tax expiration was added to the bill.

Many communities will be deprived of a slice of the estimated $24 million the tax was expected to produce annually after the new licensed market was in full operation, according to a House Fiscal Agency analysis. The revenue was one of the reasons municipal officials say they decided to allow pot shops within their boundaries.

Some local government officials say the end of the medical pot excise tax is pressuring them to salvage their investments in medical pot and expand into the licensed recreational market. But they don't foresee a pot of gold from the 10% recreational excise tax either because it is divvied among more groups.

“The fact that the tax revenue from medical has been taken away and repealed makes it where, now that we’re in the industry, the only option we have for revenue is if we’re in on recreational as well,” said Adrian city attorney Tamaris Henagan.

The reason for the end of the 3% excise tax on medical marijuana is hazy. The main sponsor of the 2016 Medical Marihuana Facilities Licensing Act said he couldn’t remember why lawmakers included the sunset provision on the 3% excise tax after the legalization of recreational marijuana.

Former Rep. Mike Callton, R-Nashville, didn’t know the provision was in the 2016 law until The Detroit News told him about it. The tax expiration was likely a compromise needed to get the bill moving, he said.

“This thing has so many moving parts,” Callton said. “It took me longer to do this bill than it took me to get a bachelor’s degree at Michigan State.”

Regardless of how the repeal originated, it was the right thing to do for the state's 293,000 registered medical marijuana patients, said Josh Hovey, a spokesman for the Michigan Cannabis Industry Association that represents legal marijuana-related businesses.

"It makes sense to repeal the tax should we have an alternative supply via recreational," Hovey said. "(Patients) should get a discount on their marijuana because it is a medicine."

Buy Photo

Jim Shannon, 37, a caregiver for a medical marijuana user, smells the product at Utopia Gardens in Detroit. Licensed marijuana businesses will have different tax rates imposed on their product depending on whether they involve medical or recreational sales. *(Photo: Clarence Tabb Jr., The Detroit News)*

How excise tax died

Neither Callton nor former GOP Rep. Klint Kesto of Commerce Township, who led the Judiciary Committee in 2016, could remember including the language repealing the medical marijuana excise tax. Both assumed it was part of the many compromises made to get the legislation approved.

“Sometimes you put in language and think that’s the best you’re going to get, never realizing recreational would pass so soon,” Callton said.

Sen. Jeff Irwin, an Ann Arbor Democrat who was vice chair for the House Judiciary Committee at the time, said the compromise was one he pushed to appease some groups opposed to any type of excise tax. The House also dropped the medical marijuana excise tax from 8% to 3% during negotiations, Irwin said.

“These medical patients really don’t deserve to pay these extra taxes,” Irwin said. “In fact, it’s quite sad we haven’t been able to persuade their insurance companies to cover the cost.”

Licensed marijuana businesses have different tax rates imposed on their product depending on whether they involve medical or recreational sales.

Recreational marijuana sales will be assessed a 6% sales tax plus a 10% excise tax when licensed sales begin. The state also assesses a 6% sales tax on medical marijuana sales and, until March 6, a 3% excise tax.

In the nearly five-month period when Michigan collected a 3% excise tax on medical marijuana — Oct. 15, 2018, to March 6 — the tax brought in roughly $1.2 million in revenue. About 60%, or $720,000, will be split among the 24 municipalities and 15 counties that had licensed provisioning centers operating during that time period.

When the medical marijuana excise tax was being considered in 2016, an initial House Fiscal Agency analysis estimated the tax would bring in roughly $24 million in revenue a year based on the experience of Colorado.

Compared with the expected excise tax revenue from recreational pot, the $1.2 million from medical is a pittance. The Senate Fiscal Agency in November estimated the 10% excise tax on legalized marijuana use among adults would generate $53.8 million in 2019-20, $100.7 million in 2020-21 and $149.9 million in 2021-22.

Slicing up pot revenue

But, like medical marijuana, the excise tax on recreational marijuana will be diced up considerably before making it to individual communities.

After the state’s implementation costs are paid and $20 million is given to research on the use of marijuana to prevent veterans' suicides, 15% of the remaining excise tax revenue will go to municipalities and 15% to counties. The money will be divided up based on the number of marijuana provisioning centers and micro-businesses in each community.

The resulting revenue for cities, townships and counties could be much smaller than imagined, said Landon Bartley, a senior planner with the city of Grand Rapids.

"There has been a perception that this could be a huge windfall for a community, and I personally don’t think that’s going to be the case," Bartley said.

Callton, who now works as a consultant in the marijuana industry, said he’s heard many communities grumbling about the short time frame in which they benefited from the medical excise tax.

As the slow-moving state licensing process butted up against the November voter approval of legalizing recreational marijuana, the window to collect the excise tax shortened and the number of business from which communities could collect was sparse. In the Oct. 15-March 6 period, nearly 60 provisioning centers spread across 24 communities were licensed to operate.

“By the time you actually had a functioning sale system, things changed,” Callton said, referring to the legalization of recreational marijuana in November.

The Michigan Municipal League has no official position on the medical or recreational marijuana markets, said spokesman Matt Bach, but the league cautions municipalities about betting on potential revenue from the industry.

"We tell our members that any 'new' taxes on unproven markets may not yield the 'expected' results promised by those that pushed the legislation," Bach said in a statement.

Communities have other ways of generating revenue to pay for administering their licensing and enforcement duties, said Andrew Brisbo, director for the Bureau of Marijuana Regulation. Each community is able to assess a $5,000 fee per year on each licensed business.

And other communities, including Adrian, recognize the potential benefits for a marijuana-friendly community go beyond tax revenue.

“We’ve got new buildings going up; we’ve got new jobs being created,” Henagan said.

Creating recreational rules

The tax differences between medical and recreational marijuana will become clearer when the recreational marijuana market begins sales later this year or in 2020. Recreational users will pay a combined 16% for their marijuana, while registered medical marijuana patients will pay the 6% sales tax for what is essentially the same product.

The arrangement presents a challenge to businesses hoping to obtain both recreational and medical licenses. Potential licensees have asked the state to clarify whether the price difference should be evident on the store floor, processed at different counters or added at the point of sale.

The state is mulling the questions as it creates rules for legalized adult use.

“We want to be open to all feedback and lay things out in a way that makes it industry-friendly but ensures that it can be tracked appropriately and, obviously, that it is safe for customers,” Brisbo said.

Most marijuana businesses and pot-related stakeholders argued last week to state regulators that Michigan's recreational pot rules should be similar to those for medical marijuana.

State law requires that first priority in recreational licensing should go to those already holding state licenses for medical marijuana sales, so its likely many of the first recreational marijuana facilities will be dual license holders.

Buy Photo

Stuart Carter, owner of Utopia Gardens in Detroit, said, "The state is saying they want two separate containers of this marijuana (medical vs. recreational), yet it’s the same.” *(Photo: Clarence Tabb Jr., The Detroit News)*

In that case, it makes little sense to create rules that would require different standards for what is essentially the same flower, said Stuart Carter, owner of Utopia Gardens in Detroit.

“Right now, the state is saying they want two separate containers of this marijuana, yet it’s the same,” Carter said. “I was trying to convince the panelists that it's redundant. The difference should be at the point of sale.”

Medical sales to dip

Brisbo expects the medical marijuana population to decline, as it has in other states that legalized pot after approving medical use.

Although the lack of an excise tax for medical marijuana gives customers an incentive to seek a spot on the medical registry to avoid the higher cost of recreational marijuana, the ease of purchasing recreational pot without a card is expected to draw other consumers.

Some patients — such as children and teens — will still need access to the medical pot industry.

“I think it’s reasonable to assume the medical market will decline over time," Brisbo said. "Whether or not it fully collapses in on itself I can’t really say."

eleblanc@detroitnews.com

(517) 371-3661

Read or Share this story: https://www.detroitnews.com/story/news/local/michigan/2019/04/11/end-tax-mystifies-shortchanges-medical-pot-communities/3292668002/

STATE OF MICHIGAN
DEPARTMENT OF TREASURY
LANSING

GRETCHEN WHITMER
GOVERNOR

RACHAEL EUBANKS
STATE TREASURER

NOTICE TO TAXPAYERS REGARDING THE MICHIGAN REGULATION AND TAXATION OF MARIHUANA ACT

Issued: January 29, 2019

On November 6, 2018, Michigan voters approved a ballot initiative legalizing the recreational use and possession of marihuana for adults 21 years of age and older and enacting an excise tax on retail marihuana sales. The resulting legislation is known as the Michigan Regulation and Taxation of Marihuana Act (MRTMA). MRTMA does not replace either the Medical Marihuana Facilities Licensing Act (Marihuana Facilities Act) or the Michigan Medical Marihuana Act. Marihuana sold under MRTMA is referred to as "recreational" or "adult-use" marihuana.

Regulatory Aspects of MRTMA

MRTMA establishes a comprehensive regulatory system for the issuance of licenses for the cultivation, processing, testing, transportation and retail sales of marihuana for use by Michigan adults 21 years of age and older. All regulatory aspects of MRTMA, including specific requirements and standards for marihuana cultivation, processing, testing, packaging, labeling, and transportation, as well as for the licensing of marihuana establishments, will be administered through the Michigan Department of Licensing and Regulatory Affairs (LARA).

The legislation provides for a "ramping up" period for the state to put necessary regulations and procedures into place. Therefore, although MRTMA became effective on December 6, 2018, commercial sales of marihuana will not begin immediately. Under MRTMA, LARA must begin accepting applications for licenses within 12 months of the effective date of the legislation.

Excise Tax on Marihuana Sales

MRTMA imposes a 10 percent excise tax on marihuana sales at the retail level, which will be administered by the Department of Treasury (Treasury). The 10 percent excise tax is levied in addition to any other applicable state taxes, including the existing 6 percent sales tax. Specifically, the legislation provides that the excise tax is imposed "at the rate of 10% of the sales price for marihuana sold or otherwise transferred to anyone other than a marihuana establishment." The term "sales price" is not defined in the legislation.

MRTMA further provides that taxable marihuana "may not be bundled in a single transaction with a product or service" that is not subject to the 10 percent excise tax. This provision prohibits marihuana from being sold in single-mixed or bundled transactions. Consequently, the "incidental to service" test established by the Michigan Supreme Court in *Catalina Mktg Sales*

Corp v. Dept of Treasury, 470 Mich 13 (2005), with which many retailers may be familiar, is not applicable to sales of recreational marihuana.

In the coming months, Treasury expects to issue taxpayer guidance establishing the definition of "sales price" and clarifying the tax result of retail marihuana sales made in violation of the no-bundling provision.

Sales Tax on Marihuana Sales

As noted, in addition to the new 10 percent excise tax, marihuana sales under MRTMA will also be subject to Michigan's 6 percent sales tax. Marihuana constitutes "tangible personal property" under the General Sales Tax Act; therefore, absent a valid claim of exemption, the retail sale of marihuana is subject to sales tax. Importantly, marihuana sales are subject to sales tax whether the marihuana is sold legally or illegally. *See* NOTICE REGARDING MICHIGAN TAXES ON ILLEGAL ACTIVITIES, available on Treasury's website, for additional information.

Medical Marihuana

MRTMA does not replace either the Marihuana Facilities Act or the Michigan Medical Marihuana Act; all three statutes are currently effective. The Marihuana Facilities Act imposes a 3 percent excise tax on the gross retail receipts of medical marihuana "provisioning centers" (sometimes informally known as dispensaries). However, the Marihuana Facilities Act also provides that the 3 percent excise tax is repealed by operation of law beginning 90 days after the effective date of a law "authorizing the recreational or nonmedical use of marihuana in this state." Accordingly, due to the passage of MRTMA, the 3 percent excise tax on medical marihuana provisioning centers will *not be applicable* beginning on March 6, 2019 (90 days from December 6, 2018).

GENERAL FUND
FINANCIAL SUMMARY
2019

Summary of 2019 Operating Activity:

Estimated Revenues & Financing Sources:			
Taxes	$12,784,200	60.13%	
Licenses & Permits	771,000	3.63%	
Intergovernmental	3,690,500	17.36%	
Charges For Services	3,718,700	17.49%	
Interest	104,485	0.49%	
Other Revenues	192,160	0.90%	
Total Estimated Revenues & Financing Sources			$21,261,045
Estimated Expenditures & Financing Uses:			
Legislative	82,300	0.38%	
General Government	6,066,695	28.02%	
Public Safety	13,353,340	61.67%	
Health & Welfare	59,425	0.27%	
Community Economic & Development	130,000	0.60%	
Recreation & Culture	1,138,045	4.33%	
Other	1,022,900	4.72%	
Total Estimated Expenditures & Financing Uses			21,852,705
Anticipated Surplus (Deficit) for 2019			($591,660)

Statement of Fund Balance

Fund Balance as of December 31, 2017 (per audited financial statements)	$6,857,233
Anticipated Surplus (Deficit) for 2018	(960,230)
Estimated Available Fund Balance as of December 31, 2018	5,897,003
Anticipated Surplus (Deficit) for 2019	(391,660)
Estimated Available Fund Balance as of December 31, 2019	$5,305,343
Fund Balance/Average Monthly Expenditures	3.34

U.S. Department of Homeland Security
U.S. Citizenship and Immigration Services
Office of the Director (MS 2000)
Washington, DC 20529-2000

U.S. Citizenship and Immigration Services

April 19, 2019 PA-2019-02

Policy Alert

SUBJECT: Controlled Substance-Related Activity and Good Moral Character Determinations

Purpose

U.S. Citizenship and Immigration Services (USCIS) is issuing policy guidance in the USCIS Policy Manual to clarify that violation of federal controlled substance law, including for marijuana, remains a conditional bar to establishing good moral character (GMC) for naturalization even where that conduct would not be an offense under state law.

Background

Since 1996, a number of states and the District of Columbia have enacted laws to decriminalize the cultivation, possession, distribution, and use of both medical and non-medical (recreational) marijuana in their respective jurisdictions. However, federal law classifies marijuana as a "Schedule I" controlled substance whose manufacture, cultivation, possession, or distribution may lead to criminal[1] and immigration consequences. This guidance, contained in Volume 12 of the Policy Manual, is controlling and supersedes any prior guidance on the topic.

Policy Highlights

- Clarifies that violation of federal controlled substance law, including for marijuana, established by a conviction or admission, is generally a bar to establishing GMC for naturalization even where the conduct would not be a violation of state law.
- An applicant who is involved in certain marijuana related activities may lack GMC if found to have violated federal law, even if such activity is not unlawful under applicable state or foreign laws.

Citation

Volume 12: Citizenship and Naturalization, Part F, Good Moral Character, Chapter 5, Conditional Bars for Acts in Statutory Period [12 USCIS-PM F.5]

[1] See the Controlled Substances Act (21 U.S.C. 812), which categorizes controlled substances into five "schedules" based on their accepted medical uses, potential for abuse, and psychological and physical effects on the body.

To: **Planning Commission**

From: **Peter Menser, Principal Planner**

Date: **May 10, 2019**

Re: **<u>Mixed Use Planned Unit Development #19024 (Village of Okemos, LLC)</u>, construct Village of Okemos mixed use project at Okemos Road/Hamilton Road.**

Village of Okemos, LLC has submitted a mixed use planned unit development (MUPUD) proposal for a project identified as Village of Okemos. The C-2 (Commercial) zoned 3.99 acre project site consists of 11 parcels located on the north and south sides of Hamilton Road and west side of Okemos Road. The proposal includes the demolition of all existing buildings on the site and construction of seven new buildings with a total of 174 dwelling units. The buildings are four stories in height, with fifth stories in some locations. 289,037 total square feet of building area is proposed, consisting of 222,585 square feet of residential space and 66,452 square feet of commercial space. The table below provides a breakdown of the square footage and number of units for each building in the project:

	Size	Units
Building A	35,895 sq. ft.	16 units
Building B	43,620 sq. ft.	24 units
Building C	51,655 sq. ft.	42 units
Building D	38,980 sq. ft.	17 units
Building E	52,950 sq. ft.	24 units
Building F	47,705 sq. ft.	24 units
Building G	32,090 sq. ft.	27 units

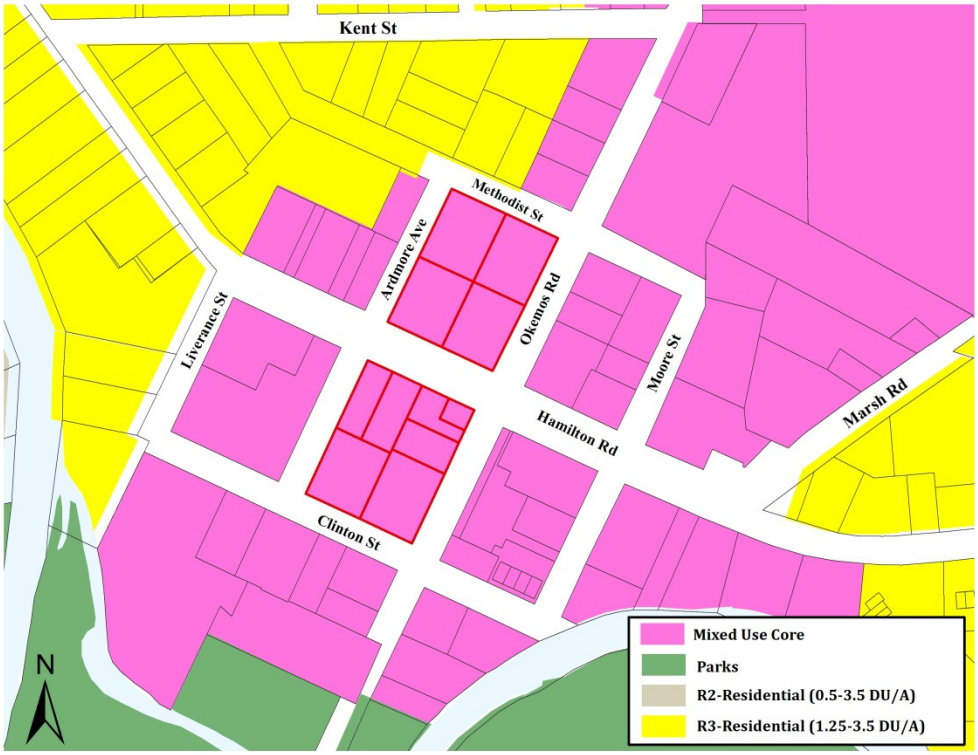
Buildings A through F are mixed use buildings, with commercial uses on the first floors and in some areas of the second floors (in Buildings A and B) and residential units on upper floors. Building C along Ardmore Avenue consists of 42 residential units with no commercial space. Of the 174 total dwelling units proposed there are 29 "junior" (studio) units, 60 1-bedroom units, 63 2-bedroom units, and 22 loft/townhouses. Overall residential density is 43.61 dwelling units per acre (du/a).

In addition to the MUPUD, a special use permit (SUP) is required for constructing a group of buildings totaling more than 25,000 square feet in gross floor area. The special use permit (SUP #19051) is being processed concurrently with the MUPUD request.

Master Plan

The Future Land Use Map from the 2017 Master Plan designates the subject property in the Mixed Use Core category.

FUTURE LAND USE MAP



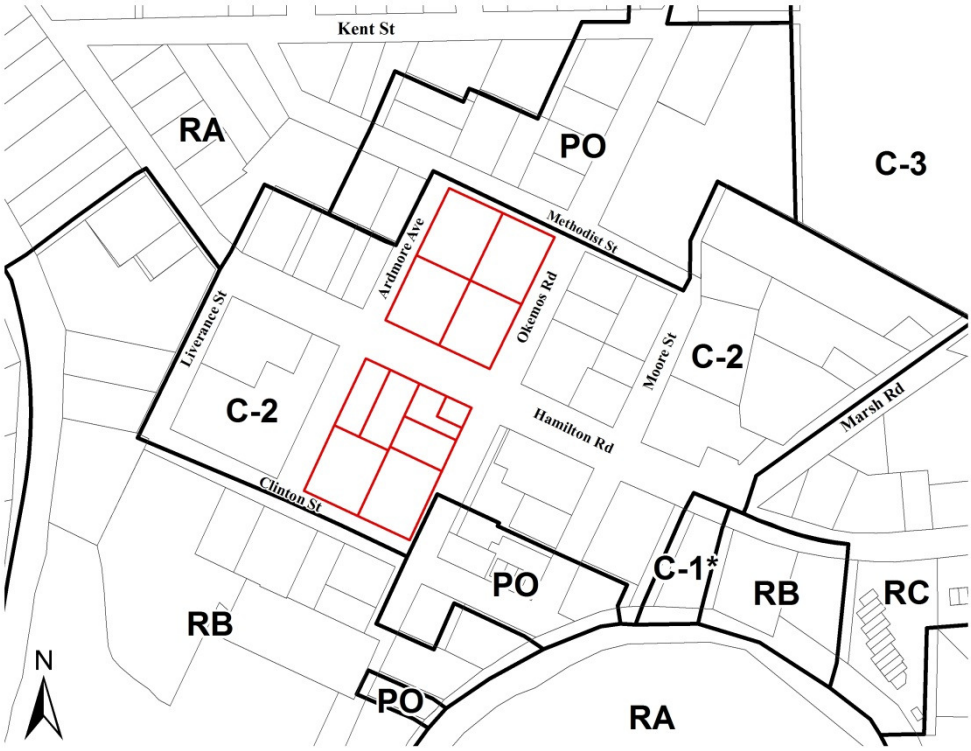
Zoning

The proposed project is located in the C-2 (Commercial) zoning district. A MUPUD is permitted in the C-2, C-3 (Commercial), CR (Commercial Recreation), and CS (Community Service) zoning districts and is also permitted in C-1 (Commercial) and PO (Professional and Office) when public water and sewer are available. All uses permitted by right and by special use permit in the underlying C-2 zoning district are permitted in a MUPUD.

At its meeting on May 15, 2018 the Township Board approved Zoning Amendment #18020, which established new standards for residential density and building height only for mixed use planned unit development projects in two areas, a five block (14 acre) area in downtown Okemos and a three block (53 acre) area in downtown Haslett. The amendment removed the previous limitations on residential density (up 18 dwelling units per acre with the provision of amenities) and raised the maximum allowable building height from 45 feet to 60 feet for those areas.

The amendment granted the Township Board the authority to establish appropriate limits for density and to consider buildings taller than 45 feet in height based on consistency with a list of 11 performance criteria. The performance criteria include issues such as architecture, renewable energy, amenities, transportation, and traffic impacts. The Village of Okemos project is located within the area covered by the zoning amendment.

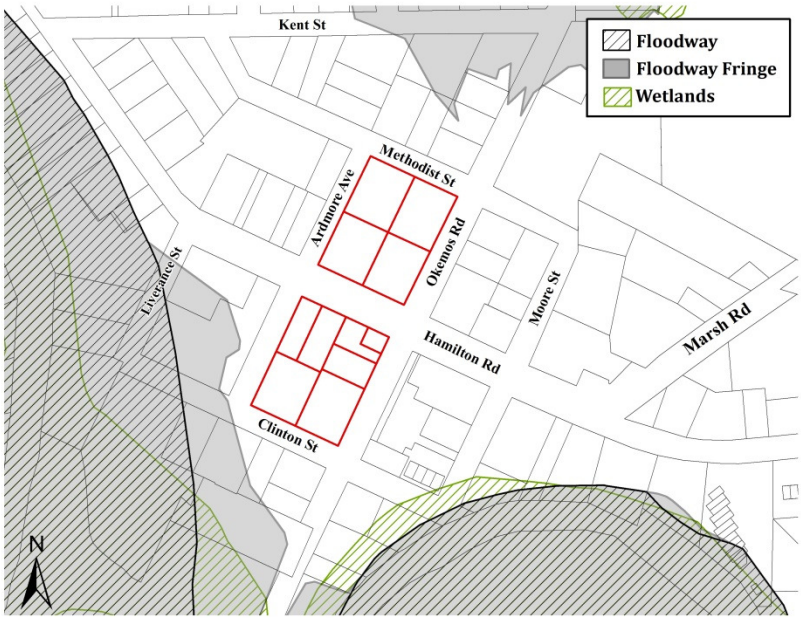
ZONING MAP



Physical Features

The subject property is currently occupied by 10 vacant commercial buildings, one vacant residential building, and related surface parking lots. Mature trees and landscaping is present around some of the properties. The Flood Insurance Rate Map (FIRM) for Meridian Township indicates the property is not located in a floodplain and wetlands are not present on the site. No work is proposed in the floodplain at this time. The floodplain in this area is located to the west of Ardmore Street. Wetlands are limited to the area immediately adjacent to the Red Cedar River.

FLOODPLAIN/WETLANDS MAP



GREENSPACE PLAN

The Township Greenspace Plan shows a Priority Conservation Corridor (PCC) and Fragile Link to the southwest of the project site in the area around the Red Cedar River. An On-Road Pathway is located along Okemos Road. A PCC is a network of ecologically significant open spaces and a Fragile Link is an area where a PCC is exceptionally narrow or fragmented.

Streets and Traffic

The project site is located on the west side of Okemos Road and the north and south sides of Hamilton Road. Okemos Road is four-lanes wide with curb and gutter, classified as a Principal Arterial on the Street Setbacks and Service Drives Map in the zoning ordinance. Hamilton Road is a four lane road with curb and gutter, also classified as a Principal Arterial. The roads surrounding the project site, Ardmore Avenue, Clinton Street, and Methodist Street, are all classified as local streets. A seven foot wide pathway is present along Okemos Road, Hamilton Road, and a portion of Clinton Street.

A traffic impact study is required for MUPUDs which would generate over 100 directional trips during a peak hour of traffic on adjacent roadways. The applicant submitted a traffic impact study prepared by Hubbell, Roth, & Clark, Inc. (HRC) dated December 11, 2018 that provides detailed information on existing traffic volumes, estimates of traffic generated by the proposed MUPUD, turning movements, and level of service (LOS) at surrounding intersections. The study also provides recommendations to the existing road network to improve circulation and LOS.

The submitted site plan proposes improvements to Hamilton Road, including the installation of a landscaped boulevard. Other road improvements such as changes to lanes, turning improvements, and signal modification and optimization are being considered for potential future phases of the project but are not included in the present request.

Utilities

Municipal water and sanitary sewer is available to serve the project site. The location and capacity of utilities for the proposed development will be reviewed in detail by Public Works and Engineering staff during the site plan review process.

Parking

The Township Code of Ordinances requires two parking spaces for each dwelling unit and five (minimum) to 5.5 (maximum) parking spaces per 1,000 square feet of gross floor area for the commercial space. With 174 dwelling units and 66,452 square feet of commercial space, a total of 680 parking spaces would be required for the project.

In addition to the required motor vehicle parking, one bicycle parking space for every 10 required motor vehicle parking spaces must also be provided. The maximum number of required bicycle parking spaces cannot exceed 50, however more bicycle parking can be provided if desired. With 680 motor vehicle parking spaces required, the maximum of 50 bicycle parking spaces are required for the project. 50 bicycle parking spaces (25 bicycle racks) are provided in different areas on the property.

The ordinance allows the number of required motor vehicle parking spaces on the site to be reduced by one motor vehicle parking space for every two bicycle parking spaces installed on a site, up to a maximum of 10 percent of the total number of required motor vehicle parking spaces. Using this formula the required number of motor vehicle parking spaces can be reduced by 25 spaces. With the allowed reduction granted for bicycle parking, the total required motor vehicle parking is reduced to 655 spaces.

The submitted site plan proposes 509 parking spaces on the site. The parking is comprised of the following:

	Number of spaces
Block 1 surface level parking	128
Block 2 underground parking	216
Block 2 surface level parking	85
On-street parking	56
Private garage parking	24
Total:	509

With 655 required parking spaces and 509 proposed spaces the applicant is seeking a 146 space waiver from the Township Board as part of the MUPUD approval.

Staff Analysis

The applicant has requested to construct a mixed use planned unit development (MUPUD) identified as the Village of Okemos. In a MUPUD request the Planning Commission makes a recommendation on the project and the Township Board makes the final decision. When reviewing the project the Planning Commission should consider the appropriateness of the requested waivers, the proposed amenities and related review criteria, the applicant's responses to the density and height performance criteria as outlined in Section 440(c)(2)e, and the MUPUD design standards as outlined in Section 86-440(f) of the Code of Ordinances.

The MUPUD ordinance generally waives the standard requirements for lot size, yards, frontage requirements, setbacks, maximum impervious surface, and type and size of dwelling unit, provided the purpose and intent of the ordinance are incorporated into the overall development plan. The MUPUD ordinance is intended to provide flexibility for the Planning Commission and Township Board to set appropriate standards during the review process.

The following is a summary of the project's consistency with the MUPUD ordinance standards. As part of this project analysis, standards for the underlying C-2 zoning district will be compared to what is proposed on the submitted site plan.

Land Use: All uses permitted by right and by special use permit in the underlying zoning district are allowed in a MUPUD. The applicant is proposing a mix of residential and commercial space.

Density: The submitted plan proposes 174 dwelling units on 3.99 acres for a density of 43.61 dwelling units per acre (du/a). Since the project site is located in downtown Okemos, the Township Board has the authority to establish appropriate limits for density based on consistency with a list of 11 performance criteria. For a MUPUD located outside of the downtown Okemos or downtown Haslett areas, redevelopment projects are allowed a maximum of 14 dwelling units per acre (du/a). The maximum density may be increased to no more than 18 du/a when an applicant offers four or more unique and extraordinary amenities acceptable to the Township, such as but not limited to green roofs, covered bicycle storage, and multilevel or underground parking. For undeveloped sites, a maximum of 10 du/a is allowed.

Phasing: The applicant has indicated the development of both blocks will be completed in one phase.

Amenities: One or more amenities are required for every MUPUD project and should represent multiple categories from the list of amenity categories which are Conservation; Environment; Parks, Recreation, and Culture; Social Interaction; and Site and Building Design. Criteria to determine whether a proposed amenity is acceptable for consideration can be found in Section 86-440(e)(2) of the MUPUD ordinance. The submitted site plan lists the following amenities: public art/clock tower, sidewalk planters, innovative lighting, multi-level parking, first floor awnings and upper floor balconies, outdoor seating, transit stop, rehabilitation of degraded site, and consolidation of multiple land parcels.

Building height: Since the project site is located in downtown Okemos the ordinance allows buildings up to four stories or a maximum of 60 feet and a fifth story when it is setback a minimum of 10 feet from the predominant first-floor facade elevation. The ordinance also provides standards for interior floor-to-ceiling height, which are a minimum of 14 feet for first floor commercial or office uses and a minimum of nine feet for all residential and any upper floors, regardless of use. If the project was proposed on property located outside of downtown Okemos or downtown Haslett the maximum building height allowed in a MUPUD is 45 feet.

Building elevations are provided in the MUPUD application materials. The building elevations indicate all buildings comply with the maximum height limitation of 60 feet. The buildings are four stories in height and, where present, a fifth story is located 10 feet back from the predominant first-floor facade elevation. The interior floor-to-ceiling height of the first floor commercial spaces is 14 feet. Residential stories in the project have nine foot ceilings, but the applicant is proposing fifth story residential units with ceiling heights of eight feet.

Building materials: Generally, building materials in a MUPUD should include, but are not limited to, wood, brick, clapboards, beadboard, glass, and stone. Other materials such as vinyl, aluminum, and metal sidings should be avoided. All buildings should be completed on all sides with acceptable materials. The design of the buildings should relate to and blend with the facades of adjacent buildings and complement streetscape improvements in the area. The proposed building materials for the project are a mix of masonry, exterior insulation and finish system (EIFS) siding, fiber cement, glass, vinyl, asphalt (shingles), metal, and wood. EIFS siding is a composite material that provides exterior walls with an insulated and water-resistant finished surface. Elevations of the buildings were submitted that show the different building materials for the project.

Architectural design: The MUPUD ordinance states that buildings wider than 50 feet shall be divided into increments of not more than 50 feet through articulation of the façade and nonresidential street level facades must be covered by at least 50% windows. Scaled building elevations have been provided which indicate the buildings as proposed provides the required facade articulation and window coverage.

Railings, benches, trash receptacles, or bicycle racks: Accessory items such as railings, benches, trash receptacles, or bicycle racks are required to be of commercial quality and complement the building design and style. Details on the proposed benches and trash/recycling receptacles are shown in application materials. The Township requires the use of an inverted "U" shaped bicycle rack, which are the type proposed in the project.

Trash and recycling: Trash and recycling receptacles are shown on the submitted site plan. The Township requires any proposed trash or recycling structure to be screened by an enclosure.

Parking: The setbacks for a parking area and the number of parking spaces required can be waived in a MUPUD. 655 parking spaces are required for the project and the applicant is proposing 509 spaces.

Landscaping: Proposed landscaping must generally comply with the provisions of the Code of Ordinances. Landscaping should be designed to preserve existing significant natural features and to buffer service areas, parking lots, or dumpsters. A mix of evergreen and deciduous plants and trees are preferred, along with seasonal accent plantings. While not required as part of the MUPUD application, a landscape plan for the project was submitted. Landscaping will be reviewed in detail during site plan review.

Lighting: The MUPUD ordinance requires site lighting to comply with the Outdoor Lighting Ordinance and limits street lighting intended to provide illumination for pedestrians on the sidewalk to no taller than 15 feet in height. Information on site lighting was provided and will be reviewed in detail during site plan review.

Signs: A sign program is required as part of the MUPUD application showing the style, size, number, and location of any proposed signs and is approved by the Township Board as part of the MUPUD. Freestanding signs are generally not permitted in a MUPUD. Exceptions for freestanding signs of the monument type may be permitted when a building is set back a minimum of 15 feet from the right-of-way (ROW) line with the resulting yard set aside for permanent public open space. Freestanding signs are required to be at least 10 feet back from the adjacent road right-of-way (ROW). Details on proposed signage can be found on the building elevations and in the application materials.

Sidewalks: Generally, sidewalks in a MUPUD must be a minimum of five feet in width. Seven foot wide sidewalks are required when a sidewalk is located immediately adjacent to an off-street parking area. The submitted site plan shows five and seven foot wide sidewalks on all sides of the two blocks in the project area.

Waiver requests

The MUPUD ordinance generally waives the standard requirements for lot size, setbacks, type and size of dwelling unit, lot frontage, number of required parking spaces, and impervious surface coverage, provided the purpose and intent of the ordinance are incorporated into the overall development plan. Based on the submitted site plan the applicant is requesting the following waivers for the Village of Okemos project.

Front yard setback

The following front yard setbacks are required: 100 feet from the center of the Okemos Road right-of-way (ROW), 25 feet from the Clinton Street and Ardmore Avenue ROW, and 85 feet from the center of the Hamilton Road ROW. At its closet point the buildings in the proposed project are located 48.87 feet from the center of the Okemos Road ROW, 0 feet from the Clinton and Ardmore ROWs, and 50.55 feet from the center of the Hamilton Road ROW. Waivers of 51.73 feet (Okemos), 25 feet (Clinton/Ardmore), and 34.45 feet (Hamilton) are requested for the front yard building setbacks.

Setback from residential zoning district

In the C-2 zoning district no structure is permitted within 100 feet of any residential zoning district boundary line. As proposed, Buildings B and C are located 66 feet from the RB (Single Family, High Density) property to the south. A waiver of 34 feet is requested for the setback from the residential zoning district boundary.

Maximum impervious surface

In Commercial (C-1, C-2, C-3) zoning districts a maximum of 70 percent impervious surface coverage is allowed. The submitted site plans show the project site with 96.73 percent impervious surface. A waiver of 26.73 percent is requested.

Parking lot setback

Where a parking area with a capacity of 50 or more vehicles, or its associated internal access or service drives, adjoins a residential district a landscaped buffer at least 40 feet wide must be provided between the parking area and the adjoining property line. At its closest point the parking lot on the south side of the property is located 0 feet from the RB zoning district line. A waiver of 40 feet is requested for the parking lot setback from a residential zoning district.

Where a parking area adjoins a public street a landscaped buffer at least 20 feet wide must be provided between the parking area and the adjacent right-of-way. The landscaped buffer is not provided so a waiver of 20 feet is requested for the parking lot setback from a public street.

Parking

655 parking spaces are required for the project based on the number of residential units, commercial space in the mixed use building, and the allowed reduction granted for bicycle parking. 509 parking spaces are proposed by the applicant. A waiver of 146 parking spaces is required.

Planning Commission Options

The Planning Commission may recommend approval, approval with conditions, or denial of the proposed MUPUD. The Planning Commission is required to make a recommendation on the MUPUD within 60 days of the date of the public hearing. A resolution will be provided at a future meeting.

Attachments

1. Application and attachments.
2. Site plan prepared by Kebs, Inc. dated April 14, 2019 (revision date May 10, 2019) and received by the Township on May 10, 2019.
3. Floor plans prepared by Hobbs + Black Architects/Presley Architecture dated April 19, 2019 and received by the Township on May 10, 2019.
4. Building elevations prepared by Hobbs + Black Architects/Presley Architecture dated April 19, 2019 (revision date May 9, 2019) and received by the Township on May 10, 2019.
5. Landscape plan prepared by MKSK dated April 19, 2019 and received by the Township on May 10, 2019.
6. Traffic study prepared by Hubbell, Roth, & Clark, Inc. dated December 11, 2018.
7. Letter from Ingham County Road Department Director of Engineering Kelly R. Jones dated April 30, 2019.
8. MUPUD Density & Height performance criteria.

G:\Community Planning & Development\Planning\MIXED USE PLANNED UNIT DEVELOPMENTS (MUPUD)\2019\MUPUD 19024 (Village of Okemos LLC)\MUPUD 19024.pc1.docx

CHARTER TOWNSHIP OF MERIDIAN
DEPARTMENT OF COMMUNITY PLANNING AND DEVELOPMENT
5151 MARSH ROAD, OKEMOS, MI 48864
PHONE: (517) 853-4560, FAX: (517) 853-4095

APR 22 2019

MIXED USE PLANNED UNIT DEVELOPMENT APPLICATION

Before submitting this application for review, an applicant shall participate in the pre-application conference with the Director of Community Planning and Development to discuss the requirements for a Mixed Use Planned Unit Development.

Part I

A. Applicant Village of Okemos, LLC
Address of Applicant 2410 Woodlake Dr. Suite 440 Okemos, MI 48864
Telephone - Work (517) 580-2550 E-Mail _____ Fax _____
Interest in property (circle one): (Owner) Tenant (Option) Other _____
(Please attach a list of all persons with an ownership interest in the property.)
Village of Okemos, LLC / Douglas J Housing Okemos, LLC / Chowcero, LLC / Sherry Fisher

B. Site address / location / parcel number 2137 Hamilton Rd.
Legal description (please attach if necessary) _____
Current zoning C2 / Overlay
Project name Village of Okemos

C. Developer (if different than applicant) Village of Okemos, LLC
Address _____
Telephone: Work _____ E-Mail _____ Fax _____

D. Architect, Engineer Planner or Surveyor responsible for design of project if different from applicant:
Name KEBS, INC.
Address 2116 HASLETT ROAD HASLETT, MI 48840
Telephone(s) 517-339-1014 E-Mail AJPATRICK@KEBS.COM Fax 517-339-8047

E. Acreage of all parcels in the project: Gross 3.99 Net 3.99

F Proposed Uses and Site Amenities:

1. Non-residential uses:
   a. Type COMMERCIAL (OFFICE/RETAIL)
   b. Percent of project area 30.3%
   c. Total square feet for non-residential uses 82,110 SF
   d. Usable floor area 82,110 x 0.85 = ± 69,800 SF
   e. Number of employees TBD
   f. Hours of operation TBD

2. Residential Uses:
   a. Percent of project area
   b. Total dwelling units
   c. Dwelling unit mix:
      i. Number of single family detached: for Rent — Condo _____
      ii. Number of duplexes: for Rent — Condo _____
      iii. Number of townhouses: for Rent 16 Condo _____
      iv. Number of garden style apartments: for Rent 131 Condo _____
      v. Number of other dwellings: for Rent — Condo _____

3. Parking:
   a. Non-residential uses 299 SHARED SPACES (RESIDENTIAL & COMMERCIAL)
   b. Residential uses 240 SPACES (BASEMENT LEVEL & GARAGES)

4. Proposed Amenities: Type CULTURE - PUBLIC ART / CLOCK TOWER
   (General) Type ENVIRONMENT - REHABILITATION OF DEGRADED SITES
   Type ACCESSIBILITY - TRANSIT STOP
   Type SOCIAL INTERACTION - OUTDOOR SEATING
   Type SITE & BLDG DESIGN - AWNINGS & BALCONIES, MULTILEVEL PARKING, SIDEWALK PLANTERS, INNOVATIVE LIGHTING, CONSOLIDATION OF MULTIPLE PARCELS

   Proposed Amenities: Type _____
   (Density Bonus) Type _____
   Type _____
   Type _____

G. The following support materials must be submitted with the application:

1. Nonrefundable fee.
2. Legal Description of the property. (A sealed survey may be required)
3. Evidence of fee or other ownership of the property or a letter from the owner authorizing the request including the owner's proof of ownership.
4. A written description of the project including, but not limited to: a site analysis; the principal factors which influenced the site plan and architectural elements; and, the proposed phasing program for non-residential and residential uses, installation and/or construction of amenities.
5. Fourteen copies (Thirteen (13) 24"x36" and one 8½" x11") of a Site Plan drawn to a readable scale containing the following (may be a set of plans for readability):
   - Total property, its location in the Township, its relationship to adjacent properties
   - Boundaries of subject property
   - Location and dimensions of all existing and proposed structures
   - Approximate location and distance of all structures within 100 feet of the subject property
   - Proposed means of vehicular and pedestrian ingress and egress to the subject property
   - Public and private roads and streets, rights-of-way and easements indicating names and widths of streets which abut or cross the site
   - Existing and proposed parking spaces and vehicular and pedestrian circulation patterns
   - Dimensions of setbacks from streets, property lines and between buildings on the site
   - Location of proposed amenities
   - Location and size of existing utilities including power lines and towers, both above and below ground
   - Amount and location and calculation of all impervious surfaces
   - Verified boundaries of all natural water features and required setback lines
6. A reproducible two foot contour topographic map based on United States Geological Survey (USGS) drawn at the same scale as the site plan and showing existing relief features on the site.
7. A schematic layout of the proposed storm sewer system.
8. Architectural sketches of all elevations of proposed buildings or structures, including the project entrances, as they will appear upon completion. The sketches should be accompanied by material samples or a display board of the proposed exterior materials and colors.
9. Floor plans of proposed residential units.

10. A Traffic Study (if the project will exceed 100 vehicle trips during the peak hours of the roadway(s), prepared by a qualified traffic engineer, based on the most current edition of *Evaluating Traffic Impact Studies: A Recommended Practice for Michigan Communities*, published by the State Department of Transportation.

11. Natural Features Study for previously undeveloped properties which includes a written description of natural features proposed to be retained, removed, or modified. Natural features shall include, but are not limited to, wetlands, floodways, floodway fringe, waterbodies, significant stands of trees or individual trees greater than 12 inches dbh, identified groundwater vulnerable areas, slopes greater than 20 percent.

12. Preliminary engineering reports in accordance with the adopted Township water and sewer standards, together with a letter of review from the Township Engineer.

13. A sign program illustrating size and location of each proposed sign type.

14. A lighting plan (see Chapter 38, Article VII).

15. Copies of comments from reviewing agencies such as, but not limited to, the following:
    - Ingham County Road Commission
    - Ingham County Drain Commission
    - Michigan Department of Transportation (if applicable)
    - Michigan Department of Environmental Quality (if applicable)
    - The appropriate school board (as applicable)

H. Any other information specified by the Director of Community Planning and Development which is deemed necessary to evaluate the application.

Part II

I (we) hereby grant permission for members of the Charter Township of Meridian's Boards and/or Commissions, Township staff member(s) and the Township's representatives or experts the right to enter onto the above described property (or as described in the attached information) in my (our) absence for the purpose of gathering information including but not limited to the taking and the use of photographs.

☒ Yes ☐ No (Please check one)

By the signature(s) attached hereto, I (we) certify that the information provided within this application and accompanying documentation is, to the best of my (our) knowledge, true and accurate

Village of Okemos, LLC by Will Randle, authorized agent
Signature of Applicant

4/22/19
Date

Village of Okemos, LLC by Will Randle, authorized agent
Type/Print Name

Fee: _____

Received by: [signature] 4-22-19

Date: 4.22.19

Pre-Application Meeting Held: _____
Date

Application Complete: _____
Date

By: _____
Staff

Chapter 86: Zoning
Article IV. District Regulations
Division 4. Other Districts: 86-440 MUPUD.
Subsection c) Permitted Locations and Uses. 3.e Mixed-Use PUD's

Performance Criteria for Village of Okemos

1) Architectural design and building placement are consistent with the 2017 Master Plan. They are in an urban compact arrangement that preserves natural resources and encourages walkability, therefore more environmentally friendly than a more suburban planning solution. They are in one of three locations identified in the Master Plan as prime locations for more resource-friendly urban development.

2) The buildings are generally four stories, with a fifth story in one half of the buildings. That top level is set back a minimum of 10 feet. In all cases it is the penthouse level of a 2-story townhome and allows the overall building height to stay within the 60 foot height limit. The other buildings are either 4 stories at the predominant elevation or 3 stories at predominant wall with fourth level under roof.

The first floor commercial use at mixed-use buildings has a clear height of 14 feet. The upper level residential clear height in all buildings is 9 feet, except in the case of fifth level penthouse units at 8 foot ceiling height. As these are all bedroom levels the lower height works fine and allows the total building height to stay within the 60 foot height limit.

3) Required parking for the project includes surface parking and sub-level deck parking. The surface parking is internal to each of the two blocks and either less visible from Okemos Road or not at all from Hamilton Boulevard. These lots are landscaped at the edges to screen parked cars. The sub-level deck will not be seen at all except for two partial walls on the south and west sides of Block 2. These walls will be treated so as to diminish into the landscaped area.

4) The residential development includes 5 unit types – Junior (no separated bed room), 1-Bedroom, 1-Bedroom with den, 2-Bedroom, and 2-level Townhome. There are a total of over 20 variations of plans, based on particular building location, space configuration and balcony/garden terrace opportunity.

5) Amenities for the residents are:
- -Community Gathering Room with Garden Terrace on Block 2
- -Exercise/workout area with smaller kitchen/gathering area and event rooms adjacent, bathrooms on Block 1
- -Secure parking at the covered sub-level parking deck
- -Secure storage on-site

Amenities for the public are:
- -Walkable ADA compliant 5-7 foot wide sidewalks with street trees, landscaping, benches
- -Restaurants with seasonal outdoor seating
- -On-street parking
- -Extension of the Heritage Trail Pedestrian Pathway

6) This project addresses non-motorized concerns in 2 ways:
a) The project is bicycle-friendly:
- -4 foot bike lane on west side of Okemos at the 2 new downtown blocks
- -Shared roadways at Ardmore and Clinton Streets
  - -per Pedestrian Bicycle Pathway Map (“sharrow” symbols on roadways)
- -Bicycle parking rack locations throughout both blocks

b) A bus stop is provided on Block 1 along Okemos Road
  - -Per CATA requirements and as outlined in the 2017 Master Plan.

7) Public parking (parallel on-street) is provided on all streets except Okemos Road. The roadways are all existing and connected to existing road networks. All existing curbs and access ways to adjacent properties to the project are retained and respected.

8) The project provides first floor commercial use in all buildings except one (on Ardmore Street). The total commercial area provided is consistent with a recent Retail Study done by Gibbs Planning Group. Three restaurants and a coffee shop are envisioned. An existing business –Douglas J Salon- will relocate to Block 2 and become an anchor for the downtown commercial mix. Also, a new anchor will be a major co-working office tenant, co-work space an emerging trend in downtowns.

9) The project completes what the Village of Okemos might have become, had Hamilton Road remained the major arterial connection to Detroit. It is a low-rise collection of mostly mixed-use buildings that looks to have been developed over time. This project will accomplish in 5 to 10 years what would have taken many more years then that, had Okemos somehow survived the test of time. As such it has the urban density it might have had: large enough to attract commercial uses, not tower over adjacent commercial buildings or residential neighborhoods and provide a focal point for communal gathering. Indeed, Cedar Bend Heights residents have easy walkability to the downtown that may very well enhance their property values.

10) Traffic impacts have been considered carefully. The proposed solutions bring the level of service at pertinent intersections to pre-development levels. In some cases, these levels of service are increased.

11) Unfortunately, there are no structures that can be preserved in the 2 blocks. In many cases they are not old buildings that deserve attention. In all cases they stand in the way of a major redevelopment project that is in the interest of the majority of the community.

SUP Request Standards (Township Code of Ordinance, Section 86-126)

1) This project complies with the intent of ordinance sections pertaining to Mixed-Use Projects, as it creates a walkable pedestrian-oriented small downtown. This downtown will provide a street of downtown first floor businesses (including restaurants, boutique retail and coffee shops) with tree-lined streets and wide sidewalks with benches and planter beds. It will be a vibrant environment for communal gathering.

2) This project fulfills one goal of the 2017 Master Plan, that of creating a Mixed-Use Core district specifically in this location at Okemos and Hamilton Streets.

3) The character of the adjacent commercial buildings is generally 2-story and close to the street right-of-way. We are creating a 4-story downtown that steps down the building massing and cladding so as to look like 3 stories at the street. We propose similar building setbacks from the streets. Our project will look more like the intended character envisioned by the Master Plan.

4) The existing Cedar Bend Heights neighborhood is closest to Village of Okemos and therefore most affected potentially. Because of new parallel parking on a narrower Hamilton street with a boulevard we anticipate that traffic will be calmed as it comes through the new downtown, more than it now. It is possible that some who use Hamilton Street as a vehicular cut-through may choose other now-shorter-time routes. Also, there are natural pedestrian routes from CBH to the new downtown that can be enhanced.

5) Rather than being detrimental, this project may make neighborhoods/properties within walking distance to this vibrant new downtown more valuable in the near-future.

6) Yes. The project is adequately served by public facilities. The project is bordered by Hamilton Rd., Ardmore Ave., Clinton St., and Okemos Rd. (major trunk line) and near several public transportation and public utilities. A CATA bus stop is proposed as part of the development.

7) Yes. The project is adequately served by public sanitation facilities that are accessible by the proposed development.

8) Yes. The proposed development will rehabilitate blighted properties and provide a viable commercial/residential use that is needed in the Downtown Okemos area. The proposed development will not involve uses that cause excessive noise, smoke, fumes, glare or odors. A traffic study has been completed with recommendations for street improvements to accommodate the anticipated traffic from the proposed development.

9) Yes. The project will have a positive impact on the natural resources of the Township. The proposed development will include the removal of existing subsurface contamination on the properties, and the installation of measures to prevent exposure to harmful vapors.

THE VILLAGE OF

OKEMOS

Meridian Township Planning Commission
5151 Marsh Road
Okemos, MI 48864

April 16, 2019

Dear Commissioners:

Ten short years ago Meridian Township community members envisioned what they thought a future revived village of Okemos might look like, as described in the 2009 DDA Integrated Plan. In 2017, the Master Plan further articulated what this village build-out might be and how township goals and objectives could be met.

Today we are honored to offer our proposal for the new Village of Okemos, to begin to fulfill that shared community vision and township staff commitment.

To be more specific, we offer a small mixed-use four-story downtown with a variety of residential dwelling units and sizes over first floor commercial. The commercial uses are diverse as well, with restaurants and coffee shops, boutique retail and co-worker office space, all anchored by Okemos' own relocated Douglas J Salon and Spa.

The project will be phased. Phase One area is over 250,000 square feet of built space, of which 70,000 square feet will be commercial. There will be 147 residential units. Phase Two will bring the total build-out to over 300,000 square feet on the two blocks, and approximately 200 residential units. Note that this project develops the two blocks west of Okemos Road, the west half of the original 4-block downtown envisioned in 2009 and 2017.

The Meridian Township Master Plan has seven goals, of which this project satisfies six. From enhancing neighborhoods, common space, businesses and parks, to encouraging sustainable growth and transportation practices, we offer what all townships should consider – a compact thriving small commercial downtown with vibrant walkable streets.

In short the Village of Okemos will provide a place for communal gathering and living, so important to the health and well-being of Meridian Townships residents and visitors.

Attached are documents that support and describe our work this past year:
-Plan Set: 37 documents (see Cover Sheet for legend)
-Attachments to this cover letter:
A: Area Retail Study
B: Commercial Signage Approach
C: Sustainable Building Design
D: Landscape Materials
E: Non-Motorized Plan (including walk paths)
F: Way-Finding Signage Plan
G: Traffic Study

Thank you for this opportunity.

Sincerely,

Will Randle
True North Development

EXHIBIT A

Village of Okemos
Meridian Township, Michigan

TRUE NORTH DEVELOPMENT PRESLEY ARCHITECTURE M ARCHITECTS Gibbs Planning Group

Top Supportable Retail Categories

12,300 sf General Merchandise
4,900 sf Limited-Serv. Eating Places
4,000 sf Bars, Breweries & Pubs
3,400 sf Full-Service Restaurants
2,700 sf Special Food Services
2,600 sf Hardware & Garden Stores
2,400 sf Specialty Food Stores
45,000 sf Total

Village of Okemos
Meridian Township, Michigan

TRUE NORTH DEVELOPMENT PRESLEY ARCHITECTURE M ARCHITECTS Gibbs Planning Group

2019-24 Estimated Supportable Retail Table

Retail Category	Estimated Supportable SF	2019 Sales/SF	2019 Estimated Retail Sales	2024 Sales/SF	2024 Estimated Retail Sales	No. of Stores
Retailers						
Apparel Stores	1,600	$295	$472,000	$310	$496,000	1
Beer, Wine & Liquor Stores	2,300	$320	$736,000	$335	$770,500	1
Book & Music Stores	1,100	$250	$275,000	$265	$291,500	1
Furniture Stores	2,000	$265	$530,000	$280	$560,000	1
General Merchandise Stores	12,300	$305	$3,751,500	$320	$3,936,000	3 - 4
Hardware	2,600	$250	$650,000	$265	$689,000	1
Miscellaneous Store Retailers	5,700	$265	$1,510,500	$280	$1,596,000	2 - 3
Specialty Food Stores	2,400	$295	$708,000	$310	$744,000	1
Retailer Totals	**30,000**	**$281**	**$8,633,000**	**$296**	**$9,083,000**	**11 - 13**
Restaurants						
Bars, Breweries & Pubs	4,000	$333	$1,332,000	$350	$1,400,000	1 - 2
Full-Service Restaurants	3,400	$350	$1,190,000	$370	$1,258,000	1
Limited-Service Eating Places	4,900	$340	$1,666,000	$355	$1,739,500	1 - 2
Special Food Services	2,700	$315	$850,500	$330	$891,000	1 - 2
Restaurant Totals	**15,000**	**$335**	**$5,038,500**	**$351**	**$5,288,500**	**4 - 7**
Retailer & Restaurant Totals	**45,000**	**$299**	**$13,671,500**	**$314**	**$14,371,500**	**15 - 20**

Village of Okemos
Meridian Township, Michigan

TRUE NORTH DEVELOPMENT

PRESLEY ARCHITECTURE

M ARCHITECTS

Gibbs Planning Group

OKEMOS

OKE

BUILDING G
9,670 GROSS SQUARE FOOTAGE

MECH

COMMERCIAL
AREA
6,875 sqft

BUILDING G

MARKET OR
RESTAURANT
+/- 4,500 SF

COMMERCIAL AREA
4,735 sqft

BUILDING E

ELEV.

ELEV.

BUILDING E
5,725 GROSS SQUARE FOOTAGE

HAMILTON

BUILDING A
9,200 GROSS SQUARE FOOTAGE

BUILDING A

CAFE
OR
RESTAURANT
+/- 2,000 SF

ELEV.

ELEV.

COMMERCIAL AREA
8,055 sqft

DOUGLAS J SALON
2-FLOORS
16,705 sqft TOTAL

RESTAURANTS

1 FULL-SERVICE RESTAURANT OR BREWERY	~ +/- 4,500 SF
1 FAST-CASUAL RESTAURANT OR BREWERY	~ +/- 3,500 SF
1 CAFE	~ +/- 2,000 SF

NEIGHBORHOOD SERVICES

BAKERY	~ +/- 2,000 SF
BANK	~ +/- 1,200 SF
BOUTIQUE (WOMEN'S)	~ +/- 1,200 SF
CARRY-OUT FOOD	~ +/- 1,200 SF
DRY CLEANER/LAUNDRY	~ +/- 1,200 SF
EYEWEAR	~ +/- 1,200 SF
FLORIST	~ +/- 1,200 SF
GIFTS	~ +/- 2,000 SF
GOURMENT/CONVENIENCE MARKET	~ +/- 2,400 SF
ICE CREAM/FROZEN YOGURT	~ +/- 1,200 SF
MAIL CENTER	~ +/- 1,200 SF
PHONE STORE	~ +/- 1,200 SF

PROFESSIONAL SERVICES

DENTAL	~ +/- 1,200 SF
FINANCE/INSURANCE	~ +/- 1,200 SF
MISC OFFICE	~ +/- 600 SF
REAL ESTATE	~ +/- 1,800 SF

1,247 sqft

1200 sqft

COMMERCIAL AREA
8,300 sqft

BUILDING E

1200 sqft

1200 sqft

1200 sqft

CAFE OR
RESTAURANT
+/- 2,000 SF

1310 sqft

BUILDING E
8,915 GROSS SQUARE FOOTAGE

DJS BARBERSHOP
1,250 sqft

1200 sqft

COMMERCIAL AREA
7,025 sqft

1200 sqft

BUILDING B

1200 sqft

1200 sqft

MARKET
OR
RESTAURANT
+/- 3,500 SF

1200 sqft

1310 sqft

BUILDING B
8,915 GROSS SQUARE FOOTAGE

21

21

21

21

20

22

22

22

NIT COUNTS - BUI
FLOOR
1/2

UNI
TOW

PRIVATE
GARAGE

648 sqft
2-level
TOWNHOUS
1896 sqft

IN

Gibbs
Planning Group

ARDMORE

ARDM

EXHIBIT D

APRIL 15, 2019

TREES

Red Oak (Quercus Ruba)
Height: 60'-70'
Spread: 40'-60'

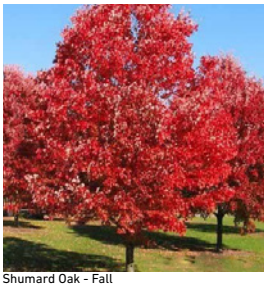
Red Horsechestnut - Full Bloom

Red Oak - Fall

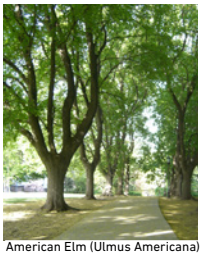
Red Horsechestnut (Aesculus × Carnea)
Height: 50'-75'
Spread: 40'-70'

Littleleaf Linden - Fall

Littleleaf Linden (Tilia Cordata)
Height: 50'-70'
Spread: 50'-70'

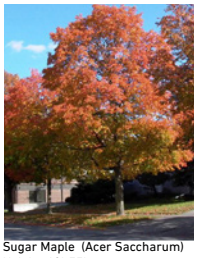


Shumard Oak - Fall



American Elm (Ulmus Americana)
Height: 60'
Spread: 80'

Shumard Oak (Acer Saccharum)
Height: 60'-75'
Spread: 40'-50'



Sugar Maple (Acer Saccharum)
Height: 60'-75'
Spread: 40'-50'

Sugar Maple - Summer

Black Hills Spruces (Picea Glauca 'Densata')
Height: 20'-60'

SHRUBS

Lily Turf (Variegated Liriope)
Spread: 1'-2'

New Jersey Tea (Ceanothus Americanus
Spread: 3'-5'

Nordic Inkberry (Ilex Glabra)
Spread: 3'-5'

Shrubby cinquefoil
(Potentila fruticosa)
Spread: 3'-5'

Little Bluestem (Schizachyrium
Scoparium
Spread: 1.5'-2'

Annuals

FURNISHINGS

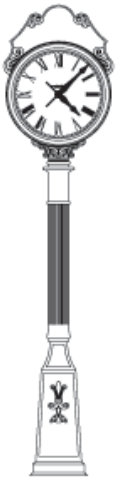
ASHBERY LIGHT POST
BY LANDSCAPE FORMS

CONCORD LITTER BIN BY
LANDSCAPE FORMS

KINGSLEY BATE
HYDE PARK BENCH

FESTOON LIGHTING, AMERICAN LIGHTING

BIKE PARKING - PER CITY ORDINANCE 86-760



VERNIN CLOCK TOWER

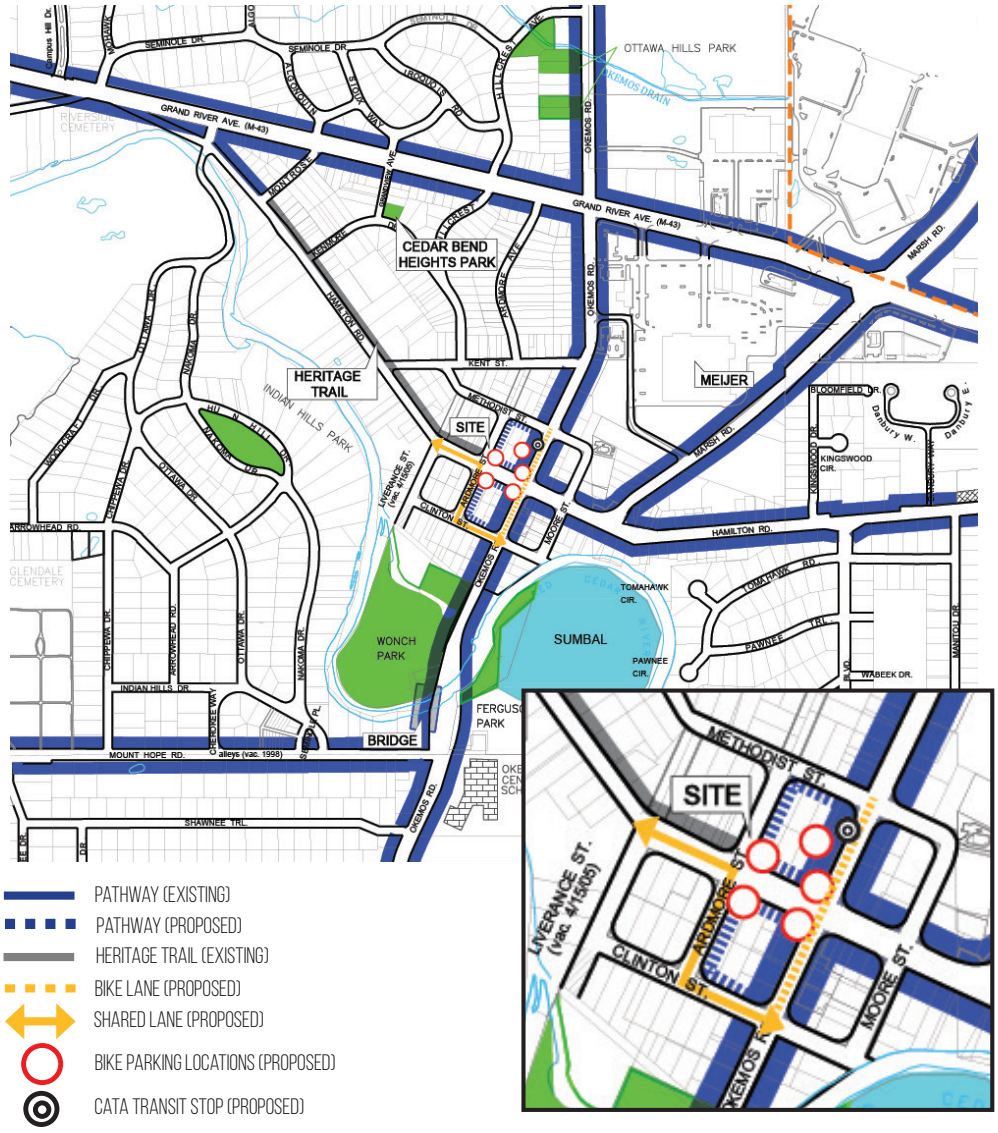
BUS SHELTER BY CATA

NON-MOTORIZED PLAN

The Village of Okemos has been designed with a focus on pedestrians, bicyclists and potentially transit users. Our design team has emphasized consistency with the Township's Complete Street Ordinance, the Pedestrian Bicycle Pathway Map, the PICA goals for the Okemos Mixed Use Core Area described in the Master Plan, and the concepts from the "Shaping the (Grand River) Avenue" project.

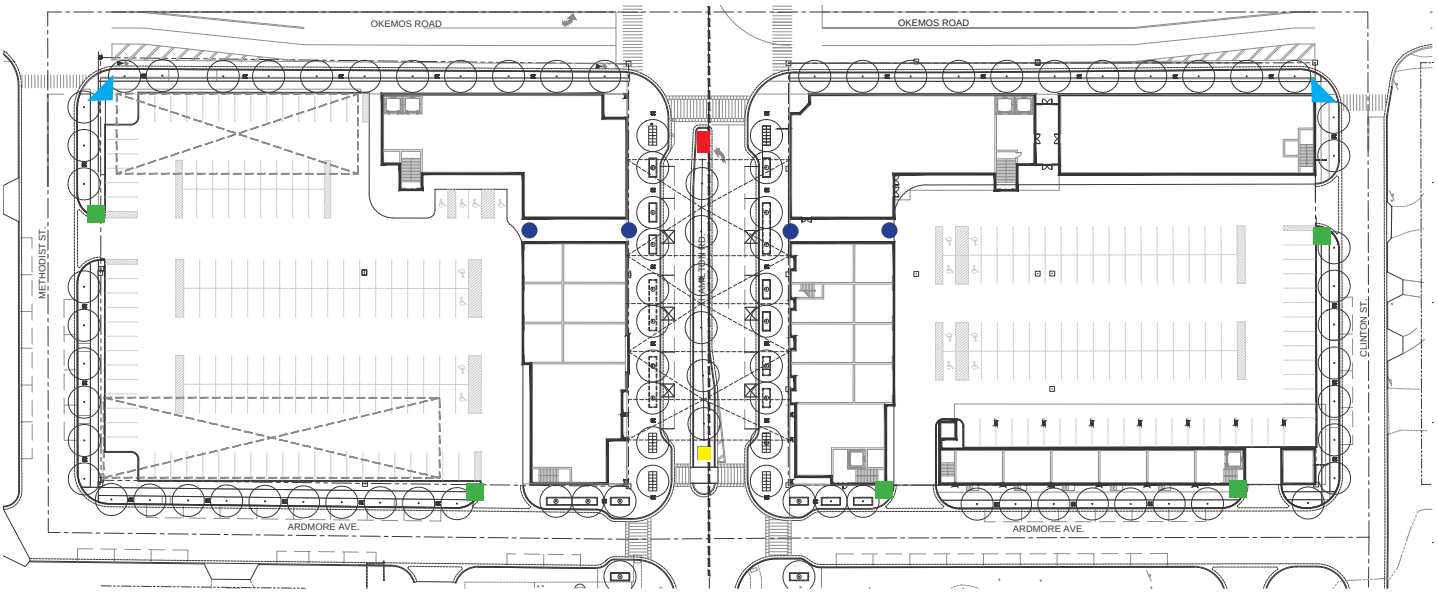
Our team has had a number of meetings with representatives of the Township, the DDA, the Transportation Commission, the Ingham County Roads Department, and CATA. Through those discussions we have refined our design to accommodate a good balance of travel for all modes. The street design elements in the right-of-way will need to be approved by the County.

Key elements of the multi-modal transportation design illustrated on the PUD Plan are listed below:

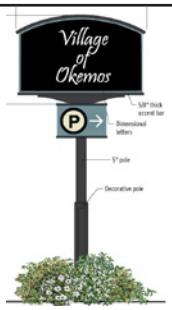
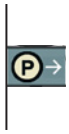


- Our sidewalk system connects with the existing network along Hamilton and Okemos Road, including the Heritage Trail. This provides opportunities for walking and bicycling between the Village and nearby parks, shopping and entertainment.
- Sidewalks are seven feet wide in the core area and a minimum five feet elsewhere, with street trees, pedestrian oriented lighting, and amenities like benches to provide a highly walkable environment.
- Highly visible pedestrian crosswalks are provided. A refuge island is provided at the western side of Hamilton Road, at the intersection with Ardmore Avenue.
- Bicycle facilities have been designed to accommodate travel by experienced cyclists (with a bike lane along Okemos Road) but also encourage cycling by more casual cyclists. We proposed "sharrows" on the side streets to help direct casual bicyclists to those lower volume roads, and to remind motorists to "share the road." Sharrow markings will be located to direct cyclists to travel in the lane outside of the "door yard" of parked cars.
- Convenient bicycle parking is provided at visible locations along the corners of Hamilton Road and within the sidewalk of the surface parking lot.
- Based on communications with CATA staff, we have provided a location on Okemos Road for a bus stop with amenities to support future bus service (as recommended in the Township's Master Plan).

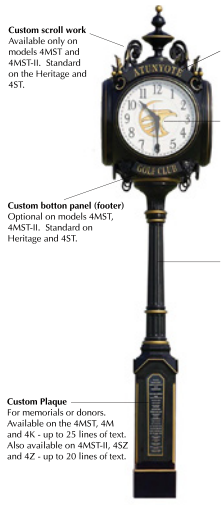
WAYFINDING



SITE SYMBOL LEGEND

SYMBOL	SIGN TYPE
■	PRIMARY GATEWAY
▲	 SECONDARY GATEWAY
■	PARKING LOT IDENTIFICATION
●	 VIA SIGNAGE

Some distinct signs are needed to help brand the Village district and to direct motorists to the parking lot and structure behind the buildings. A preliminary wayfinding program has been prepared that illustrates the location and potential types of wayfinding signs. The goal of this wayfinding plan is to create a simple intuitive system that direct visitors easily to parking options. With the new wayfinding structures in place, visitors enter the core of the site at two main gateways: Hamilton Road and Okemos Road, or Hamilton Road and Ardmore Drive. At Hamilton and Okemos, a prominent, grounded gateway sign will signify the gateway into the Village. At Hamilton and Ardmore, the clock tower will also display signage announcing the entrance to the Village from the west. A pair of secondary gateway signs at the corners of Okemos Road and Methodist Street, as well as Okemos Road and Clinton Street, will display Village signage as well as directional parking symbols. These will guide vehicular traffic to the surface parking or the parking garage. As a visitor proceeds to their destination, either by Hamilton Road or the side streets, post-mounted parking signage will be placed at each of the entrance drives to the surface lot and parking garage. These parking areas could have distinct names. Finally, via signage will facilitate pedestrians through the parking to the fronts of the buildings. Signs in the public right-of-way will need to be approved by the County, but that intent is for a unique design package that complements the fonts, colors, materials, and style of the Village architecture. The content of the wayfinding signs will be developed and approved based on input from the Township and County.

SYMBOL	SIGN TYPE
■	 PRIMARY GATEWAY - CLOCK TOWER

Signage

As signage, particlarly commercial signage, will be specific to the individual tenant, we are not prepared to discuss signage at this time. Each sign will be unique to the tenant. We do have general thoughts on the matter, based on experience in other small downtowns in Michigan. The plans presented have sign locations and sizes in mind but not specific signage for approval.

We look forward to meeting with township staff at Site Plan Review process to consider these important matters.

MUPUD PLAN FOR:

Village of Okemos

MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN

EX. SEWER INVENTORIES

STORM MANHOLE #107
RIM ELEV. = 845.42
10" RCP N INV. = 840.22
12" RCP NE INV. = 838.54
18" RCP W INV. = 837.26

CATCH BASIN #108
RIM ELEV. = 844.38
10" RCP N INV. = 840.43
10" RCP S INV. = 840.39
TOP OF DEBRIS ELEV. = 840.38

CATCH BASIN #109
RIM ELEV. = 844.37
10" RCP S INV. = 840.72
TOP OF DEBRIS ELEV. = 840.47

CATCH BASIN #140
RIM ELEV. = 838.40
8" PVC NW INV. = 836.40
SUMP ELEV. = 836.15

STORM MANHOLE #141
RIM ELEV. = 839.97
18" RCP NW INV. = 834.70
18" RCP E INV. = 834.52
8" PVC SE INV. = 835.11

STORM MANHOLE #142
RIM ELEV. = 841.24
12" RCP SE INV. = 834.56
18" RCP S INV. = 834.18
18" RCP W INV. = 834.14

CATCH BASIN #143
RIM ELEV. = 840.02
10" RCP N INV. = 835.36
12" RCP NW INV. = 835.34
SUMP ELEV. = 835.02

CATCH BASIN #144
RIM ELEV. = 841.65
6" PVC NE INV. = 840.41
4" PVC SE INV. = 838.15
10" RCP S INV. = 837.38
SUMP ELEV. = 836.75

STORM MANHOLE #145
RIM ELEV. = 837.27
18" RCP E INV. = 832.65
6" PVC S INV. = 832.97
18" RCP W INV. = 832.63

CATCH BASIN #146
RIM ELEV. = 836.82
6" PVC N INV. = 834.15
SUMP ELEV. = 833.47

CATCH BASIN #147
RIM ELEV. = 837.62
12" RCP S INV. = 833.02
10" RCP W INV. = 833.13
TOP OF DEBRIS ELEV. = 833.47

CATCH BASIN #148
RIM ELEV. = 838.03
10" RCP E INV. = 834.15
TOP OF DEBRIS ELEV. = 833.93

CATCH BASIN #149
RIM ELEV. = 851.94
6" VCP N INV. = 847.59
6" VCP S INV. = 847.49

CATCH BASIN #150
RIM ELEV. = 852.27
6" VCP S INV. = 850.27
TOP OF DEBRIS ELEV. = 850.07

STORM MANHOLE #151
RIM ELEV. = 838.10
12" RCP N. INV. = 832.90
15" RCP NE INV. = 832.76
18" RCP E INV. = 832.76
30" RCP W INV. = 832.72

STORM MANHOLE #152
RIM ELEV. = 836.68
30" RCP E INV. = 831.77
30" RCP W INV. = 831.72

SANITARY MANHOLE #202
RIM ELEV. = 844.30
8" VCP N INV. = 832.60
8" VCP E INV. = 831.28
8" VCP E INV. = 833.77
8" VCP W INV. = 831.17

SANITARY MANHOLE #203
RIM ELEV. = 847.01
8" VCP S INV. = 834.83
6" VCP W INV. = 835.03

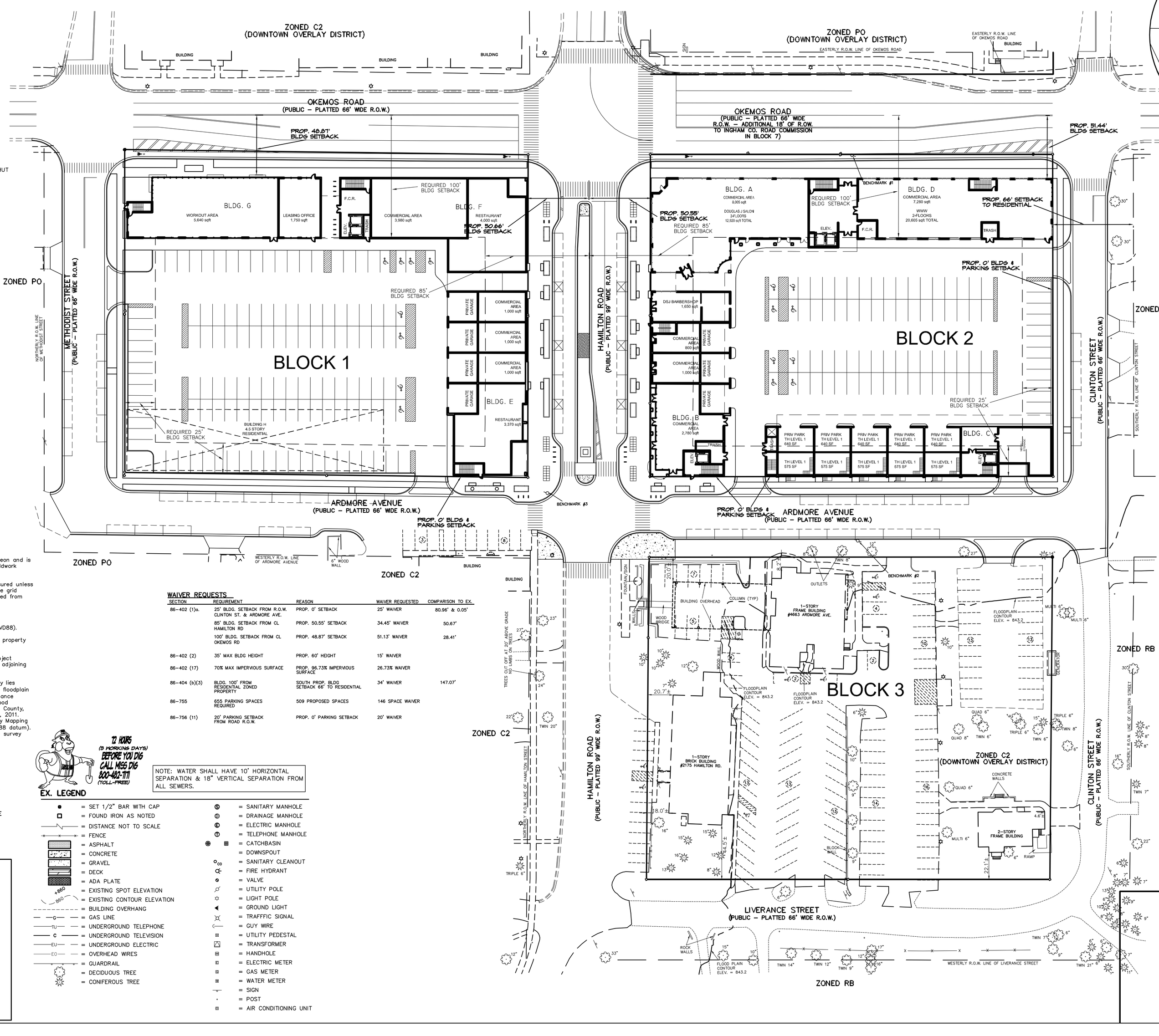
SANITARY MANHOLE #210
RIM ELEV. = 839.83
8" VCP N INV. = 829.25
8" VCP E INV. = 829.30

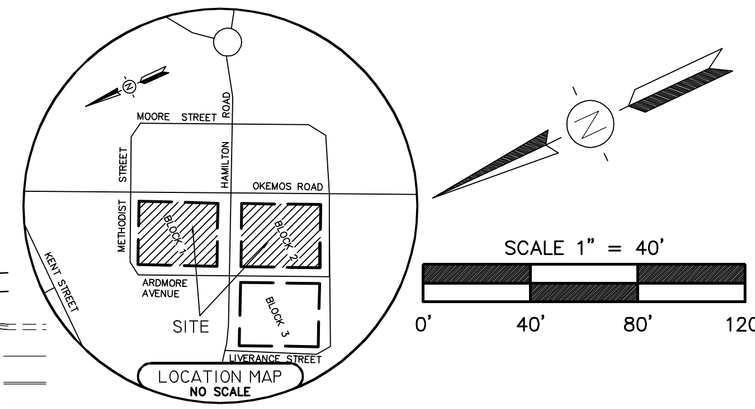
SANITARY MANHOLE #211
RIM ELEV. = 838.82
8" VCP N INV. = 828.24
8" VCP N INV. = 830.50
8" VCP S INV. = 828.26
8" VCP W INV. = 828.22

SANITARY MANHOLE #212
RIM ELEV. = 853.37
8" VCP E INV. = 837.05
8" VCP S INV. = 836.88
8" VCP W INV. = 836.98

SANITARY MANHOLE #213
RIM ELEV. = 854.01
6" VCP N INV. = 841.73
8" VCP W INV. = 841.31

SANITARY MANHOLE #214
RIM ELEV. = 837.23
INACCESSIBLE - LID BOLTED SHUT





LEGAL DESCRIPTION:
(As provided by Transnation Title Agency, underwritten by Fidelity National Title Insurance Company, Commitment No. 221445LANS, dated August 15, 2017)

Parcel 1:
Lots 1, 5, 6, 7 & 8 and the South 66 feet of Lot 2, all in Block 5, Village of Okemos (formerly Village of Hamilton), Meridian Township, Ingham County, Michigan, as recorded in Liber 11 of Deeds, Page 2.

(As provided by Transnation Title Agency, Commitment No. 22145BLANS, dated August 15, 2017)

Lots 3, 4, and the North 99 feet of Lot 2, all in Block 5, Village of Okemos (formerly Village of Hamilton), Township of Meridian, Ingham County, Michigan, as recorded in Liber 11 of Deeds, Page 2.

CLIENT:
DOWNTOWN OKEMOS, LLC
2362 JOLLY OAK RD.
OKEMOS, MI. 48864
PH:(517) 580-2550
c/o WILL RANDLE

ENGINEER/SURVEYOR:
KEBS, Inc.
2116 HASLETT RD.
HASLETT, MI. 48840
PH:(517) 339-1014
FAX:(517) 339-8047

SITE DATA
PROPOSED MIXED USE DEVELOPMENT
TOTAL SITE AREA = ±3.99 ACRES (173,989 S.F.)
ZONED C-2 (DOWNTOWN OVERLAY DISTRICT)
TOTAL UNITS = 174
TOTAL BEDS = 259
TOTAL RESIDENTIAL AREA = 222,585 S.F.
TOTAL COMMERCIAL AREA = 66,452 S.F.
OVERALL DENSITY = 174 UNITS/3.99 ACRES = 43.61 UNITS/AC

BLOCK 1 (1.99 ACRES)
UNITS = 75
BEDS = 107
DENSITY = 75 UNITS/1.99 ACRES = 37.69 UNITS/AC

BUILDING F
24 UNITS, 32 BEDS
1ST FLOOR AREA = 9,150 S.F.
COMMERCIAL AREA = 9,150 S.F.
RESIDENTIAL AREA = 35,920 S.F.
GROSS AREA = 43,005 S.F.

BUILDING F
24 UNITS, 32 BEDS
1ST FLOOR AREA = 9,232 S.F.
COMMERCIAL AREA = 9,232 S.F.
RESIDENTIAL AREA = 34,810 S.F.
GROSS AREA = 44,042 S.F.

BUILDING G
27 UNITS, 27 BEDS
1ST FLOOR AREA = 7,550 S.F.
COMMERCIAL AREA = 7,550 S.F.
RESIDENTIAL AREA = 24,540 S.F.
GROSS AREA = 32,090 S.F.

BLOCK 2 (2.00 ACRES)
UNITS = 99
BEDS = 134
DENSITY = 99 UNITS/2 ACRES = 49.5 UNITS/AC

BUILDING A
16 UNITS, 22 BEDS
1ST FLOOR AREA = 9,415 S.F.
COMMERCIAL AREA = 18,185 S.F.
RESIDENTIAL AREA = 17,800 S.F.
GROSS AREA = 35,985 S.F.

BUILDING B
24 UNITS, 38 BEDS
1ST FLOOR AREA = 9,215 S.F.
COMMERCIAL AREA = 5,780 S.F.
RESIDENTIAL AREA = 34,495 S.F.
GROSS AREA = 43,620 S.F.

BUILDING C
42 UNITS, 57 BEDS
1ST FLOOR AREA = 8,680 S.F.
RESIDENTIAL AREA = 42,635 S.F.
GROSS AREA = 51,315 S.F.

BUILDING D
17 UNITS, 17 BEDS
1ST FLOOR AREA = 8,560 S.F.
COMMERCIAL AREA = 16,555 S.F.
RESIDENTIAL AREA = 20,280 S.F.
GROSS AREA = 38,980 S.F.

BUILDING COVERAGE
RESIDENTIAL 1ST FLOOR = 8,680 S.F.
COMMERCIAL 1ST FLOOR = 53,122 S.F.
BLDG COVERAGE = 61,802 SF./173,989 S.F. = 35.52%

PARKING DATA:
RESIDENTIAL:
174 UNITS x 2 = 348 SPACES
COMMERCIAL:
66,452 S.F. COMMERCIAL @ 5/1000 MIN. = 332 SPACES
TOTAL 680 SPACES

PARKING REDUCTION FOR BIKE PARKING = 1 SPACE/2 BIKE SPACES
= 50/2 = 25 SPACE REDUCTION

TOTAL REQUIRED PARKING = 680 - 25 = 655 SPACES

PARKING PROVIDED
BASEMENT LEVEL = 216 SPACES (INCL. 7 B.F.)
10' x 18' = 171 SPACES
9' x 20' = 26 SPACES
B.F. = 16 SPACES
GARAGE = 24 SPACES
TOTAL 453 SPACES + 50 BIKE PARKING

ON-STREET (8' x 23') = 56 SPACES

TOTAL SPACES PROVIDED = 509 SPACES (INCL. 23 B.F.) + 50 BIKE PARKING
146 SPACE WAIVER NEEDED

SURVEYOR'S NOTES:
1. This plan was made at the direction of the parties named hereon and is intended solely for their immediate use. Survey prepared from fieldwork performed in September 2018.

2. All bearings and distances on the survey are record and measured unless otherwise noted. All bearings are Michigan State Plane South Zone grid bearings obtained from GPS observations using corrections obtained from the Lansing C.O.R.S.

3. All dimensions are in feet and decimals thereof.

4. All elevations are North American Vertical Datum of 1988 (NAVD88).

5. No building tie dimensions are to be used for establishing the property lines.

6. There are no observable potential encroachments onto the subject property from adjoining lands, or from the subject property onto adjoining lands, except as shown hereon.

7: By scaled map location and graphic plotting only, this property lies partly within Flood Zone "AE", areas within the 1% annual chance floodplain and partly within Flood Zone "X", areas outside the 1% annual chance floodplain, according to the National Flood Insurance Program, Flood Insurance Rate Map for the Charter Township of Meridian, Ingham County, Michigan, Community Panel No. 260093 0158 D, dated August 16, 2011. Scaling from available cross-section data from Federal Emergency Mapping Agency data, floodplain contour in this area is 843.2 feet (NAVD88 datum). Elevation contour with said elevation is shown and labeled on the survey map.

BENCHMARKS

BENCHMARK #1 ELEV. = 852.30 (NAVD88)
PK NAIL, WEST SIDE UTILITY POLE, WEST SIDE OF OKEMOS ROAD, ±42' SOUTH OF BUILDING #4661 OKEMOS ROAD.

BENCHMARK #2 ELEV. = 846.57 (NAVD88)
PK NAIL, SOUTHEAST SIDE UTILITY POLE, WEST SIDE OF ARDMORE AVENUE, ON LINE WITH SOUTHERLY PARCEL LINE.

