

**AGENDA**  
**Cascade Charter Township Planning Commission**  
**Monday, May 9, 2022**  
**7:00 pm**  
**2870 Jacksmith Ave**

*Public may access the meeting via video conference software Zoom*  
<https://us02web.zoom.us/j/87044149458>

**Meeting ID:** 870 4414 9458  
**By Phone:** +1 301 715 8592

- ARTICLE 1. Call the meeting to order**  
**Record the attendance**
- ARTICLE 2. Pledge of Allegiance to the Flag**
- ARTICLE 3. Approve the current Agenda**
- ARTICLE 4. Disclose any Conflict of Interest**
- ARTICLE 5. Approve the Minutes of the April 18, 2022 Meeting**
- ARTICLE 6. Acknowledge visitors and those wishing to speak.**  
**(Comments are limited to five minutes per speaker)**
- ARTICLE 7. Case #22-3696/Luminar Technologies, Inc.**  
**Property Address: 4300 Thornapple River Dr**  
**Requested Action:** The applicant is requesting site plan review for an approximately 26,500 sq ft building.
- ARTICLE 8. Case #22-3703/Matthews**  
**Public Hearing**  
**Property Address: 8320 45<sup>th</sup> St**  
**Requested Action:** The applicant is requesting approval of a Special Use Permit for an accessory building over 832 sq ft.
- ARTICLE 9. Case #22-3707/Harwood**  
**Public Hearing**  
**Property Address: 8189 Ashwood Dr**  
**Requested Action:** The applicant is requesting approval of a Special Use Permit for an accessory building over 832 sq ft.
- ARTICLE 10. Old Business**
  - **Township Email Setup**
- ARTICLE 11. Any Other Business**
- ARTICLE 12. Acknowledge visitors and those wishing to speak.**  
**(Comments are limited to five minutes per speaker)**
- ARTICLE 13. Adjournment**

Meeting format

1. **Staff Presentation** *Staff report and recommendation*
2. **Project presentation-** *Applicant presentation and explanation of project*
  - a. **PUBLIC HEARINGS**
    - i. *Open Public Hearing. Comments are limited to five minutes per speaker; exception may be granted by the chair for representative speakers and applicants*
    - ii. *Close public hearing*
3. **Commission discussion –** *May ask for clarification from applicant, staff or public*
4. **Commission decision - Options**
  - a. *Table the decision*
  - b. *Deny*
  - c. *Approve*
  - d. *Approve with conditions*
  - e. *Recommendation to Township Board*

**Minutes**  
Cascade Charter Township  
Planning Commission  
Monday April 18, 2022  
7:00 P.M.  
2870 Jacksmith Ave SE

**ARTICLE 1.** Chair Noordyke called the meeting to order at 7:00 P.M.  
Members Present: Rowland, Rissi, Moxley, Noordyke, Deering, Rapin, Korstange, and Engel  
Members Absent: Noordhoek (excused)  
Others Present: Planning Director Brian Hilbrands and those listed on the sign-in sheet.

**ARTICLE 2. Pledge of Allegiance**

Chair Noordyke welcomed new Member Joe Engel to the Planning Commission.

**ARTICLE 3. Approve the current Agenda**

**Motion was made by Member Deering to approve the current Agenda. Supported by Member Rissi. Motion carried 8 to 0.**

**ARTICLE 4. Disclose any Conflicts of Interest**

Member Rissi previously completed work for one of the associations who submitted communication related to Article 9 but he is not currently doing work for them and has not completed work for the applicant. None of the members saw this as a conflict of interest.

**ARTICLE 5. Approve the Minutes of the March 21, 2022 Meeting**

**Motion was made by Member Rapin to approve the March 21, 2022 meeting minutes as written. Supported by Member Korstange. Motion carried 8 to 0.**

**ARTICLE 6. Acknowledge visitors and those wishing to speak on non-agenda items.**

Luis Chen (5745 Whitneyville Ave SE)-Owner and founder of Wormies thanked the commission for looking into worm farming and hearing about his operation.

Mary Koewers (3181 Charlevoix SE)-Attended to speak on behalf of Golf Ridge Condominiums. She sent a letter to the Commission from the Presidents of the Golf Ridge, Gatehouse, and Meadows Condominium Associations. They came to reiterate their letter and point out Chapter 17 of the Zoning Ordinance: "Buildings for the housing of animals, runs or exercise area shall not be located within 100 feet of any property line or street right-of-way." The property line is at most 3-4 ft from Ridges property and less than 100 ft from the road. She said that she sees moving trucks in and out of Ridges of Cascade all the time and they aren't real residents of Cascade. They are worried about people not taking care of dog poop and that the gate isn't secure so anyone could drive in at anytime of day or night. Dawn until dusk is too long to have it open, especially

during the summer. She noted two public dog parks are nearby (River Oaks Dog Park that she mentioned in her letter, is contained within an apartment complex and completely surrounded by complex buildings; you can't see it from the road, so it's isn't a public dog park like she claimed it was in her letter). Residents are concerned about safety because there aren't restrictions on who can come utilize the dog park. She emphasized that their largest issue with the project is that it violates the zoning ordinance.

Jerilee Griffiee (6183 S Gatehouse Dr)-President of the Gatehouse Condo Assoc: She agreed with Mary and relies on her expertise as an attorney when it comes to chapter 17. The dog park doesn't seem to be the right fit for this location and she requested that, for decisions this significant about Centennial Park, Gatehouse and Meadows should be notified as well. She was concerned that there are only 5 parking spots so there won't be room for overflow parking. Woodchips and mud are a problem and people don't watch their dogs. She said there would be no one there to monitor what's happening and that being open dawn to dusk is too long. She appreciates that the residents of Ridges are careful to clean up after their dogs and reiterated that she doesn't hate dogs, but they're property owners and have investment in their property and a dog park would lower property value.

Frank Deptula (6034 Parview Dr)-President of Meadows Condo Assoc: He said that the dog park would be visible from the street and would be like Cascade Park, a brown mess of mud and woodchips. Having a 35 x 75 ft area is much smaller than Cascade Park and that will cause the area to get gross fast, becoming an eyesore. Vibrant colored dog equipment doesn't fit the finishes of the complexes in Centennial Park. There are plenty of spaces between apartments that are larger than the 35x70 ft proposition and those would be more appropriate. He assumes people don't want a dog park next to their apartments due to noise and activities involved, so this property is the furthest possible from any Ridges apartments. He requested they switch to an interior area that doesn't affect the larger community. People across the street are concerned this may negatively affect their property values.

Dennis Monroe-Ridges of Cascade Property Manager: Attending to present during Article 9.

Steven Ridde (6410 Wendell St. SE): Attended to speak positively of Wormies because he supports them but is not affiliated with them. He said they don't smell bad and it is a project he believes in.