BENCHMARK #3 ELEV. = 856.59 (NAVD88)
RAILROAD SPIKE, NORTHWEST SIDE UTILITY POLE, NORTHEAST QUADRANT OF ARDMORE AVENUE AND HAMILTON ROAD.

WAIVER REQUESTS

SECTION	REQUIREMENT	REASON	WAIVER REQUESTED	COMPARISON TO EX.
86-402 (1)a.	25' BLDG. SETBACK FROM R.O.W. CLINTON ST. & ARDMORE AVE.	PROP. 0' SETBACK	25' WAIVER	80.96' & 0.05'
	85' BLDG. SETBACK FROM CL HAMILTON RD	PROP. 50.55' SETBACK	34.45' WAIVER	50.67'
	100' BLDG. SETBACK FROM CL OKEMOS RD	PROP. 48.87' SETBACK	51.13' WAIVER	28.41'
86-402 (2)	35' MAX BLDG HEIGHT	PROP. 60' HEIGHT	15' WAIVER	
86-402 (17)	70% MAX IMPERVIOUS SURFACE	PROP. 96.73% IMPERVIOUS SURFACE	26.73% WAIVER	
86-404 (b)(3)	BLDG. 100' FROM RESIDENTIAL ZONED PROPERTY	SOUTH PROP. BLDG SETBACK 66' TO RESIDENTIAL	34' WAIVER	147.07'
86-755	655 PARKING SPACES REQUIRED	509 PROPOSED SPACES	146 SPACE WAIVER	
86-756 (11)	20' PARKING SETBACK FROM ROAD R.O.W.	PROP. 0' PARKING SETBACK	20' WAIVER	

NOTE: WATER SHALL HAVE 10' HORIZONTAL SEPARATION & 18" VERTICAL SEPARATION FROM ALL SEWERS.

EX. LEGEND

- = SET 1/2" BAR WITH CAP
- = FOUND IRON AS NOTED
- = DISTANCE NOT TO SCALE
- = FENCE
- = ASPHALT
- = CONCRETE
- = GRAVEL
- = DECK
- = ADA PLATE
- 860 = EXISTING SPOT ELEVATION
- 860 = EXISTING CONTOUR ELEVATION
- = BUILDING OVERHANG
- G = GAS LINE
- TU = UNDERGROUND TELEPHONE
- C = UNDERGROUND TELEVISION
- EU = UNDERGROUND ELECTRIC
- EO = OVERHEAD WIRES
- = GUARDRAIL
- = DECIDUOUS TREE
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- = SANITARY MANHOLE
- = DRAINAGE MANHOLE
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- = GAS METER
- = WATER METER
- = SIGN
- = POST
- = AIR CONDITIONING UNIT

LEGEND

- EXT. CONTOURS
- W — EXT. WATER MAIN
- SAN — EXT. SANITARY SEWER
- ST — EXT. STORM SEWER
- 800.00 — EXT. ELEVATIONS
- W — PROPOSED WATER MAIN
- SAN — PROPOSED SANITARY SEWER
- ST — PROPOSED STORM SEWER
- MANHOLE (NEW)
- PROPOSED C.B.
- MANHOLE (EX.)
- UTILITY EASEMENT
- CENTER LINE OF ROAD
- ROAD RIGHT OF WAY
- PROPERTY LINE
- FIRE HYDRANT
- WATER VALVE
- THRUST BLOCK
- ▲T/C 800.00 — PROPOSED TOP OF CURB ELEV.

SHEET INDEX

C100 OVERALL PLAN
C101 DIMENSION PLAN
C102 UTILITY PLAN
C103 STORM PLAN
C104 PERVIOUS/IMPERVIOUS PLAN PLAN
C105 AMENITIES PLAN
C106 EXISTING FEATURES PLAN

E-93725-MUPUD-4-12-19
SURVEY#93725ALT

REVISIONS
4-19-19 MUPUD SUBMITTAL
4-26-19 WAIVERS
5-10-19 BLDG G

KEBS, INC. KYES ENGINEERING BRYAN LAND SURVEYS
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX. 517-339-8047
Marshall Office
Ph. 269-781-9800

Village of Okemos
OVERALL PLAN

SCALE: 1"= 40'	DESIGNER: AJP	APPROVED BY: AJP
DATE: 4-14-19	PROJECT MGR. AJP	SHEET C100
AUTHORIZED BY: DOWNTOWN OKEMOS, LLC		JOB #: 93725

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MUPUD PLAN FOR:

Village of Okemos

MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN

EX. SEWER INVENTORIES

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RIM ELEV. = 845.42
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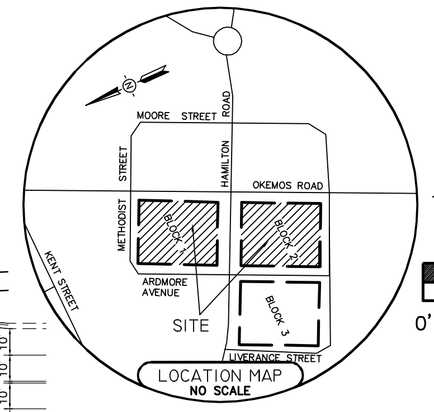

SCALE 1" = 40'

0' 40' 80' 120'

PARKING PROVIDED

BLOCK 1
10' x 18' = 107 SPACES
9' x 20' = 13 SPACES
B.F. = 8 SPACES
GARAGE x 4 = 8 SPACES
TOTAL 136 SPACES
32 BIKE PARKING

BLOCK 2
BASEMENT LEVEL = 216 SPACES (INCL. 7 B.F.)
10' x 18' = 64 SPACES
9' x 20' = 13 SPACES
B.F. = 8 SPACES
GARAGE = 16 SPACES
TOTAL 317 SPACES
18 BIKE PARKING

ON-STREET (8' x 23') = 56 SPACES

TOTAL SPACES PROVIDED = 509 SPACES (INCL. 23 B.F.)
50 BIKE PARKING

BENCHMARKS

BENCHMARK #1 ELEV. = 852.30 (NAVD88)
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LEGEND

- EXT. CONTOURS
- EXT. WATER MAIN
- EXT. SANITARY SEWER
- EXT. STORM SEWER
- EXT. ELEVATIONS
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- MANHOLE (NEW)
- PROPOSED C.B.
- MANHOLE (EX.)
- UTILITY EASEMENT
- CENTER LINE OF ROAD
- ROAD RIGHT OF WAY
- PROPERTY LINE
- FIRE HYDRANT
- WATER VALVE
- THRUST BLOCK
- ▲T/C 800.00 PROPOSED TOP OF CURB ELEV.

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- = UNDERGROUND TELEVISION
- = UNDERGROUND ELECTRIC
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[1] DENOTES NUMBER OF B/F SPACES
(VA) DENOTES VAN ACCESS B/F SPACES
(0) DENOTES PROPOSED NUMBER OF 9' x 20' PARKING SPACES
[0] DENOTES PROPOSED NUMBER OF 10' x 18' PARKING SPACES
⟨0⟩ DENOTES NUMBER OF BIKE PARKING SPACES

E-93725-MUPUD-4-12-19
SURVEY#93725ALT

REVISIONS	
4-19-19	MUPUD SUBMITTAL
4-26-19	WAIVERS
5-10-19	BLDG G

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PH. 517-339-1014 FAX. 517-339-8047
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Village of Okemos
DIMENSION PLAN

SCALE: 1"= 40'	DESIGNER: AJP	APPROVED BY: AJP
DATE: 4-14-19	PROJECT MGR. AJP	SHEET C101
AUTHORIZED BY: DOWNTOWN OKEMOS, LLC		JOB #: 93725

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RIM ELEV. = 844.37
10" RCP S INV. = 840.72
TOP OF DEBRIS ELEV. = 840.47

CATCH BASIN #140
RIM ELEV. = 838.40
8" PVC NW INV. = 836.40
SUMP ELEV. = 836.15

STORM MANHOLE #141
RIM ELEV. = 839.97
18" RCP NW INV. = 834.70
18" RCP E INV. = 834.52
8" PVC SE INV. = 835.11

STORM MANHOLE #142
RIM ELEV. = 841.24
12" RCP SE INV. = 834.56
18" RCP E INV. = 834.18
18" RCP W INV. = 834.14

CATCH BASIN #143
RIM ELEV. = 840.02
10" RCP N INV. = 835.36
12" RCP NW INV. = 835.34
SUMP ELEV. = 835.02

CATCH BASIN #144
RIM ELEV. = 841.65
6" PVC NE INV. = 840.41
4" PVC SE INV. = 838.15
10" RCP S INV. = 837.38
SUMP ELEV. = 836.75

STORM MANHOLE #145
RIM ELEV. = 837.27
18" RCP E INV. = 832.65
6" PVC S INV. = 832.97
18" RCP W INV. = 832.63

CATCH BASIN #146
RIM ELEV. = 836.82
6" PVC N INV. = 834.15
SUMP ELEV. = 833.47

CATCH BASIN #147
RIM ELEV. = 837.62
12" RCP S INV. = 833.02
10" RCP W INV. = 833.13
TOP OF DEBRIS ELEV. = 833.47

CATCH BASIN #148
RIM ELEV. = 838.03
10" RCP E INV. = 834.15
TOP OF DEBRIS ELEV. = 833.93

CATCH BASIN #149
RIM ELEV. = 851.94
6" VCP N INV. = 847.59
6" VCP S INV. = 847.49

CATCH BASIN #150
RIM ELEV. = 852.27
6" VCP S INV. = 850.27
TOP OF DEBRIS ELEV. = 850.07

STORM MANHOLE #151
RIM ELEV. = 838.10
12" RCP N. INV. = 832.90
15" RCP NE INV. = 832.76
18" RCP E INV. = 832.76
30" RCP W INV. = 832.72

STORM MANHOLE #152
RIM ELEV. = 836.68
30" RCP E INV. = 831.77
30" RCP W INV. = 831.72

SANITARY MANHOLE #202
RIM ELEV. = 844.30
8" VCP N INV. = 832.60
8" VCP E INV. = 831.28
8" VCP E INV. = 833.77
8" VCP W INV. = 831.17

SANITARY MANHOLE #203
RIM ELEV. = 847.01
8" VCP S INV. = 834.83
6" VCP W INV. = 835.03

SANITARY MANHOLE #210
RIM ELEV. = 839.83
8" VCP N INV. = 829.25
8" VCP E INV. = 829.30

SANITARY MANHOLE #211
RIM ELEV. = 838.82
8" VCP N INV. = 828.24
8" VCP N INV. = 830.50
8" VCP S INV. = 828.26
8" VCP W INV. = 828.22

SANITARY MANHOLE #212
RIM ELEV. = 853.37
8" VCP E INV. = 837.05
8" VCP S INV. = 836.88
8" VCP W INV. = 836.98

SANITARY MANHOLE #213
RIM ELEV. = 854.01
6" VCP N INV. = 841.73
8" VCP W INV. = 841.31

SANITARY MANHOLE #214
RIM ELEV. = 837.23
INACCESSIBLE – LID BOLTED SHUT

BENCHMARKS

BENCHMARK #1 ELEV. = 852.30 (NAVD88)
PK NAIL, WEST SIDE UTILITY POLE, WEST SIDE OF OKEMOS ROAD, ±42' SOUTH OF BUILDING #4661 OKEMOS ROAD.

BENCHMARK #2 ELEV. = 846.57 (NAVD88)
PK NAIL, SOUTHEAST SIDE UTILITY POLE, WEST SIDE OF ARDMORE AVENUE, ON LINE WITH SOUTHERLY PARCEL LINE.

BENCHMARK #3 ELEV. = 856.59 (NAVD88)
RAILROAD SPIKE, NORTHWEST SIDE UTILITY POLE, NORTHEAST QUADRANT OF ARDMORE AVENUE AND HAMILTON ROAD.

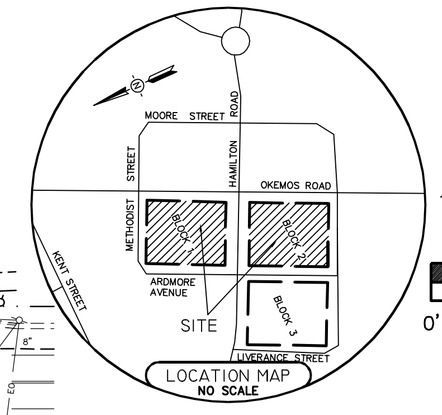
LEGEND

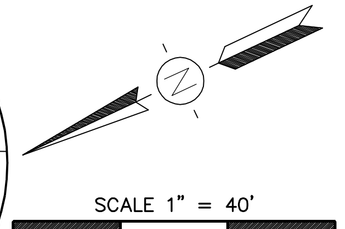
- EXT. CONTOURS
- EXT. WATER MAIN
- EXT. SANITARY SEWER
- EXT. STORM SEWER
- EXT. ELEVATIONS
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- MANHOLE (NEW)
- PROPOSED C.B.
- MANHOLE (EX.)
- UTILITY EASEMENT
- CENTER LINE OF ROAD
- ROAD RIGHT OF WAY
- PROPERTY LINE
- FIRE HYDRANT
- WATER VALVE
- THRUST BLOCK
- ▲T/C 800.00 PROPOSED TOP OF CURB ELEV.

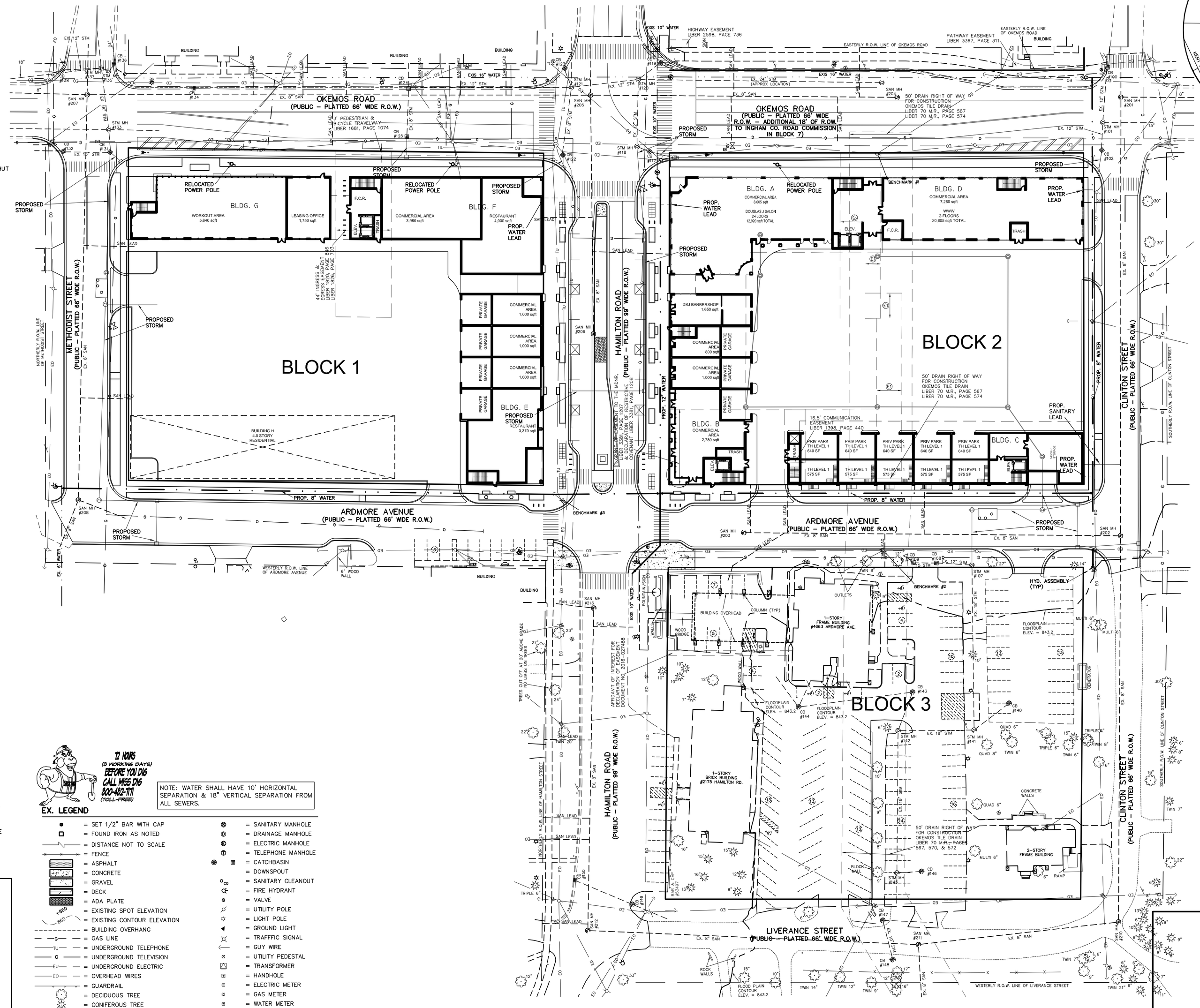
NOTE: WATER SHALL HAVE 10' HORIZONTAL SEPARATION & 18" VERTICAL SEPARATION FROM ALL SEWERS.

EX. LEGEND

- SET 1/2" BAR WITH CAP
- FOUND IRON AS NOTED
- DISTANCE NOT TO SCALE
- FENCE
- ASPHALT
- CONCRETE
- GRAVEL
- DECK
- ADA PLATE
- 860 EXISTING SPOT ELEVATION
- EXISTING CONTOUR ELEVATION
- BUILDING OVERHANG
- G GAS LINE
- TU UNDERGROUND TELEPHONE
- C UNDERGROUND TELEVISION
- EU UNDERGROUND ELECTRIC
- EO OVERHEAD WIRES
- GUARDRAIL
- DECIDUOUS TREE
- CONIFEROUS TREE
- SANITARY MANHOLE
- DRAINAGE MANHOLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- CATCHBASIN
- DOWNSPOUT
- SANITARY CLEANOUT
- FIRE HYDRANT
- VALVE
- UTILITY POLE
- LIGHT POLE
- GROUND LIGHT
- TRAFFFIC SIGNAL
- GUY WIRE
- UTILITY PEDESTAL
- TRANSFORMER
- HANDHOLE
- ELECTRIC METER
- GAS METER
- WATER METER
- SIGN
- POST
- AIR CONDITIONING UNIT







REVISIONS	
4-19-19	MUPUD SUBMITTAL
4-26-19	WAIVERS
5-10-19	BLDG G

KEBS, INC.
KYES ENGINEERING
BRYAN LAND SURVEYS
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX. 517-339-8047
Marshall Office
Ph. 269-781-9800

Village of Okemos

UTILITY PLAN

SCALE: 1"= 40'	DESIGNER: AJP	APPROVED BY: AJP
DATE: 4-14-19	PROJECT MGR. AJP	SHEET C102
AUTHORIZED BY: DOWNTOWN OKEMOS, LLC		JOB #: 93725

E-93725-MUPUD-4-12-19
SURVEY#93725ALT

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MUPUD PLAN FOR:

Village of Okemos

MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN

EX. SEWER INVENTORIES

STORM MANHOLE #107
RIM ELEV. = 845.42
10" RCP N INV. = 840.22
12" RCP NE INV. = 838.54
18" RCP W INV. = 837.26

CATCH BASIN #108
RIM ELEV. = 844.38
10" RCP N INV. = 840.43
10" RCP S INV. = 840.39
TOP OF DEBRIS ELEV. = 840.38

CATCH BASIN #109
RIM ELEV. = 844.37
10" RCP S INV. = 840.72
TOP OF DEBRIS ELEV. = 840.47

CATCH BASIN #140
RIM ELEV. = 838.40
8" PVC NW INV. = 836.40
SUMP ELEV. = 836.15

STORM MANHOLE #141
RIM ELEV. = 839.97
18" RCP NW INV. = 834.70
18" RCP E INV. = 834.52
8" PVC SE INV. = 835.11

STORM MANHOLE #142
RIM ELEV. = 841.24
12" RCP SE INV. = 834.56
18" RCP S INV. = 834.18
18" RCP W INV. = 834.14

CATCH BASIN #143
RIM ELEV. = 840.02
10" RCP N INV. = 835.36
12" RCP NW INV. = 835.34
SUMP ELEV. = 835.02

CATCH BASIN #144
RIM ELEV. = 841.65
6" PVC NE INV. = 840.41
4" PVC SE INV. = 838.15
10" RCP S INV. = 837.38
SUMP ELEV. = 836.75

STORM MANHOLE #145
RIM ELEV. = 837.27
18" RCP E INV. = 832.65
6" PVC S INV. = 832.97
18" RCP W INV. = 832.63

CATCH BASIN #146
RIM ELEV. = 836.82
6" PVC N INV. = 834.15
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RIM ELEV. = 837.62
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10" RCP W INV. = 833.13
TOP OF DEBRIS ELEV. = 833.47

CATCH BASIN #148
RIM ELEV. = 838.03
10" RCP E INV. = 834.15
TOP OF DEBRIS ELEV. = 833.93

CATCH BASIN #149
RIM ELEV. = 851.94
6" VCP N INV. = 847.59
6" VCP S INV. = 847.49

CATCH BASIN #150
RIM ELEV. = 852.27
6" VCP S INV. = 850.27
TOP OF DEBRIS ELEV. = 850.07

STORM MANHOLE #151
RIM ELEV. = 838.10
12" RCP N. INV. = 832.90
15" RCP NE INV. = 832.76
18" RCP E INV. = 832.76
30" RCP W INV. = 832.72

STORM MANHOLE #152
RIM ELEV. = 836.68
30" RCP E INV. = 831.77
30" RCP W INV. = 831.72

SANITARY MANHOLE #202
RIM ELEV. = 844.30
8" VCP N INV. = 832.60
8" VCP E INV. = 831.28
8" VCP E INV. = 833.77
8" VCP W INV. = 831.17

SANITARY MANHOLE #203
RIM ELEV. = 847.01
8" VCP S INV. = 834.83
6" VCP W INV. = 835.03

SANITARY MANHOLE #210
RIM ELEV. = 839.83
8" VCP N INV. = 829.25
8" VCP E INV. = 829.30

SANITARY MANHOLE #211
RIM ELEV. = 838.82
8" VCP N INV. = 828.24
8" VCP N INV. = 830.50
8" VCP S INV. = 828.26
8" VCP W INV. = 828.22

SANITARY MANHOLE #212
RIM ELEV. = 853.37
8" VCP E INV. = 837.05
8" VCP S INV. = 836.88
8" VCP W INV. = 836.98

SANITARY MANHOLE #213
RIM ELEV. = 854.01
6" VCP N INV. = 841.73
8" VCP W INV. = 841.31

SANITARY MANHOLE #214
RIM ELEV. = 837.23
INACCESSIBLE - LID BOLTED SHUT

BENCHMARKS

BENCHMARK #1 ELEV. = 852.30 (NAVD88)
PK NAIL, WEST SIDE UTILITY POLE, WEST SIDE OF OKEMOS ROAD, ±42' SOUTH OF BUILDING #4661 OKEMOS ROAD.

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BENCHMARK #3 ELEV. = 856.59 (NAVD88)
RAILROAD SPIKE, NORTHWEST SIDE UTILITY POLE, NORTHEAST QUADRANT OF ARDMORE AVENUE AND HAMILTON ROAD.

LEGEND

- EXT. CONTOURS
- EXT. WATER MAIN
- EXT. SANITARY SEWER
- EXT. STORM SEWER
- EXT. ELEVATIONS
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- MANHOLE (NEW)
- PROPOSED C.B.
- MANHOLE (EX.)
- UTILITY EASEMENT
- CENTER LINE OF ROAD
- ROAD RIGHT OF WAY
- PROPERTY LINE
- FIRE HYDRANT
- WATER VALVE
- THRUST BLOCK
- ▲T/C 800.00 PROPOSED TOP OF CURB ELEV.

NOTE: WATER SHALL HAVE 10' HORIZONTAL SEPARATION & 18" VERTICAL SEPARATION FROM ALL SEWERS.

EX. LEGEND

- = SET 1/2" BAR WITH CAP
- = FOUND IRON AS NOTED
- = DISTANCE NOT TO SCALE
- = FENCE
- = ASPHALT
- = CONCRETE
- = GRAVEL
- = DECK
- = ADA PLATE
- = EXISTING SPOT ELEVATION
- = EXISTING CONTOUR ELEVATION
- = BUILDING OVERHANG
- = GAS LINE
- = UNDERGROUND TELEPHONE
- = UNDERGROUND TELEVISION
- = UNDERGROUND ELECTRIC
- = OVERHEAD WIRES
- = GUARDRAIL
- = DECIDUOUS TREE
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- = SANITARY MANHOLE
- = DRAINAGE MANHOLE
- = ELECTRIC MANHOLE
- = TELEPHONE MANHOLE
- = CATCHBASIN
- = DOWNSPOUT
- = SANITARY CLEANOUT
- = FIRE HYDRANT
- = VALVE
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- = LIGHT POLE
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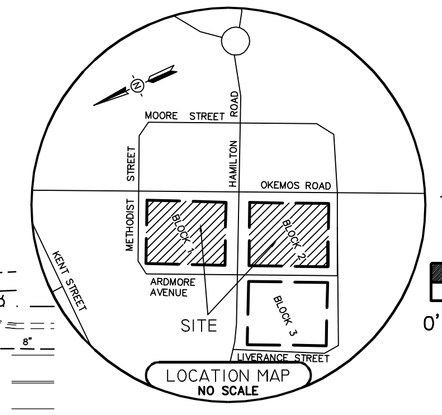

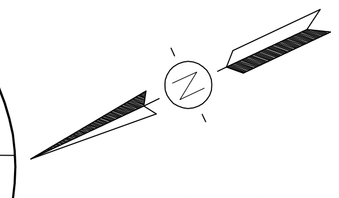

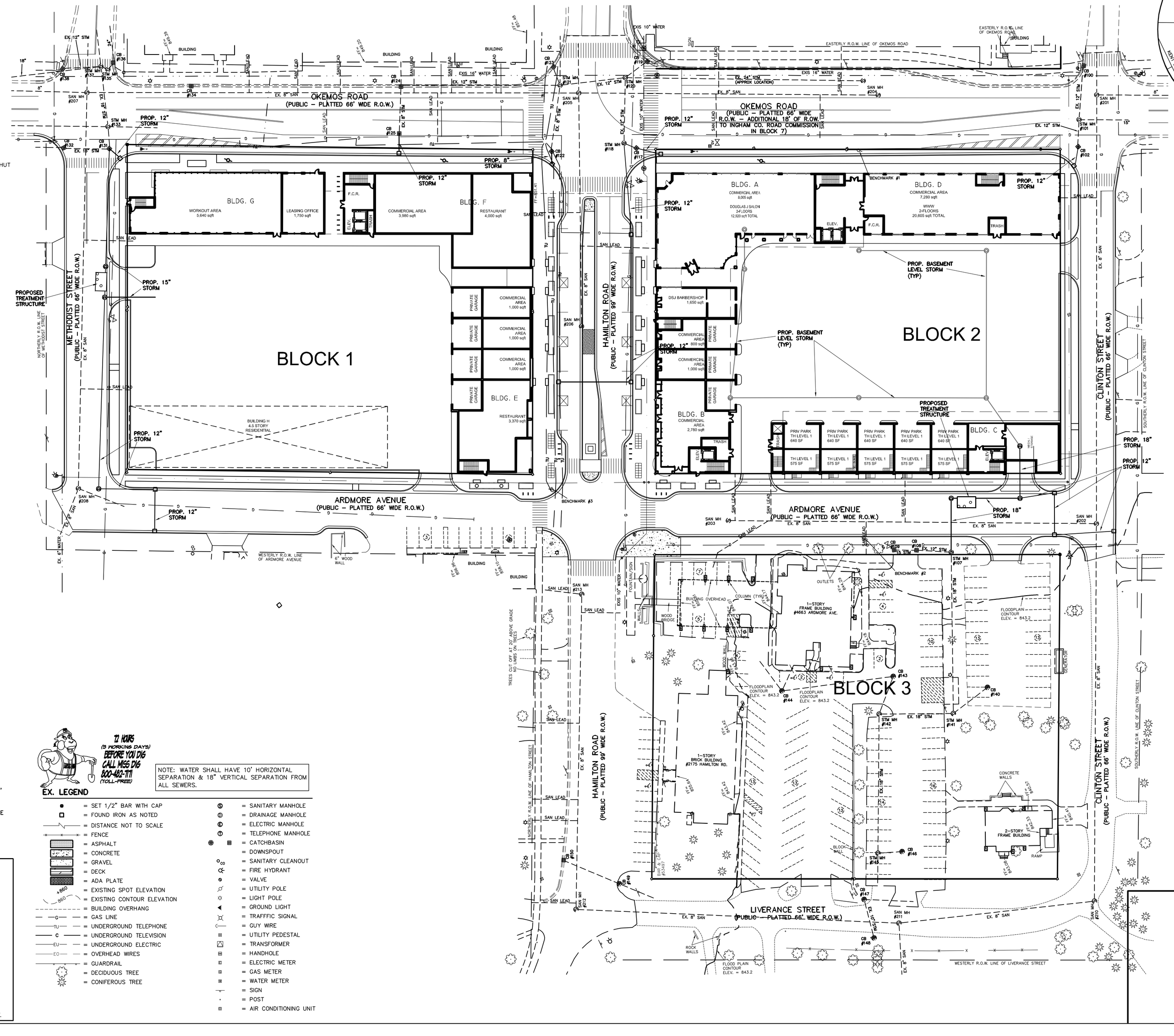

E-93725-MUPUD-4-12-19
SURVEY#93725ALT

REVISIONS	
4-19-19	MUPUD SUBMITTAL
4-26-19	WAIVERS
5-10-19	BLDG G

KEBS, INC.
KYES ENGINEERING
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2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX. 517-339-8047
Marshall Office
Ph. 269-781-9800

Village of Okemos
STORM PLAN

SCALE: 1"= 40'	DESIGNER: AJP	APPROVED BY: AJP
DATE: 4-14-19	PROJECT MGR. AJP	SHEET C103
AUTHORIZED BY: DOWNTOWN OKEMOS, LLC		JOB #: 93725

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MUPUD PLAN FOR:

Village of Okemos

MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN

EX. SEWER INVENTORIES

STORM MANHOLE #107
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TOP OF DEBRIS ELEV. = 840.38

CATCH BASIN #109
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10" RCP S INV. = 840.72
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CATCH BASIN #140
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SUMP ELEV. = 836.15

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SANITARY MANHOLE #212
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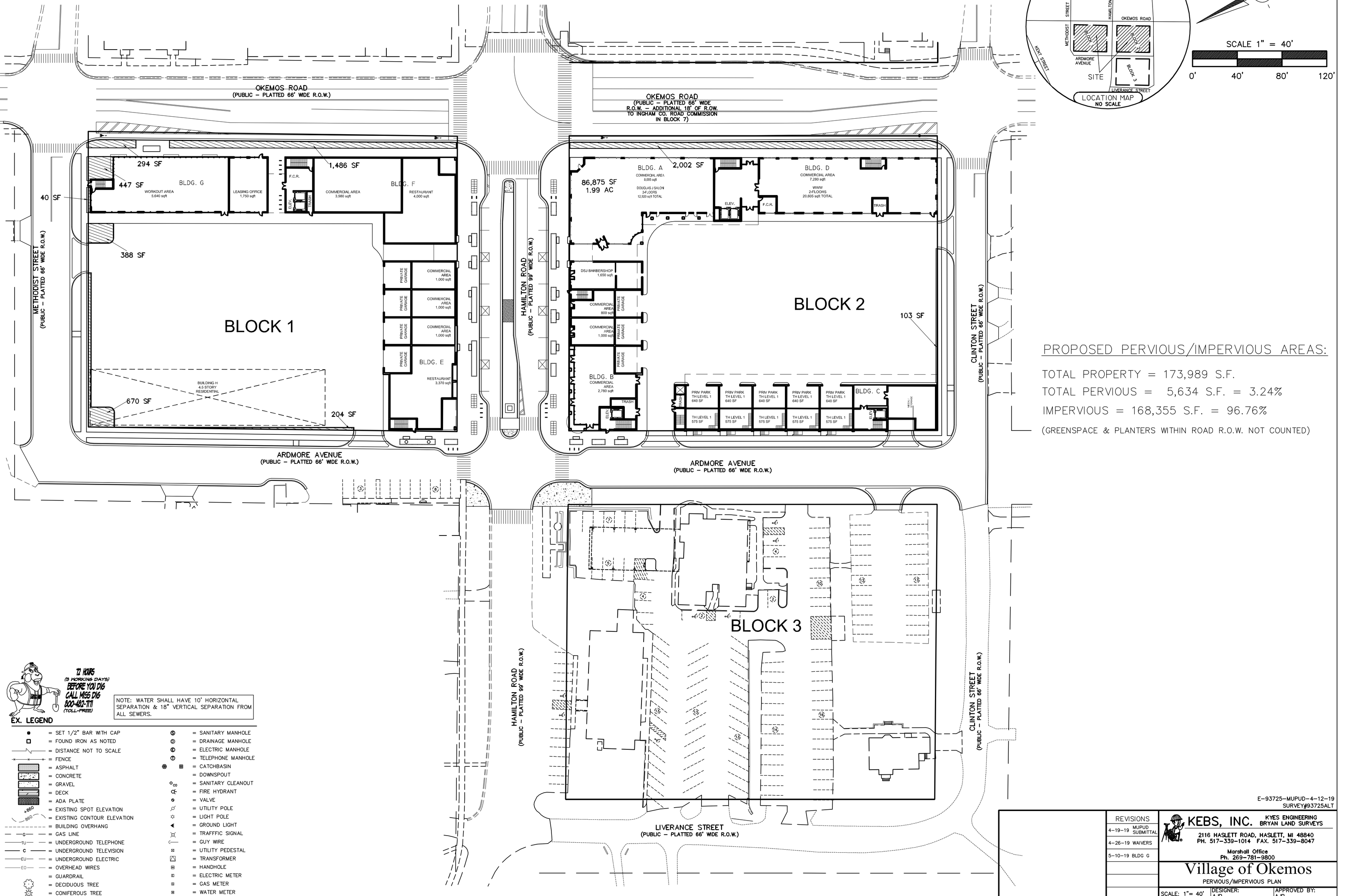

PROPOSED PERVIOUS/IMPERVIOUS AREAS:

TOTAL PROPERTY = 173,989 S.F.
TOTAL PERVIOUS = 5,634 S.F. = 3.24%
IMPERVIOUS = 168,355 S.F. = 96.76%
(GREENSPACE & PLANTERS WITHIN ROAD R.O.W. NOT COUNTED)

BENCHMARKS

BENCHMARK #1 ELEV. = 852.30 (NAVD88)
PK NAIL, WEST SIDE UTILITY POLE, WEST SIDE OF OKEMOS ROAD, ±42' SOUTH OF BUILDING #4661 OKEMOS ROAD.

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RAILROAD SPIKE, NORTHWEST SIDE UTILITY POLE, NORTHEAST QUADRANT OF ARDMORE AVENUE AND HAMILTON ROAD.

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- EXT. WATER MAIN
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- EXT. STORM SEWER
- EXT. ELEVATIONS
- PROPOSED WATER MAIN
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- FIRE HYDRANT
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- THRUST BLOCK
- ▲T/C 800.00 PROPOSED TOP OF CURB ELEV.

NOTE: WATER SHALL HAVE 10' HORIZONTAL SEPARATION & 18" VERTICAL SEPARATION FROM ALL SEWERS.

EX. LEGEND

- SET 1/2" BAR WITH CAP
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- CONCRETE
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- DECK
- ADA PLATE
- EXISTING SPOT ELEVATION
- EXISTING CONTOUR ELEVATION
- BUILDING OVERHANG
- GAS LINE
- UNDERGROUND TELEPHONE
- UNDERGROUND TELEVISION
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- OVERHEAD WIRES
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- SANITARY MANHOLE
- DRAINAGE MANHOLE
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- UTILITY PEDESTAL
- TRANSFORMER
- HANDHOLE
- ELECTRIC METER
- GAS METER
- WATER METER
- SIGN
- POST
- AIR CONDITIONING UNIT

E-93725-MUPUD-4-12-19
SURVEY#93725ALT

REVISIONS
4-19-19 MUPUD SUBMITTAL
4-26-19 WAIVERS
5-10-19 BLDG G

KEBS, INC.
KYES ENGINEERING
BRYAN LAND SURVEYS
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX. 517-339-8047
Marshall Office
Ph. 269-781-9800

Village of Okemos
PERVIOUS/IMPERVIOUS PLAN

SCALE: 1"= 40'	DESIGNER: AJP	APPROVED BY: AJP
DATE: 4-14-19	PROJECT MGR. AJP	SHEET C104
AUTHORIZED BY: DOWNTOWN OKEMOS, LLC		JOB #: 93725

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MUPUD PLAN FOR:

Village of Okemos

MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN

EX. SEWER INVENTORIES

STORM MANHOLE #107
RIM ELEV. = 845.42
10" RCP N INV. = 840.22
12" RCP NE INV. = 838.54
18" RCP W INV. = 837.26

CATCH BASIN #108
RIM ELEV. = 844.38
10" RCP N INV. = 840.43
10" RCP S INV. = 840.39
TOP OF DEBRIS ELEV. = 840.38

CATCH BASIN #109
RIM ELEV. = 844.37
10" RCP S INV. = 840.72
TOP OF DEBRIS ELEV. = 840.47

CATCH BASIN #140
RIM ELEV. = 838.40
8" PVC NW INV. = 836.40
SUMP ELEV. = 836.15

STORM MANHOLE #141
RIM ELEV. = 839.97
18" RCP NW INV. = 834.70
18" RCP E INV. = 834.52
8" PVC SE INV. = 835.11

STORM MANHOLE #142
RIM ELEV. = 841.24
12" RCP SE INV. = 834.56
18" RCP S INV. = 834.18
18" RCP W INV. = 834.14

CATCH BASIN #143
RIM ELEV. = 840.02
10" RCP N INV. = 835.36
12" RCP NW INV. = 835.34
SUMP ELEV. = 835.02

CATCH BASIN #144
RIM ELEV. = 841.65
6" PVC NE INV. = 840.41
4" PVC SE INV. = 838.15
10" RCP S INV. = 837.38
SUMP ELEV. = 836.75

STORM MANHOLE #145
RIM ELEV. = 837.27
18" RCP E INV. = 832.65
6" PVC S INV. = 832.97
18" RCP W INV. = 832.63

CATCH BASIN #146
RIM ELEV. = 836.82
6" PVC N INV. = 834.15
SUMP ELEV. = 833.47

CATCH BASIN #147
RIM ELEV. = 837.62
12" RCP S INV. = 833.02
10" RCP W INV. = 833.13
TOP OF DEBRIS ELEV. = 833.47

CATCH BASIN #148
RIM ELEV. = 838.03
10" RCP E INV. = 834.15
TOP OF DEBRIS ELEV. = 833.93

CATCH BASIN #149
RIM ELEV. = 851.94
6" VCP N INV. = 847.59
6" VCP S INV. = 847.49

CATCH BASIN #150
RIM ELEV. = 852.27
6" VCP S INV. = 850.27
TOP OF DEBRIS ELEV. = 850.07

STORM MANHOLE #151
RIM ELEV. = 838.10
12" RCP N. INV. = 832.90
15" RCP NE INV. = 832.76
18" RCP E INV. = 832.76
30" RCP W INV. = 832.72

STORM MANHOLE #152
RIM ELEV. = 836.68
30" RCP E INV. = 831.77
30" RCP W INV. = 831.72

SANITARY MANHOLE #202
RIM ELEV. = 844.30
8" VCP N INV. = 832.60
8" VCP E INV. = 831.28
8" VCP E INV. = 833.77
8" VCP W INV. = 831.17

SANITARY MANHOLE #203
RIM ELEV. = 847.01
8" VCP S INV. = 834.83
6" VCP W INV. = 835.03

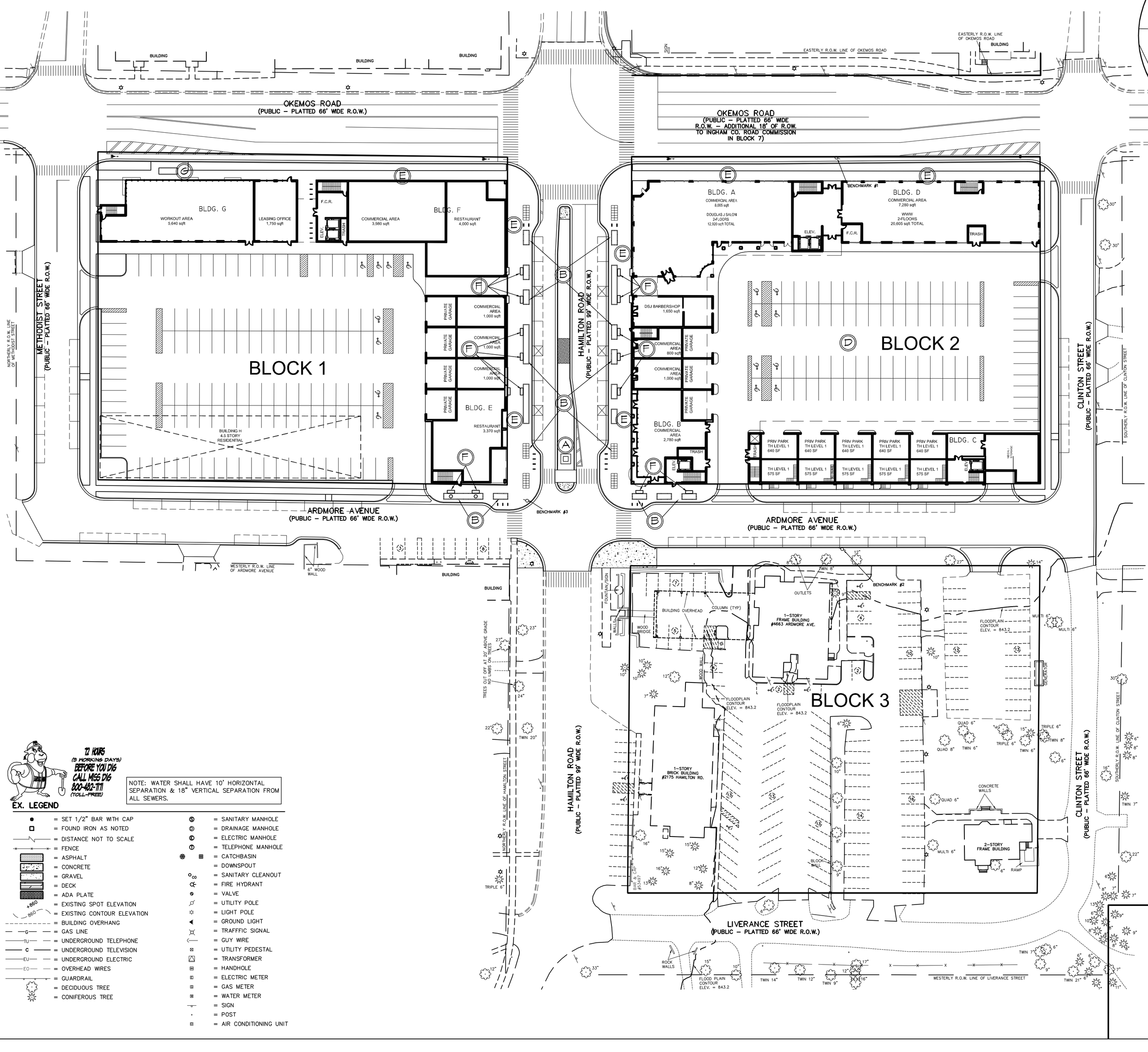
SANITARY MANHOLE #210
RIM ELEV. = 839.83
8" VCP N INV. = 829.25
8" VCP E INV. = 829.30

SANITARY MANHOLE #211
RIM ELEV. = 838.82
8" VCP N INV. = 828.24
8" VCP N INV. = 830.50
8" VCP S INV. = 828.26
8" VCP W INV. = 828.22

SANITARY MANHOLE #212
RIM ELEV. = 853.37
8" VCP E INV. = 837.05
8" VCP S INV. = 836.88
8" VCP W INV. = 836.98

SANITARY MANHOLE #213
RIM ELEV. = 854.01
6" VCP N INV. = 841.73
8" VCP W INV. = 841.31

SANITARY MANHOLE #214
RIM ELEV. = 837.23
INACCESSIBLE – LID BOLTED SHUT



LEGAL DESCRIPTION:
(As provided by Transnation Title Agency, underwritten by Fidelity National Title Insurance Company, Commitment No. 221445LANS, dated August 15, 2017)

Parcel 1:
Lots 1, 5, 6, 7 & 8 and the South 66 feet of Lot 2, all in Block 5, Village of Okemos (formerly Village of Hamilton), Meridian Township, Ingham County, Michigan, as recorded in Liber 11 of Deeds, Page 2.

(As provided by Transnation Title Agency, Commitment No. 22145BLANS, dated August 15, 2017)

Lots 3, 4, and the North 99 feet of Lot 2, all in Block 5, Village of Okemos (formerly Village of Hamilton), Township of Meridian, Ingham County, Michigan, as recorded in Liber 11 of Deeds, Page 2.

SITE AMENITIES

- (A) PUBLIC ART/CLOCK TOWER
- (B) SIDEWALK PLANTERS
- (C) INNOVATIVE LIGHTING (SEE LANDSCAPE & LIGHTING PLANS)
- (D) MULTI-LEVEL PARKING
- (E) 1st FLOOR AWNINGS & UPPER FLOOR BALCONIES
- (F) OUTDOOR SEATING
- (G) TRANSIT STOP
- (H) REHABILITATION OF DEGRADED SITE
- (I) CONSOLIDATION OF MULTIPLE LAND PARCELS

BENCHMARKS

BENCHMARK #1 ELEV. = 852.30 (NAVD88)
PK NAIL, WEST SIDE UTILITY POLE, WEST SIDE OF OKEMOS ROAD, ±42' SOUTH OF BUILDING #4661 OKEMOS ROAD.

BENCHMARK #2 ELEV. = 846.57 (NAVD88)
PK NAIL, SOUTHEAST SIDE UTILITY POLE, WEST SIDE OF ARDMORE AVENUE, ON LINE WITH SOUTHERLY PARCEL LINE.

BENCHMARK #3 ELEV. = 856.59 (NAVD88)
RAILROAD SPIKE, NORTHWEST SIDE UTILITY POLE, NORTHEAST QUADRANT OF ARDMORE AVENUE AND HAMILTON ROAD.

LEGEND

- EXT. CONTOURS
- EXT. WATER MAIN
- EXT. SANITARY SEWER
- EXT. STORM SEWER
- EXT. ELEVATIONS
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- MANHOLE (NEW)
- PROPOSED C.B.
- MANHOLE (EX.)
- UTILITY EASEMENT
- CENTER LINE OF ROAD
- ROAD RIGHT OF WAY
- PROPERTY LINE
- FIRE HYDRANT
- WATER VALVE
- THRUST BLOCK
- ▲T/C 800.00 PROPOSED TOP OF CURB ELEV.

NOTE: WATER SHALL HAVE 10' HORIZONTAL SEPARATION & 18" VERTICAL SEPARATION FROM ALL SEWERS.

EX. LEGEND

- = SET 1/2" BAR WITH CAP
- = FOUND IRON AS NOTED
- = DISTANCE NOT TO SCALE
- = FENCE
- = ASPHALT
- = CONCRETE
- = GRAVEL
- = DECK
- = ADA PLATE
- = EXISTING SPOT ELEVATION
- = EXISTING CONTOUR ELEVATION
- = BUILDING OVERHANG
- = GAS LINE
- = UNDERGROUND TELEPHONE
- = UNDERGROUND TELEVISION
- = UNDERGROUND ELECTRIC
- = OVERHEAD WIRES
- = GUARDRAIL
- = DECIDUOUS TREE
- = CONIFEROUS TREE
- = SANITARY MANHOLE
- = DRAINAGE MANHOLE
- = ELECTRIC MANHOLE
- = TELEPHONE MANHOLE
- = CATCHBASIN
- = DOWNSPOUT
- = SANITARY CLEANOUT
- = FIRE HYDRANT
- = VALVE
- = UTILITY POLE
- = LIGHT POLE
- = GROUND LIGHT
- = TRAFFFIC SIGNAL
- = GUY WIRE
- = UTILITY PEDESTAL
- = TRANSFORMER
- = HANDHOLE
- = ELECTRIC METER
- = GAS METER
- = WATER METER
- = SIGN
- = POST
- = AIR CONDITIONING UNIT

E–93725–MUPUD–4–12–19
SURVEY#93725ALT

REVISIONS
4–19–19 MUPUD SUBMITTAL
4–26–19 WAIVERS
5–10–19 BLDG G

KEBS, INC.
KYES ENGINEERING
BRYAN LAND SURVEYS
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517–339–1014 FAX. 517–339–8047
Marshall Office
Ph. 269–781–9800

Village of Okemos
AMENITIES PLAN

SCALE: 1"= 40'	DESIGNER: AJP	APPROVED BY: AJP
DATE: 4–14–19	PROJECT MGR. AJP	SHEET C105
AUTHORIZED BY: DOWNTOWN OKEMOS, LLC		JOB #: 93725

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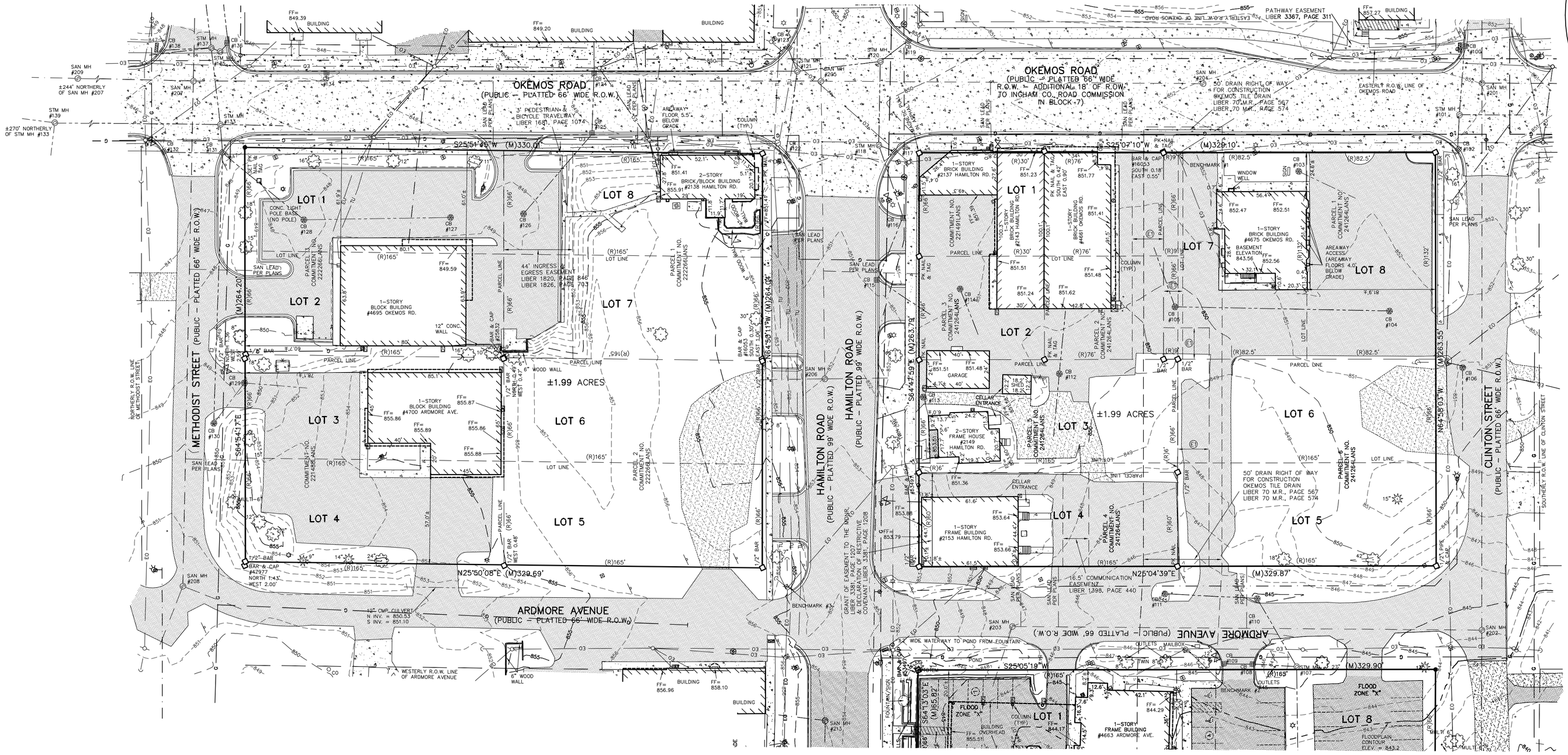
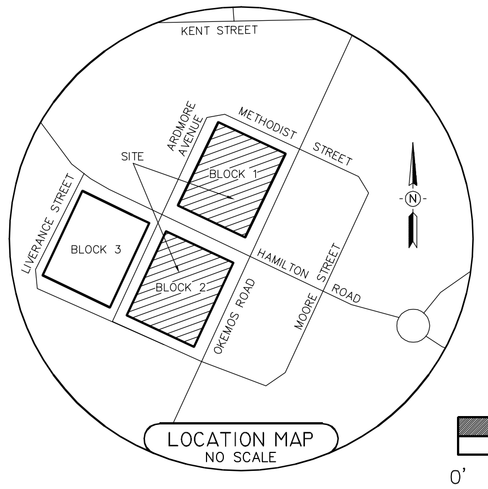
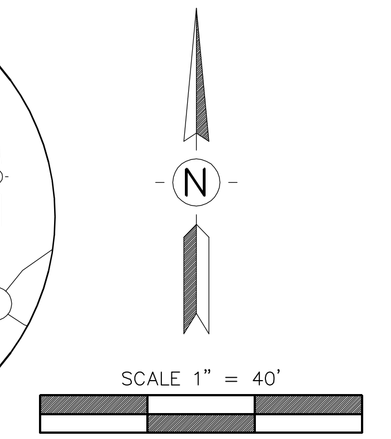
VILLAGE OF OKEMOS

MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN







LEGAL DESCRIPTION:
(As provided by Transnation Title Agency, underwritten by Fidelity National Title Insurance Company, Commitment No. 221445LANS, dated August 15, 2017)

Parcel 1:
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(As provided by Transnation Title Agency, Commitment No. 221458LANS, dated August 15, 2017)

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BENCHMARKS

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PK NAIL, SOUTHEAST SIDE UTILITY POLE, WEST SIDE OF ARDMORE AVENUE, ON LINE WITH SOUTHERLY PARCEL LINE.

BENCHMARK #3 ELEV. = 856.59 (NAVD88)
RAILROAD SPIKE, NORTHWEST SIDE UTILITY POLE, NORTHEAST QUADRANT OF ARDMORE AVENUE AND HAMILTON ROAD.

SEWER INVENTORIES

CATCH BASIN #100
RIM ELEV. = 851.88
8" RCP W INV. = 847.69
TOP OF DEBRIS ELEV. = 847.66
SUMP ELEV. = 846.19

STORM MANHOLE #101
RIM ELEV. = 852.29
12" RCP E INV. = 846.78
15" RCP S ELEV. = 846.59
12" RCP W INV. = 846.90
TOP OF DEBRIS ELEV. = 846.75

CATCH BASIN #102
RIM ELEV. = 851.85
12" RCP E INV. = 847.33
TOP OF DEBRIS ELEV. = 847.35

CATCH BASIN #103
RIM ELEV. = 852.09
SW RESTRICTOR PLATE INV. = 849.23
SW 12" SQUARE OPENING INV. = 848.13
SUMP ELEV. = 846.89

CATCH BASIN #104
RIM ELEV. = 851.00
8" RCP N INV. = 847.68
TOP OF WATER ELEV. = 847.68
SUMP ELEV. = 846.60

CATCH BASIN #105
RIM ELEV. = 849.67
6" VCP NE INV. = 845.07
8" RCP S INV. = 844.91
SUMP ELEV. = 844.17

CATCH BASIN #106
RIM ELEV. = 850.60
8" PVC W TOP OF PIPE ELEV. = 849.12
TOP OF DEBRIS ELEV. = 848.80

STORM MANHOLE #107
RIM ELEV. = 845.42
10" RCP N INV. = 840.22
12" RCP NE INV. = 838.54
18" RCP W INV. = 837.26

CATCH BASIN #108
RIM ELEV. = 844.38
10" RCP N INV. = 840.43
10" RCP S INV. = 840.39
TOP OF DEBRIS ELEV. = 840.38

CATCH BASIN #109
RIM ELEV. = 844.37
10" RCP S INV. = 840.72
TOP OF DEBRIS ELEV. = 840.47

CATCH BASIN #110
RIM ELEV. = 844.72
12" RCP N INV. = 839.24
12" RCP SW INV. = 839.01
SUMP ELEV. = 838.12

CATCH BASIN #111
RIM ELEV. = 844.66
12" RCP S INV. = 839.47
SUMP ELEV. = 839.06

CATCH BASIN #112
RIM ELEV. = 850.32
6" VCP E INV. = 847.30
6" VCP W INV. = 847.39
SUMP ELEV. = 847.22

CATCH BASIN #113
RIM ELEV. = 851.08
6" VCP W INV. = 848.40
TOP OF DEBRIS ELEV. = 848.38

CATCH BASIN #114
RIM ELEV. = 850.55
6" VCP SW INV. = 848.23
TOP OF DEBRIS ELEV. = 848.23

CATCH BASIN #115
RIM ELEV. = 850.68
4" PVC SE INV. = 848.55
6" PVC SW INV. = 848.52
SUMP ELEV. = 848.43

CATCH BASIN #116
RIM ELEV. = 850.06
12" RCP NE INV. = 846.01
4" VCP NW INV. = 848.11
TOP OF DEBRIS ELEV. = 845.76

CATCH BASIN #117
RIM ELEV. = 850.01
12" RCP NE INV. = 845.88
TOP OF DEBRIS ELEV. = 845.88

STORM MANHOLE #118
RIM ELEV. = 849.82
12" RCP E INV. = 845.66
12" RCP SW INV. = 845.77
12" RCP W INV. = 845.77
TOP OF DEBRIS ELEV. = 845.86

CATCH BASIN #119
RIM ELEV. = 849.25
12" RCP NW INV. = 845.94
SUMP ELEV. = 844.75

STORM MANHOLE #120
RIM ELEV. = 849.59
12" RCP N INV. = 844.58
12" RCP SE INV. = 845.08
12" RCP W INV. = 844.74
SUMP ELEV. = 844.09

STORM MANHOLE #121
RIM ELEV. = 849.28
12" RCP N INV. = 840.68
8" RCP NE INV. = 844.49
12" RCP E INV. = 840.65
12" RCP S INV. = 840.65
12" RCP S INV. = 843.19
8" RCP W INV. = 845.02

CATCH BASIN #122
RIM ELEV. = 849.72
8" RCP E INV. = 845.86
SUMP ELEV. = 843.42

CATCH BASIN #123
RIM ELEV. = 849.30
8" RCP SW INV. = 844.59
TOP OF DEBRIS ELEV. = 844.33

CATCH BASIN #124
RIM ELEV. = 848.90
8" METAL E INV. = 841.49
12" RCP S INV. = 841.49
8" RCP W INV. = 845.11
SUMP ELEV. = 841.49

CATCH BASIN #125
RIM ELEV. = 848.84
8" RCP E INV. = 845.44
6" PVC NW INV. = 845.49
SUMP ELEV. = 845.24

CATCH BASIN #126
RIM ELEV. = 848.50
6" PVC SE INV. = 846.15
TOP OF DEBRIS ELEV. = 846.10

CATCH BASIN #127
RIM ELEV. = 848.24
8" PVC N INV. = 844.49
SUMP ELEV. = 844.04

CATCH BASIN #128
RIM ELEV. = 847.24
8" VCP NE INV. = 844.05
8" PVC S INV. = 844.05
TOP OF DEBRIS ELEV. = 844.04

CATCH BASIN #129
RIM ELEV. = 848.81
4" S INV. = 845.28
12" RCP NW INV. = 845.19
SUMP ELEV. = 844.81

CATCH BASIN #130
RIM ELEV. = 848.88
12" RCP E INV. = 844.91
12" RCP SE INV. = 844.93
SUMP ELEV. = 843.68

CATCH BASIN #131
RIM ELEV. = 846.24
15" RCP N INV. = 840.99
15" RCP E INV. = 839.05
12" RCP SW INV. = 842.60
12" RCP W INV. = 843.06
SUMP ELEV. = 838.86

CATCH BASIN #132
RIM ELEV. = 846.00
15" RCP S INV. = 841.09
SUMP ELEV. = 838.70

STORM MANHOLE #133
RIM ELEV. = 846.58
12" RCP N INV. = 838.88
18" RCP E INV. = 834.69
12" RCP S INV. = 840.04
15" RCP W INV. = 838.23

CATCH BASIN #134
RIM ELEV. = 846.71
TOP OF DEBRIS ELEV. = 845.41

STORM MANHOLE #135
RIM ELEV. = 846.67
12" RCP NE INV. = 840.73
12" RCP SE INV. = 842.62
SUMP ELEV. = 838.56

CATCH BASIN #136
RIM ELEV. = 846.68
12" RCP E INV. = 843.69
12" RCP NW INV. = 842.89
SUMP ELEV. = 840.92

STORM MANHOLE #137
RIM ELEV. = 846.55
12" RCP N INV. = 841.45
18" RCP N INV. = 833.92
24" RCP E INV. = 833.83
12" RCP SW INV. = 840.56
18" RCP W INV. = 834.37

CATCH BASIN #138
RIM ELEV. = 846.01
12" RCP S INV. = 841.59
SUMP ELEV. = 840.09

CATCH BASIN #140
RIM ELEV. = 838.40
8" PVC NW INV. = 836.40
SUMP ELEV. = 836.15

STORM MANHOLE #141
RIM ELEV. = 839.97
18" RCP NW INV. = 834.70
18" RCP E INV. = 834.52
8" PVC SE INV. = 835.11

STORM MANHOLE #142
RIM ELEV. = 841.24
12" RCP SE INV. = 834.56
18" RCP S INV. = 834.18
18" RCP W INV. = 834.14

CATCH BASIN #143
RIM ELEV. = 840.02
10" RCP N INV. = 835.36
12" RCP NW INV. = 835.34
SUMP ELEV. = 835.02

CATCH BASIN #144
RIM ELEV. = 841.65
6" PVC NE INV. = 840.41
4" PVC SE INV. = 838.15
10" RCP S INV. = 837.38
SUMP ELEV. = 836.75

STORM MANHOLE #145
RIM ELEV. = 837.27
18" RCP E INV. = 832.65
6" PVC S INV. = 832.97
18" RCP W INV. = 832.63

CATCH BASIN #146
RIM ELEV. = 836.82
6" PVC N INV. = 834.15
SUMP ELEV. = 833.47

CATCH BASIN #147
RIM ELEV. = 837.62
12" RCP S INV. = 833.02
10" RCP W INV. = 833.13
TOP OF DEBRIS INV. = 833.47

CATCH BASIN #148
RIM ELEV. = 838.03
10" RCP E INV. = 834.15
TOP OF DEBRIS INV. = 833.93

CATCH BASIN #149
RIM ELEV. = 851.94
6" VCP N INV. = 847.59
6" VCP S INV. = 847.49

CATCH BASIN #150
RIM ELEV. = 852.27
TOP OF DEBRIS INV. = 850.07

SANITARY MANHOLE #200
RIM ELEV. = 845.38
8" VCP N INV. = 836.58
8" VCP SE INV. = 836.72

SANITARY MANHOLE #201
RIM ELEV. = 851.97
8" VCP E INV. = 844.36
8" VCP E INV. = 835.34
8" VCP S INV. = 835.23
8" VCP W INV. = 835.13

SANITARY MANHOLE #202
RIM ELEV. = 844.30
8" VCP N INV. = 832.60
8" VCP E INV. = 831.28
8" VCP E INV. = 833.77
8" VCP W INV. = 831.17

SANITARY MANHOLE #203
RIM ELEV. = 847.01
8" VCP S INV. = 834.83
6" VCP W INV. = 835.03

SANITARY MANHOLE #204
RIM ELEV. = 852.05
8" VCP N INV. = 840.56

SANITARY MANHOLE #205
RIM ELEV. = 849.65
8" VCP N INV. = 838.88
8" VCP E INV. = 838.97
8" VCP S INV. = 839.51
8" VCP W INV. = 839.58

SANITARY MANHOLE #206
RIM ELEV. = 852.02
8" VCP N INV. = 840.63
8" VCP E INV. = 840.33
8" VCP S INV. = 840.71

SANITARY MANHOLE #207
RIM ELEV. = 846.39
8" VCP N INV. = 835.95
8" VCP E INV. = 837.75
8" VCP S INV. = 837.00
8" VCP W INV. = 837.61

SANITARY MANHOLE #208
RIM ELEV. = 851.62
8" VCP E INV. = 840.11
6" VCP SW INV. = 840.41
6" VCP NW INV. = 840.54

SANITARY MANHOLE #209
RIM ELEV. = 842.15
8" VCP N INV. = 833.91
8" VCP S INV. = 833.91

SANITARY MANHOLE #210
RIM ELEV. = 839.83
8" VCP N INV. = 829.25
8" VCP E INV. = 829.30

SANITARY MANHOLE #211
RIM ELEV. = 838.82
8" VCP N INV. = 828.24
8" VCP N INV. = 830.50
8" VCP S INV. = 828.26
8" VCP W INV. = 828.22

SANITARY MANHOLE #212
RIM ELEV. = 853.37
8" VCP E INV. = 837.05
8" VCP S INV. = 836.88
8" VCP W INV. = 836.98

SANITARY MANHOLE #213
RIM ELEV. = 854.01
6" VCP N INV. = 841.73
8" VCP W INV. = 841.31

LEGEND

- ● = SET 1/2" BAR WITH CAP
- □ = FOUND IRON AS NOTED
- ——— = DEED LINE
- ——\——— = DISTANCE NOT TO SCALE
- -x-x-x- = FENCE
- ▭ = ASPHALT
- ▭ = CONCRETE
- ▭ = GRAVEL
- ▭ = ADA PLATE
- 860 = EXISTING SPOT ELEVATION
- 860 = EXISTING CONTOUR ELEVATION
- ——— = BUILDING OVERHANG
- —— — —— = SANITARY SEWER
- —— — —— = STORM SEWER
- —— — —— = WATER LINE
- —— G —— = GAS LINE
- —— TU —— = UNDERGROUND TELEPHONE
- —— C —— = UNDERGROUND TELEVISION
- —— EU —— = UNDERGROUND ELECTRIC
- —— EO —— = OVERHEAD WIRES
- = DECIDUOUS TREE
- = CONIFEROUS TREE
- Ⓢ = SANITARY MANHOLE
- Ⓓ = DRAINAGE MANHOLE
- Ⓔ = ELECTRIC MANHOLE
- Ⓣ = TELEPHONE MANHOLE
- ⊞ = CATCHBASIN
- $^{O}_{CO}$ = SANITARY CLEANOUT
- = FIRE HYDRANT
- ⊗ = VALVE
- = UTILITY POLE
- = LIGHT POLE
- ◀ = GROUND LIGHT
- = TRAFFFIC SIGNAL
- = GUY WIRE
- ⊠ = UTILITY PEDESTAL
- = TRANSFORMER
- = HANDHOLE
- = ELECTRIC METER
- = GAS METER
- = WATER METER
- = SIGN
- • = POST
- ⊠ = AIR CONDITIONING UNIT

EXISTING FEATURES PLAN

REVISIONS	COMMENTS
04/15/2019	EXISTING PLAN

KEBS, INC. ENGINEERING AND LAND SURVEYING
2116 HASLETT ROAD, HASLETT, MI 48840
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WWW.KEBS.COM
Marshall Office – Ph. 269-781-9800

DRAWN BY SSF	SECTION 21, T4N, R1W
FIELD WORK BY NAW/SL	JOB NUMBER: 93725.ALT
SHEET C106	

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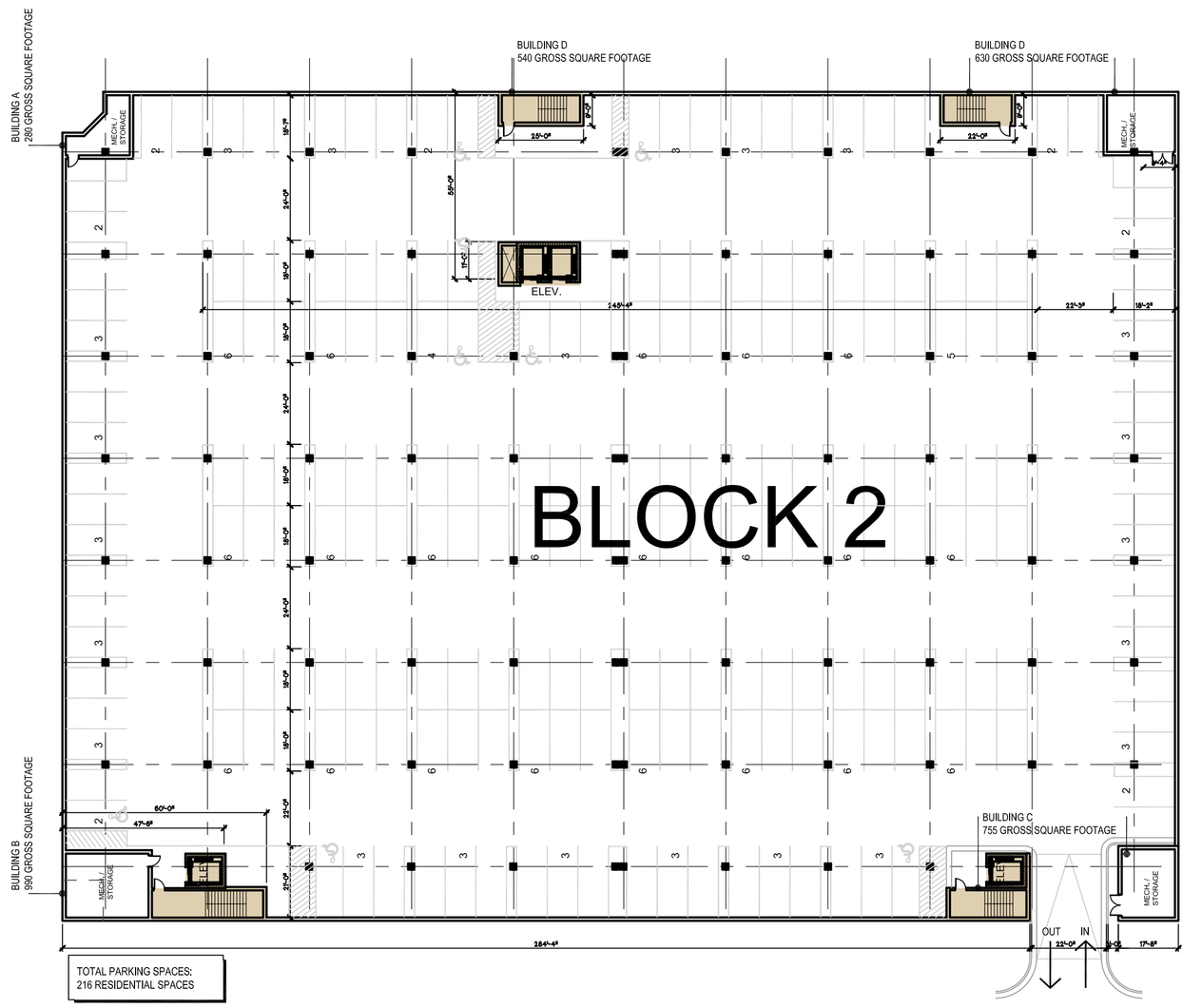

PLAN NORTH

1 / A101 FLOOR PLAN: LOWER FLOOR (BELOW GRADE LEVEL)
SCALE = 1/32" = 1'-0"

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VILLAGE OF OKEMOS
PROJECT

CONSULTANT

FLOOR PLAN
BASEMENT LEVEL
SHEET TITLE

18443
PROJECT NUMBER

A-100
SHEET NUMBER

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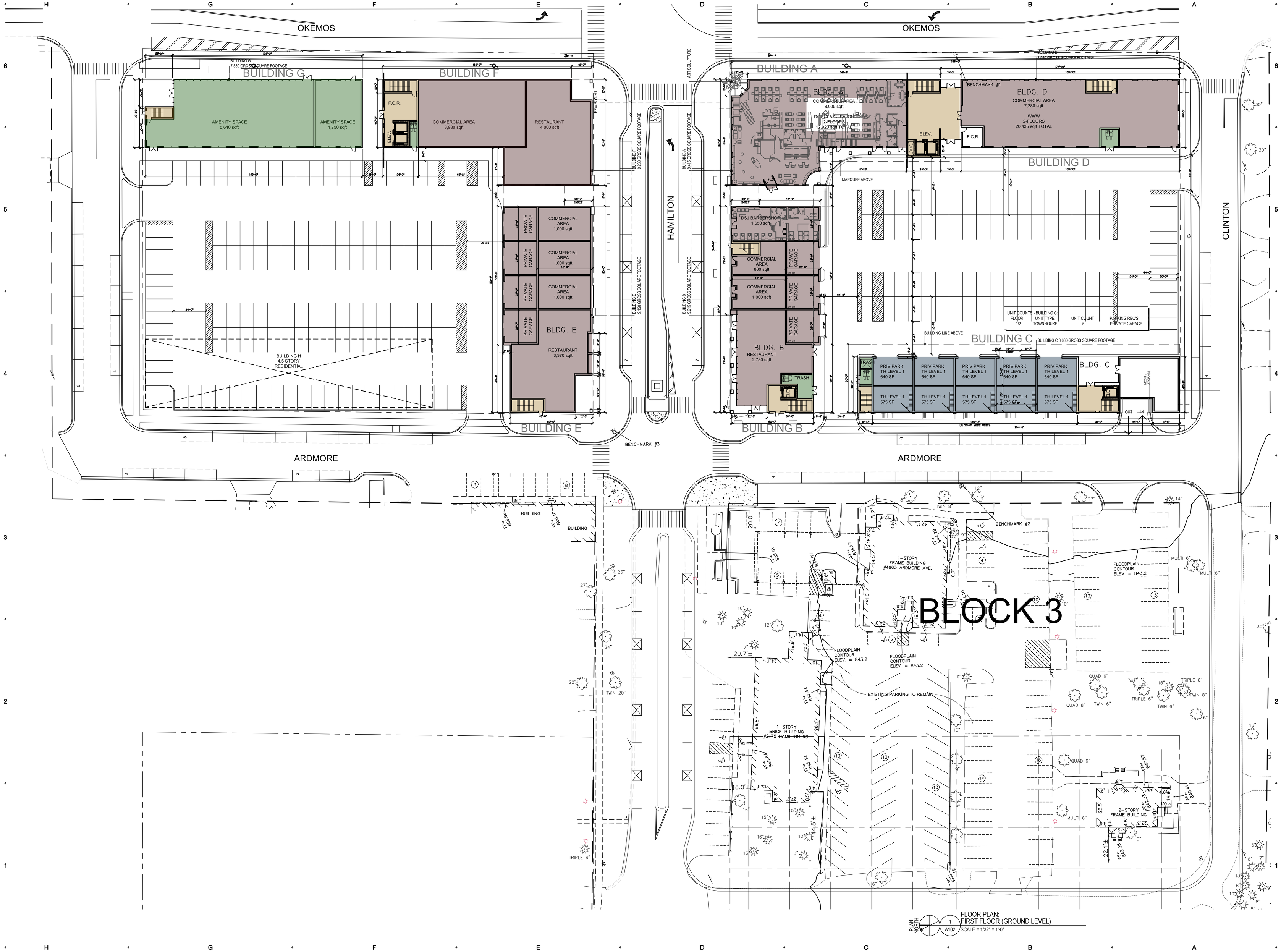

FLOOR PLAN: FIRST FLOOR (GROUND LEVEL)
PLAN NORTH
1 / A102
SCALE = 1/32" = 1'-0"

Drawing: P:\20 JBA\18443.0 \Dwgs\SD\x00ap01.dwg
Date: May 09, 2019, 2:43pm Layout: A-101 Plotted by: jpcarn

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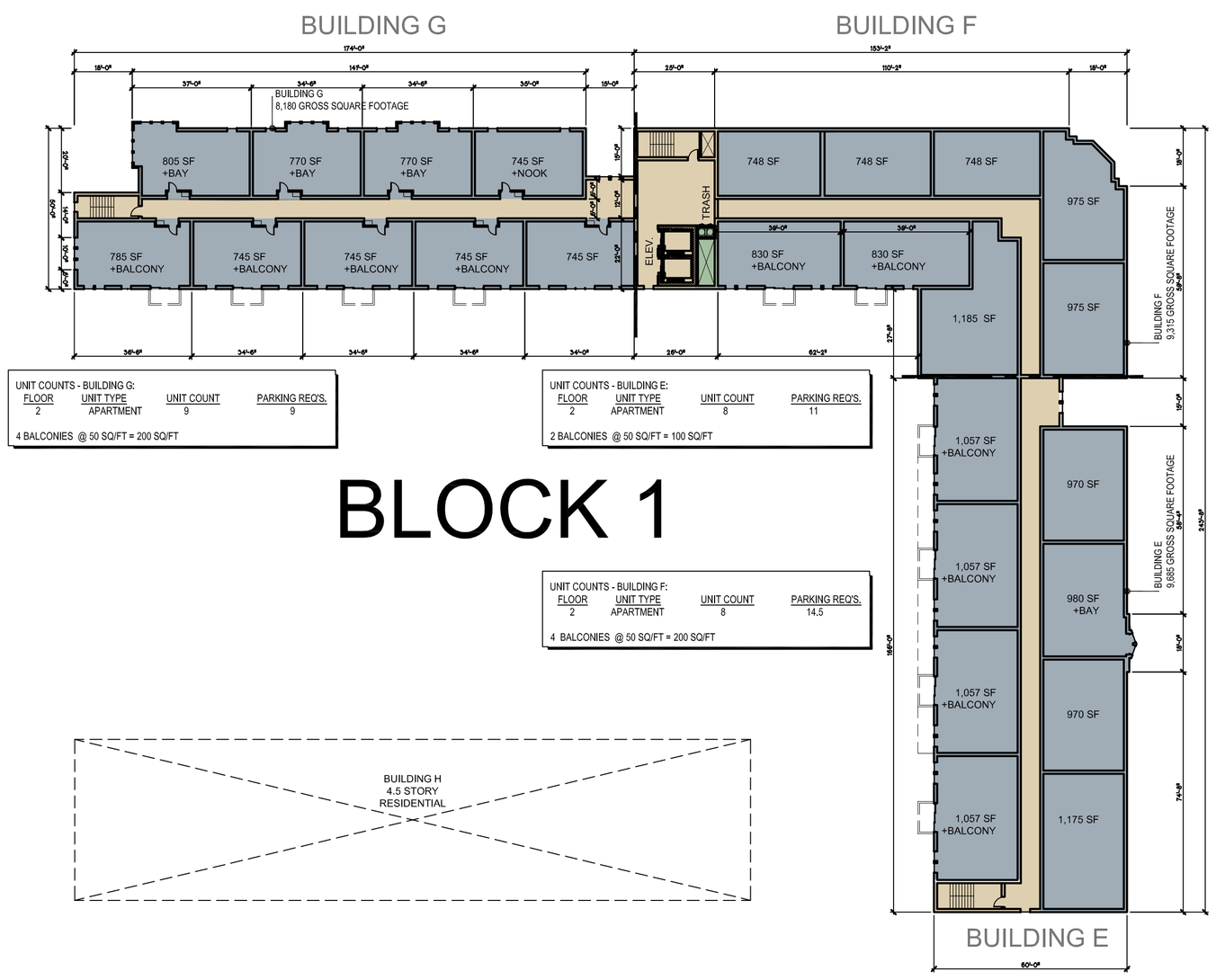
VILLAGE OF OKEMOS
PROJECT

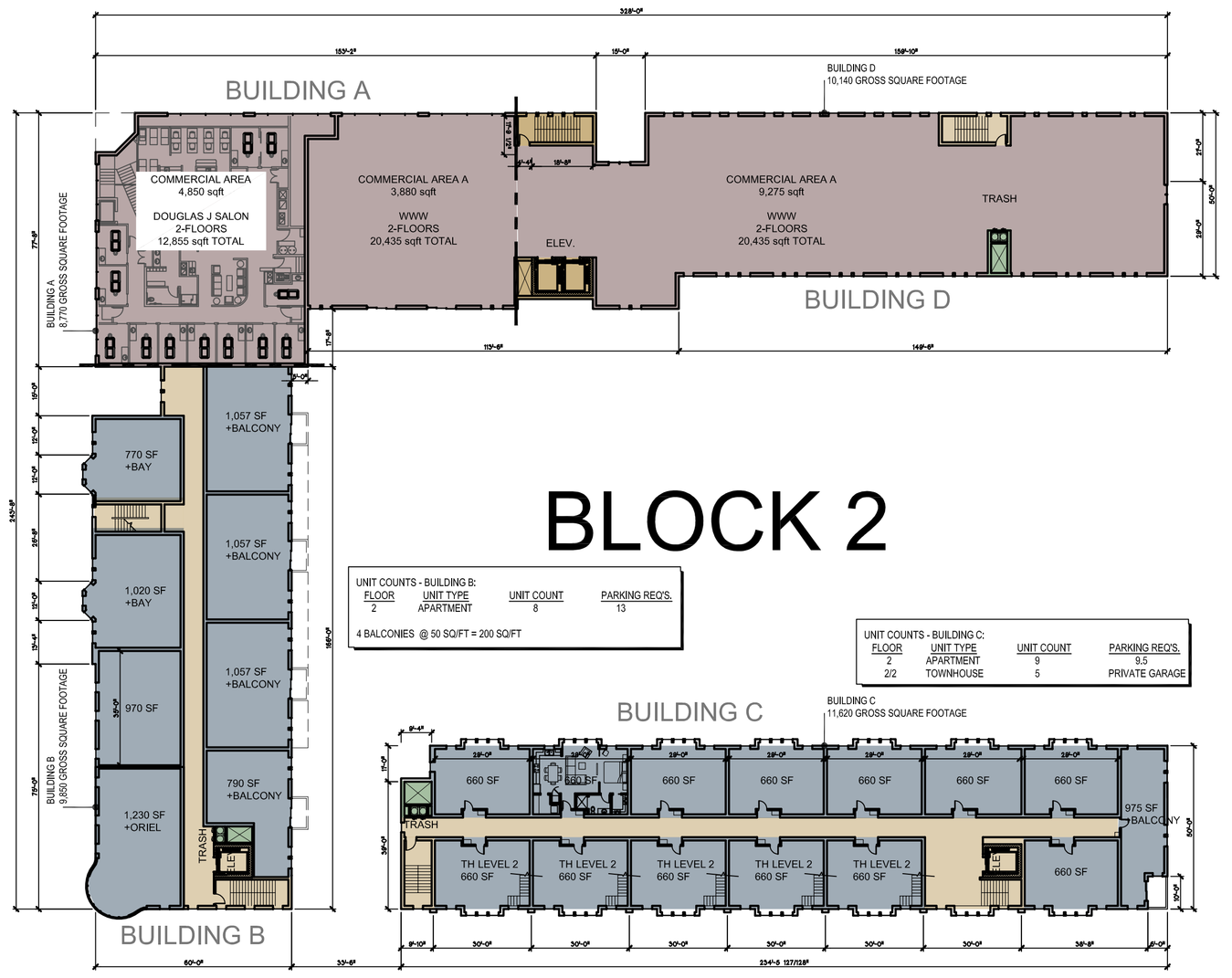
CONSULTANT

FLOOR PLAN FIRST LEVEL
SHEET TITLE

18443
PROJECT NUMBER

A-101
SHEET NUMBER





PLAN NORTH

1 / A103 FLOOR PLAN: SECOND FLOOR
SCALE = 1/32" = 1'-0"

Drawing: P:\20 18\18443-01\dwgs\SD\a00ar02.dwg
Date: May 06, 2019, 2:52pm Layout: A-102 Plotted by: gtann

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VILLAGE OF OKEMOS
PROJECT

CONSULTANT

FLOOR PLAN SECOND LEVEL
SHEET TITLE

18443
PROJECT NUMBER

A-102
SHEET NUMBER

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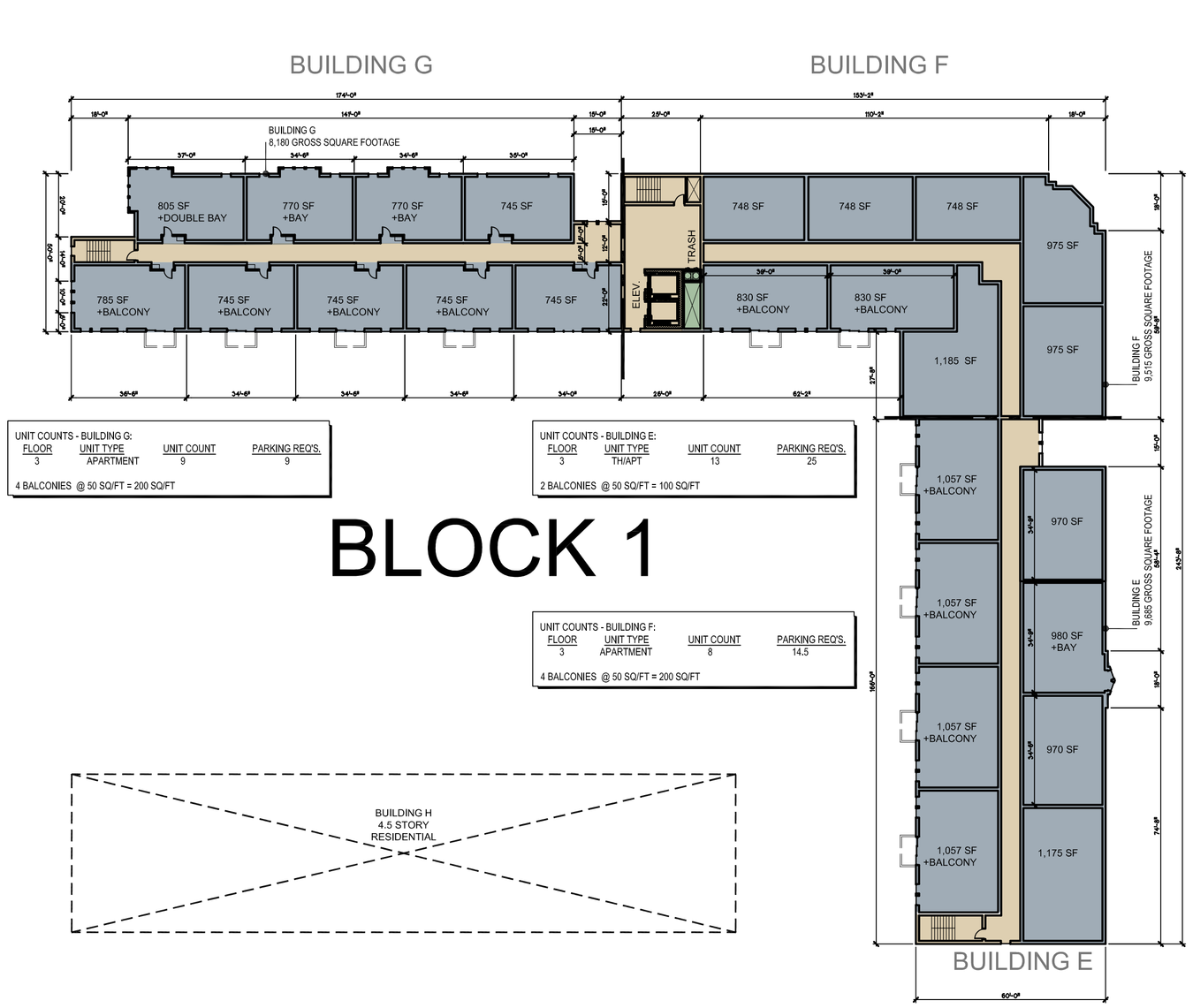
VILLAGE OF OKEMOS
PROJECT