Aaron Hiday-EGLE Compost Coordinator: Available to answer questions when they get to article 12.

Chandler Michalsky (5745 Whitneyville Ave SE): Attended on behalf of Wormies and can answer questions.

**ARTICLE 7. Case #22-3699/D. Carpenter Homes**

**Property Address:** 2011 Devonwood Ln

**Requested Action:** The applicant is requesting approval of a Special Use Permit for an accessory building over 832 sq ft.

Planning Director Hilbrands presented the case to the Planning Commission. The applicant is looking to construct a 40' x 33' building. The setback to the side property will be 10.1', meeting the 10' requirement, and will have over 100' to the rear property line. The property is between 3 and 6 acres so it is permitted to have two accessory buildings. The building will be used for vehicle storage and a golf simulator. The size is normal for the zoning district and will have a tile and copper roof and travertine siding to match the house. Staff recommend approval of the Special Use Permit with the conditions that the building comply with all zoning ordinance regulations, any outdoor lighting must meet township regulations, and the building cannot be used as a living space or to run a business.

The applicant, Dustin Carpenter of D. Carpenter Homes, came forward to speak to the commission. Member Rissi asked if the site has septic or city sewer and if they had made sure the building would not be constructed over the drain field. Carpenter said that they had recently completed a survey and the building would not be built over the drain field.

**Member Rissi motioned to open public hearing. Supported by Member Rapin. Motion carried 8 to 0.**

No one wished to speak.

**Member Rissi motioned to close public hearing. Supported by Member Engel. Motion carried 8 to 0.**

Member Rissi asked what the box to the southeast of the garage is and Carpenter clarified that it was a generator slab.

**Motion was made by Member Rissi to approve the Special Use Permit for a building over 832 sq ft with the conditions that the building not be used to run a business or as a residence and any outdoor lighting meet township regulations. Supported by Member Deering. Motion carried 8 to 0.**

**ARTICLE 8. Case #22-3702/Underwood**

**Property Address:** 7675 Sudbury Ln

**Requested Action:** The applicant is requesting approval of a Special Use Permit for an accessory building over 832 sq ft.

Planning Director Hilbrands presented the case to the Planning Commission. The applicant is looking to build a 26'x38' building (988 sq ft) with the possibility of a future 38' x 9' open awning being constructed, bringing the total building size to 1,282 sq ft. The building will meet the 10 ft setback requirement to the side property line and will be approximately 125' to the rear property line, meeting the minimum 25 ft requirement. It will be at least 10' from any other building and the awning will be constructed on the west side of the building, bringing it no closer to the side property

line. The parcel is less than three acres so the applicant is only permitted one accessory building. The applicant intends to use the building for storage of an RV, gardening equipment, and a vintage car. Building size is normal for the zoning district and the building will have vinyl siding and asphalt shingle roofing, matching the house. Staff recommend approval of the Special Use Permit with the conditions that the building comply with all zoning ordinance regulations, any outdoor lighting must meet township regulations, and the building cannot be used as a living space or to run a business.

Steven Underwood (7675 Woodbury Ln): Underwood said that he has been a long-time resident of Cascade and is looking to expand his garage so he will have as much space as he did in the three-stall garage at his previous residence.

Member Rissi asked if the site had been surveyed to find out where the septic system is and Underwood said that they had identified the septic area and would be building on the opposite side of the building.

Member Rapin asked if there had been a survey that was staked to make sure they are aren't building within the 10 ft setback and Underwood said a survey had been done the previous month and that they were going to keep it at least 12 ft away so there will be room for error.

Member Moxley asked about the two different distances between the east side of the building, one at 10 ft and one at 12 ft, and if Underwood knew what was correct. Underwood said that the 12 ft is what he intended to build at to give him room for error.

Member Rowland asked what future construction was being contemplated, as noted on the application. Underwood said that they intend to build an awning that extends the length of the header to about 8 ft out, over an already poured pad. They don't ever intend to enclose the space and would mainly use it to store fire wood.

**Member Rissi motioned to open public hearing. Supported by Member Moxley. Motion carried 8 to 0.**

No one wished to speak.

**Member Rissi motioned to close public hearing. Supported by Member Engel. Motion carried 8 to 0.**

**Motion was made by Member Moxley to approve the Special Use Permit with staff recommendations including that the building not be used to run a business or as a residence and any outdoor lighting meets township regulations. Supported by Member Deering. Motion carried 8 to 0.**

**ARTICLE 9. Case #22-3697/Ridges of Cascade GR LLC**

**Property Address:** 5985 Cascade Rd

**Requested Action:** The applicant is requesting site plan review for a 35' x 70' fenced-in dog park at the Ridges of Cascade.

Planning Director Hilbrands presented the case to the Planning Commission. The applicant is requesting to construct a 2,450 sq ft dog park for Ridges of Cascade resident use. There is currently a 30' x 30' dog run area adjacent to the clubhouse that was approved through an administrative site plan approval in 2015; due to the larger size, staff elected to bring the request before the Planning Commission for a site plan review. The new dog park is to be located at the corner of Charlevoix Dr and Lookout Ridge with an already existing parking area containing five spaces. The fencing will be a 4' black, vinyl-coated chain link fence that matches fencing used throughout the rest of the development. The area is currently a grass/lawn area and will remain that way unless the owner ends up adding dog-friendly woodchips, as he has indicated that he may in the future. There is concern as to how the dog park may negatively affect property owners as it would be located approximately 150' from Golf Ridge Condominiums. Ridges should consider adding screening, such as a privacy fence or landscaping, between the dog park and the condominiums.

Staff recommends approval of the application with the conditions that existing trees remain on site for landscaping screening with any dead trees being replaced with a similar tree type, at least six evergreen trees be planted along the southwest corner of the dog park to act as a screen between the dog park and Golf Ridge Condominiums, and rules stating that dogs barking excessively must be removed immediately and the park may only be used between dawn and dusk be added to the list of park rules previously provided by the applicant.

Member Rapin asked Planning Director Hilbrands if there had been any complaints made about the existing dog park on the property and Planning Director Hilbrands said that he had not heard any in the two years he has been with Cascade Township.

Member Rissi asked if the current PUD discusses fencing at all and Planning Director Hilbrands said that it does not. He asked if there were any current PUDs that had or allow fencing in the front yard and Planning Director Hilbrands said that they do allow 4 ft fencing by right but he didn't have any specific examples of locations.

Member Rapin asked if the dog park was meant to be solely for Ridges residents or if it was for public use and Planning Director Hilbrands said that he believed it was to only be used by residents. Member Rapin suggested that it be listed in the park rules that it is only for Ridges of Cascade residents.

Chair Noordyke confirmed with Planning Director Hilbrands that the Chapter 17 of the zoning ordinance that was mentioned earlier in the meeting that wouldn't allow a dog park in this area wasn't applicable as that section only applies to dog boarding facilities and animal hospitals.

Dennis Monroe, Property Manager Ridges of Cascade since 2018, came forward to explain the benefits of the proposed dog park to his over 400 residents. Many residents have been living at Ridges of Cascade for multiple years and approximately 30% of residents are dog owners. He stated that the current bark park's design and location is limiting and disappointing to the complex's residents; there isn't much space for the

dogs to run around and there is a storm drain in the middle of it. The current use of the proposed dog park is a green area that lists hours of dawn until dusk. The dog park will be for residents only and they are willing to work with the township on only allowing use to current residents and listing that, as well as hours of operation, on the dog park sign. This is the only large enough and flat enough area in the complex that they think is viable to construct the dog park. There is a large area near Cascade Ridge and Centennial Ridge that could be large enough but that is where snow is plowed onto in the winter. 3335 to 3385 Centennial Ridge has an area that could be viable but it is too hilly. There are not any other large open spaces as the developers tried to turn the most space possible into apartments.

Monroe brought up the matter of pet waste being left by owners instead of cleaning it up, as mentioned by a resident at the beginning of the meeting, and said that the complex participates in 'Poo Prints' which takes pet waste and can compare the pet waste for an animal and match it to the DNA they have on profile to determine which dog the waste belonged to. Every resident with a dog is required to bring them in for a sample when they get their apartment and every sample is registered with the World Pet Registry. If dog waste is found on the property and matched to a resident's dog, they incur a \$350 fine. If they incur more than three fines, they are evicted from the property. The people using the dog park would be required to comply with all applicable regulations of the complex that pertain to residents.

Chair Noordyke clarified that Monroe is not only speaking on behalf of the residents but also on behalf of the management company, Peak Management, that manages the property for MF Capital LLC.

Member Rapin asked Monroe if there are any issues with the fenced in area that he was aware of and if there were any rules about size or breed of dog. Monroe said that he hadn't heard of any issues about the fenced in area and that they have a weight restriction on dogs for certain second floor apartments but not any general other breed or weight restrictions. All residents that have dogs have to sign a pet addendum and all dogs have to be pre-approved by management, except for ADA service animals.

Member Deering asked if Monroe had checked into any type of insurance that they may need for if a dog bit someone or they got hurt. Monroe said that he would assume their general coverage for the apartment complex would extend to the dog park but he would have to check into it further to know for sure.

Member Korstange asked how many people currently use the bark park and Monroe said that it would be around 20-30 residents a week but they would expect more with the new park as the current one is difficult to access and owners are concerned about using it with the storm drain in the middle. He also addressed the comment from a member of a nearby complex that said the agility equipment used in a dog park uses bright colors and would be an eye sore, saying that they could use more muted colors for their equipment, such as earth tones. Member Korstange asked about placing a lock or a key fob lock on the gate and giving residents a key, but Monroe stated they would need to extend internet out to that corner of the complex where it currently isn't

available and that would be costly. He mentioned having someone lock the door each evening and unlock it in the morning but that would require someone to be working at that time. Member Korstange asked if they had some sort of 24/7 security in the complex or anyone that stayed there at all times and Monroe said that they haven't needed any kind of security and he is often there but not necessarily from dawn until dusk, they have emergency maintenance workers but they only deal with maintenance related emergencies.

Chair Noordyke asked if Monroe had had problems with non-resident use at their current dog park and Monroe said that nothing had been brought to his attention.

Member Korstange asked if residents have to go through the building to get to the current dog park or if there was an outdoor gate. Monroe said it was only a gate.

Member Rissi suggested using a combination lock whose combination can be reset monthly. He asked if the area was irrigated as the smell of urine is generally due to dry conditions but, if the area is properly irrigated, the smell is washed away. Monroe said that the area is irrigated but their well water has caused problems and he just received a new estimate on repairing the irrigation system, so he expects that to take place shortly.

Member Rissi brought up the statement from residents in the nearby communities about the dog park being located in their front yard and wondered about other locations they could construct the dog park. He suggested land on the far east side of the development, at the end of Centennial Ridge Dr, on the east side of the retention area, there is an area that at least 100 ft long and (not perfect level) close to 30 or 40 ft wide with a retaining wall that they could get a 35 ft wide by 150 ft long or even longer if it went around the corner. It would be at least 200 ft from any adjacent neighbors. Monroe said they looked at that area but there was concern with the proximity to the water and bugs.

Member Rowland asked about moving the dog park closer to the apartment complex. This would cause loss of at least part of the parking but they could put up some trees for screening. Monroe said the original plan was to keep it as far from Golf Ridge as possible.

Member Rissi asked Planning Director Hilbrands if fencing in the water retention area would be possible and he said that he would check with the township engineer.

Member Korstange asked if there were any rules about number of parking spots and if they would apply to this situation. Planning Director Hilbrands said it would still apply but it's also a question of how many residents would be walking or driving to it. Monroe said that he saw it as a way for people to let their dogs run who can't do that regularly because of leash laws. He also said they would require residents to be in their park with their dog, not just leaving them there.

Chair Noordyke asked if Monroe had spoken with his condo neighbors about this dog park and he said he had sent an email to the manager of Grandmark who he believes

works with Golf Ridge and didn't hear back. Chair Noordyke urged him to talk the situation out with the neighboring condo associations.

Member Rapin asked if they had screening around the park planned to block the dog park from the neighbor's view. Monroe said that there is an existing screen around the park in the site line of Golf Ridge and he would have to speak with his managers about expanding the section of trees.

Member Deering verified that there are quite a few mature trees that provide some screening by the park and they wouldn't be taken down to construct the park. Monroe said they wouldn't be removing any existing screening, landscaping, or foliage.

Chair Noordyke laid out four issues he would want resolved before voting on this case. They included: talking to the neighboring condo associations, clarifying what is required for parking, if there is additional insurance liability required, and if there are other locations that may be a better fit. The public hearing for this case will not be an official, legal one, as that is not required, but will most likely be held on either May 9 or May 16<sup>th</sup>. The neighboring condo associations will be notified of when the meeting will take place.