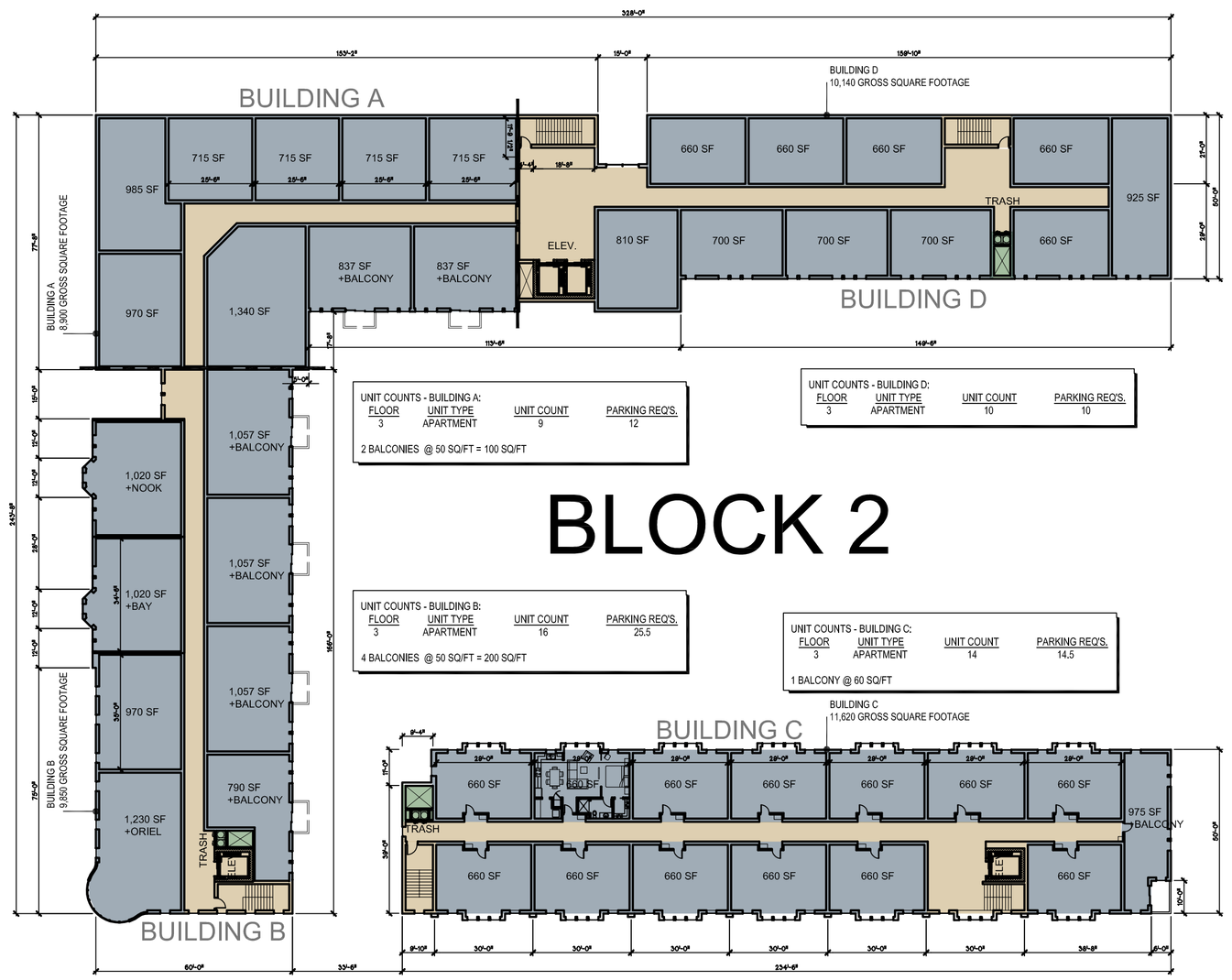
CONSULTANT

FLOOR PLAN THIRD LEVEL
SHEET TITLE

18443
PROJECT NUMBER

A-103
SHEET NUMBER





PLAN NORTH

1 / A104 FLOOR PLAN: THIRD FLOOR
SCALE = 1/32" = 1'-0"

Drawing: P:\2018\18443-01\Revit\SD\x00ar03.dwg
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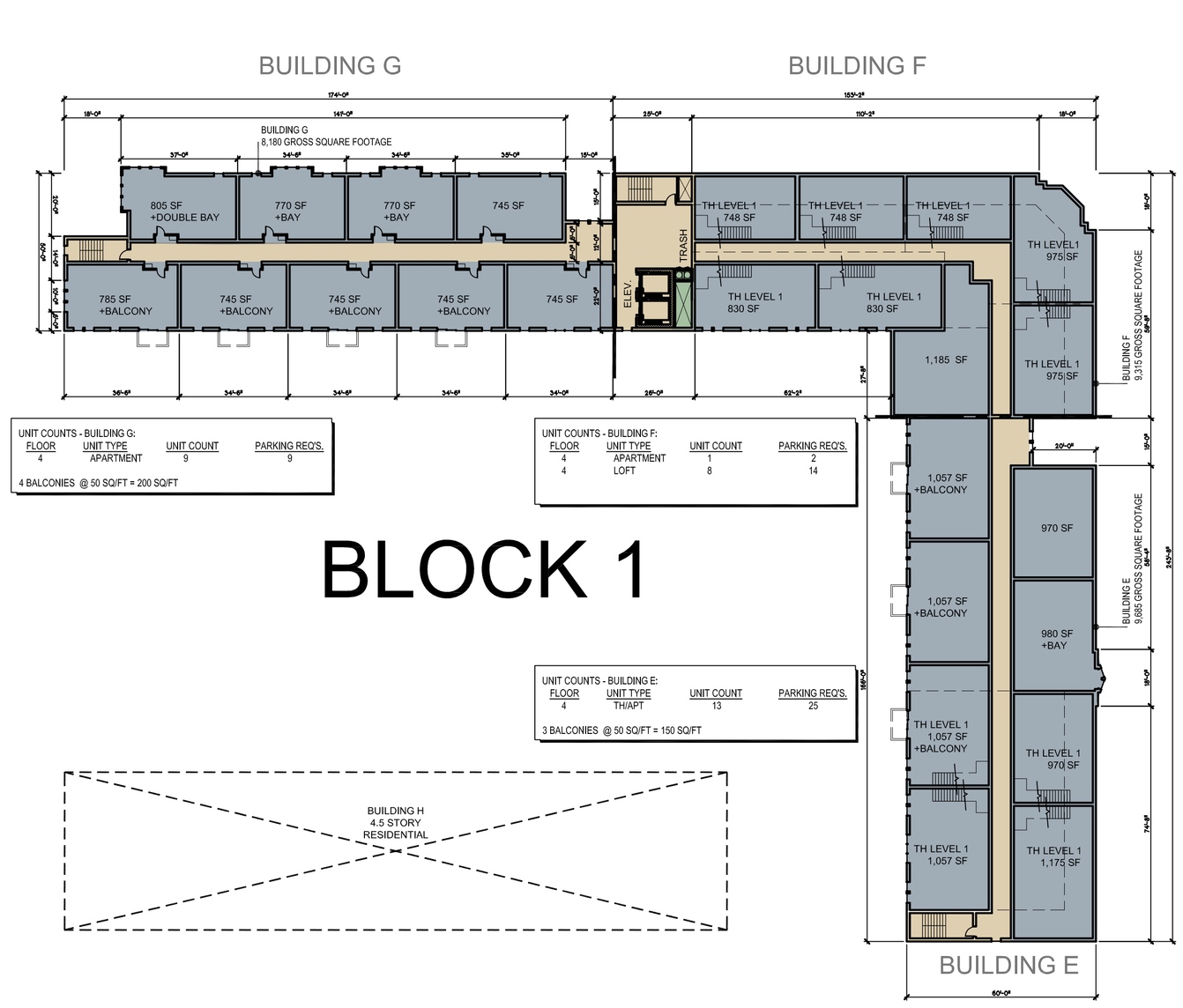
VILLAGE OF OKEMOS
PROJECT

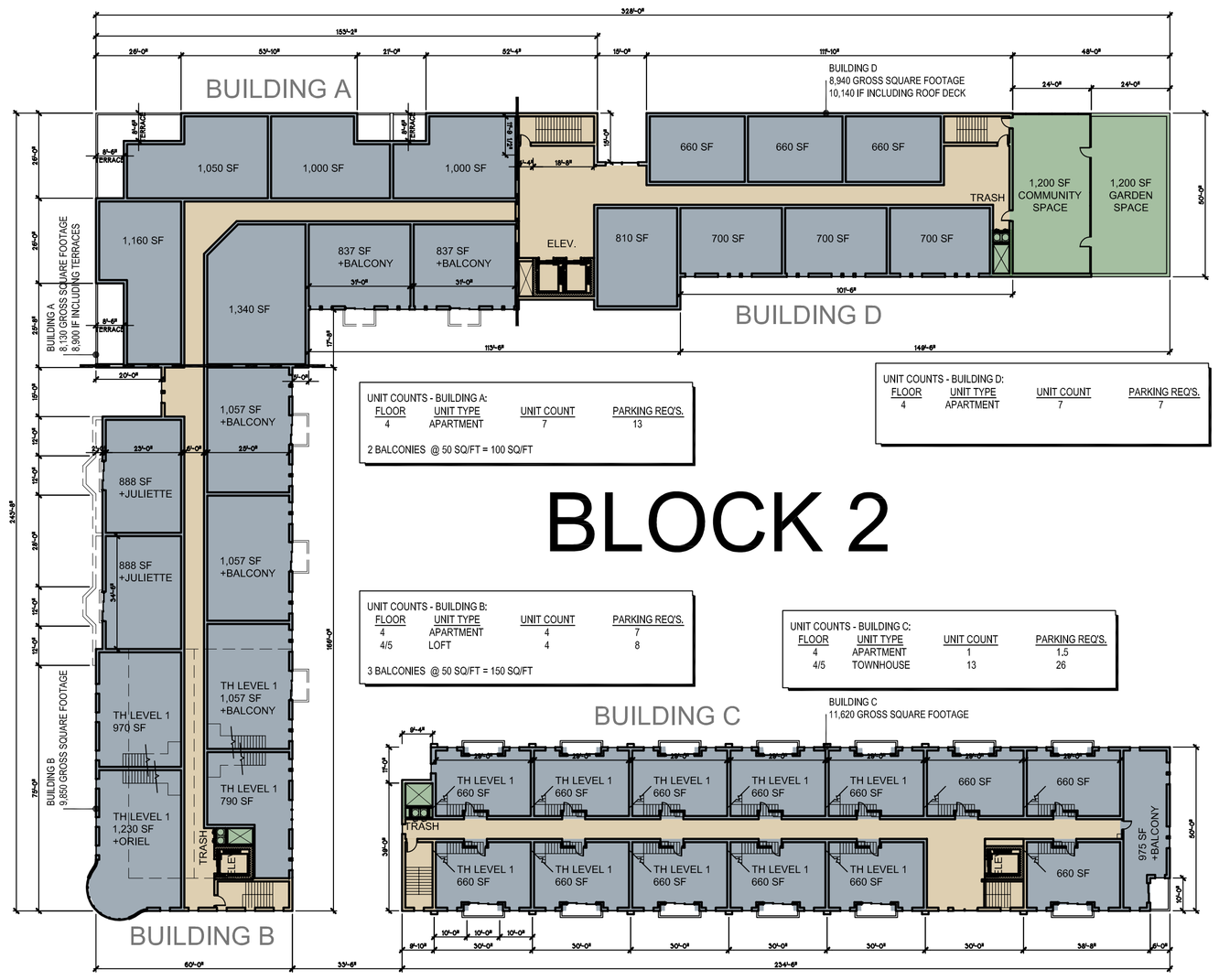
CONSULTANT

FLOOR PLAN FOURTH LEVEL
SHEET TITLE

18443
PROJECT NUMBER

A-104
SHEET NUMBER





PLAN NORTH
1 / A105
FLOOR PLAN: FOURTH LEVEL
SCALE = 1/32" = 1'-0"

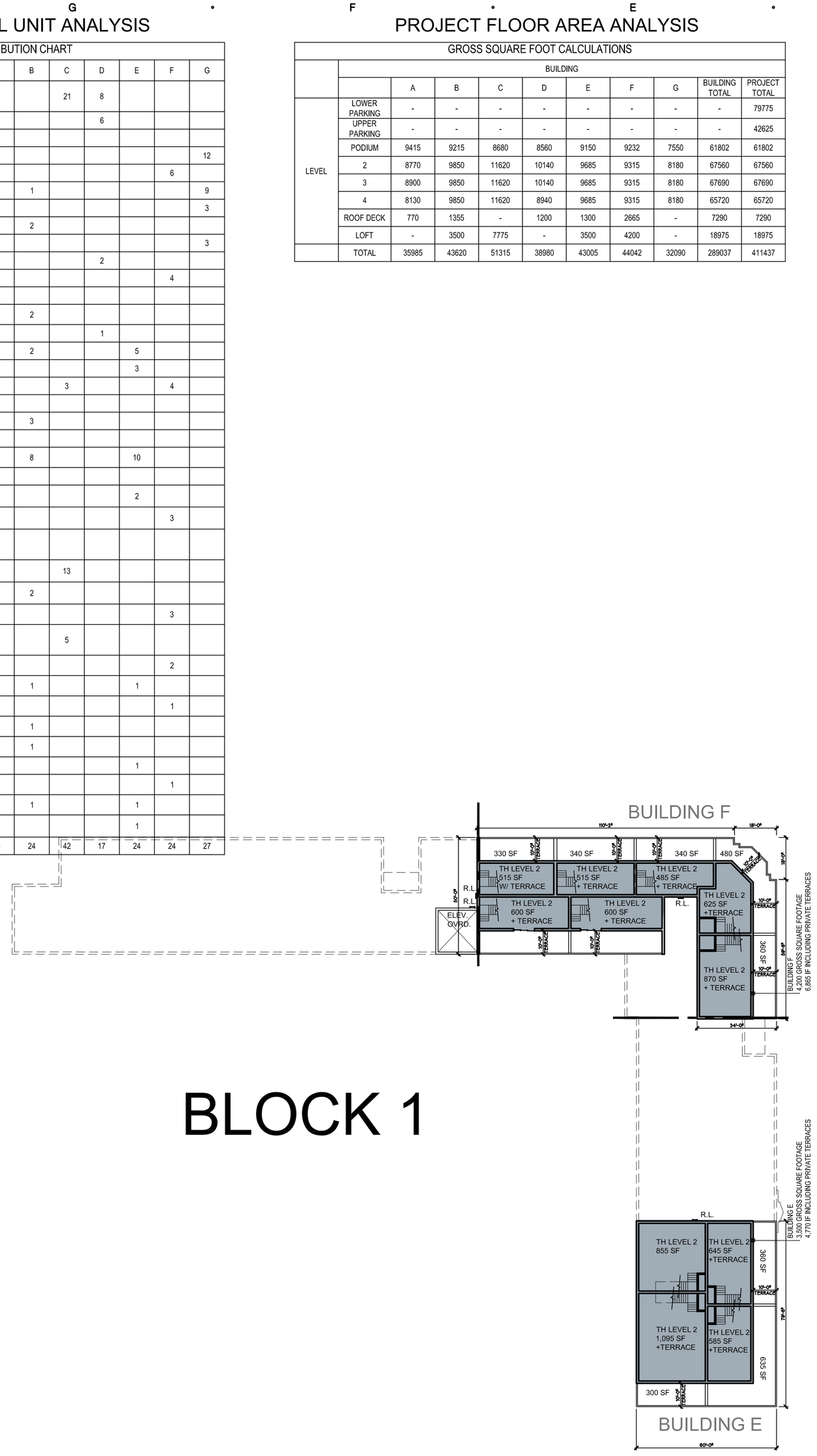
Drawing: P:\20 18\18443-01\dwgs\SD\a00ap04.dwg
Date: May 06, 2019, 2:51 pm Layout: A-104 Plotted by: gtann

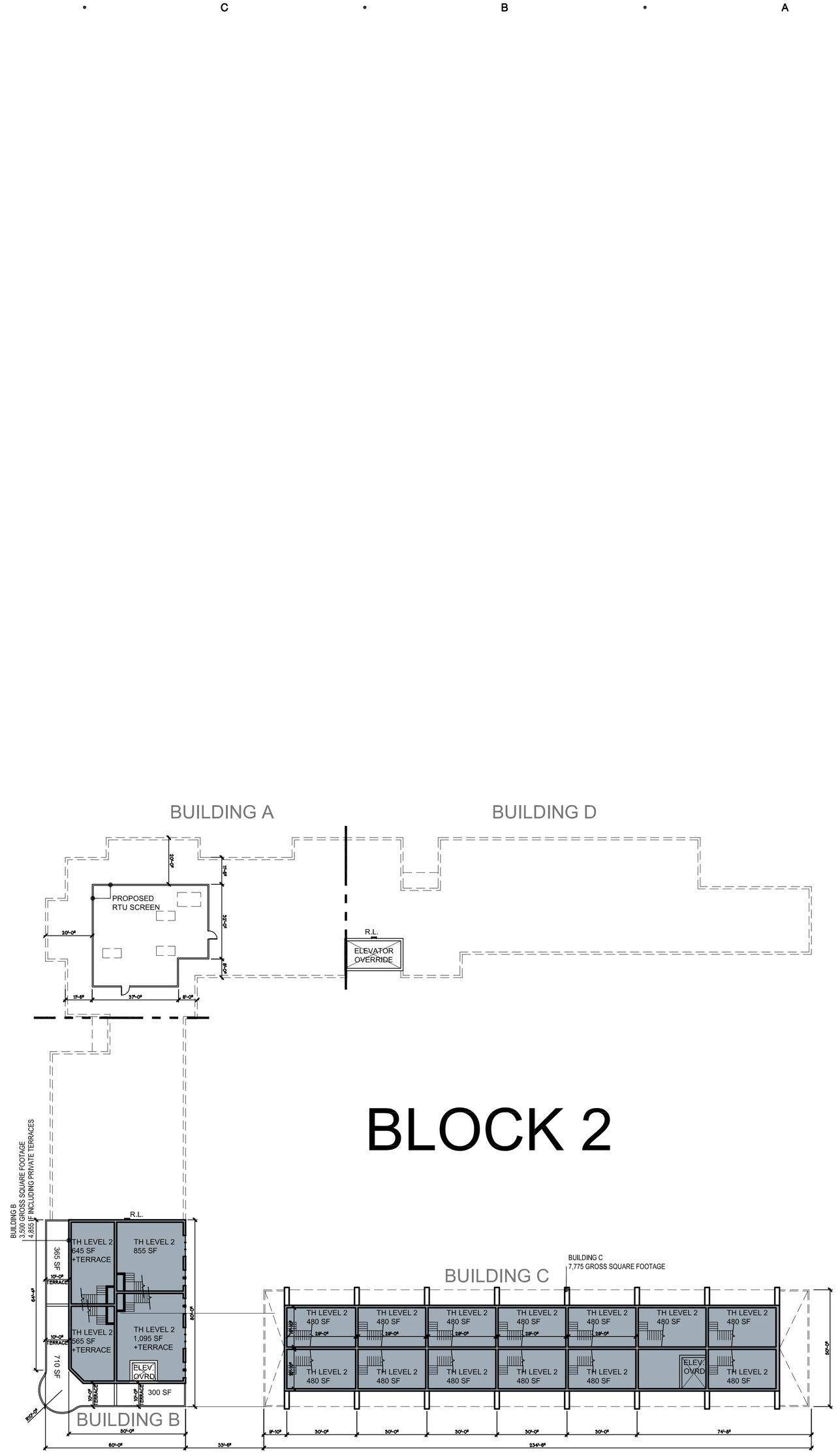
RESIDENTIAL UNIT ANALYSIS

UNIT DISTRIBUTION CHART										
	SF	UNITS	TOTAL NET SF	A	B	C	D	E	F	G
JUNIORS 29 UNITS = 20%	660	29	19140			21	8			
1-BEDROOM 33 UNITS = 22%	700	6	4200				6			
	715	4	2860	4						
	745	12	8940							12
	748	6	4488						6	
	770	10	7700		1					9
	785	3	2355							3
	790	2	1580		2					
	805	3	2415							3
	810	2	1620				2			
	830	4	3320						4	
	837	4	3348	4						
	888 +Jullete	2	3552		2					
2-BEDROOM 63 UNITS = 43%	925	1	925				1			
	970	8	7760	1	2			5		
	980	3	2940					3		
	975	7	6825			3			4	
	985	1	985	1						
	1020	3	3060		3					
	1050	1	1050	1						
	1057	18	19026		8			10		
	1160	1	1160	1						
	1175	2	2350					2		
	1185	3	3555						3	
	1000	2	2000	2						
	1140	13	14820			13				
	1230	2	2460		2					
LOFTS + TOWNHOUSES 22 UNITS = 14%	1263	3	3789						3	
	1875	5	9375			5				
	1430	4	5720	2					2	
	1615	2	3230		1			1		
	1600	1	1600						1	
	2270	1	2270		1					
	1885	1	1885		1					
	1795	1	1795					1		
	1845	1	1845						1	
	1912	2	3824		1			1		
	2152	1	2152					1		
		174	171919	16	24	42	17	24	24	27

PROJECT FLOOR AREA ANALYSIS

GROSS SQUARE FOOT CALCULATIONS										
		BUILDING								
		A	B	C	D	E	F	G	BUILDING TOTAL	PROJECT TOTAL
LEVEL	LOWER PARKING	-	-	-	-	-	-	-	-	79775
	UPPER PARKING	-	-	-	-	-	-	-	-	42625
	PODIUM	9415	9215	8680	8560	9150	9232	7550	61802	61802
	2	8770	9850	11620	10140	9685	9315	8180	67560	67560
	3	8900	9850	11620	10140	9685	9315	8180	67690	67690
	4	8130	9850	11620	8940	9685	9315	8180	65720	65720
	ROOF DECK	770	1355	-	1200	1300	2665	-	7290	7290
	LOFT	-	3500	7775	-	3500	4200	-	18975	18975
	TOTAL	35985	43620	51315	38980	43005	44042	32090	289037	411437





PLAN NORTH

1 / A106 FLOOR PLAN: FIFTH LEVEL (PENTHOUSE)
1" = 30'-0"

Drawing: P:\20 18\ 18443-01\Revit\SD\x00ar05.dwg
Date: May 09, 2019, 2:32pm Layout: A-105 Plotted by: jgrann

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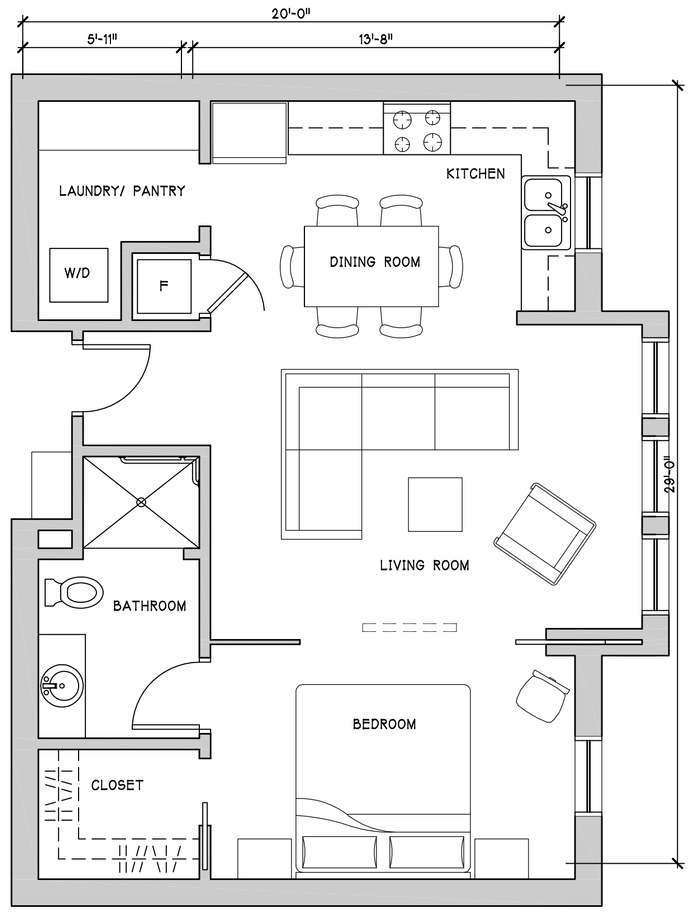
VILLAGE OF OKEMOS
PROJECT

CONSULTANT

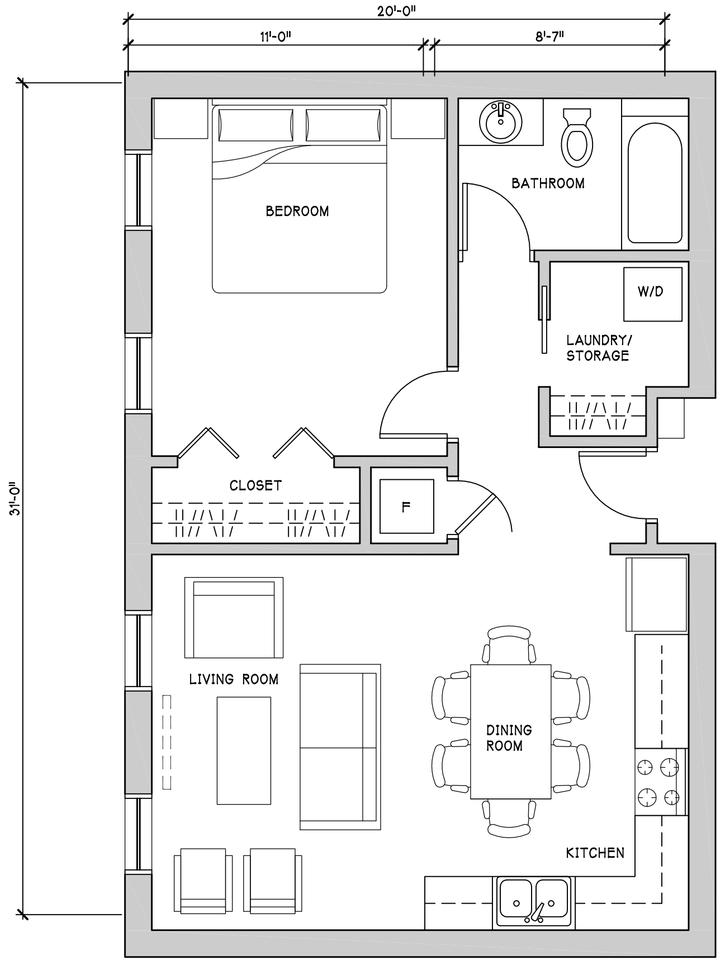
FLOOR PLAN FIFTH LEVEL (PENTHOUSE)
SHEET TITLE

18443
PROJECT NUMBER

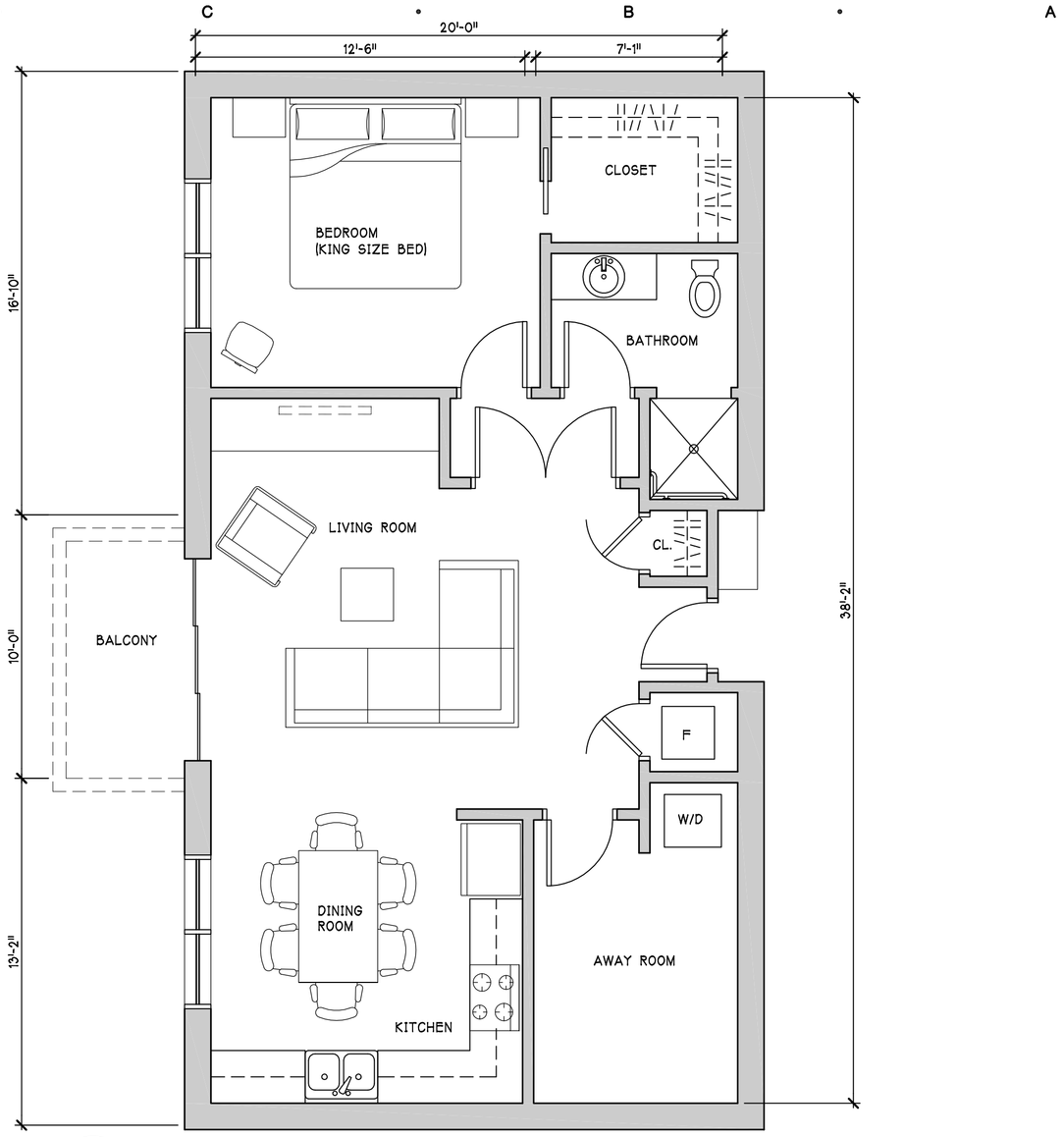
A-105
SHEET NUMBER



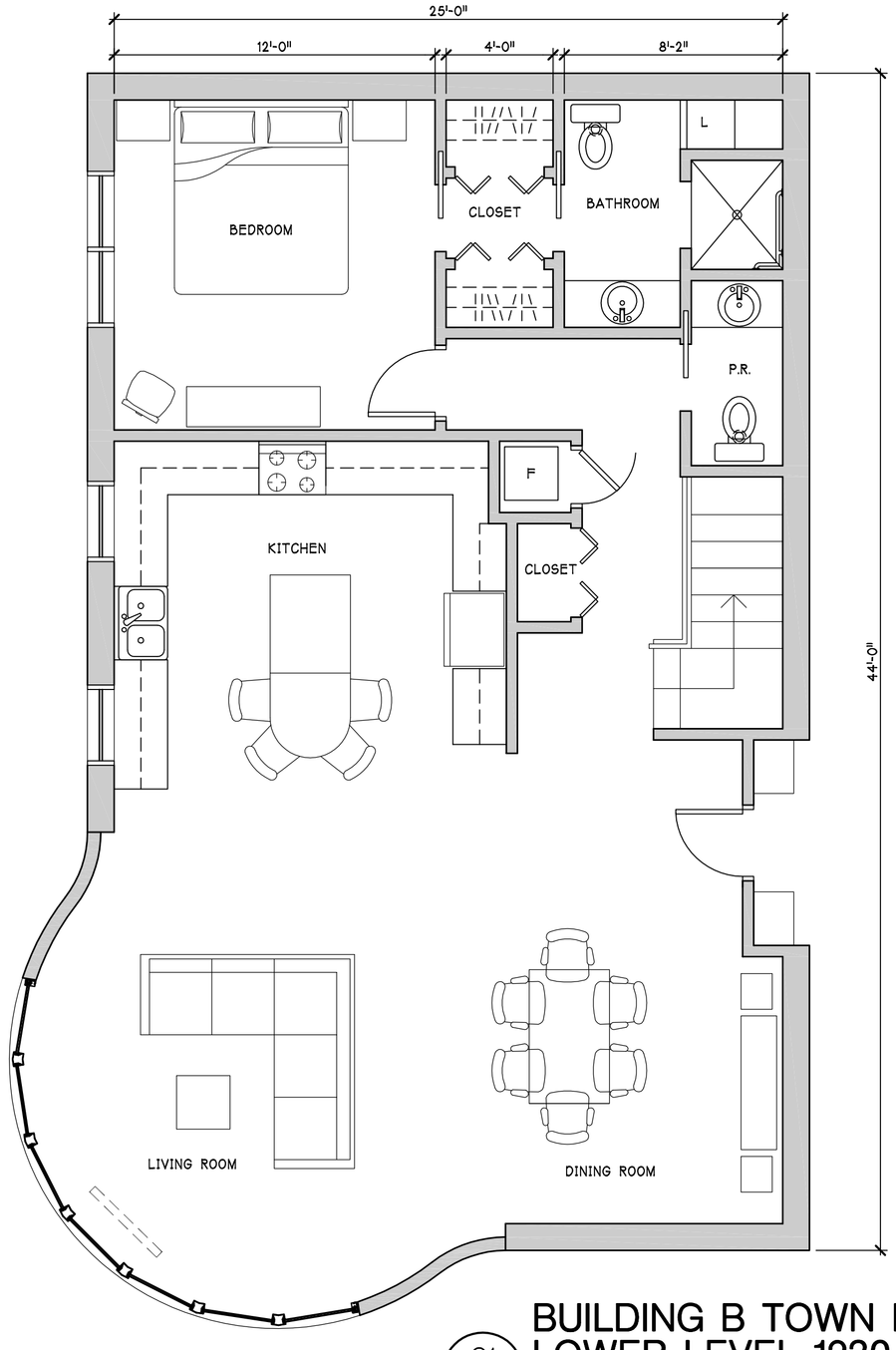
H4 A-400 -- **BUILDING C JUNIOR FLAT 660 SF**
SCALE - 1/4" = 1'-0"
AP48-1



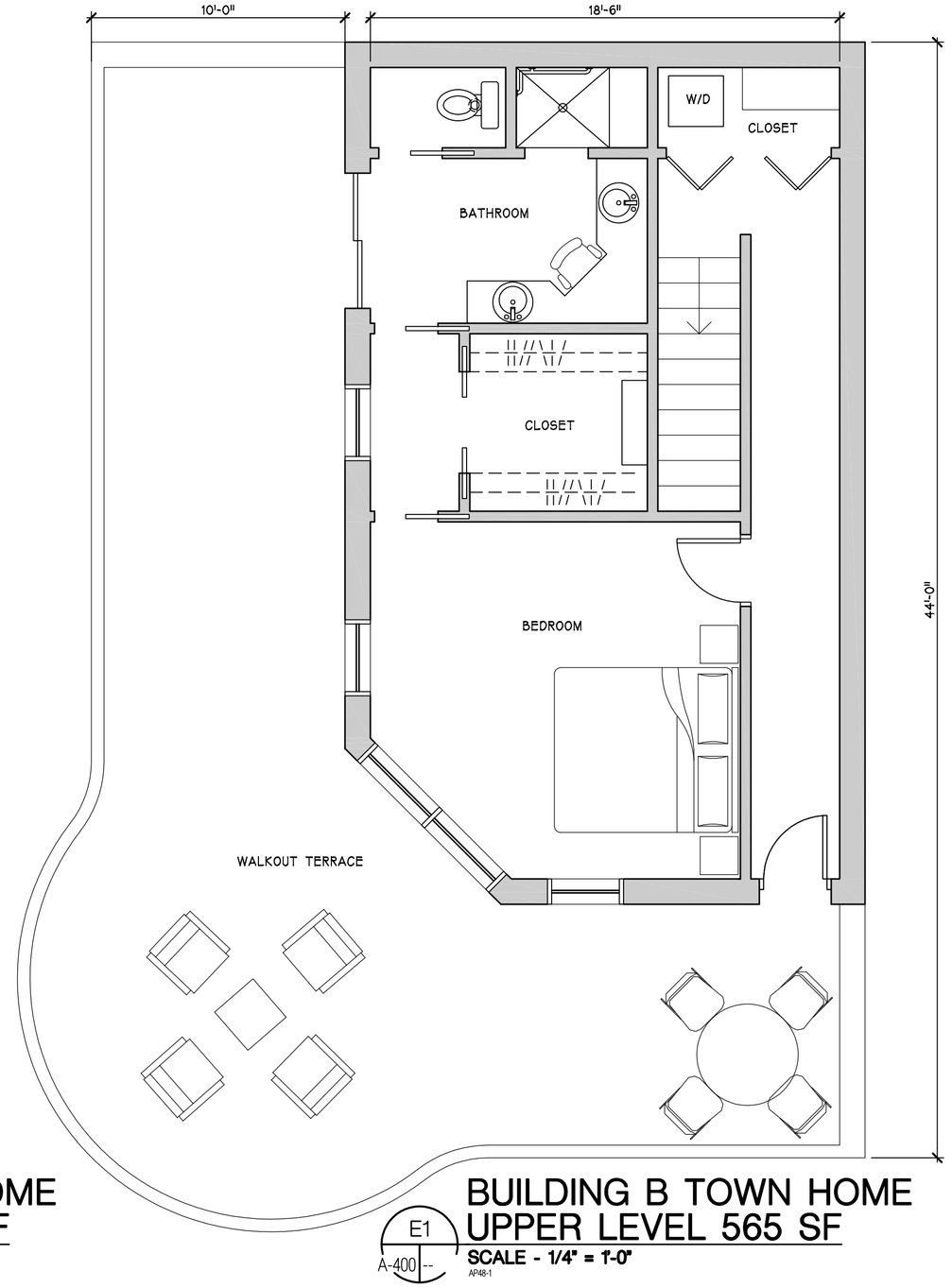
E4 A-400 -- **BUILDING D 1-BR FLAT 700 SF**
SCALE - 1/4" = 1'-0"
AP48-1



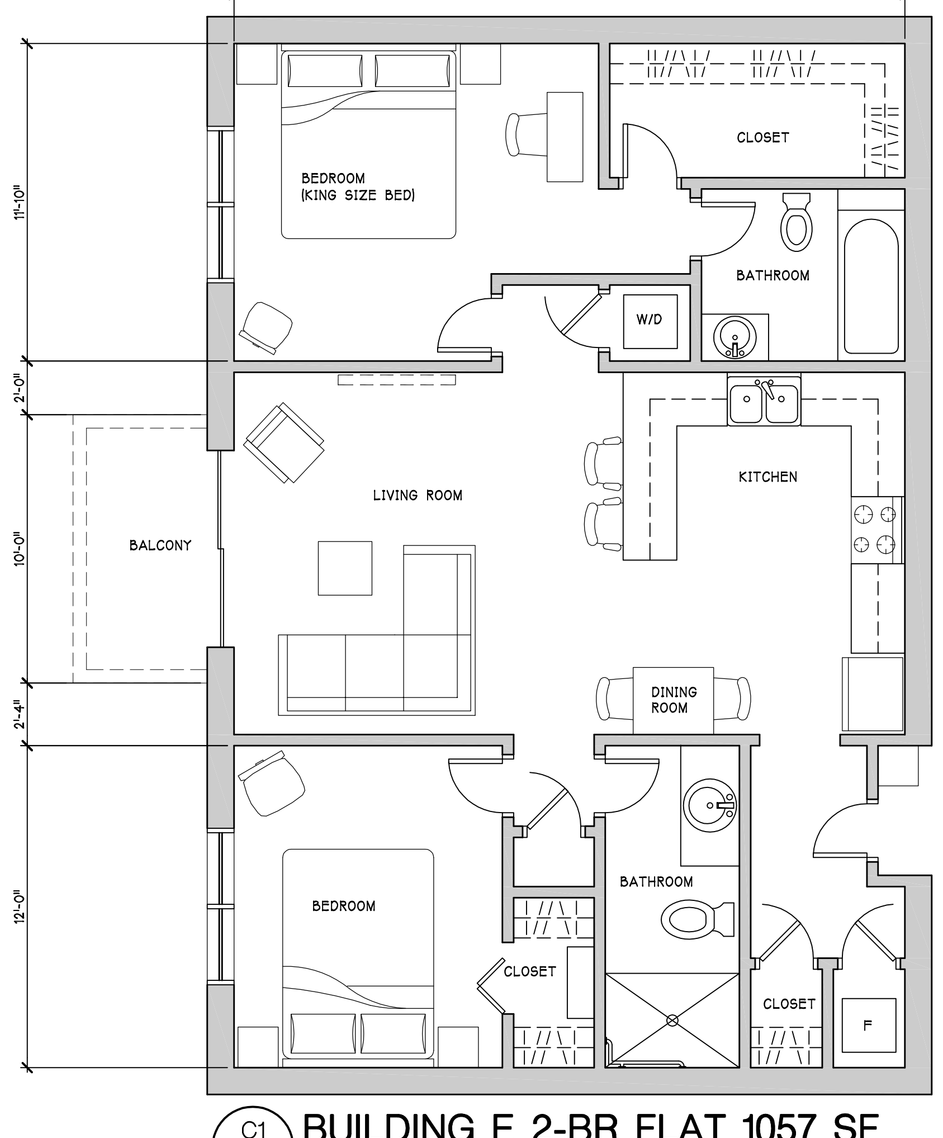
C4 A-400 -- **BUILDING F 1-BR PLUS FLAT 830 SF**
SCALE - 1/4" = 1'-0"
AP48-1



G1 A-400 -- **BUILDING B TOWN HOME LOWER LEVEL 1230 SF**
SCALE - 1/4" = 1'-0"
AP48-1



E1 A-400 -- **BUILDING B TOWN HOME UPPER LEVEL 565 SF**
SCALE - 1/4" = 1'-0"
AP48-1



C1 A-400 -- **BUILDING E 2-BR FLAT 1057 SF**
SCALE - 1/4" = 1'-0"
AP48-1

Drawing: P:\20 18\18443-01\Dwgs\Greg Presley Design Drawings\SHTA400.dwg
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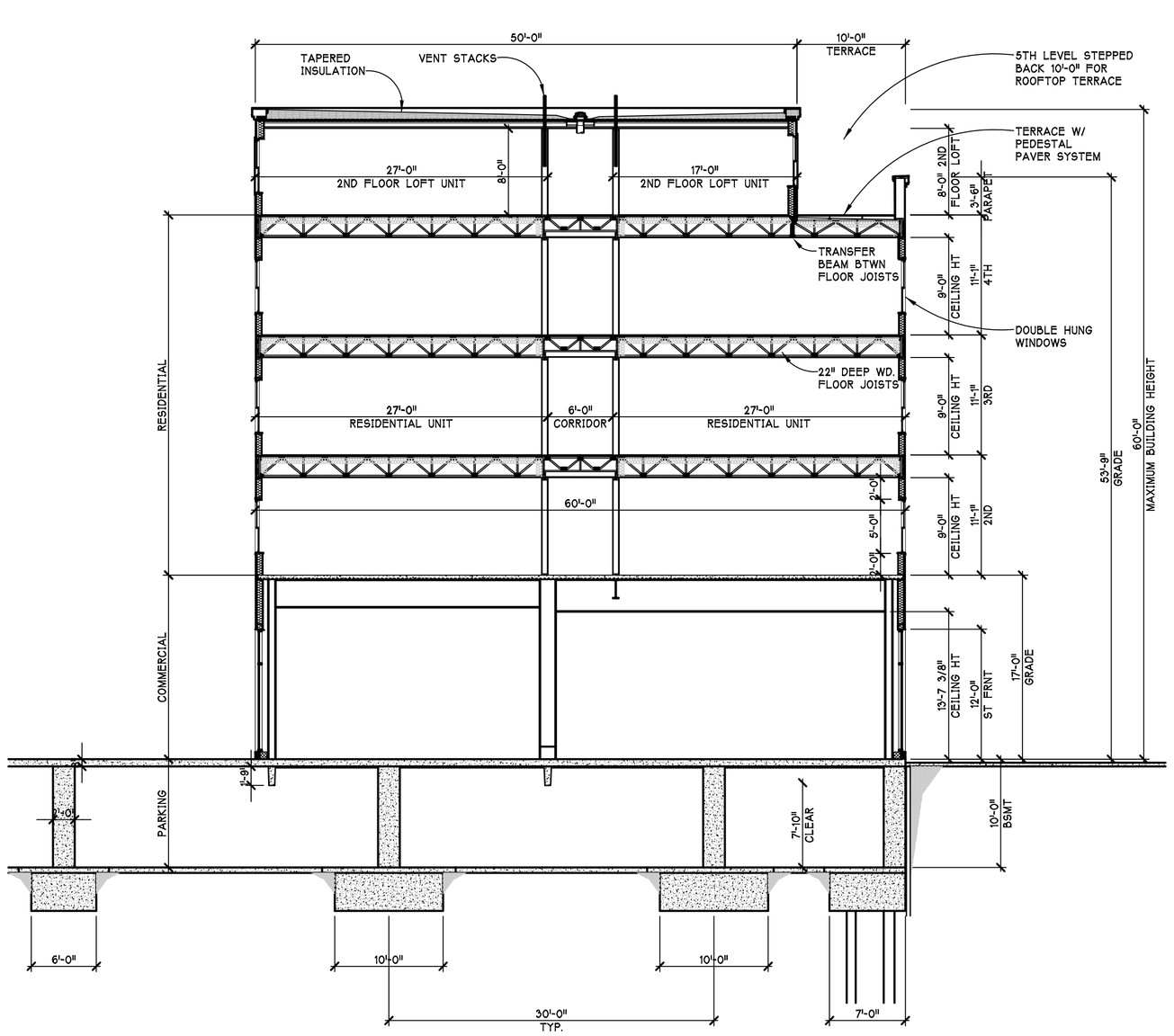
VILLAGE OF OKEMOS
PROJECT

CONSULTANT

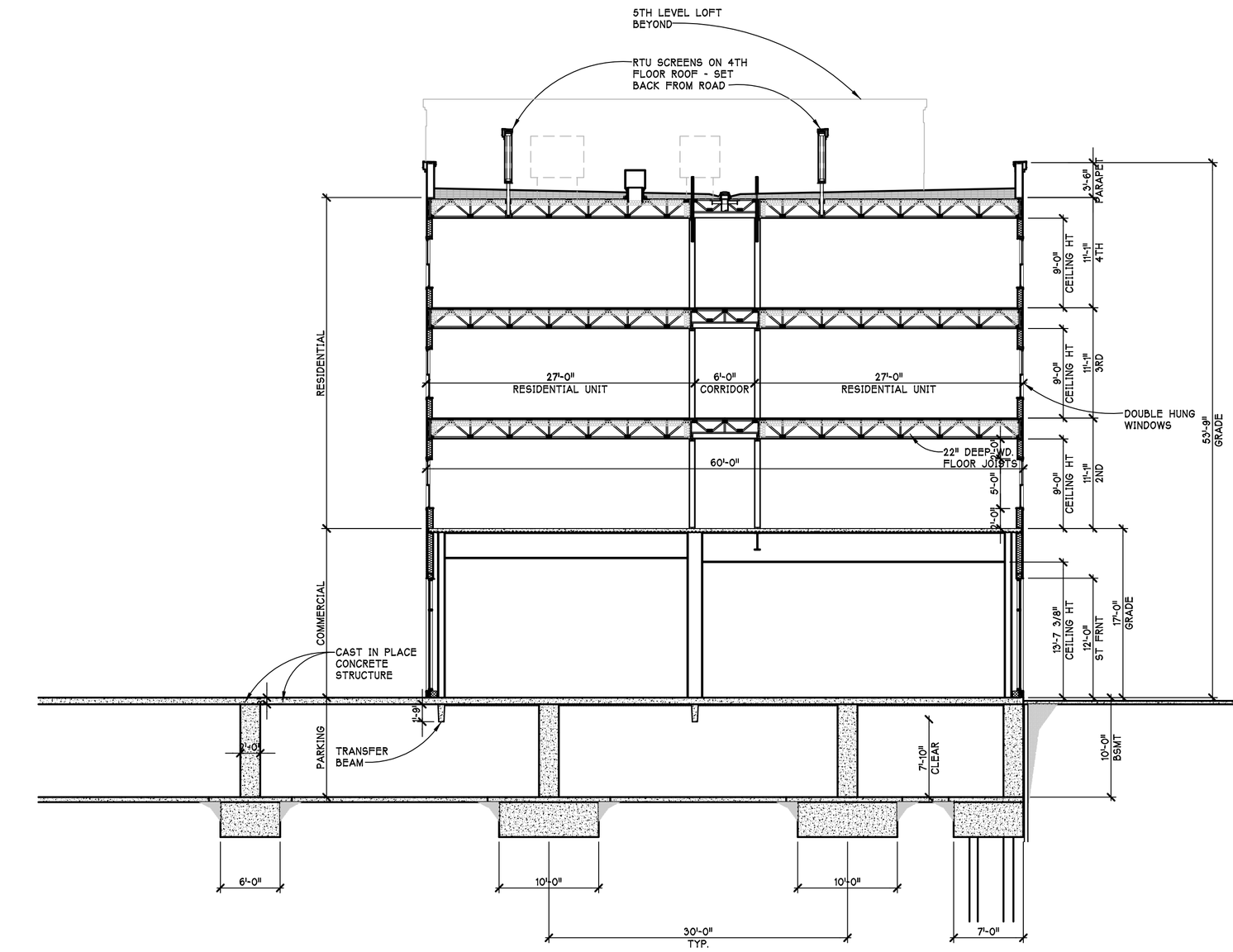
TYPICAL UNIT TYPES
SHEET TITLE

18443
PROJECT NUMBER

A-400
SHEET NUMBER



F1 A-300 — CONCEPTUAL BUILDING SECTION
SCALE - 1/8" = 1'-0"
FILENAME



B1 A-300 — CONCEPTUAL BUILDING SECTION
SCALE - 1/8" = 1'-0"
FILENAME

Drawing: P:\20\18\18443-01\Dwgs\Greg Presley Design Drawings\SHA300.dwg
Date: Apr 18, 2019, 4:17 pm Layout: A-300 Plotted by: jjfearn

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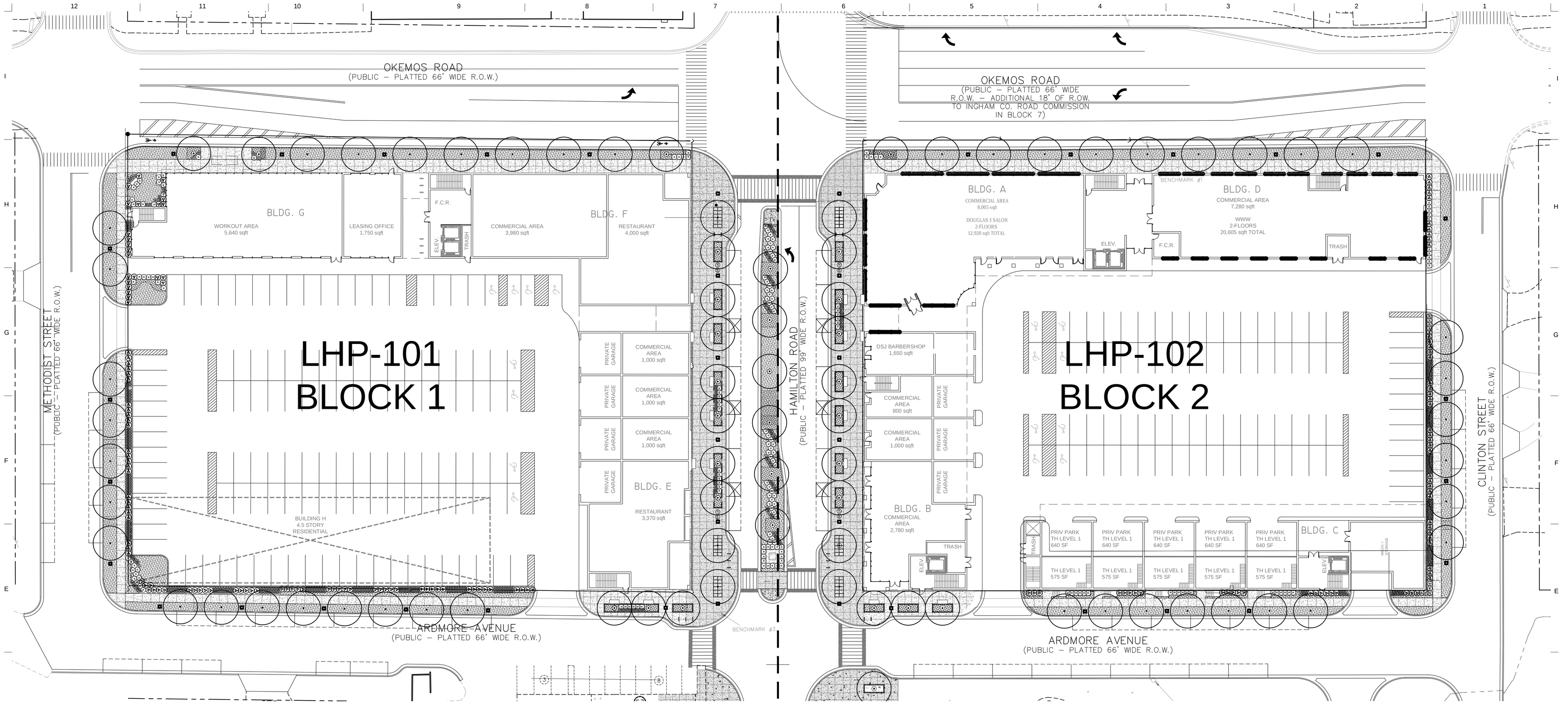
VILLAGE OF OKEMOS
PROJECT

CONSULTANT

PRELIMINARY BUILDING SECTION
SHEET TITLE

18443
PROJECT NUMBER

A-300
SHEET NUMBER



HARDSCAPE AND PLANTING PLAN - OVERALL

Scale: 1" = 40'-0"

0' 20' 40' 80'

MATERIALS LEGEND

- P1 — CONCRETE PAVING, BUFF-WASHED, SAW-CUT JOINTS
- P2 — CONCRETE PAVING, BUFF-WASHED, HAND-TROWEL JOINTS
- P3 — PRECAST CONCRETE PLANTER CURB, SEE 2/LZ-101
- P4 — CONCRETE PAVER FLUSH PLANTER, SEE 4/LZ-101
- F1 — BIKE RACK, SEE 1/LZ-101
- F2 — LITTER RECEPTACLE, SEE 5/LZ-101
- F3 — RECYCLING RECEPTACLE, SEE 5/LZ-101
- F4 — AREA LIGHT, SEE 3/LZ-101
- F5 — BENCH

PLANTING PLAN LEGEND

KEY	DESCRIPTION:
AS-CA	Sugar Maple Acer saccharinum 4" Caliper
AR-SM	Red Horsechestnut Aesculus x carnea 4" Caliper
PI-GA	Black Hills Spruces Picea Glauca 'Densata' 4" Caliper
QS-RM	Red Oak Quercus Rubrum 4" Caliper
QS-SI	Shumard Oak Quercus shumardii 4" Caliper
TA-CA	Littleleaf Linden Tilia cordata 'Erecta' 4" Caliper
US-AA	American Elm Ulmus americana 'Frontier' 4" Caliper

KEY	DESCRIPTION:
CS-AM	New Jersey Tea Caentothus americanus #5 Container, 18" O.C.
IX-GA	Nordic Inkberry Ilex glabra 'Chamzin' Nordic #3 Container, 30" O.C.
	Variegated Lilyturf Liriope muscari 'Variegata' #1 Container, 12" O.C.
PA-FA	Shrubby cinquefoil Potentila fruticosa 'Lundy' #3 Container, 36" O.C.
SM-SI	Little Bluestem Schizachyrium scoparium #1 Container, 18" O.C.
	Annuals by OWNER (Mulch by Contractor)
	Sod

*SEE LZ-102 FOR PLANTING DETAILS

T:\Projects\2018\d18134-Okemos Village Landscape Architecture\CAD\Current\d18134 LHP Hardscape-Planting.dwg May 09, 2019 - 2:45pm hwolfe

MKSK
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4219 WOODWARD AVE., SUITE 305
DETROIT, MI 48201
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client / owner
True North Development

project name
VILLAGE OF OKEMOS

project address
Street Address
City, State
Zip Code

architecture

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Ann Arbor, MI 48104
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Presley Architecture
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M Architects
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Northville, MI 48167
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civil engineer

KEBS Engineering
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Haslett, MI 48840
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traffic engineer

Hubbel, Roth & Clark, Inc.
555 Hulet Drive
PO Box 824
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SITE PLAN REVIEW
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revision	date	issued
1	04.19.2016	SITE PLAN REVIEW

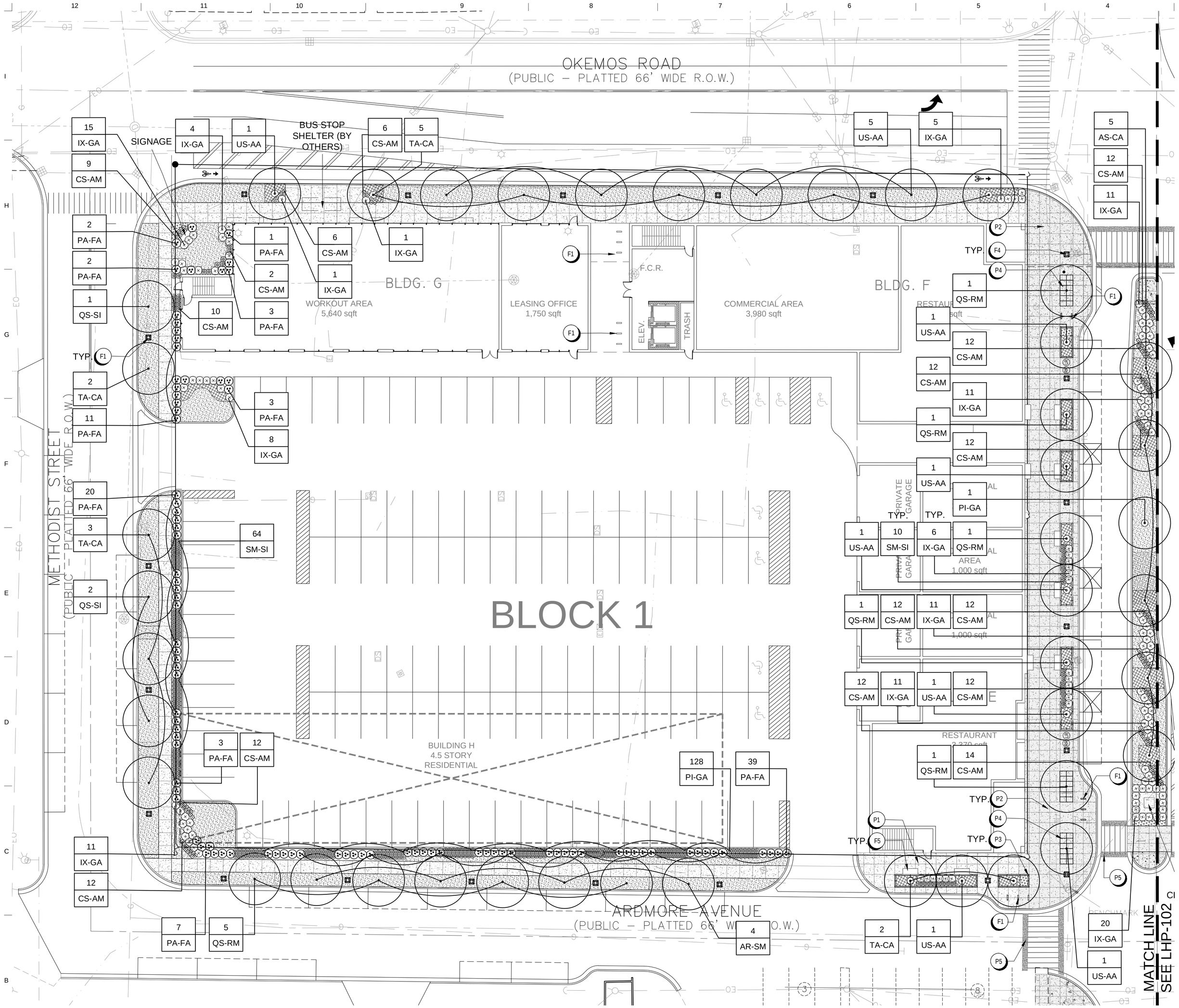
seal

issue date
04.19.2019

project number
d18134

sheet name
HARDSCAPE AND PLANTING PLAN

sheet number
LHP-100



MATERIALS LEGEND

	P1	CONCRETE PAVING, BUFF-WASHED, SAW-CUT JOINTS
	P2	CONCRETE PAVING, BUFF-WASHED, HAND-TROWEL JOINTS
	P3	PRECAST CONCRETE PLANTER CURB, SEE 2/LZ-101
	P4	CONCRETE PAVER FLUSH PLANTER, SEE 4/LZ-101
	F1	BIKE RACK, SEE 1/LZ-101
LR	F2	LITTER RECEPTACLE, SEE 5/LZ-101
RR	F3	RECYCLING RECEPTACLE, SEE 5/LZ-101
	F4	AREA LIGHT, SEE 3/LZ-101
	F5	BENCH

PLANTING PLAN LEGEND

KEY	DESCRIPTION:
AS-CA	Sugar Maple Acer saccharinum 4" Caliper
AR-SM	Red Horsechestnut Aesculus x carnea 4" Caliper
PI-GA	Black Hills Spruces Picea Glauca 'Densata' 4" Caliper
QS-RM	Red Oak Quercus Rubrum 4" Caliper
QS-SI	Shumard Oak Quercus shumardii 4" Caliper
TA-CA	Littleleaf Linden Tilia cordata 'Erecta' 4" Caliper
US-AA	American Elm Ulmus americana 'Frontier' 4" Caliper

KEY	DESCRIPTION:
CS-AM	New Jersey Tea Caentothus americanus #5 Container, 18" O.C.
IX-GA	Nordic inkberry Ilex glabra 'Chamzin' Nordic #3 Container, 30" O.C.
	Variegated Lilyturf Liriope muscari 'Variegata' #1 Container, 12" O.C.
PA-FA	Shrubby cinquefoil Potentilla fruticosa 'Lundy' #3 Container, 36" O.C.
SM-SI	Little Bluestem Schizachyrium scoparium #1 Container, 18" O.C.
	Annuals by OWNER (Mulch by Contractor)
	Sod

*SEE LZ-102 FOR PLANTING DETAILS

HARDSCAPE AND PLANTING PLAN - BLOCK 1

Scale: 1" = 20'-0"

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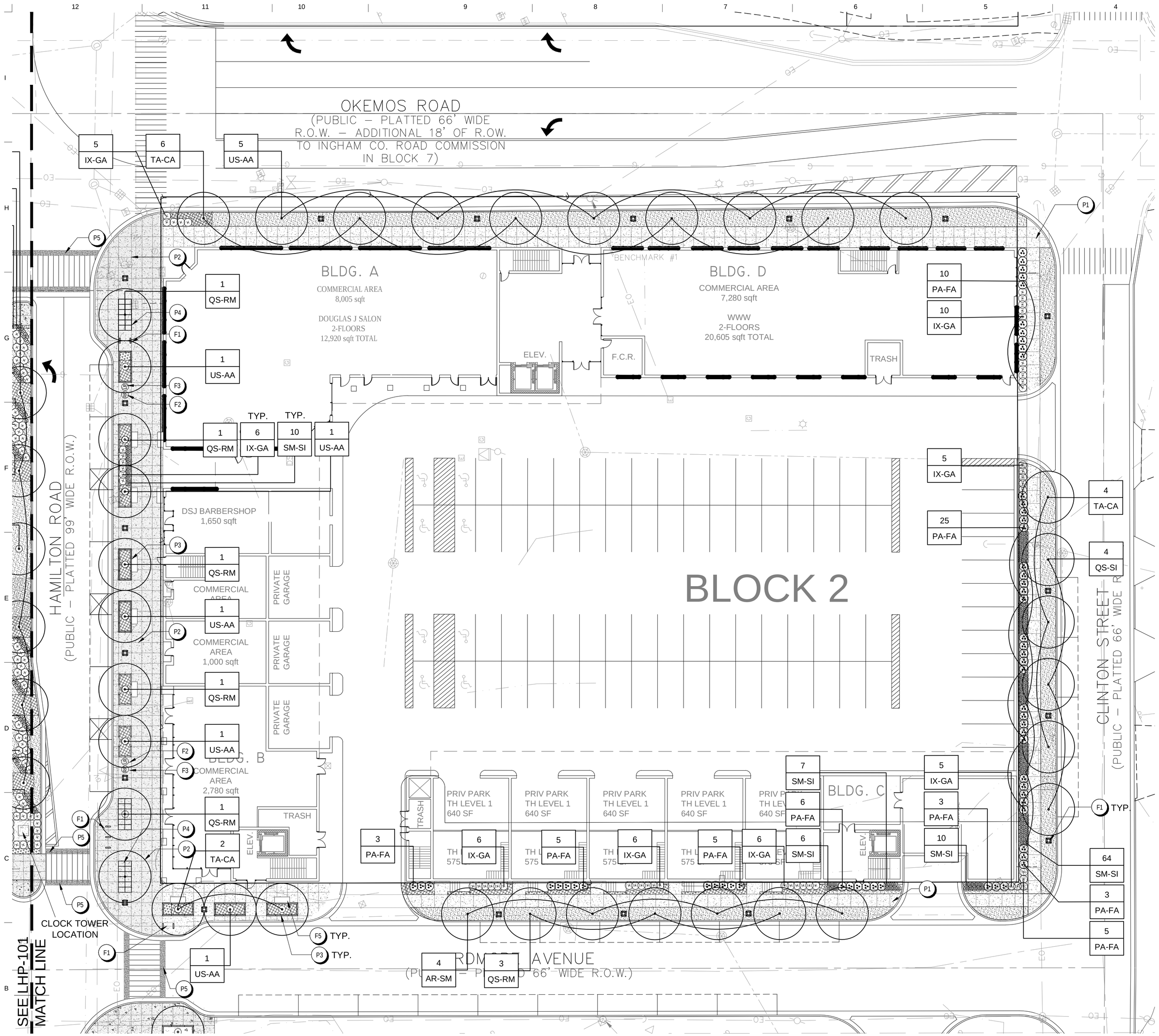

HARDSCAPE AND PLANTING PLAN - BLOCK 2

Scale: 1" = 20'-0"

0' 10' 20' 40'

MATERIALS LEGEND

	P1	CONCRETE PAVING, BUFF-WASHED, SAW-CUT JOINTS
	P2	CONCRETE PAVING, BUFF-WASHED, HAND-TROWEL JOINTS
	P3	PRECAST CONCRETE PLANTER CURB, SEE 2/LZ-101
	P4	CONCRETE PAVER FLUSH PLANTER, SEE 4/LZ-101
	F1	BIKE RACK, SEE 1/LZ-101
LR	F2	LITTER RECEPTACLE, SEE 5/LZ-101
RW	F3	RECYCLING RECEPTACLE, SEE 5/LZ-101
	F4	AREA LIGHT, SEE 3/LZ-101
	F5	BENCH

PLANTING PLAN LEGEND

KEY	DESCRIPTION:
AS-CA	Sugar Maple Acer saccharinum 4" Caliper
AR-SM	Red Horsechestnut Aesculus x carnea 4" Caliper
PI-GA	Black Hills Spruces Picea Glauca 'Densata' 4" Caliper
QS-RM	Red Oak Quercus Rubrum 4" Caliper
QS-SI	Shumard Oak Quercus shumardii 4" Caliper
TA-CA	Littleleaf Linden Tilia cordata 'Erecta' 4" Caliper
US-AA	American Elm Ulmus americana 'Frontier' 4" Caliper

KEY	DESCRIPTION:
CS-AM	New Jersey Tea Caenothus americanus #5 Container, 18" O.C.
IX-GA	Nordic Inkberry Ilex glabra 'Chamzin' Nordic #3 Container, 30" O.C.
	Variegated Lilyturf Liriope muscari 'Variegata' #1 Container, 12" O.C.
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SM-SI	Little Bluestem Schizachyrium scoparium #1 Container, 18" O.C.
	Annuals by OWNER (Mulch by Contractor)
	Sod

*SEE LZ-102 FOR PLANTING DETAILS

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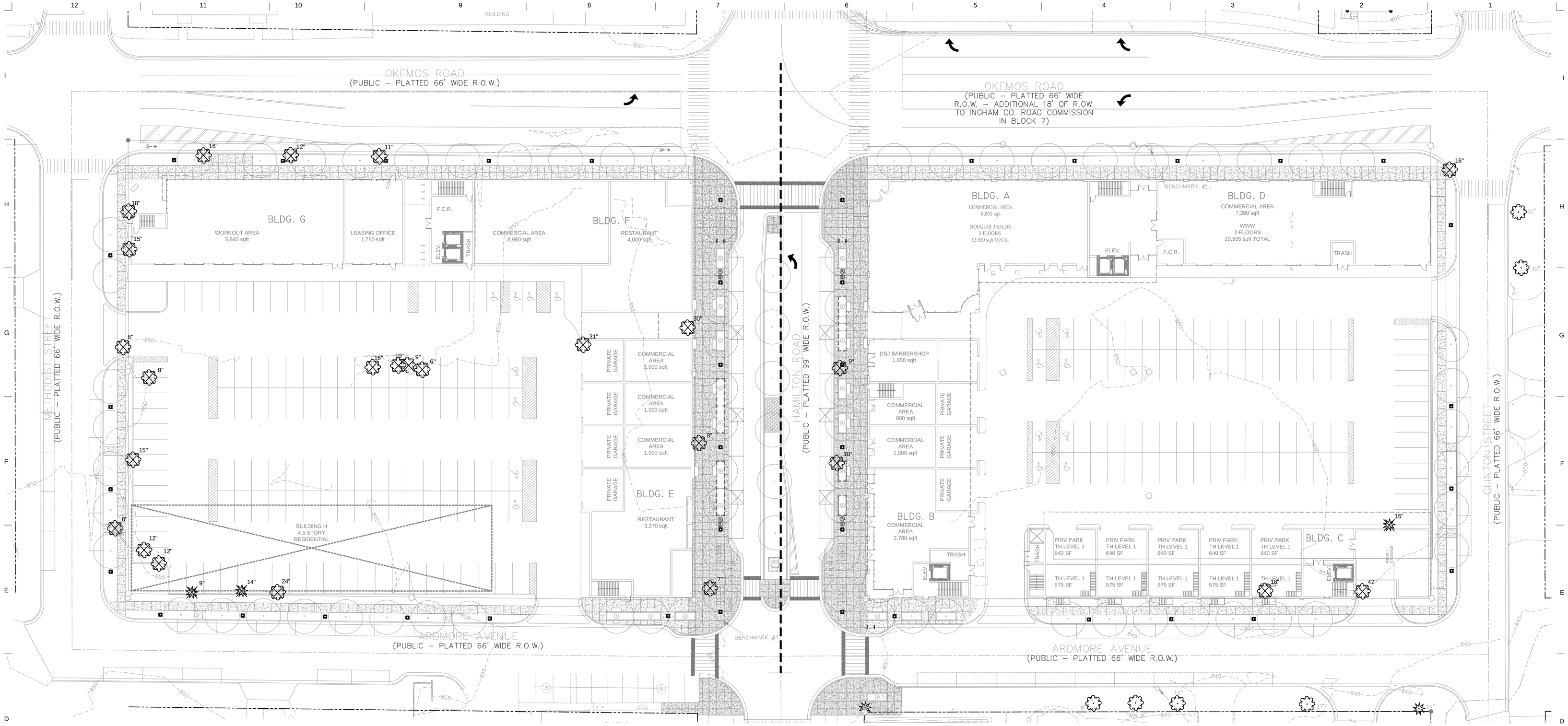

TREE MITIGATION PLAN - OVERALL

Scale: 1" = 40'-0"

0' 20' 40' 80'

LEGEND

EXISTING DECIDUOUS TREE AND STUMP TO BE REMOVED AND DISPOSED OF LEGALLY OFFSITE, TYP.

EXISTING EVERGREEN TREE AND STUMP TO BE REMOVED AND DISPOSED OF LEGALLY OFFSITE, TYP.

*TREE CALIPER SIZE NOTED ABOVE TREE

CODED NOTES

1 TREE & STUMP TO BE REMOVED, TYPICAL

CONSTRUCTION NOTES

ALL TREE PRUNING AND REMOVAL MUST BE DONE IN ACCORDANCE TO ANSI A300 AND ANSI Z133.1 STANDARDS. THE CONTRACTOR PERFORMING THE WORK MUST BE A PROFESSIONAL TREE CARE COMPANY WITH CERTIFIED ARBORIST ON SITE TO DIRECT THE ON-SITE CREW.

REMOVE ALL TREES INDICATED IN A MANNER THAT WILL NOT DAMAGE ADJACENT TREES, PAVING, STRUCTURES OR COMPACTS THE SOIL.

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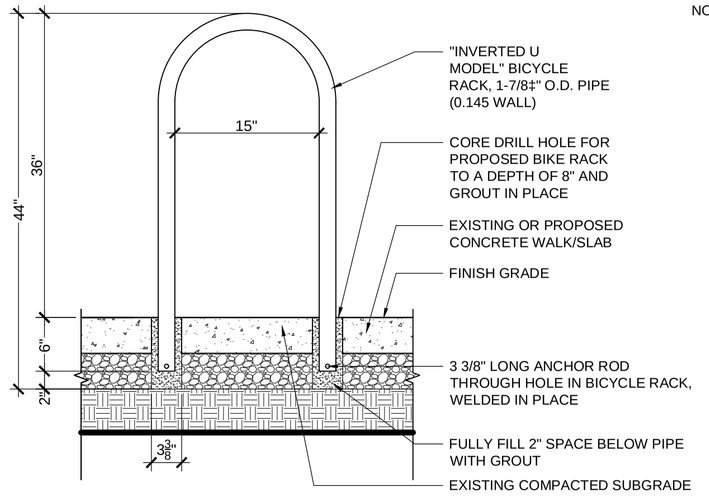
sheet name
TREE MITIGATION PLAN

sheet number
LPM-100



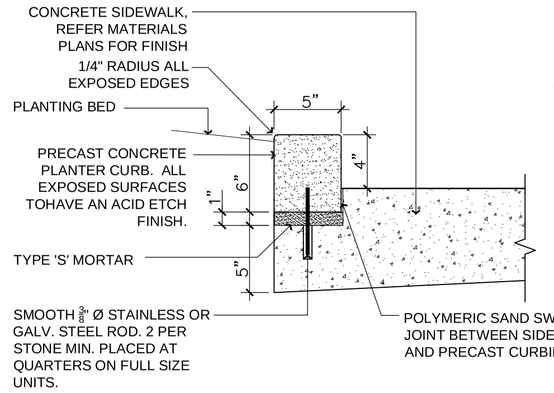
NOTE: 1. ALL FABRICATED METAL COMPONENTS SHALL BE SHOTBLASTED, ETCHED, PHOSPHATIZED, PREHEATED AND ELECTROSTATICALLY POWDER-COATED WITH TGIC POLYESTER POWDER COATINGS.

2. ALL MOUNTING AND CONNECTION HARDWARE SHALL BE STAINLESS STEEL AND PROVIDED BY THE MANUFACTURER.

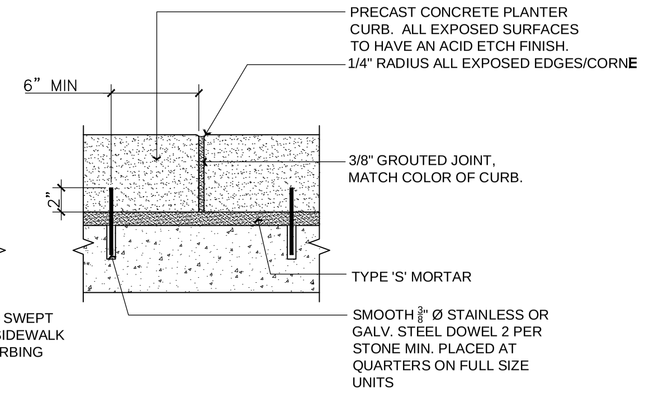
1 INVERTED 'U' BIKE RACK - SURFACE MOUNT
SCALE: 1" = 1'-0"

CROSS SECTION

NOTE: DRILL AND EPOXY DOWEL INTO CAST STONE. OVER DRILL CONCRETE AND MORTAR SET CURB WITH DOWEL INTO CONCRETE



LONGITUDINAL SECTION



2 PRECAST PLANTER CURB
SCALE: 1 1/2" = 1'-0"

landscapeforms

ASHBERY AREA LIGHT
Product Data Sheet

Ashbery is a trio of lights that brings together advanced LED technology and optics with an homage to traditional-style lights that have a special place in the American lexicon. The area light is offered in 12', 14', and 16' heights and is ideal for campuses, parks and plazas, helping to create public spaces that are usable 24 hours a day. Options include single luminaires or a double-mount option for dual luminaires, one on either side of the pole. Patent-pending glare control requires less eye adaptation, enabling lower light levels and lower energy use with excellent visual acuity, while tenon-mounted luminaires can be retrofitted in the field. Cast aluminum parts in a full color palette are finished with Landscape Forms proprietary Pangard II® HAPS, VOC, lead-free polyester powdercoat.

General Description
- Available in single or double pole mounted configurations
- Offered in 3 standard pole heights (12', 14', and 16')
- Optional ANSI 136.41 7-pin twist lock receptacle
- Mounting template and anchor hardware included
- International Dark-Sky approved
- UL Listed, suitable for wet locations

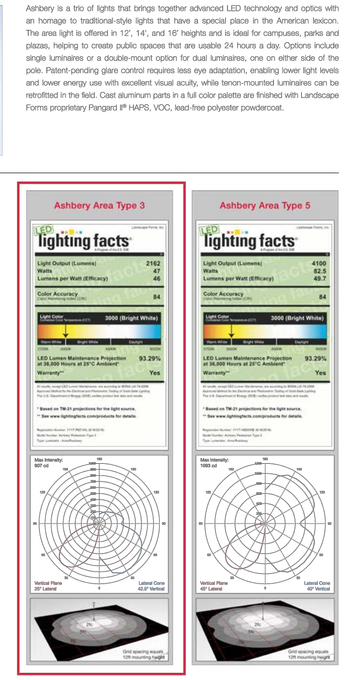
Electrical

Surge protected 100V-277V 50/60 Hz, Class 2 LED dimmable driver. LED cartridge with weatherproof quick disconnect provides ease of installation and serviceability. Ashbery Pedestrian ships prewired.

Area Type 3
Type 3 Distribution
Lamp: 6 Cree XHP50 LEDs
CCT: 3000K, 3500K, 4000K
Drive Current: 1000mA
Optic: Cardio Optics
Lens: Diffused Acrylite®
Power Supply: 100V-277V
LED Driver: TRP PLED-50W
Dimmable: 0-10V
BUG Rating: B1 U0 G1
IP Rating: IP66 for LED Cartridge

Area Type 5
Type 5 Distribution
Lamp: 12 Cree XHP50 LEDs
CCT: 3000K, 3500K, 4000K
Drive Current: 1000mA
Optic: Cardio Optics
Lens: Diffused Acrylite®
Power Supply: 100V-277V
LED Driver: TRP PLED-95W
Dimmable: 0-10V
BUG Rating: B2 U0 G1
IP Rating: IP66 for LED Cartridge

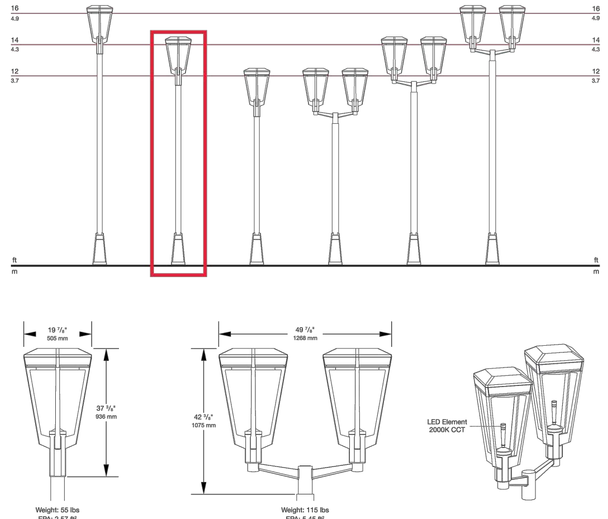
NOTE:
COLOR FINISH: TITANIUM
HEIGHT: 14'
COLOR TEMP: 35K (5300K)



Landscape Forms, Inc. | 800.521.2546 | F 269.381.3455 | 7800 E. Michigan Ave., Kalamazoo, MI 49048

landscapeforms

ASHBERY AREA LIGHT
Product Data Sheet



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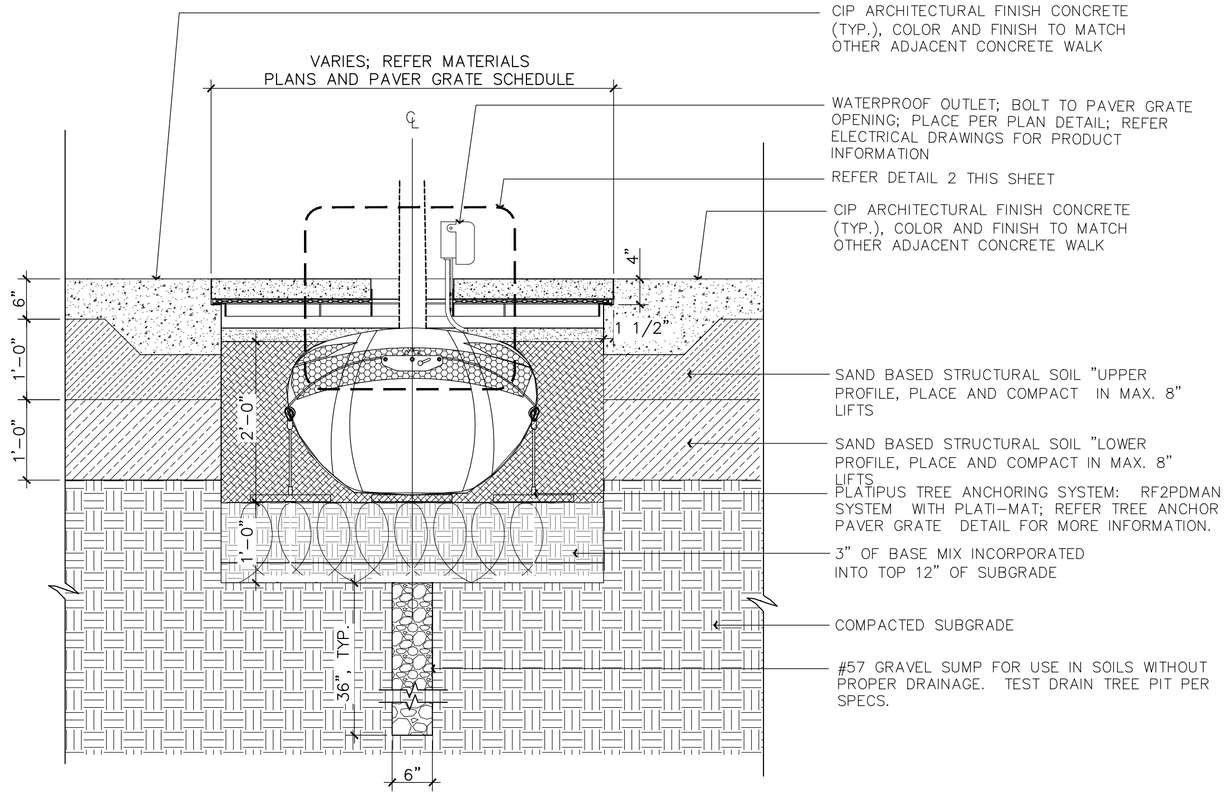
3 ASHBERRY AREA LIGHT
NTS



4 TREE PAVER GRATE - CROSS SECTION
SCALE: 3/4" = 1'-0"

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sheet number: LZ-101

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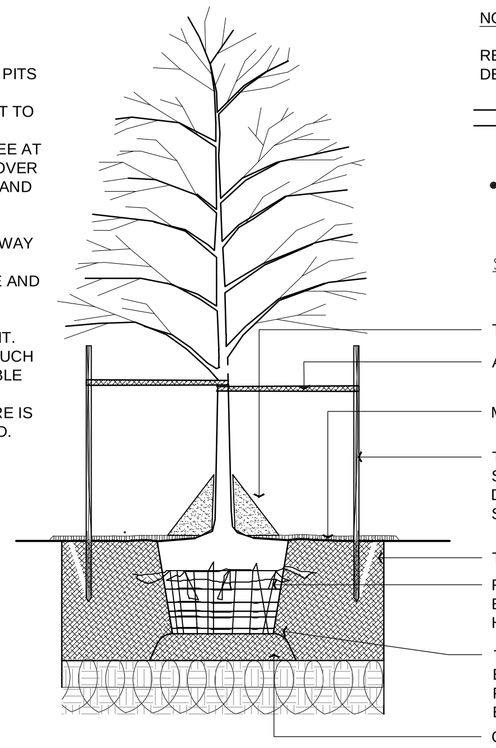
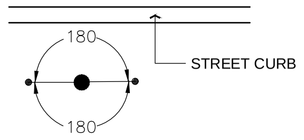
NOTES:

1. CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.
2. FINAL TREE STAKING PLACEMENT TO BE APPROVED BY OWNER.
3. DO NOT HEAVILY PRUNE THE TREE AT PLANTING. PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS, AND BROKEN OR DEAD BRANCHES.
4. REMOVE WIRE BASKETS, PULL BURLAP AND TWINE DOWN HALFWAY ON ROOT BALL.
5. REMOVE ALL TWINE, ROPE, WIRE AND BURLAP FROM TOP HALF OF ROOTBALL.
6. SET TREE PLUMB IN PLANTING PIT.
7. EACH TREE MUST BE PLANTED SUCH THAT THE TRUNK FLARE IS VISIBLE AT THE TOP OF THE ROOT BALL. TREES WHERE THE TRUNK FLARE IS NOT VISIBLE SHALL BE REJECTED.