**Motion was made by Member Rissi to table the case to give the applicant time to speak with his neighbors and find a different location or a way to mitigate some of the concerns. Supported by Member Rowland. Motion carried 8 to 0.**

**ARTICLE 10. Case #22-3696/Luminar Technologies, INC**

**Property Address:** 4300 Thornapple River Dr

**Requested Action:** The applicant is requesting site plan review for an approximately 26,500 sq ft building.

Planning Director Hilbrands presented the case to the Planning Commission. The applicant is requesting to construct a 26' x 1,020' "temporary facility" made of fabric and use it for sensor testing for 3-5 years. The property is owned by the airport and meets setback requirements. The site does meet buffer yard widths and doesn't propose any landscaping but, if this continues past the five-year proposed use, landscaping would be expected to be added. Any added exterior lighting would require a photometric plan that meets township requirements. The applicant proposes sharing a driveway with 4190 Thornapple River Dr and would need to provide approval from the neighboring property owner for driveway access. The parking area would be 50'x80' and gravel, holding up to five vehicles; if the site goes beyond the proposed five years, it would be expected to be paved. The site plan notes a future 26'x640' addition, which would need to come back for site plan approval due to its size. The site would connect to a water main at Thornapple Drive but there isn't any sewer in the immediate area so they are proposing a septic system which would need to be approved by the Kent County Health Department. The applicant would have to obtain several permits before construction, including a stormwater maintenance agreement to the township.

Staff recommends approval of the case with the conditions that are listed in the staff report.

John Strow of Prein & Newhof spoke to the Planning Commission on behalf of the applicant. He stated the use will be sporadic with testing of sensors by 2-5 workers for a few hours at a time. The anticipated septic system is a holding tank; there is a potential alternative with the airport but it is an expensive alternative. Drainage at this particular site is part of Outfall 2 (002) and is not part of the airport's stormwater management system unless there is an extreme rainfall event; the emergency overflow of the large detention basin is into Outfall 2 but this would only be triggered by a 100+ year storm event. The company has entered into an agreement with Thornapple Excavating to use their driveway. The agreement includes a large section on site restoration so that this temporary business has as little permanent impact as possible; he believed removal of the concrete floor would be part of the lease agreement.

Member Rowland asked why the structure would be cloth and Strow stated that he knows the material needs to be of an opaque nature but he is unaware if the structure needs to be cloth for the testing.

Chair Noordyke asked if Strow is aware of the township's contention with Gerald R. Ford airport due to the wells that were polluted with PFAS contaminants and he said that he is aware of the situation but he cannot speak on it as he was part of the team that did some investigation for the airport and is limited under attorney/client privilege. He stated that Luminar has not mentioned anything about the PFAS situation but they plan to use dirt from site five and only move dirt around from that site without bringing any new soil in.

Member Korstange asked about their lack of a stormwater plan and Strow directed her to the website on the EGLE platform that lists the testing that the airport has done. He said that the 'hot spots' are identified on that website and there are two detention basins on this site that are intended to handle the water from the site in question.

Member Rissi explained that Outfall 002 is how the logical downhill flow of water currently creates a natural stream under the highway. He asked Strow what the final decision from the negotiation Luminar had with the airport on reconfiguring the detention ponds to address standing water on the property was. Strow said that the detention ponds are designed to drain in 24-48 hours which meets Federal Aviation guidelines and even the outfall is designed according to those same principles. Planning Director Hilbrands stated that the detention ponds are designed to hold the water runoff from the site's impervious surfaces.

Chair Noordyke shared information about the airport's pollution of resident's water with PFAS contamination that he knows due to being a member of the PFAS Advisory Committee. He stated that the township is paying for water to be delivered to homes as well as filters to other homes that are affected by PFAS. The water bills of everyone in the township will be rising to cover the costs of phase two onwards and EGLE has found the airport at fault for the contamination. The airport is unwilling to meet with the

township and Chair Noordyke suggested requiring the airport to meet with the township and make an agreement to remedy the PFAS pollution that they caused.

Member Rowland shared his concern with the business being temporary and that they would be setting a precedent for other temporary businesses to come in. He doesn't see it as the company being invested in Cascade. Member Korstange shared the same concern as well as emphasizing that three to five years is a long time to have a temporary structure.

Member Rissi shared his displeasure with the potential for more runoff in areas with contaminated soil and that could continue or increase the pollution of the Thornapple River. He also stated that, while the airport is a challenging neighbor, the Planning Commission needs to evaluate the approval based on the project/business coming in on its own merits and not let personal bias interfere. Planning Director Hilbrands echoed that statement.

Member Engel stated that the commission needs to consider the case from the stance of what the business is doing for the community and bringing to Cascade rather than personal frustrations the Planning Commission has with the airport. Member Korstange said that she hoped her comments hadn't come across that way; she has concrete reasons why she is against allowing this business including the temporary nature of the structure and stormwater concerns.

Laura Genovich of Foster Swift shared that the zoning ordinance limits what the Planning Commission is allowed to look at when approving a site plan and making sure that any conditions that are imposed are related to the land use. She cautioned the commission members to keep in mind the parameters of their site plan review.

Chair Noordyke emphasized that the views he shared during the discussion of this case, while fact, are his own and not the views of the Planning Commission as a whole.

Member Rissi asked if it was in the commission's prevue to instate harsher restrictions on the stormwater and runoff plans due to the history of pollution from the surrounding properties.

Member Korstange asked Planning Director Hilbrands why the township would allow a five-year temporary structure and he stated that it is being treated as a permanent building in many respects, it wouldn't have come to the Planning Commission for site approval otherwise.

Member Rissi asked for a rendering or picture of what the building is intended to look like. Member Korstange agreed and said that and the stormwater issue are the two main pieces.

Planning Director Hilbrands said that there are stricter rules on what material a building is made of and how it looks in the commercially zoned areas but they don't have that in the industrial zoned areas and the building would still need to meet the township's building code.

Member Rowland clarified that temporary buildings are generally allowed for six months to one year and this case was outside of that length of time. Planning Director Hilbrands agreed and said that that's why the case was coming to the Planning Commission.

Member Rissi asked if the case was following the new stormwater maintenance agreement and Planning Director Hilbrands said it was following the old agreement as the new one had yet to be passed by the board and they were counseled to continue using the old agreement until the new one eventually passed.

Member Rapin stated that he understood and agreed with the concern surrounding stormwater maintenance but the township engineer had approved this plan so he wondered if there were any additional concerns the engineer had.

**Motion was made by Member Rissi to table this case pending submitted renderings of the structure's appearance, more information related to the fabric, and Planning Director Hilbrands looking into whether they could require stricter standards for stormwater runoff due to pollution problems with the surrounding properties. Supported by Member Korstange. Motion carried 7-0 by roll call vote. In favor- Members Rowland, Rissi, Moxley, Deering, Rapin, Korstange, and Engel. Abstained- Chair Noordyke.**

**ARTICLE 11. Case #22-3701/Woods Builders Homes Inc.**

**Property Address:** 6105 Charlevoix Woods Ct

**Requested Action:** Basic Plan Review for an amendment to the PUD Ordinance to allow for a 24-unit multi-family apartment complex.

Planning Director Hilbrands presented the case to the Planning Commission. The applicant is requesting an amendment to the existing PUD to allow them to construct a 24-unit apartment complex on the approximately 4-acre property. The 24 units would be located in three buildings. The site was rezoned in 1998 to PUD to permit an adult assisted living facility campus but was amended in 2002 for office use south of Charlevoix Dr Court. That section of the PUD was removed in 2004. The site is currently vacant and there is an adult living facility located to the east in the same PUD. The property is listed as Community Residential on the master plan. Some landscaping and buffer yard is suggested along the property line. The developer proposes use of Charlevoix Woods Ct. for access, which is an existing private street developed in the late 90s for the assisted living project. The applicant/buyer has requested access across the Walmart parcel, believing that the parcels along Charlevoix Woods Ct have been granted an easement for cross-parcel access, but this will have to be confirmed before construction can begin. They plan to include a private road with two connections to Charlevoix Woods Ct. to meet ordinance requirements and the building will be required to meet setback requirements associated with the zoning district which is currently Office. The current building appears to be located within the front yard setback. The development is proposed to use public water and sewer; a storm water maintenance agreement will also be required. The developer must provide a recognition statement

regarding proximity to the airport. A lighting photometric plan will be required as the subdivision ordinance requires lights and none were indicated in the site plan. No sidewalks are proposed in the area and, if they did put in sidewalks, they wouldn't connect to any other sidewalks in Cascade. The Planning Commission can require a traffic study but staff do not believe it is necessary because the road has a lower traffic demand than originally predicted as the office use on the south side of Charlevoix Woods Ct. was never constructed. If the Planning Commission agrees that all procedural information is provided, the applicant should proceed to a public hearing to consider the PUD. At that stage the merits of the request will be considered and a detailed site plan will be available for review.

Before the public hearing, staff recommends submission of the following information: plans indicating the private road meet township design standards, a full civil plan set, a landscaping plan, approval from the Township Engineer and Fire Chief, plans reviewed by the KCDC for their comments on the storm water system, the location and type of street lights proposed, and a photometric plan.

Member Rissi asked if there was a maintenance agreement for Charlevoix Woods and who is responsible for the road being maintained and suggested that be looked into before development is approved.

Multiple members made comments that the area currently needs to be cleaned up.

Member Korstange and Deering asked if there was enough space for emergency vehicles to get to the buildings and the assisted living. Planning Director Hilbrands said that would be something that the fire department would look into when it comes to their approval.

Jacob Heglund of JH Realty, the property developer, came forward to answer any questions about the property. Chair Noordyke asked if the road was one-way or two-way and Heglund responded that it is a two-way street and met all of the regulations when they engineered it.

Member Rowland asked what the rent range would be and Heglund said they were modeling it after Knoll of Ada at Cascade Rd and Spalding. They will look like condos and would like to set the rent at \$2,400.

Member Rissi asked if there would be a dumpster corral or if each building would have its own trash can. The developer said that they had planned to have individual trash cans but could be flexible.

Heglund did the title work for Charlevoix Woods Ct and found that, when Walmart was originally built, the township required easements that were never completed. He requested the Planning Commission assist them in resolving this issue, even if it takes longer to get the project underway. Member Rissi suggested looking at PUD 58 to see if the problem came about when the assisted living center was built.

#### **ARTICLE 12. Discussion of Worm Farm/Composting Use**

The township received a complaint in December of 2021 regarding a worm farm/composting operation off of Whitneyville Ave in the ARC zoning district. The matter was discussed at the first February Planning Commission meeting and the township attorney and staff were asked to determine which type of zoning they think a worm farm/composting operation may fit in. The township board also discussed the matter and instructed the attorney to write and send a cease-and-desist letter to the property owner in mid-March with a second letter following a few weeks later to clarify that the property owner should not be accepting any new compostable material as the township considers amendments to the zoning ordinance.

Steps moving forward include this meeting's discussion, the drafting of an amendment to the zoning ordinance, the Planning Commission reviewing the amendment, the date for a public hearing would be set, and then the Planning Commission would submit the amendment for possible approval by the township board. Discussion of this at a previous meeting suggested allowing it as a Special Use in ARC or Industrial zoned districts. Information as to surrounding municipalities that had regulations on composting and project information from Wormies, the aforementioned vermiculture company that spurred the potential zoning amendment, was provided in the meeting packet.

**Motion was made by Member Rowland to invite the founder of Wormies, Luis Chen, to the podium so they could learn more about his operation and vermiculture in general. Supported by Member Korstange. Motion carried 8 to 0.**

Chen explained that worm farming consisted of collecting food waste, mixing it with organic material such as woodchips, and then allowing the temperature to increase so that the material starts to compost. They then feed that mixture to the worms who turn it into healthier soil. His operation is different than traditional composting operations because it is much smaller, most companies don't feed the compost to worms, and they don't end up with the same nutrient rich level of soil. Chen stated that he submitted his business plan to previous Community Development Director Steve Peterson who said that this was an acceptable use of land in the ARC district. He wasn't fully operational when, a few months prior, a concerned neighbor brought the project to the township. The activities that will be available in his facility include more education and are on a much smaller scale than other composting operations. They intend to only use 16% of the space for composting and regenerate other portions of the space. It is a 13-acre site and 2-acres will have the actual composting space. In the first step they receive the food waste and sort it, then it is put into rows with the worms. After six months, the material is sifted and any large items, woodchips, and worms are removed from the soil. The soil is then bagged and distributed.

Member Korstange shared concern that there are multiple phases to vermiculture and that each phase of the lifecycle needs to be regulated. She believes that the three main phases are the taking in and sorting of food waste, the actual composting, and the packaging and distribution of the material.

Chen said that they offer the service of taking local customer's food waste in for composting as well as selling the now nutrient rich soil after the worms have processed it. They aren't targeting farmers as they are a small operation and most people wouldn't come to their property looking for the product, they would often be taking the product to the customer in a pickup truck. He emphasized that the company is not a landfill and they remind the customers every week what is acceptable to send in.

Member Rissi asked if Chen was aware that there was a complaint from a neighbor and he said he was aware but he wished he knew who it was so that he could address it and believed it was a concern more than a complaint. Member Rissi said that he would like to hear what steps they intend to take to mitigate the problem that the neighbor is facing. Member Korstange said that the problem with considering how Wormies can address the current problem with the neighbor with their designs is that they haven't built the facilities in which the worm farm will be housed and the surrounding landscaping is not complete or even started.

Arthur Siegal, legal counsel for Luis Chen, spoke via Zoom about how both his office and Foster Swift see this type of use as a legal one, but the conversation is more on how Chen's optimally planned facility can be used as an example for rules the township may want to build into the ordinance. He shared that Chen's plan addresses all of the possible components according to the state and EGLE and now they just need to craft an amendment to the zoning ordinance with a use like his to be able to seek approval.