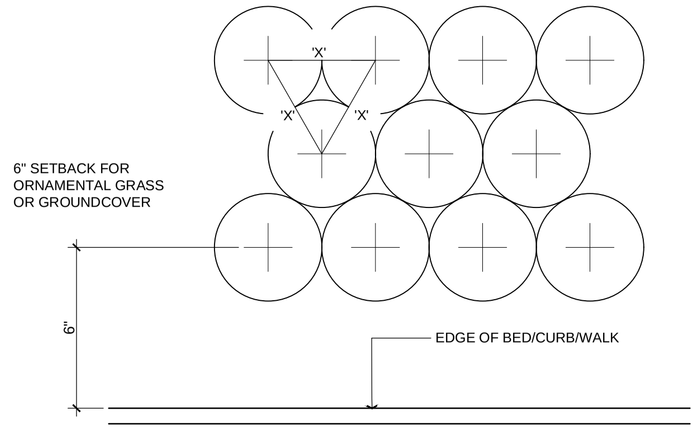
NOTES:

REFER TO SOILS PLAN AND DETAILS FOR DEPTH OF SOIL MIX.



STAKING PLAN

1 TYP. TREE PLANTING
SCALE: 1/2" = 1'-0"



NOTES:

PROVIDE MIN. 12" SPACING BETWEEN DIFFERENT PLANT TYPES.

ALL ORNAMENTAL GRASS AND GROUNDCOVER MASSES TO USE TRIANGULAR SPACING EXCEPT WHERE NOTED REFER TO PLANT LIST FOR INDIVIDUAL PLANT SPACING 'X'.

2 PLANT SPACING
SCALE: 1" = 1'-0"

NOTE:

- CONTRACTOR SHALL ENSURE PERCOLATION OF ALL PLANTING PITS/BEDS PRIOR TO INSTALLATION.
- LOOSEN AND SPREAD OUT CIRCLING ROOTS WITHIN PLANT ROOTBALL BEFORE PLANTING.

3 PERENNIAL PLANTING
SCALE: 1/2" = 1'-0"

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EXHIBIT G

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

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Bloomfield Hills, MI 48303-0824

SHIPPING: 555 Hulet Drive
Bloomfield Hills, MI 48302-0360

PHONE: 248-454-6300
WEBSITE: hrcengr.com

April 11, 2019

Village of Okemos, LLC
Will Randle, Authorized Agent
2410 Woodlake Dr. Suite 440
Okemos, MI 48864

Attn: Mr. Will Randle

Re: Downtown Okemos Traffic Impact Study
Meridian Township, Michigan

HRC Job No. 20171097

Dear Mr. Randle:

Enclosed please find the traffic impact study (TIS) and related documents for Downtown Okemos, also referred to as the Village of Okemos. This complete traffic impact study package includes:

- Traffic Impact Study Phase 1 – TIS for Phase 1 of development which includes the two blocks between Okemos Rd/ Hamilton Rd/ Ardmore Ave/ Methodist St and Okemos Rd/ Hamilton Rd/ Ardmore Ave/ Clinton St.
- Traffic Impact Study Phase 1 Attachments – Attachments to TIS for Phase 1 of development supplementing the report portion of this TIS.
- Traffic Impact Study Max-Build Addendum – TIS which expands upon the Phase 1 report by assessing the potential traffic impacts of a maximum build scenario for the area confined by Okemos Rd/ Clinton St/ Liverance St/ Methodist St.
- Traffic Impact Study Max-Build Attachments – Attachments to TIS for Max-Build scenario supplementing the report portion of this TIS.
- Traffic Impact Study Addendum 2 – Addendum to the TIS which summarizes key statements on discussions held with Ingham County Road Department (ICRD) as it pertains to the Phase 1 and Max-Build TIS.
- Traffic Impact Study Meeting Minutes – Meeting minutes from meetings with ICRD held on May 16th, 2018 and February 2nd, 2019.

General Remarks & Assumptions:
The traffic impact studies for Phase 1 and Max-Build have been developed based on the land use information provided in the Downtown Okemos Conceptual Master Plan developed by Gibbs Planning Group Inc., dated September 18, 2017. This information represents the most up-to-date concept of development available at the onset of the TIS. It should be noted that these land use assumptions, in particular for Phase 1, are conservative. The total number of trips generated under the proposed site plan is lower than assumed, thus projected Level of Service (LOS) and delay may be better than the results presented in this Phase 1 TIS. Please refer to the conclusion section under each TIS for a synthesis of conclusions and recommendations on the Phase 1 and Max-Build scenarios.

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

HUBBELL, ROTH & CLARK, INC.

Colleen Hill-Stramsak, P. E., PTOE
Associate

CHS/gh

Enclosure
pc: HRC; Jamie Burton; File

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PHONE: 248-454-6300
WEBSITE: hrcengr.com

December 11, 2018

Branoff Randle Real Estate Partners
c/o WestPac Campus Communities
505 Bath Street
Santa Barbara, CA 93101

Attn: Mr. Will Randle

Re: Downtown Okemos Traffic Impact Study, Phase 1 (Blocks C & E) HRC Job No. 20171097
Meridian Township, Michigan

Dear Mr. Randle:

At your request, Hubbell, Roth & Clark, Inc. (HRC) has prepared a traffic impact study to determine the potential impacts for the proposed site plan to revitalize downtown Okemos in Meridian Charter Township, Ingham County, Michigan. The analysis is limited to Blocks C and E of the proposed site plan also known as Phase 1 (Attachment A), where Block C consists of a total of 200 residential units and 25,300 sq. ft. of commercial space and Block E consists of 210 residential units and 23,600 sq. ft. of commercial space. Primary goals of the traffic impact study are to analyze the operations on Okemos and Hamilton Roads to determine the conceptual road improvements necessary to mitigate traffic due to the proposed development, as well as review lane layouts and parking internal to the site such as on Hamilton Road.

HRC has undertaken the following tasks in order to perform this study:

- Examined existing traffic conditions.
- Collected 24 hour turning movement counts at four intersections including classifications for pedestrians, bicycles, and heavy vehicles to determine current traffic volumes. Turning movement counts were collected for the following intersections:
  - Okemos Road & Hamilton Road – signalized
  - Okemos Road & Methodist Street – unsignalized
  - Okemos Road & Clinton Street – unsignalized
  - Hamilton Road & Ardmore Avenue – unsignalized
- Requested existing traffic signal timing plan for Okemos Road & Hamilton Road.
- Requested traffic growth rates from the Tri-County Regional Planning Commission (TCRPC). Data received from TCRPC was analyzed to obtain a growth factor to project volumes to 2020.
- Conducted trip generation and distribution based on the proposed site plan using the techniques outlined in the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 10th Edition.
- Designed traffic models of study area using Synchro 10 software and the techniques outlined in the Transportation Research Board (TRB) Highway Capacity Manual (HCM).
- Conducted peak hour capacity analysis for the network during AM, midday, and PM peak hours based on the developed models and the techniques outlined in the HCM for the following alternatives:
  - Existing traffic volumes
  - Background traffic volumes which include existing plus future growth rate for 2020
  - Proposed alternative with future traffic volumes which include background traffic plus site generated trips, with geometric and operational modifications throughout the network

- Developed conceptual road designs for Okemos Road (Clinton to Methodist) and Hamilton Road (Liverance to Moore).
- Meeting with the client to review the study findings and recommendations.
- Prepared report with findings and recommendations.

Study Site

Okemos is an unincorporated community in Meridian Charter Township, Ingham County, Michigan. It is a census-designated place (CDP) for statistical purposes and its boundaries do not have legal status. Local government is provided by the township. Downtown Okemos refers to the area surrounding the intersection of Okemos Road and Hamilton Road. Plans for improving Downtown Okemos are coordinated by the Meridian Township Downtown Development Authority (DDA). Downtown Okemos consists of a six-block area, three blocks wide and two blocks long and is shown in the highlighted region in Figure 1. The proposed site plan (Attachment A) consists of the revitalization of Downtown Okemos in multiple phases. This impact study is limited to Phase 1 of the proposal which consists of the redevelopment of Blocks C and E, where:

- Block C – the quadrant surrounded by Okemos, Hamilton, Ardmore, and Methodist Roads. This site consists of three five-story buildings, one residential and two mixed-use with commercial on the first floor. The three structures represent 200 residential units and 25,300 sq. ft. of commercial space. A 1-level deck 300 space parking is located in the middle of the three structures with ingress/egress on Methodist Street.
- Block E – the quadrant surrounded by Okemos, Hamilton, Ardmore, and Clinton Roads. The site consists of two five story buildings, one residential and one mixed-use with commercial on the first floor. These two structures represent 210 residential units and 23,600 sq. ft. of commercial space. Parking is provided via a 2-level deck 240 space structure located within the Block with ingress/egress on Ardmore Avenue.

The study intersections are noted in Figure 1. Phase 1 of the development also proposes to prohibit NB left-turns at the intersection of Okemos Road/Methodist Street and Okemos Road/Clinton Street. In lieu of this prohibition, left-turns would be allowed on both NB and SB at the intersection of Okemos Road/Hamilton Road. This study considers this modification throughout the analysis process.

Figure 1: Study Area & Downtown Okemos

Existing Roadway System

All of the roads within the study area are under the jurisdiction of the Ingham County Roads Department. Okemos Road is a north-south principal arterial, 4-lane road with curb and gutter, and a posted speed limit of 30 mph. Hamilton Road is a minor arterial to the east of Okemos and a major collector to the west. Hamilton varies in width from 2-4 lanes, has curb and gutter, and a posted speed limit of 25 mph. Methodist Street, Ardmore Avenue, and Clinton Street are 2-lane local roads with some curb and gutter, and a posted speed limit of 25 mph. Traffic into the downtown flows primarily from three main directions: southbound on Okemos Road from Grand River Avenue, westbound on Marsh Road from the Meridian Mall/Grand River Avenue, and northbound on Okemos Road from I-96. The existing land use within the immediate vicinity of the downtown is primarily commercial with parking provided through surface parking lots.

Existing Traffic Volumes

HRC utilized traffic cameras to collect 24-hour turning movement counts on a typical weekday. Turning movement counts were collected for the following intersections:

- Okemos Road & Hamilton Road – signalized
- Okemos Road & Methodist Street – unsignalized
- Okemos Road & Clinton Street – unsignalized
- Hamilton Road & Ardmore Avenue - unsignalized

Table 1 summarizes the 24-hour counts on the subject roadways. The complete turning movement count reports are provided in Attachment B.

Table 1: 24 Hour Volumes (December 2017)

Location	24 Hour Volumes (vehicles per day)
Okemos, north of Hamilton	17,141
Okemos, south of Hamilton	32,709
Hamilton, west of Okemos	2,547
Hamilton/Marsh, east of Okemos	17,611
Clinton, west of Okemos	691
Clinton, east of Okemos	195
Methodist, west of Okemos	127
Methodist, east of Okemos	811
Ardmore, north of Hamilton	181
Ardmore, south of Hamilton	786

Traffic Growth

Future year traffic volume projections for the study area are based on growth factors provided in the TCRPC 2010-2040 regional travel demand model. This model provides average annual growth factors for various roadways within the region. Using the available data pertaining to Downtown Okemos, a single average annual growth rate of 0.437% was generated for the subject network. Table 2 presents the average annual growth rates available for the roadways in the TCRPC regional travel demand model along with the obtained network average.

Table 2: Average Annual Traffic Growth

Location	Time Period	No. Years	Average Annual Growth
Okemos Rd	2010-2040	30	0.560%
Hamilton Rd	2010-2040	30	0.314%
Network			0.437%

A future growth factor was developed based on the obtained annual growth rate and using the following growth factor formula to project traffic volumes to 2020, which represents the year when the development is expected to be operational:

$$Growth\ Factor = (1 + r)^y$$

Where: r = Annual average growth rate (0.437%)
y = Number of years (i.e. 2)

This formula yielded a future growth factor of 1.01 which was applied to the existing traffic to project volumes to 2020.

Trip Generation

One of the most critical elements of a traffic study is estimating the amount of traffic to be generated by a proposed development. This is usually done by using trip generation rates or equations to provide an estimate of all future trips generated by a proposed development.

Rates are commonly expressed in trips per unit of development. For example, trips per dwelling unit are commonly used for residential developments, while trips per 1,000 square feet (SF) of gross floor area (GFA) are used for offices and retail. Equations provide a direct estimate of trips based upon development units being multiplied in a mathematical relationship.

Trips are defined as a single or one directional movement with either the origin or destination of the trip inside the study site. Thus, a car entering and leaving a site would be generating two trips. Depending on the land use of the proposed development, trips can be further separated into pass-by trips and non-pass-by trips. Pass-by trips are intermediate stops on the way from an origin to a primary destination without route diversions and thus are not new to the network. In comparison non-pass-by trips are any new trips generated by the site. In certain scenarios non-pass-by trips can be further subdivided into diverted and primary trips. Diverted link trips are trips diverted from roadways in vicinity of the generator which add traffic to the streets adjacent to the site and remove it from the streets from which it diverts. Whereas primary trips are trips generated by the site and thus are akin and interchangeable with non-pass-by trips when diverted trips are not considered. In mixed-used developments, trips between the various land uses can also be made as internal trips without burdening the major road network. This characteristic is referred to as an internal capture rate and can be defined as the percentage of the total trips occurring entirely within the site. Consequently, internal trips are subtracted from the total number of generated trips prior to applying pass-by trip reductions. Trip generation estimates are often the most critical factors in assessing impacts and needs of a proposed development.

The most widely used source of national trip generation data is the Trip Generation Manual, published by the Institute of Transportation Engineers (ITE). The information in this report is almost solely derived from suburban and urban sites. Data included in trip generation was obtained from actual driveway counts of vehicular traffic entering and exiting the site. The 10th Edition contains more than 4,800 data sets from individual trip generation studies. The report also includes discussions on the application and use of trip generation rates and equations, descriptions of the characteristics of each land use, maximum/minimum average rates for weekdays, weekends, and peak hours of the generator and adjacent street traffic, and additional statistical data regarding data variability.

ITE Land Use 221 – Multifamily Housing (Mid-Rise) and ITE Land Use 820 – Shopping Center were selected to generate trips for the proposed residential units and commercial space as they best fit the proposed development given the restrictions on available trip generation data. Land Uses 221 and 820 were selected in lieu of ITE Land Use 231 – Mid-Rise Residential with 1st Floor Commercial given the lack of data points for general urban/suburban settings as well as trip underestimation for this land use.

Trips for Land Use 221 were generated based on dwelling units, whereas trips for Land Use 820 were generated based on 1000 sq. ft. of gross leasable area (GLA). In both cases trips were generated for general urban/suburban settings for both AM and PM peaks and based on the peak hour of the adjacent street traffic. Trips generated for the off peak are assumed equivalent to those for the PM peak given the lack of any available data for this time period. The utilized ITE sections for Land Use 221 and 820 are listed in Attachment C with Land Use 231 included for information purpose only. Table 3 presents the trip generation data for the proposed developments in Blocks C and E.

Table 3: Trip Generation for Block C and Block E

Block	ITE Code	Land Use	Variable	AM Peak Hour Trip Rate		OP/PM Peak Hour Trip Rate		Unit	AM Peak Hour Trips		OP/PM Peak Hour Trips	
				In	Out	In	Out		In	Out	In	Out
C	221	Multifamily Housing (Mid-Rise)	Dwelling Units	Equation		Equation		200	68		*87*	
				26%	74%	61%	39%		18	50	53	34
C	820	Shopping Center	1000 Sq. Ft. GLA	Equation		Equation		25.3	165		*197*	
				62%	38%	48%	52%		102	63	95	102
E	221	Multifamily Housing (Mid-Rise)	Dwelling Units	Equation		Equation		210	71		*91*	
				26%	74%	61%	39%		18	53	56	35
E	820	Shopping Center	1000 Sq. Ft. GLA	Equation		Equation		23.6	164		*187*	
				62%	38%	48%	52%		102	62	90	97
Total Trips									468		562	
									240	228	294	268

1. GLA = Gross Leasable Area

2. Midday (OP) peak hour generated trips are assumed to be the equivalent of the PM peak hour generated trips

Following the overall trip generation, the next step of the analysis consisted of identifying the internal capture rate of the proposal due to the mixed-use nature of the development and the proximity between Blocks C and E. The internal capture rate was identified following the procedures presented in the National Cooperative Highway Research Program (NCHRP) Report 684: Enhancing Internal Trip Capture Estimation for Mixed-Use Developments. Among the primary consideration, this methodology assumes that the number of trips between a pair of internal land uses is a function of the land use type, size of the receiving land use, size of the originating land use, time period of analysis, and distance between land uses. For purposes of the analysis and since the specific uses for the commercial space are unknown at this time, this study assumes that 40% of the commercial space will be retail, 30% office, and 30% restaurant facilities. Lastly and akin to the trip generation data, the off peak internal capture rate is assumed equivalent to the PM peak due to lack of data. Attachment D presents the internal capture rate analysis for the proposed developments in both Blocks C and E using the NCHRP Report 684 method. The internal capture data findings are summarized in Table 4.

Table 4: Internal Capture Analysis for Block C and Block E

Block	ITE Code	O-D	AM Peak Hour Trips			OP/PM Peak Hour Trips		
			Total	Internal	External	Total	Internal	External
C	221	In	18	1	17	53	16	37
		Out	50	7	43	34	8	26
	820	In	102	31	71	95	35	60
		Out	63	25	38	102	43	59
E	221	In	18	1	17	56	17	39
		Out	53	8	45	35	9	26
	820	In	102	31	71	90	33	57
		Out	62	24	38	97	41	56
Total			468	128	340	562	202	360

1. Midday (OP) internal capture rate is assumed to be equivalent to the PM peak hour capture rate

2. Blocks C and E are treated as one unit in overall internal capture rate calculations and are then split proportionally based on trip generation rates

The last step in the trip generation analysis consisted of identifying the number of pass-by trips applicable to the development. Pass-by trips were calculated using the average pass-by trip rate for ITE Land Use 820 – Shopping Center as listed in the Trip Generation Handbook 3rd edition (Attachment E). The pass-by trips are applicable only for the proposed commercial space and for the PM peak. Similar to the trip generation and internal capture rate analysis, off peak pass-by trips are assumed equivalent to the PM peak rate. There are no pass-by trips for AM peak. Table 5 summarizes the pass-by trip analysis along with the non-pass-by trips for Blocks C and E. Together these trips comprise the total number of external trips expected to be generated by the development.

Table 5: Pass-By Trips and Non-Pass-By Trips for Block C and Block E

Block	ITE Code	O-D	AM Peak Hour Trips			OP/PM Peak Hour Trips		
			External	Pass-By	Non-Pass-By	External	Pass-By	Non-Pass-By
C	221	In	17	0	17	37	0	37
		Out	43		43	26		26
	820	In	71	0	71	60	40	40
		Out	38		38	59		39
E	221	In	17	0	17	39	0	39
		Out	45		45	26		26
	820	In	71	0	71	57	38	38
		Out	38		38	56		37
Total			340	0	340	360	78	282

1. The average pass-by trip rate for land use 820 - Shopping Center for PM Peak based on the Trip Generation Handbook 3rd Ed. is estimated at 34%

2. Pass-by trips are applicable only for the commercial area

3. Pass-by trip data is not applicable for AM peak

4. Midday (OP) peak pass-by trips are assumed equivalent to the PM peak rate

Trip Distribution and Assignment

Traffic expected to be generated by a project must be distributed and assigned to the roadway system so the impacts of the proposed project on roadway links and intersections within the study area can be analyzed. After an estimate of the total traffic into and out of the site has been made, that traffic must be distributed and assigned to the roadway system. The trip distribution step produces estimates of trip origins and destinations. The assignment step produces estimates of the amount of site traffic that will use certain access routes between their origin and destination.

Trips for the proposed development were distributed based on the proportion of traffic entering and exiting the study area during the AM, midday, and PM peak hours. Traffic assignment was determined using an all-or-nothing approach based on Dijkstra's algorithm for identifying the shortest path. In this case the shortest path was based on travel time, impedances along the route, entry/exit points of the study area, and the parking access point for Blocks C and E (i.e. location of Block C access point is assumed 125 ft west of Okemos Road along Methodist Street; location of Block E access point is assumed 170 ft north of Clinton Street along Ardmore Avenue). Based on these considerations, the trip assignment process includes the following origin-destination assumptions:

Block C

- Origin is Okemos Road – North: Right-turn on Methodist Street
- Origin is Okemos Road – South: Left-turn on Hamilton Road → Right-turn on Ardmore Avenue → Right-turn on Methodist Street
- Origin is Hamilton Road – East: Right-turn on Ardmore Avenue → Right-turn on Methodist Street
- Origin is Hamilton Road – West: Left-turn on Ardmore Avenue → Right-turn on Methodist Street
- Destination is Okemos Road – North: Left-turn on Okemos Road
- Destination is Okemos Road – South: Right-turn on Okemos Road
- Destination is Hamilton Road – East: Right-turn on Okemos Road → Left-turn on Hamilton Road
- Destination is Hamilton Road – West: Left-turn on Ardmore Avenue → Right-turn on Hamilton Road

Block E

- Origin is Okemos Road – North: Right-turn on Hamilton Road → Left-turn on Ardmore Avenue
- Origin is Okemos Road – South: Left-turn on Hamilton Road → Left-turn on Ardmore Avenue
- Origin is Hamilton Road – East: Left-turn on Ardmore Avenue
- Origin is Hamilton Road – West: Right-turn on Ardmore Avenue
- Destination is Okemos Road – North: Right-turn on Hamilton Road → Left-turn on Okemos Road
- Destination is Okemos Road – South: Left-turn On Clinton Street → Right-turn on Okemos Road
- Destination is Hamilton Road – East: Right-turn on Hamilton Road
- Destination is Hamilton Road – West: Left-turn on Hamilton Road

An additional round of trip assignment was undertaken to reassign those trips which correspond to the NB left-turn movements at Okemos Road/Methodist Street and Okemos Road/Clinton Street as they are prohibited under the proposed development. The trip reassignment considers the following origin-destination assumptions:

NB left-turn at Okemos Road/Methodist Street

- Trip origins cannot be assumed. Trip origins are based upon the proportion of vehicles entering the study site while considering the trip destination (i.e. Hamilton Road – East, Okemos Road – South).
- The trip destinations are the existing structures Northwest of the intersection of Hamilton Road/Ardmore Avenue with access on Ardmore Avenue.

NB left-turn at Okemos Road/Clinton Street

- The trip origin is Okemos Road – South.
- Trip destinations cannot be assumed. Trip destinations are based upon the proportion of EB traffic at the intersection of Hamilton Road/Ardmore Avenue.

Attachment F provides the volume diagrams showing the trip distribution rates and network trip assignment based on the assumptions presented in this section.

Capacity Analysis

HRC conducted a capacity analysis of the four intersections in the study area using Synchro 10 and following the procedures outlined in the HCM to assess the performance of each intersection. The intersections include:

- Okemos Road & Hamilton Road – signalized
- Okemos Road & Methodist Street – unsignalized
- Okemos Road & Clinton Street – unsignalized
- Hamilton Road & Ardmore Avenue - unsignalized

The capacity analysis was conducted for weekday AM peak, Off peak, and PM Peak. Three separate alternatives were analyzed:

- Existing traffic volumes
- Background traffic volumes which include existing plus future growth rate for 2020
- Proposed alternative with future traffic volumes which include background traffic plus site generated trips, with geometric and operational modifications throughout the network which include:
  - NB left-turn prohibition at the intersection of Okemos Road/Methodist Street and Okemos Road/Clinton Street.
  - Addition of a single NB and SB left-turn storage at the intersection of Okemos Road/Hamilton Road.
  - Conversion of Hamilton Road, between Okemos Road and Ardmore Avenue, from a four-lane road to a two-lane road with an EB left-turn storage at the intersection of Okemos Road/Hamilton Road as well as parallel parking lanes on both sides of Hamilton Road.
  - Elimination of one EB receiving lane on Hamilton Road, between Okemos Road and Moore Street.
  - Conversion of the WB approach on Hamilton Road, between Okemos Road and Moore Street, from shared left/thru and thru/right lanes to dual left-turn lanes and a shared thru/right lane.
  - Signal modification and optimization at the intersection of Okemos Road/Hamilton Road. This study assumes a complete signal redesign due to geometric modifications on all four approaches of the intersection.

HRC utilized the HCM definitions of signalized and un-signalized intersections in conducting the capacity analysis.

Signalized Intersections

At signalized intersections, the HCM defines level of service (LOS) in terms of control delay. Delay may be measured in the field or it may be estimated. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the volume-to-capacity ratio for the lane group or approach in question. Table 6 indicates the control delay criteria used for determining LOS for signalized intersections.

Table 6: LOS Criteria for Signalized Intersections

LOS	Control Delay per Vehicle (seconds)
A	≤ 10
B	> 10 to ≤ 20
C	> 20 to ≤ 35
D	> 35 to ≤ 55
E	> 55 to ≤ 80
F	> 80

LOS A describes operations with very low control delay up to 10.0 seconds per vehicle. This occurs when progression is exceptionally favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with control delay in the range of 10.1 to 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.

LOS C describes operations with control delay in the range of 20.1 to 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

LOS D describes operations with control delay in the range of 35.1 to 55.0 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with control delay in the range of 55.1 to 80.0 seconds per vehicle. This is considered to be above the limit of acceptable delay for an urban roadway in the study area. These high delay values generally indicate poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with control delay in excess of 80.1 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over saturation (i.e., when arrival flow rates exceed the capacity of the intersection). It may also occur at high volume-to-capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Un-Signalized Intersections

At an un-signalized intersection with stop control on the minor approach, LOS F occurs when there are not enough gaps of suitable size to allow a minor-street demand to safely cross through traffic on the major street. This is typically evident from long control delays experienced by minor street traffic and by queuing on the minor approaches. LOS F may also appear in the form of drivers on the minor street selecting smaller than usual gaps. In such cases, safety may be a problem and some disruption to the major traffic stream may result. Note that LOS F may not always result in long queues but in adjustments to normal gap acceptance behavior. For example, this may occur when a left-turning vehicle uses a shorter than normal gap in traffic to complete a left-turn.

At two way stop controlled intersections, the critical movement, often the minor-street left turn, may control the overall performance of the intersection. The lower threshold for LOS F is set at 50 seconds of delay per vehicle. In some cases, the delay equations will predict delays greater than 50 seconds for minor-street movements under very low-volume conditions on the minor street (less than 25 vehicles per hour). A LOS F threshold is reached with a movement capacity of approximately 85 vehicles per hour or less. Table 7 indicates the control delay criteria used for determining the LOS for un-signalized intersections.

Table 7: LOS Criteria for Un-Signalized Intersections

LOS	Control Delay per Vehicle (seconds)
A	≤ 10
B	> 10 to ≤ 15
C	> 15 to ≤ 25
D	> 25 to ≤ 35
E	> 35 to ≤ 50
F	> 50

Results of the capacity analysis for all four intersections (signalized and un-signalized) during the AM, Off, and PM peak hours for the three alternatives are provided in Table 8 through Table 13 below. The Synchro 10 capacity analysis reports are available in Attachment G.

Table 8: AM Peak Hour LOS Comparison for Signalized Intersections

Intersection	Approach	Movement	Existing		Background		Proposed	
			LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Okemos and Hamilton	EB	LT	D	38.4	D	38.7	D	39.2
		TH/RT					D	46.2
	WB	LT	C	23.0	C	23.1	C	30.2
		TH/RT					C	24.9
	NB	LT	na	na	na	na	C	28
		TH	C	31.6	C	31.9	C	23.6
		RT	A	5.2	C	5.2	A	8.0
	SB	LT	na	na	na	na	C	24.4
		TH/RT	C	34.6	D	35.1	D	37.3

Table 9: AM Peak Hour LOS Comparison for Un-Signalized Intersections

Intersection	Approach	Movement	Existing		Background		Proposed	
			LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Okemos and Methodist	EB	LT/TH/RT	C	20.0	C	20.2	C	18.3
	WB	LT/TH/RT	A	9.9	A	10.0	B	10.9
	NB	LT/TH	A	0.1	A	0.1	na	na
	SB	LT/TH	A	0.5	A	0.5	A	0.5
Okemos and Clinton	EB	LT/TH/RT	B	10.1	B	10.2	A	10.6
	WB	TH/RT	B	12.4	B	12.5	B	13.3
	NB	LT/TH	A	1.9	A	2.0	na	na
	SB	LT/TH	A	0.2	A	0.2	A	0.1
Ardmore and Hamilton	EB	LT/TH/RT	A	0.0	A	0.0	A	0.3
	WB	LT/TH/RT	A	1.8	A	1.8	A	4.0
	NB	LT/TH/RT	A	9.6	A	9.6	A	9.6
	SB	LT/TH/RT	A	9.0	A	9.0	B	11.0

1. Uncontrolled through and/or right only movements at unsignalized intersections are not shown as they report no delay

Table 10: OFF Peak Hour LOS Comparison for Signalized Intersections

Intersection	Approach	Movement	Existing		Background		Proposed	
			LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Okemos and Hamilton	EB	LT	D	48.0	D	48.0	D	38.5
		TH/RT					D	53
	WB	LT	D	39.3	D	40.1	D	41.6
		TH/RT					C	30.1
	NB	LT	na	na	na	na	C	30.5
		TH	C	34.3	C	34.5	C	27.7
		RT	A	6.7	A	6.8	B	12.9
	SB	LT	na	na	na	na	C	26.5
		TH/RT	C	30.8	C	30.9	C	33.7

Table 11: OFF Peak Hour LOS Comparison for Un-Signalized Intersections

Intersection	Approach	Movement	Existing		Background		Proposed	
			LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Okemos and Methodist	EB	LT/TH/RT	C	19.6	C	19.7	C	22.0
	WB	LT/TH/RT	B	12.3	B	12.4	B	14.0
	NB	LT/TH	A	0.2	A	0.2	na	na
	SB	LT/TH	A	0.5	A	0.5	A	0.5
Okemos and Clinton	EB	LT/TH/RT	D	26.6	D	27.5	C	17.7
	WB	TH/RT	C	16.1	C	16.2	C	17.5
	NB	LT/TH	A	2.0	A	2.1	na	na
	SB	LT/TH	A	0.6	A	0.6	A	0.7
Ardmore and Hamilton	EB	LT/TH/RT	A	0.1	A	0.1	A	0.4
	WB	LT/TH/RT	A	2.9	A	2.9	A	4.6
	NB	LT/TH/RT	A	9.8	A	9.8	B	10.9
	SB	LT/TH/RT	B	10.4	B	10.5	B	13.8

1. Uncontrolled through and/or right only movements at unsignalized intersections are not shown as they report no delay

Table 12: PM Peak Hour LOS Comparison for Signalized Intersections

Intersection	Approach	Movement	Existing		Background		Proposed	
			LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Okemos and Hamilton	EB	LT	E	62.9	E	63.3	D	38.2
		TH/RT					E	65.5
	WB	LT	D	44.6	D	45.9	D	45.3
		TH/RT					C	34.2
	NB	LT	na	na	na	na	D	40.8
		TH	D	43.9	D	44.6	C	34.2
		RT	B	12.3	B	12.5	C	24.8
	SB	LT	na	na	na	na	C	29.7
		TH/RT	C	36.6	D	36.8	D	42.0

1. Highlighted cells indicate LOS E or F

Table 13: PM Peak Hour LOS Comparison for Un-Signalized Intersections

Intersection	Approach	Movement	Existing		Background		Proposed	
			LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
Okemos and Methodist	EB	LT/TH/RT	C	23.9	C	24.4	D	33.9
	WB	LT/TH/RT	B	12.7	B	12.8	B	14.2
	NB	LT/TH	A	0.2	A	0.2	na	na
	SB	LT/TH	A	0.6	A	0.6	A	0.7
Okemos and Clinton	EB	LT/TH/RT	B	10.5	B	10.6	B	10.5
	WB	TH/RT	A	0.0	A	0.0	A	0.0
	NB	LT/TH	A	2.5	A	2.7	na	na
	SB	LT/TH	A	0.3	A	0.3	A	0.4
Ardmore and Hamilton	EB	LT/TH/RT	A	0.0	A	0.0	A	0.3
	WB	LT/TH/RT	A	2.7	A	2.7	A	4.6
	NB	LT/TH/RT	B	11.1	B	11.1	B	12.9
	SB	LT/TH/RT	B	11.9	B	11.9	C	17.5

1. Uncontrolled through and/or right only movements at unsignalized intersections are not shown as they report no delay

Results of the capacity analysis indicate acceptable LOS for the AM peak and Off peak for all study intersections for existing and background conditions (existing conditions with future traffic growth). Unacceptable LOS E is reported during the PM peak at the intersection of Okemos Road/Hamilton Road for the EB approach for existing conditions and background conditions.

The proposed alternative results in acceptable LOS and delays (LOS D or better) for all intersections analyzed apart from the EB through/right movement at the intersection of Okemos Road/Hamilton Road. While the latter reports a LOS E, the level of delay for the approach is lower than existing and background conditions. Overall delay improvements are observable for the WB movement during the Off peak and PM peak. In those scenarios where delays are projected to be higher than background conditions, the increase in delay remains comparable and/or acceptable (LOS D or better).

With respect to the unsignalized intersections, despite a projected increase in the number of vehicles utilizing these intersections, delays are projected to be either relatively comparable to background conditions and/or acceptable with a LOS D or better.

Queue Analysis

The 95th percentile queue lengths of the intersection of Okemos Road/Hamilton Road were examined to provide a supplementary level of detail to the network capacity analysis as well as assist in the identification of the appropriate left-turn storage lengths for the proposed alternative while also considering existing geometric constrains. The 95th percentile queue can be defined as the queue length with a 5% probability of being exceeded during the analysis period. Table 14 summarizes the results of the 95th percentile queue for AM, Off, and PM peak for background and proposed conditions for all four primary intersections. The complete Simtraffic queue reports are provided in Attachment H.

Table 14: AM/OFF/PM Peak Hour 95th Percentile Queue

Intersection	Approach	Movement	AM		OP		PM	
			Background	Proposed	Background	Proposed	Background	Proposed
Okemos and Hamilton (Signalized)	EB	LT	53	50	81	83	138	147
		TH/RT	56	102	68	135	133	231
	WB	LT	331	296	471	344	604	400
		TH/RT	47	84	193	104	498	145
	NB	LT	-	134	-	183	-	208
		TH	195	175	264	220	419	351
		RT	112	94	208	167	215	290
	SB	LT	-	60	-	50	-	70
		TH/RT	236	242	188	204	287	269
Okemos and Methodist (Unsignalized)	EB	LT/TH/RT	16	80	-	79	14	98
	WB	LT/TH/RT	29	27	57	56	57	50
	NB	LT	14	-	17	-	18	-
		TH/RT	-	-	-	-	-	3
	SB	LT	23	34	39	41	52	82
		TH/RT	-	-	-	-	-	47
Okemos and Clinton (Unsignalized)	EB	LT/TH/RT	32	67	36	58	44	71
	WB	TH/RT	26	20	13	9	-	-
	NB	LT	93	-	124	-	479	88
		TH/RT	-	-	-	10	614	234
	SB	LT	22	28	38	80	61	118
		TH/RT	-	-	-	61	58	129
Ardmore and Hamilton (Unsignalized)	EB	LT/TH/RT	-	5	-	14	-	40
	WB	LT/TH/RT	5	41	25	63	27	89
	NB	LT/TH/RT	40	47	42	52	50	73
	SB	LT/TH/RT	22	29	35	46	32	46

1. The highest queue has been reported when simulations indicate queues for two lanes of the same movement in an approach. When averaged, these queues are lower under the proposed alternative.
2. Movements with no queue are not reported.

The results of Table 14 indicate that queue lengths for the proposed alternative may vary relative to background conditions. Shorter queues are expected for the WB approach of the Okemos Road/Hamilton Road intersection due to the addition of a secondary left-turn lane, and for the NB approach of the Okemo Road/Clinton Street intersection due to the left-turn prohibition. Comparatively, queues for the EB thru/right movement may increase due to a reduction in the number of through lanes and increased number of vehicle trips using this approach. The longest queue increases for this approach are observed during PM peak with an increase of 98 feet in the 95th queue or approximately four to five vehicles.

Conclusions and Recommendations

Hubbell, Roth & Clark, Inc. conducted a Traffic Impact Study for the proposed site plan in downtown Okemos in Meridian Charter Township, Ingham County, MI. The proposal consists of 200 residential units and 25,300 sq. ft. of commercial space in Block C (quadrant surrounded by Okemos, Hamilton, Ardmore, and Methodist Roads), and 210 residential units and 23,600 sq. ft. of commercial space in Block E (quadrant surrounded by Okemos, Hamilton, Ardmore, and Clinton Streets) in a mixed-use environment.

To achieve the primary objective of the study, the following alternatives were analyzed:

- Existing traffic volumes
- Background traffic volumes which include existing traffic plus future growth rate for 2020
- Proposed alternative with future traffic volumes which include background traffic plus site generated trips, with geometric and operational modifications throughout the network

Results of the capacity analysis indicate unacceptable LOS E during the PM peak at the intersection of Okemos Road/Hamilton Road for the EB approach under existing conditions and background conditions. The proposed alternative results in acceptable LOS and delays (LOS D or better) for all intersections analyzed apart from the EB through/right movement at the intersection of Okemos Road/Hamilton Road. While the latter reports a LOS E, the level of delay for the approach is lower than existing and background conditions. Overall delay improvements are observable for the WB movement during the Off peak and PM peak. In those scenarios where delays are projected to be higher than background conditions, the increase in delay remains comparable and/or acceptable (LOS D or better). The proposed alternative may also yield shorter queues for the WB approach at the intersection of Okemos Road/Hamilton Road, and NB approach at the intersection of Okemos Road/Clinton Street.

Given the capacity and queue analysis findings as well as existing geometric constraints, the proposed alternative is recommended for implementation. This alternative consists of the following recommended geometric and operational modifications:

- NB left-turn prohibition at the intersection of Okemos Road/Methodist Street and Okemos Road/Clinton Street
- Addition of a single NB and SB left-turn lane at the intersection of Okemos Road/Hamilton Road. Recommended left-turn storage lengths are 200 feet for NB and 100 feet for SB.
- Conversion of Hamilton Road, between Okemos Road and Ardmore Avenue, from a four-lane road to a two-lane road with an EB left-turn lane at the intersection of Okemos Road/Hamilton Road, a median to facilitate proper lane alignment between the west and east leg of the Okemos Road/Hamilton Road intersection, as well as parallel parking lanes on both sides of Hamilton Road. Recommended left-turn storage length is 125 feet.
- Median along Hamilton Road between Liverance Street and Ardmore Avenue to facilitate lane alignment between the west and east leg of the Hamilton Road/Ardmore Avenue intersection.
- Elimination of one EB receiving lane on Hamilton Road, between Okemos Road and Moore Street.
- Conversion of the WB approach on Hamilton Road, between Okemos Road and Moore Street, from shared left/thru and thru/right lanes to dual left-turn lanes with a 100 feet storage for the leftmost left-turn lane and a shared through/right lane.

- Signal modification and optimization at the intersection of Okemos Road/Hamilton Road. This study assumes a complete signal redesign due to geometric modifications on all four approaches of the intersection. Consequently, the proposed changes include modifications to both the signal infrastructure (i.e. detection, signal heads etc.) and signal timing.
- SB receiving lanes at the intersection of Okemos Road/Hamilton Road are 11 feet from the stop bar to 75 feet south to adequately receive traffic from the WB dual left-turning lanes. SB receiving lanes become 10 feet at the intersection of Okemos Road/Clinton Street to match existing conditions. Similarly, SB lanes at this intersection are 11 feet and become 10 feet at the intersection of Okemos Road/Methodist Street to match existing conditions. All other modified lanes along Okemos Road are 10 feet unless otherwise noted.
- Additional on-street parallel parking may be applicable along the sections of Ardmore Avenue, Clinton Street, and Methodist Street surrounding Block C and E. Their impact on traffic flow is expected to be negligible.
- Parking lanes are 7 feet wide.

A conceptual design of the proposed Phase 1 alternative along with a cross-section with proposed lane widths with an emphasis on Okemos Road and Hamilton Road is provided in Attachment I. Attachment J presents the Autoturn analysis for the WB dual left-turn lanes at the intersection of Okemos Road/Hamilton Road with 11 feet receiving lanes. In addition, no sight distance issues are expected for the proposed alternative at the three intersections along Okemos Road.

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

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Colleen Hill-Stramsak, P. E., PTOE
Associate

CHS/gh

Attachment:
A – Proposed Site Plan
B – Turning Movement Counts
C – ITE Trip Generation Land Use 221/231/820
D – Internal Capture Rate Analysis
E – ITE Land Use 820 Pass-By Trips
F – Trip Distribution and Assignment Volume Diagrams
G – HCM Reports
H – Simtraffic Queue Reports
I – Roadway Conceptual Design
J – Autoturn Analysis

Enclosure
pc: HRC; Jamie Burton; File

HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

MAILING: PO Box 824
Bloomfield Hills, MI 48303-0824

SHIPPING: 555 Hulet Drive
Bloomfield Hills, MI 48302-0360

PHONE: 248-454-6300
WEBSITE: hrcengr.com

March 6, 2019

Village of Okemos, LLC
Will Randle, Authorized Agent
2410 Woodlake Dr. Suite 440
Okemos, MI 48864

Attn: Mr. Will Randle

Re: Addendum 2 to Downtown Okemos Traffic Impact Study, Phase 1
Meridian Township, Michigan

HRC Job No. 20171097

Dear Mr. Randle:

Hubbell, Roth & Clark, Inc. (HRC) has prepared an addendum to the downtown Okemos Traffic Impact Study (TIS), Phase 1 to summarize the key statements of the discussions held with Ingham County Road Department (ICRD) as it relates to this traffic study and the Phase 1 proposed development as of the date of this addendum. This addendum is intended to be used as a potential roadmap for infrastructure improvements as it pertains to the proposed development.

- The Phase 1 TIS, as well as the Max-Build addendum to the Phase 1 TIS have been developed based on the land use information provided in the Downtown Okemos Conceptual Master Plan developed by Gibbs Planning Group Inc., dated September 18, 2017. This information represents the most up-to-date concept of the development available at the onset of this TIS. All of the study findings and recommendations are limited to the data presented in this concept.
- The road improvements identified in the TIS for both Phase 1 and Max-Build development represent isolated but coordinated improvements applicable for each scenario. The Max-Build scenario improvements represent a continuation of improvements for the area. These improvements are not required under the Phase 1 development per the TIS. At this stage, additional factors inhibit the development of the Max-Build improvements, including:
  - There are currently no development plans in place to develop past Phase 1;
  - The Max-Build development is dependent on the progress and success of Phase 1 of development;
  - Right-of-Way (ROW) is unavailable for properties outside the scope of Phase 1 of development.
- ICRD highly recommends that Max-Build improvements, per the findings of the Max-Build addendum to the TIS, be constructed with Phase 1 improvements to minimize construction disruptions and avoid NB Okemos left turns to WB Clinton, which could continue to occur even if left turns are prohibited. ICRD has stated that construction of only Phase 1 is required at this time.
- It is recommended that, if needed, the overall findings of the traffic study, in particular those of the Max-Build addendum, are incorporated into a Township/DDA master plan for the development area to strengthen and formalize the road improvements required for the development of those parcels which are outside of the scope of Phase 1.
- It is recommended that, if needed, an update to the original Phase 1 TIS be conducted following construction of Phase 1 to assess any variations from the original assumptions and findings of the TIS. The update should be conducted following stabilization of traffic patterns in the area which could occur 2-3 months following 70-80% occupancy for both residential/commercial units.
- It is recommended that proposed future projects in the vicinity but outside the scope of Phase 1 and Max-Build scenarios consider traffic projections from these two studies to ensure traffic capacity levels are evaluated appropriately.

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

HUBBELL, ROTH & CLARK, INC.

Colleen Hill-Stramsak, P. E., PTOE
Associate

CHS/gh

Enclosure
pc: HRC; Jamie Burton; File

INGHAM COUNTY ROAD DEPARTMENT
AUSTIN E. CAVANAUGH ADMINISTRATION BUILDING
301 Bush Street, P.O. Box 38, Mason, MI 48854-0038

William M. Conklin, P.E.
Managing Director

April 30, 2019

Meridian Township
Mr. Peter Menser, Principal Planner
5151 Marsh Road,
Okemos, MI 48864

Dear Mr. Menser,

The Ingham County Road Department (ICRD) has reviewed the "Downtown Okemos Traffic Impact Study, Phase 1 (Blocks C & E)" dated December 11, 2018, "Addendum to Downtown Okemos Traffic Impact Study, Phase 1 (Max-Build Scenario)" dated December 11, 2018 and "Addendum 2 to Downtown Okemos Traffic Impact Study, Phase 1" dated March 6, 2019. The findings of the traffic impact study (TIS) and the associated roadway concepts as proposed are satisfactory and acceptable to the ICRD, with the conditions described herein.

While the ICRD prefers the Max-Build Scenario roadway concept to be constructed during Phase 1 in an effort to minimize traffic impacts and disruptions, we recognize the current limitations of the Developer to obtain all necessary right-of-way and the uncertainty of future phases of development, and therefore support the phased roadway concept as proposed for Blocks C & E. The ICRD will continue to coordinate with the Developer to review options to construct the Max-Build Scenario roadway concept during earlier phases of construction, if possible.

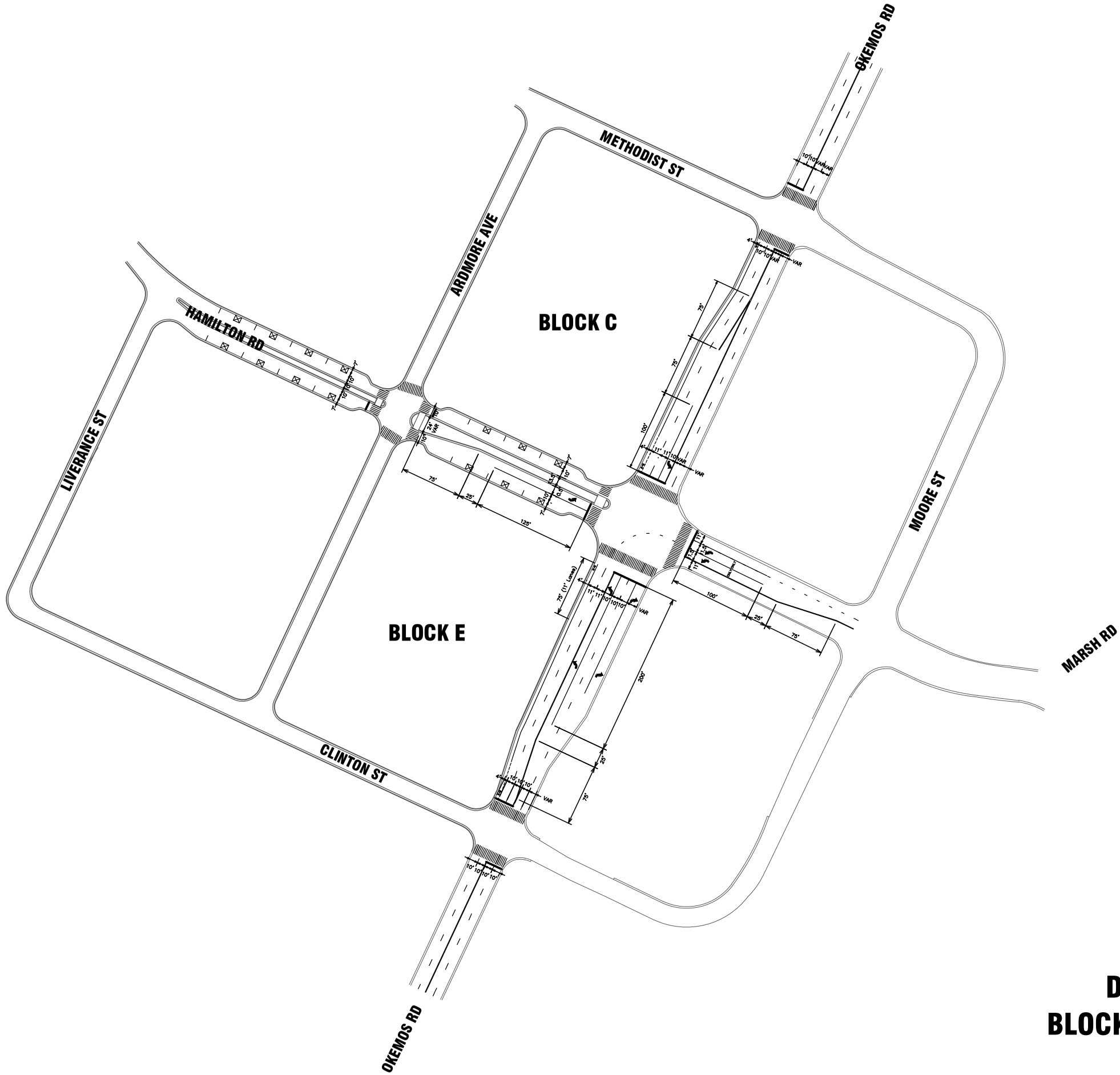
The ICRD recommends an update to the traffic study be conducted following the construction of Phase 1 and once traffic patterns have stabilized within the area, to assess any variations from the original findings of the TIS for the Phase 1 and Max-Build Scenarios. If conditions indicate greater impacts than anticipated, the roadway concepts will be updated and implemented as part of any future phases of construction.

It is understood the Developer will construct the Max-Build Scenario roadway concept as a condition of permit for any future phases of development. Further refinement of the roadway concepts and phasing of construction will be addressed during the design and permitting stages. Permits, right of way, and maintenance agreements will be required as part of the ongoing development process.

Please feel free to contact me if you have any questions.

Sincerely,

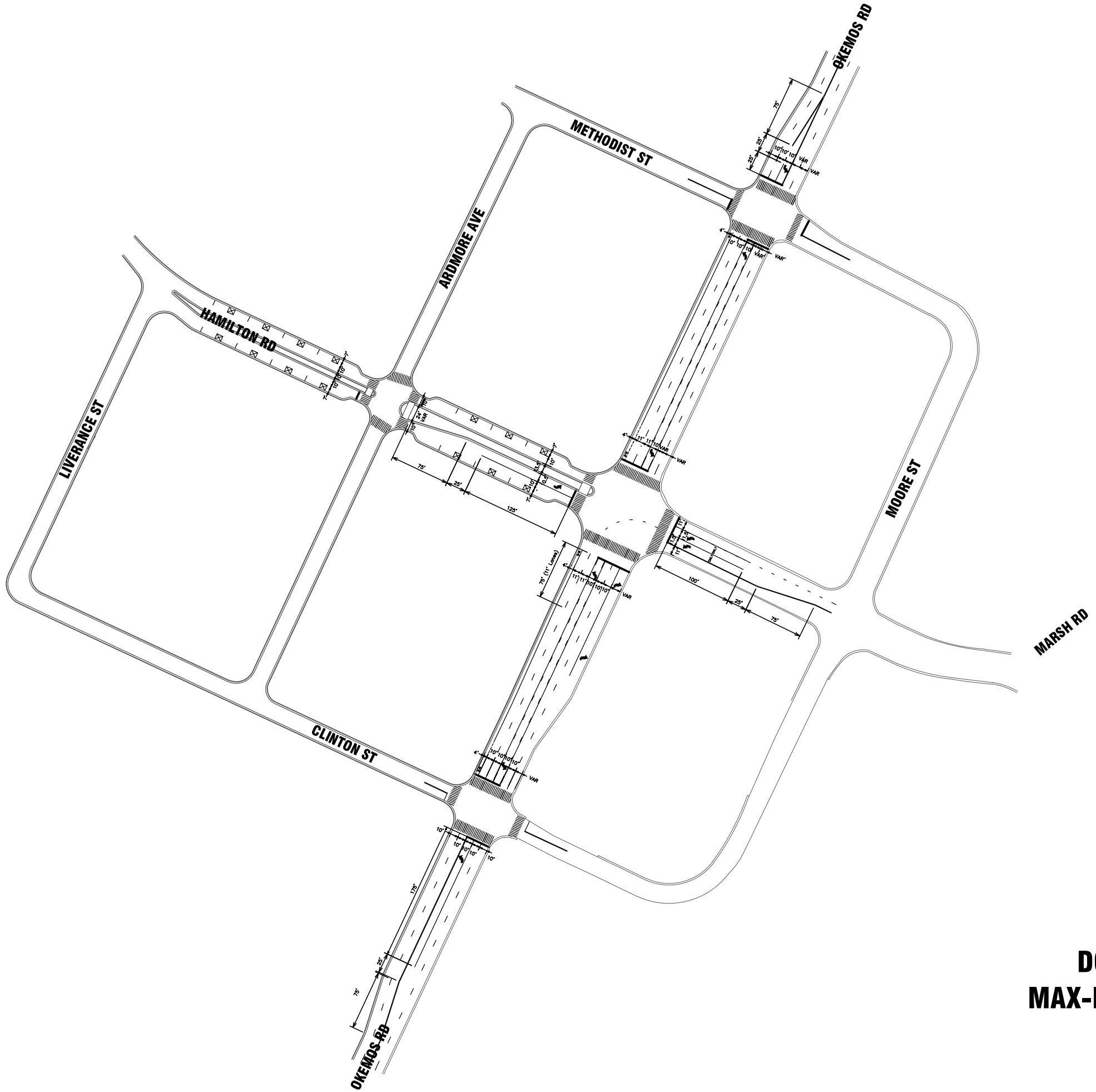
Kelly R. Jones, P.E.
Director of Engineering / County Highway Engineer



DOWNTOWN OKEMOS TIS
BLOCK C & E CONCEPTUAL DESIGN

Hubbell, Roth & Clark, Inc.
JN 20171097
09/26/2018

NOTE: Concept shown is focused on Okemos Road and Hamilton Road Corridor



DOWNTOWN OKEMOS TIS
MAX-BUILD CONCEPTUAL DESIGN

Hubbell, Roth & Clark, Inc.
JN 20171097
09/26/2018

NOTE: Concept shown is focused on Okemos Road and Hamilton Road Corridor

Section 86-440(c)(2)e. - MUPUD Density and Building Performance Criteria

1. Architectural design and placement of building(s) on the parcel(s) will be consistent with the architectural standards set forth in the Master Plan, of current adoption, and are to include sustainability and environmental considerations, including, but not limited to, energy usage from renewable energy resources. Achieving Energy Star or LEED Silver standards or better is highly valued.

2. The building height is no more than four stories above the finished grade. A fifth story may be allowed where there is a minimum of a ten-foot setback for such fifth story from the predominant first-floor facade elevation. Overall height from the finished grade to the top of the wall does not exceed 60 feet. Floor-to-ceiling height is at a minimum of 14 feet for first floor commercial or office uses, and a minimum of nine feet for all residential and any upper floors, regardless of use.

3. A parking plan that provides a unified design for any parking structures with the main building through the use of similar building materials, color, and architectural style.

4. An innovative design including a number of different dwelling unit types, sizes, and floor plans are available within the mixed-use PUD.

5. The mixed-use PUD provides common areas and/or amenities for residents and the general public, including, but not limited to, gathering spaces, gardens, courtyards, pavilions, pocket parks, swimming pools, exercise rooms, storage rooms, lockers, and covered parking.

6. The mixed-use PUD promotes nonmotorized and shared (public) transportation by providing convenient access to the public pedestrian/bicycle pathway system and public transportation systems as outlined in the Master Plan.

7. The mixed-use PUD provides opportunities for shared parking, accessways, and driveways with adjoining properties or provides additional parking spaces that may be used by the public.

8. The mixed-use PUD generally provides commercial and other nonresidential uses on the ground floor(s), and the development demonstrates a financially viable plan for sustainable commercial and/or office space usage.

9. The mixed-use PUD demonstrates how proposed higher density will not negatively impact the character, aesthetics, safety, or welfare of surrounding businesses and neighborhoods.

10. The mixed-use PUD considers any potential for increased traffic and provides solutions to address the traffic increases.

11. The mixed-use PUD makes efforts to preserve and use existing structures or provides explanations to justify why such preservation and use is not possible.

To: **Planning Commission**

From: **Peter Menser, Principal Planner**

Date: **May 10, 2019**

Re: **Special Use Permit #19051 (Village of Okemos, LLC), construct a group of buildings greater than 25,000 square feet in size at Okemos Road/Hamilton Road.**

Village of Okemos, LLC has submitted a mixed use planned unit development (MUPUD #19024) proposal for a project identified as the Village of Okemos. The C-2 (Commercial) zoned 3.99 acre project site consists of 11 parcels located on the north and south sides of Hamilton Road and west side of Okemos Road. The proposal includes the demolition of all existing buildings on the site and construction of seven new buildings with a total of 174 dwelling units. Overall, 289,037 total square feet of building area is proposed, consisting of 222,585 square feet of residential space and 66,452 square feet of commercial space.

The construction of any building or group of buildings with a combined gross floor area greater than 25,000 square feet requires a special use permit due to the significant impact such development may have upon adjacent property owners, neighborhoods, and public infrastructure. The Code of Ordinances requires the special use permit to ensure that public utilities, roads, and other infrastructure systems are or will be adequate to support the proposed development.

The special use permit is being processed concurrently with the MUPUD request. The staff report for MUPUD #19024 should be referenced for a more complete overview of the project.

Staff Analysis

The special use permit review criteria found in Section 86-126 of the Code of Ordinances should be used when evaluating the proposed special use permit. The Planning Commission makes a recommendation on the special use permit request and the Township Board has final approval.

Planning Commission Options

The Planning Commission may recommend approval, approval with conditions, or denial of the proposed special use permit. A resolution will be provided at a future meeting.

Attachment

1. Special use permit application.

G:\Community Planning & Development\Planning\SPECIAL USE PERMITS (SUP)\2019\SUP 19051 (Village of Okemos LLC)/SUP 19051.pc1.docx

CHARTER TOWNSHIP OF MERIDIAN
DEPARTMENT OF COMMUNITY PLANNING AND DEVELOPMENT
5151 MARSH ROAD, OKEMOS, MI 48864
PLANNING DIVISION PHONE: (517) 853-4560, FAX: (517) 853-4095

RECEIVED
APR 22 2019

SPECIAL USE PERMIT APPLICATION

Before submitting this application for review, an applicant may meet with the Director of Community Planning and Development to discuss the requirements for a special use permit and/or submit a conceptual plan for review to have preliminary technical deficiencies addressed prior to submittal of the application. If the property or land use is located in the following zoning districts RD, RC, RCC, RN then the applicant must meet with the Planning Director to discuss technical difficulties before filing a formal application.

Part I

A. Applicant Village of Okemos, LLC
Address of Applicant 2410 Woodlake Dr. Suite 440
Telephone - Work (517) 580-2550 Home _____ Fax _____ Email _____
Interest in property (circle one): (Owner) Tenant (Option) Other
(Please attach a list of all persons with an ownership interest in the property)
Village of Okemos, LLC / Douglas J Housing Okemos, LLC / Chowcro, LLC / Sherry Fisher

B. Site address / location / parcel number 2137 Hamilton Rd.
Legal description (please attach if necessary) LOTS 1-8 OF BLOCK 3 & LOTS 1-8 OF BLOCK 6
Current zoning C2 / Overlay
Use for which permit is requested / project name Village of Okemos - BUILDING GREATER THAN 25,000 SF
Corresponding ordinance number 86-658

C. Developer (if different than applicant) _____
Address _____
Telephone – Work _____ Home _____ Fax _____

D. Architect, Engineer Planner or Surveyor responsible for design of project if different from applicant:
Name KEBS, INC.
Address 2116 HASLETT ROAD HASLETT, MI 48840
Telephone – Work 517-339-1014 Home AJPATRICK@KEBS.COM Fax 517-339-8047

E. Acreage of all parcels in the project: Gross 3.99 Net 3.99

F. Explain the project and development phases:

G. Total number of:
Existing: structures N/A (ALL BUILDINGS TO BE DEMOLISHED) bedrooms ____ offices ____ parking spaces ____ carports ____ garages ____
Proposed: structures 6 bedrooms 232 offices ____ parking spaces 505 carports ____ garages 12

H. Square footage: existing buildings ±28,000 proposed buildings 270,895 SF
Usable Floor area: existing buildings — proposed buildings ±230,261 SF

I. If employees will work on the site, state the number of full time and part time employees working per shift and hours of operation:

J. Existing Recreation: Type N/A Acreage ____
Proposed Recreation: Type OUTDOOR SEATING, PEDESTRIAN CONNECTIONS Acreage N/A
Existing Open Space: Type GRASS AREAS W/ OCCASIONAL TREE Acreage ±1.96 AC
Proposed Open Space: Type VEGETATED SWALES Acreage ±0.13 AC

K. If Multiple Housing:

Total acres of property 3.99

Acres in floodplain — Percent of total _____

Acres in wetland (not in floodplain) — Percent of total _____

Total dwelling units 147

Dwelling unit mix:

Number of single family detached:	for Rent —	Condo _____
Number of duplexes:	for Rent —	Condo _____
Number of townhouses:	for Rent 16	Condo _____
Number of garden style apartments:	for Rent 131	Condo _____
Number of other dwellings:	for Rent —	Condo _____

L. The following support materials must be submitted with the application:

1. Nonrefundable Fee.
2. Legal Description of the property.
3. Evidence of fee or other ownership of the property.
4. Site Plan containing the information listed in the attachment to this application.
5. Architectural sketches showing all sides and elevations of the proposed buildings or structures, including the project entrance, as they will appear upon completion. The sketches should be accompanied by material samples or a display board of the proposed exterior materials and colors.
6. A Traffic Study, prepared by a qualified traffic engineer, based on the most current edition of *Evaluating Traffic Impact Studies: A Recommended Practice for Michigan Communities*, published by the State Department of Transportation.
   a. A traffic assessment will be required for the following:
      1) New special uses which could, or expansion or change of an existing special use where increase in intensity would, generate between 50 to 99 directional trips during a peak hour of traffic.
      2) All other special uses requiring a traffic assessment as specified in the Township Code of Ordinances, Chapter 86, Article IV, Division 2.
   b. A traffic impact study will be required for the following:
      1) New special uses which would, or expansion or change of an existing special use where increase in intensity would, generate over 100 directional trips or more during a peak hour of traffic, or over 750 trips on an average day.
      2) All other special uses requiring a traffic assessment as specified in the Township Code of Ordinances, Chapter 86, Article IV, Division 2.
7. Natural features assessment which includes a written description of the anticipated impacts on the natural features at each phase and at project completion that contains the following:
   a. An inventory of natural features proposed to be retained, removed, or modified. Natural features shall include, but are not limited to, wetlands, significant stands of trees or individual trees greater than 12 inches dbh, floodways, floodplains, waterbodies, identified groundwater vulnerable areas, slopes greater than 20 percent, ravines, and vegetative cover types with potential to sustain significant or endangered wildlife.
   b. Description of the impacts on natural features.
   c. Description of any proposed efforts to mitigate any negative impacts.

   The natural features assessment may be waived by the Director of Community Planning and Development in certain circumstances.

M. Any other information specified by the Director of Community Planning and Development which is deemed necessary to evaluate the application.

N. In addition to the above requirements, for zoning districts, **RD, RC, RCC, RN, and CV** and **Group Housing Residential Developments** the following is required:

1. Existing and proposed contours of the property at two foot intervals based on United States Geological Survey (USGS) data.
2. Preliminary engineering reports in accordance with the adopted Township water and sewer standards, together with a letter of review from the Township Engineer.
3. Ten copies of a report on the intent and scope of the project including, but not limited to: Number, size, volume, and dimensions of buildings; number and size of living units; basis of calculations of floor area and density and required parking; number, size, and type of parking spaces; architectural sketches of proposed buildings.
4. Seven copies of the project plans which the Township shall submit to local agencies for review and comments.

O. In addition to the above requirements, a special use application in zoning district **RP** requires the following material as part of the site plan:

1. A description of the operations proposed in sufficient detail to indicate the effects of those operations in producing traffic congestion, noise, glare, air pollution, water pollution, fire hazards or safety hazards or the emission of any potentially harmful or obnoxious matter or radiation.
2. Engineering and architectural plans for the treatment and disposal of sewerage and industrial waste tailings, or unusable by-products.
3. Engineering and architectural plans for the handling of any excessive traffic congestion, noise, glare, air pollution, or the emission of any potentially harmful or obnoxious matter or radiation.

P. In addition to the above requirements, a special use application for a use in the Floodway Fringe of zoning district **CV** requires the following:

1. A letter of approval from the State Department of Environmental Quality.
2. A location map including existing topographic data at two-foot interval contours at a scale of one inch representing 100 feet.
3. A map showing proposed grading and drainage plans including the location of all public drainage easements, the limits, extent, and elevations of the proposed fill, excavation, and occupation.
4. A statement from the County Drain Commissioner, County Health Department, and Director of Public Works and Engineering indicating that they have reviewed and approved the proposal.

Q. In addition to the above requirements, a special use application for a use in the Groundwater Recharge area or zoning district **CV** requires the following:

1. A location map including existing topographic data at two-foot interval contours.
2. A map showing proposed grading and drainage plans including the location of all public drainage easements, the limits and extent of the proposed fill, excavation, and occupation.
3. A statement from the County Drain Commissioner, County Health Department, and Director of Public Works and Engineering indicating that they have reviewed and approved the proposal.

R. In addition to the above requirements, the Township Code of Ordinances, Article VI, should be reviewed for the following special uses: group housing residential developments, mobile home parks, nonresidential structures and uses in residential districts, planned community and regional shopping center developments, sand or gravel pits and quarries, sod farms, junk yards, sewage treatment and disposal installations, camps and clubs for outdoor sports and buildings greater than 25,000 square feet in gross floor area.

Part II

SUP REQUEST STANDARDS
Township Code of Ordinances, Section 86-126

Applications for Special Land Uses will be reviewed with the standards stated below. An application that complies with the standards stated in the Township Ordinance, conditions imposed pursuant to the Ordinance, other applicable Ordinances, and State and Federal statutes will be approved. Your responses to the questions below will assist the Planning Commission in its review of your application.

(1) The project is consistent with the intent and purposes of this chapter.

(2) The project is consistent with applicable land use policies contained in the Township's Master Plan of current adoption.

(3) The project is designed, constructed, operated, and maintained so as to be harmonious and appropriate in appearance with the existing or intended character of the general vicinity and that such a use will not change the essential character of the same area.

(4) The project will not adversely affect or be hazardous to existing neighboring uses.

(5) The project will not be detrimental to the economic welfare of surrounding properties or the community.

(6) The project is adequately served by public facilities, such as existing roads, schools, stormwater drainage, public safety, public transportation, and public recreation, or that the persons or agencies responsible for the establishment of the proposed use shall be able to provide any such service.

(7) The project is adequately served by public sanitation facilities if so designed. If on-site sanitation facilities for sewage disposal, potable water supply, and storm water are proposed, they shall be properly designed and capable of handling the longterm needs of the proposed project.

(8) The project will not involve uses, activities, processes, materials, and equipment and conditions of operation that will be detrimental to any persons, property, or the general welfare by reason of excessive production of traffic, noise, smoke, fumes, glare, or odors.

(9) The project will not directly or indirectly have a substantial adverse impact on the natural resources of the Township, including, but not limited to, prime agricultural soils, water recharge areas, lakes, rivers, streams, major forests, wetlands, and wildlife areas.

Part III

I (we) hereby grant permission for members of the Charter Township of Meridian's Boards and/or Commissions, Township staff member(s) and the Township's representatives or experts the right to enter onto the above described property (or as described in the attached information) in my (our) absence for the purpose of gathering information including but not limited to the taking and the use of photographs.

☒ Yes ☐ No (Please check one)

By the signature(s) attached hereto, I (we) certify that the information provided within this application and accompanying documentation is, to the best of my (our) knowledge, true and accurate

Village of Okemos, LLC
Will Randle, authorized agent
Signature of Applicant

4/22/19
Date

Will Randle
Type/Print Name

Fee: $660

Received by/Date: Peter Menser 4.22.19

To: **Planning Commission**

From: **Peter Menser, Principal Planner**

Justin Quagliata, Assistant Planner

Date: **May 9, 2019**

Re: **<u>Special Use Permit #19081 (Delta Dental)</u>, work in the floodplain of the Smith Consolidated Drain to construct an approximately 4,300 square foot deck located at 4100 Okemos Road.**

Delta Dental has applied for a special use permit to work in the 100-year floodplain (floodway fringe) to construct an approximately 4,300 square foot deck over the Smith Consolidated Drain located at 4100 Okemos Road.

The 56.5 acre subject site is the world headquarters of Delta Dental insurance. Two office buildings totaling 273,750 square feet in size, a 20,100 square foot remote data center, and a 2,000 square foot maintenance garage are located on the property. Delta Dental received special use permit approval in 2008 (SUP #08-08041) for a group of buildings greater than 25,000 square feet in size. Site plan review approval was granted in 2008 (SPR #08-78-11-1 and SPR #08-78-11-2) to construct the remote data center at the east portion of the property, to construct the 91,775 square foot north office building, and to construct a 25,700 square foot addition to the south office building.

Delta Dental was granted wetland use permit approval from the Township Board in 2009 (WUP #09-01) to impact wetlands on the property. A half-acre of Wetland #28-6, which is contiguous to the Smith Drain, was reshaped through excavation and dredging to accommodate construction of a bridge, boardwalk, dock, and observation deck. Stormwater drainage was also directed to Wetland #28-6. A one acre mitigation wetland was created around the Smith Drain.

A 0.45 acre un-numbered wetland located north of the parking lot on the east side of the office buildings was filled to expand the parking lot. Additionally, the wetland use permit allowed stormwater drainage to be discharged to Wetland #28-4, which is located near the northeast corner of the site. A 0.30 acre mitigation wetland was created adjacent to the Wetland #28-4.

The proposed deck would be located adjacent to an existing patio off of the north building and would be cantilevered over the Smith Drain. The volume of the deck structure located in the floodplain is equivalent to placing fill material in the floodplain. Eleven deck piers (footings) totaling 11 cubic yards would be set in the floodplain. Eleven steel beams totaling approximately 0.5 cubic yard would be located partially in the floodplain. 30 cubic yards of riprap would be installed underneath the proposed deck.

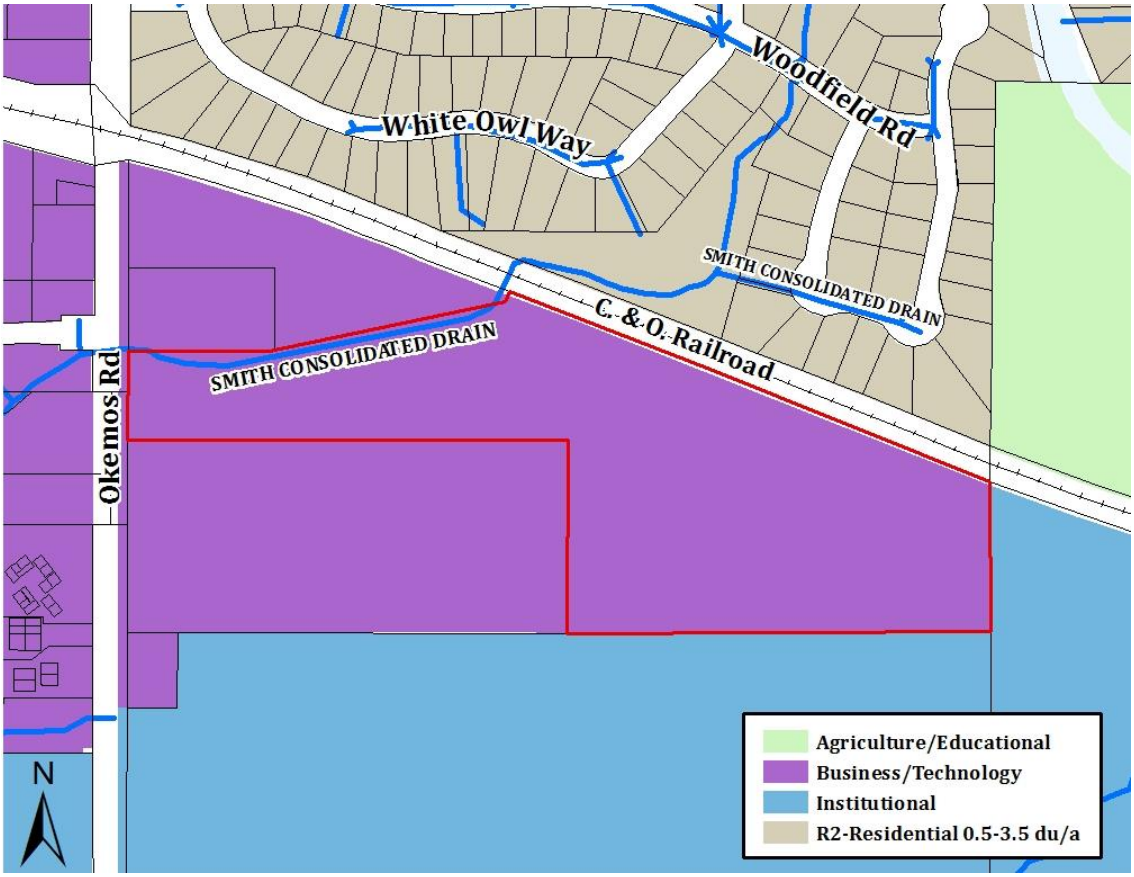
A total of 41.5 cubic yards of fill will be added to the floodway fringe. A compensating cut (excavation) in the floodway fringe equal to or greater than the amount of fill is required to compensate for the placement of fill in the floodway fringe. A total of 46 cubic yards is proposed to be cut from the floodway fringe to create clearance between the ground elevation and the deck structure; the project includes a net cut of 4.5 cubic yards from the floodway fringe.

LOCATION MAP

Master Plan

The Future Land Use Map from the 2017 Master Plan designates the subject site in the Business/Technology category.

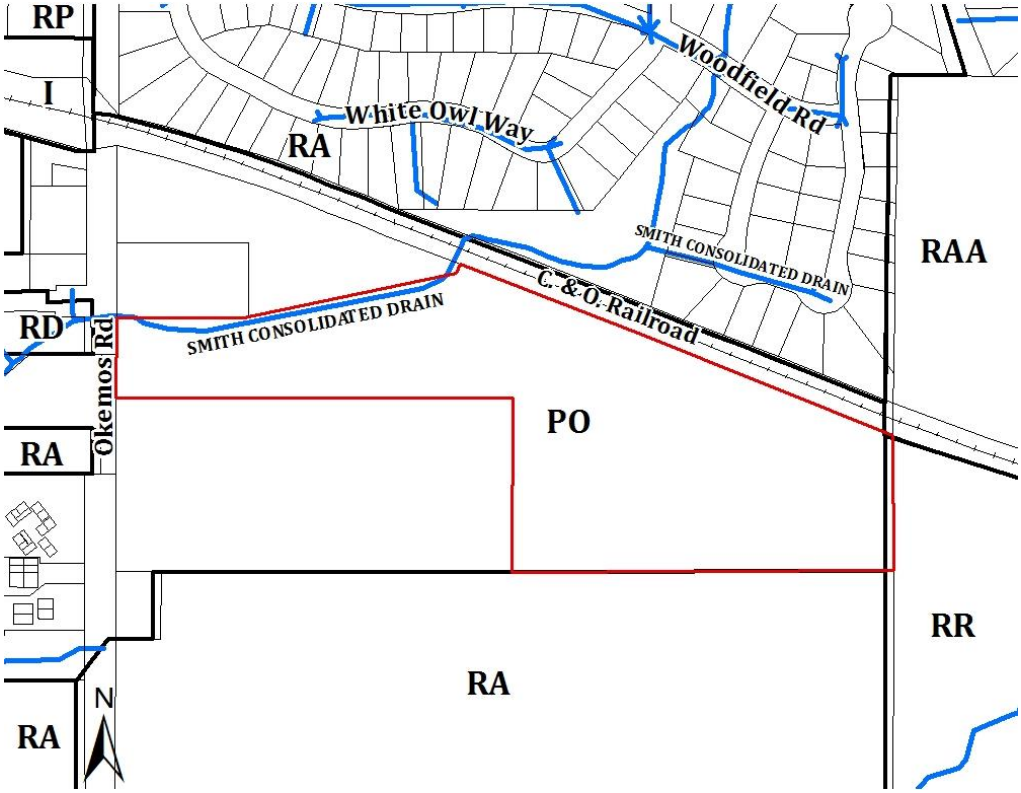
FUTURE LAND USE MAP



Zoning

The subject site is zoned PO (Professional and Office).

ZONING MAP



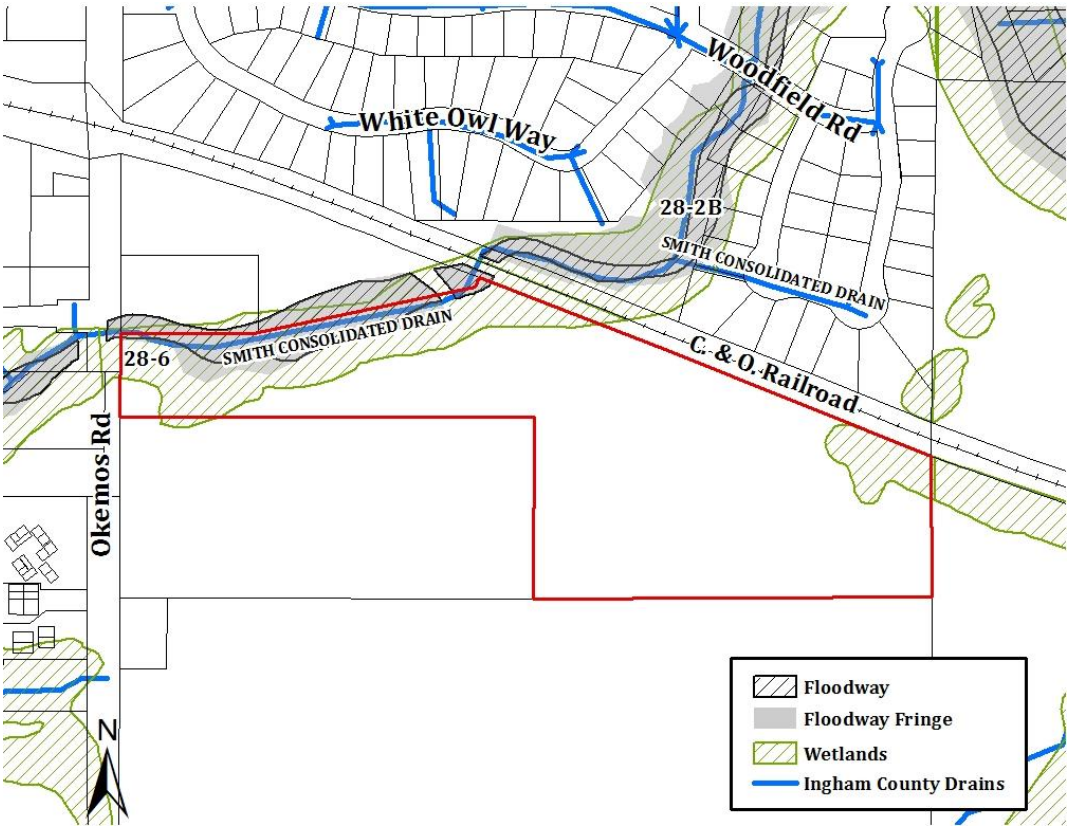
Physical Features

The site elevation slopes from approximately 857 feet above mean sea level at the north end of the existing patio to 837 feet above mean sea level near the center of the Smith Drain. The Smith Consolidated Drain, an open (unenclosed) county drain, flows from west to east at the project site. A 50 foot setback from open county drains is required and is measured from the top of the bank on the side of the drain where a structure would be located or where grading activity would occur. The submitted plans depict the deck and grading activity within the required 50 foot setback. The applicant has indicated it will seek a variance from the Zoning Board of Appeals to construct the deck within the drain setback.

Floodplain

The site is located within the 100-year floodplain of the Smith Consolidated Drain. The applicant proposes to fill 41.5 cubic yards in the floodway fringe to facilitate the project. A compensating cut (excavation) of 46 cubic yards is proposed in the floodway fringe. The elevation of the 100-year floodplain on the site is 856.8 feet above mean sea level. The deck is located outside the floodway. The Township Chief Engineer reviewed the project and recommended approval of the special use permit, with a condition requiring an elevation certificate from a licensed surveyor to confirm completion of the work as shown on the submitted plans.

FLOODPLAIN AND WETLAND MAP



Wetlands

The Township Wetland Map shows Wetland #28-6 located on the subject site. The wetland in this area is associated with the Smith Consolidated Drain. The wetland is regulated jointly by the Township and Michigan Department of Environment, Great Lakes, and Energy (EGLE). No part of the proposed deck would be located in the wetland, however the submitted plans depict the deck encroaching into the required 40 foot wetland setback. The applicant has indicated it will seek a variance from the Zoning Board of Appeals to construct the deck within the wetland setback.

Public Utilities and Storm Water Management

The Smith Consolidated Drain flows west to east through the project area. In addition to the required special use permit, the Michigan Department of Environment, Great Lakes, and Energy (EGLE) reviewed the proposed work in the floodplain and issued approval on April 22, 2019.

Staff Analysis

The applicant proposes to fill 41.5 cubic yards in the floodway fringe to install 11 deck piers (footings), 11 steel beams, and 30 cubic yards of riprap. The volume of the deck structure located in the floodplain is equivalent to placing fill material in the floodplain. Township regulations require a special use permit to fill within the 100-year floodplain. The special use permit criteria found in Section 86-126 of the Code of Ordinances should be used when evaluating the proposed special use permit. Section 86-436(n) of the Code of Ordinances provides additional standards for projects in the floodway fringe, which are as follows:

1. All new residential structures and residential structures requiring substantial improvement shall have the lowest floor, including basement, elevated to one foot above the level of the base flood elevation.

2. All new nonresidential structures and nonresidential structures requiring substantial improvements shall have the lowest floor, including basement, elevated to one foot above the level of the base flood elevation or shall be floodproofed to one foot above the level of the base flood elevation.

3. Excavation and shaping of the floodway fringe shall be conducted in such a manner as to maintain or improve the natural impoundment capacity of the base flood elevation. In no case shall the impoundment capacity of the floodway fringe be reduced.

As proposed, with net excavation of 4.5 cubic yards this project will improve the impoundment capacity of the floodway fringe. Additionally, the submitted plans show the deck floor will be elevated 1.38 feet above the base flood elevation.

Planning Commission Options

The Planning Commission may approve, approve with conditions, or deny the special use permit. A resolution will be provided at a future meeting.

Attachments

1. Special use permit application dated March 26, 2019 and received by the Township on March 26, 2019.
2. Letter from the applicant dated March 26, 2019 and received by the Township on March 26, 2019.
3. Michigan Department of Environment, Great Lakes, and Energy (EGLE) permit dated April 22, 2019 and received by the Township on April 26, 2019.
4. Deck plans prepared by Grissim Metz Andriese Associates dated April 18, 2019 and received by the Township on April 24, 2019.
5. Deck rendering dated March 26, 2019 and received by the Township on March 26, 2019.
6. Letter from Chief Engineer Younes Ishraidi dated May 7, 2019.

CHARTER TOWNSHIP OF MERIDIAN
DEPARTMENT OF COMMUNITY PLANNING AND DEVELOPMENT
5151 MARSH ROAD, OKEMOS, MI 48864
PLANNING DIVISION PHONE: (517) 853-4560, FAX: (517) 853-4095

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SPECIAL USE PERMIT APPLICATION

Before submitting this application for review, an applicant may meet with the Director of Community Planning and Development to discuss the requirements for a special use permit and/or submit a conceptual plan for review to have preliminary technical deficiencies addressed prior to submittal of the application. If the property or land use is located in the following zoning districts RD, RC, RCC, RN then the applicant must meet with the Planning Director to discuss technical difficulties before filing a formal application.

Part I

A. Applicant Delta Dental Plan of Michigan - Brian McCarthy bmccarthy@deltadentalmi.com
Address of Applicant 4100 Okemos Road
Telephone - Work 517-347-5234 Home _____ Fax _____ Email _____
Interest in property (circle one): [Owner] Tenant Option Other
(Please attach a list of all persons with an ownership interest in the property.)
bmccarthy@deltadentalmi.com

B. Site address / location / parcel number 4100 Okemos Road 28-400-011
Legal description (please attach if necessary) See drawing submittal for legal description (C101)
Current zoning PO - Professional Office
Use for which permit is requested / project name Delta Dental Headquarters - Deck and Pond Aerators
Corresponding ordinance number N/A

C. Developer (if different than applicant) The Christman Company - Chad Clark chad.clark@christmanco.com
Address 208 N. Capitol Ave Lansing, MI 48933
Telephone – Work 517-482-1488 Home _____ Fax _____

D. Architect, Engineer Planner or Surveyor responsible for design of project if different from applicant:
Name Grissim Metz Andriese - Andrew Parin andrewp@gma-la.com
Address 300 E Cady Street Northville, MI 48167
Telephone – Work 248-347-7010 Home _____ Fax 248-347-7005

E. Acreage of all parcels in the project: Gross _____ Net _____ 29.79 this parcel (.10 deck) No. 28-400-011
29.79 this parcel (.15 pond aerators) No. 28-400-011

F. Explain the project and development phases: Elevated deck over the floodplain with concrete structure in the floodplain. 109 CY of cut within floodplain. All work completed in 1 phase. (7) Pond aerator fountains completed in the same phase.