Foster Swift lawyer Genovich agreed with Siegal that the conversation tonight was to determine regulations potentially surrounding vermiculture facilities and what type of land they would be allowed on.

Member Rapin asked about the amount of waste they receive and what it is. Chen said that any type of plastic, glass, etc. are considered contaminants and need to be discarded but only have been coming in in small amounts, such as a sticker left on a banana peel, and could fill a five-gallon bucket about once every two months with the amount of waste they are currently receiving. His associate, Chandler Michalsky, stated that the targeted customers are environmentally conscious and are interested in the business of creating diverse, nutrient rich soil. Member Rapin clarified the amount of material that is brought in and the frequency. Chen said they bring in about a yard of food scraps per day which is approximately the size of the bed of a pickup truck.

Member Korstange added an emphasis on scale and, while Wormies is producing on a very small scale, there will be companies interested in producing on a much larger scale. There was suggestion from the Planning Commission that they should consider basing the regulations on scale.

Member Rissi asked if the rows of composting worms are covered to which Chen said they didn't have to be covered but there is a benefit to covering them. He asked if the process of the decomposition produced offensive odors. Chen said that there wasn't an offensive odor as they had been doing this type of work for five years and they have many controls in place to mitigate that risk. There was conversation about if the

content of what is put into the compost determines the scent. Chen affirmed that they don't have large customers and so, even if someone left a bucket out in the sun, it would be such a small amount it wouldn't make a difference. He said he thought he would bring in approximately 2,500 cubic yards per year. The process is staged and at five to six months, the stages are complete.

Member Rowland thanked Wormies for complying with the cease-and-desist and bringing in educational information; he then asked how long it would take to get the property as it currently is to the state shown on his project plan. Chen said that the project is funded through a grant and they are dividing the project into phases. An additional year was added to the timeline by the state due to Cascade Township putting the project on hold, so the time for the project to reach the final phase of construction is four years, though he'd like it to be much sooner. Member Rowland asked about the volume reduction of input to output and Chen stated there will always be a reduction and on 2,500 cubic yards, there would be a reduction of about 30% from beginning to completion. Member Rowland asked about how the operation can grow over the years and the land can have more and more of it dedicated to holding composting material. Chen shared that there is only so much demand for this type of project in a local area and that they instead would have a lab where they would put effort into improving the soil mixture and creating better fertilizer to sell; they would also work on liquid fertilizer and fertilization additives for sprinklers.

Member Korstange asked if their customers are generally both the ones bringing in the material to compost and the ones getting fertilizer deliveries. Chen said that many companies that do this are co-ops or non-profits but they are different because they are creating a value-added product.

Member Rissi shared that he had thought, going into this meeting, that this type of use belonged in industrial zoned areas but this presentation had shifted his mindset to thinking that it may belong in ARC zoned areas. Member Korstange shared that she believes that the core of this type of use is agricultural and that speaks volumes to where it should be an allowed use.

Planning Director Hilbrands asked which parts of the process would be enclosed and which would be in the open air. Chen said that the black area of the plan will be the first step, the bays will include the woodchips with a covering. The second step is the brown section containing the rows of worms that they are looking into covering and the third step will take place in the hoop house where the product is sifted and stored.

Member Korstange asked if the worms always need to be covered to work or if it helps them work in the winter. Michalsky said that this winter was the first time they had the worms composting outside and they had frozen but when things warmed up, the worms were all still alive. They said that the covering isn't required but it definitely speeds up the composting process.

Chair Noordyke asked if anyone would be living on the site and Chen said that was yet to be determined, though there won't currently be anyone living there. He then asked

about the type of people who would purchase the product or service. Chen said that it would be mostly residents, not large restaurants bringing in dump truck loads. The average size of a container coming in is a five-gallon bucket. Chen also shared that they don't like publicizing their location so that people think they can come and drop off waste.

Member Engel asked if any other areas in the US are looking to regulate and address the same issue. Chen said he knew a few companies that are facing similar issues in the state but that is better left to EGLE.

Aaron Hiday, the EGLE Compost Coordinator, came forward to speak on composting regulations and processes in other areas of the state. He said that Michigan is very behind on everything related to recycling, but even more specifically, organics recycling. He said there are a vast range in the level of quality of operations across the state. Keeping the program so it can't be seen from the road goes a long way to prevent illegal dumping and items going into five-gallon buckets tend to be much cleaner than those taking in food waste. The hill coming up the driveway is so steep that even a 20 ft building wouldn't be visible from the road.

Planning Director Hilbrands asked how EGLE and the state regulate these processes from an enforcement and monitoring perspective. Hiday said that the only regulations on composting are in part 115, section 11521 and that only applies to yard waste facilities. Wood chips are exempt and food waste is exempt if being used for a program such as this where it is turned into a new product, so EGLE has no regulatory authority over this site unless the company chooses to register with his program. Hiday is part of The Department of Environment Great Lakes Energy, Materials Management Division, Solid Waste Section, Sustainable Materials Management Unit, Composting Program. The name it goes by is the EGLE Composting Program. He explained that, even with yard waste programs, he is the only person who educates, manages, and regulates this department. He has some assistance from local EGLE districts with solid waste staff who donate their time but, when it comes to emergency planning for situations like the Type-A influenza, he may not be able to address less pressing violations.

Hiday stated that if yard waste is added to anything, it is all considered yard waste. He said that 100 cubic yards is about the size of a shipping container and if a company fills more than two of those with yard clippings, they have to register with the program. He was on track to visit all of the registered facilities in Michigan but COVID occurred so now he believes he will have it completed in about two years. Most of the time when he is coming back to a facility it is to deal with a complaint as he doesn't have the extra time or manpower to monitor all of the current facilities; there are about 120 active sites in both peninsulas of Michigan. He said that the Grand Rapids area has many composting facilities and, though there are many yard clipping facilities, most don't accept food waste.

Member Korstange suggested the township require anyone who applies for the special use to register with EGLE. She asked if there were any other agencies that would

regulate this type of program and Hiday mentioned the EPA, EGLE's Water Resources Division if it is water related, and odors could be reported to the air quality division.

Hiday recommends that townships looking to regulate vermiculture require applicants to become registered with his EGLE program and require them to be in compliance with all parts of the National Resource and Environmental Protection Act of 1994 (NREPA). This is so that, if EGLE determines that the property is not in compliance with their statutes, the township will also get a notification that a violation notice was issued. EGLE is then able to go down their lane of enforcement and, if necessary, the township can revoke their special use permit.

Member Rissi asked if Hiday generally sees this type of operation in a downtown setting or a more rural setting and he said that he sees it in both and that the zoning is across the board but is most highly concentrated in agricultural and secondarily commercial zoned areas. He said the most common complaint is odor but that is very subjective. He hasn't gotten complaints of rodents but he has about birds, seagulls in particular. There are also rules about how far these facilities have to be from airports: 5000 ft from the prop and 10000 ft from a jet turbine.

Hiday said that they would be able to find his contact information and other resources on the EGLE website.

The most beneficial ratio of carbon to nitrogen in fertilizer is 30:1 because this reduces odors. Wormies will utilize an aeration system that will also increase efficiency and cut down on odors. Hiday recommended the commission not regulate based on how much material is being brought in, but rather, the maximum amount of material that will be in the process at one time, as it is fluid. He also cautioned them not to overregulate the process as that's how townships have ended up with nowhere to send their organic waste. Some municipalities put in strong protections to keep this type of process out of their municipality but ended up having to create exemptions for anyone to be able to compost. Hiday agreed to look at the commission's proposed amendments to the zoning ordinance when it is further along.

Motion was made by Chair Noordyke to form a subcommittee to draft initial feedback on the proposed amendment to the zoning ordinance that will be created by Planning Director Hilbrands, reviewed by the full Planning Commission, and brought before the Township Board. It will consist of Member Rissi as chairman and Members Rapin, Korstange, and Deering as members. Supported by Member Korstange. Motion carried 8 to 0.

Member Rowland was excused and left at 10:36 PM.

#### **ARTICLE 13. Old Business**

**Roundhill/Process Implementation Subcommittee:** Member Moxley shared that the subcommittee is meeting bi-weekly on Wednesdays at 4:00pm at the Township office. Meetings last approximately an hour and have been attended by Planning Director Hilbrands and Manager Swayze. Minutes for these meetings are taken by Member Rissi.

**Edits to the 3/21/22 Meeting Minutes:** Member Deering pointed out three lines to be edited from the 3/21/22 meeting minutes. The first was on the second page, first paragraph, 8<sup>th</sup> line down where it is said, 'building not be used for living space' and requested it to be changed to 'building cannot be used for living space'. The second edit was in Article nine's second paragraph that read, 'the attorney will be asked if there is a reason these were titled Rules of Procedure than the original Rules of Conduct'. 'Rather' needs to be added between the words 'Procedure' and 'than'. Finally, on the last page, where it talks about the open planning commission seat, it should say 'the' instead of 'he'.

**Motion by Member Rissi to approve these edits. Supported by Member Rapin.  
Motion carried 7 to 0.**

**Email Addresses:** Planning Director Hilbrands passed out directions for the Planning Commission members to set up their township email addresses.

**ARTICLE 14. Any Other Business**

**Educational and Workshop Opportunities:** Educational workshops from last year (that are held yearly) were included in the packet as well as the website to access educational workshops through MSU extension. Members are encouraged to attend these types of educational opportunities that are a mixture of virtual and in person events.

**ARTICLE 15. Acknowledge visitors and those wishing to speak.**

Luis Chen: Asked if they can continue feeding the worms so they don't have to start from scratch after 90 days. Chair Noordyke recommended Chen speak with Planning Director Hilbrands. He said they would run out of food in about three months.

James Yost (via Zoom) Commented: "Negative aeration"

Michalsky explained that this is what will be used to reduce composting odor.

Dick Wachter (via Zoom): "What is the motivation that the Ridges sites as their need for a separate dog park when the county has expended township funds to provide an excellent dog park. Have there been any studies done on the use of the current dog park at Cascade Park that would suggest an additional park is needed?"

Member Korstange clarified with Planning Director Hilbrands as to if the Planning Commission can deny the Ridges complex the ability to construct a dog park and Planning Director Hilbrands said there is leeway because it affects the neighbors.

**ARTICLE 16. Adjournment**

**Motion was made by Member Rissi to adjourn. Supported by Member Deering.  
Motion carried 7 to 0. The meeting was adjourned at 10:48 PM.**

Respectfully submitted,

Diedre Deering, Secretary

## STAFF REPORT

STAFF REPORT: Case # 22-3696/Luminar Technologies  
REPORT DATE: May 4, 2022  
PREPARED FOR: Cascade Charter Township Planning Commission  
MEETING DATE: May 9, 2022  
PREPARED BY: Brian Hilbrands, Planning Director

### APPLICANT

John Stroo, Prein & Newhof  
3355 Evergreen Dr NE  
Grand Rapids, MI 49525

STATUS  
OF APPLICANT: Engineer for Leaser/Applicant

REQUESTED ACTION: Site Plan Review for a 26,520 sq ft building.

EXISTING ZONING OF  
SUBJECT PARCEL: I, Industrial

GENERAL LOCATION: On east side of Thornapple River Dr, north of 48<sup>th</sup> St

PARCEL SIZE: Approximately 15 acres

PROPERTY LOCATION: 4300 Thornapple River Dr

EXISTING LAND USE  
ON THE PARCEL: Vacant

ADJACENT AREA  
LAND USES: W – GRR International Airport  
N – Industrial (Thornapple Excavating)  
S,E – Vacant (airport property)