G. Total number of: (1) Deck, (7) Aerators
Existing: structures_____ bedrooms____ offices____ parking spaces____ carports ___ garages_____
Proposed: structures____ bedrooms____ offices____ parking spaces____ carports ___ garages_____

H. Square footage: existing buildings____ proposed buildings___ Deck = 4,220 SF = .10 AC
Usable Floor area: existing buildings____ proposed buildings___ Aerators = 6,356 SF = .15 AC (limit of spray)

I. If employees will work on the site, state the number of full time and part time employees working per shift and hours of operation: N/A

J. Existing Recreation: Type N/A Acreage _____
Proposed Recreation: Type _____ Acreage _____
Existing Open Space: Type _____ Acreage _____
Proposed Open Space: Type _____ Acreage _____

K. If Multiple Housing: N/A

Total acres of property _____

Acres in floodplain _____ Percent of total _____

Acres in wetland (not in floodplain) _____ Percent of total _____

Total dwelling units _____

Dwelling unit mix:

Number of single family detached:	for Rent _____	Condo _____
Number of duplexes:	for Rent _____	Condo _____
Number of townhouses:	for Rent _____	Condo _____
Number of garden style apartments:	for Rent _____	Condo _____
Number of other dwellings:	for Rent _____	Condo _____

L. The following support materials must be submitted with the application:

1. Nonrefundable Fee.
2. Legal Description of the property.
3. Evidence of fee or other ownership of the property.
4. Site Plan containing the information listed in the attachment to this application.
5. Architectural sketches showing all sides and elevations of the proposed buildings or structures, including the project entrance, as they will appear upon completion. The sketches should be accompanied by material samples or a display board of the proposed exterior materials and colors.

N/A 6. A Traffic Study, prepared by a qualified traffic engineer, based on the most current edition of *Evaluating Traffic Impact Studies: A Recommended Practice for Michigan Communities*, published by the State Department of Transportation.

a. A traffic assessment will be required for the following:
   1) New special uses which could, or expansion or change of an existing special use where increase in intensity would, generate between 50 to 99 directional trips during a peak hour of traffic.
   2) All other special uses requiring a traffic assessment as specified in the Township Code of Ordinances, Chapter 86, Article IV, Division 2.

b. A traffic impact study will be required for the following:
   1) New special uses which would, or expansion or change of an existing special use where increase in intensity would, generate over 100 directional trips or more during a peak hour of traffic, or over 750 trips on an average day.
   2) All other special uses requiring a traffic assessment as specified in the Township Code of Ordinances, Chapter 86, Article IV, Division 2.

See cover letter 7. Natural features assessment which includes a written description of the anticipated impacts on the natural features at each phase and at project completion that contains the following:

a. An inventory of natural features proposed to be retained, removed, or modified. Natural features shall include, but are not limited to, wetlands, significant stands of trees or individual trees greater than 12 inches dbh, floodways, floodplains, waterbodies, identified groundwater vulnerable areas, slopes greater than 20 percent, ravines, and vegetative cover types with potential to sustain significant or endangered wildlife.

b. Description of the impacts on natural features.

c. Description of any proposed efforts to mitigate any negative impacts.

The natural features assessment may be waived by the Director of Community Planning and Development in certain circumstances.

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N/A M. Any other information specified by the Director of Community Planning and Development which is deemed necessary to evaluate the application.

N/A N. In addition to the above requirements, for zoning districts, **RD, RC, RCC, RN, and CV** and **Group Housing Residential Developments** the following is required:

1. Existing and proposed contours of the property at two foot intervals based on United States Geological Survey (USGS) data.
2. Preliminary engineering reports in accordance with the adopted Township water and sewer standards, together with a letter of review from the Township Engineer.
3. Ten copies of a report on the intent and scope of the project including, but not limited to: Number, size, volume, and dimensions of buildings; number and size of living units; basis of calculations of floor area and density and required parking; number, size, and type of parking spaces; architectural sketches of proposed buildings.
4. Seven copies of the project plans which the Township shall submit to local agencies for review and comments.

N/A O. In addition to the above requirements, a special use application in zoning district **RP** requires the following material as part of the site plan:

1. A description of the operations proposed in sufficient detail to indicate the effects of those operations in producing traffic congestion, noise, glare, air pollution, water pollution, fire hazards or safety hazards or the emission of any potentially harmful or obnoxious matter or radiation.
2. Engineering and architectural plans for the treatment and disposal of sewerage and industrial waste tailings, or unusable by-products.
3. Engineering and architectural plans for the handling of any excessive traffic congestion, noise, glare, air pollution, or the emission of any potentially harmful or obnoxious matter or radiation.

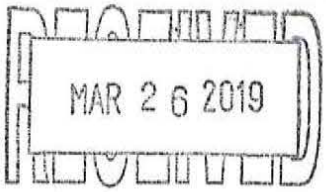
N/A P. In addition to the above requirements, a special use application for a use in the Floodway Fringe of zoning district **CV** requires the following:

1. A letter of approval from the State Department of Environmental Quality.
2. A location map including existing topographic data at two-foot interval contours at a scale of one inch representing 100 feet.
3. A map showing proposed grading and drainage plans including the location of all public drainage easements, the limits, extent, and elevations of the proposed fill, excavation, and occupation.
4. A statement from the County Drain Commissioner, County Health Department, and Director of Public Works and Engineering indicating that they have reviewed and approved the proposal.

N/A Q. In addition to the above requirements, a special use application for a use in the Groundwater Recharge area or zoning district **CV** requires the following:

1. A location map including existing topographic data at two-foot interval contours.
2. A map showing proposed grading and drainage plans including the location of all public drainage easements, the limits and extent of the proposed fill, excavation, and occupation.
3. A statement from the County Drain Commissioner, County Health Department, and Director of Public Works and Engineering indicating that they have reviewed and approved the proposal.

N/A R. In addition to the above requirements, the Township Code of Ordinances, Article VI, should be reviewed for the following special uses: group housing residential developments, mobile home parks, nonresidential structures and uses in residential districts, planned community and regional shopping center developments, sand or gravel pits and quarries, sod farms, junk yards, sewage treatment and disposal installations, camps and clubs for outdoor sports and buildings greater than 25,000 square feet in gross floor area.



Part II

SUP REQUEST STANDARDS
Township Code of Ordinances, Section 86-126

Applications for Special Land Uses will be reviewed with the standards stated below. An application that complies with the standards stated in the Township Ordinance, conditions imposed pursuant to the Ordinance, other applicable Ordinances, and State and Federal statutes will be approved. Your responses to the questions below will assist the Planning Commission in its review of your application.

(1) The project is consistent with the intent and purposes of this chapter.

(2) The project is consistent with applicable land use policies contained in the Township's Master Plan of current adoption.

(3) The project is designed, constructed, operated, and maintained so as to be harmonious and appropriate in appearance with the existing or intended character of the general vicinity and that such a use will not change the essential character of the same area.

(4) The project will not adversely affect or be hazardous to existing neighboring uses.

(5) The project will not be detrimental to the economic welfare of surrounding properties or the community.

(6) The project is adequately served by public facilities, such as existing roads, schools, stormwater drainage, public safety, public transportation, and public recreation, or that the persons or agencies responsible for the establishment of the proposed use shall be able to provide any such service.

(7) The project is adequately served by public sanitation facilities if so designed. If on-site sanitation facilities for sewage disposal, potable water supply, and storm water are proposed, they shall be properly designed and capable of handling the longterm needs of the proposed project.

(8) The project will not involve uses, activities, processes, materials, and equipment and conditions of operation that will be detrimental to any persons, property, or the general welfare by reason of excessive production of traffic, noise, smoke, fumes, glare, or odors.

(9) The project will not directly or indirectly have a substantial adverse impact on the natural resources of the Township, including, but not limited to, prime agricultural soils, water recharge areas, lakes, rivers, streams, major forests, wetlands, and wildlife areas.

Part III

I (we) hereby grant permission for members of the Charter Township of Meridian's Boards and/or Commissions, Township staff member(s) and the Township's representatives or experts the right to enter onto the above described property (or as described in the attached information) in my (our) absence for the purpose of gathering information including but not limited to the taking and the use of photographs.

☒ Yes ☐ No (Please check one)

By the signature(s) attached hereto, I (we) certify that the information provided within this application and accompanying documentation is, to the best of my (our) knowledge, true and accurate

B. McCarthy
Signature of Applicant

3/26/19
Date

Brian McCarthy
Type/Print Name

Fee: $500.00

Received by/Date: Justin Quagliata

See cover letter for applicable responses to items 3, 8 and 9.

MAR 26 2019

Landscape Architecture Civil Engineering
300 East Cady St. Northville, MI 48167
248. 347. 7010 FAX 248. 347. 7005

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METZ ASSOCIATES
ANDRIESE

MEMO
March 26, 2019

TO: Mark Kieselbach
Community Planning & Development Director
Meridian Charter Township
5151 Marsh Road
Okemos, MI 48864

FROM: Andrew Parin, Senior Associate

RE: Delta Dental Headquarters – Deck and Pond Aerator Fountains - Special Use Permit Cover Letter

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Dear Mark,

I am providing this letter as supplemental information to our special use permit application for the deck and pond aerator fountains at Delta Dental's Headquarters. The application identifies numerous questions that the applicant shall respond to. Based on my conversation with Assistant Planner Justin Quagliata, the following are items applicable to our deck and pond aerator fountain submittal.

1. Part 1, L5: A 3D colored view of the deck has been provided for graphical clarification of what the proposed deck will look like. Cut sheets for the fountains have also been provided showing what the spray pattern will look like.

2. Part 1, L7: The area which the deck will be built within is currently seeded with a wildflower mix approved by the Township as part of a previous development. There are a couple small ornamental trees in poor health within this area which would be removed. Impacts to the pond slope and the seeded area will be minimal. Approximately 109CY of cut will take place as shown on the provided grading plans. This is required to install the deck structure along the new paver patio. The area directly under the deck which will not receive adequate sunlight to grow plant material will be treated with a weed barrier and maintenance stone. All other areas below and surrounding the deck will have grading restored to pre-construction conditions and will be seeded with the same seed mix previously approved as part of the last site development in an effort to blend the new construction into the existing wetland landscape. The pond aerator fountains are actually considered beneficial for the pond's eco system. Several known benefits of pond aeration include but are not limited to improved water quality, reduced algae, removal of phosphorus and bacteria, lessening of mosquitos, oxygenation of the water and removal of foul odors.

3. Part 2, Item 3: The deck and pond aerators have been designed to be integrated into the existing wetland environment which exists today. Every effort has been made to limit the amount of grading and disturbance within the floodplain which is evidenced in the pier design of the deck which limits the amount of grading required. The deck materials have

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been selected to match the character of the naturalize environment and building materials surrounding this area.

4. Part 2, Item 8: The materials of the deck and pond aerators are not detrimental to either the natural environment or the users of these features.

5. Part 2, Item 9: The addition of the deck and pond aerators will not have a direct or indirect impact on Township resources due to their passive nature.

In conclusion, while the proposed deck is within the floodplain and wetland setback we believe we have made a great effort to design the structure so there is minimal disturbance to this area. We hope that you will see this addition to the property as a beneficial one that allows users to better connect with the natural environment already present and that this request will meet with your approval.

If you have any questions or need further information, please don't hesitate to contact me.

Sincerely,

Andrew Parin
Senior Associate

/ATP

Enc.

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NOTICE OF AUTHORIZATION

Permit Number: WRP016046 v. 1
Site Name: 33-4100 Okemos Road-Okemos

Date Issued: April 22, 2019
Expiration Date: April 22, 2024

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division, P.O. Box 30458, Lansing, Michigan 48909-7958, under provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; specifically:

☒ Part 31, Floodplain Regulatory Authority of the Water Resources Protection.

☐ Part 301, Inland Lakes and Streams.

Authorized activity:

Construct an approximately 4,300 square foot deck associated with an existing Delta Dental office building. The impacts to the 100-year floodplain of Smith Drain include: The construction of 11 deck footings/piers totaling approximately 11 cubic yards above the existing grade; the installation of steel deck beams partially within floodplain totaling approximately 0.5 cubic yards; the excavation of approximately 46 cubic yards of soil underneath the proposed deck to create clearance between the ground elevation and the deck structure; and the installation of approximately 30 cubic yards of riprap on-grade underneath the proposed deck.

No activities are proposed within floodway or wetlands. The project will involve a net cut of approximately 4.5 cubic yards from the floodplain.

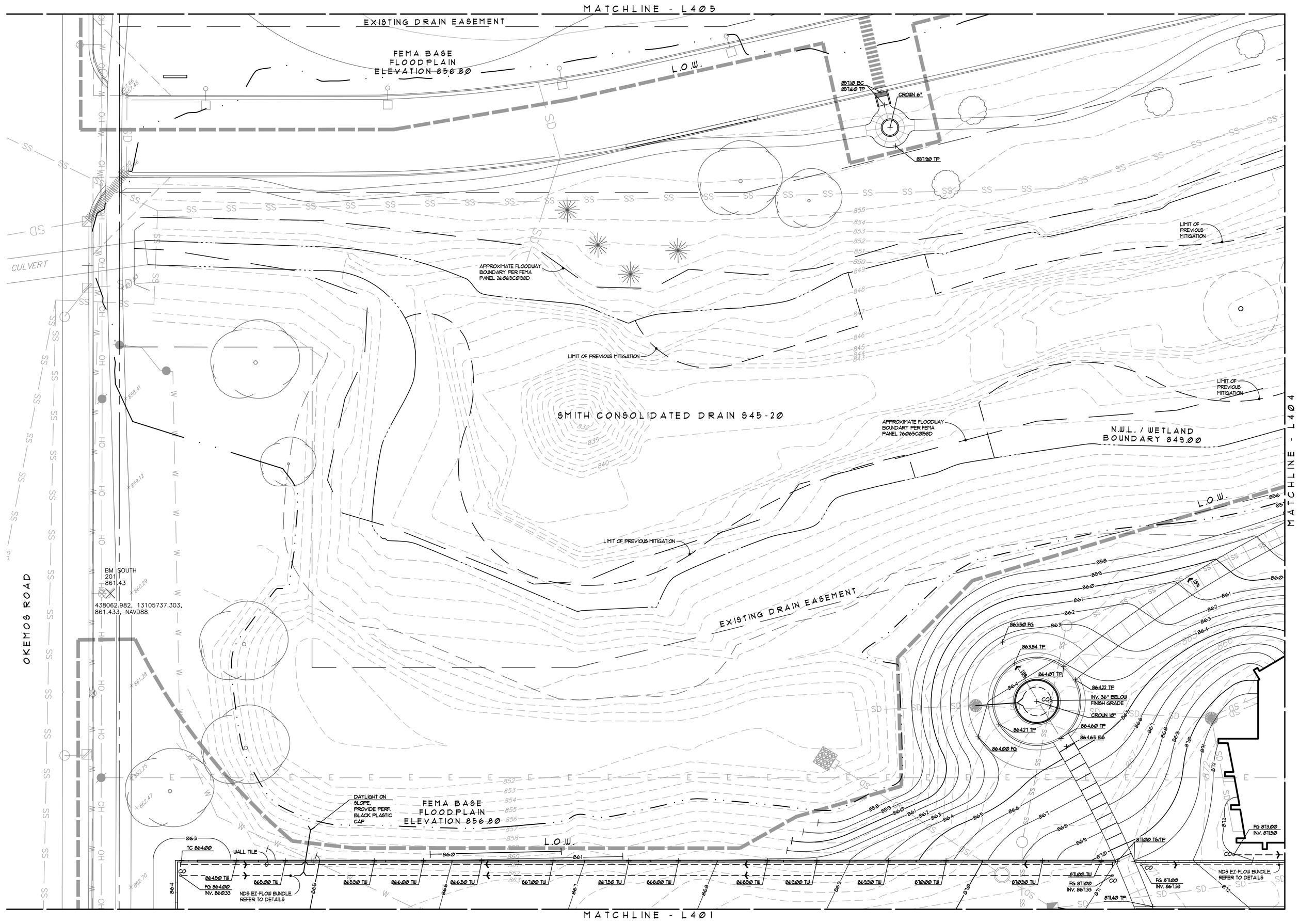
To be conducted at property located in: Ingham County, Waterbody: Smith Drain
Section 28, Town 04N, Range 01W, Meridian Township

Permittee:
Delta Dental Plan of Michigan
Attention: Mr. Brian McCarthy
4100 Okemos Road
Okemos, Michigan 48864

Donna Cervelli
Lansing District Office
Water Resources Division

This notice must be displayed at the site of work.
Laminating this notice or utilizing sheet protectors is recommended.
Please refer to the above permit number with any questions or concerns.

DEQ-WRD
WRP016046 v1.0
Approved
Issued On:04/22/2019
Expires On:04/22/2024



Legend

870	EXISTING CONTOUR
870	PROPOSED CONTOUR
	LIMIT OF WORK LINE
	DRAINAGE ZONES, TYP.
15%	FLOW ARROW, TYP.
	SWALE ARROW, TYP.
	EXISTING TREE TO REMAIN
872.24 / 872.00	EXISTING SPOT ELEVATION
870.50	PROPOSED SPOT GRADE
HP	HIGH POINT
TC	TOP OF CURB
BC	BOTTOM OF CURB
TP	TOP OF PAVEMENT
TW	TOP OF WALL
BW	BOTTOM OF WALL
(ME)	MATCH EXISTING GRADE
FG	FINISHED GRADE
G	GUTTER
FFE	FINISHED FLOOR ELEVATION
TS	TOP OF STAIR
BS	BOTTOM OF STAIR
DIRECTION OF FLOW	4" DIA. PERF. OR SOLID DRAIN PIPE, SLOPE AS SHOWN ON PLAN, CLEAN OUTS IN LANDSCAPED AREAS TO BE 4" DIA. PVC RISER PIPE FLUSH TO GRADE WITH BLACK PLASTIC CAP, CLEAN OUTS IN PAVED AREAS TO BE 4" PVC RISER PIPE WITH ZURN CLEAN OUT MODEL ZA200-4-NL CUT PAVERS AND PROVIDE TYPICAL SAND JOINT AROUND CLEANOUTS
C.O. (CLEAN OUT)	
TRANSITION FROM PERFORATED DRAIN TILE SOLID DRAIN PIPE	

Notice to Contractor:

THE CONTRACTOR IS RESPONSIBLE TO IMMEDIATELY NOTIFY THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES FOUND BETWEEN DESIGNED ELEVATIONS, INVERTS, AND AS-BUILT FIELD CONDITIONS.

General Grading and Earthwork Notes:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT

1. MATCH PROPOSED GRADES TO EXISTING GRADES AT THE LIMIT OF WORK, AS INDICATED AT EACH PROPOSED CONTOUR, AND AS INDICATED SPECIFICALLY ON THE PLAN.
2. THE STAGING OF CONSTRUCTION ACTIVITIES SHALL OCCUR ONLY WITHIN THE SITE BOUNDARIES. ANY CONSTRUCTION ACTIVITIES OUTSIDE OF THE SITE BOUNDARIES SHALL BE AT THE SOLE RESPONSIBILITY AND RISK OF THE CONTRACTOR.
3. ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL MEET THE REQUIREMENTS OF MERIDIAN CHARTER TOWNSHIP AND INGHAM COUNTY.
4. ALL EARTHWORK AND GRADING OPERATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE SOILS INVESTIGATION REPORT, UNLESS OTHERWISE NOTED ON THESE PLANS.
5. REFER TO SESC PLANS FOR ALL SOIL EROSION AND SEDIMENTATION CONTROL (SESC) MEASURES AND NOTES.
6. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SODDED IN ACCORDANCE WITH THE LANDSCAPE PLANS.
7. THE CONTRACTOR SHALL NOTE EXISTING UNDERGROUND UTILITIES WITHIN AND ADJACENT TO THE SITE. BACKFILL FOR EXISTING UTILITY TRENCHES SHALL BE EXAMINED CRITICALLY. ANY TRENCHES FOUND TO HAVE SOFT, UNSTABLE OR UNSUITABLE BACKFILL MATERIAL IN THE OPINION OF THE GEO-TECHNICAL ENGINEER, THAT ARE TO BE WITHIN THE ZONE OF INFLUENCE OF PROPOSED PAVEMENT SHALL BE COMPLETELY EXCAVATED AND BACKFILLED WITH SUITABLE MATERIAL.
8. SOILS EXCAVATED FROM ON SITE SHALL BE USED TO CREATE BERMS IN THE NORTH PARK AREA.

Permit Note:

THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FROM THE APPLICABLE AGENCIES PRIOR TO THE ONSET OF CONSTRUCTION.

Earthwork Balancing Note:

THIS IS NOT A BALANCED GRADING PLAN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING OR EXPORTING ALL MATERIALS AS REQUIRED TO PROPERLY GRADE THIS PROJECT TO THE FINISHED ELEVATIONS SHOWN ON THE APPROVED PLANS. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF CUT AND FILL QUANTITIES AND ALLOW FOR REMOVAL OF EXCESS OR IMPORTATION OF ADDITIONAL MATERIAL AT NO ADDITIONAL COST TO THE OWNER.

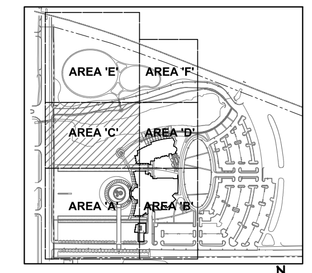
Note Key:

1. LANDSCAPE CATCH BASIN AT ROOF OVERFLOW - REFER TO DETAIL 12, L401

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

0' 10' 20' 40'
SCALE: 1"=20'

NORTH



Key Map
Scale: Not to Scale

IRRIGATION DESIGN PROVIDED BY:
GRABER & ASSOCIATES LLC
COMMERCIAL IRRIGATION DESIGN
29218 COTTON ROAD
CHESTERFIELD, MI 48047
PH (586) 615-4893
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DELTA DENTAL

Project:
Delta Dental Headquarters
Meridian Township, Michigan

Sheet:
Area 'C'
Grading and Drainage Plan

Job Number:	D05-181
Drawn By:	ATP/SAE
Checked By:	ATP/RKM
Scale:	As Shown

Date:	Issued For:
2019-02-11	90% Design Development
2019-02-18	100% Design Development
2019-03-01	SPA Submittal
2019-03-08	Bids
2019-04-18	Per Twp Deck Comments

Sheet Number: L403

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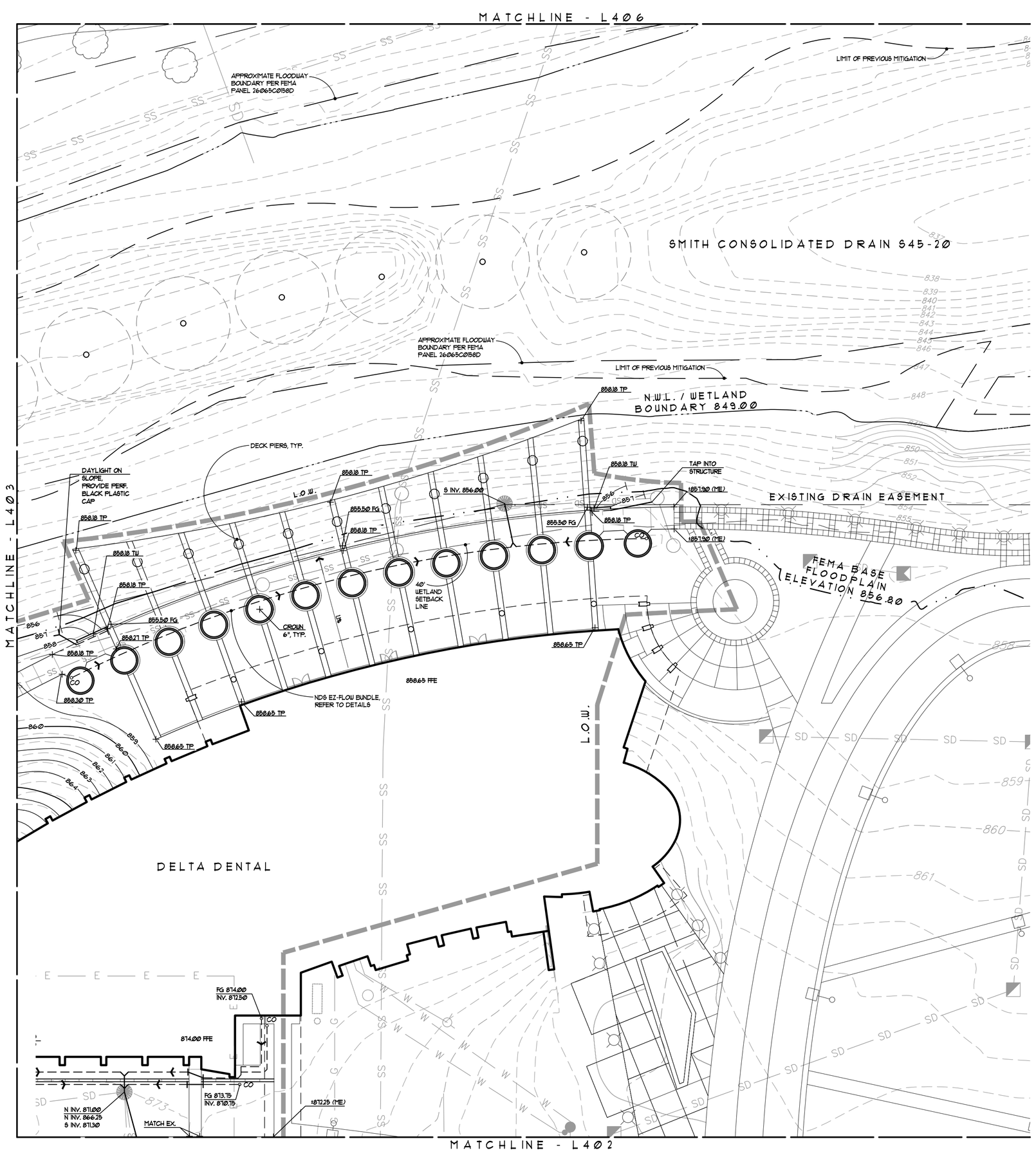

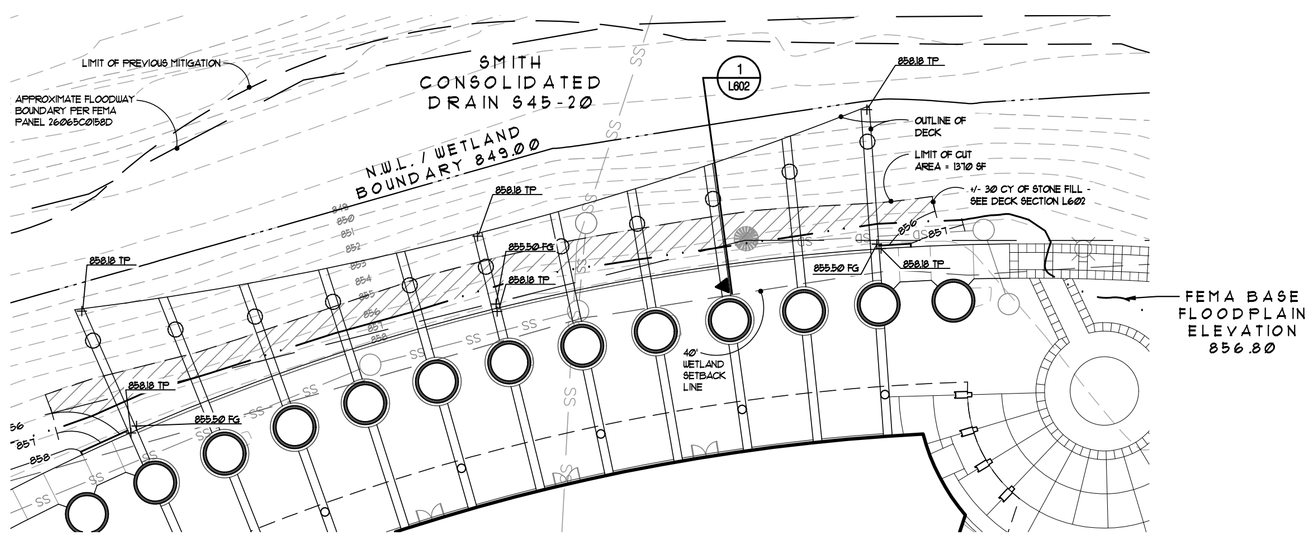

1 - Floodplain Soil Cut Analysis Plan
SCALE: 1" = 20'-0"

MDEQ Permit Application
Delta Dental
rev. April 18, 2019

Floodplain Fill Calculations

Deck Piers

Cross sectional area	9.6	square feet
Average height above grade	2	feet
Cubic Feet per Pier	19.2	
Cubic Yards per Pier	1	
Number of Piers	11	
Cubic Yards (approx.)	**11**	

Deck Steel Beam Structure

Cross sectional area of beam	7.5	square inches
Cross sectional area of beam	0.052	square feet
Average length within floodplain	25	feet
Cubic Feet per beam	1.3	
Cubic Yards per beam	0.05	
Number of beams	11	
Cubic Yards (approx.)	**0.5**	

Riprap

Area of placement	1370	square feet
Depth of rock	0.33	feet
Cubic Feet	778	
Cubic Yards (approx.)	**30**	

Floodplain Cut Calculations

Area of excavation	1370	square feet
Average Depth of excavation	0.9	feet
Cubic Feet	1233	
Cubic Yards (approx.)	**46**	

Legend

870	EXISTING CONTOUR
870	PROPOSED CONTOUR
	LIMIT OF WORK LINE
	DRAINAGE ZONES, TYP.
15%	FLOW ARROW, TYP.
	SWALE ARROW, TYP.
	EXISTING TREE TO REMAIN
872.24 / 872.00	EXISTING SPOT ELEVATION
870.50	PROPOSED SPOT GRADE
HP	HIGH POINT
TC	TOP OF CURB
BC	BOTTOM OF CURB
TP	TOP OF PAVEMENT
TW	TOP OF WALL
BW	BOTTOM OF WALL
(ME)	MATCH EXISTING GRADE
FG	FINISHED GRADE
G	GUTTER
FFE	FINISHED FLOOR ELEVATION
TS	TOP OF STAIR
BS	BOTTOM OF STAIR
DIRECTION OF FLOW	4" DIA PERF. OR SOLID DRAIN PIPE, SLOPE AS SHOWN ON PLAN, CLEAN OUTS IN LANDSCAPED AREAS TO BE 4" DIA PVC RISER PIPE FLUSH TO GRADE WITH BLACK PLASTIC CAP, CLEAN OUTS IN PAVED AREAS TO BE 4" PVC RISER PIPE WITH ZURN CLEAN OUT MODEL ZA400-4-NL CUT PAVERS AND PROVIDE TYPICAL SAND JOINT AROUND CLEANOUTS
C.O. (CLEAN OUT)	
TRANSITION FROM PERFORATED DRAIN TILE TO SOLID DRAIN PIPE	

Notice to Contractor:

THE CONTRACTOR IS RESPONSIBLE TO IMMEDIATELY NOTIFY THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES FOUND BETWEEN DESIGNED ELEVATIONS, INVERTS, AND AS-BUILT FIELD CONDITIONS.

General Grading and Earthwork Notes:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT

1. MATCH PROPOSED GRADES TO EXISTING GRADES AT THE LIMIT OF WORK, AS INDICATED AT EACH PROPOSED CONTOUR, AND AS INDICATED SPECIFICALLY ON THE PLAN.
2. THE STAGING OF CONSTRUCTION ACTIVITIES SHALL OCCUR ONLY WITHIN THE SITE BOUNDARIES. ANY CONSTRUCTION ACTIVITIES OUTSIDE OF THE SITE BOUNDARIES SHALL BE AT THE SOLE RESPONSIBILITY AND RISK OF THE CONTRACTOR.
3. ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL MEET THE REQUIREMENTS OF MERIDIAN CHARTER TOWNSHIP AND INGHAM COUNTY.
4. ALL EARTHWORK AND GRADING OPERATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE SOILS INVESTIGATION REPORT, UNLESS OTHERWISE NOTED ON THESE PLANS.
5. REFER TO SESC PLANS FOR ALL SOIL EROSION AND SEDIMENTATION CONTROL (SESC) MEASURES AND NOTES.
6. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SODDED IN ACCORDANCE WITH THE LANDSCAPE PLANS.
7. THE CONTRACTOR SHALL NOTE EXISTING UNDERGROUND UTILITIES WITHIN AND ADJACENT TO THE SITE. BACKFILL FOR EXISTING UTILITY TRENCHES SHALL BE EXAMINED CRITICALLY. ANY TRENCHES FOUND TO HAVE SOFT, UNSTABLE OR UNSUITABLE BACKFILL MATERIAL, IN THE OPINION OF THE GEO-TECHNICAL ENGINEER, THAT ARE TO BE WITHIN THE ZONE OF INFLUENCE OF PROPOSED PAVEMENT SHALL BE COMPLETELY EXCAVATED AND BACKFILLED WITH SUITABLE MATERIAL.
8. SOILS EXCAVATED FROM ON SITE SHALL BE USED TO CREATE BERMS IN THE NORTH PARK AREA.

Permit Note:

THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FROM THE APPLICABLE AGENCIES PRIOR TO THE ONSET OF CONSTRUCTION.

Earthwork Balancing Note:

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Note Key:

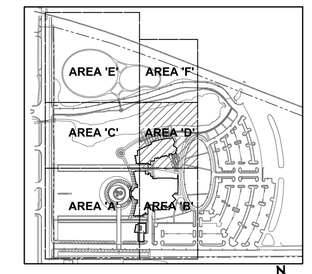
1. LANDSCAPE CATCH BASIN AT ROOF OVERFLOW - REFER TO DETAIL 2, L501

STATE OF MICHIGAN — RANDALL K. METZ — LANDSCAPE ARCHITECT — No. 946 — REGISTERED LANDSCAPE ARCHITECT

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

0' 10' 20' 40'
SCALE: 1"=20'

NORTH



Key Map
Scale: Not to Scale

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DELTA DENTAL

Project:
Delta Dental Headquarters
Meridian Township, Michigan

Sheet:
Area 'D'
Grading and Drainage Plan

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Drawn By:	ATP/SAE
Checked By:	ATP/RKM
Scale:	As Shown

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2019-02-18	100% Design Development
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2019-03-08	Bids
2019-03-15	Addendum 2
2019-03-18	Deck Approval (Void)
2019-03-26	Deck Approval
2019-04-04	DEQ Permit Submittal
2019-04-18	Per Twp Deck Comments

Sheet Number:
L404A

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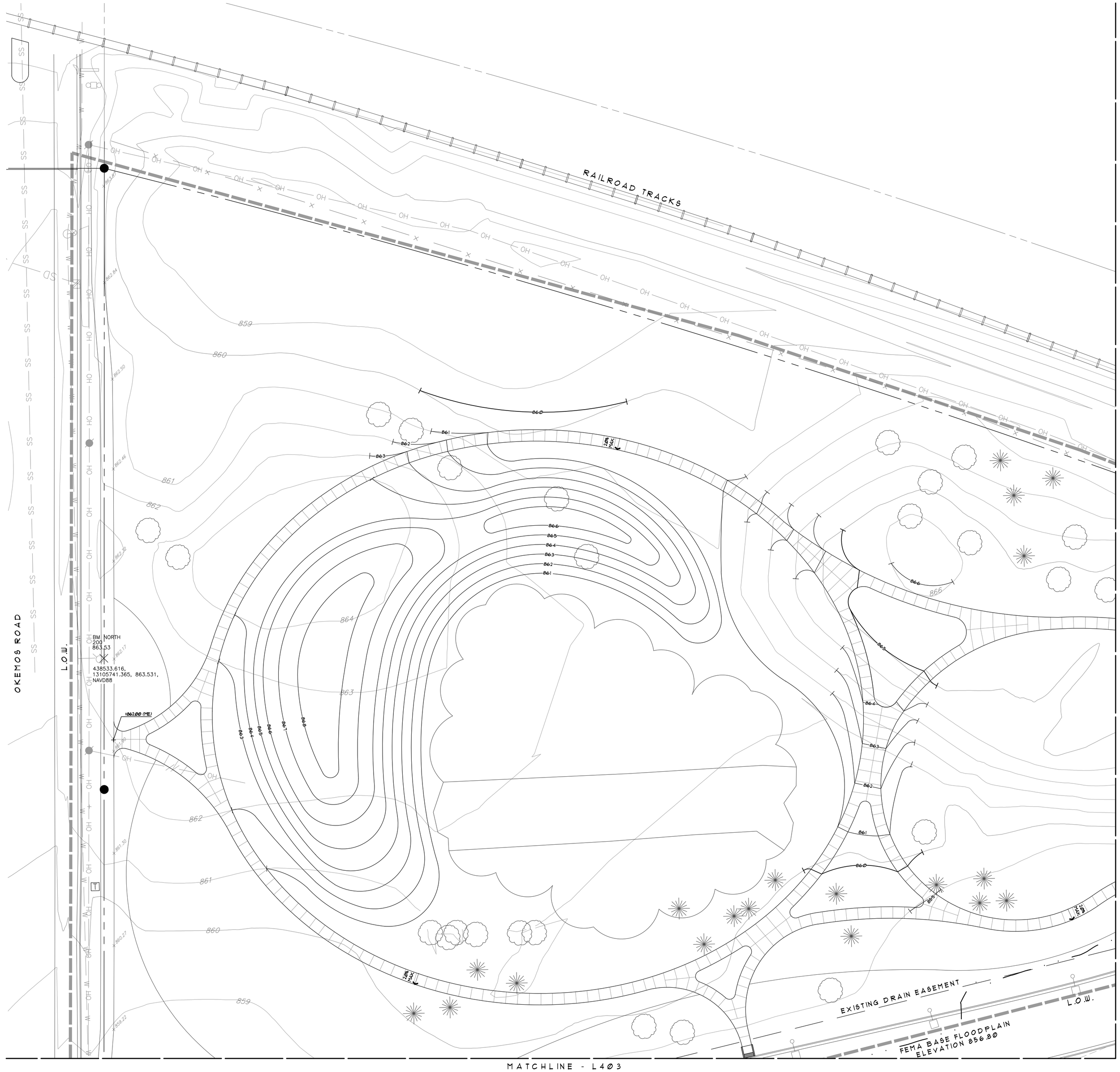

Legend

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- PROPOSED CONTOUR
- LIMIT OF WORK LINE
- DRAINAGE ZONES, TYP.
- FLOW ARROW, TYP.
- SWALE ARROW, TYP.
- EXISTING TREE TO REMAIN
- EXISTING SPOT ELEVATION
- PROPOSED SPOT GRADE

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TC	TOP OF CURB
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DIRECTION OF FLOW
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TRANSITION FROM PERFORATED DRAIN TILE TO SOLID DRAIN PIPE

4" DIA PERF. OR SOLID DRAIN PIPE, SLOPE AS SHOWN ON PLAN, CLEAN OUTS IN LANDSCAPED AREAS TO BE 4" DIA PVC RISER PIPE FLUSH TO GRADE WITH BLACK PLASTIC CAP, CLEAN OUTS IN PAVED AREAS TO BE 4" PVC RISER PIPE WITH ZURN CLEAN OUT MODEL ZA000-4-NL CUT PAVERS AND PROVIDE TYPICAL SAND JOINT AROUND CLEANOUTS

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Note Key:

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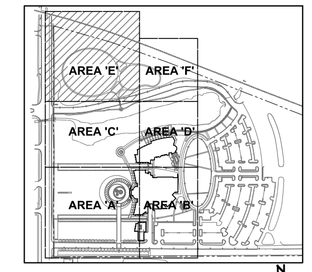
NORTH



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DELTA DENTAL

Project:
Delta Dental Headquarters
Meridian Township, Michigan

Sheet:
Area 'E'
Grading and Drainage Plan

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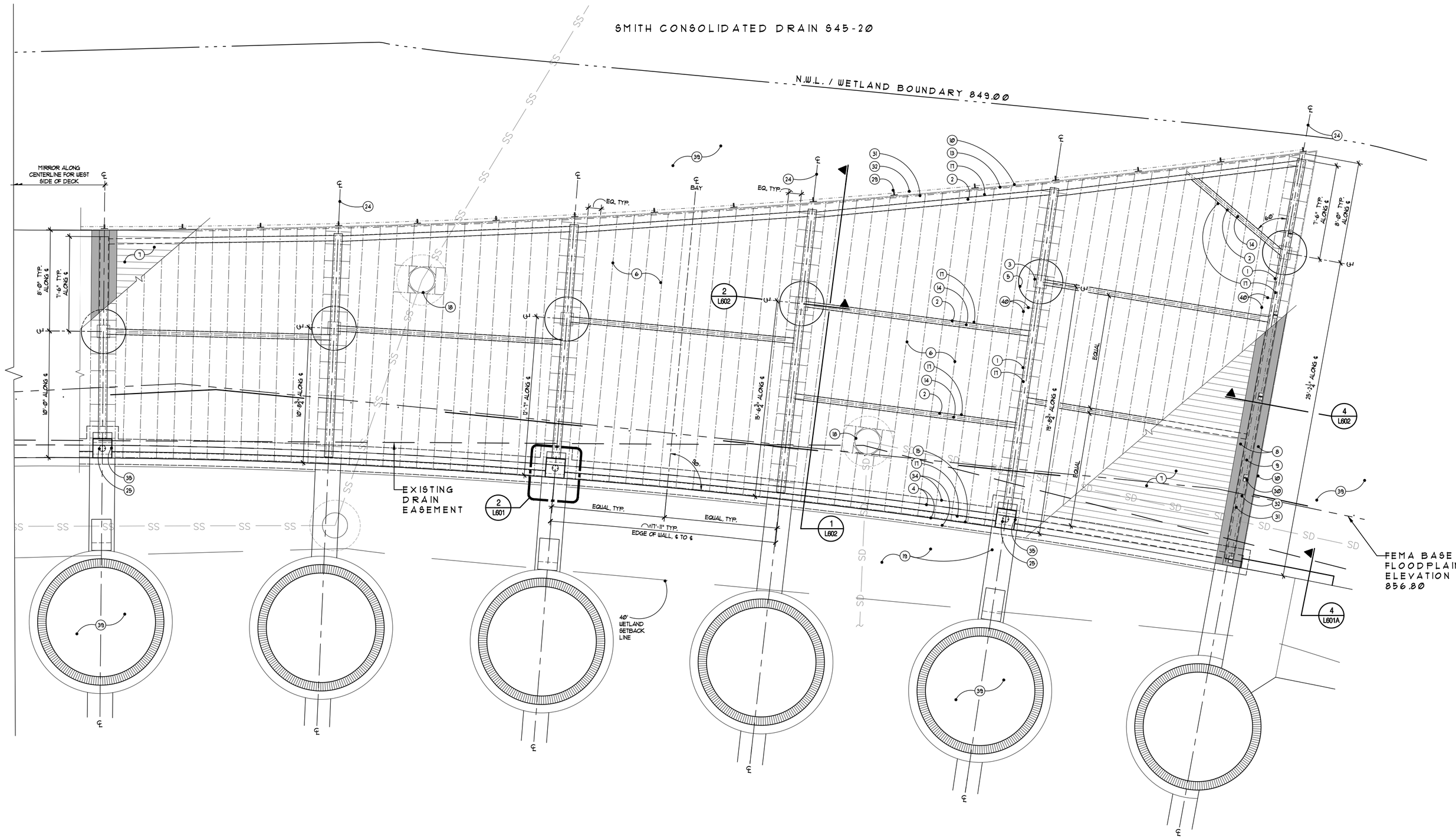
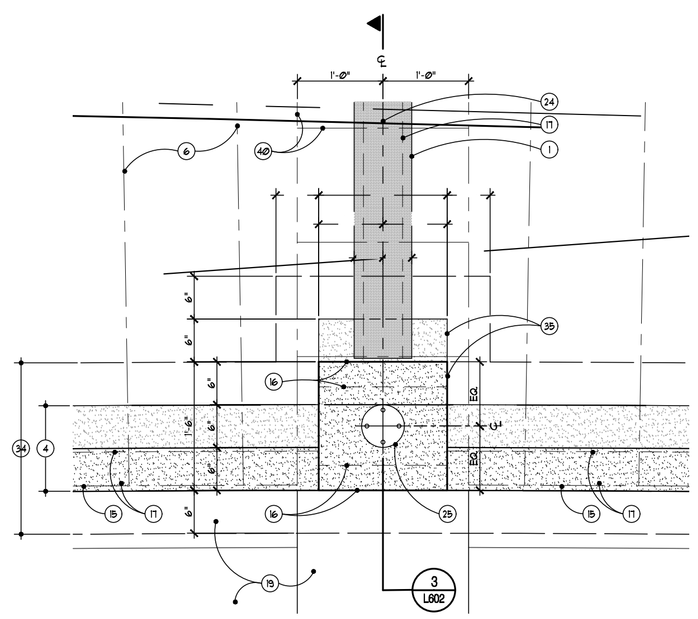
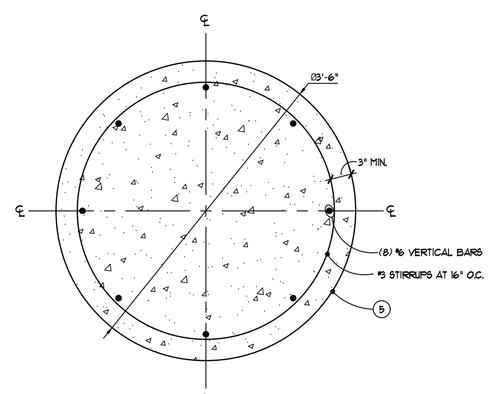


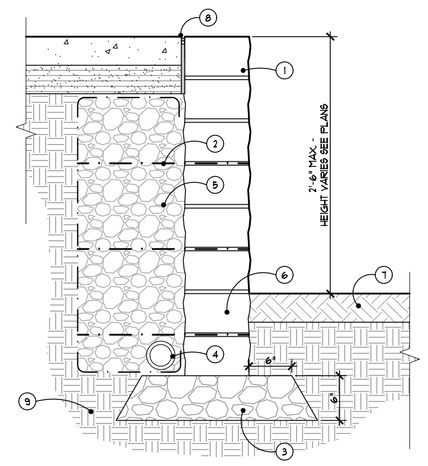
1 L204 L304 — Deck Framing Plan
SCALE: 1/4" = 1'-0"



2 L601 — Typical Plan Enlargement at Umbrella Mount
SCALE: 1" = 1'-0"



3 L602 — Typical Concrete Pier Section
SCALE: 1" = 1'-0"



1. MACKINAW WALL UNIT, MORTAR ALL UNITS TOGETHER PER MANUFACTURER RECOMMENDATIONS. DEPTH OF MORTAR BED TO BE AS MINIMAL AS REQUIRED FOR LEVELING AND ADHESION BETWEEN UNITS. WALL UNITS STEP AS HEIGHT VARIES. ALIGN HORIZONTAL JOINTS, TYP. REFER TO GRADING AND DRAINAGE PLANS.
2. 24" LENGTH GEOGRID REINFORCEMENT PER MANUFACTURER'S RECOMMENDATIONS, PROVIDE AT EVERY OTHER VERTICAL COURSE, TYP.
3. 6" DEPTH 21AA AGGREGATE BASE COMPACTED TO 95% MODIFIED PROCTOR
4. 4" DIA. PERFORATED DRAINTILE OUTLET THROUGH WALL AND ONTO GRADE - REFER TO GRADING AND DRAINAGE PLANS
5. 6AA DRAINAGE AGGREGATE FILL COMPACTED TO 95% MODIFIED PROCTOR IN 12" LIFTS. WRAP IN NON-WOVEN FILTER FABRIC
6. PROVIDE THE FOLLOWING NUMBER OF WALL COURSES BELOW FINISHED GRADE WITH RESPECT TO WALL HEIGHT:

WALL HT.	COURSES BELOW
0' - 2'-0"	1
2'-0" - 2'-6"	2

7. PLANTED AREA - REFER TO LANDSCAPE PLANS
8. 2" EXPANSION JOINT BETWEEN BLOCK WALL AND CONCRETE WALK - REFER TO TYPICAL DETAIL
9. EXISTING SUBGRADE, COMPACT TOP 5" (MIN.) TO 95% MODIFIED PROCTOR, TYP. OR ENGINEERED FILL COMPACTED AND INSTALLED PER GEOTECH DOCUMENTS

4 L601A — Section Through Block Retaining Wall Adjacent to Deck
SCALE: 1" = 1'-0"

Note Key:

(APPLIES TO SHEETS L601-L602, NOT ALL APPLY TO EACH SHEET)

1. W14X53 STEEL MAIN SUPPORT BEAM, TYP. ALONG CENTERLINE. PROVIDE SLOTTED HOLES AT BASE PLATE CONNECTION RUNNING IN THE LONG DIRECTION OF BEAM TO ALLOW FOR THERMAL EXPANSION
2. W14X22 STEEL LATERAL SUPPORT BEAM, TYP. ATTACH TO MAIN SUPPORT BEAM WITH (2) 3 1/2" X 3 1/2" X 1/2" STEEL ANGLES WITH (3) 3/4" DIA. A325N BOLTS, TYP.
3. 12"x12"x3/4" BASE PLATE ABOVE 1/4" LEVELING PLATE WITH (4) 1/2" DIA. ANCHOR BOLTS, 0" EMBED, AND 6" PROJECTION.
4. CAST-IN-PLACE CONCRETE FOUNDATION WALL WITH BEAM SUPPORT LEDGE. MAX. ALLOWABLE BEARING PRESSURE OF 1000 PSF - REFER TO SOIL BORINGS REPORT
5. 42" DIAMETER DRILLED CAST-IN-PLACE CONCRETE PIER, TYP. MAX. ALLOWABLE BEARING PRESSURE OF 1000 PSF - REFER TO SOIL BORINGS REPORT. PROVIDE (8) ⅝ VERTICAL BARS AND #3 STIRRUPS AT 16" O.C., TYP.
6. 2X12 PRESSURE TREATED JOIST AT 16" O.C., TYP. RUN JOISTS PARALLEL TO CENTERLINE OF EACH BAY. FASTEN TO NAILER BOARD
7. 5/4X6 IPE DECK BOARD, TYP., INSTALL PERPENDICULAR TO JOISTS, TYP. ADJUSTING ALIGNMENT PER BAY TO CORRESPOND TO RADIUS. ATTACH TO JOISTS WITH TIPE CLIP EXTREME 4" DECK FASTENER (5/32" GAP SPACING) PRE ROUTE BOARDS TO ACCEPT FASTENER - INSTALL PER MANUFACTURER'S INSTRUCTIONS
8. (2) 5/4X8 IPE DECK BOARDS AT OUTER EDGES OF 24" WIDE BAND, TYP. ALIGN TO PAVER BAND BEYOND - SEE NOTE ABOVE FOR FASTENERS. APPLY STAIN TO BOARDS WITHIN BAND ONLY - REFER TO SPECIFICATIONS
9. 5/4X12 IPE DECK BOARDS ALONG CENTER OF 24" WIDE BAND, TYP. CUT WIDTH AS REQUIRED TO PRODUCE EVEN GAPS (5/32" EA) WITH ADJACENT BOARDS - SEE NOTE ABOVE FOR FASTENERS. APPLY STAIN TO BOARDS WITHIN BAND ONLY - REFER TO SPECIFICATIONS
10. 2X8 IPE FASCIA BOARD (TOP) AND 2X6 IPE FASCIA BOARD (BOTTOM), TYP. ALONG OUTER PERIMETER. PROVIDE 3/4" JOINT BETWEEN TOP AND BOTTOM BOARDS, TYP. ATTACH TO JOISTS BY PRE-DRILLING, INSTALL SS DECK SCREW, FILL WITH IPE PLUG, SAND FLUSH TO FASCIA. APPLY STAIN TO FASCIA BOARDS - REFER TO SPECIFICATIONS
11. ⅝ BAR CONT. IN SPREAD FOOTING
12. ⅝ BAR AT 12" O.C. EW
13. (2) 2X12 PRESSURE TREATED FASCIA BLOCKING BETWEEN JOISTS, FASTEN TO JOISTS
14. (2) 2X12 PRESSURE TREATED JOISTS, FASTEN TO NAILER BOARD
15. 2X12 PRESSURE TREATED VERTICAL NAILER, FASTEN TO ADJACENT NAILER BOARDS
16. 2x6 PRESSURE TREATED HORIZONTAL NAILER BOARD, ATTACH TO CONCRETE FOUNDATION WALL WITH COUNTERSUNK CONCRETE ANCHOR BOLTS
17. 2X6 PRESSURE TREATED HORIZONTAL NAILER BOARD, TYP. ATTACH TO STEEL BEAM WITH TB14600 SIMPSON DRIVE FASTENERS AT 16" OC, 1 1/2" MIN. EDGE DIST, TYP.
18. EXISTING MANHOLE, RAISE RIM TO FINISH DECK ELEVATION AND BOX OUT FRAME AROUND CASTING, PROVIDE OFFSET CONE AS REQUIRED, TYPICAL
19. PRECAST CONCRETE PAVERS ON AGGREGATE BASE - REFER TO TYPICAL DETAIL
20. LINE OF EXISTING FINISH GRADE, TYP. - CUT GRADE AS REQUIRED TO ALLOW FOR 4" MIN. CLEARANCE FROM BOTTOM OF STEEL. REVIEW IN THE FIELD WITH LANDSCAPE ARCHITECT
21. EXISTING SUB-GRADE COMPACTED TO 95% MODIFIED PROCTOR BELOW FOOTINGS, FOUNDATIONS, PIERS, AND PAVING. COMPACT TO 85% MODIFIED PROCTOR AT LANDSCAPE AREAS
22. RESTORE DISTURBED LANDSCAPE AREAS WITH SEED MIX 'B' OVER 4" OF TOPSOIL - REFER TO LANDSCAPE PLANS FOR SEED MIX SCHEDULE
23. 1 3/4" DEPTH MORTAR SETTING BED
24. CENTERLINE, TYP. ALIGN WITH EXISTING COLUMNS - REFER TO LAYOUT PLAN
25. IN-GROUND SECURITY BASE PLATE BY UMBRELLA MANUFACTURER. EMBED BASE PLATE INTO CONCRETE FOUNDATION WALL PER MANUFACTURER'S INSTRUCTIONS
26. BASE STEM AND HARDWARE BY UMBRELLA MANUFACTURER - INSTALL PER MANUFACTURER'S INSTRUCTIONS
27. UMBRELLA - INSTALL OVER BASE STEM PER MANUFACTURER'S INSTRUCTIONS. REFER TO FF+A PLANS AND SCHEDULE.
28. ESCUTCHEON PLATE BY UMBRELLA MANUFACTURER- INSTALL PER MANUFACTURER'S INSTRUCTIONS.
29. FASCIA MOUNTED GUARDRAIL POST - (2) 3"x4"x5/16" BLACK ANODIZED ALUMINUM ANGLES SPACED 12" APART, WITH 3/4" DIAMETER HOLES FOR CABLES. TYP. SIDE MOUNT THROUGH FASCIA AND JOISTS WITH 1/2" DIA. 316 STAINLESS STEEL THROUGH BOLTS PAINTED BLACK. ALONG OUTER RADIUS EDGE OF DECK. POSTS TO ALIGN WITH CENTERLINE OF EXISTING COLUMNS. EQUALLY SPACE REMAINING POSTS AT 16'-6" O.C., TYP.
30. SURFACE MOUNTED GUARDRAIL POST - (2) 3"x4"x5/16" BLACK ANODIZED ALUMINUM ANGLES SPACED 12" APART, WITH 3/4" DIAMETER HOLES FOR CABLES, AND 1/4" THICK MOUNTING PLATE WELDED TO BASE. SURFACE MOUNT THROUGH DECK BOARDS AND NAILER BOARD WITH 316 STAINLESS STEEL FASTENERS PAINTED BLACK. ALIGN EDGE OF POSTS WITH CENTERLINE OF EXISTING COLUMN. EQUALLY SPACE REMAINING POSTS AT 16'-6" O.C., TYP.
31. BLACK ANODIZED ALUMINUM HANDRAIL. WELD BRACKET ARM TO GUARDRAIL POST AND ATTACH HANDRAIL WITH SET SCREWS BELOW
32. 3/8" DIA. SS CABLES WITH END FITTINGS ONLY. RUN CABLE THROUGH INTERMEDIATE POSTS WITHOUT FITTINGS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE TURNBUCKLES, QTY. AND SPACING PER MANUFACTURER. COLOR: BLACK. SUBMIT SAMPLES FOR APPROVAL
33. STONE MULCH SALVAGED FROM BUILDING PERIMETER - REFER TO DEMOLITION PLANS. INSTALL OVER NON-WOVEN FILTER FABRIC PINNED TO SUB-GRADE. PROVIDE STONE ONLY WHERE CLEARANCE BETWEEN BOTTOM OF STEEL AND FINISH GRADE IS LESS THAN 24"
34. CONCRETE SPREAD FOOTING
35. EXPAND FOUNDATION WALL AS INDICATED AT UMBRELLA MOUNTING LOCATIONS, TYP.
36. FACE OF JOIST BEYOND
37. FACE OF HORIZONTAL NAILER BOARD BEYOND
38. BLACK ANODIZED ALUMINUM BAR STOCK WELDED BETWEEN ANGLES OF FASCIA MOUNTED GUARDRAIL. VERIFY SIZE IN SHOP DRAWINGS.
39. LANDSCAPE AREA - REFER TO LANDSCAPE PLANS
40. (3) 2X12 PRESSURE TREATED JOISTS SPACED 24" APART, RUN PARALLEL WITH CENTERLINE OF EXISTING COLUMNS, FASTEN TO HORIZONTAL NAILER BOARDS. INSTALL 2X12 PRESSURE TREATED LATERAL BLOCKING AT 16" O.C., TYP.
41. 12"x6"x3/4" BASE PLATE ABOVE 1/4" LEVELING PLATE WITH (2) 1/2" DIA. ANCHOR BOLTS, 0" EMBED, AND 6" PROJECTION. WELD TO STEEL BEAM ABOVE
42. (2) 2x6 HORIZONTAL NAILER BOARD FASTENED TO 2X12 STUDS FOR INSTALLATION OF SURFACE MOUNTED RAILING. COORDINATE LOCATION OF POSTS WITH NAILER BOARDS PRIOR TO INSTALLATION OF DECKING.

Cable Railing System Notes:

1. CABLE RAILING SYSTEM AND COMPONENTS TO BE MANUFACTURED BY Carl Stahl DecorCable Innovations, Inc. (312-474-1818, decorcable@cscm1.com) OR APPROVED EQUAL.
2. CONTRACTOR SHALL SUBMIT COMPLETE ENGINEERED SHOP DRAWINGS SHOWING GUARDRAIL POST LAYOUT, HANDRAIL, AND CABLE SYSTEM INCLUDING MATERIAL, SIZING, SPACING, FINISHES AND ANCHORING FOR APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION.
3. ALL STAINLESS STEEL COMPONENTS ARE TO BE TYPE 316
4. EASE ALL SHARP EDGES AND CORNERS, TYP.
5. GUARDRAIL POSTS ARE TO BE SHOP WELDED AND FINISHED WITH CABLE HOLES ALIGNED PRIOR TO SHIPPING TO THE SITE.
6. SUBMIT GUARDRAIL MOCKUP FOR APPROVAL PRIOR TO FABRICATION.

Deck Framing Notes:

1. ALL EXPOSED STEEL TO BE HOT DIPPED GALVANIZED
2. MAXIMUM CANTILEVER LENGTH = 8'-0"
3. DEAD LOAD = 25 PSF
4. LIVE LOAD = 100 PSF

Deep Foundation Notes:

1. END BEARING NET ALLOWABLE SOIL PRESSURE = 10000 PSF
2. DRILLED PIERS EXTEND TO A BEARING ELEVATION OF 831 FT. MIN.
3. NO SOIL FRICTION (ADHESION) WAS CONSIDERED IN THE DESIGN
4. TEMPORARY HEAVY STEEL CASING 9' FT IN LENGTH WILL BE REQUIRED AT DRILLED PIER LOCATIONS TO PREVENT CAVING SAND
5. FOUNDATION CONTRACTOR MUST COORDINATE WITH GEOTECHNICAL ENGINEER FOR ALL FOUNDATION WORK, AND SITE DE-WATERING

STATE OF MICHIGAN — RANDALL K. METZ — LANDSCAPE ARCHITECT — No. 946 — REGISTERED LANDSCAPE ARCHITECT

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DELTA DENTAL

Project: Delta Dental Headquarters
Meridian Township, Michigan

Sheet: Deck Plan Enlargement

Job Number:	D05-181
Drawn By:	ATP/SAE
Checked By:	ATP/RKM
Scale:	As Shown

Date:	Issued For:
2019-02-18	100% Design Development
2019-03-08	Bids
2019-03-18	Deck Approval (Void)
2019-03-25	Addendum 3
2019-03-26	Deck Approval
2019-04-04	DEQ Permit Submittal
2019-04-18	Per Twp Deck Comments

Sheet Number: L601A

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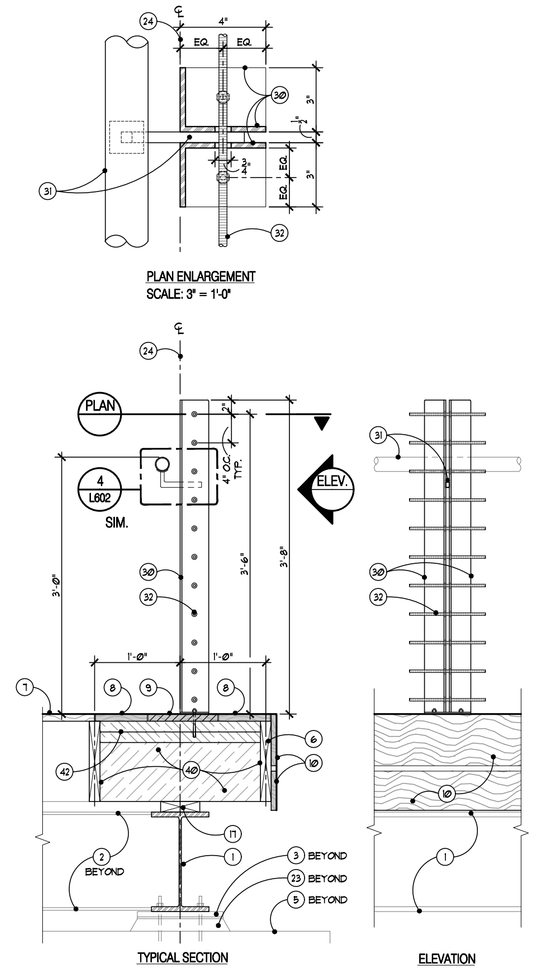
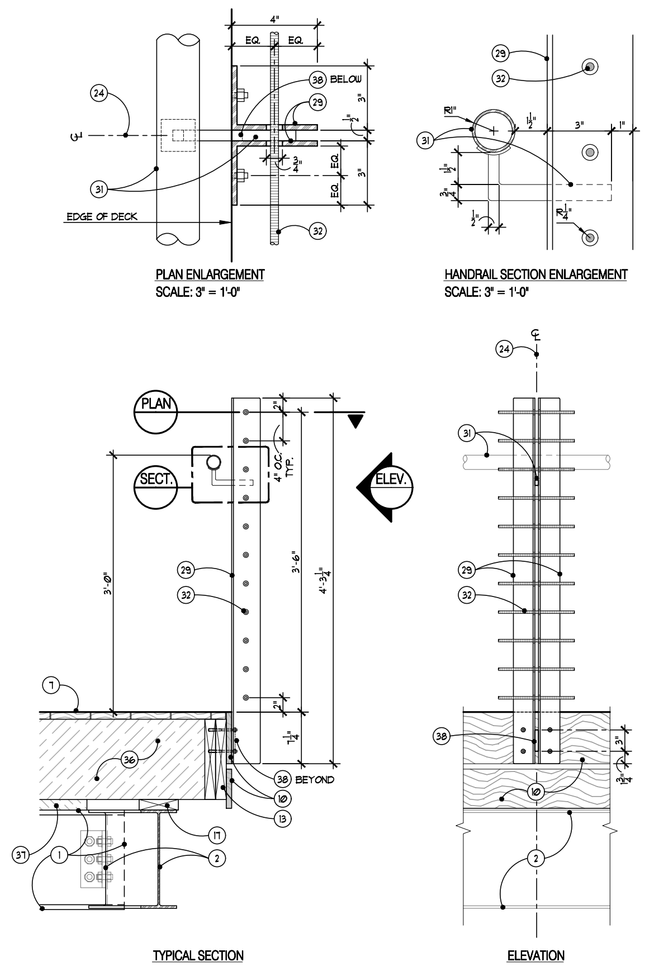
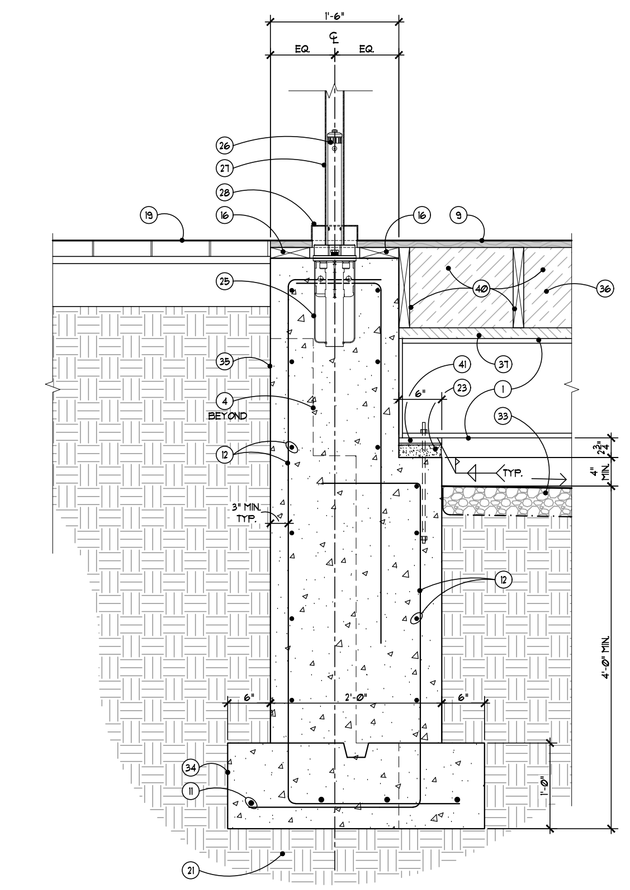


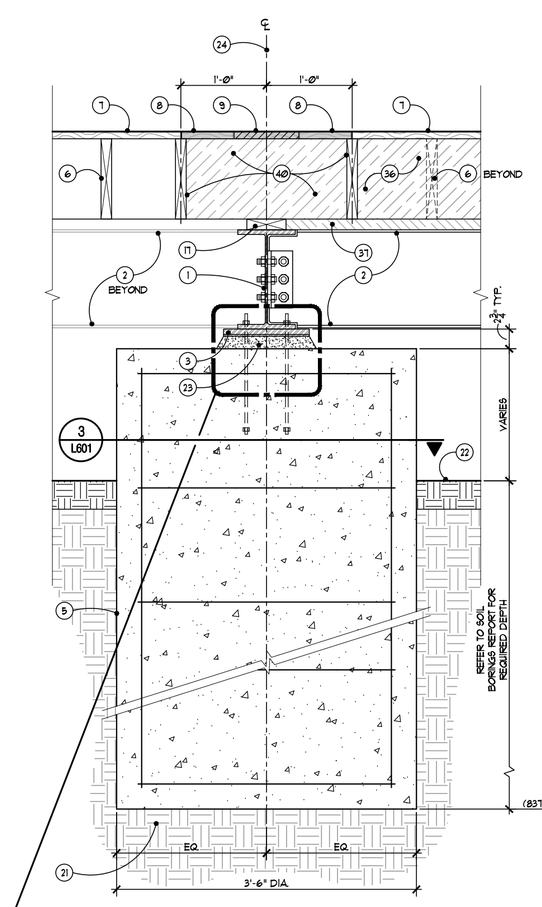
5 L601 Typical Surface Mounted Railing Detail
SCALE: 1" = 1'-0"



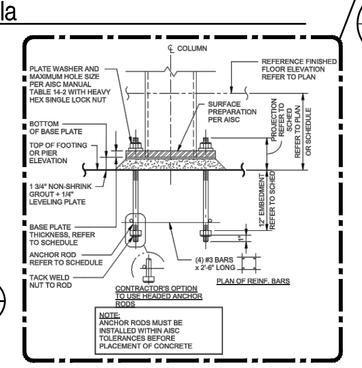
4 L602 Typical Fascia Mounted Railing Detail
SCALE: 1" = 1'-0"

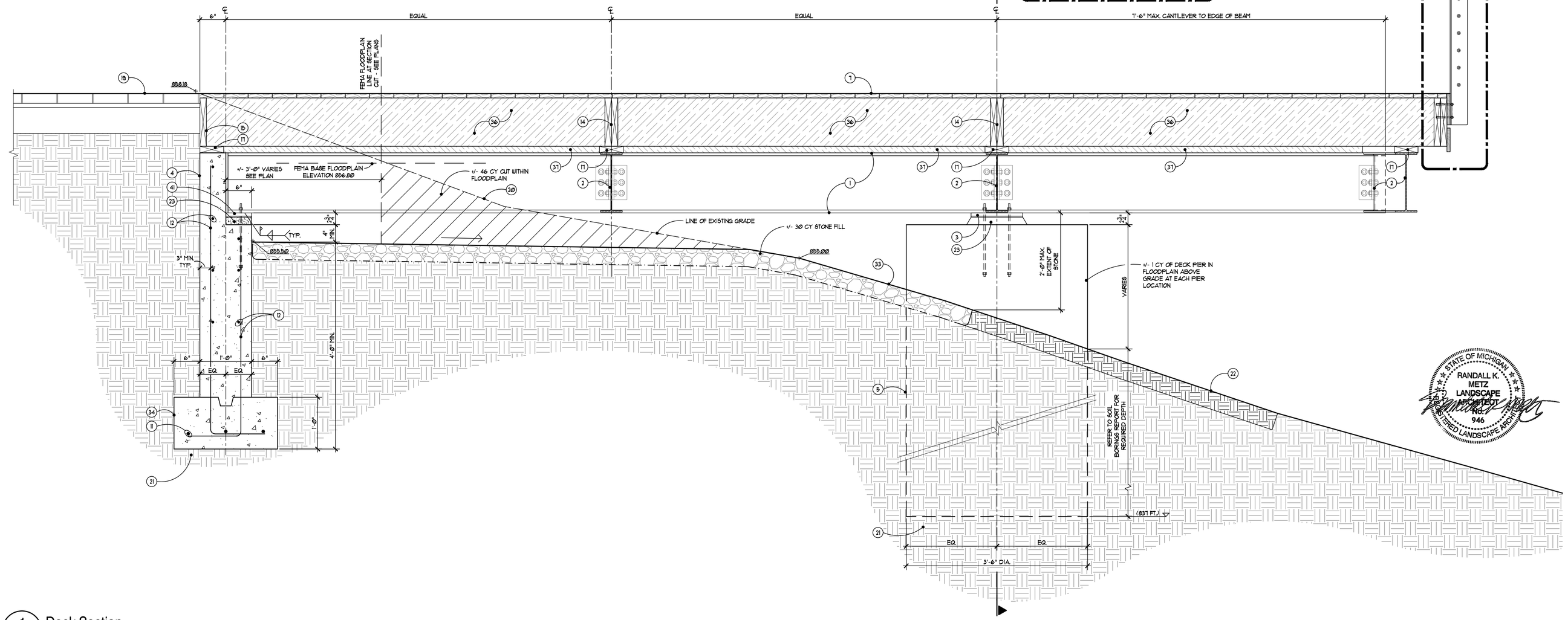


3 L601 Deck Section At Umbrella
SCALE: 1" = 1'-0"



2 L601 L602 Deck Section at Pier and Support Main Beam
SCALE: 1" = 1'-0"





1 L601 Deck Section
SCALE: 1" = 1'-0"

Note Key:

(APPLIES TO SHEETS L601-L602, NOT ALL APPLY TO EACH SHEET)

1. W24X93 STEEL MAIN SUPPORT BEAM, TYP. ALONG CENTERLINE. PROVIDE SLOTTED HOLES AT BASE PLATE CONNECTION RUNNING IN THE LONG DIRECTION OF BEAM TO ALLOW FOR THERMAL EXPANSION
2. W24X22 STEEL LATERAL SUPPORT BEAM, TYP. ATTACH TO MAIN SUPPORT BEAM WITH (2) 3 1/2" X 3 1/2" X 1/2" STEEL ANGLES WITH (3) 3/4" DIA. A325N BOLTS, TYP.
3. 5'-0"X5'-0"X3/4" BASE PLATE ABOVE 1/4" LEVELING PLATE WITH (4) 1/2" DIA. ANCHOR BOLTS, 0" EMBED, AND 6" PROJECTION.
4. CAST-IN-PLACE CONCRETE FOUNDATION WALL WITH BEAM SUPPORT LEDGE. MAX. ALLOWABLE BEARING PRESSURE OF 10000 PSF - REFER TO SOIL BORINGS REPORT
5. 42" DIA"ETER DRILLED CAST-IN-PLACE CONCRETE PIER, TYP. MAX. ALLOWABLE BEARING PRESSURE OF 10000 PSF - REFER TO SOIL BORINGS REPORT. PROVIDE (8) #5 VERTICAL BARS AND #3 STIRRUPS AT 18" O.C. TYP.
6. 2X12 PRESSURE TREATED JOIST AT 16" O.C., TYP. RUN JOISTS PARALLEL TO CENTERLINE OF EACH BAY. FASTEN TO NAILER BOARD
7. 5/4X6 IPE DECK BOARD, TYP., INSTALL PERPENDICULAR TO JOISTS, TYP. ADJUSTING ALIGNMENT PER BAY TO CORRESPOND TO RADIUS. ATTACH TO JOISTS WITH TIPE CLIP EXTREME 4" DECK FASTENER (5/32" GAP SPACING) PRE ROUTE BOARDS TO ACCEPT FASTENER - INSTALL PER MANUFACTURER'S INSTRUCTIONS
8. (2) 5/4X8 IPE DECK BOARDS AT OUTER EDGES OF 24" WIDE BAND, TYP. ALIGN TO PAVER BAND BEYOND - SEE NOTE ABOVE FOR FASTENERS. APPLY STAIN TO BOARDS WITHIN BAND ONLY - REFER TO SPECIFICATIONS
9. 5/4X12 IPE DECK BOARDS ALONG CENTER OF 24" WIDE BAND, TYP. CUT WIDTH AS REQUIRED TO PRODUCE EVEN GAPS (5/32" EA) WITH ADJACENT BOARDS - SEE NOTE ABOVE FOR FASTENERS. APPLY STAIN TO BOARDS WITHIN BAND ONLY - REFER TO SPECIFICATIONS
10. 2X8 IPE FASCIA BOARD (TOP) AND 2X6 IPE FASCIA BOARD (BOTTOM), TYP. ALONG OUTER PERIMETER. PROVIDE 3/4" JOINT BETWEEN TOP AND BOTTOM BOARDS, TYP. ATTACH TO JOISTS BY PRE-DRILLING, INSTALL SS DECK SCREW FILL WITH IPE PLUG, SAND FLUSH TO FASCIA. APPLY STAIN TO FASCIA BOARDS - REFER TO SPECIFICATIONS
11. #5 BAR CONT. IN SPREAD FOOTING
12. #4 BAR AT 12" O.C. EW
13. (2) 2X12 PRESSURE TREATED FASCIA BLOCKING BETWEEN JOISTS, FASTEN TO JOISTS
14. (2) 2X12 PRESSURE TREATED JOISTS, FASTEN TO NAILER BOARD
15. 2X12 PRESSURE TREATED VERTICAL NAILER, FASTEN TO ADJACENT NAILER BOARDS
16. 2x6 PRESSURE TREATED HORIZONTAL NAILER BOARD, ATTACH TO CONCRETE FOUNDATION WALL WITH COUNTERSUNK CONCRETE ANCHOR BOLTS
17. 2X6 PRESSURE TREATED HORIZONTAL NAILER BOARD, TYP. ATTACH TO STEEL BEAM WITH TEKS#6X6 SIMPSON DRIVE FASTENERS AT 16" OC, 1 1/2" MIN. EDGE DIST. TYP.
18. EXISTING MANHOLE. RAISE RIM TO FINISH DECK ELEVATION AND BOX OUT FRAME AROUND CASTING. PROVIDE OFFSET CONE AS REQUIRED, TYPICAL
19. PRECAST CONCRETE PAVERS ON AGGREGATE BASE - REFER TO TYPICAL DETAIL
20. LINE OF EXISTING FINISH GRADE, TYP. - CUT GRADE AS REQUIRED TO ALLOW FOR 4" MIN. CLEARANCE FROM BOTTOM OF STEEL. REVIEW IN THE FIELD WITH LANDSCAPE ARCHITECT
21. EXISTING SUB-GRADE COMPACTED TO 95% MODIFIED PROCTOR - BELOW FOOTINGS, FOUNDATIONS, PIERS, AND PAVING. COMPACT TO 85% MODIFIED PROCTOR AT LANDSCAPE AREAS
22. RESTORE DISTURBED LANDSCAPE AREAS WITH SEED MIX 'B' OVER 4" OF TOPSOIL - REFER TO LANDSCAPE PLANS FOR SEED MIX SCHEDULE
23. 1 3/4" DEPTH MORTAR SETTING BED
24. CENTERLINE, TYP. ALIGN WITH EXISTING COLUMNS - REFER TO LAYOUT PLAN
25. IN-GROUND SECURITY BASE PLATE BY UMBRELLA MANUFACTURER. EMBED BASE PLATE INTO CONCRETE FOUNDATION WALL PER MANUFACTURER'S INSTRUCTIONS
26. BASE STEM AND HARDWARE BY UMBRELLA MANUFACTURER - INSTALL PER MANUFACTURER'S INSTRUCTIONS
27. UMBRELLA - INSTALL OVER BASE STEM PER MANUFACTURER'S INSTRUCTIONS. REFER TO FF+A PLANS AND SCHEDULE.
28. ESCUTCHEON PLATE BY UMBRELLA MANUFACTURER- INSTALL PER MANUFACTURER'S INSTRUCTIONS.
29. FASCIA MOUNTED GUARDRAIL POST - (2) 3"X4"X1/4" BLACK ANODIZED ALUMINUM ANGLES SPACED 1/2" APART, WITH 3/4" DIAMETER HOLES FOR CABLES. TYP. SIDE MOUNT THROUGH FASCIA AND JOISTS WITH 1/2" DIA. 316 STAINLESS STEEL THROUGH BOLTS PAINTED BLACK ALONG OUTER RADIUS EDGE OF DECK. POSTS TO ALIGN WITH CENTERLINE OF EXISTING COLUMNS. EQUALLY SPACE REMAINING POSTS AT 16'-6" O.C., TYP.
30. SURFACE MOUNTED GUARDRAIL POST - (2) 3"X4"X1/4" BLACK ANODIZED ALUMINUM ANGLES SPACED 1/2" APART, WITH 3/4" DIAMETER HOLES FOR CABLES, AND 1/4" THICK MOUNTING PLATE WELDED TO BASE. SURFACE MOUNT THROUGH DECK BOARDS AND NAILER BOARD WITH 316 STAINLESS STEEL FASTENERS PAINTED BLACK. ALIGN EDGE OF POSTS WITH CENTERLINE OF EXISTING COLUMN. EQUALLY SPACE REMAINING POSTS AT 16'-6" O.C., TYP.
31. BLACK ANODIZED ALUMINUM HANDRAIL. WELD BRACKET ARM TO GUARDRAIL POST AND ATTACH HANDRAIL WITH SET SCREW BELOW
32. 3/8" DIA. SS CABLES WITH END FITTINGS ONLY. RUN CABLE THROUGH INTERMEDIATE POSTS WITHOUT FITTINGS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE TURNBUCKLES, QTY, AND SPACING PER MANUFACTURER. COLOR: BLACK. SUBMIT SAMPLES FOR APPROVAL
33. STONE MULCH SALVAGED FROM BUILDING PERIMETER - REFER TO DEMOLITION PLANS. INSTALL OVER NON-WOVEN FILTER FABRIC PINNED TO SUB-GRADE. PROVIDE STONE ONLY WHERE CLEARANCE BETWEEN BOTTOM OF STEEL AND FINISH GRADE IS LESS THAN 24"
34. CONCRETE SPREAD FOOTING
35. EXPAND FOUNDATION WALL AS INDICATED AT UMBRELLA MOUNTING LOCATIONS, TYP.
36. FACE OF JOIST BEYOND
37. FACE OF HORIZONTAL NAILER BOARD BEYOND
38. BLACK ANODIZED ALUMINUM BAR STOCK WELDED BETWEEN ANGLES OF FASCIA MOUNTED GUARDRAIL. VERIFY SIZE IN SHOP DRAWINGS.
39. LANDSCAPE AREA - REFER TO LANDSCAPE PLANS
40. (2) 2X12 PRESSURE TREATED JOISTS SPACED 24" APART, RUN PARALLEL WITH CENTERLINE OF EXISTING COLUMNS, FASTEN TO HORIZONTAL NAILER BOARDS. INSTALL 2X12 PRESSURE TREATED LATERAL BLOCKING AT 16" O.C., TYP.
41. 5"X8"X3/4" BASE PLATE ABOVE 1/4" LEVELING PLATE WITH (2) 1/2" DIA. ANCHOR BOLTS, 0" EMBED, AND 6" PROJECTION. WELD TO STEEL BEAM ABOVE
42. (2) 2x8 HORIZONTAL NAILER BOARD FASTENED TO 2X12 STUDS FOR INSTALLATION OF SURFACE MOUNTED RAILING. COORDINATE LOCATION OF POSTS WITH NAILER BOARDS PRIOR TO INSTALLATION OF DECKING.

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3. ALL STAINLESS STEEL COMPONENTS ARE TO BE TYPE 316
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Deck Framing Notes:

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2. DRILLED PIERS EXTEND TO A BEARING ELEVATION OF 831 FT. MIN.
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5. FOUNDATION CONTRACTOR MUST COORDINATE WITH GEOTECHNICAL ENGINEER FOR ALL FOUNDATION WORK AND SITE DE-WATERING

STATE OF MICHIGAN
RANDALL K. METZ
LANDSCAPE ARCHITECT
946
REGISTERED LANDSCAPE ARCHITECT

IRRIGATION DESIGN PROVIDED BY:
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DELTA DENTAL

Project:
Delta Dental Headquarters
Meridian Township, Michigan

Sheet:
Deck Details

Job Number:	D05-181
Drawn By:	ATP/SAE
Checked By:	ATP/RKM
Scale:	As Shown

Date:	Issued For:
2019-03-08	Bids
2019-03-18	Deck Approval (Void)
2019-03-25	Addendum 3
2019-03-26	Deck Approval
2019-04-04	DEQ Permit Submittal
2019-04-18	Per Twp Deck Comments

Sheet Number: L602

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Delta Dental Headquarters
Okemos, Michigan

Deck Approval
Central Dining Terrace Aerrial
03.26.19

GRISSIM
METZ ASSOCIATES
ANDRIESE

To: **Justin Quagliata, Assistant Planner**

From: **Younes Ishraidi, PE., CFM**

Date: **May 7, 2019**

Re: **4100 Okemos - Delta Dental Proposed Deck**

The latest plans for the subject project with revisions dated 4-18-2019, show proposed work within the 100-year floodplain, also known as Base Flood Elevation (BFE), and no proposed work within the floodway. Both the floodplain and floodway are now shown with the BFE shown at 856.8' based on the NAVD88 Datum.

The official FEMA maps and records indicate that the BFE for this area is 856.8', based on the NAVD88 Datum.

The proposed work involves grading, excavation of earth, and installation of deck material within the floodplain. The proposed deck is an extension of a patio and will not be attached to the building. As such, the existing building remains outside the floodplain.

The revised plans show calculated amount of cut and fill volumes, with net cut of 4.5 cubic yards from the floodplain. Also, the plans include a benchmark based on NAVD88 Datum.

As such, I recommend approval of the SUP for the proposed deck and related work, with a condition to require an elevation certificate by a licensed surveyor to confirm completion of the work as shown on aforementioned plans.

To: **Planning Commission**

From: **Peter Menser, Principal Planner**

Mackenzie Dean, Assistant Planner

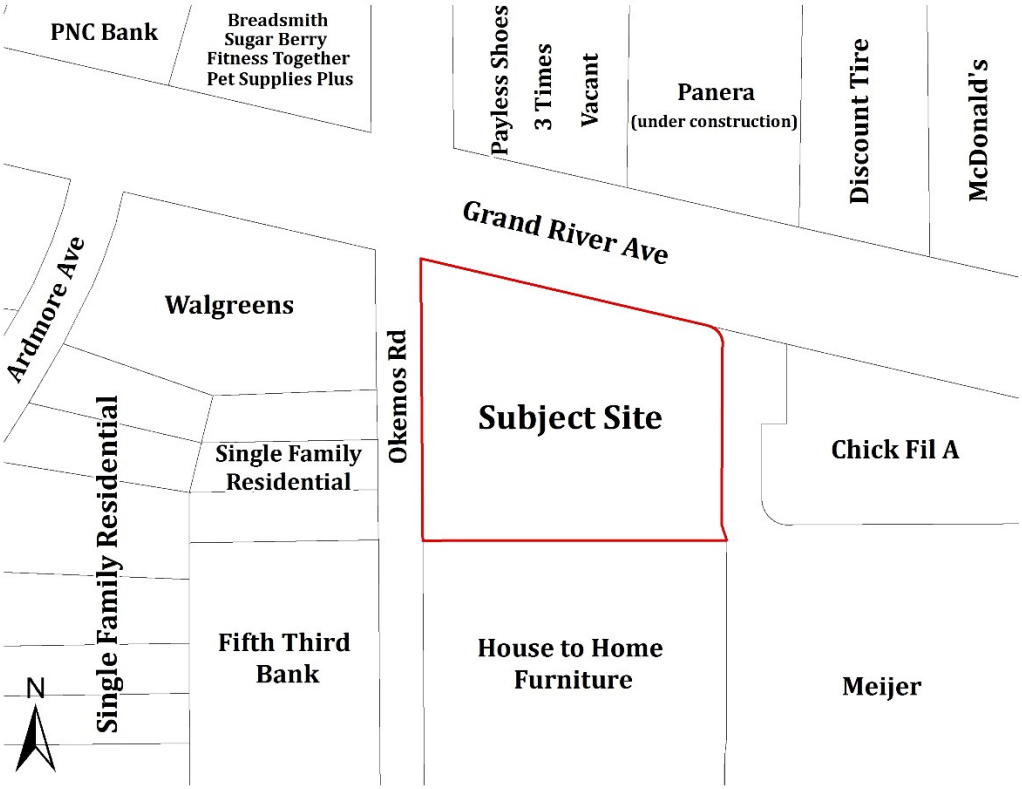
Date: **May 9, 2019**

Re: **<u>Special Use Permit #19031 & 19071 (Okemos Retail Management, LLC)</u>, work in the floodplain to develop a five tenant shopping center with a drive-through window at 2085 Grand River.**

Okemos Retail Management, LLC has requested special use permit approval to develop a 10,960 square foot five tenant shopping center with a drive-through window in the floodplain located at 2085 Grand River Avenue. The special use permits (SUP) are required for work in the floodplain (SUP #19071) and for the installation of a drive-through window (SUP #19031). The 1.84 acre subject site is zoned C-2 (Commercial). The subject site is currently occupied by a vacant 7,522 square foot commercial building built in 1982, which was formerly occupied by Bennigan's, Wild Wings Café, and Leo's Spirits & Grub.

A special use permit (SUP #82091) was granted in 1982 for the construction of a restaurant in the floodplain. The applicant proposes to demolish the existing building and parking areas to construct a new 10,960 square foot five tenant commercial building.

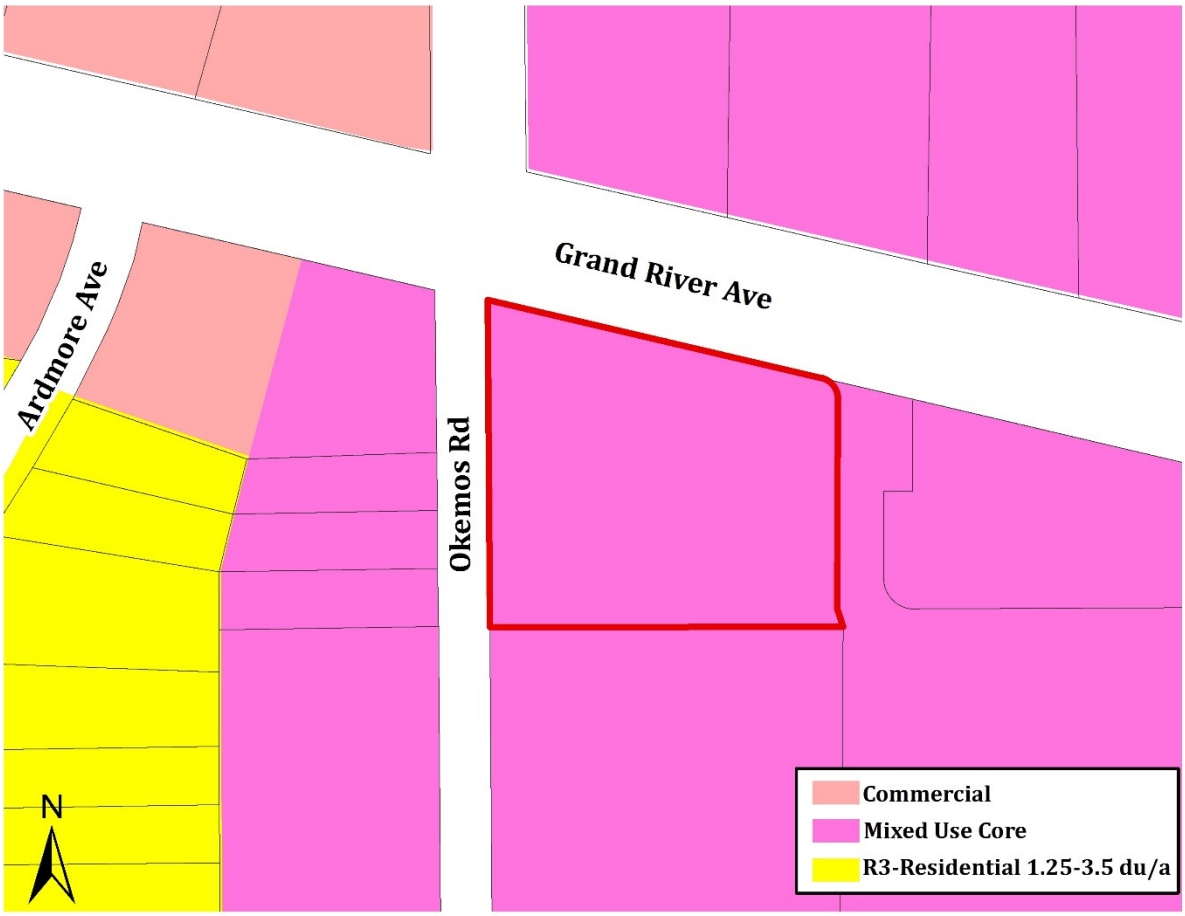
The map below depicts the site location and surrounding land uses.



Master Plan

The Future Land Use Map from the 2017 Master Plan designates the subject property in the Mixed Use Core category.

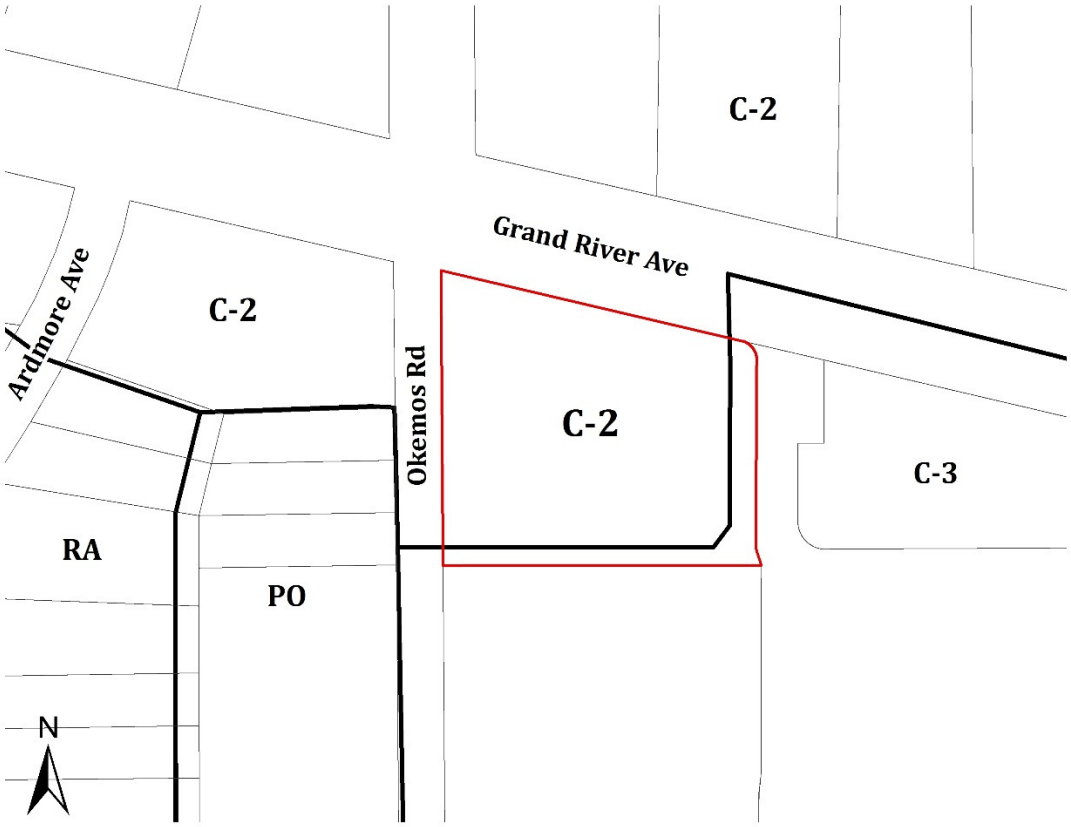
FUTURE LAND USE MAP



Zoning

The subject site is zoned C-2 (Commercial) which requires a minimum of 100 feet of lot width and 4,000 square feet of lot area. The subject site's lot width is 326.05 feet along Grand River Avenue and 311.16 feet along Okemos Road. Lot area is 80,150 square feet, or 1.84 acres. The subject site conforms to the minimum lot width and lot area standards of the C-2 (Commercial) zoning district.

ZONING MAP



Physical Features

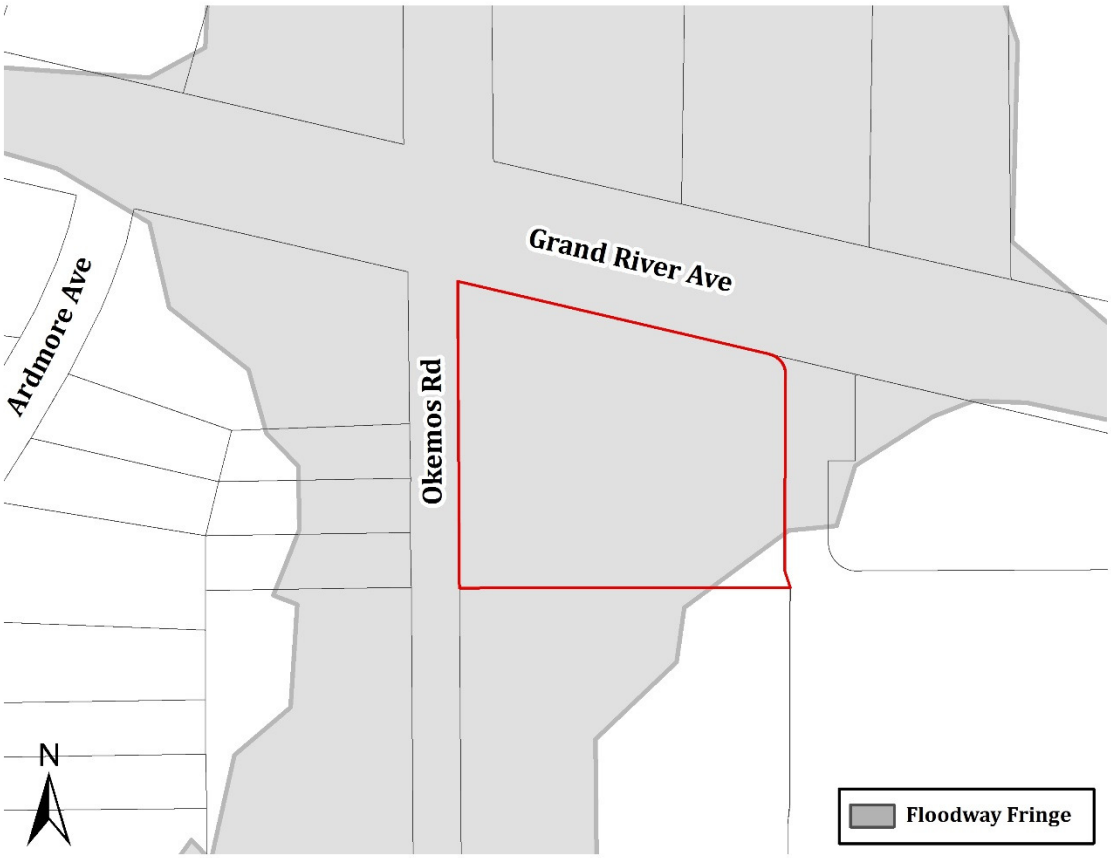
The site is currently developed with a vacant 7,522 square foot restaurant building, a paved parking lot, and existing landscaping. Landscaping consisting of grass and street trees are installed between the parking lot and Grand River Avenue/Okemos Road. The plans show two primary access points along Grand River Avenue and Okemos Road. The site does not have any special designation on the Township Greenspace Plan.

Floodplain

The site is located in the 100-year floodplain (floodway fringe). The majority of the project site is located in the floodplain, with a small portion at the southeast of the property located outside the floodplain. The applicant proposes to fill 940 cubic yards in the floodplain to facilitate the project. Compensating excavation of 970 cubic yards is proposed in the floodplain. Overall, there would be net excavation of 30 cubic yards in the floodplain at the northwest and southwest portions of the site. The submitted site plan depicts the elevation of the floodplain at 842.1 feet above mean sea level. The plans show the lowest floor of the new building would be located one foot above the floodplain.

The applicant has submitted an application for work in the floodplain that is currently under review by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), formerly known as Michigan Department of Environmental Quality (MDEQ).

FLOODPLAIN MAP



Streets and Traffic

The applicant will not create new access points to the site. The applicant proposes to utilize two existing driveways along Grand River Avenue and Okemos Road.

The site fronts on both Grand River Avenue (M-43) and Okemos Road. Grand River Avenue (M-43) is an east-west four lane roadway with a center left-turn lane with concrete curb and gutter. Okemos Road is a north-south four lane roadway with a center left-turn lane with concrete curb and gutter. Both Okemos Road and Grand River Avenue are classified as Principal Arterial streets on the Street Setbacks and Service Drives Map in the zoning ordinance. A seven foot wide pathway is installed along the Grand River Avenue and Okemos Road property frontage. The most recent (2017) traffic count information from the Michigan Department of Transportation (MDOT) for Grand River Avenue, between Okemos Road and Marsh Road, showed a total of 25,147 vehicles in a 24 hour period. The most recent (2008) traffic count information from MDOT for Okemos Road, showed a total of 14,873 two-way vehicle trips in a 24 hour period.

A traffic impact study is required for new special uses which would generate over 100 directional trips during a peak hour of traffic or over 750 trips on an average day. The applicant submitted a traffic impact study prepared by Traffic Engineering Associates, Inc. dated March 2019 that provides information on traffic generated by the proposed project. The study looks at existing, background (future traffic volumes without the traffic generated by the proposed development), and future level of service (LOS) during the AM (7:30-8:30 a.m.) and PM (4:45-5:45 p.m.) peak hours at the following three intersections around the project site:

- Grand River Avenue and Okemos Road
- Grand River Avenue and Meijer/Chick-Fil-A driveway
- Okemos Road and the Meijer driveway

The traffic study notes that existing traffic at the studied intersections all operate at an acceptable LOS (LOS D or better) during the AM and PM peak hours, with the exception of several movements at the intersection of Grand River Avenue and Okemos Road, and at the Grand River Avenue and Meijer/Chick-Fil-A driveway. The study shows that background traffic at the studied intersections will operate at an acceptable level of service during AM and PM peak hours, with the exception of several movements at the intersection of Grand River Avenue and Okemos Road, and at the Grand River Avenue and Meijer/Chick-Fil-A driveway.

For future traffic, the study indicates that all studied intersections will continue to operate at an acceptable LOS during the AM and PM peak hours, with the exception of several movements at the following intersections:

Grand River Avenue and Okemos Road

- During the AM peak hour, the westbound through-right movement on Grand River Avenue is expected to operate at a LOS E with 68.3 seconds of vehicle delay, an increase of 7.0 seconds from background conditions.

- During the AM peak hour, the westbound approach on Grand River Avenue at Okemos Road is projected to operate at a LOS E with 63.5 seconds of vehicle delay, an increase of 6.5 seconds from the background conditions.

- During the AM peak hour, the northbound approach on Okemos Road at Grand River Avenue is projected to operate at a LOS E with 65.6 seconds of vehicle delay, a decrease of 0.4 seconds from background conditions.

- During the PM peak hour, the northbound left turn movement on Okemos Road to westbound Grand River Avenue is projected to operate at a LOS E with 60.2 seconds of vehicle delay, an increase of 0.3 seconds from background conditions.

- During the PM peak hour, the northbound right turn movement on Okemos Road to eastbound Grand River Avenue is projected to operate at a LOS E with 67.2 seconds of vehicle delay, an increase of 1.2 seconds from background conditions.

- During the PM peak hour, the northbound approach on Okemos Road at Grand River Avenue is projected to operate at a LOS E with 64.6 seconds of vehicle delay, an increase of 1.0 second from background conditions.

Grand River Avenue and Meijer/Chick-Fil-A driveway

- During the PM peak hour, the left turn movement from the Meijer/Chick-Fil-A driveway to westbound Grand River Avenue is projected to operate at a LOS F with 50.3 seconds of vehicle delay, an increase of 11.1 seconds from background conditions.

The traffic impact study estimated traffic generation for the proposed project based on a 10,916 square foot *Shopping Center*, which is Land Use Code 820 in the Institute of Transportation Engineers (ITE) Trip Generation Manual. Additionally, the trip generation comparison estimated traffic generation for the existing site based on a 7,522 square foot *High-Turnover (Sit-Down) Restaurant*, which is Land Use Code 932 in the Institute of Transportation Engineers (ITE) Trip Generation Manual. The following table shows the comparison between the existing and proposed uses:

Description	Size	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	
Existing Land Use (High-Turnover Sit Down Restaurant)	7,522 sq. ft.	41	34	75	45	28	73	844
Proposed Land Use (Shopping Center)	10,960 sq. ft.	97	60	157	51	55	106	1,337

The study shows that the proposed new development is expected to generate 82 more vehicle trips in the AM peak hour, 33 more vehicle trips in the PM peak hour and 493 more vehicle trips over a 24 hour period.

The applicant's traffic consultant suggested an optimization of traffic signal timing at the intersection of Grand River Avenue and Okemos Road. The study notes optimizing signal timings improved operations of failing movements and approaches, however, those movements are still very close to being LOS E, even with the optimization. With the existing stop sign control at the Meijer/Chick Fil A driveway and the already configured exclusive left turn lane, the applicant's traffic engineer has indicated the PM peak hour LOS E cannot be improved. Additionally, MDOT guidelines show that during the AM and PM peak hours, there is a justification for a right turn taper for northbound Okemos Road at the north Meijer driveway, however, existing PM peak hour traffic volumes already justify this right turn taper.

Utilities

The existing building is served by municipal water and sanitary sewer, both of which are available to serve the proposed development. The location and capacity of utilities will be reviewed in detail during site plan review if the special use permits are approved.

Staff Analysis

The applicant has requested special use permit approval to work in the floodplain to construct a 10,960 square foot five tenant shopping center with a drive through window. The majority of the project site is located in the floodway fringe, with a small portion to the southeast of the property located above the floodplain. A special use permit is required for work in the floodplain as outlined in Section 86-436(n) of the Code of Ordinances. The retail use is allowed by right in the C-2 zoning district, however, the drive-through window requires a special use permit as outlined in Section 86-404(e)(13). The special use permit criteria in Section 86-126 of the Code of Ordinances is used to evaluate special use permit requests. Development of the site is subject to all standards for lot coverage, setback areas and landscaping. The following chart summarizes the plan requirements:

Design Objective	Standard	Proposed
Minimum lot width (Grand River Avenue)	100 feet	326.05 feet
Minimum lot width (Okemos Road)	100 feet	311.16 feet
Maximum building coverage	35%	13.8%
Front yard setback (Grand River Avenue)	100 feet	172 feet
Front yard setback (Okemos Road)	100 feet	122 feet
Side yard setback (east)	20 feet	70 feet
Rear yard setback (south)	20 feet	65 feet
Maximum building height	35 feet	23 feet
Parking	55 spaces	55 spaces
Bike parking	6 spaces	6 spaces
Stacking spaces	3 per lane	4 per lane
Impervious surfaces	70%	69.35%

Land Use: The proposed multi-tenant shopping center is allowed by right. A drive-through window is allowed in the C-2 zoning district by special use permit.

Bicycle parking: One bicycle parking space is required for every ten motor vehicle parking spaces required. There are 55 parking spaces required; therefore the project must have a minimum of six bicycle parking spaces. Three bicycle parking racks (six bicycle parking spaces) are shown on the submitted site plan near the western portion of the site with frontage on Grand River Avenue. The submitted site plan shows three bicycle racks on the site. The Township requires the use of an inverted "U" shaped bicycle rack. The site plan indicates the proposed bicycle racks will be the inverted "U" shaped style.

Building materials: Building materials for this project include a mixture of brick veneer, precast silt, E.I.F.S. (exterior insulation finishing system) siding, prefinished metal coping, metal panels and fabric for awnings. A sample board of the building materials submitted by the applicant will be displayed at the public hearing.

Landscaping: A landscape plan was submitted and will be reviewed during the site plan review process.

Work in the Floodplain

Township regulations require a special use permit to work within the floodway fringe. The special use permit criteria found in Section 86-126 of the Code of Ordinances should be used when evaluating the proposed special use permit. Section 86-436(n) of the Code of Ordinances provides additional standards for projects in the floodway fringe, which are as follows:

1. All new residential structures and residential structures requiring substantial improvement shall have the lowest floor, including basement, elevated to one foot above the level of the base flood elevation.

2. All new nonresidential structures and nonresidential structures requiring substantial improvements shall have the lowest floor, including basement, elevated to one foot above the level of the base flood elevation or shall be floodproofed to one foot above the level of the base flood elevation.

3. Excavation and shaping of the floodway fringe shall be conducted in such a manner as to maintain or improve the natural impoundment capacity of the base flood elevation. In no case shall the impoundment capacity of the floodway fringe be reduced.

The Meridian Township Engineering Department recommends approval of the special use permit for work in the floodplain based on the following conditions:

1. An Elevation Certification (EC) must be completed after construction by a Surveyor, licensed in the state of Michigan. This EC must be provided to the Engineering Office prior to issuance of the Certificate of Occupancy.

2. The owner must apply for a Letter of Map Revision based on Fill (LOMR-f) to FEMA for proposed work in the floodplain after construction is complete.

Drive-through Window

The Code of Ordinances standards for a drive-through include provisions for an order window, stacking for three cars, and a bypass lane. The submitted site plan indicates the project meets the ordinance standards for a drive-through window.

If the project is approved by the Planning Commission, the applicant will be required to submit for Site Plan Review before work can begin. Site Plan Review is a detailed staff-level analysis of the project which includes reviews of storm water, utilities, lighting, landscaping, grading, and other issues to ensure compliance with all applicable ordinances as well as confirmation of approvals from local agencies such as the Ingham County Drain Commissioner's Office and Road Department.

Planning Commission Options

The Planning Commission may approve, approve with conditions, or deny the special use permit. A resolution will be provided at a future meeting.

Attachments

1. Special use permit applications received by the Township on January 29, 2019.
2. MDEQ/EGLE floodplain application received by the Township on January 29, 2019.
3. Floodplain plans prepared by Kebs, Inc. dated January 8, 2019 and received by the Township on January 29, 2019.
4. Site plan prepared by Kebs, Inc., dated January 18, 2018 (revision date February 19, 2019 and received by the Township on February 19, 2019.
5. Floor Plans & Building Elevations prepared by Detroit Architectural Group dated January 17, 2019 and received by the Township on January 29, 2019.
6. Traffic Impact Study prepared by Traffic Engineering Associates, Inc. dated March 2019 and received by the Township on April 1, 2019.
7. Letter from the Meridian Corridor Improvement Authority (CIA) dated April 25, 2019.
8. Letter from Meridian Township Engineering dated May 2, 2019.

CHARTER TOWNSHIP OF MERIDIAN
DEPARTMENT OF COMMUNITY PLANNING AND DEVELOPMENT
5151 MARSH ROAD, OKEMOS, MI 48864
PLANNING DIVISION PHONE: (517) 853-4560, FAX: (517) 853-4095

RECEIVED
JAN 29 2019

SPECIAL USE PERMIT APPLICATION

Before submitting this application for review, an applicant may meet with the Director of Community Planning and Development to discuss the requirements for a special use permit and/or submit a conceptual plan for review to have preliminary technical deficiencies addressed prior to submittal of the application. If the property or land use is located in the following zoning districts RD, RC, RCC, RN then the applicant must meet with the Planning Director to discuss technical difficulties before filing a formal application.

Part I

A. Applicant OKEMOS RETAIL MANAGEMENT LLC
Address of Applicant 30200 TELEGRAPH RD, SUITE 205, BINGHAM FARMS, MI 48025
Telephone - Work (248) 646-9999 Home _____ Fax _____ Email _____
Interest in property (circle one): Owner Tenant (Option) Other
(Please attach a list of all persons with an ownership interest in the property.)

B. Site address / location / parcel number 2085 W. GRAND RIVER AVE.
Legal description (please attach if necessary) SEE SITE PLAN
Current zoning C-2
Use for which permit is requested / project name DRIVE THRU & WORK IN FLOOD PLAIN
Corresponding ordinance number 86-404 (e)(12) & 86-436 (g)(6)

C. Developer (if different than applicant) Same
Address [redacted]
Telephone – Work _____ Home _____ Fax _____

D. Architect, Engineer Planner or Surveyor responsible for design of project if different from applicant:
Name JEFF KYES, KEBS, INC
Address 2116 HASLETT RD HASLETT, MI 48840
Telephone – Work (517) 339-1014 Home _____ Fax (517) 339-8047

E. Acreage of all parcels in the project: Gross 2.06 Net 1.84

F. Explain the project and development phases:

G. Total number of: EXISTING SITE TO BE DEMOLISHED
Existing: structures____ bedrooms____ offices____ parking spaces____ carports ___ garages____
Proposed: structures 1 bedrooms____ offices____ parking spaces 55 carports ___ garages____

H. Square footage: existing buildings Demo proposed buildings 10,960 SF
Usable Floor area: existing buildings____ proposed buildings 9,316 SF

I. If employees will work on the site, state the number of full time and part time employees working per shift and hours of operation:
N/A.

J. Existing Recreation: Type _____ Acreage _____
Proposed Recreation: Type _____ Acreage _____
Existing Open Space: Type _____ Acreage _____
Proposed Open Space: Type _____ Acreage _____

K. If Multiple Housing:

Total acres of property _____

Acres in floodplain _____ Percent of total _____

Acres in wetland (not in floodplain) _____ Percent of total _____

Total dwelling units _____

Dwelling unit mix:

Number of single family detached:	for Rent _____	Condo _____
Number of duplexes:	for Rent _____	Condo _____
Number of townhouses:	for Rent _____	Condo _____
Number of garden style apartments:	for Rent _____	Condo _____
Number of other dwellings:	for Rent _____	Condo _____

L. The following support materials must be submitted with the application:

1. Nonrefundable Fee.
2. Legal Description of the property.
3. Evidence of fee or other ownership of the property.
4. Site Plan containing the information listed in the attachment to this application.
5. Architectural sketches showing all sides and elevations of the proposed buildings or structures, including the project entrance, as they will appear upon completion. The sketches should be accompanied by material samples or a display board of the proposed exterior materials and colors.
6. A Traffic Study, prepared by a qualified traffic engineer, based on the most current edition of *Evaluating Traffic Impact Studies: A Recommended Practice for Michigan Communities*, published by the State Department of Transportation.
   a. A traffic assessment will be required for the following:
      1) New special uses which could, or expansion or change of an existing special use where increase in intensity would, generate between 50 to 99 directional trips during a peak hour of traffic.
      2) All other special uses requiring a traffic assessment as specified in the Township Code of Ordinances, Chapter 86, Article IV, Division 2.
   b. A traffic impact study will be required for the following:
      1) New special uses which would, or expansion or change of an existing special use where increase in intensity would, generate over 100 directional trips or more during a peak hour of traffic, or over 750 trips on an average day.
      2) All other special uses requiring a traffic assessment as specified in the Township Code of Ordinances, Chapter 86, Article IV, Division 2.
7. Natural features assessment which includes a written description of the anticipated impacts on the natural features at each phase and at project completion that contains the following:
   a. An inventory of natural features proposed to be retained, removed, or modified. Natural features shall include, but are not limited to, wetlands, significant stands of trees or individual trees greater than 12 inches dbh, floodways, floodplains, waterbodies, identified groundwater vulnerable areas, slopes greater than 20 percent, ravines, and vegetative cover types with potential to sustain significant or endangered wildlife.
   b. Description of the impacts on natural features.
   c. Description of any proposed efforts to mitigate any negative impacts.

   The natural features assessment may be waived by the Director of Community Planning and Development in certain circumstances.

M. Any other information specified by the Director of Community Planning and Development which is deemed necessary to evaluate the application.

N. In addition to the above requirements, for zoning districts, **RD, RC, RCC, RN, and CV** and **Group Housing Residential Developments** the following is required:

1. Existing and proposed contours of the property at two foot intervals based on United States Geological Survey (USGS) data.
2. Preliminary engineering reports in accordance with the adopted Township water and sewer standards, together with a letter of review from the Township Engineer.
3. Ten copies of a report on the intent and scope of the project including, but not limited to: Number, size, volume, and dimensions of buildings; number and size of living units; basis of calculations of floor area and density and required parking; number, size, and type of parking spaces; architectural sketches of proposed buildings.
4. Seven copies of the project plans which the Township shall submit to local agencies for review and comments.

O. In addition to the above requirements, a special use application in zoning district **RP** requires the following material as part of the site plan:

1. A description of the operations proposed in sufficient detail to indicate the effects of those operations in producing traffic congestion, noise, glare, air pollution, water pollution, fire hazards or safety hazards or the emission of any potentially harmful or obnoxious matter or radiation.
2. Engineering and architectural plans for the treatment and disposal of sewerage and industrial waste tailings, or unusable by-products.
3. Engineering and architectural plans for the handling of any excessive traffic congestion, noise, glare, air pollution, or the emission of any potentially harmful or obnoxious matter or radiation.

P. In addition to the above requirements, a special use application for a use in the Floodway Fringe of zoning district **CV** requires the following:

1. A letter of approval from the State Department of Environmental Quality.
2. A location map including existing topographic data at two-foot interval contours at a scale of one inch representing 100 feet.
3. A map showing proposed grading and drainage plans including the location of all public drainage easements, the limits, extent, and elevations of the proposed fill, excavation, and occupation.
4. A statement from the County Drain Commissioner, County Health Department, and Director of Public Works and Engineering indicating that they have reviewed and approved the proposal.

Q. In addition to the above requirements, a special use application for a use in the Groundwater Recharge area or zoning district **CV** requires the following:

1. A location map including existing topographic data at two-foot interval contours.
2. A map showing proposed grading and drainage plans including the location of all public drainage easements, the limits and extent of the proposed fill, excavation, and occupation.
3. A statement from the County Drain Commissioner, County Health Department, and Director of Public Works and Engineering indicating that they have reviewed and approved the proposal.

R. In addition to the above requirements, the Township Code of Ordinances, Article VI, should be reviewed for the following special uses: group housing residential developments, mobile home parks, nonresidential structures and uses in residential districts, planned community and regional shopping center developments, sand or gravel pits and quarries, sod farms, junk yards, sewage treatment and disposal installations, camps and clubs for outdoor sports and buildings greater than 25,000 square feet in gross floor area.

Part II

SUP REQUEST STANDARDS
Township Code of Ordinances, Section 86-126

Applications for Special Land Uses will be reviewed with the standards stated below. An application that complies with the standards stated in the Township Ordinance, conditions imposed pursuant to the Ordinance, other applicable Ordinances, and State and Federal statutes will be approved. Your responses to the questions below will assist the Planning Commission in its review of your application.

(1) The project is consistent with the intent and purposes of this chapter.

(2) The project is consistent with applicable land use policies contained in the Township's Master Plan of current adoption.

(3) The project is designed, constructed, operated, and maintained so as to be harmonious and appropriate in appearance with the existing or intended character of the general vicinity and that such a use will not change the essential character of the same area.

(4) The project will not adversely affect or be hazardous to existing neighboring uses.

(5) The project will not be detrimental to the economic welfare of surrounding properties or the community.

(6) The project is adequately served by public facilities, such as existing roads, schools, stormwater drainage, public safety, public transportation, and public recreation, or that the persons or agencies responsible for the establishment of the proposed use shall be able to provide any such service.

(7) The project is adequately served by public sanitation facilities if so designed. If on-site sanitation facilities for sewage disposal, potable water supply, and storm water are proposed, they shall be properly designed and capable of handling the longterm needs of the proposed project.

(8) The project will not involve uses, activities, processes, materials, and equipment and conditions of operation that will be detrimental to any persons, property, or the general welfare by reason of excessive production of traffic, noise, smoke, fumes, glare, or odors.

(9) The project will not directly or indirectly have a substantial adverse impact on the natural resources of the Township, including, but not limited to, prime agricultural soils, water recharge areas, lakes, rivers, streams, major forests, wetlands, and wildlife areas.

Part III

I (we) hereby grant permission for members of the Charter Township of Meridian's Boards and/or Commissions, Township staff member(s) and the Township's representatives or experts the right to enter onto the above described property (or as described in the attached information) in my (our) absence for the purpose of gathering information including but not limited to the taking and the use of photographs.

☒ Yes ☐ No (Please check one)

By the signature(s) attached hereto, I (we) certify that the information provided within this application and accompanying documentation is, to the best of my (our) knowledge, true and accurate

Heather Henika
Signature of Applicant

1.25.19
Date

Heather Henika
Type/Print Name

Fee: $500.00

Received by/Date: 1-29-19

Special Use Permit Application Attachment
Site Plan Requirements Per Section 86-124(c)(4)

A site plan, drawn to a legible scale, containing the following information where applicable:

a. Boundaries of the subject property.

b. Total area of the subject property.

c. Location of all existing and proposed structures.

d. Approximate location and distance of all structures within 100 feet of the subject property.

e. Uses of existing and proposed buildings, on the subject site.

f. Proposed means of vehicular and pedestrian ingress and egress to the subject property.

g. Public and private roads and streets, rights-of-way, and easements, indicating names and widths, which abut or cross the site.

h. Existing and proposed parking spaces, and vehicular and pedestrian circulation patterns.

i. The buildable area of the subject property indicating all required setbacks, yards and open space.

j. Zoning classification of the subject and adjacent properties.

k. Existing and proposed fencing, screening, landscaping, and buffers.

l. Location and sizes of existing utilities including power lines and towers, both above and below the ground.

m. Amount and location of all impervious surfaces.

n. The verified boundaries of all natural water features and required setback lines.

AGENCY USE	Previous USACE File Number	Date Received	DEQ File Number
	USACE File Number		Fee received $

Validate that all parts of this checklist are submitted with the application package. Fill out application and additional pages as needed.

☒ All items in Sections 1 through 9 are completed.
☒ Project-specific Sections 10 through 20 are completed.
☒ Dimensions, volumes, and calculations are provided for all impact areas.
☒ All information contained in the headings for the appropriate Sections (1-20) are addressed, and identified attachments (➡) are included.
☒ Map, site plan(s), cross sections; one set must be black and white on 8 ½ by 11 inch paper; photographs.
☒ Application fee is attached.

1 Project Location Information *For Latitude, Longitude, and TRS info anywhere in Michigan see www.mcgi.state.mi.us/wetlands/*

Project Address (road, if no street address)	Zip Code	Municipality (Township/Village/City)	County
2085 GRAND RIVER AVENUE	*48864*	*MERIDIAN CHARTER TOWNSHIP*	*INGHAM*

Property Tax Identification Number(s)	Latitude	Township/Range/Section (TRS)
33-02-02-21-226-011	*42.7214* N	T *4* N or S; R *21* E or W; Sec *21*
Subdivision/Plat and Lot Number	Longitude - *84.4269* W	OR Private Claim # _____

2 Applicant and Agent Information

Owner/Applicant (individual or corporate name)	Agent/Contractor (firm name and contact person)
ALRIG USA	*KEBS, INC. - JEFF KYES*
Mailing Address *3020 TELEGRAPH ROAD*	Mailing Address *2116 HASLETT ROAD*
City *BINGHAM FARMS* State *MI* Zip Code *48025*	City *HASLETT* State *MI* Zip Code *48840*
Contact Phone Number *248-289-7131* Fax *248-282-0497*	Contact Phone Number *517-339-1014* Fax *517-339-8047*
Email	E-mail *jkyes@kebs.com*

☐ No ☒ Yes Is the applicant the sole owner of all property on which this project is to be constructed and all property involved or impacted by this project? ➡ If no, attach letter(s) of authorization from all property owners including the owner of the disposal site.

Property Owner's Name (If different from applicant)	Mailing Address
Contact Phone Number	City State Zip Code

3 Project Description

Project Name *2085 GRAND RIVER AVE.*	Preapplication File Number – – –P
Name of Water body *RED CEDAR RIVER*	Date project staked/flagged

The proposed project is on, within, or involves (check all that apply)

☐ an inland lake (5 acres or more)
☐ a pond (less than 5 acres)
☐ a stream, river, ditch or drain
☐ a legally established County Drain
Date Drain was established
☐ a channel/canal
☐ 500 feet of an existing water body
☐ a Great Lake or Section 10 Waters
☐ a wetland
☒ a 100-year floodplain
☐ a dam
☐ a designated high risk erosion area
☐ a designated critical dune area
☐ a designated environmental area

Project Use

☐ private
☒ commercial
☐ public/government
☐ project is receiving federal/state transportation funds
☐ Wetland Restoration
☐ other

Indicate the type of permit being applied for: ☒ General Permit ☐ Minor Project ☐ Individual (All other projects.) ➡ See Appendix C.

Written Summary of All Proposed Activities ***REMOVE EXISTING BUILDING AND EXISTING ASPHALT PARKING. FILL AS NEEDED IN FLOODPLAIN AROUND NEW BUILDING, CONSTRUCT NEW BUILDING. REGRADE FOR NEW PARKING AREA AND REMOVE MATERIAL FROM FLOODPLAIN FOR STORM WATER DETENTION AND FILL COMPENSATION, ADD WALKS FOR BUILDING ACCESS AND CURBS IN PARKING AREAS. ALL PARKING AND BUILDING TO DRAIN TO DETENTION BASIN FOR 1ST FLUSH AND 100 YR OUTLET CONTROL.***

Construction Sequence and Methods ***INSTALL SOIL EROSION MEASURES, REMOVE EXISTING BUILDING, CONSTRUCT NEW BUILDING, CONSTRUCT DRAINAGE FACILITIES, REGRADE PARKING AND EXCAVATE DETENTION BASIN. PLACE NEW CURB AND WALKS WHERE REQUIRED. REVEGITATE DISTURBED AREAS.***

4 Project Purpose, Use and Alternatives *Attach additional sheets as necessary.*

Describe the purpose of the project and its intended use; include any new development or expansion of an existing land use.

REMOVE EXISTING RESTAURANT BUILDING AND PARKING PARKING AREAS TO PROVIDE FOR NEW COMMERCIAL BUILDING AND PARKING AREA. EXCAVATE THE DETENTION BASIN AND PLACE PERFORATED PIPE IN THE BOTTOM FOR BIO RETENTION AND OUTLET CONTROL STRUCTURE TO RESTRICT FLOWS FOR A 100 YEAR STORM.

Describe the alternatives considered to avoid or minimize resource impacts. Include factors such as, but to limited to, alternative locations, project layout and design, and construction technologies. For utility crossings include alternative routes and construction methods.

THE SITE WAS ORIGINALLY LAID OUT WITH A SMALL DETENTION POND TO PROVIDE PRETREATMENT AND 100 YEAR STORM RESTRICTION. THE DETENTION POND LOCATION AND SIZING WERE ADJUSTED TO PROVIDE SUFFICIENT 100 YEAR FLOODPLAIN COMPENSATION FOR THE PROPOSED FILL.

5 Locating Your Project Site *Attach a legible black and white map with a North arrow.*

Names of roads of closest intersection ***SOUTH EAST CORNER OF OKEMOS ROAD AND GRAND RIVER AVENUE***

Directions from main intersection to the project site, with distances from the best and nearest visible landmark and water body ***SOUTH EAST CORNER OF OKEMOS ROAD AND GRAND RIVER AVENUE.***

Description of buildings on the site *(color; 1 or 2 story, other)*	Description of adjacent landmarks or buildings *(address; color; etc)*
EXISTING LEO'S SPIRIT AND GRUB (RESTAURANT) BROWN LOG BUILDING	***WEST OF MEIJER STORE ENTRANCE***

How can your site be identified if there is no visible address? ***SEE ABOVE***

6 Easements and Other Permits

☒ No ☐ Yes Is there a conservation easement or other easement, deed restriction, lease, or other encumbrance upon the property?

➡ If yes, attach a copy. Provide copies of court orders and legal lake levels if applicable.

List all other federal, interstate, state, or local agency authorizations including required assurances for Critical Dune Area projects.

Agency	Type of Approval	Number	Date Applied	Date approved /denied	Reason for denial
CONSUMERS POWER COMPANY	***10' PRIVATE UTIITY***	***L 1007, PG 100***			
MICH BELL	***16.5'***	***L 1300, PG 137***			

7 Compliance

If a permit is issued, when will the activity begin? (M/D/Y) ***SPRING 2019***	Proposed completion date (M/D/Y) ***SEPTEMBER 2019***

☒ No ☐ Yes Has any construction activity commenced or been completed in a regulated area?

➡ If Yes, identify the portion(s) underway or completed on drawings or attach project specifications and give completion date(s).

☐ No ☐ Yes Were the regulated activities conducted under a DEQ and/or USACE permit?

➡If Yes, list the permit numbers

☒ No ☐ Yes Are you aware of any unresolved violations of environmental law or litigation involving the property?

➡ If Yes, attach explanation.

8 Adjoining Property Owners *Provide current mailing addresses. Attach additional sheets/labels for long lists.*

☐ Established Lake Board ☐ Lake Association	Contact Person	Mailing Address	City	State and Zip Code

List all adjoining property owners.

If you own the adjoining lot, provide the requested information for the first adjoining parcel that is not owned by you.

Property Owner's Name	Mailing Address	City	State and Zip Code
MEIJER THRIFTY ACRES	***ATTN. REAL ESTATE DEPT. 2929 WALKER AVE. NW***	***GRAND RAPIDS***	***MI. 49544***
JOHN HOLDINGS, LLC	***205 ORANGE WOOD LANE***	***LARGO***	***FL 33770***

9 **Applicant's Certification** *Read carefully before signing.*			
I am applying for a permit(s) to authorize the activities described herein. I certify that I am familiar with the information contained in this application; that it is true and accurate; and, to the best of my knowledge, that it is in compliance with the State Coastal Zone Management Program. I understand that there are penalties for submitting false information and that any permit issued pursuant to this application may be revoked if information on this application is untrue. I certify that I have the authority to undertake the activities proposed in this application. By signing this application, I agree to allow representatives of the DEQ, USACE, and/or their agents or contractors to enter upon said property in order to inspect the proposed activity site before and during construction and after the completion of the project. I understand that I must obtain all other necessary local, county, state, or federal permits and that the granting of other permits by local, county, state, or federal agencies does not release me from the requirements of obtaining the permit requested herein before commencing the activity. I understand that the payment of the application fee does not guarantee the issuance of a permit.			
☒ Property Owner ☐ Agent/Contractor ☐ Corp. or Public Agency / Title	Printed Name	Signature	Date

10 Projects Impacting Inland Lakes, Streams, Great Lakes, Wetlands or Floodplains

- Complete only those sections A through M applicable to your project.
- If your project impacts wetlands also complete Section 12. If your project impacts regulated floodplains also complete Section 13.
- To calculate volume in cubic yards (cu yd), multiply the average length in feet (ft) times the average width (ft) times the average depth (ft) and divide by 27. Example: (25 ft long x 10 ft wide x 2 feet deep) / 27 = 18.5 cubic yards
- Some projects on the Great Lakes require an application for conveyance prior to Joint Permit Application completeness.

➡Provide a black and white overall site plan, with cross-section and profile drawings. Show existing lakes, streams, wetlands, and other water features; existing structures; and the location of all proposed structures, land change activities and soil erosion and sedimentation control measures. Review Appendix B and EZ Guides for aid in providing complete site-specific drawings.

➡Provide tables for multiple impact areas or multiple activities such as multiple fill areas or multiple culverts. Include your calculations.

Water Level Elevation

On inland waters ☐ NGVD 29 ☐ NAVD 88 ☐ other Observed water elevation (ft) date of observation (M/D/Y)

On a Great Lake ☐ IGLD 85 ☐ surveyed ☐ converted from observed still water elevation.

☒ A. PROJECTS REQUIRING FILL (See All Sample Drawings)

➡Attach a site plan and cross-section views to scale showing maximum and average fill dimensions with calculations.
➡ For multiple impact areas on a site provide a table with location, dimensions and volumes for each fill area.

Purpose ☐ bioengineered shore protection ☐ boat ramp ☐ boat well ☐ bridge or culvert ☐ crib dock ☐ riprap ☐ seawall ☐ swim area ☒ other ***NEW BUILDING, REGRADE PARKING & CONSTRUCT DETENTION***

Dimensions of fill (ft)	Total volume (cubic yards)	Volume below OHWM (cubic yards)
Length ***275*** Width ***178*** Maximum Depth ***2.15***	***940***	***0***
Maximum water depth in fill area (ft) ***0***	Area filled (sq ft) ***34,570***	Will filter fabric be used under proposed fill? ☒ No ☐ Yes (If Yes, type)

Fill will extend ***0*** feet into the water from the shoreline and upland feet out of the water.

Type of clean fill ☐ peastone % ☐ sand % ☐ gravel % ☒ other ***COMMERCIAL***

Source of clean fill ☒ commercial ☐ on-site ➡ If on-site, show location on site plan. ☐ other ➡ If other, attach description of location.

☒ B. PROJECTS REQUIRING DREDGING OR EXCAVATION (See Sample Drawings)

- Refer to www.mi.gov/jointpermit for spoils disposal and authorization requirements.

➡Attach a site plan and cross-section views to scale showing maximum and average dredge or excavation dimensions with calculations.
➡For multiple impact areas on a site provide a table with location, dimensions and volumes for each dredge/excavation area.

Purpose ☐ boat ramp ☐ boat well ☐ bridge or culvert ☐ maintenance dredge ☐ navigation ☐ pond/basin ☒ other ***DETENTION POND & COMPENSATING CUT***

Dimensions (ft)	Total volume (cu yds)	Volume below OHWM (cu yds)
Length ***265*** Width ***55*** Maximum Depth ***5.0***	***970***	***0***

Has this same area been previously dredged?	☒ No ☐ Yes	If Yes, provide date and permit number:
Will the previously dredged area be enlarged?	☐ No ☐ Yes	If Yes, when and how much?
Is long-term maintenance dredging planned?	☒ No ☐ Yes	If Yes, how often?

Dredge or Excavation Method ☒ Hydraulic ☐ Mechanical ☐ other

Spoils Disposal

Dredged or excavated spoils will be placed ☒ on-site ☐ landfill ☐ USACE confined disposal facility ☐ other upland off-site
For disposal, provide a ➡Detailed spoils disposal area location map and site plan with property lines.
➡Letter of authorization from property owner of spoils disposal site, if disposed off-site.

For volumes less than 5,000 cu yards, has proposed dredge material been tested for contaminants within the past 10 years?
☒ No ☐ Yes ➡If Yes, provide test results with a map of sampling locations.

☒ C. PROJECTS REQUIRING RIPRAP (See Sample Drawings 2, 3, 8, 12, 14, 22, and 23)

Riprap water ward of the ordinary high water mark: dimensions (ft) length width depth	Volume(cu yd)
Riprap landward of the ordinary high water mark: dimensions (ft) length ***5*** width ***15*** depth ***.5***	Volume(cu yd) ***1.5***
Type and size of riprap (inches) ☐ field stone ☒ angular rock ***.50*** ☐ other	Will filter fabric or pea stone be used under proposed riprap? ☐ No ☒ Yes, Type ***AMOCO 4551***

☐ **D. SHORE PROTECTION PROJECTS** (See EZ Guides and Sample Drawings 2, 3, and 17. Complete Sections 10A, B, and/or C.)
➡ For bioengineering projects include the list of native plants/seeds, if available.

Type and length (ft) ☐ bioengineering (ft) ☐ revetment (ft) ☐ riprap (ft) ☐ seawall/bulkhead (ft)	
Structure is ☐ new ☐ repair ☐ replacement of an existing structure	Will the existing structure be removed? ☐ No ☐ Yes
Proposed Toe Stone (linear feet)	Distance of project from adjacent property lines (ft)
Distance of project from an obvious fixed structure (example - 50 ft from SW corner of house)	
For bioengineering projects indicate the structure type ☐ brush bundles ☐ coir log ☐ live stakes ☐ tree revetment ☐ other	

☐ **E. DOCK - PIER – MOORING PILINGS** (See Sample Drawing 10)
➡ Attach a copy of the property legal description, mortgage survey, or a property boundary survey report.

Dock Type ☐ open pile ☐ filled ☐ crib ☐ floating ☐ cantilevered ☐ spring piles ☐ piling clusters ☐ other	
Is the structure within the applicant's riparian area interest area? ☐ No ☐ Yes ➡ Show parcel property lines on the site plan.	
Proposed structure dimensions (ft) length width	Use ☐ private ☐ public ☐ commercial
Dimensions of nearest adjacent structures (ft) length width	Distance of dock from adjacent property lines (ft)

☐ **F. BOAT WELL** (See EZ Guide. Complete Sections 10A and 10B)

Dimensions (ft) length width depth		Number of boats
Type of sidewall stabilization ☐ concrete ☐ riprap ☐ steel ☐ vinyl ☐ wood ☐ other		
Volume of backfill behind sidewall stabilization (cu yd)		Distance of boat well from adjacent property lines (ft)

☐ **G. BOAT RAMP** (See EZ Guide. Complete sections 10A, 10B, and 10C for mattress and pavement fill, dredge, and riprap)

Type ☐ new ☐ existing ☐ maintenance/improvement		Use ☐ private ☐ public ☐ commercial
Existing overall boat ramp dimensions (ft) length width depth		Type of construction material ☐ concrete ☐ wood ☐ stone ☐ other
Proposed overall ramp dimensions (ft) length width depth		Proposed ramp dimensions (ft) below ordinary high water mark length width depth
Number of proposed skid piers	Proposed skid pier dimensions (ft) length width	Distance of ramp from adjacent property lines (ft)

☐ **H. BOAT HOIST – ROOFS** (See EZ Guide)

Type ☐ cradle ☐ side lifter ☐ other	Located on ☐ seawall ☐ dock ☐ bottomlands
Hoist dimensions, including catwalks (ft) length width	
Area occupied, including cat walks (sq ft)	Distance of hoist from adjacent property lines (ft)
Permanent Roof ☐ No ☐ Yes ➡ If Yes, how is the roof supported?	Maximum Roof Dimensions (ft): length width height

☐ **I. BOARDWALKS and DECKS in WETLANDS or FLOODPLAINS** (See Sample Drawings 5 and 6. Complete Sections 12 and/or 13)
➡ Provide a table for multiple boardwalks and decks proposed in one project; include locations and dimensions.

Wetlands		**Floodplains**	
Boardwalk ☐ on pilings ☐ on fill Dimensions (ft) length width	Deck ☐ on pilings ☐ on fill Dimensions (ft) length width	Boardwalk ☐ on pilings ☐ on fill Dimensions (ft) length width	Deck ☐ on pilings ☐ on fill Dimensions (ft) length width

☐ **J. INTAKE PIPES** (See Sample Drawing 16) or **OUTLET PIPES** (See Sample Drawing 22)

If outlet pipe, discharge is to ☐ inland lake ☐ stream, drain or river ☐ overland flow ☐ Great Lake ☐ wetland ☐ other			
Number of pipes	Pipe diameters and invert elevations	Does pipe discharge below the OHWM?	☐ No ☐ Yes
		Is the water treated before discharge?	☐ No ☐ Yes
Type ☐ headwall ☐ end section ☐ other		Dimensions of headwall OR end section (ft) length width height	

☐ **K. MOORING and NAVIGATION BUOYS** (See EZ Guide for Sample Drawing)
➡Provide a site plan showing the distances between each buoy and from the shore to each buoy, and depth (ft) of water at each location.
➡Provide cross-section drawing(s) showing anchoring system(s) and dimensions.

Purpose of buoy	☐ mooring	☐ navigation	☐ scientific structures	☐ swimming ☐ other

Number of buoys	Dimensions of buoys (ft) width height swing radius chain length	Boat Lengths	Type of anchor system

Buoy Location: Latitude . N Longitude -- . W. ➡ Provide a table for multiple buoys.

Do you own the property along the shoreline?	☐ No ☐ Yes	➡ If No, attach an authorization letter from the property owner(s).
Do you own the bottomlands?	☐ No ☐ Yes	➡ If No, attach an authorization letter from the property owner(s).

☐ **L. FENCES**
➡Provide an overall site plan showing the proposed fencing through streams, wetlands or floodplains.
➡Provide a drawing of fence profile showing the design, dimension, post spacing, mesh, and distance from ground to bottom of fence.

Purpose of fence	☐ Airport	☐ Cervidae	☐ Livestock	☐ Residential	☐ Security	☐ Other

Total length (ft) of fence through streams wetlands floodplains	Fence height (ft)	Fence type and material

☐ **M. OTHER** - e.g., structure removal, maintenance or repair, aerator, dry fire hydrant, gold prospecting, habitat structures, scientific measuring devices, soil borings, or survey activities.

Structure description, dimensions and volumes. Complete Sections 10A-C as applicable.

11 Expansion of an Existing or Construction of a New Lake or Pond (See Sample Drawings 4 and 15)
➡Complete Section 10J for outlets and Section 17 for water control structures.
➡Provide elevations, cross-sections and profiles of outlets, dams, dikes, water control structures and emergency spillways to nearest water bodies.

Which best describes your proposed water body use (check all that apply)
☐ mining ☐ recreation ☐ storm water retention basin ☐ wastewater basin ☐ wildlife ☐ other

Water source for lake/pond
☐ groundwater ☐ natural springs ☐ Inland Lake or Stream ☐ storm water runoff ☐ pump ☐ sewage ☐ other

Location of the lake/basin/pond ☐ floodplain ☐ wetland ☐ stream (inline) ☐ upland

Maximum dimensions (ft) length width depth	Maximum Area: ☐ acres ☐ sq ft

Has the there been a hydrologic study performed on the site?	☐ No ☐ Yes	➡ If Yes, provide a copy.
Has the DEQ conducted a wetland assessment for this parcel?	☐ No ☐ Yes	➡ If Yes, provide a copy or WIP number:
Has a professional wetland delineation been conducted for this parcel?	☐ No ☐ Yes	➡ If Yes, provide a copy with data sheets.

Spoils Disposal

Dredged or excavated spoils will be placed ☐ on-site ☐ landfill ☐ USACE confined disposal facility ☐ other upland off-site
For disposal, provide a ➡Detailed spoils disposal area location map and site plan with property lines.
➡Letter of authorization from property owner of spoils disposal site, if disposed off-site.

12 Activities That May Impact Wetlands (See Sample Drawings 8 & 9). Complete other Sections as applicable.

- Locate your site and wetland information with the DEQ Wetlands Map Viewer at www.mcgi.state.mi.us/wetlands/
- For information on the DEQ's Wetland Identification Program (WIP) visit www.mi.gov/wetlands.
  - ➡ Provide a detailed site plan with labeled property lines, upland and wetland areas, and dimensions and volumes of wetland impacts.
  - ➡ Complete the wetland dredge and wetland fill dimension information below for each impacted wetland area.
  - ➡ Attach tables for multiple impact areas or activities.
  - ➡ Attach at least one cross-section for each wetland dredge and/or fill area; show wetland and upland boundaries on the cross-section.

Has the DEQ conducted a wetland assessment for this parcel?	☐ No ☐ Yes	➡ If Yes, provide a copy or WIP number:
Has a professional wetland delineation been conducted for this parcel?	☐ No ☐ Yes	➡ If Yes, provide a copy with data sheets
Is there a recorded DEQ easement on the property?	☐ No ☐ Yes	➡ If Yes, provide the easement number
Did the applicant purchase the property before October 1, 1980?	☐ No ☐ Yes	➡ If Yes, provide documentation.
Is any grading or mechanized land clearing proposed?	☐ No ☐ Yes	➡ If Yes, label the locations on the site plan.
Has any of the proposed grading or mechanized land clearing been completed?	☐ No ☐ Yes	➡ If Yes, label the locations on the site plan

Proposed Activity

☐ boardwalk or deck (Section 10I)	☐ bridges and culverts (Section 14)	☐ designated environmental area
☐ dewatering	☐ draining surface water	☐ driveway / road
☐ fences (Section 10L)	☐ fill or dredge	☐ restoration
☐ septic system	☐ stormwater discharge (Section 10J)	☐ other

FILL	Dimensions maximum length (ft) maximum width (ft)	Area ☐ acres ☐ sq ft	Average depth (ft)	Volume (cu yd)
DREDGE	Dimensions maximum length (ft) maximum width (ft)	Area ☐ acres ☐ sq ft	Average depth (ft)	Volume (cu yd)

Spoils Disposal

Dredged or excavated spoils will be placed ☐ on-site ☐ landfill ☐ USACE confined disposal facility ☐ other upland off-site

For disposal, provide a
- ➡ Detailed spoils disposal area location map and site plan with property lines.
- ➡ Letter of authorization from property owner of spoils disposal site, if disposed off-site.

Septic System

The proposed project will be serviced by:
☐ public sewer ☐ private septic system
➡ Show system on plans.

If a private septic system is proposed, has an application for a permit been made to the County Health Department? ☐ No ☐ Yes
If Yes, has a permit been issued? ☐ No ☐ Yes ➡ Provide a copy of the permit.

Describe the wetland impacts, the proposed use or development, and the alternatives considered:

Does the project impact more than 1/3 acre of wetland? ☐ No ☐ Yes
➡ If Yes, submit a Mitigation Plan with the type and amount of mitigation proposed. For more information go to www.mi.gov/wetlands

Describe how impacts to waters of the United States will be avoided and minimized:

Describe how the impact to waters of the United States will be compensated. OR Explain why compensatory mitigation should not be required for the proposed impacts.

13 Floodplain Activities (See Sample Drawing 5 and others. Complete other applicable sections.)

- For more information go to www.mi.gov/floodplainmanagement. This site also lists the projects and requirements for an expedited floodplain review under "Expedited Review Information for Minor Floodplain Projects."
- Examples of projects proposed within the non-floodway portions of the 100-year-floodplain which may qualify for an expedited review: Open pile decks and boardwalks; residences, commercial/industrial facilities, garages and accessory structures; parking lots; pavilions, gazebos, large community playground structures; residential swimming pools
- Examples of projects proposed within the floodway portions of the floodplain which may qualify for an expedited review: Open pile decks and boardwalks, (non-enclosed) that are anchored to prevent floatation and that do not extend over the bed and bank of a watercourse; parking lots constructed at grade or resurfacing that is no more than 4 inches above the existing grade; dry hydrants that do not require fill placement; scientific structure such as staff gauges, water monitoring devices, water quality testing devices, and core sampling devices which meet specific design criteria and fish structures that meet specific design criteria.
- For expedited review include:
  - ➡ Photographs of the work site labeled to identify what is being shown and with the direction of the photo clearly indicated. Include photographs of any river or stream adjacent to the project.
  - ➡ A letter or statement from the local unit of government acknowledging your proposed application. See the website for sample wording.
- A hydraulic analysis or hydrologic analysis may be required to fully assess floodplain impacts.
- The state building code requires an Elevation Certificate for any building construction or addition in a floodplain. A sample form can be found at www.fema.gov/nfip/elvinst.shtm.
  - ➡Attach additional sheets or tables for multiple proposed floodplain activities and provide hydraulic calculations.
  - ➡Show reference datum used on plans.

Proposed Activity ☒ fill ☒ excavation or cut ☐ other	100-year floodplain elevation (ft) (if known) ***842.10*** Datum ☒ NGVD 29 ☐ NAVD 88 ☐ other
Site is NA feet above ☐ ordinary high water mark (OHWM) OR ☐ observed water level. Date of observation (M/D/Y)	
Fill volume below the 100-year floodplain elevation (cu yds) ***940***	Compensating cut volume below the 100-year floodplain elevation (cu yds) ***970***

Buildings and/or Additions

Type of construction is ☐ residential ☐ garage/pole barn ☐ non residential ☒ other ***COMERCIAL***

Construction is ☐ new ☐ addition AND Serviced by ☒ public sewer ☐ private septic ☒ other ***RECONSTRUCTION***

Lowest adjacent grade (ft): existing ***840.60***
proposed ***843.00***
datum ☐ NGVD 29 ☒ NAVD 88 ☐ other

Existing Structure Information		Proposed Structure Information	
Foundation type	☐ basement	Foundation type	☐ basement
☒ concrete slab on grade	☐ pilings	☒ concrete slab on grade	☐ pilings
☐ crawl space	☐ other	☐ crawl space	☐ other
Foundation floor elevation (ft) ***843.26***		Foundation floor elevation (ft) ***843.10***	
Height of crawl space/basement from finished foundation floor to bottom of floor joists (ft) ***NA***		Height of crawl space/basement from finished foundation floor to bottom of floor joists (ft) ***NA***	
Elevation of 1st floor above basement floor/crawl space (ft) ***NA***		Elevation of 1st floor above basement floor/crawl space (ft) ***NA***	

For enclosed areas below the flood elevation, such as a crawl space, garages and accessory structures:
Area of proposed foundation (sq ft) ***NA***
Elevation of proposed enclosed area (ft) ***NA*** datum ☐ NGVD 29 ☐ NAVD 88 ☐ other

Number of flood vents ***NA*** net opening of each vent (sq inches) ***NA*** lowest elevation of flood vents (ft)

14 Bridges and Culverts Including Foot and Cart Bridges. (See EZ Guides and Sample Drawings 5, 14A, 14B, 14C, 14D.)

- Complete other applicable Sections, including 10A-C.
- A hydraulic analysis or hydrologic analysis may be required to fully assess impacts. ➡Attach hydraulic calculations.
- High Water Elevation - describe reference point and highest known water level above or below reference point and date of observation.

➡Attach additional sheets for multiple bridges and/or culverts.

➡Provide detailed site-specific drawings of existing and proposed Plan and Elevation View at a scale adequate for detailed review.

➡Provide all information in the boxes below; do not write in a reference to plan sheets. Show reference datum used on plans.

Stream Information

The site has a high water elevation (ft) ☐ above or ☐ below the Reference Point of Date observed		
Reference datum used ☐ NGVD 29 ☐ NAVD 88 ☐ IGLD 85 (Great Lakes coastal areas) ☐ other		
Average stream width (ft) at the ordinary high water mark (OHWM) outside the influence of any ponding or scour holes around the structure	Upstream	
	Downstream	
Cross-sectional area of primary channel (sq ft) (See Sample Drawing 14C for more information)		
The width of the stream where the water begins to overflow its banks. Bankfull width (ft)		
The invert of the stream 100-feet from structure (ft)	Upstream	
	Downstream	
Is the existing culvert perched? ☐ No ☐ Yes If Yes, provide a profile of the channel bottom at the high and low points for a distance of 200 feet upstream and downstream of the culvert.		

Complete this form for each bridge / culvert location.		Existing	Proposed
Bridge			
Number of bridge spans			
Bridge type (concrete box beam, concrete I-beam, timber, etc.)			
Bridge span (length perpendicular to stream) (ft)			
Bridge width (parallel to stream) (ft)			
Bottom of bridge beam (ft)	Upstream		
	Downstream		
Stream invert elevation at bridge (ft)	Upstream		
	Downstream		
Bridge rise from bottom of beam to streambed (ft)			
Culvert			
Number of culverts			
Culvert type (arch, bottomless, box, circular, elliptical, etc.)			
Culvert material (concrete, corrugated metal, plastic, etc.)			
Culvert length (ft)			
Culvert ☐ width ☐ diameter (ft)			
Culvert height prior to any burying (ft)			
Depth culvert will be buried (ft)			
Elevation of culvert crown (ft)	Upstream		
	Downstream		
Higher elevation of ☐ culvert invert OR ☐ streambed within culvert (ft)	Upstream		
	Downstream		
Complete for both Bridges and Culverts			
Entrance design (mitered, projecting, wingwalls, etc.) Total structure waterway opening above streambed (sq ft)			
Total structure waterway area below the 100-year elevation (sq ft) (if known)			
Elevation of road grade at structure (ft)			
Elevation of low point in road (ft)			
Distance from low point of road to mid-point of bridge crossing (ft)			
Length of approach fill from edge of bridge/culvert to existing grade (ft)			

A Licensed Professional Engineer may certify that your project will not cause a harmful interference for a range of flood discharges up to and including the 100-year flood discharge. The "Required Certification Language" is found under "forms" on the "maps, forms and documents" link from the www.mi.gov/jointpermit page or a copy may be requested by phone, email, or mail. A hydraulic report supporting this certification may also be required.

Is Certification Language attached? ☐ No ☐ Yes

15 Stream, River, or Drain Construction , Relocation and Enclosure Activities

- Complete Section 10C for riprap activities.
- If side casting or other proposed activities will impact wetlands or floodplains, complete Sections 12 and 13, respectively.

➡Provide a scaled overall site plan showing existing lakes, streams, wetlands, and other water features; existing structures; and the location of all proposed structures and land change activities.

➡Provide scaled cross-section (elevation) drawings necessary to clearly show existing and proposed conditions.

➡For activities on legally established county drains, provide original design and proposed dimensions and elevations.

Stream Information

Water elevation (ft) datum ☐ NGVD 29 ☐ NAVD 88 ☐ IGLD 85 (Great Lakes coastal areas) ☐ other
➡ Show elevation on plans with description.

Dimensions (ft) of existing stream/drain channel (ft) length width depth

Existing channel average water depth in a normal year (ft)

Proposed Activity ☐ enclosure ☐ improvement ☐ maintenance ☐ new drain ☐ relocation ☐ wetlands ☐ other

If an enclosed structure is proposed, check material type ☐ concrete ☐ corrugated metal ☐ plastic ☐ other

Dimensions (ft) of the structure: diameter length	Volume of fill (cu yds)

Will old/enclosed stream channel be backfilled to top of bank grade? ☐ No ☐ Yes

Length of channel to be abandoned (ft)	Volume of fill (cu yds)
Dimensions (ft) of improved, maintained, new, relocated or wetland stream/drain channel. length width depth	Volume of dredge/excavation (cu yds)
How will slopes and bottom be stabilized?	Proposed side slopes (vertical / horizontal)

Spoils Disposal

Dredged or excavated spoils will be placed ☐ on-site ☐ landfill ☐ USACE confined disposal facility ☐ other upland off-site

For disposal, provide a ➡ Detailed spoils disposal area location map and site plan with property lines.
➡ Letter of authorization from property owner of spoils disposal site, if disposed off-site.

16 Drawdown of an Impoundment

- If wetlands will be impacted, complete Section 12.

Type of drawdown ☐ over winter ☐ temporary ☐ one-time event ☐ annual event ☐ permanent (dam removal) ☐ other

Reason for drawdown

Has there been a previous drawdown? ☐ No ☐ Yes If Yes, provide date (M/D/Y)		Previous DEQ permit number, if known
Does waterbody have established legal lake level? ☐ No ☐ Yes ☐ Not Sure		Dam ID Number, if known
Extent of vertical drawdown (ft)	Impoundment design head (ft)	Number of adjoining or impacted property owners
Date drawdown would start (M/D/Y)	Date drawdown would stop (M/D/Y)	Rate of drawdown (ft/day)
Date refilling would start (M/D/Y)	Date refill would end (M/D/Y)	Rate of refill (ft/day)
Type of outlet discharge structure to be used ☐ surface ☐ bottom ☐ mid-depth	Impoundment area at normal water level (acres)	Sediment depth behind impoundment discharge structure (ft)

17 Dam, Embankment, Dike, Spillway, or Control Structure Activities (See Sample Drawing 15)

- For more information go to www.mi.gov/damsafety. If wetlands will be impacted, complete Section 12.
- Information on removing a dam is available at www.mi.gov/damsafety and following the Related Link –Dam Management.

➡➡Attach detailed signed and sealed engineering plans for a Part 315 dam repair, dam alteration, dam abandonment, or dam removal.

➡Part 315 Dam Safety application fees are added to all other application fees.

➡Mail applications for dams regulated under Part 315 to DEQ, WRD, P.O. BOX 30458, LANSING, MI 48909-7958, attention Dam Safety.

Proposed Activity	☐ abandonment	☐ alteration	☐ enlargement of an existing dam
	☐ removal	☐ repair	☐ reconstruction of a failed dam
	☐ new dam construction	☐ other	

Dam ID Number, if known	Type of outlet discharge structure ☐ surface ☐ bottom ☐ mid-depth

Will proposed activities require a drawdown of the waterbody to complete the work? ☐ No ☐ Yes ➡ If Yes, complete Section 16.

Structural height (difference between embankment top elevation and streambed elevation at downstream embankment toe) (ft) _____

Hydraulic Height (difference between design flood elevation and streambed elevation at downstream embankment toe) (ft) _____	Impoundment size at design flood elevation (acres)

Does dam meet the criteria for regulation under Part 315? (i.e. hydraulic height of 6 feet or more and an impoundment size at the design flood of 5 surface acres or more) ☐ No ☐ Yes

Dredging/excavation volume (cu yd)	Fill volume (cu yd)	Riprap volume (cu yd)

Will a water diversion during construction be required? ☐ No ☐ Yes

If Yes, describe how the stream flow will be controlled through the dam construction area during the proposed project activities:

Complete the following for a new dam, reconstruction of a failed dam or enlargement of an existing dam

For Part 315 regulated dams, the following must be attached:
➡ Site-specific conceptual plans of the dam for resource impact review (An engineering report and detailed engineering plans are not required until the project has been determined to be permitable).
➡ A description and evaluation of the loss of natural resources associated with the project.
➡ A description of the natural resources that are associated with or created by the impoundment and how they offset the natural resources lost by the creation of the impoundment.
➡ An assessment of all known existing and potential adverse effects within the scope of the project.

Embankment dimensions	length (ft)	top width (ft)	bottom width (ft)	slopes (vertical / horizontal)	Upstream Downstream

Have soil borings been taken at dam location?	☐ No ☐ Yes	➡ If Yes, attach results.
Do you have flowage rights to all proposed flooded property at the design flood elevation?	☐ No ☐ Yes	➡ If No, provide a letter of authorization from the property owner.

Applications for Part 315 regulated dam removal projects must also include the following:

An evaluation of the capacity of the remaining structure to pass flood flows.
An evaluation of the quantity and quality of the sediments behind the impoundment.
A description of the methods to be employed to control sediments.
An assessment of all known existing and potential adverse impacts within the scope of the project.

18 Utility Crossings (See Sample Drawings 12 and 13, and EZ Guide)

- If side casting is proposed, complete Sections 10A and 10B. If spoils will be placed in or impact wetlands, complete Section 12.
  - ➡Attach additional sheets or tables with the requested information as needed for multiple crossings.
  - ➡For wetland crossings using the open trench method show clay plugs at the wetland/upland boundaries on the plans.

Crossing of ☐ Inland Lake or Stream ☐floodplain ☐ Great Lake ☐ wetlands (also complete Section 12)

What method will be used to construct the crossings? ☐ directional boring ☐ jack and bore ☐ open trench ☐ plow / knife ☐ flume

Utility Type	Number of lake or stream crossings	Number of wetland crossings	Pipe diameter with casing (in)	Pipe length per crossing (ft)	Distance below streambed or wetland (in)	Trench width (ft)
☐ sanitary sewer						
☐ storm sewer						
☐ watermain						
☐ cable						
☐ electric						
☐ fiber optic cable						
☐ oil/gas pipeline						

19 Marina Construction, Expansion and Reconfiguration (See Sample Drawing 21)

- For more information go to www.mi.gov/marinas
- Marinas located on the Great Lakes, including Lake St. Clair, may be required to secure leases or conveyances from the state of Michigan to place structures on the bottomlands. If a conveyance is necessary, an application must be submitted before the Joint Permit Application can be determined complete.
  - ➡Fully complete Section 10 E. For multiple structures provide a table with the requested information.
  - ➡Enclose a copy of any current pump-out agreement with another marina facility, if on-site sanitary pump out facilities are not available.
  - ➡Attach a copy of the property legal description, mortgage survey, or a property boundary survey to your application.
  - ➡ The WRD may require a riparian interest area (RIA) estimate survey, sealed by a licensed surveyor, in order to determine whether the proposed project will adversely impact riparian rights. Include any available sealed RIA estimate survey and/or written authorizations from affected adjoining riparian owners with your application.

Proposed Marina Activity ☐ New construction ☐ Expansion ☐ Reconfiguration

Do you have an existing Great Lake Conveyance? ☐ No ☐ Yes For more information visit www.mi.gov/deqgreatlakes.

Are sanitary pump-out facilities available? ☐ No ☐ Yes | Is there a pump out agreement? ☐ No ☐ Yes If Yes, provide a copy.

Marina Description	Current Count	Final Count
Number of boat slips/wells (do not include broadside dockage or mooring buoys)		
Lineal feet of broadside dockage		
Maximum number of boats at broadside dockage		
Number of mooring buoys		
Number of launch ramps/lanes		

20 Critical Dune Areas and High Risk Erosion Areas (See Sample Drawings 19 and 20)

Critical Dune Areas (See Sample Drawing 20)

- **Although not required, submitting PHOTOGRAPHS of the site may provide for a faster application review.**
- For more information go to www.mi.gov/jointpermit, select "Sand Dune Protection" under "Related Links."
- All property boundaries and proposed structure corners, including decks, septic systems, water wells, driveways, grading, and terrain alteration locations must be staked before the WRD site inspection.
- Scaled overhead and cross-section plans must include all property boundaries, locations, and dimensions of all existing structures and impacted areas, and all proposed structures, terrain alterations, and construction access. Cross-sections must show existing and proposed grades, including foundations.
- Construction in critical dune areas on slopes greater than 33 percent (1 vertical: 3 horizontal) is prohibited without a special exception.
- Construction in critical dune areas on slopes that measure from 25 percent (1 vertical: 4 horizontal) to less than 33 percent requires sealed plans prepared by a registered architect or licensed professional engineer.

High Risk Erosion Areas (See Sample Drawing 19)

- For more information go to www.mi.gov/jointpermit, select "HREA" under "Related Links."
- All property boundaries, proposed structure corners, and septic system locations must be staked before the WRD site inspection.
- Scaled overhead plans must include all property boundaries, and the location and dimensions of all structures and septic systems must be included.
- Additional information, including the building construction plans, may be required to complete the application review.

Critical Dune Areas

Parcel dimensions (ft) width depth	Date project staked (M/D/Y)
Property is a ☐ platted lot ☐ unplatted parcel	Year current property boundaries created

Dune habitat present in Building Site and access route (check all that apply): ☐Wooded ☐Open Dune ☐Shrubs ☐Bare Sand ☐Lakefront Lot ☐MNFI Community if known:_____

Type of construction activities ☐ addition ☐ driveway ☐ garage ☐ new home ☐ renovation ☐ septic ☐ deck(s) ☐ other

☐ Provide a sand relocation plan with location and dimensions of disposal area. Indicate ☐ on-site OR ☐ off-site

If on-site show location and how the disposal site will be accessed on the plans. Indicate the depth of the disposed sand on the plans.

☐ Provide the permit or letter from the County Enforcing Agent stating the project complies with Part 91 (Soil Erosion and Sedimentation Control).

The proposed project will be serviced by ☐ public sewer ☐ private septic system.

➡ On the plans, show the location and dimensions of the private septic system.

If a private septic system is proposed, has a permit been issued by the health department? ☐ No ☐ Yes

➡ If Yes, provide a copy of the permit for all Critical Dune Area projects.

☐ Provide a copy of the vegetation assurance letter.

☐ Provide a re-vegetation plan, including #_____ of trees to be removed and #_____ of trees to be replanted.

Proposed Utility Installation	Proposed New Construction
Utility Installation Method ☐ directional bore ☐ plowing in ☐ open trench ☐ other	Foundation type ☐ basement ☐ concrete slab ☐ pilings ☐ crawl space ☐ other
➡Show utility locations and dimensions on the site plan.	Area of existing structure (sq ft)
➡Show construction access route on the site plan.	Area of proposed structure (sq ft)
➡Show existing and proposed grades on the cross-section.	Area of existing deck (sq ft)
➡Show locations of vegetation to be removed on the site plan.	Area of proposed deck (sq ft)

Provide the following information for special use projects:

(a) Lot size, width, density, and front and side setbacks.
(b) Storm water drainage that provides for disposal of drainage water without serious erosion.
(c) Methods for controlling erosion from wind and water.
(d) Re-stabilization plan.
(e) Environmental Impact Statement.

High Risk Erosion Areas

Parcel dimensions (ft) width depth | Date project staked (M/D/Y)

Existing Structure Information	Proposed New Construction
Foundation type ☐ basement ☐ concrete slab ☐ pilings ☐ crawl space ☐ other	Foundation type ☐ basement ☐ concrete slab ☐ pilings ☐ crawl space ☐ other
Material above foundation wall ☐ block ☐ log ☐ stud frame ☐ other	Material above foundation wall ☐ block ☐ log ☐ stud frame ☐ other
Siding material ☐ block ☐ vinyl ☐ wood ☐ other	Siding material ☐ block ☐ vinyl ☐ wood ☐ other
Area of the foundation, excluding attached garage (sq ft)	Area of the foundation, excluding attached garage (sq ft)
Area of the garage foundation (sq ft)	Area of the garage foundation (sq ft)

If renovating or restoring an existing structure, indicate the renovation or restoration cost $

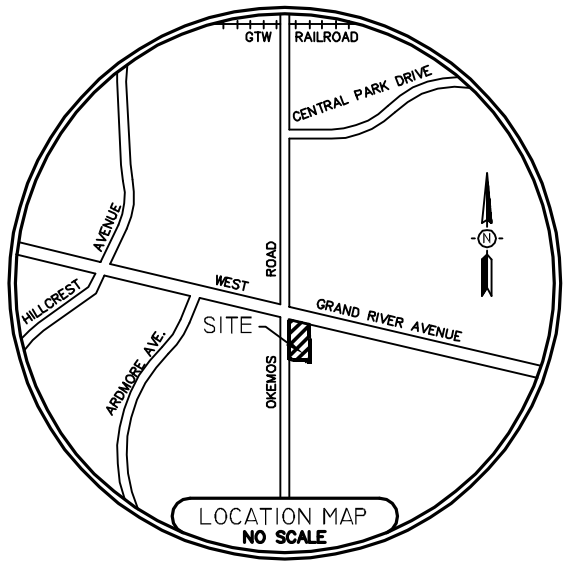
Current structure replacement value $

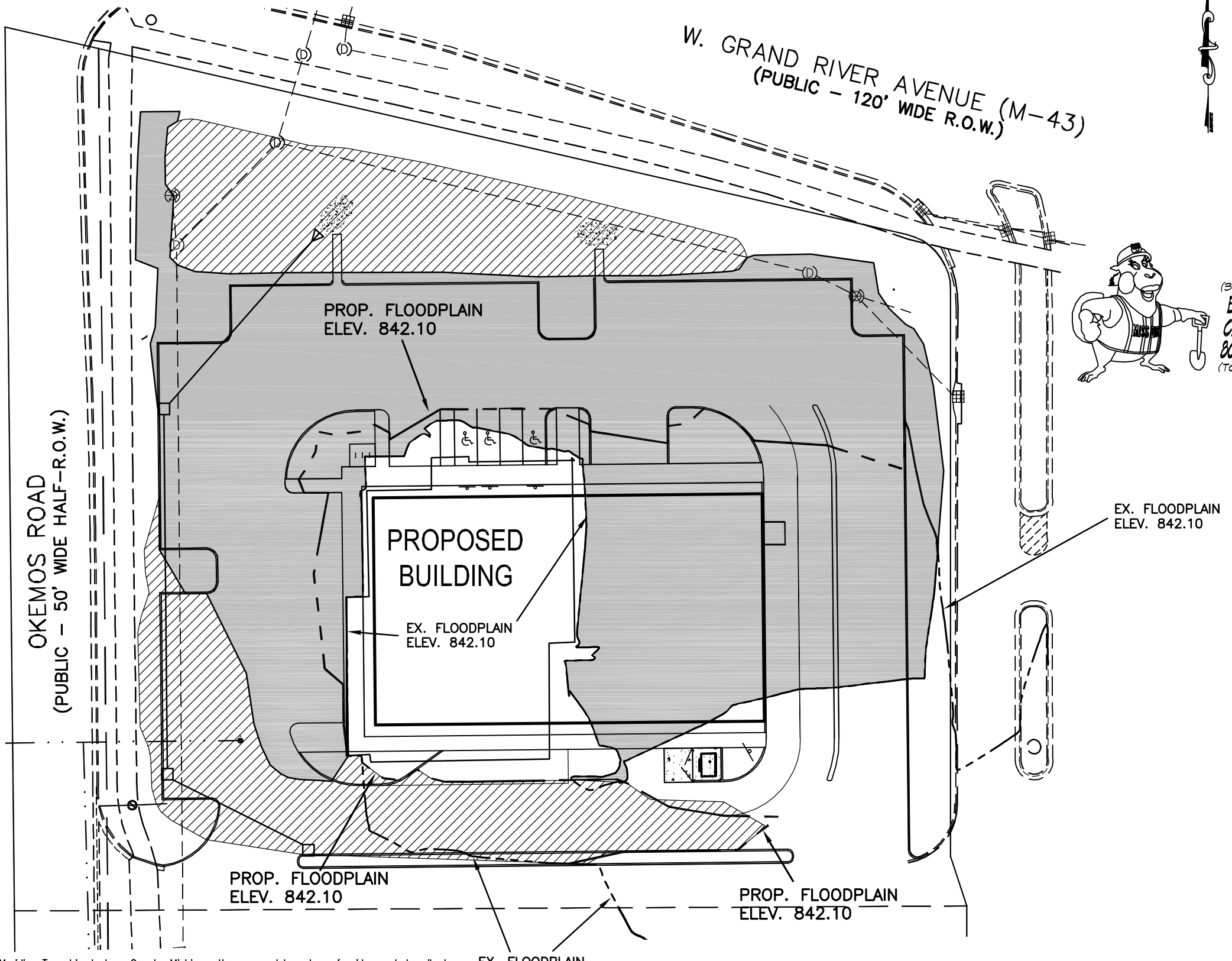
Tax assessed value of existing structure excluding land value $ Assessment Year

Provide the number of individual living units in the proposed building

2085 Grand River Ave.

MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN





72 HOURS
(3 WORKING DAYS)
BEFORE YOU DIG
CALL MISS DIG
800-482-7171
(TOLL-FREE)

FLOODPLAIN FILL

FLOODPLAIN CUT

LEGAL DESCRIPTION

A parcel of land in the Northeast 1/4 of Section 21, T4N, R1W, Meridian Township, Ingham County, Michigan, the surveyed boundary of said parcel described as: Commencing at the East 1/4 corner of said Section 21; thence S89°47'36"W along the East–West 1/4 line of said Section 21 a distance of 1328.71 feet to the Southwest corner of the Southeast 1/4 of said Northeast 1/4; thence N00°36'29"W along the West line of the East 1/2 of said Northeast 1/4 a distance of 379.89 feet to the point of beginning of this description; thence continuing N00°36'29"W along said West line 629.36 feet to the Southerly right–of–way line of W. Grand River Avenue (M–43); thence S77°03'29"E along said Southerly line 326.05 feet; thence Southeasterly 26.82 feet along a curve to the right, said curve having a radius of 20.00 feet, a delta angle of 76°50'30", and a chord of 24.86 feet bearing S38°31'53"E; thence S00°00'39"W 199.60 feet; thence S18°01'08"E 18.33 feet; thence S00°08'43"E 220.41 feet; thence S05°35'48"W 21.78 feet; thence S00°10'27"E 120.00 feet; thence S89°46'56"W 62.71 feet; thence N00°36'29"W 15.52 feet; thence S89°46'56"W 214.98 feet; thence Northwesterly 31.27 feet along a curve to the right, said curve having a radius of 20.00 feet, a delta angle of 89°34'43", and a chord of 28.18 feet bearing N45°24'57"W; thence N00°36'29"W 8.14 feet; thence S89°46'56"W 33.00 feet to the point of beginning; said parcel containing 4.72 acres more or less; said parcel subject to right–of–way for road purposes along Okemos Road; said parcel subject to all easements and restrictions if any.

FLOODPLAIN DISTURBANCE	MAX WIDTH	MAX LENGTH	AVG. DEPTH	TOTAL VOLUME
FILL	178'	275'	1.36'	±940 CY
CUT	55'	265'	1.77'	±970 CY
			NET	±30 CY CUT

SHEET 1 OF 7

2085 GRAND RIVER
PROPOSED FLOODPLAIN FILL
COVER SHEET

JOB #: E-94499

AUTHORIZED BY: ALRIG USA

SCALE: SEE PLAN
PROJECT MGR. G. PETRU
APPROVED BY: G.A.P.
DRAWN BY: G.A.P.
DATE: 1-8-19

REVISIONS
1-29-19 SUBMITTAL

KEBS, INC.
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX. 517-339-8047
Marshall Office
Ph. 269-781-9800

S.U.P. FOR:
2085 Grand River Ave.
MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN

EX. SEWER INVENTORIES

CATCH BASIN #100
RIM ELEV. = 838.96
18" RCP N INV. = 832.11
10" PVC S INV. = 834.87

CATCH BASIN #101
RIM ELEV. = 837.55
12" RCP W INV. = 834.18

CATCH BASIN #102
RIM ELEV. = 837.78
NW INACCESSIBLE -
RESTRICTOR PLATE
TOP OF WATER ELEV. = 833.13
SUMP ELEV. = 832.28

STORM MANHOLE #103
RIM ELEV. = 839.38
18" RCP N INV. = 831.98
12" RCP E INV. = 833.62
12" RCP SE INV. = 832.93
18" RCP S INV. = 832.20

STORM MANHOLE #104
RIM ELEV. = 842.47
12" RCP NE INV. = 837.37
12" RCP W INV. = 837.26

CATCH BASIN #105
RIM ELEV. = 842.17
12" RCP SW INV. = 838.07
SUMP ELEV. = 837.02

STORM MANHOLE #106
RIM ELEV. = 838.66
12" RCP N INV. = 833.56
24" RCP NE INV. = 831.76
18" RCP S INV. = 831.86

CATCH BASIN #107
RIM ELEV. = 838.00
12" RCP S INV. = 834.00
SUMP ELEV. = 833.00

STORM MANHOLE #108
RIM ELEV. = 839.88
48" RCP N INV. = 830.18
48" RCP E INV. = 830.18
24" RCP SW INV. = 831.23

STORM MANHOLE #109
RIM ELEV. = 838.12
36" RCP N INV. = 830.22
36" RCP S INV. = 830.22

CATCH BASIN #110
RIM ELEV. = 837.28
12" RCP N INV. = 832.21
12" RCP S INV. = 832.16

STORM MANHOLE #111
RIM ELEV. = 838.36
12" RCP N INV. = 832.19
24" RCP E INV. = 831.16

STORM MANHOLE #112
RIM ELEV. = 839.14
12" RCP E INV. = 830.31
48" RCP W INV. = 830.31

CATCH BASIN #113
RIM ELEV. = 838.86
6" METAL E INV. = 833.85
12" RCP SE INV. = 833.85
12" RCP NW INV. = 833.81
6" METAL NW INV. = 834.17
SUMP ELEV. = 831.86

CATCH BASIN #114
RIM ELEV. = 838.80
12" RCP NW INV. = 834.97

CATCH BASIN #115
RIM ELEV. = 837.42
12" HDPE E INV. = 835.38
SUMP ELEV. = 834.32

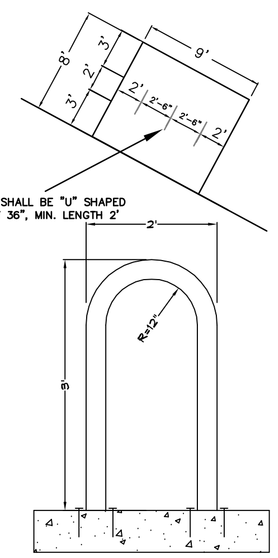
CATCH BASIN #116
RIM ELEV. = 837.84
12" HDPE E INV. = 835.19
12" HDPE W INV. = 835.14

CATCH BASIN #117
RIM ELEV. = 838.28
12" HDPE E INV. = 834.71
12" HDPE W INV. = 834.43

SANITARY MANHOLE #200
RIM ELEV. = 838.41
12" VCP N INV. = 829.81
12" VCP S INV. = 829.86

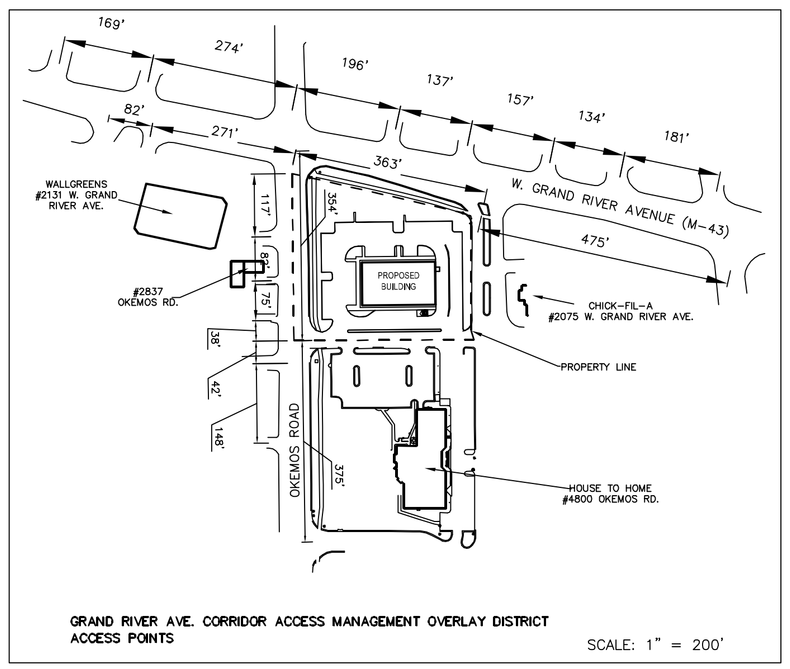
SANITARY MANHOLE #201
RIM ELEV. = 838.15
12" VCP N INV. = 829.00
12" VCP S INV. = 829.15

SANITARY MANHOLE #202
RIM ELEV. = 841.30
SUMP ELEV. = 837.30
NO VISIBLE PIPES

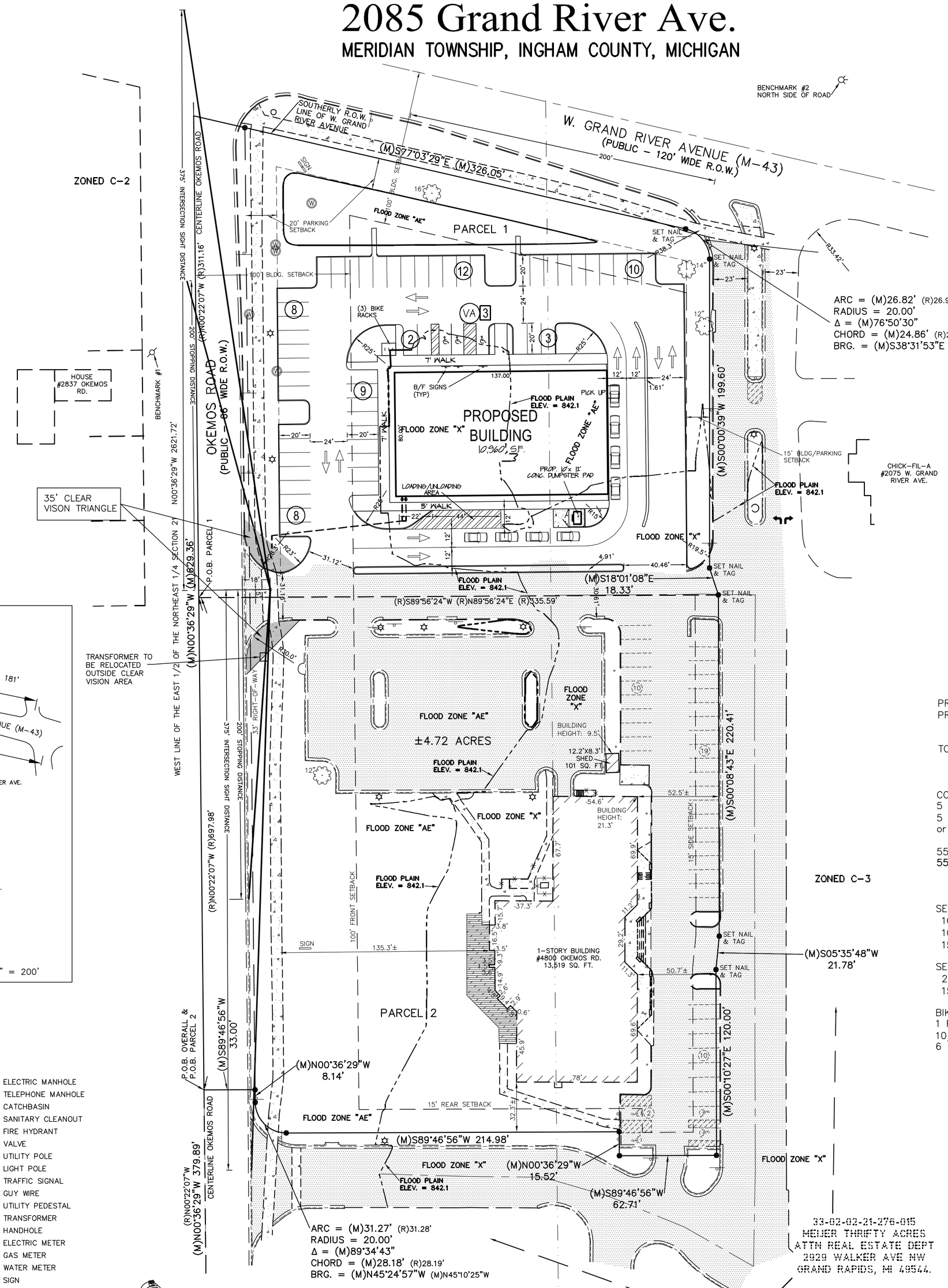


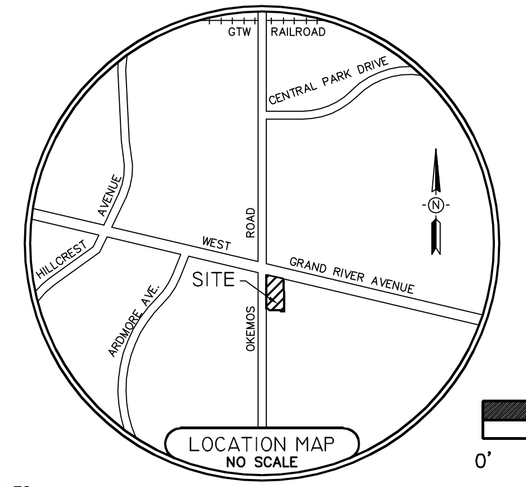
BIKE RACK DETAIL
SCALE: N.T.S.

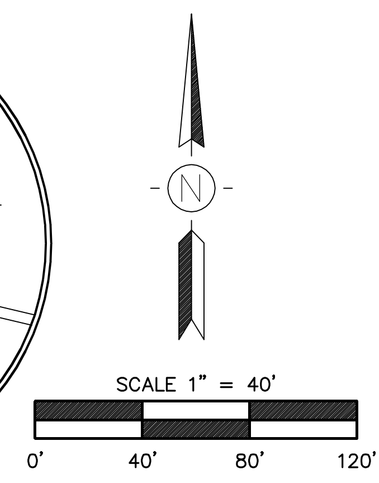
INGHAM COUNTY ROAD DEPARTMENT DATA
(OKEMOS ROAD)
POSTED SPEED LIMIT = 30 MPH
STOPPING SIGHT DISTANCE = 200 FT



GRAND RIVER AVE. CORRIDOR ACCESS MANAGEMENT OVERLAY DISTRICT
ACCESS POINTS
SCALE: 1" = 200'







AS SURVEYED:
(The following legal description describes the same parcel of land as the provided description)

Parcel 1:
A parcel of land in the Northeast 1/4 of Section 21, T4N, R1W, Meridian Township, Ingham County, Michigan, the surveyed boundary of said parcel described as: Commencing at the East 1/4 corner of said Section 21; thence S89°47'36"W along the East–West 1/4 line of said Section 21 a distance of 1328.71 feet to the Southwest corner of the Southeast 1/4 of said Northeast 1/4; thence N00°36'29"W along the West line of the East 1/2 of said Northeast 1/4 a distance of 697.98 feet to the point of beginning of this description; thence continuing N00°36'29"W along said West line 311.27 feet to the Southerly right–of–way line of W. Grand River Avenue (M–43); thence S77°03'29"E along said Southerly line 326.05 feet; thence Southeasterly 26.82 feet along a curve to the right, said curve having a radius of 20.00 feet, a delta angle of 76°50'30", and a chord of 24.86 feet bearing S38°31'53"E; thence S00°00'39"W 199.60 feet; thence S18°01'08"E 18.33 feet; thence S89°42'02"W 335.59 feet to the point of beginning; said parcel containing 2.06 acres more or less; said parcel subject to right–of–way for road purposes along Okemos Road; said parcel subject to all easements and restrictions if any.

CLIENT:
Alrig USA
30200 TELEGTAPH RD.
BINGHAM FARMS, MI. 48025
PH: (248) 289–7131
c/o HEATHER HENIKA

ENGINEER/SURVEYOR:
KEBS, Inc.
2116 HASLETT RD.
HASLETT, MI. 48840
PH: (517) 339–1014
FAX: (517) 339–8047

PROPOSED ZONED C–2 COMMERCIAL
PROPOSED USE COMMERCIAL

TOTAL PROPERTY 1.84 ACRES (PARCEL 1)

COMMERCIAL PARKING REQUIRED:
5 SPACES FOR EVERY 1000 GROSS S.F.
5 x 10,960 = 54,800 S.F./1000 = 54.8
or 55 SPACES REQUIRED

55 SPACES PROVIDED INCLUDING 3 B/F
55 SPACES PROVIDED

SETBACKS BLDG:
100' FRONT FROM C/L EAST BOUND LANE (GRANDRIVER)
100' FROM R.O.W. ON OKEMOS RD.
15' SIDE/REAR

SETBACKS PARKING:
20' FRONT
15' SIDES/REAR

BIKE PARKING REQUIRED:
1 FOR EVERY 10 PARKING SPACES
10/55 = 5.5. or 6 REQUIRED
6 PROVIED

TOTAL SITE AREA = 80,019 S.F.

MAXIMUM ALLOWABLE IMPERVIOUS
AREA = 70%

PROPOSED IMPERVIOUS AREA = 55,493
= 69.35%
PROPOSED PERVIOUS AREA = 24,526 S.F.
= 30.65%

BENCHMARKS

BENCHMARK #1
ELEV. = 839.38 (NAVD88)
PK NAIL IN SOUTH SIDE OF UTILITY POLE, 1.5' WEST OF BACK OF CURB OF OKEMOS ROAD, 35' SOUTH OF CENTERLINE SOUTH ENTRANCE TO WALGREEN'S

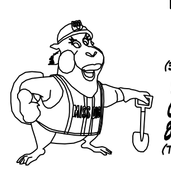
BENCHMARK #2
ELEV. = 840.83 (NAVD88)
NORTH FLANGE BOLT, UNDER "8" IN "1968", FIRE HYDRANT, ±24' NORTH–NORTHEAST OF BACK OF CURB OF GRAND RIVER AVENUE, ±1.4' EASTERLY OF THE EXTENSION OF THE WESTERLY WALL LINE OF #2060 GRAND RIVER AVENUE.

LEGEND

- EXT. CONTOURS
- EXT. WATER MAIN
- EXT. SANITARY SEWER
- EXT. STORM SEWER
- EXT. ELEVATIONS
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- MANHOLE (NEW)
- PROPOSED C.B.
- MANHOLE (EX.)
- UTILITY EASEMENT
- CENTER LINE OF ROAD
- ROAD RIGHT OF WAY
- PROPERTY LINE
- FIRE HYDRANT
- WATER VALVE
- THRUST BLOCK
- ▲T/C 800.00 PROPOSED TOP OF CURB ELEV.

LEGEND

- = SET 1/2" BAR WITH CAP
- = FOUND IRON AS NOTED
- = DISTANCE NOT TO SCALE
- = FENCE
- = ASPHALT
- = CONCRETE
- = DECK
- +800.0 = EXISTING SPOT ELEVATION
- = BUILDING OVERHANG
- = GAS LINE
- = UNDERGROUND TELEPHONE
- = UNDERGROUND TELEVISION
- = UNDERGROUND ELECTRIC
- = OVERHEAD WIRES
- = DECIDUOUS TREE
- = CONIFEROUS TREE
- = SANITARY MANHOLE
- = DRAINAGE MANHOLE
- = ELECTRIC MANHOLE
- = TELEPHONE MANHOLE
- = CATCHBASIN
- = SANITARY CLEANOUT
- = FIRE HYDRANT
- = VALVE
- = UTILITY POLE
- = LIGHT POLE
- = TRAFFIC SIGNAL
- = GUY WIRE
- = UTILITY PEDESTAL
- = TRANSFORMER
- = HANDHOLE
- = ELECTRIC METER
- = GAS METER
- = WATER METER
- = SIGN
- = POST
- = FIRE PROTECTION
- = GROUND LIGHT
- = DOWNSPOUT
- = MONITORING WELL



DENOTES TREE PROTECTION FENCE FOR ALL CONSTRUCTION PLANS

1 DENOTES NUMBER OF B/F SPACES
VA DENOTES VAN ACCESS B/F SPACES
0 DENOTES PROPOSED NUMBER OF 9' x 20' PARKING SPACES

SHEET INDEX

1. PRELIMINARY DIMENSION
2. PRELIMINARY UTILITY PLAN
3. PRELIMINARY STORM & GRADING PLAN
4. PRELIMINARY LANDSCAPE PLAN
5. PRELIMINARY PERVIOUS/IMPERVIOUS PLAN
6. EXISTING & TREE REMOVAL PLAN

SITE ADDRESS: 2055 & 2085 W. GRAND RIVER AVENUE, OKEMOS, MI 48864" SURVEY#94499.ALT

STATE OF MICHIGAN
JEFFREY W. KYES
ENGINEER NO. 46796
LICENSED PROFESSIONAL ENGINEER

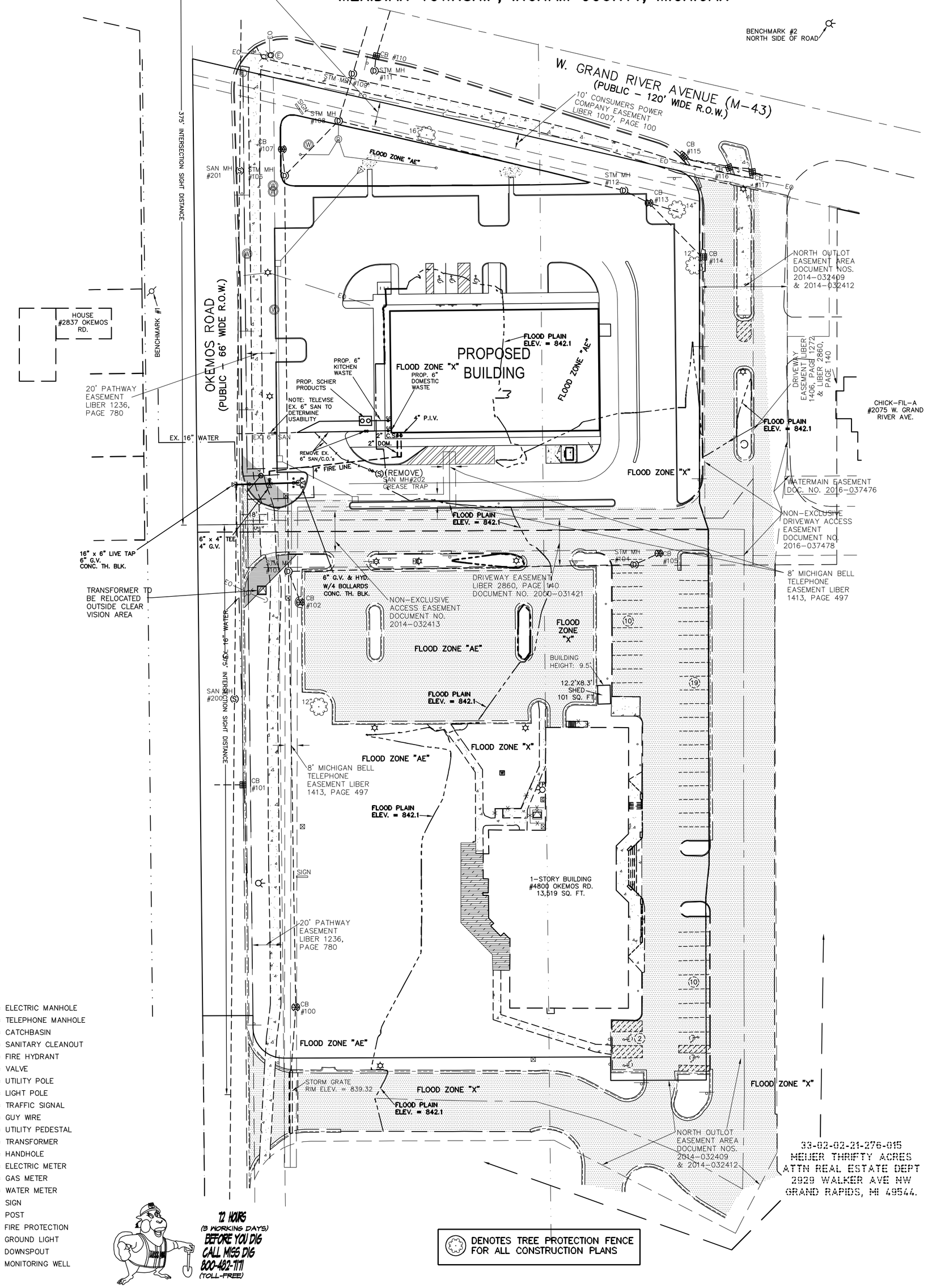
REVISIONS
1–18–18 SUP SUBMITTAL
2–19–19 SUP REVISION

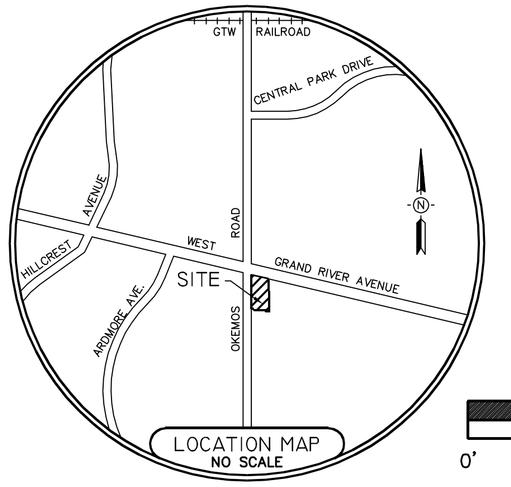
KEBS, INC. KYES ENGINEERING BRYAN LAND SURVEYS
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517–339–1014 FAX. 517–339–8047
Marshall Office
Ph. 269–781–9800

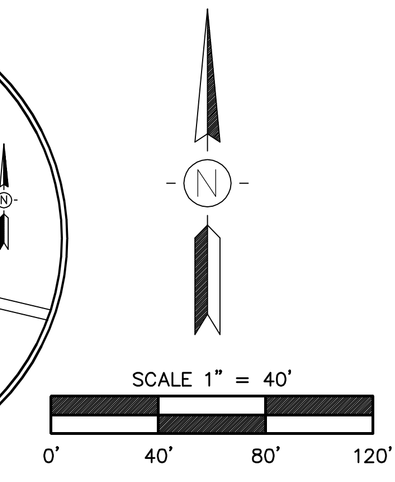
2085 Grand River Ave.
PRELIMINARY DIMENSION

SCALE: 1"= 40'	DESIGNER: JWK	APPROVED BY: JWK
DATE: 12–5–18	PROJECT MGR. JWK	SHEET 1 OF 6
AUTHORIZED BY: ALRIG USA		JOB #: 94499

S.U.P. FOR:
2085 Grand River Ave.
MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN







EX. SEWER INVENTORIES

CATCH BASIN #100
RIM ELEV. = 838.96
18" RCP N INV. = 832.11
10" PVC S INV. = 834.87

CATCH BASIN #101
RIM ELEV. = 837.55
12" RCP W INV. = 834.18

CATCH BASIN #102
RIM ELEV. = 837.78
NW INACCESSIBLE - RESTRICTOR PLATE
TOP OF WATER ELEV. = 833.13
SUMP ELEV. = 832.28

STORM MANHOLE #103
RIM ELEV. = 839.38
18" RCP N INV. = 831.98
12" RCP E INV. = 833.62
12" RCP SE INV. = 832.93
18" RCP S INV. = 832.20

STORM MANHOLE #104
RIM ELEV. = 842.47
12" RCP NE INV. = 837.37
12" RCP W INV. = 837.26

CATCH BASIN #105
RIM ELEV. = 842.17
12" RCP SW INV. = 838.07
SUMP ELEV. = 837.02

STORM MANHOLE #106
RIM ELEV. = 838.66
12" RCP N INV. = 833.56
24" RCP NE INV. = 831.76
18" RCP S INV. = 831.86

CATCH BASIN #107
RIM ELEV. = 838.00
12" RCP S INV. = 834.00
SUMP ELEV. = 833.00

STORM MANHOLE #108
RIM ELEV. = 839.88
48" RCP N INV. = 830.18
48" RCP E INV. = 830.18
24" RCP SW INV. = 831.23

STORM MANHOLE #109
RIM ELEV. = 838.12
36" RCP N INV. = 830.22
36" RCP S INV. = 830.22

CATCH BASIN #110
RIM ELEV. = 837.28
12" RCP N INV. = 832.21
12" RCP S INV. = 832.16

STORM MANHOLE #111
RIM ELEV. = 838.36
12" RCP N INV. = 832.19
24" RCP E INV. = 831.16

STORM MANHOLE #112
RIM ELEV. = 839.14
12" RCP E INV. = 830.31
48" RCP W INV. = 830.31

CATCH BASIN #113
RIM ELEV. = 838.86
6" METAL E INV. = 833.85
12" RCP SE INV. = 833.85
12" RCP NW INV. = 833.81
6" METAL NW INV. = 834.17
SUMP ELEV. = 831.86

CATCH BASIN #114
RIM ELEV. = 838.80
12" RCP NW INV. = 834.97

CATCH BASIN #115
RIM ELEV. = 837.42
12" HDPE E INV. = 835.38
SUMP ELEV. = 834.32

CATCH BASIN #116
RIM ELEV. = 837.84
12" HDPE E INV. = 835.19
12" HDPE W INV. = 835.14

CATCH BASIN #117
RIM ELEV. = 838.28
12" HDPE E INV. = 834.71
12" HDPE W INV. = 834.43

SANITARY MANHOLE #200
RIM ELEV. = 838.41
12" VCP N INV. = 829.81
12" VCP S INV. = 829.86

SANITARY MANHOLE #201
RIM ELEV. = 838.15
12" VCP N INV. = 829.00
12" VCP S INV. = 829.15

SANITARY MANHOLE #202
RIM ELEV. = 841.30
SUMP ELEV. = 837.30
NO VISIBLE PIPES

INGHAM COUNTY ROAD DEPARTMENT DATA
(OKEMOS ROAD)
POSTED SPEED LIMIT = 30 MPH
STOPPING SIGHT DISTANCE = 200 FT

BENCHMARKS

BENCHMARK #1
ELEV. = 839.38 (NAVD88)
PK NAIL IN SOUTH SIDE OF UTILITY POLE, 1.5' WEST OF BACK OF CURB OF OKEMOS ROAD, 35' SOUTH OF CENTERLINE SOUTH ENTRANCE TO WALGREEN'S

BENCHMARK #2
ELEV. = 840.83 (NAVD88)
NORTH FLANGE BOLT, UNDER "8" IN "1968", FIRE HYDRANT, ±24' NORTH-NORTHEAST OF BACK OF CURB OF GRAND RIVER AVENUE, ±14' EASTERLY OF THE EXTENSION OF THE WESTERLY WALL LINE OF #2060 GRAND RIVER AVENUE.

LEGEND

- EXT. CONTOURS
- EXT. WATER MAIN
- EXT. SANITARY SEWER
- EXT. STORM SEWER
- EXT. ELEVATIONS
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- MANHOLE (NEW)
- PROPOSED C.B.
- MANHOLE (EX.)
- UTILITY EASEMENT
- CENTER LINE OF ROAD
- ROAD RIGHT OF WAY
- PROPERTY LINE
- FIRE HYDRANT
- WATER VALVE
- THRUST BLOCK
- ▲T/C 800.00 PROPOSED TOP OF CURB ELEV.

LEGEND

- = SET 1/2" BAR WITH CAP
- = FOUND IRON AS NOTED
- = DISTANCE NOT TO SCALE
- = FENCE
- = ASPHALT
- = CONCRETE
- = DECK
- = EXISTING SPOT ELEVATION
- = BUILDING OVERHANG
- = GAS LINE
- = UNDERGROUND TELEPHONE
- = UNDERGROUND TELEVISION
- = UNDERGROUND ELECTRIC
- = OVERHEAD WIRES
- = DECIDUOUS TREE
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- = SANITARY MANHOLE
- = DRAINAGE MANHOLE
- = ELECTRIC MANHOLE
- = TELEPHONE MANHOLE
- = CATCHBASIN
- = SANITARY CLEANOUT
- = FIRE HYDRANT
- = VALVE
- = UTILITY POLE
- = LIGHT POLE
- = TRAFFIC SIGNAL
- = GUY WIRE
- = UTILITY PEDESTAL
- = TRANSFORMER
- = HANDHOLE
- = ELECTRIC METER
- = GAS METER
- = WATER METER
- = SIGN
- = POST
- = FIRE PROTECTION
- = GROUND LIGHT
- = DOWNSPOUT
- = MONITORING WELL

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG 800-482-7171 (TOLL-FREE)

DENOTES TREE PROTECTION FENCE FOR ALL CONSTRUCTION PLANS

SITE ADDRESS: 2055 & 2085 W. GRAND RIVER AVENUE, OKEMOS, MI 48864

SURVEY#94499.ALT

STATE OF MICHIGAN
JEFFREY W. KYES
ENGINEER NO. 46796
LICENSED PROFESSIONAL ENGINEER

REVISIONS
1-18-18 SUP SUBMITTAL
2-19-19 SUP REVISION

KEBS, INC.
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PH. 517-339-1014 FAX. 517-339-8047
Marshall Office
Ph. 269-781-9800

2085 Grand River Ave.
PRELIMINARY UTILITY PLAN

SCALE: 1"= 40'	DESIGNER: JWK	APPROVED BY: JWK
DATE: 12-5-18	PROJECT MGR. JWK	SHEET 2 OF 6
AUTHORIZED BY: ALRIG USA		JOB #: 94499

S.U.P. FOR:

2085 Grand River Ave.

MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN

EX. SEWER INVENTORIES

CATCH BASIN #100
RIM ELEV. = 838.96
18" RCP N INV. = 832.11
10" PVC S INV. = 834.87

CATCH BASIN #101
RIM ELEV. = 837.55
12" RCP W INV. = 834.18

CATCH BASIN #102
RIM ELEV. = 837.78
NW INACCESSIBLE -
RESTRICTOR PLATE
TOP OF WATER ELEV. = 833.13
SUMP ELEV. = 832.28

STORM MANHOLE #103
RIM ELEV. = 839.38
18" RCP N INV. = 831.98
12" RCP E INV. = 833.62
12" RCP SE INV. = 832.93
18" RCP S INV. = 832.20

STORM MANHOLE #104
RIM ELEV. = 842.47
12" RCP NE INV. = 837.37
12" RCP W INV. = 837.26

CATCH BASIN #105
RIM ELEV. = 842.17
12" RCP SW INV. = 838.07
SUMP ELEV. = 837.02

STORM MANHOLE #106
RIM ELEV. = 838.66
12" RCP N INV. = 833.56
24" RCP NE INV. = 831.76
18" RCP S INV. = 831.86

CATCH BASIN #107
RIM ELEV. = 838.00
12" RCP S INV. = 834.00
SUMP ELEV. = 833.00

STORM MANHOLE #108
RIM ELEV. = 839.88
48" RCP N INV. = 830.18
48" RCP E INV. = 830.18
24" RCP SW INV. = 831.23

STORM MANHOLE #109
RIM ELEV. = 838.12
36" RCP N INV. = 830.22
36" RCP S INV. = 830.22

CATCH BASIN #110
RIM ELEV. = 837.28
12" RCP N INV. = 832.21
12" RCP S INV. = 832.16

STORM MANHOLE #111
RIM ELEV. = 838.36
12" RCP N INV. = 832.19
24" RCP E INV. = 831.16

STORM MANHOLE #112
RIM ELEV. = 839.14
12" RCP E INV. = 830.31
48" RCP W INV. = 830.31

CATCH BASIN #113
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12" HDPE W INV. = 835.14

CATCH BASIN #117
RIM ELEV. = 838.28
12" HDPE E INV. = 834.71
12" HDPE W INV. = 834.43

SANITARY MANHOLE #200
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12" VCP N INV. = 829.81
12" VCP S INV. = 829.86

SANITARY MANHOLE #201
RIM ELEV. = 838.15
12" VCP N INV. = 829.00
12" VCP S INV. = 829.15

SANITARY MANHOLE #202
RIM ELEV. = 841.30
SUMP ELEV. = 837.30
NO VISIBLE PIPES

PROPOSED STORM INVENTORY:

OS#1
(SEE DETAIL THIS SHEET)

CB#2
T/C 840.35
I.E. 12" NE/S 835.33

CB#3
T/C 839.90
I.E. 12" N/SE 835.84

CB#4
T/C 840.15
I.E. 12" NW 836.07

INGHAM COUNTY ROAD DEPARTMENT DATA
(OKEMOS ROAD)
POSTED SPEED LIMIT = 30 MPH
STOPPING SIGHT DISTANCE = 200 FT

BENCHMARKS

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NOTE: ALL GRADES SHOWN ARE FOR FINAL CONSTRUCTED CONDITIONS AND CONTRACTOR IS RESPONSIBLE FOR HOLDING DOWN GRADES AS THEY OR THE DEVELOPER DEEMS NECESSARY FOR BASEMENT SPOILS, TOPSOILS ETC...

LEGEND

- SET 1/2" BAR WITH CAP
- FOUND IRON AS NOTED
- DISTANCE NOT TO SCALE
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- CONCRETE
- DECK
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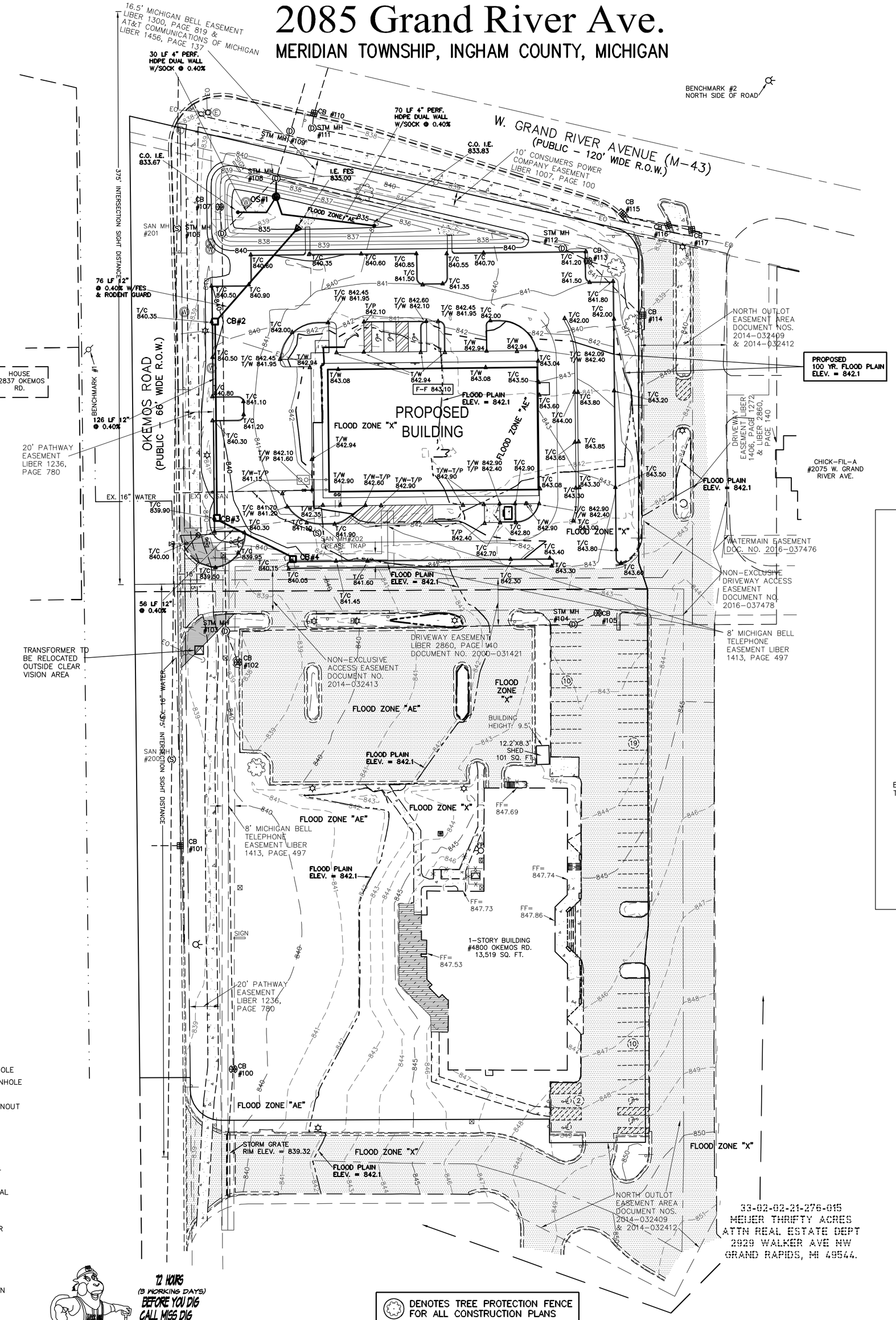

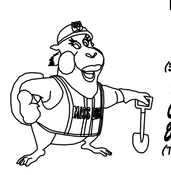

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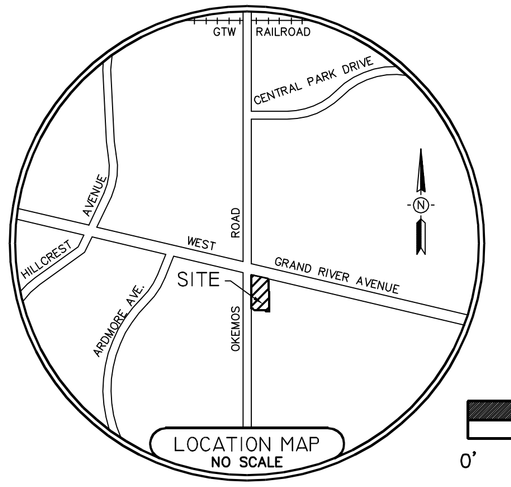

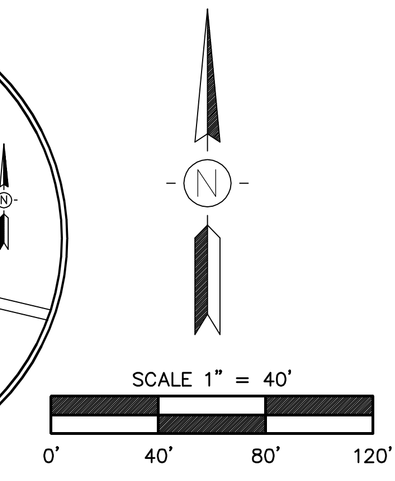

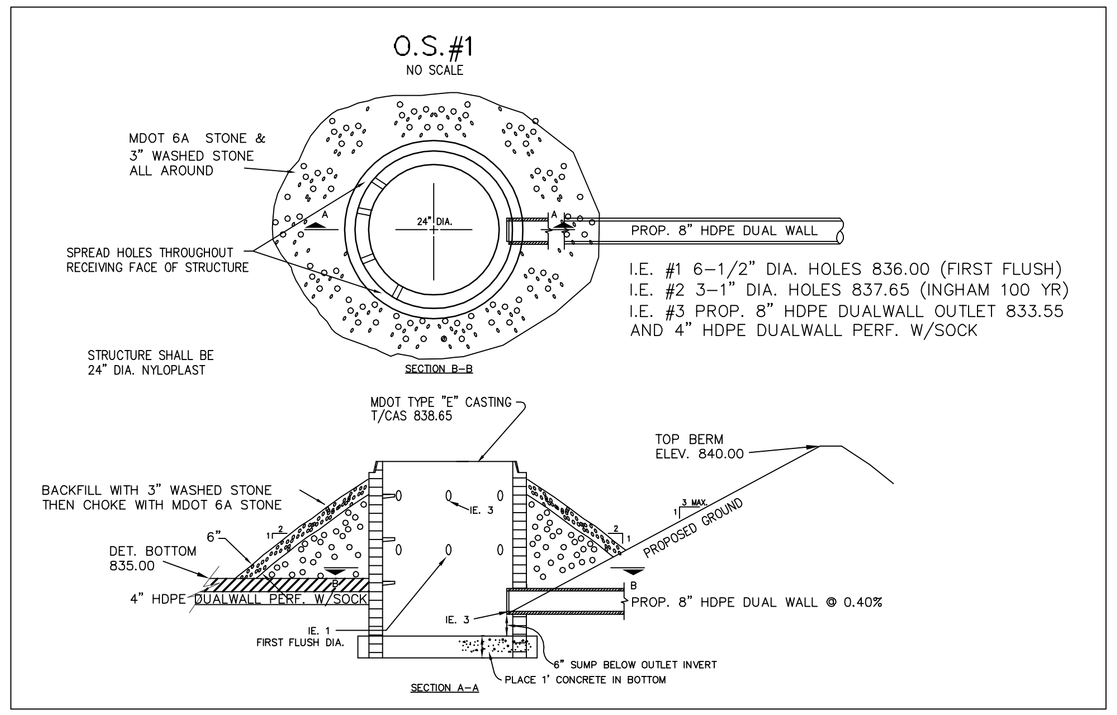

SITE ADDRESS: 2055 & 2085 W. GRAND RIVER AVENUE, OKEMOS, MI 48864"

SURVEY#94499.ALT

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2085 Grand River Ave.

PRELIMINARY STORM & GRADING PLAN

SCALE: 1"= 40'	DESIGNER: JWK	APPROVED BY: JWK
DATE: 12-5-18	PROJECT MGR. JWK	SHEET 3 OF 6
AUTHORIZED BY: ALRIG USA		JOB #: 94499

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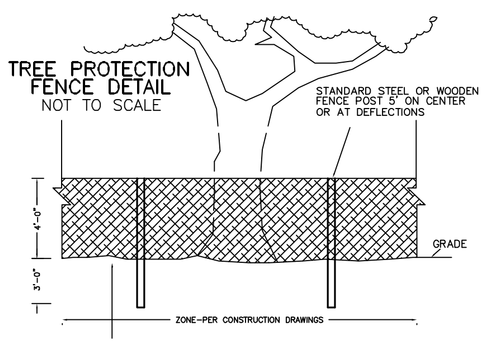
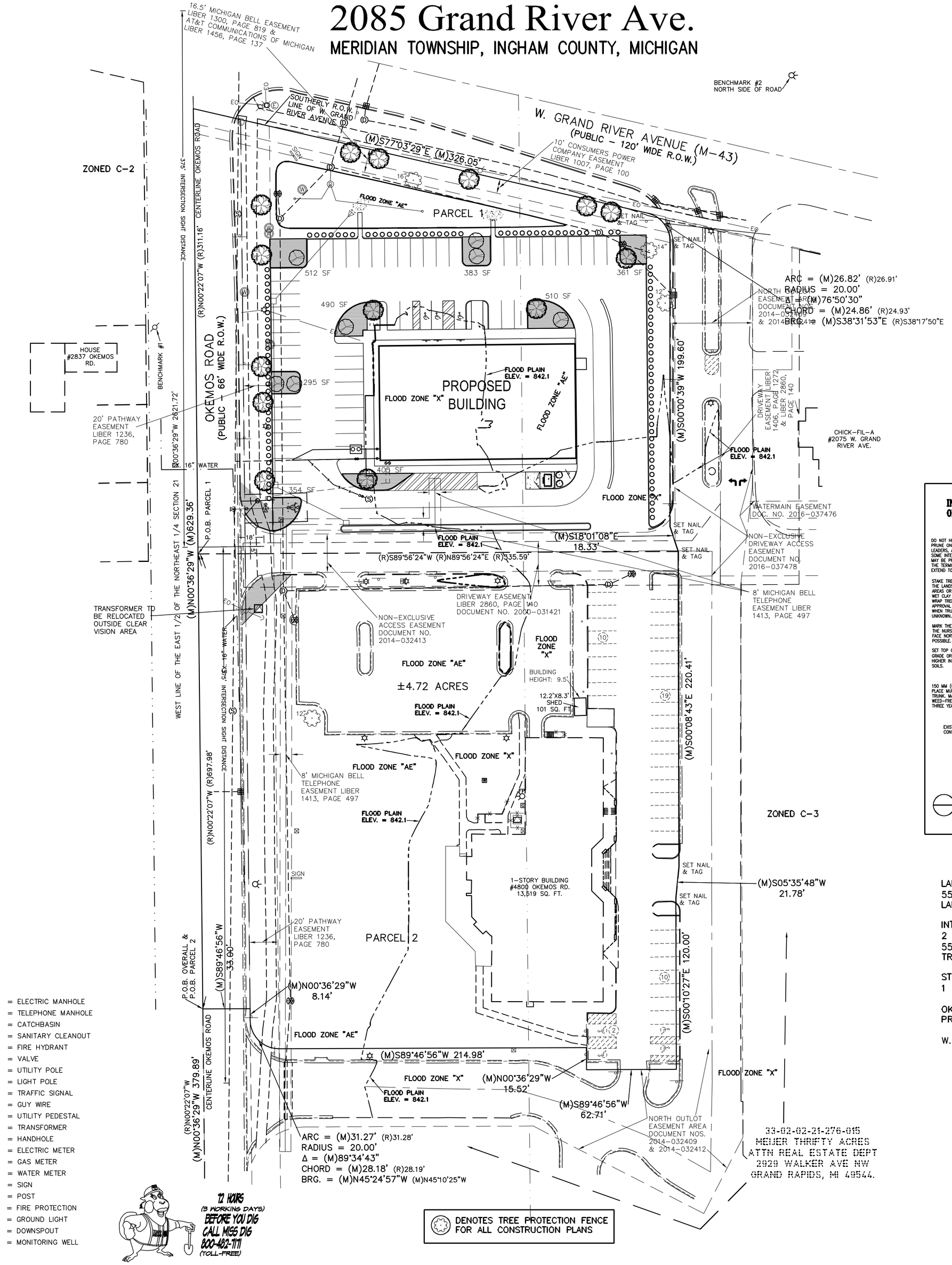


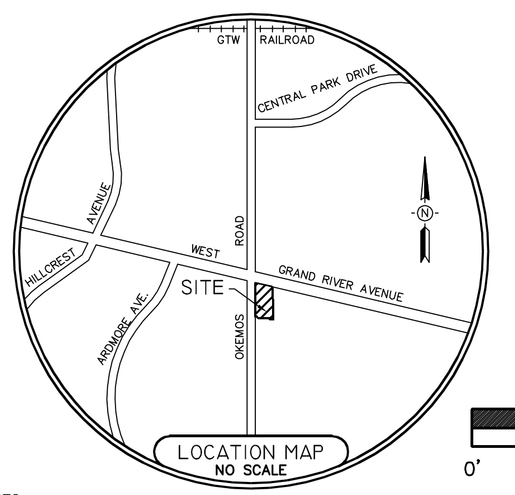
LANDSCAPE NOTES

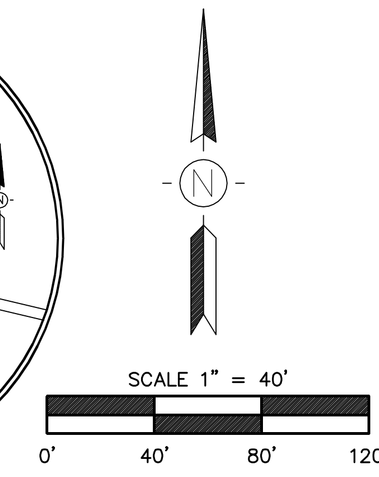
1. *INSTALL 3" X 12 GA. EDGING TO SEPARATE LAWN FROM PLANTING BED. (AROUND SHRUBS ONLY.)*
2. *INSTALL 3" DEEP SHREDDED BARK MULCH TO ALL PLANTING AREAS/BEDS AND TREE SAUCERS (NO POLY-FILM).*
3. *INSTALL A KENTUCKY BLUEGRASS SOD (SUN/SHADE) VARIETY) THAT IS FREE OF WEEDS.*

3A. *SEED AREAS WITH THE FOLLOWING:*
25# SYBSPORT KENTUCKY BLUEGRASS
25# NASSAH KENTUCKY BLUEGRASS
20# BRYTSTOL KENTUCKY BLUEGRASS
10# PERINNIAL RYE GRASS
APPLY AT THE RATE OF 2 TO 3 LBS. PER 1,000 SQUARE FOOT.

4. *CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES, PIPES AND STRUCTURES, AS WELL AS THE LOCATION OF EXISTING TREES AND VEGETATION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COST INCURRED DUE TO DAMAGE/REMOVAL OF SAID ELEMENTS.*
5. *ANY DISCREPANCIES BETWEEN PLANS, NOTES, DETAILS AND EXISTING CONDITIONS SHALL BE IMMEDIATELY REPORTED TO THE OWNER'S AUTHORIZED REPRESENTATIVE FOR REVIEW AND DECISION. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.*
6. *CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING MATERIALS/IMPROVEMENTS, DAMAGED DURING CONSTRUCTION.*
7. *SITE BOUNDARY, TOPOGRAPHY, UTILITIES AND OTHER BASE INFORMATION PROVIDED BY OTHERS.*
8. *CONTRACTOR SHALL VERIFY QUANTITIES SHOWN ON PLANT SCHEDULES AND THOSE INDICATED ON PLANS. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF QUANTITIES DRAWN.*
9. *CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS TO PLANT MATERIAL LOCATIONS IN FIELD, AS NECESSARY. THE LOCATION OF ALL PLANT MATERIAL SHALL BE SUBJECT TO APPROVAL BY THE OWNER'S AUTHORIZED REPRESENTATIVE.*
10. *ALL PLANT MATERIAL SHALL BE OF THE SIZES CALLED FOR IN THE PLANT SCHEDULES. ANY PLANT MATERIAL NOT MEETING THE SIZED AND/OR QUALITY AS CALLED FOR SHALL BE REMOVED FROM SITE. ALL TREES SHALL BE INSPECTED AND APPROVED BY THE OWNER'S AUTHORIZED REPRESENTATIVE. NO SUBSTITUTIONS OF PLANT MATERIAL SHALL BE MADE WITHOUT APPROVAL FROM THE OWNER'S AUTHORIZED REPRESENTATIVE.*
11. *ALL PROPOSED TREES OVER 2" CAL. SHALL BY GUYED/STAKED SECURE, SEE EVERGREEN TREE PLANTING/GUYING DETAIL, OR DECIDUOUS TREES' PLANTING/STAKING DETAIL WHERE APPLICABLE.*
12. *ALL PLANTING BEDS TO BE TREATED WITH PRE-EMERGENT HERBICIDE. CONTRACTOR SHALL INSURE THAT PROPOSED PLANT MATERIAL IS RESISTANT TO THE HERBICIDE PROPERTIES AND THAT HERBICIDE APPLICATION FOLLOWS THE MANUFACTURER'S SPECIFICATIONS AND IS APPLIED IN ACCORDANCE WITH SOUND HORTICULTURAL PRACTICES.*
13. *CONTRACTOR SHALL DETERMINE APPROPRIATE PLANTING BACKFILL MIXES (BASED ON SOILS/SUBSURFACE CONDITIONS) AND REVIEW ALTERNATIVES WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION.*

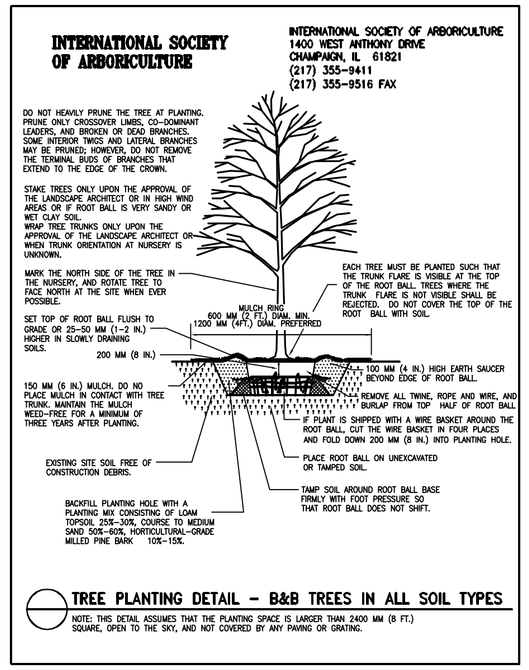


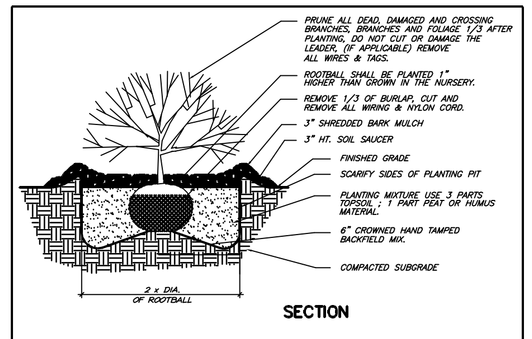




AS SURVEYED:
(The following legal description describes the same parcel of land as the provided description)

Parcel 1:
A parcel of land in the Northeast 1/4 of Section 21, T4N, R1W, Meridian Township, Ingham County, Michigan, the surveyed boundary of said parcel described as: Commencing at the East 1/4 corner of said Section 21; thence S89°47'36"W along the East-West 1/4 line of said Section 21 a distance of 1328.71 feet to the Southwest corner of the Southeast 1/4 of said Northeast 1/4; thence N00°36'29"W along the West line of the East 1/2 of said Northeast 1/4 a distance of 697.98 feet to the point of beginning of this description; thence continuing N00°36'29"W along said West line 311.27 feet to the Southerly right-of-way line of W. Grand River Avenue (M-43); thence S77°03'29"E along said Southerly line 326.05 feet; thence Southeasterly 26.82 feet along a curve to the right, said curve having a radius of 20.00 feet, a delta angle of 76°50'30", and a chord of 24.86 feet bearing S38°31'53"E; thence S00°00'39"W 199.60 feet; thence S18°01'08"E 18.33 feet; thence S89°42'02"W 335.59 feet to the point of beginning; said parcel containing 2.06 acres more or less; said parcel subject to right-of-way for road purposes along Okemos Road; said parcel subject to all easements and restrictions if any.





LANDSCAPE REQUIRED = 200 S.F./10 PARKING SPACES
55 SPACES/10 x 200 = 1,100 S.F.
LANDSCAPE AREA PROVIDED = 3,310 S.F.

INTERIOR TREES REQUIRED
2 CANOPY TREES/10 SPACES
55/10 x 2 = 11 = 11 TREES
TREES PROVIDED = 11

STREET TREES REQUIRED
1 TREE/70' OF FRONTAGE

OKEMOS RD. 312/70 = 4.5 = 5
PROVIDED = 5

W. GRAND RIVER 342/70 = 4.9 = 5

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- = GAS LINE
- = UNDERGROUND TELEPHONE
- = UNDERGROUND TELEVISION
- = UNDERGROUND ELECTRIC
- = OVERHEAD WIRES
- = DECIDUOUS TREE
- = CONIFEROUS TREE
- = SANITARY MANHOLE
- = DRAINAGE MANHOLE
- = ELECTRIC MANHOLE
- = TELEPHONE MANHOLE
- = CATCHBASIN
- = SANITARY CLEANOUT
- = FIRE HYDRANT
- = VALVE
- = UTILITY POLE
- = LIGHT POLE
- = TRAFFIC SIGNAL
- = GUY WIRE
- = UTILITY PEDESTAL
- = TRANSFORMER
- = HANDHOLE
- = ELECTRIC METER
- = GAS METER
- = WATER METER
- = SIGN
- = POST
- = FIRE PROTECTION
- = GROUND LIGHT
- = DOWNSPOUT
- = MONITORING WELL

DENOTES TREE PROTECTION FENCE FOR ALL CONSTRUCTION PLANS

SITE ADDRESS: 2055 & 2085 W. GRAND RIVER AVENUE, OKEMOS, MI 48864

SURVEY#94499.ALT

STATE OF MICHIGAN
JEFFREY W. KYES
ENGINEER NO. 46796
LICENSED PROFESSIONAL ENGINEER

REVISIONS
1-18-18 SUP SUBMITTAL
2-19-19 SUP REVISION

KEBS, INC. KYES ENGINEERING BRYAN LAND SURVEYS
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX. 517-339-8047
Marshall Office
Ph. 269-781-9800

2085 Grand River Ave.
PRELIMINARY LANDSCAPE PLAN

SCALE: 1"= 40'	DESIGNER: JWK	APPROVED BY: JWK
DATE: 12-5-18	PROJECT MGR. JWK	SHEET 4 OF 6
AUTHORIZED BY: ALRIG USA		JOB #: 94499

S.U.P. FOR:
2085 Grand River Ave.
MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN

EX. SEWER INVENTORIES

CATCH BASIN #100
RIM ELEV. = 838.96
18" RCP N INV. = 832.11
10" PVC S INV. = 834.87

CATCH BASIN #101
RIM ELEV. = 837.55
12" RCP W INV. = 834.18

CATCH BASIN #102
RIM ELEV. = 837.78
NW INACCESSIBLE -
RESTRICTOR PLATE
TOP OF WATER ELEV. = 833.13
SUMP ELEV. = 832.28

STORM MANHOLE #103
RIM ELEV. = 839.38
18" RCP N INV. = 831.98
12" RCP E INV. = 833.62
12" RCP SE INV. = 832.93
18" RCP S INV. = 832.20

STORM MANHOLE #104
RIM ELEV. = 842.47
12" RCP NE INV. = 837.37
12" RCP W INV. = 837.26

CATCH BASIN #105
RIM ELEV. = 842.17
12" RCP SW INV. = 838.07
SUMP ELEV. = 837.02

STORM MANHOLE #106
RIM ELEV. = 838.66
12" RCP N INV. = 833.56
24" RCP NE INV. = 831.76
18" RCP S INV. = 831.86

CATCH BASIN #107
RIM ELEV. = 838.00
12" RCP S INV. = 834.00
SUMP ELEV. = 833.00

STORM MANHOLE #108
RIM ELEV. = 839.88
48" RCP N INV. = 830.18
48" RCP E INV. = 830.18
24" RCP SW INV. = 831.23

STORM MANHOLE #109
RIM ELEV. = 838.12
36" RCP N INV. = 830.22
36" RCP S INV. = 830.22

CATCH BASIN #110
RIM ELEV. = 837.28
12" RCP N INV. = 832.21
12" RCP S INV. = 832.16

STORM MANHOLE #111
RIM ELEV. = 838.36
12" RCP N INV. = 832.19
24" RCP E INV. = 831.16

STORM MANHOLE #112
RIM ELEV. = 839.14
12" RCP E INV. = 830.31
48" RCP W INV. = 830.31

CATCH BASIN #113
RIM ELEV. = 838.86
6" METAL E INV. = 833.85
12" RCP SE INV. = 833.85
12" RCP NW INV. = 833.81
6" METAL NW INV. = 834.17
SUMP ELEV. = 831.86

CATCH BASIN #114
RIM ELEV. = 838.80
12" RCP NW INV. = 834.97

CATCH BASIN #115
RIM ELEV. = 837.42
12" HDPE E INV. = 835.38
SUMP ELEV. = 834.32

CATCH BASIN #116
RIM ELEV. = 837.84
12" HDPE E INV. = 835.19
12" HDPE W INV. = 835.14

CATCH BASIN #117
RIM ELEV. = 838.28
12" HDPE E INV. = 834.71
12" HDPE W INV. = 834.43

SANITARY MANHOLE #200
RIM ELEV. = 838.41
12" VCP N INV. = 829.81
12" VCP S INV. = 829.86

SANITARY MANHOLE #201
RIM ELEV. = 838.15
12" VCP N INV. = 829.00
12" VCP S INV. = 829.15

SANITARY MANHOLE #202
RIM ELEV. = 841.30
SUMP ELEV. = 837.30
NO VISIBLE PIPES

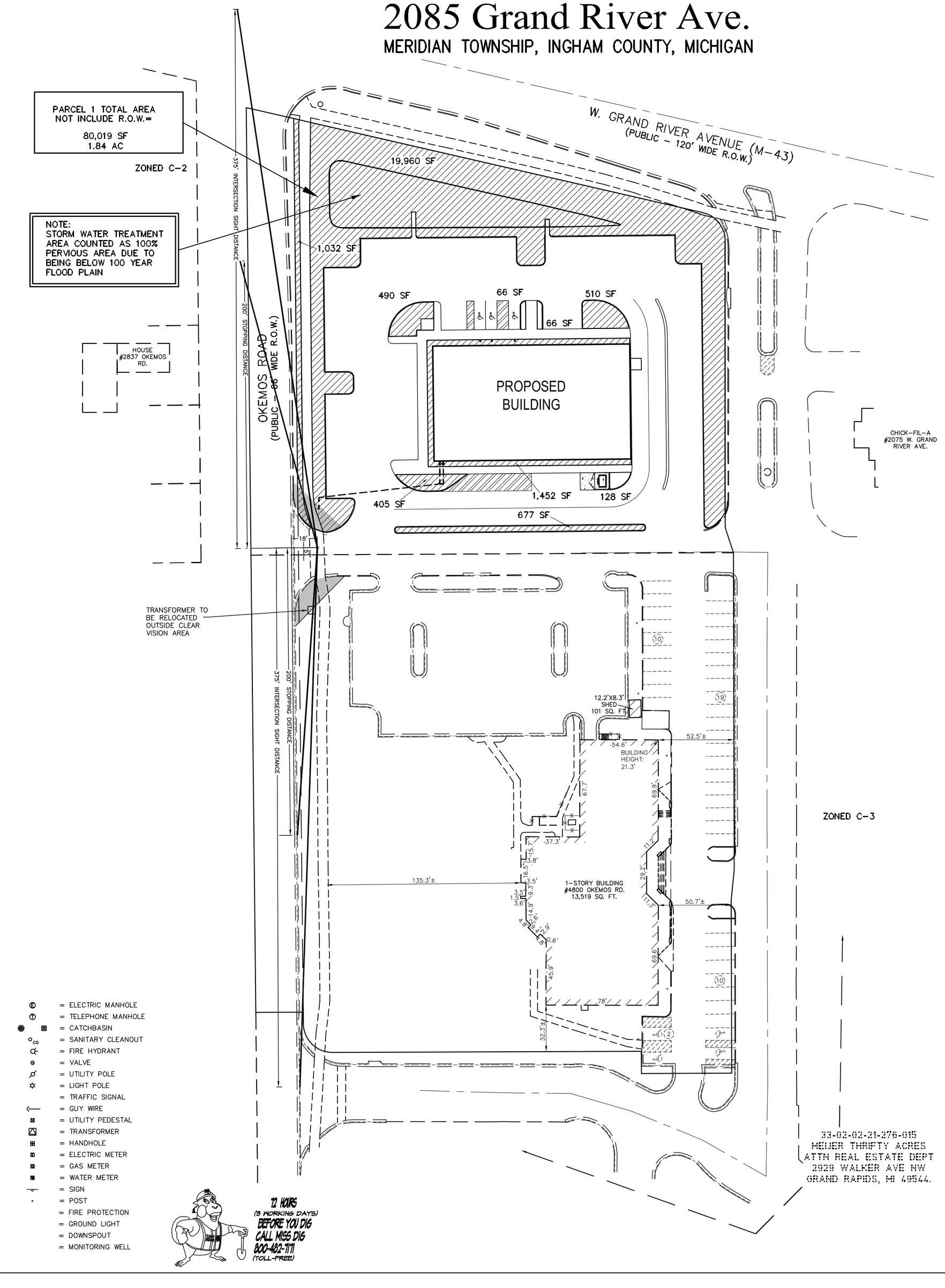
PARCEL 1 TOTAL AREA
NOT INCLUDE R.O.W.=
80,019 SF
1.84 AC

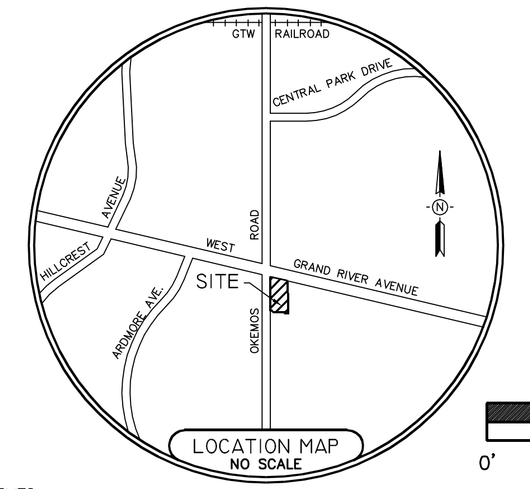
ZONED C-2

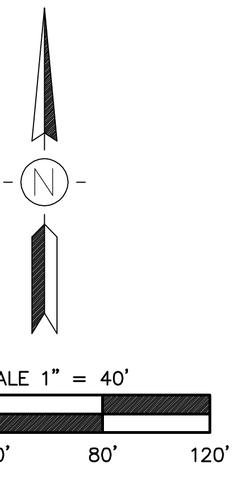
NOTE:
STORM WATER TREATMENT AREA COUNTED AS 100% PERVIOUS AREA DUE TO BEING BELOW 100 YEAR FLOOD PLAIN

HOUSE #2837 OKEMOS RD.

INGHAM COUNTY ROAD DEPARTMENT DATA
(OKEMOS ROAD)
POSTED SPEED LIMIT = 30 MPH
STOPPING SIGHT DISTANCE = 200 FT







AS SURVEYED:
(The following legal description describes the same parcel of land as the provided description)

Parcel 1:
A parcel of land in the Northeast 1/4 of Section 21, T4N, R1W, Meridian Township, Ingham County, Michigan, the surveyed boundary of said parcel described as: Commencing at the East 1/4 corner of said Section 21; thence S89°47'36"W along the East-West 1/4 line of said Section 21 a distance of 1328.71 feet to the Southwest corner of the Southeast 1/4 of said Northeast 1/4; thence N00°36'29"W along the West line of the East 1/2 of said Northeast 1/4 a distance of 697.98 feet to the point of beginning of this description; thence continuing N00°36'29"W along said West line 311.27 feet to the Southerly right-of-way line of W. Grand River Avenue (M-43); thence S77°03'29"E along said Southerly line 326.05 feet; thence Southeasterly 26.82 feet along a curve to the right, said curve having a radius of 20.00 feet, a delta angle of 76°50'30", and a chord of 24.86 feet bearing S38°31'53"E; thence S00°00'39"W 199.60 feet; thence S18°01'08"E 18.33 feet; thence S89°42'02"W 335.59 feet to the point of beginning; said parcel containing 2.06 acres more or less; said parcel subject to right-of-way for road purposes along Okemos Road; said parcel subject to all easements and restrictions if any.

TOTAL SITE AREA = 80,019 S.F.

MAXIMUM ALLOWABLE IMPERVIOUS AREA = 70%

PROPOSED IMPERVIOUS AREA = 55,493 = 69.35%
PROPOSED PERVIOUS AREA = 24,526 S.F. = 30.65%

COUNTED AS PERVIOUS AREA

BENCHMARKS

BENCHMARK #1
ELEV. = 839.38 (NAVD88)
PK NAIL IN SOUTH SIDE OF UTILITY POLE, 1.5' WEST OF BACK OF CURB OF OKEMOS ROAD, 35' SOUTH OF CENTERLINE SOUTH ENTRANCE TO WALGREEN'S

BENCHMARK #2
ELEV. = 840.83 (NAVD88)
NORTH FLANGE BOLT, UNDER "8" IN "1968", FIRE HYDRANT, ±24' NORTH-NORTHEAST OF BACK OF CURB OF GRAND RIVER AVENUE, ±14' EASTERLY OF THE EXTENSION OF THE WESTERLY WALL LINE OF #2060 GRAND RIVER AVENUE.

LEGEND
- EXT. CONTOURS
- EXT. WATER MAIN
- EXT. SANITARY SEWER
- EXT. STORM SEWER
- EXT. ELEVATIONS
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- MANHOLE (NEW)
- PROPOSED C.B.
- MANHOLE (EX.)
- UTILITY EASEMENT
- CENTER LINE OF ROAD
- ROAD RIGHT OF WAY
- PROPERTY LINE
- FIRE HYDRANT
- WATER VALVE
- THRUST BLOCK
- ▲T/C 800.00 — PROPOSED TOP OF CURB ELEV.

LEGEND
- = SET 1/2" BAR WITH CAP
- = FOUND IRON AS NOTED
- = DISTANCE NOT TO SCALE
- = FENCE
- = ASPHALT
- = CONCRETE
- = DECK
- = EXISTING SPOT ELEVATION
- = BUILDING OVERHANG
- = GAS LINE
- = UNDERGROUND TELEPHONE
- = UNDERGROUND TELEVISION
- = UNDERGROUND ELECTRIC
- = OVERHEAD WIRES
- = DECIDUOUS TREE
- = CONIFEROUS TREE
- = SANITARY MANHOLE
- = DRAINAGE MANHOLE
- = ELECTRIC MANHOLE
- = TELEPHONE MANHOLE
- = CATCHBASIN
- = SANITARY CLEANOUT
- = FIRE HYDRANT
- = VALVE
- = UTILITY POLE
- = LIGHT POLE
- = TRAFFIC SIGNAL
- = GUY WIRE
- = UTILITY PEDESTAL
- = TRANSFORMER
- = HANDHOLE
- = ELECTRIC METER
- = GAS METER
- = WATER METER
- = SIGN
- = POST
- = FIRE PROTECTION
- = GROUND LIGHT
- = DOWNSPOUT
- = MONITORING WELL

33-02-02-21-276-015
MEIJER THRIFTY ACRES
ATTN REAL ESTATE DEPT
2929 WALKER AVE NW
GRAND RAPIDS, MI 49544.

SITE ADDRESS: 2055 & 2085 W. GRAND RIVER AVENUE, OKEMOS, MI 48864" SURVEY#94499.ALT

STATE OF MICHIGAN
JEFFREY W. KYES
ENGINEER NO. 46796
LICENSED PROFESSIONAL ENGINEER

REVISIONS
1-18-18 SUP SUBMITTAL
2-19-19 SUP REVISION

KEBS, INC.
KYES ENGINEERING
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PH. 517-339-1014 FAX. 517-339-8047
Marshall Office
Ph. 269-781-9800

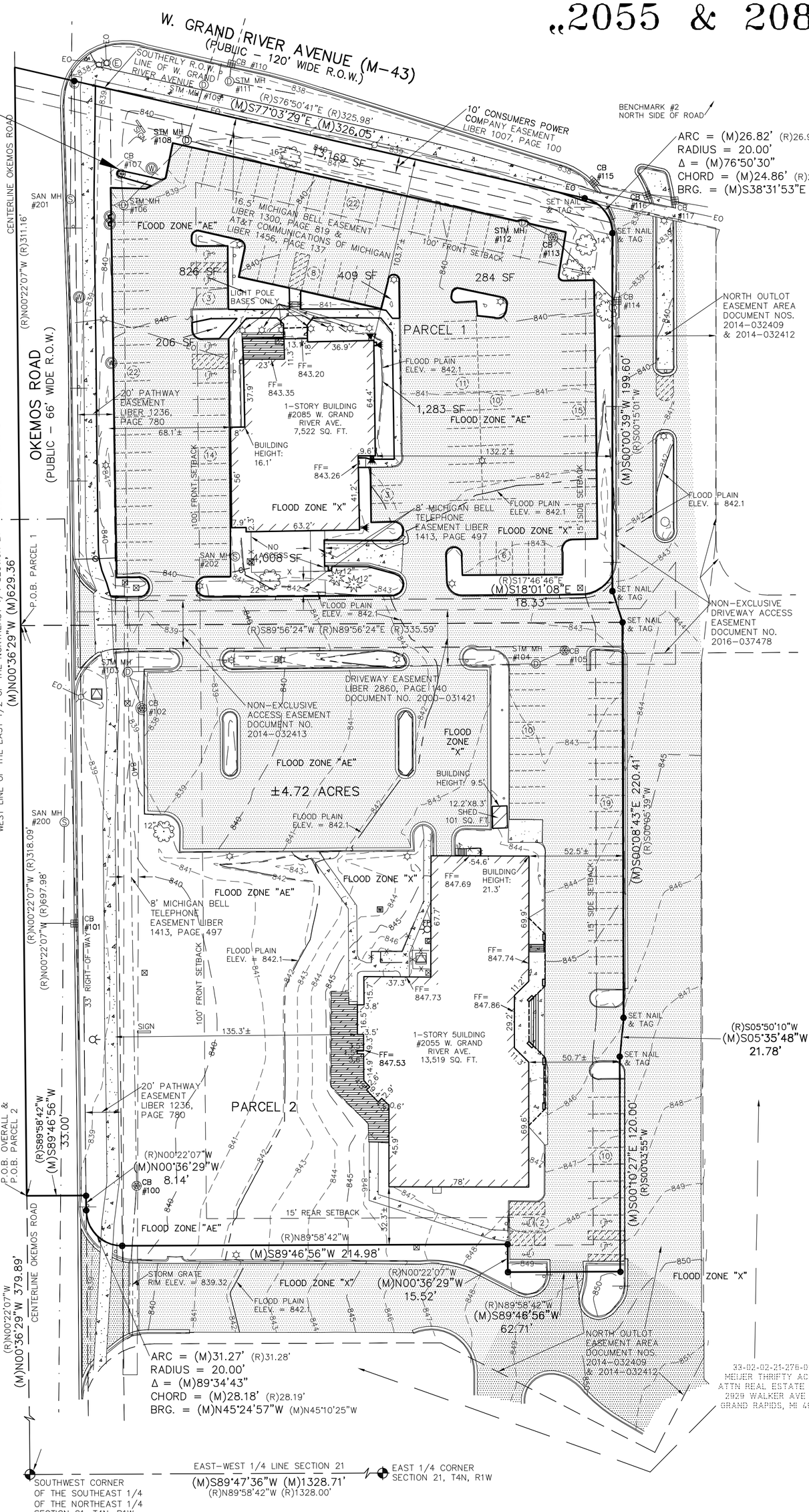
2085 Grand River Ave.
PRELIMINARY PERVIOUS/IMPERVIOUS PLAN

SCALE: 1"= 40'	DESIGNER: JWK	APPROVED BY: JWK
DATE: 12-5-18	PROJECT MGR. JWK	SHEET 5 OF 6
AUTHORIZED BY: ALRIG USA		JOB #: 94499

ALTA/NSPS LAND TITLE SURVEY

„2055 & 2085 W. GRAND RIVER AVENUE, OKEMOS, MI 48864"

EXISTING PLAN


W. GRAND RIVER AVENUE (M-43)
(PUBLIC - 120' WIDE R.O.W.)
SOUTHERLY R.O.W. LINE OF W. GRAND RIVER AVENUE
(M)S77°03'29"E (R)S76°50'41"E (M)326.05'
10' CONSUMERS POWER COMPANY EASEMENT LIBER 1007, PAGE 100
BENCHMARK #2 NORTH SIDE OF ROAD
ARC = (M)26.82' (R)26.91'
RADIUS = 20.00'
Δ = (M)76°50'30"
CHORD = (M)24.86' (R)24.93'
BRG. = (M)S38°31'53"E (R)S38°17'50"E
CENTERLINE OKEMOS ROAD
(R)N00°22'07"W (R)311.16'
SAN MH #201
OKEMOS ROAD
(PUBLIC - 66' WIDE R.O.W.)
BENCHMARK #1
N00°36'29"W 2621.72'
(M)N00°36'29"W (M)629.36'
P.O.B. PARCEL 1
WEST LINE OF THE EAST 1/2 OF THE NORTHEAST 1/4 SECTION 21
(R)N00°22'07"W (R)318.09'
(R)N00°22'07"W (R)697.98'
33' RIGHT-OF-WAY
(R)N00°22'07"W (R)697.98'
(R)N00°22'07"W (M)N00°36'29"W 379.89'
(M)N00°36'29"W (M)629.36'
SOUTHWEST CORNER OF THE SOUTHEAST 1/4 OF THE NORTHEAST 1/4 SECTION 21, T4N, R1W
EAST-WEST 1/4 LINE SECTION 21
(M)S89°47'36"W (M)1,328.71'
(R)N89°58'42"W (R)1328.00'
EAST 1/4 CORNER SECTION 21, T4N, R1W
FLOOD ZONE "AE"
FLOOD ZONE "X"
PARCEL 1
PARCEL 2
±4.72 ACRES
826 SF
409 SF
284 SF
206 SF
1,283 SF
1,168 SF
908 SF
16.5' MICHIGAN BELL EASEMENT AT&T COMMUNICATIONS OF MICHIGAN LIBER 1300, PAGE 819 & LIBER 1436, PAGE 137
100' FRONT SETBACK
LIGHT POLE BASES ONLY
20' PATHWAY EASEMENT LIBER 1236, PAGE 780
1-STORY BUILDING #2085 W. GRAND RIVER AVE. 7,522 SQ. FT.
BUILDING HEIGHT: 16.1'
105' FRONT SETBACK
8' MICHIGAN BELL TELEPHONE EASEMENT LIBER 1413, PAGE 497
FLOOD PLAIN ELEV. = 842.1
NON-EXCLUSIVE ACCESS EASEMENT DOCUMENT NO. 2014-032413
DRIVEWAY EASEMENT LIBER 2860, PAGE 140 DOCUMENT NO. 2000-031421
NON-EXCLUSIVE DRIVEWAY ACCESS EASEMENT DOCUMENT NO. 2016-037478
NORTH OUTLOT EASEMENT AREA DOCUMENT NOS. 2014-032409 & 2014-032412
(R)S18°01'08"E 199.60'
(M)S00°00'39"W 199.60'
(R)S00°08'43"E 220.41'
(M)S00°08'43"E 220.41'
(R)S05°50'10"W
(M)S05°35'48"W
21.78'
(M)S00°10'27"E 120.00'
(R)S00°03'55"W
(R)S89°46'56"E (M)335.35'
18.33'
(R)S89°56'24"E (R)335.59'
(R)N89°58'42"W
(M)S89°46'56"W 214.98'
(R)N00°22'07"W
(M)N00°36'29"W
15.52'
(R)N89°58'42"W
(M)S89°46'56"W
62.71'
ARC = (M)31.27' (R)31.28'
RADIUS = 20.00'
Δ = (M)89°34'43"
CHORD = (M)28.18' (R)28.19'
BRG. = (M)N45°24'57"W (M)N45°10'25"W
(R)N89°58'42"W
(M)S89°46'56"W
33.00'
(R)S89°58'42"W
(M)S89°46'56"W
214.98'
(M)S89°46'56"W
335.35'
(R)S89°56'24"E
(R)335.59'
P.O.B. OVERALL & P.O.B. PARCEL 2
CENTERLINE OKEMOS ROAD
20' PATHWAY EASEMENT LIBER 1236, PAGE 780
15' REAR SETBACK
105' FRONT SETBACK
SIDE SETBACK
33-02-02-21-276-015 MEIJER THRIFTY ACRES ATTN REAL ESTATE DEPT 2929 WALKER AVE NW GRAND RAPIDS, MI 49544
SIGN
135.3'±
50.7'±
1-STORY BUILDING #2055 W. GRAND RIVER AVE. 13,519 SQ. FT.
FF= 847.53
FF= 847.74
FF= 847.86
FF= 847.69
BUILDING HEIGHT: 21.3'
BUILDING HEIGHT: 9.5'
12.2'X8.3' SHED 101 SQ. FT.
FF= 843.20
FF= 843.35
FF= 843.26
FLOOD PLAIN ELEV. = 842.1
FLOOD ZONE "X" ELEV. = 843.4
SET NAIL & TAG
CB #101
CB #102
CB #103
CB #104
CB #105
CB #106
CB #107
CB #108
CB #109
CB #110
CB #111
CB #112
CB #113
CB #114
CB #115
CB #116
CB #117
STM MH #101
STM MH #102
STM MH #103
STM MH #104
STM MH #105
STM MH #106
STM MH #107
STM MH #108
STM MH #109
STM MH #110
STM MH #111
STM MH #112
SAN MH #201
SAN MH #202
SAN MH #203
SAN MH #204
SAN MH #205
SAN MH #206
SAN MH #207
SAN MH #208
SAN MH #209
SAN MH #210
SAN MH #211
STORM GRATE RIM ELEV. = 839.32
8.14'
8.33'
8.08'
8.12'
8.34'
8.12'
8.15'
8.41'
8.18'
8.17'
8.28'
8.66'
8.56'
8.80'
8.97'
8.42'
8.07'
8.02'
8.31'
8.30'
8.31'
8.36'
8.38'
8.39'
8.39'
8.38'
8.37'
8.37'
8.37

EXTERIOR FINISH KEY

1 — THERMALLY BROKEN ALUM. FRAME w/ INSULATED GLAZING
MANUF. KAWNEER, COLOR: CHAMPAGNE
SEE SHEET A6.0(L) FOR DETAILS
SPL - DENOTES SPANDREL GLAZING

2 — MODULAR BRICK VENEER
MANUF.: PINE HALL BRICK
COLOR: BROWN'S FERRY
(OR EQUIVALENT)

3 — E.I.F.S. #1
MANUF.: DRYVIT
COLOR: 382 TAMALE
(OR EQUIVALENT)

4 — E.I.F.S. #2
MANUF.: DRYVIT
COLOR: 110 VAN DYKE
(OR EQUIVALENT)

5 — PRECAST SILL
MANUF.: STONECAST
COLOR: LIMESTONE
(OR EQUIVALENT)

6A — PREFINISHED METAL COPING
MANUF.: UNA-CLAD
COLOR: ELECTRIC BLUE (OR EQUIVALENT)

6B — PREFINISHED METAL COPING
MANUF.: UNA-CLAD
COLOR: T.B.D.

7 — SIGNAGE BY TENANT
EACH SIGN WILL BE 50 S.F. MAX.
SIGNAGE NOT TO EXCEED 150 S.F.
PROVIDE 1/2" PLYWOOD SUBSTRATE AS RE

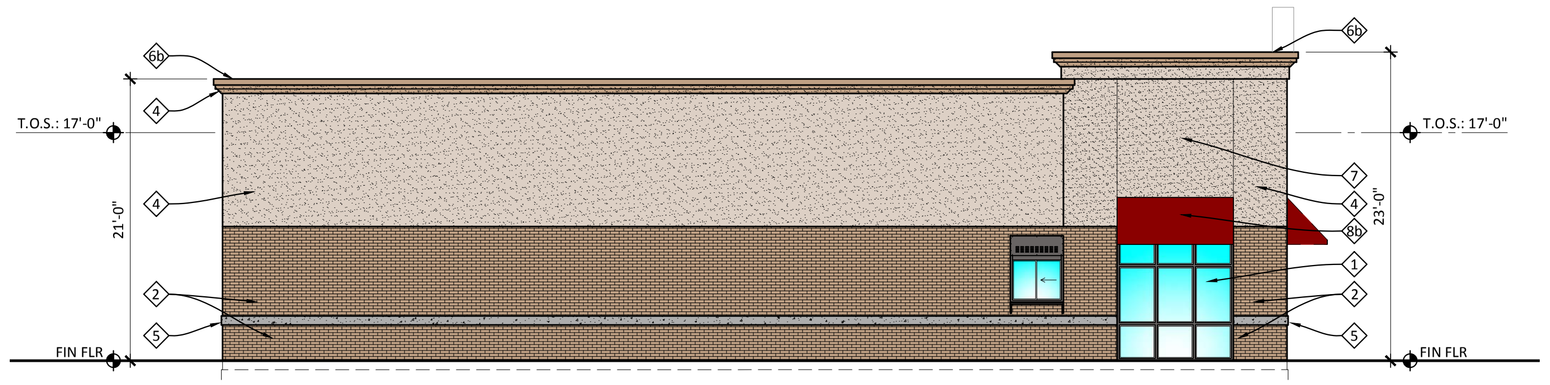
8A — METAL PANEL, ALUMINUM FRAME AWNING
BY TENANT AS SEPARATE SUBMITTAL
COLOR: BLUE

8B — FABRIC, ALUMINUM FRAME AWNING
BY TENANT AS SEPARATE SUBMITTAL
COLOR: T.B.D

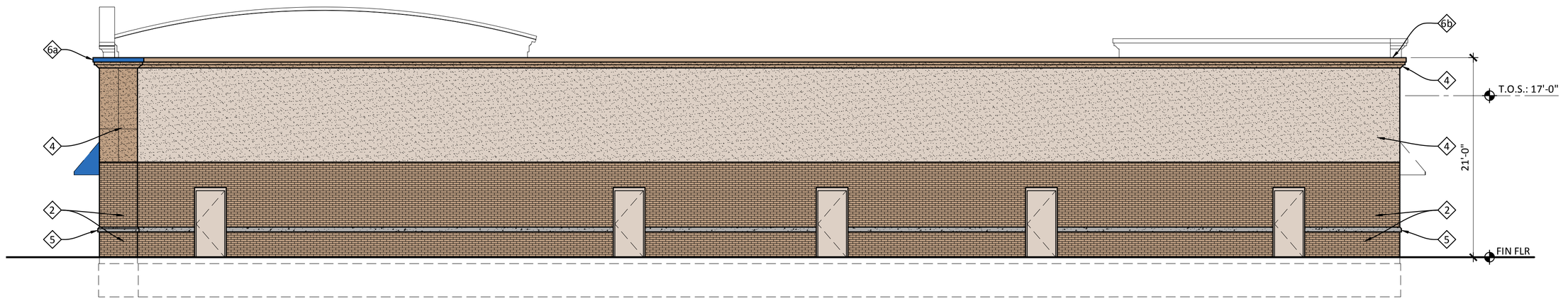
NOTES:
1. PROVIDE 5/8" FRT PLYWOOD SUBSTRATE AS REQUIRED AS REQUIRED FOR ALL SIGN BOXES, SCONCES, UTILITIES, AWNINGS.
2. ALL GLAZING SHALL BE TEMPERED AS REQUIRED ADJACENT TO DOORS AND FINISHED FLOOR

T = TEMPERED GLAZING

PRELIMINARY NORTH ELEVATION — 4
SCALE: 1/8" = 1'-0"



PRELIMINARY EAST ELEVATION — 3
SCALE: 1/8" = 1'-0"



PRELIMINARY SOUTH ELEVATION — 2
SCALE: 1/8" = 1'-0"

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

DETROIT ARCHITECTURAL GROUP
1644 Ford Avenue Wyandotte, MI 48192
734.556.3269 O. 734.556.3234 F.
www.detroitarch.com

proposed

MULTI-TENANT BUILDING

2085 GRAND RIVER AVE
OKEMOS, MI 48864

REV	DATE	ISSUED
	01-28-19	SITE PLAN APPROVAL
	01-17-19	ISSUED FOR REVIEW

This drawing is an instrument of service, remains the property of Detroit Architectural Group, Inc. Any changes, publication, or unauthorized use is prohibited unless expressly approved.

SEAL:

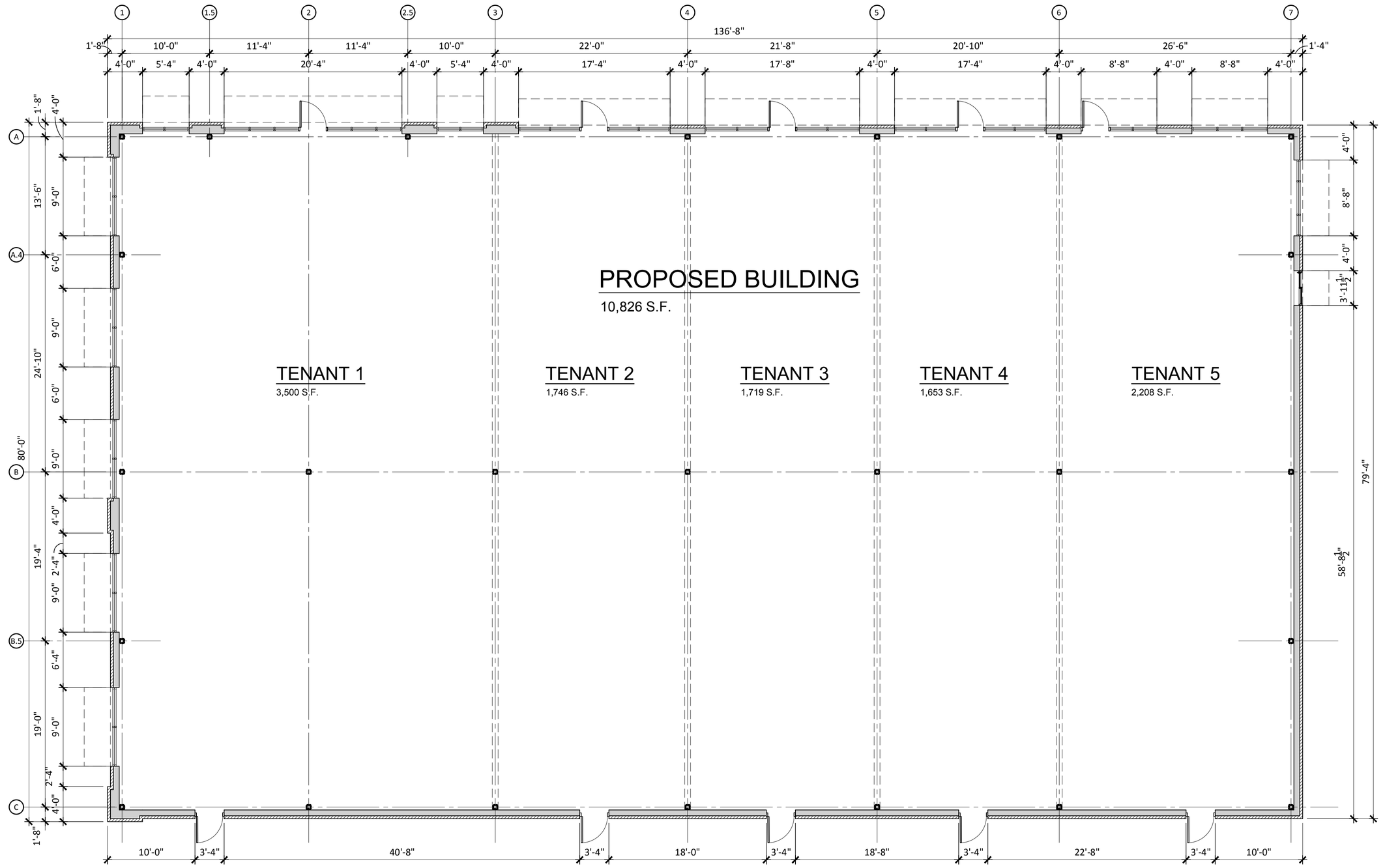
STATE OF MICHIGAN — JACOB MICHAEL ROOT — ARCHITECT — NO. 67787 — LICENSED ARCHITECT

DRAWN BY: TJG
CHECKED BY: VW
IN CHARGE: VW, JMR

SHEET NAME: PRELIMINARY ELEVATIONS

JOB NO: 18-168

SHEET NO: PE-1



PRELIMINARY FLOOR PLAN
SCALE: 1/8" = 1'-0"

NORTH

1

DETROIT ARCHITECTURAL GROUP
1644 Ford Avenue Wyandotte, MI 48192
734.556.3259 O. 734.556.3234 F.
www.detroitarch.com

proposed

MULTI-TENANT BUILDING

2085 GRAND RIVER AVE
OKEMOS, MI 48864

REV	DATE	ISSUED
	01-17-19	ISSUED FOR REVIEW

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SEAL:

DRAWN BY: TJG
CHECKED BY: VW
IN CHARGE: VW, JMR

SHEET NAME:
PRELIMINARY FLOOR PLAN

JOB NO:
18-168

SHEET NO:
PFP-1

EXTERIOR FINISH KEY

1 — THERMALLY BROKEN ALUM. FRAME
w/ INSULATED GLAZING
MANUF. KAWNEER, COLOR: CHAMPAGNE
SEE SHEET A6.0(L) FOR DETAILS

SPL - DENOTES SPANDREL GLAZING

2 — MODULAR BRICK VENEER
MANUF.: PINE HALL BRICK
COLOR: BROWN'S FERRY
(OR EQUIVALENT)

3 — E.I.F.S. #1
MANUF.: DRYVIT
COLOR: 382 TAMALE
(OR EQUIVALENT)

4 — E.I.F.S. #2
MANUF.: DRYVIT
COLOR: 110 VAN DYKE
(OR EQUIVALENT)

5 — PRECAST SILL
MANUF.: STONECAST
COLOR: LIMESTONE
(OR EQUIVALENT)

6a — PREFINISHED METAL COPING
MANUF.: UNA-CLAD
COLOR: ELECTRIC BLUE (OR EQUIVALENT)

6b — PREFINISHED METAL COPING
MANUF.: UNA-CLAD
COLOR: T.B.D.

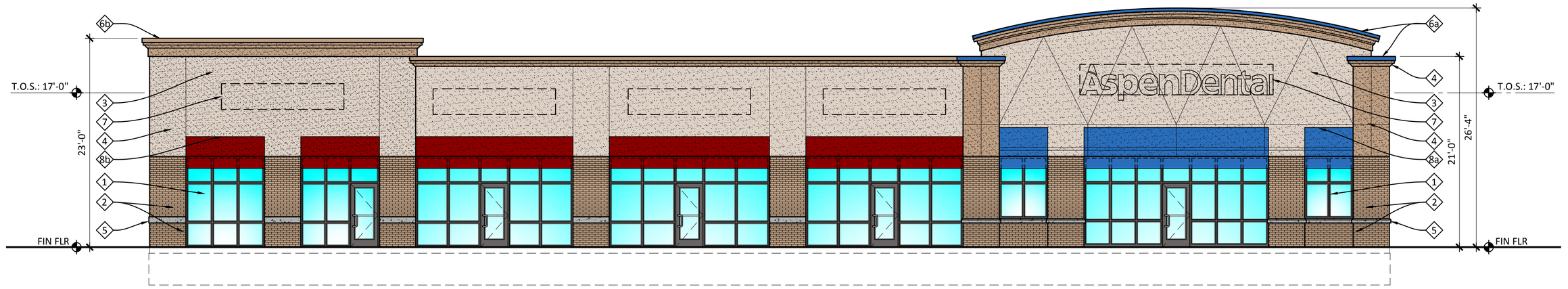
7 — SIGNAGE BY TENANT
EACH SIGN WILL BE 50 S.F. MAX.
SIGNAGE NOT TO EXCEED 150 S.F.
PROVIDE 1/2" PLYWOOD SUBSTRATE AS RE

8a — METAL PANEL, ALUMINUM FRAME AWNING
BY TENANT AS SEPARATE SUBMITTAL
COLOR: BLUE

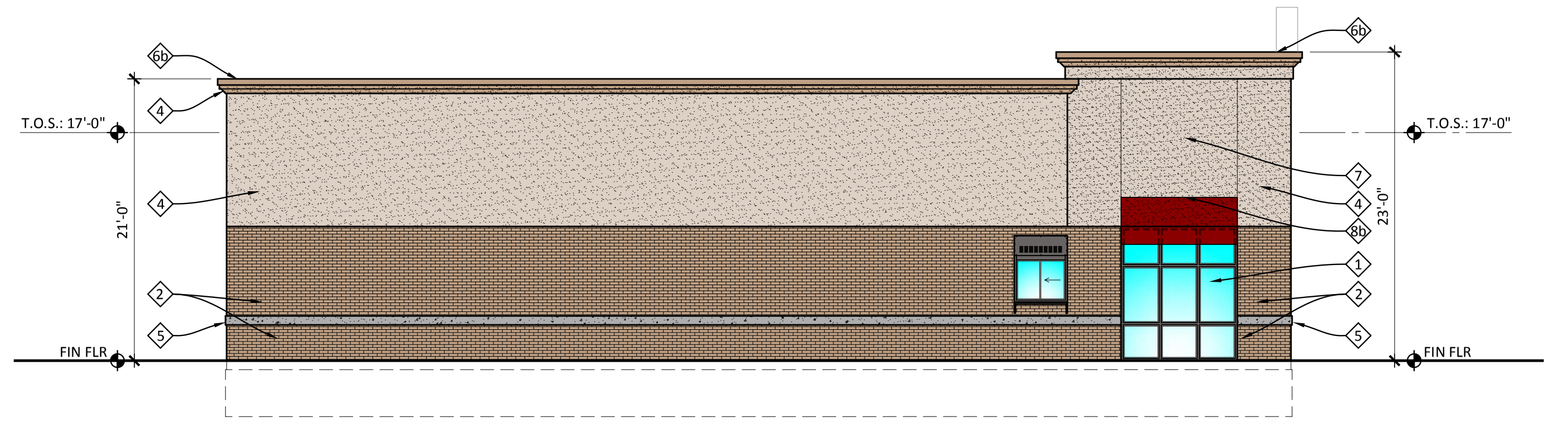
8b — FABRIC, ALUMINUM FRAME AWNING
BY TENANT AS SEPARATE SUBMITTAL
COLOR: T.B.D

NOTES:
1. PROVIDE 5/8" FRT PLYWOOD SUBSTRATE AS REQUIRED AS REQUIRED FOR ALL SIGN BOXES, SCONCES, UTILITIES, AWNINGS.
2. ALL GLAZING SHALL BE TEMPERED AS REQUIRED ADJACENT TO DOORS AND FINISHED FLOOR

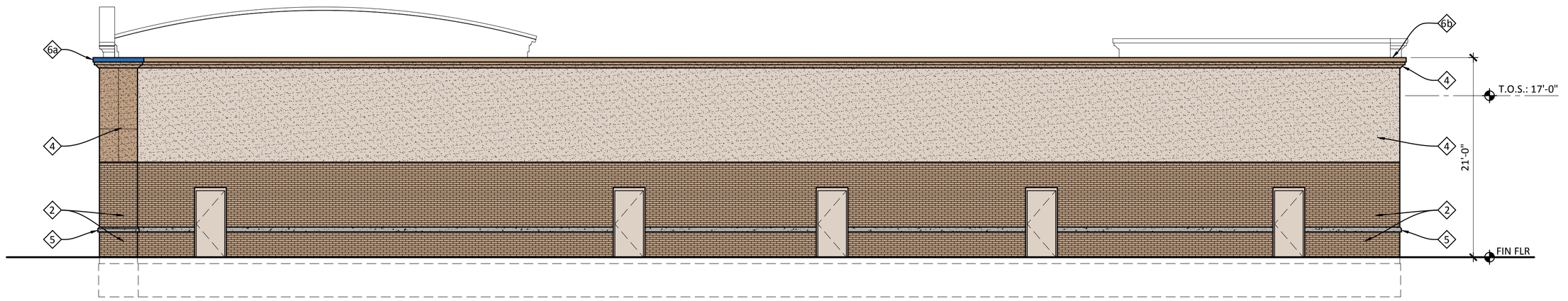
T = TEMPERED GLAZING



PRELIMINARY NORTH ELEVATION — 4
SCALE: 1/8" = 1'-0"



PRELIMINARY EAST ELEVATION — 3
SCALE: 1/8" = 1'-0"



PRELIMINARY SOUTH ELEVATION — 2
SCALE: 1/8" = 1'-0"

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

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proposed

MULTI-TENANT BUILDING

2085 GRAND RIVER AVE
OKEMOS, MI 48864

REV	DATE	ISSUED
	01-17-19	ISSUED FOR REVIEW

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SEAL:

DRAWN BY: TJG
CHECKED BY: VW
IN CHARGE: VW, JMR

SHEET NAME:
PRELIMINARY ELEVATIONS

JOB NO:
18-168

SHEET NO:
PE-1

TRAFFIC IMPACT STUDY

For The Proposed

2085 Grand River Avenue Development

Meridian Charter Township
Ingham County, MI

March, 2019

Prepared by:

Traffic Engineering Associates, Inc.
PO Box 100 • Saranac, Michigan 48881
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EXECUTIVE SUMMARY

Traffic Engineering Associates, Inc. (TEA) conducted a traffic impact study to determine the distribution of new traffic generated by the proposed 2085 Grand River Avenue development in Meridian Charter Township, Ingham County, Michigan. The project site is located on the south side of Grand River Avenue (M-43), just east of Okemos Road.

The proposed development will consist of a 10,960 square foot building with the potential for three to four tenants. It is expected that the tenants could include a dental office, a small retail, fast casual restaurants, or coffee shop. There may be a drive-through with one of the restaurants or coffee shop on one end. The site will utilize shared access driveways that currently exist. There is one (1) existing full access driveway on Grand River Avenue (M-43) and one (1) existing full access driveway off of Okemos Road. The project has an anticipated completion date by the spring of 2020.

TEA, Inc. conducted vehicle counts during the midweek, of a non-holiday week in the month of March, 2019, at the intersection of Grand River Avenue (M-43) and Okemos Road, Grand River Avenue (M-43) and the Meijer/Chick-Fil-A driveway, and Okemos Road and the Meijer driveway. Turning movement counts were taken during the AM and PM peak hours. The weekday AM and PM peak hours of existing traffic on the adjoining road system are 7:30 – 8:30 AM and 4:45 – 5:45 PM respectively.

A level of service analysis for existing traffic at the studied intersections during the AM, and PM peak hours was conducted**.** All existing turning movements at the studied intersection operate at an acceptable level of service (LOS D or better) during the AM, and PM peak hours except for several movements at the intersection of Grand River Avenue (M-43) and Okemos Road, and at the Grand River Avenue (M-43) and Meijer/Chick-Fil-A driveway. An optimization of the existing traffic signal at the Okemos Road intersection could improve some movements, but the signal is likely operating at an optimized condition.

According to the Meridian Township Planning Department, the total population growth for Meridian Charter Township from 2010 to 2016 is six point nine percent (6.9%). Using an annual average growth rate of one point one percent (1.1%), and with an anticipated completion date for the spring of 2020, background growth traffic volumes were calculated. All background turning movements at the studied intersection operate at an acceptable level of service (LOS D or better) during the AM and PM peak hours except for several movements at the intersection of Grand River Avenue (M-43) and Okemos Road, and at the Grand River Avenue (M-43) and Meijer/Chick-Fil-A driveway. There was a minor increase in the level of service and vehicle delays at all studied intersections.

The ITE trip generation rates for Shopping Center (Land Use Code 820) were selected as representing the proposed development. It is projected that the proposed development will generate 157 vehicle trips in the AM peak hour, 70 vehicle trips in the PM peak hour of which 36 trips are pass-by, and 1,337 vehicle trips daily.

For future traffic conditions, all existing geometrics and traffic control were used. All future turning movements at the studied intersections are anticipated to operate at an acceptable level of service (LOS D or better) during the AM and PM peak hours except for several movements at the intersection of Grand River Avenue (M-43) and Okemos Road, and at the Grand River Avenue (M-43) and Meijer/Chick-Fil-A driveway. An optimization of the existing traffic signal at the Okemos Road intersection could improve some movements, but the signal is likely operating at an optimized condition.

During the PM peak hour, the northbound left turn movement from the Meijer/Chick-Fil-A driveway to westbound Grand River Avenue (M-43) is expected to operate at a LOS F with 50.3 seconds of vehicle delay, an increase of 11.1 seconds from background conditions. One mitigation could be to restrict the left turn movement from the development onto westbound Grand River Avenue (M-43). The driveway to the east already restricts the northbound left turn movement out of the development. While this mitigation does remove the delay for the northbound left turn movement from the driveway to westbound Grand River Avenue (M-43), it would shift traffic to utilize the northbound left turn movement from Okemos Road to westbound Grand Road River Avenue (M-43). This movement is already failing in the morning. Likely, there will be enough gaps for the northbound left turn movement from the driveway given that this driveway is between two signals. Therefore, there are no recommendations to restrict the northbound left turn movement from this driveway.

The MDOT guidelines show that during the AM and PM peak hours, there is justification for a right turn taper for northbound Okemos Road at the Meijer North driveway. However, existing PM peak hour traffic volumes already justify this right turn taper.

INTRODUCTION

PROJECT DESCRIPTION

The purpose of this study is to determine the impact from new traffic generated by the proposed 2085 Grand River Avenue development in Meridian Charter Township, Ingham County, Michigan. The project site is located on the south side of Grand River Avenue (M-43) just east of Okemos Road. There is currently a vacant building located on the site and it was not in use at the time of this analysis.

The proposed 2085 Grand River Avenue development will consist of a 10,960 square foot building with the potential for three to four tenants. It is expected that the tenants could include a dental office, a small retail, fast casual restaurants, or coffee shop. There may be a drive-through with one of the restaurants or coffee shop on one end. The site will utilize shared access driveways that currently exist. There is one (1) existing full access driveway on Grand River Avenue (M-43) and one (1) existing full access driveway off of Okemos Road. The project has an anticipated completion date by the spring of 2020.

SCOPE OF WORK

The scope of work contained in this report is as follows:

- Analysis of existing traffic conditions on the adjoining street system.
- Analysis of background traffic conditions for the future year (spring of 2020) volumes without the proposed development.
- Projection of future traffic volumes to be generated by the proposed development.
- Evaluation of the impact of future traffic with the proposed development.
- Determination of what roadway and traffic control improvements, if any, will be needed to accommodate future (spring of 2020) traffic volumes.

EXISTING CONDITIONS

ROADWAYS AND INTERSECTIONS

Roadways

Grand River Avenue (M-43) is an east-west five-lane roadway with a two-way center left-turn lane with concrete curb and gutter. The posted speed limit is 45 mph and there are sidewalks on both sides of the roadway. Grand River Avenue (M-43) is under the jurisdiction of the Michigan Department of Transportation.

Okemos Road is a north-south five-lane roadway with a two-way center left-turn lane with concrete curb and gutter. The posted speed limit is 30 mph south of Grand River Avenue (M-43) and 40 mph north of Grand River Avenue (M-43). There are sidewalks on both sides of the roadway. Okemos Road is under the jurisdiction of Ingham County Road Department.

Intersections

Grand River Avenue (M-43) and Okemos Road

The intersection of Grand River Avenue (M-43) and Okemos Road is a four-way intersection and is controlled by a traffic signal. The west approach on Grand River Avenue (M-43) is six (6) lanes with one (1) exclusive left turn lane, one (1) exclusive right turn lane, two (2) thru lanes and two (2) outbound lanes. The east approach is five (5) lanes with one (1) exclusive left turn lane, one (1) thru-right lane, one (1) thru lane and two (2) outbound lanes. The north and south approaches on Okemos Road are five (5) lanes with one (1) exclusive left turn lane, one (1) thru-right lane, one (1) thru lane and two (2) outbound lanes. There are pedestrian crossings with pedestrian signals on all four (4) approaches at this intersection. There are pedestrian push buttons for those pedestrians wishing to cross Grand River Avenue (M-43).

Grand River Avenue (M-43) and Meijer/Chick-Fil-A Driveway

This intersection is a "T" intersection controlled with a stop sign, with the northbound Meijer/Chick-Fil-A driveway stopping for Grand River Avenue (M-43). The west approach on Grand River Avenue (M-43) is a six (6) lane roadway with one (1) two-way left turn lane, two (2) thru lanes, one (1) right turn taper and two (2) outbound lanes. The east approach on Grand River Avenue (M-43) is a five (5) lane roadway with one (1) two-way left turn lane, two (2) thru lanes, and two (2) outbound lanes. The Meijer/Chick-Fil-A driveway is four (4) lanes with one (1) exclusive left turn lane, one (1) exclusive right turn lane and two (2) outbound lanes. It should be noted that the island between the inbound and outbound lanes of the driveway was constructed to discourage left turn movements off of Grand River Avenue (M-43). However, there was no apparent signage stating this and field observations show that westbound vehicles on Grand River Avenue (M-43) are turning left into the driveway. This project will assume that this driveway is a full access driveway.

Okemos Road and Meijer North Driveway

This intersection is a "T" intersection controlled with a stop sign, with the westbound Meijer North driveway stopping for Okemos Road. The north and south approaches are both five (5) lane roadway with one (1) two-way left turn lane, two (2) thru lanes and two (2) outbound lanes. The Meijer North driveway is two (2) wide lanes with one (1) shared right-turn and left-turn lane and

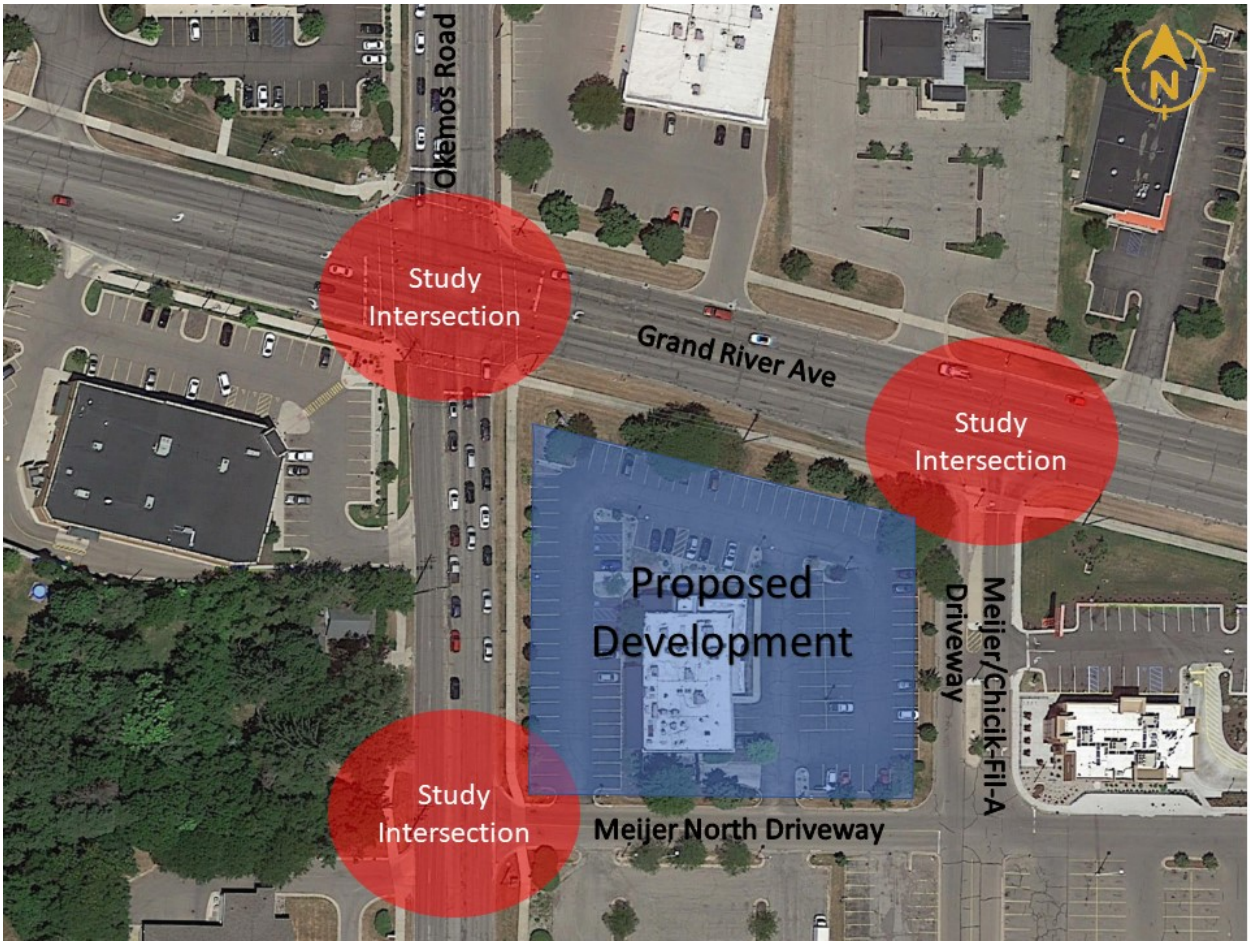
one (1) outbound lane. The width of the driveway is approximately 30 feet and there are no turn restrictions.

Figure 1 illustrates the location of the proposed development, roadways, driveways and the three study intersections included in this analysis.

LAND USE

The proposed 2085 Grand River Avenue development will be located on the south side of Grand River Avenue (M-43) east of Okemos Road. The proposed project site has an existing building located on the site that is no longer in business. The previous land use was a sit-down restaurant. There is currently a Chick-Fil-A to the east of the site and a furniture store to the south of the site. There are shared driveways off of Grand River Avenue (M-43) and Okemos Road that access these sites and do not have their own driveways. These driveways also access a Meijer store located to the southeast of this site, as well as other stores. The surrounding land use is a mixture of commercial development.

Figure 1: Site Location and Study Intersections

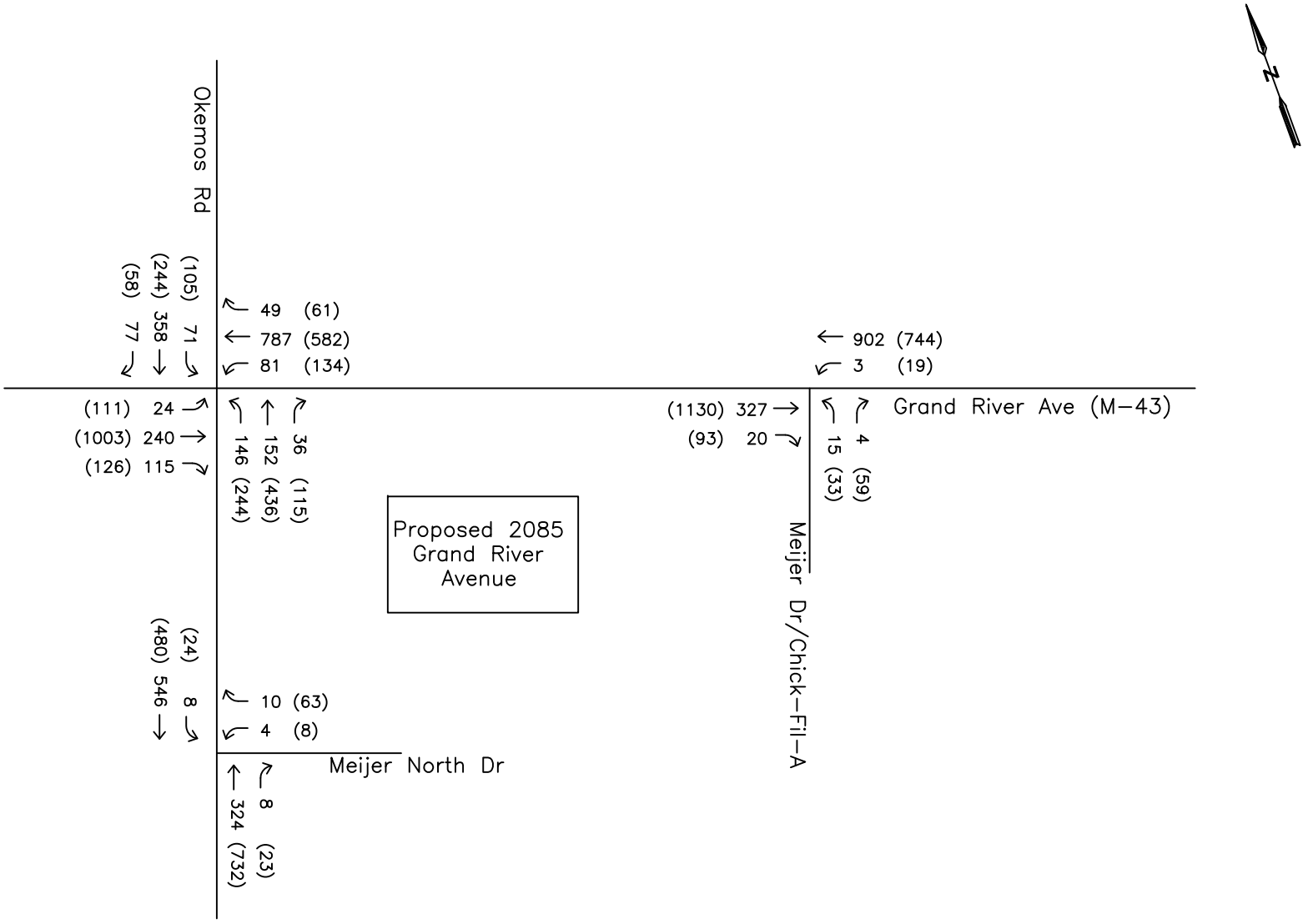


EXISTING TRAFFIC VOLUMES

TEA, Inc. conducted vehicle counts during the midweek, of a non-holiday week in the month of March, 2019, at the following intersections:

- Grand River Avenue (M-43) and Okemos Road
- Grand River Avenue (M-43) and the Meijer/Chick-Fil-A driveway
- Okemos Road and the Meijer driveway.

Turning movement counts were taken during the AM and PM peak hours. The weekday AM and PM peak hours of existing traffic on the adjoining road system are 7:30 – 8:30 AM and 4:45 – 5:45 PM respectively. The existing peak hour volumes are illustrated in **Figure 2**.



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LEGEND

XXX AM Pk Hr (7:30-8:30 AM) Volumes

(XXX) PM Pk Hr (4:45-5:45 PM) Volumes

FIGURE 2: Existing Traffic – Peak Hours

DATE: March, 2019 | SCALE: NTS | PAGE: 8

LEVEL OF SERVICE ANALYSIS FOR EXISTING TRAFFIC

The critical intersections defined for this study were analyzed according to the methodologies published in the most recent edition of the *Highway Capacity Manual.* The analysis determines the "Level of Service" of the intersections and is based on factors such as the number and types of lanes, signal timing, traffic volumes, pedestrian activity, etc. The level of service (LOS) is defined by average vehicle delay in seconds created by a traffic control device for a given traffic movement or intersection approach.

Level of Service	Delay per Vehicle (seconds)	
	Non-Signalized	Signalized
A	< 10	<10
B	10 to 15	10 to 20
C	15 to 25	20 to 35
D	25 to 35	35 to 55
E	35 to 50	55 to 80
F	> 50	> 80

Levels of Service are expressed in a range from "A" to "F," with "A" being the highest LOS and "F" representing the lowest LOS. Level of service "D" is considered the minimum acceptable LOS in an urban area. The above table shows the thresholds for Levels of Service "A" through "F" for non-signalized and signalized intersections, respectively.

All Level of Service computations contained in this report were based upon the Synchro software package which is approved by the Michigan Department of Transportation (MDOT). Delay per vehicle includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

All existing geometrics and traffic control devices were used to analyze the existing level of service and vehicle delays. The Level of Service analysis for existing traffic during the AM and PM peak hours is summarized in **Table 1.** All existing turning movements at the studied intersection operate at an acceptable level of service (LOS D or better) during the AM and PM peak hours except for the following;

Grand River Avenue (M-43) and Okemos Road

- During the AM peak hour, the westbound thru-right movement on Grand River Avenue (M-43) operates at a LOS E with 57.6 seconds of vehicle delay.

- During the AM peak hour, the northbound left turn movement on Okemos Road to westbound Grand River Avenue (M-43) operates at a LOS F with 89.5 seconds of vehicle delay.

- During the AM peak hour, the northbound approach on Okemos Road at Grand River Avenue (M-43) operates at a LOS E with 65.0 seconds of vehicle delay.

- During the PM peak hour, the northbound left turn movement on Okemos Road to westbound Grand River Avenue (M-43) operates at a LOS E with 60.5 seconds of vehicle delay.

- During the PM peak hour, the northbound left turn movement on Okemos Road to northbound Okemos Road operates at a LOS E with 62.8 seconds of vehicle delay.

- During the PM peak hour, the northbound right turn movement on Okemos Road to eastbound Grand River Avenue (M-43) operates at a LOS E with 64.5 seconds of vehicle delay.

- During the PM peak hour, the northbound approach on Okemos Road at Grand River Avenue (M-43) operates at a LOS E with 62.7 seconds of vehicle delay.

- During the PM peak hour, the southbound left turn movement on Okemos Road to eastbound Grand River Avenue (M-43) operates at a LOS E with 59.3 seconds of vehicle delay.

<u>Grand River Avenue (M-43) and Meijer/Chick-Fil-A Driveway</u>

- During the PM peak hour, the northbound left turn movement from the Meijer/Chick-Fil-A driveway to westbound Grand River Avenue (M-43) operates at a LOS E with 40.5 seconds of vehicle delay.

Table 1
Level of Service (LOS) Summary
Existing AM and PM Peak Hour Traffic

Location	Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Avg. Delay	**LOS**	**Avg. Delay**	**LOS**
Grand River Avenue (M-43) and Okemos Road	EB Left	32.9	C	28.3	C
	EB Thru	25.7	C	38.9	D
	EB Right	26.2	C	23.0	C
	EB Approach	*26.4*	*C*	*36.2*	*D*
	WB Left	17.7	B	41.0	D
	WB Thru	**57.6**	**E**	27.6	C
	WB Right	**57.1**	**E**	27.6	C
	WB Approach	*53.6*	*D*	*29.9*	*C*
	NB Left	**89.5**	**F**	**60.5**	**E**
	NB Thru	47.8	D	**62.8**	**E**
	NB Right	48.5	D	**64.5**	**E**
	NB Approach	***65.0***	***E***	***62.7***	***E***
	SB Left	37.3	D	**59.3**	**E**
	SB Thru	43.3	D	46.7	D
	SB Right	43.8	D	47.7	D
	SB Approach	*42.6*	*D*	*50.6*	*D*
	Intersection	48.4	D	43.4	D
Grand River Avenue (M-43) and Meijer / Chick-Fil-A Driveway	EB Thru-Right	Free	A	Free	A
	EB Approach	*0.0*	*A*	*0.0*	*A*
	WB Left	8.1	A	13.4	B
	WB Thru	Free	A	Free	A
	WB Approach	*0.0*	*A*	*0.6*	*A*
	NB Left	14.8	B	**40.5**	**E**
	NB Right	9.4	A	17.1	C
	NB Approach	*13.4*	*B*	*25.9*	*D*
	Intersection	0.3	A	1.6	A

Note: Delay = Average control delay per vehicle in seconds.
LOS = Level of Service

Table 1 (Continued)
Level of Service (LOS) Summary
Existing AM and PM Peak Hour Traffic

Location	Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Avg. Delay	LOS	Avg. Delay	LOS
Okemos Road and Meijer North Driveway	WB Left-Right	11.2	B	15.1	C
	WB Approach	*11.2*	*B*	*15.1*	*C*
	NB Thru-Right	Free	A	Free	A
	NB Approach	*0.0*	*A*	*0.0*	*A*
	SB Left	8.1	A	9.8	A
	SB Thru	Free	A	Free	A
	SB Approach	*0.2*	*A*	*0.6*	*A*
	Intersection	0.4	A	1.2	A

Note: Delay = Average control delay per vehicle in seconds.
LOS = Level of Service

LEVEL OF SERVICE ANALYSIS FOR MITIGATED EXISTING TRAFFIC

All existing geometrics and traffic control devices were used to analyze the existing level of service and vehicle delays to determine if an optimization of the traffic signal timing would improve the level of service and the vehicle delays at the intersection of Grand River Avenue (M-43) and Okemos Road.

For the AM peak hour, additional time could be given to the northbound left-turn movement while taking away green time from the southbound thru-right movement. This can be done due to the pedestrian push-buttons at the intersection. Additionally, reducing the green time for the eastbound-westbound left-turn movements and adding additional green time for the eastbound through movement would reduce delay to the westbound thru-right movement. Doing these two adjustments would have all movements at the intersection operating at a LOS D or better.

For the PM peak hour, additional green time could be given to the northbound approach from the eastbound-westbound approach and also a reduction in the eastbound/westbound left turn phase. With these two adjustments, all movements at the intersection could operate at a LOS D or better; however, many approaches are still approaching LOS E.

With the existing stop sign control at the Meijer/Chick-Fil-A driveway, and with the driveway already configured with an exclusive left turn lane, the PM peak hour level of service E cannot be improved.

BACKGROUND CONDITIONS

BACKGROUND TRAFFIC GROWTH VOLUMES

Background traffic represents future volumes without the traffic generated by the proposed 2085 Grand River Avenue development. The target year for completion is the spring of 2020, approximately one (1) year from the time of this analysis.

According to the Meridian Township Planning Department, the total population growth for Meridian Charter Township from 2010 to 2016 is six point nine percent (6.9%). Using an annual average growth rate of one point one percent (1.1%), and with an anticipated completion date for the spring of 2020, background growth traffic volumes were calculated. Background growth volumes are displayed in **Figure 3A**.

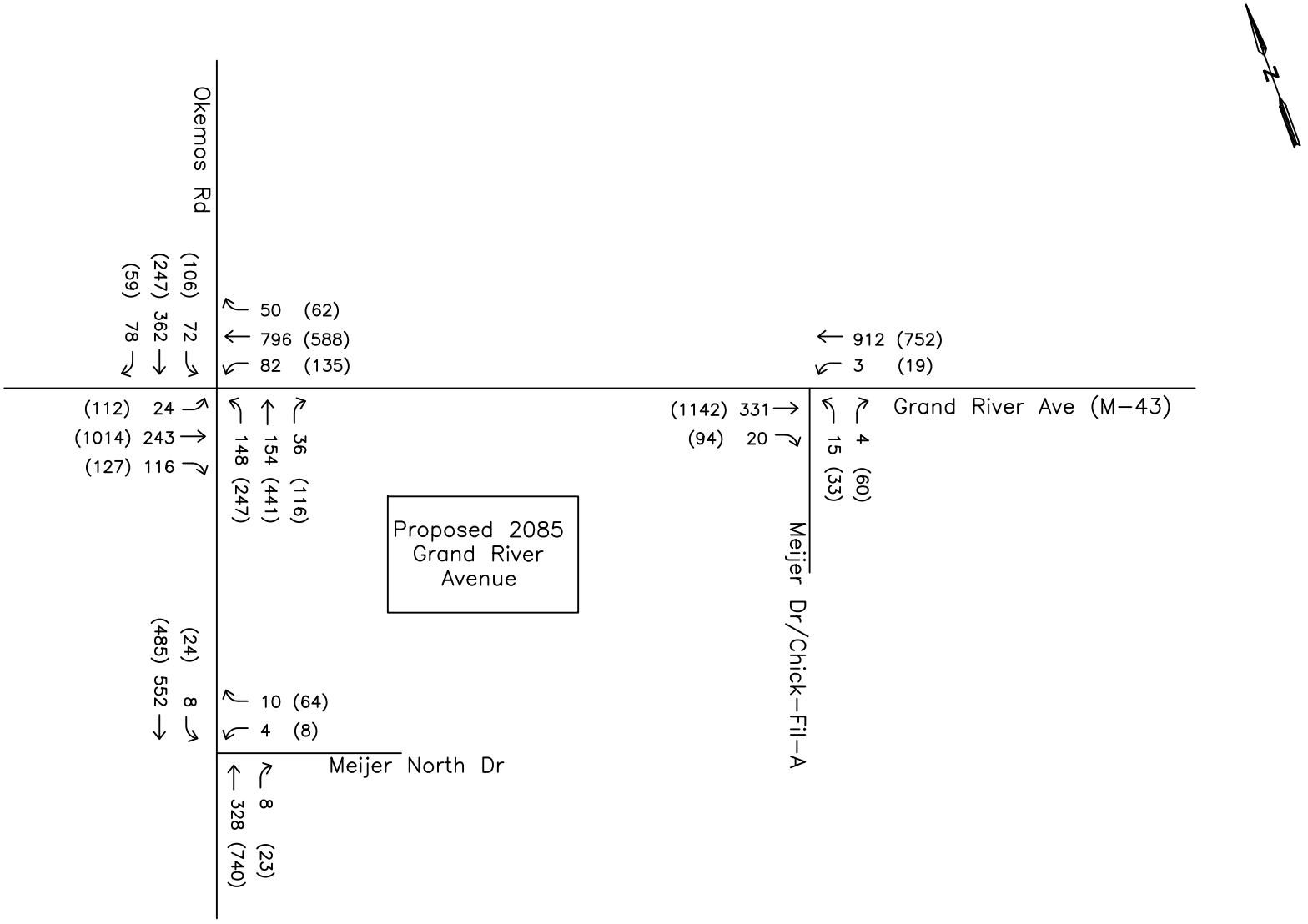
BACKGROUND DEVELOPMENT TRAFFIC VOLUMES

The only new development identified in the project area is the Panera Bread restaurant located across the street from the site, on the north side of Grand River Avenue (M-43). This new facility was not open for business when the new traffic counts were taken; therefore, this is considered a future new development. Project information was taken from the Traffic Impact Study for the Proposed Panera Bread Development completed by Traffic Engineering Associates, Inc. in December 2017. The proposed Panera Bread development will consist of a 4,375 square foot building with a drive-thru window. There will be one (1) full access driveway on Grand River Avenue (M-43).

Background development traffic volumes from this development were incorporated into the background traffic volumes for this study. Background development volumes are displayed in **Figure 3B**.

TOTAL BACKGROUND TRAFFIC VOLUMES

Adding the background development traffic volumes to the background growth volumes generated the total background traffic volumes. The total background volumes are displayed in **Figure 3C**.



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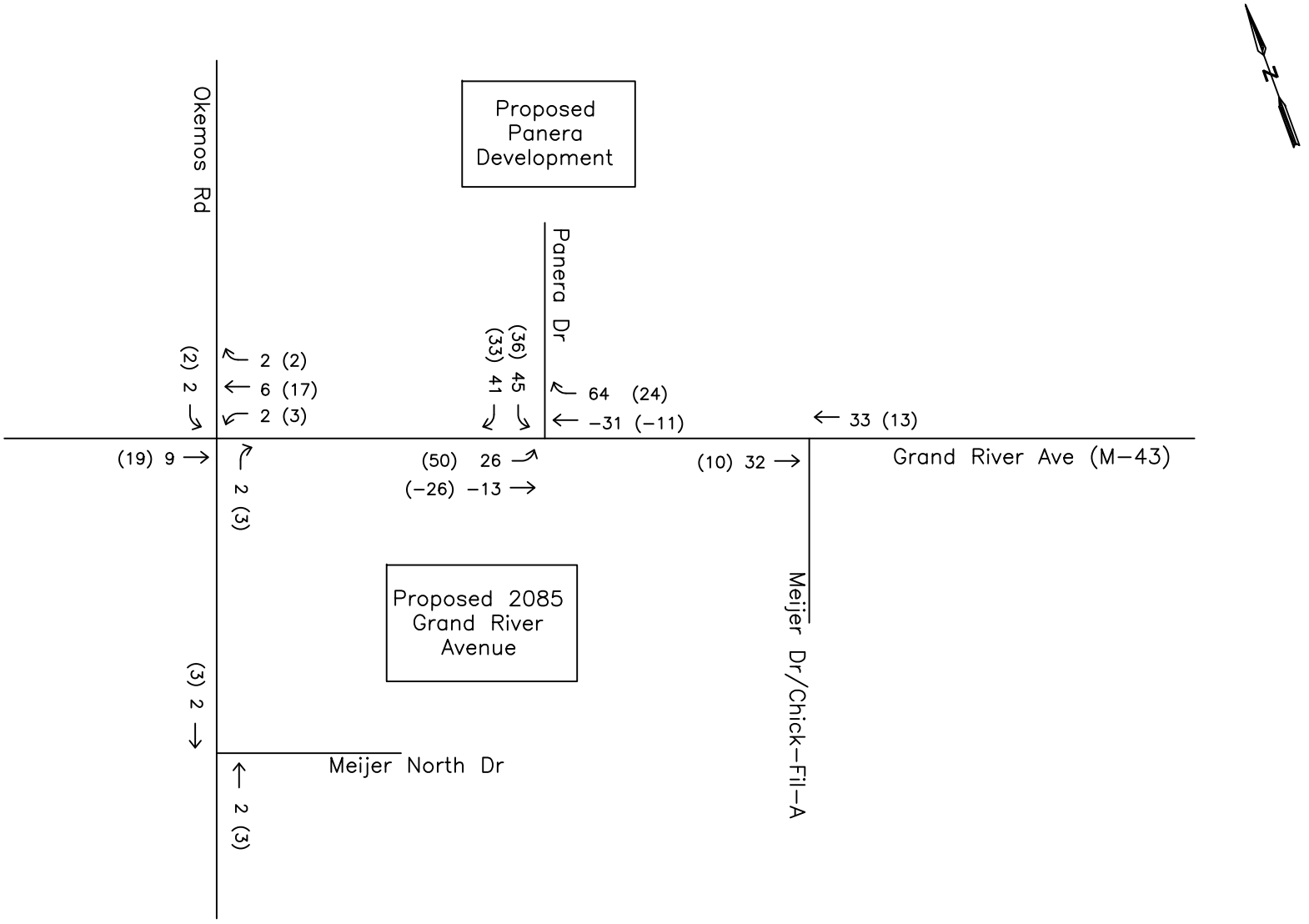
XXX AM Pk Hr (7:30-8:30 AM) Volumes

(XXX) PM Pk Hr (4:45-5:45 PM) Volumes

FIGURE 3A: Background Growth Traffic – Peak Hours

DATE: March, 2019 | SCALE: NTS | PAGE: 16



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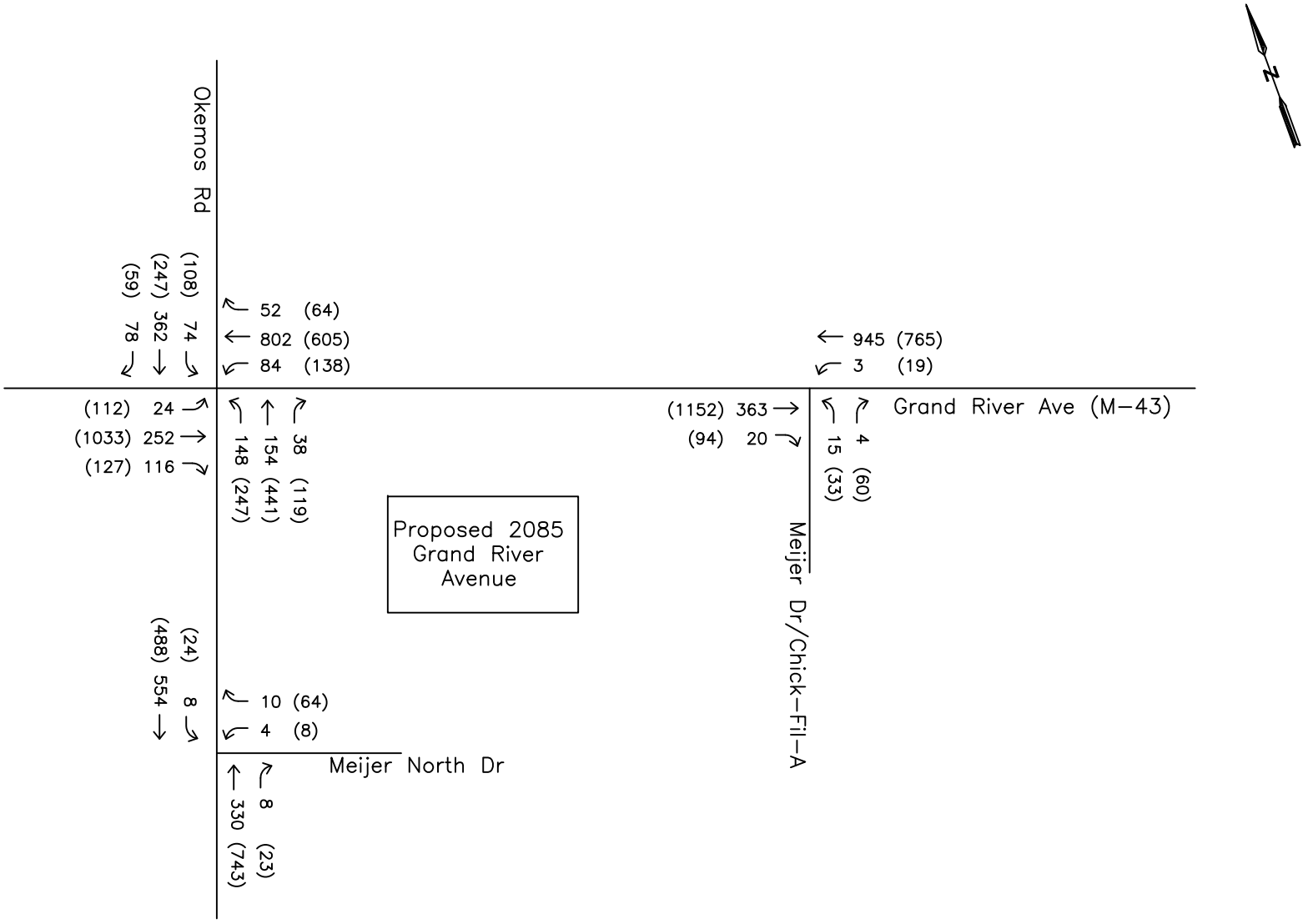
XXX AM Pk Hr (7:30-8:30 AM) Volumes

(XXX) PM Pk Hr (4:45-5:45 PM) Volumes

FIGURE 3B: Background Development Traffic – Peak Hours

DATE: March, 2019 | SCALE: NTS |



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XXX AM Pk Hr (7:30-8:30 AM) Volumes

(XXX) PM Pk Hr (4:45-5:45 PM) Volumes

FIGURE 3C: Total Background Traffic – Peak Hours

DATE: March, 2019 | SCALE: NTS | PAGE: 18

LEVEL OF SERVICE ANALYSIS FOR BACKGROUND GROWTH TRAFFIC

All existing geometrics and traffic control devices were used to analyze the background growth level of service and vehicle delays. The Level of Service analysis for background traffic during the AM and PM peak hours is summarized in **Table 2.** All background turning movements at the studied intersection are projected to operate at an acceptable level of service (LOS D or better) during the AM and PM peak hours except for the following;

Grand River Avenue (M-43) and Okemos Road

- During the AM peak hour, the westbound thru-right movement on Grand River Avenue (M-43) is expected to operate at a LOS E with 61.3 seconds of delay, an increase of 3.7 seconds from existing conditions.

- During the AM peak hour, the westbound approach on Grand River Avenue (M-43) at Okemos Road is expected to operate at a LOS E with 57 seconds of vehicle delay, an increase of 3.4 seconds from existing conditions.

- During the AM peak hour, the northbound left turn movement on Okemos Road to westbound Grand River Avenue (M-43) is expected to operate at a LOS F with 92.3 seconds of vehicle delay, an increase of 2.8 seconds from existing conditions.

- During the AM peak hour, the northbound approach on Okemos Road at Grand River Avenue (M-43) is expected to operate at a LOS E with 66 seconds of vehicle delay, an increase of 1 seconds from existing conditions.

- During the PM peak hour, the northbound left turn movement on Okemos Road to westbound Grand River Avenue (M-43) is expected to operate at a LOS E with 59.9 seconds of vehicle delay, a decrease of 0.6 seconds from existing conditions.

- During the PM peak hour, the northbound thru movement on Okemos Road to northbound Okemos Road is expected to operate at a LOS E with 64.3 seconds of vehicle delay, an increase of 1.5 seconds from existing conditions.

- During the PM peak hour, the northbound right turn movement on Okemos Road to eastbound Grand River Avenue (M-43) is expected to operate at a LOS E with 66 seconds of vehicle delay, an increase of 1.5 seconds from existing conditions.

- During the PM peak hour, the northbound approach on Okemos Road at Grand River Avenue (M-43) is expected to operate at a LOS E with 63.6 seconds of vehicle delay, an increase of 0.9 seconds from existing conditions.

- During the PM peak hour, the southbound left turn movement on Okemos Road to eastbound Grand River Avenue (M-43) is expected to operate at a LOS E with 60 seconds of vehicle delay, an increase of 0.7 seconds from existing conditions.

Grand River Avenue (M-43) and Meijer/Chick-Fil-A Driveway

- During the PM peak hour, the northbound left turn movement from the Meijer/Chick-Fil-A driveway to westbound Grand River Avenue (M-43) is expected to operate at a LOS E with 39.2 seconds of vehicle delay, a decrease of 1.3 seconds from existing conditions.

Table 2
Level of Service (LOS) Summary
Background Traffic for AM and PM Peak Hour Traffic

Location	Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Avg. Delay	LOS	Avg. Delay	LOS
Grand River Avenue (M-43) and Okemos Road	EB Left	33.5	C	29.6	C
	EB Thru	25.8	C	41.5	D
	EB Right	26.3	C	23.0	C
	EB Approach	*26.5*	*C*	*38.5*	*D*
	WB Left	18.1	B	42.7	D
	WB Thru	**61.3**	**E**	28.1	C
	WB Right	**60.9**	**E**	28.1	C
	WB Approach	***57.0***	***E***	*30.6*	*C*
	NB Left	**92.3**	**F**	**59.9**	**E**
	NB Thru	47.7	D	**64.3**	**E**
	NB Right	48.4	D	**66.0**	**E**
	NB Approach	***66.0***	***E***	***63.6***	***E***
	SB Left	37.2	D	**60.0**	**E**
	SB Thru	43.2	D	46.6	D
	SB Right	43.7	D	47.6	D
	SB Approach	*42.5*	*D*	*50.8*	*D*
	Intersection	50.0	D	44.6	D
Grand River Avenue (M-43) and Meijer / Chick-Fil-A Driveway	EB Thru-Right	Free	A	Free	A
	EB Approach	*0.0*	*A*	*0.0*	*A*
	WB Left	8.2	A	13.6	B
	WB Thru	Free	A	Free	A
	WB Approach	*0.0*	*A*	*0.6*	*A*
	NB Left	15.4	C	**39.2**	**E**
	NB Right	9.6	A	17.5	C
	NB Approach	*13.9*	*B*	*25.6*	*D*
	Intersection	0.3	A	1.6	A

Note: Delay = Average control delay per vehicle in seconds.
LOS = Level of Service

Table 2 (Continued)
Level of Service (LOS) Summary
Background AM and PM Peak Hour Traffic

Location	Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Avg. Delay	LOS	Avg. Delay	LOS
Okemos Road and Meijer North Driveway	WB Left-Right	11.3	B	15.3	C
	WB Approach	*11.3*	*B*	*15.3*	*C*
	NB Thru-Right	Free	A	Free	A
	NB Approach	*0.0*	*A*	*0.0*	*A*
	SB Left	8.1	A	9.9	A
	SB Thru	Free	A	Free	A
	SB Approach	*0.2*	*A*	*0.6*	*A*
	Intersection	0.4	A	1.3	A

Note: Delay = Average control delay per vehicle in seconds.
LOS = Level of Service

LEVEL OF SERVICE ANALYSIS FOR MITIGATED BACKGROUND TRAFFIC

All existing geometrics and traffic control devices were used to analyze the background level of service and vehicle delays to determine if an optimization of the traffic signal timing would improve the level of service and the vehicle delays at the Grand River Avenue (M-43) and Okemos Road intersection. Much like the existing conditions mitigation, optimizing the signal timings improved the operations of failing movements and approaches. However, it should be noted that those movements are very close to being LOS E even with the optimization.

With the existing stop sign control at the Meijer/Chick-Fil-A driveway, and the driveway is already configured with an exclusive left turn lane, the PM peak hour level of service E cannot be improved.

FUTURE CONDITIONS

SITE TRAFFIC GENERATION

The trip generation rates for the proposed mixed-use development were derived from the ITE Trip Generation Manual (10th edition). The ITE trip generation rates for Shopping Center (Land Use Code 820) were selected as representing the proposed 10,960 square foot development. The ITE description of Shopping Center is as follows:

A shopping center is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. A shopping center's composition is related to its market area in terms of size, location, and type of store. A shopping center also provides on-site parking facilities sufficient to serve its own parking demands.

Many shopping centers, in addition to the integrated unit of shops in one building or enclosed around a mall, include outparcels (peripheral buildings or pads located on the perimeter of the center adjacent to the streets and major access points). These buildings are typically drive-in banks, retail stores, restaurants, or small offices. Although the data herein do not indicate which of the centers studied included peripheral buildings, it can be assumed that some of the data show their effect.

Primary Trips
Primary trips are made for the specific purpose of visiting the generator. Primary trips do add new traffic to the adjoining road system.

Pass-By Trips
Significant shares of trips generated by commercial enterprises are classified as "pass-by" trips. Pass-by trips are already present in the existing traffic stream and represent trips which have other ultimate destinations which are interrupted to visit the commercial site. Pass-by trips are already "passing by" the site and therefore do not add new traffic to the adjoining street system. Pass-by trips are attracted from traffic passing the site on adjacent streets (Grand River Avenue and Okemos Road) that offer direct access to the generator (2085 Grand River Avenue development). The ITE Trip Generation Manual did not have a pass-by percentage for the AM peak hour, but did have a percentage for the PM peak hour. As such, no trips were reduced in the AM peak hour and 32-percent of trips are considered pass-by trips in the PM peak hour.

It is projected that the 2085 Grand River Avenue development will generate 157 vehicle trips in the AM peak hour, 106 vehicle trips in the PM peak hour of which 36 trips are pass-by, and 1,337 vehicle trips daily. The projected traffic to be generated by the proposed development is summarized in **Table 3**.

Table 3

Vehicle Trip Generation Summary
2085 Grand River Avenue Development

Land Use	Size	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	Total
Shopping Center (Code 820)	10,960 Sq. Ft.	97	60	157	51	55	106	1,337
Pass-By Trips		0	0	0	17	19	36	N/A
Total Primary Trips		**97**	**60**	**157**	**34**	**36**	**70**	**1,337**

FUTURE SITE TRAFFIC DISTRIBUTION

The commercial traffic distribution was based on existing traffic volumes that entered the project area as commercial retail establishments are a destination, not an origin type of facility. The peak hour distribution for the commercial generated traffic is shown in **Table 4** based on existing traffic volumes entering and leaving the study area.

Table 4: Traffic Distribution Percentages

Coming From	AM Peak Hour	PM Peak Hour	Going To	AM Peak Hour	PM Peak Hour
West	18%	39%	West	48%	28%
South	15%	24%	South	26%	15%
East	43%	24%	East	16%	38%
North	24%	13%	North	10%	19%
Total	100%	100%	Total	100%	100%

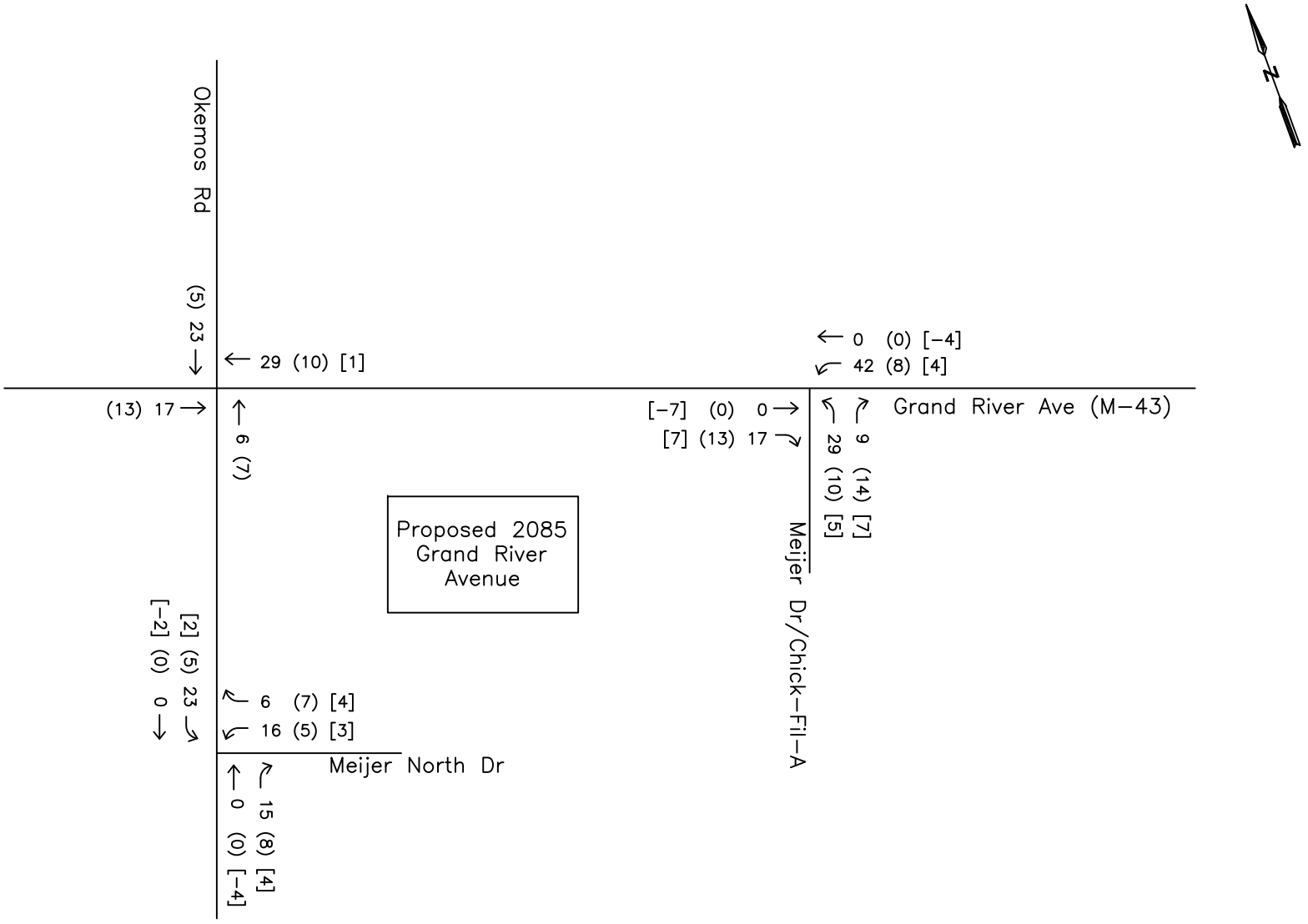
Table 5 summarizes the traffic distribution for the number of new trips in the AM and PM peak hour.

Table 5: Distribution of New Trips

Coming From	AM Peak Hour	PM Peak Hour	Going To	AM Peak Hour	PM Peak Hour
West	17	13	West	29	10
South	15	8	South	16	5
East	42	8	East	9	4
North	23	5	North	6	7
Total	97	34	Total	60	36

It is assumed that those trips that are coming from and going to the north or the south would utilize Okemos Road, while those trips that are coming from and going to the east or the west would utilize Grand River Avenue (M-43). The estimated site generated traffic for the proposed 2085 Grand River Avenue development during the AM peak hour and PM peak hour is shown in **Figure 4**.

Adding the total site generated traffic (Figure 4) to the background growth traffic volumes (Figure 3C) results in the total future traffic volumes for the weekday AM and PM peak hours, which are illustrated in **Figure 5.**



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LEGEND
XXX AM Pk Hr Volumes
(XXX) PM Primary Pk Hr Volumes
[XXX] PM Pass−By Pk Hr Volumes

FIGURE 4: Site Traffic – Peak Hours

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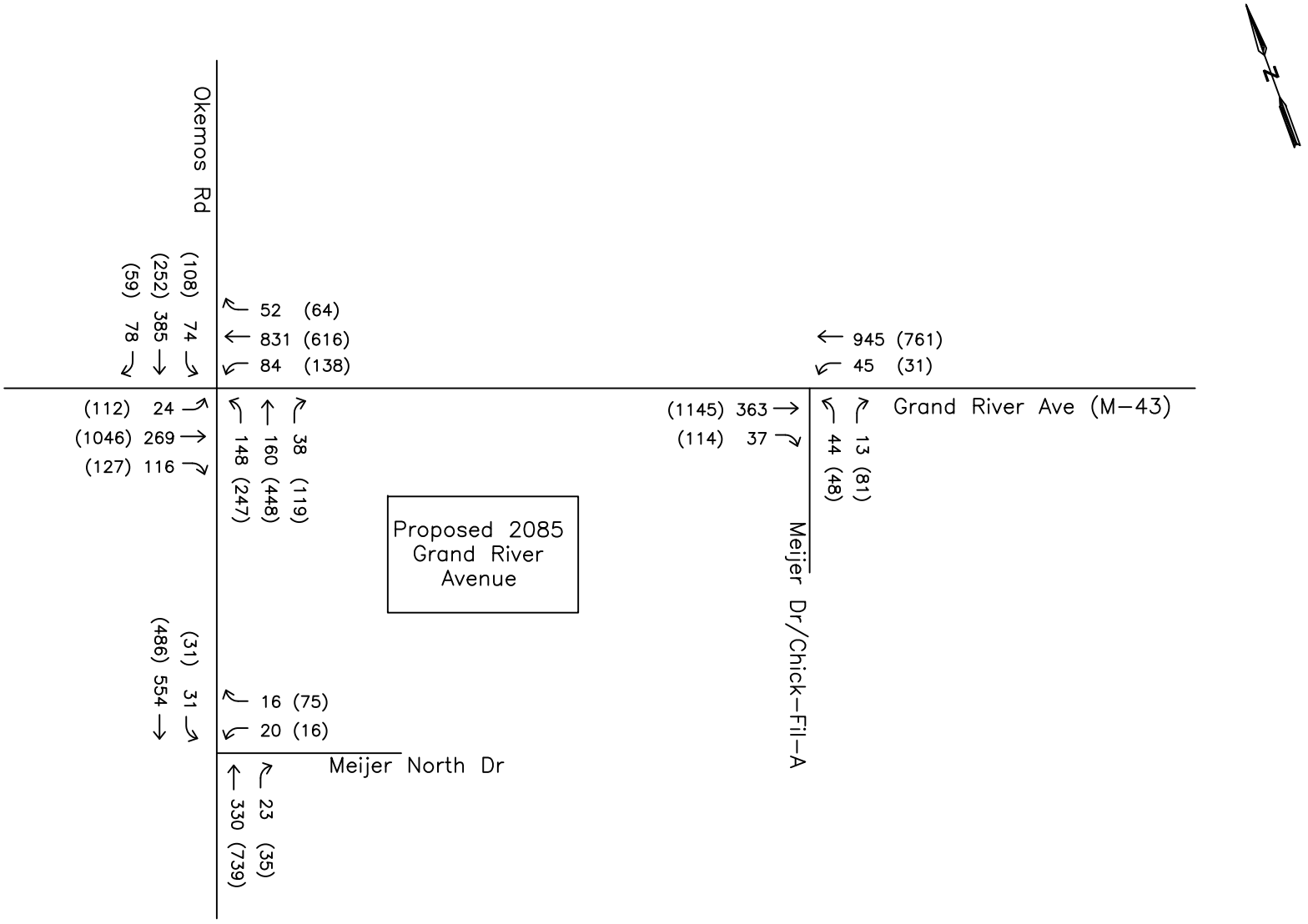

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LEGEND

XXX AM Pk Hr (7:30-8:30 AM) Volumes

(XXX) PM Pk Hr (4:45-5:45 PM) Volumes

FIGURE 5: Future Traffic – Peak Hours

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LEVEL OF SERVICE ANALYSIS FOR FUTURE TRAFFIC

The level of service analysis for future AM and PM peak hour traffic is summarized in **Table 6**. For future traffic conditions, all existing geometrics and traffic control were used. All future turning movements at the studied intersections are anticipated to operate at an acceptable level of service (LOS D or better) during the peak hours except for the following movements;

Grand River Avenue (M-43) and Okemos Road

- During the AM peak hour, the westbound thru-right movement on Grand River Avenue (M-43) is expected to operate at a LOS E with 68.3 seconds of delay, an increase of 7.0 seconds from background conditions.

- During the AM peak hour, the westbound approach on Grand River Avenue (M-43) at Okemos Road is expected to operate at a LOS E with 63.5 seconds of vehicle delay, an increase of 6.5 seconds from existing conditions.

- During the AM peak hour, the northbound left turn movement on Okemos Road to westbound Grand River Avenue (M-43) is expected to operate at a LOS F with 92.3 seconds of vehicle delay, no increase from background conditions.

- During the AM peak hour, the northbound approach on Okemos Road at Grand River Avenue (M-43) is expected to operate at a LOS E with 65.6 seconds of vehicle delay, a decrease of 0.4 seconds from background conditions.

- During the PM peak hour, the northbound left turn movement on Okemos Road to westbound Grand River Avenue (M-43) is expected to operate at a LOS E with 60.2 seconds of vehicle delay, an increase of 0.3 seconds from background conditions.

- During the PM peak hour, the northbound thru movement on Okemos Road to northbound Okemos Road is expected to operate at a LOS E with 65.6 seconds of vehicle delay, an increase of 1.3 seconds from background conditions.

- During the PM peak hour, the northbound right turn movement on Okemos Road to eastbound Grand River Avenue (M-43) is expected to operate at a LOS E with 67.2 seconds of vehicle delay, an increase of 1.2 seconds from background conditions.

- During the PM peak hour, the northbound approach on Okemos Road at Grand River Avenue (M-43) is expected to operate at a LOS E with 64.6 seconds of vehicle delay, an increase of 1.0 second from background conditions.

- During the PM peak hour, the southbound left turn movement on Okemos Road to eastbound Grand River Avenue (M-43) is expected to operate at a LOS E with 60.0 seconds of vehicle delay, no change from background conditions.

Grand River Avenue (M-43) and Meijer/Chick-Fil-A Driveway

- During the PM peak hour, the northbound left turn movement from the Meijer/Chick-Fil-A driveway to westbound Grand River Avenue (M-43) is expected to operate at a LOS F with 50.3 seconds of vehicle delay, an increase of 11.1 seconds from background conditions.

Table 6
Level of Service (LOS) Summary
Future AM and PM Peak Hour Traffic

Location	Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Avg. Delay	LOS	Avg. Delay	LOS
Grand River Avenue (M-43) and Okemos Road	EB Left	34.4	C	30.1	C
	EB Thru	26.0	C	42.9	D
	EB Right	26.3	C	23.0	C
	EB Approach	*26.7*	*C*	*39.7*	*D*
	WB Left	19.0	B	43.2	D
	WB Thru	**68.3**	**E**	28.3	C
	WB Right	**67.9**	**E**	28.3	C
	WB Approach	***63.5***	***E***	*30.8*	*C*
	NB Left	**92.3**	**F**	**60.2**	**E**
	NB Thru	47.6	D	**65.6**	**E**
	NB Right	48.2	D	**67.2**	**E**
	NB Approach	***65.6***	***E***	***64.6***	***E***
	SB Left	36.8	D	**60.0**	**E**
	SB Thru	43.3	D	46.5	D
	SB Right	43.9	D	47.5	D
	SB Approach	*42.6*	*D*	*50.7*	*D*
	Intersection	52.9	D	45.4	D
Grand River Avenue (M-43) and Meijer / Chick-Fil-A Driveway	EB Thru-Right	Free	A	Free	A
	EB Approach	*0.0*	*A*	*0.0*	*A*
	WB Left	8.5	A	14.3	B
	WB Thru	Free	A	Free	A
	WB Approach	*0.4*	*A*	*1.1*	*A*
	NB Left	19.6	C	**50.3**	**F**
	NB Right	9.7	A	19.1	C
	NB Approach	*16.9*	*C*	*31.2*	*D*
	Intersection	1.2	A	2.6	A

Note: Delay = Average control delay per vehicle in seconds.
LOS = Level of Service

Table 6 (Continued)
Level of Service (LOS) Summary
Future AM and PM Peak Hour Traffic

Location	Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Avg. Delay	LOS	Avg. Delay	LOS
Okemos Road and Meijer North Driveway	WB Left-Right	15.0	C	18.5	C
	WB Approach	*15.0*	*C*	*18.5*	*C*
	NB Thru-Right	Free	A	Free	A
	NB Approach	*0.0*	*A*	*0.0*	*A*
	SB Left	8.3	A	10.0	B
	SB Thru	Free	A	Free	A
	SB Approach	*0.6*	*A*	*0.8*	*A*
	Intersection	1.3	A	1.8	A

Note: Delay = Average control delay per vehicle in seconds.
LOS = Level of Service

LEVEL OF SERVICE ANALYSIS FOR FUTURE MITIGATED TRAFFIC

All existing geometrics, traffic control devices and traffic signal timing plans were used to analyze the future mitigated level of service and vehicle delays. The increase in the level of service and vehicle delays were minimal when comparing the background conditions to future conditions at all the studied intersections. Some adjustments in signal timing at the intersection of Grand River Avenue (M-43) and Okemos Road could reduce the delay for some movements, but there are no additional recommendations for mitigation for this project.

During the PM peak hour, the northbound left turn movement from the Meijer/Chick-Fil-A driveway to westbound Grand River Avenue (M-43) is expected to operate at a LOS F with 50.3 seconds of vehicle delay, an increase of 11.1 seconds from background conditions. One potential mitigation could be to restrict the left turn movement from the development onto westbound Grand River Avenue (M-43). The driveway to the east already restricts the northbound left turn movement out of the development. This would force this traffic to utilize one of the other driveways. If the left turn movement was restricted, the trips would likely change to what is shown in **Figure 6**. While this mitigation does remove the delay for the northbound left turn movement from the driveway to westbound Grand River Avenue (M-43), it shifts traffic to utilize the northbound left turn movement from Okemos Road to westbound Grand Road River Avenue (M-43). This movement is already failing in the morning. It is possible there would be gaps for the northbound left turn movement from the driveway given that this driveway is between two signals. This analysis does not incorporate that effect.

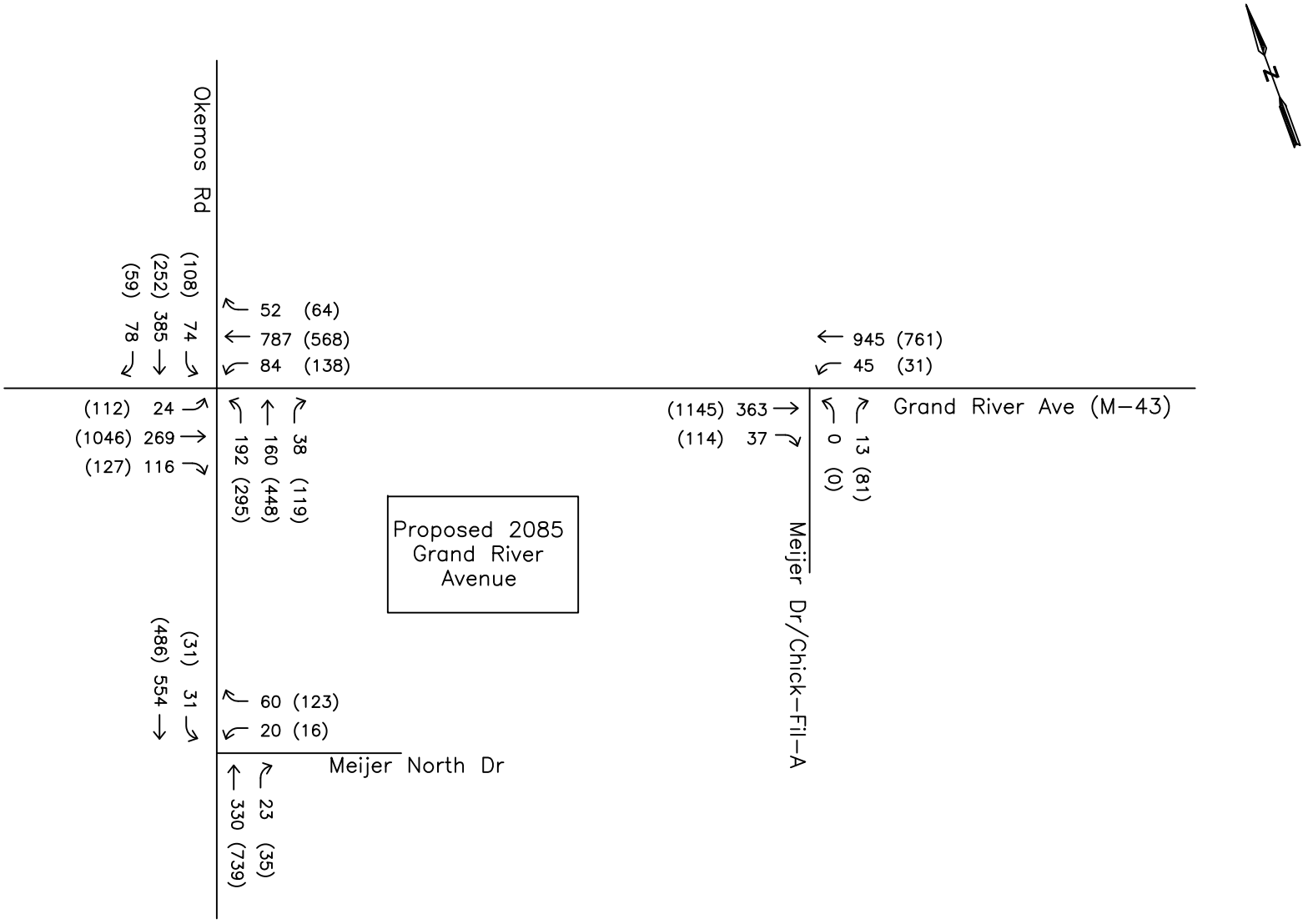
The level of service analysis for future Mitigated AM and PM peak hour traffic is summarized in **Table 7**. For future mitigated traffic conditions, the northbound left-turn movement from the Meijer / Chick-Fil-A driveway to westbound Grand River Avenue (M-43) was restricted and the signal timings at Grand River Avenue (M-43) and Okemos Road were adjusted. All <u>future</u> turning movements at the studied intersections are anticipated to operate at an acceptable level of service (LOS D or better) during the peak hours except for the following movements;

<u>Grand River Avenue (M-43) and Okemos Road</u>

- During the AM peak hour, the northbound left turn movement on Okemos Road to westbound Grand River Avenue (M-43) may operate at a LOS E with 58.3 seconds of vehicle delay with the mitigation, with a decrease of 34 seconds of delay for this movement from non-mitigated.

- During the PM peak hour, the northbound left turn movement on Okemos Road to northbound Okemos Road may operate at a LOS F with 96.6 seconds of vehicle delay, an increase of 36.4 seconds from non-mitigated.

- During the PM peak hour, the northbound thru/right turn movement on Okemos Road to eastbound Grand River Avenue (M-43) may operate at a LOS E with 67.2 seconds of vehicle delay, no change from the non-mitigated.



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LEGEND

XXX AM Pk Hr (7:30-8:30 AM) Volumes

(XXX) PM Pk Hr (4:45-5:45 PM) Volumes

FIGURE 6: Future Mitigated Traffic – Peak Hours

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Table 7
Level of Service (LOS) Summary
Future AM and PM Peak Hour Traffic - MITIGATED

Location	Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Avg. Delay	LOS	Avg. Delay	LOS
Grand River Avenue (M-43) and Okemos Road	EB Left	36.6	D	29.0	C
	EB Thru	25.2	C	53.6	D
	EB Right	25.4	C	24.6	C
	EB Approach	*26.2*	*C*	48.4	*D*
	WB Left	21.0	C	40.8	D
	WB Thru	52.7	D	29.5	C
	WB Right	52.3	D	29.5	C
	WB Approach	*49.4*	*D*	31.6	*C*
	NB Left	**58.3**	**E**	**96.6**	**F**
	NB Thru	48.3	D	**65.6**	**E**
	NB Right	49.0	D	**67.2**	**E**
	NB Approach	*53.1*	*D*	***76.3***	***E***
	SB Left	33.9	C	53.5	D
	SB Thru	52.9	D	46.5	D
	SB Right	54.4	D	47.5	D
	SB Approach	*50.8*	*D*	48.8	*D*
	Intersection	46.4	D	52.3	D
Grand River Avenue (M-43) and Meijer / Chick-Fil-A Driveway	EB Thru-Right	Free	A	Free	A
	EB Approach	*0.0*	*A*	*0.0*	*A*
	WB Left	8.5	A	14.3	B
	WB Thru	Free	A	Free	A
	WB Approach	*0.4*	*A*	*1.1*	*A*
	NB Left	-	-	-	-
	NB Right	9.7	A	19.1	C
	NB Approach	*9.7*	*A*	*19.1*	*C*
	Intersection	0.4	A	1.2	A

Note: Delay = Average control delay per vehicle in seconds.
LOS = Level of Service

Table 7 (Continued)
Level of Service (LOS) Summary
Future AM and PM Peak Hour Traffic - MITIGATED

Location	Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Avg. Delay	LOS	Avg. Delay	LOS
Okemos Road and Meijer North Driveway	WB Left-Right	13.6	B	19.8	C
	WB Approach	*13.6*	*B*	*19.8*	*C*
	NB Thru-Right	Free	A	Free	A
	NB Approach	*0.0*	*A*	*0.0*	*A*
	SB Left	8.3	A	10.0	B
	SB Thru	Free	A	Free	A
	SB Approach	*0.6*	*A*	*0.8*	*A*
	Intersection	2.1	A	2.7	A

Note: Delay = Average control delay per vehicle in seconds.
LOS = Level of Service

SIGNIFICANT FINDINGS

DRIVEWAY ANALYSIS FOR A TURN LANE OR TAPER

The Michigan Department of Transportation (MDOT) Geometric Design Guidance Document was used to determine the necessity of a right turn lane/taper, at the Meijer North driveway on Okemos Road.

Using the MDOT Geometric Design Guidance Document Guideline 1.1.4, Traffic Volume Guidelines for Right-Turn Lanes and Tapers, the results show that the combination of right turning traffic and the peak hour approach volumes during both the AM the PM peak hours justify the installation of a northbound right turn taper on Okemos Road at the site driveway. However, it should be noted that this driveway already warranted a northbound right turn taper for the PM peak hour prior to this development using existing PM peak hour volumes.

INTERSECTION IMPROVEMENT CONSIDERATIONS

Grand River Avenue (M-43) and Okemos Road
This intersection is a signalized intersection. Signal timings could be adjusted after the development is completed, if needed. Otherwise, no mitigation is recommended for this intersection.

Grand River Avenue (M-43) and Meijer / Chick-Fil-A Driveway
This driveway is currently controlled by a northbound stop sign and is a full access drive with one (1) inbound lane and two (2) outbound lanes. There is one outbound lane that is designated as left turn only and another lane that is designated as right turn only. Currently, the left turn movement is operating at a LOS E and is expected to operate at a LOS F with the proposed development with an increase of 11.1 seconds of delay per vehicle over background conditions.

One potential mitigation is to restrict the left turn movement from this driveway; however, this may cause the additional traffic to move to the driveway at Okemos Road and cause additional northbound left-turn delay at the Okemos Road signal at Grand River Avenue (M-43). The northbound left turn movement from northbound Okemos Road to westbound Grand River Avenue (M-43) is currently operating at a LOS F in the AM peak hour and a LOS E in the PM peak hour. It is not recommended to add more traffic to this movement. As such, no mitigation is recommended for this driveway.

Okemos Road and Meijer North Driveway
This driveway is currently controlled by a westbound stop sign and is a full access drive with one (1) inbound lane and one (1) outbound lane. There are currently no issues at this intersection and there are not expected to be any issues with this intersection with the development. No mitigation is recommended for this intersection. The MDOT guidelines show that there is justification for a right turn taper on northbound Okemos Road, but was already warranted with existing PM peak hour turn volumes.

CONCLUSIONS

The findings of this report are as follows:

- There are no recommendations for any mitigation for any of the study intersections.

- The MDOT guidelines show that during the AM and PM peak hours, there is justification for a right turn taper for northbound Okemos Road at the Meijer North driveway. However, existing PM peak hour traffic volumes already justify this right turn taper.

SUPPLEMENTAL INFORMATION

Supplemental Information

Site Plan
Vehicle Volume Counts
Timing Plans
LOS Computations
MDOT Traffic Volume Guidelines for
Right-Turn Lanes and Tapers

To:	**Planning Commission Members**
From:	**Meridian Township Corridor Improvement Authority**
	Kellie Johnson, Chair
Date:	**April 25, 2019**
Re:	**Public Hearing for Special Use Permits #19031 and #19071 for 2085 Grand River Avenue, Okemos**

At the recent Corridor Improvement Authority (CIA) meeting held on April 24, 2019, members reviewed the design elements for the proposed redevelopment of the southeast corner of Okemos Road and Grand River Avenue. The Authority voted unanimously to write this letter to relay its thoughts on the proposed project.

While the Authority is generally encouraging of redevelopment within the district we find two elements problematic.

First, the proposed design does not incorporate the form based code design standards the Township and the CIA are encouraging. We feel strongly that the project needs be redesigned to make the development as welcoming to multi-modal visitors as possible.

Second, we are concerned about the logistics of a new drive through at this already congested intersection. Chick-fil-a is very popular and the new Panera was highly scrutinized for its expected traffic implications, but was reluctantly approved. The result of that decision has not yet been proven to be either successful or unsuccessful. Adding a new drive through as we await the results of that recent approval is worrisome.

Thank you for your consideration,

Kellie Johnson

Chair – Meridian Corridor Improvement Authority

Meridian Township
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Township Board:

Ronald J. Styka
Township Supervisor

Brett Dreyfus
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Dan Opsommer
Township Trustee

Kathy Ann Sundland
Township Trustee

Courtney Wisinski
Township Trustee

Frank L. Walsh
Township Manager

05/02/2019

Mr. Peter Menser
Principal Planner
Meridian Township
5151 Marsh Road
Okemos, MI 48864

Dear Mr. Menser:

Subject: 2085 Grand River – Redevelopment

Based on the plans and cross-sections prepared by KEBS, Inc., dated 12-5-18 and 1-8-19 respectively, the Meridian Township Engineering Office has concluded that the proposed redevelopment at 2085 Grand River is consistent with Township Ordinance **86-436, CV District**.

The proposed building is one (1) foot above the adjacent, regulatory (1%-chance) floodplain elevation, and the applicant proposes a greater than one-to-one cut within the floodplain. As the proposed project appears feasible, and based on these findings, we recommend approval of a Special Use Permit with the following conditions:

1. An Elevation Certification (EC) must be completed after construction by a Surveyor, licensed in the State of Michigan. This EC must be provided to the Engineering Office prior to issuance of the Certificate of Occupancy.
2. The Owner must apply for a Letter of Map Revision based on Fill (LOMR-f) to FEMA after construction is complete.

If you have any questions or concerns, please feel free to let me know.p

Sincerely,

Nyal Nunn
Senior Project Engineer/DPW
nunn@meridian.mi.us
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