ZONING ON  
ADJOINING PARCELS: W – AC-2  
N,E – I  
S – ARC

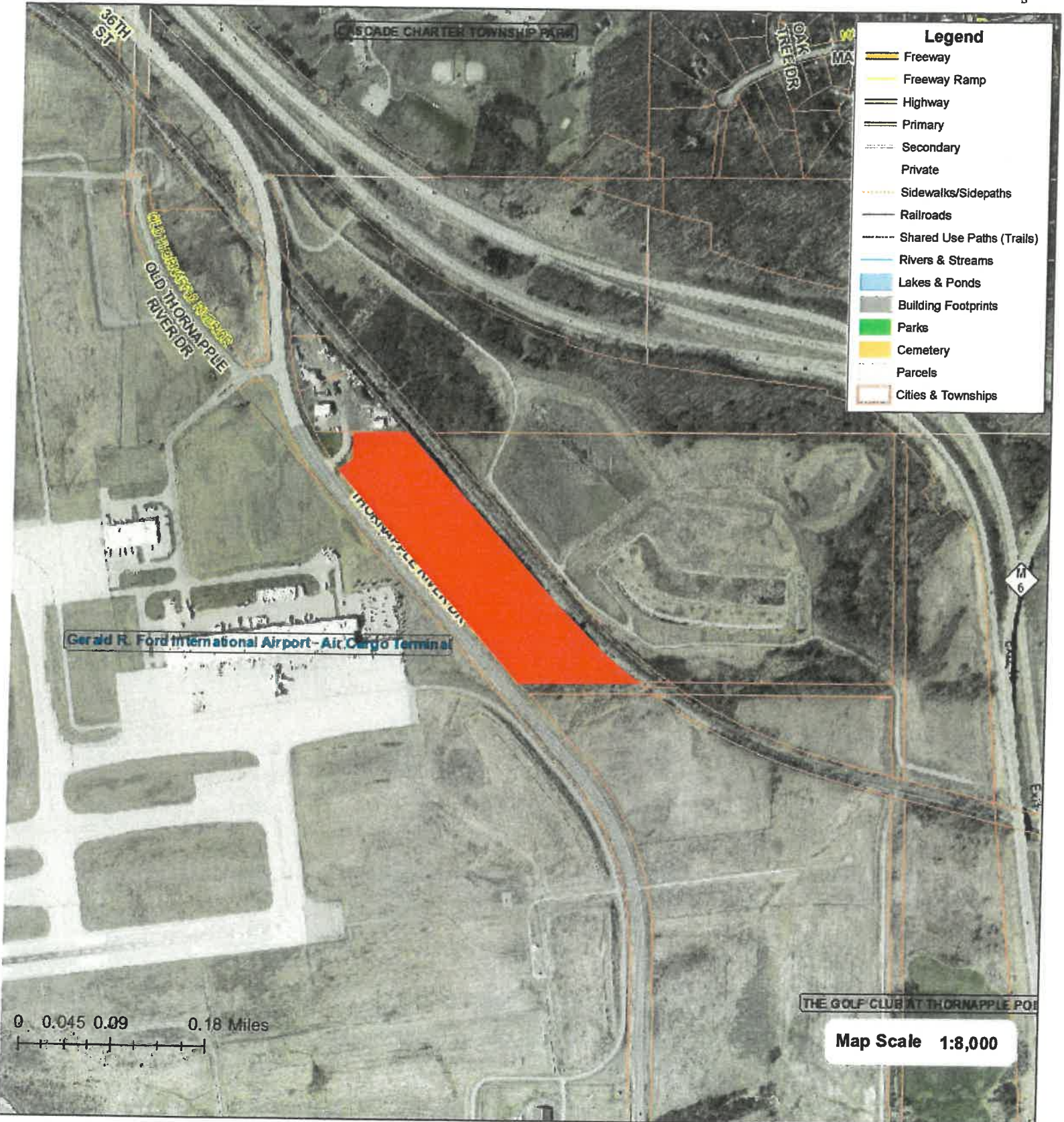
### STAFF COMMENTS:

1. The applicant is requesting site plan approval to construct a 26' x 1,020' (26,520 sq ft) building. The site plan was reviewed under Section 21.07 of the Site Plan Review Chapter of the Zoning Ordinance.

2. The application was tabled at the April 18 Planning Commission meeting. The Planning Commission requested that the applicant provide renderings and information regarding the building's exterior. The applicant has provided renderings and those are included in the meeting packet. The Planning Commission also expressed concern regarding PFAS or contaminants possibly leaving the site.
3. The building will be made out of a fabric material and is to be used for sensor testing. The presentation submitted by the applicant indicates that the structure will be approximately 19' tall. What is unique about the site is that the applicant is describing it as a "temporary facility" that will be used for 3-5 years. The property is owned by the airport.
4. The building meets the setback requirements of the zoning district.
5. While there is currently no landscaping being proposed, the site does meet the required bufferyard widths. If the use continues beyond the proposed 5-year period it will be expected that landscaping will be added.
6. The applicant has indicated that no exterior lighting will be included. If any exterior lighting is added the applicant will need to provide a photometric plan that meets Township requirements.
7. The applicant is proposing that the site will share a driveway with the property to the north at 4190 Thornapple River Dr and they have provided approval from the neighboring property owner to allow for use of the driveway for access.
8. The site plan includes a 50' x 80' gravel area to be used for staging of construction equipment and then for parking. The applicant has indicated that the maximum normal vehicle capacity will be 5 vehicles. This would meet the minimum parking requirement of 1 space/employee. If the use continues beyond the proposed 5-year period it will be expected that the parking area and access drive be paved.
9. The plans show a future 26' x 640' addition to the building. Due to the size of the addition, the owner would need to come back for a site plan review before the addition could be constructed.
10. The applicant has indicated that they are appealing the Building Department's requirement that a permanent restroom facility must be located in the building. If the appeal is denied they will need to coordinate a water main connection with the City of Grand Rapids and receive approval from the Kent County Health Department for a septic system. If the use extends beyond 5 years, I believe the Township should also consider requiring the applicant to connect to sewer.
11. The Fire Department has reviewed and approved the plans.



# TITLE



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Printed 4/13/2022 3:17:56 PM





# CASCADE CHARTER TOWNSHIP

5920 Tahoe Dr. SE, Grand Rapids, Michigan 49546-7140

## PLANNING & ZONING APPLICATION

**APPLICANT:** Name: John Stroo  
 Address: 3355 Evergreen Drive NE  
 City & Zip Code: Grand Rapids, MI 49525  
 Telephone: 616-364-8491  
 Email Address: jstroo@preinnewhof.com

**OWNER: \* (If different from Applicant)** Luminar Technologies, Inc.  
 Name: \_\_\_\_\_  
 Address: Leasor: Luminar Technologies, Inc. Land Owner: Gerald R. Ford International Airport  
2603 Discovery Drive Authority  
 City & Zip Code: Suite 100 5500 44th Street SE  
Orlando, Fl 32826 Grand Rapids, MI 49512  
 Telephone: (904) 510-3786 (616) 233-6061  
 Email Address: p3-allyn.basore@luminartech.com tcizauskas@grr.org  
brooke.swartzlander@luminartech.com Luminar Sys Test Director

**NATURE OF THE REQUEST: (Please check the appropriate box or boxes)**

<input type="checkbox"/> Administrative Appeal	<input type="checkbox"/> Administrative Site Plan Review
<input type="checkbox"/> Deferred Parking	<input type="checkbox"/> P.U.D. – Rezoning *
<input type="checkbox"/> P.U.D. – Site Condominium *	<input type="checkbox"/> Rezoning
<input checked="" type="checkbox"/> Site Plan Review *	<input type="checkbox"/> Sign Variance Subdivision
<input type="checkbox"/> Special Use Permit	<input type="checkbox"/> Plat Review *
<input type="checkbox"/> Zoning Variance	<input type="checkbox"/> Other: _____ *

**\* Requires an initial submission of 5 copies of the completed site plan**

**BRIEFLY DESCRIBE YOUR REQUEST:\*\***

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**(\*\*Use Attachments if Necessary)  
-SEE OTHER SIDE-**



## Memorandum

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Date: March 4, 2022

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To: Brian Hilbrands, Interim Planning Director

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Company: Cascade Charter Township

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From: John A. Stroo, P.E.

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Project #: 2220234

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Re: 4300 Thornapple River Drive – Site Plan Review Narrative

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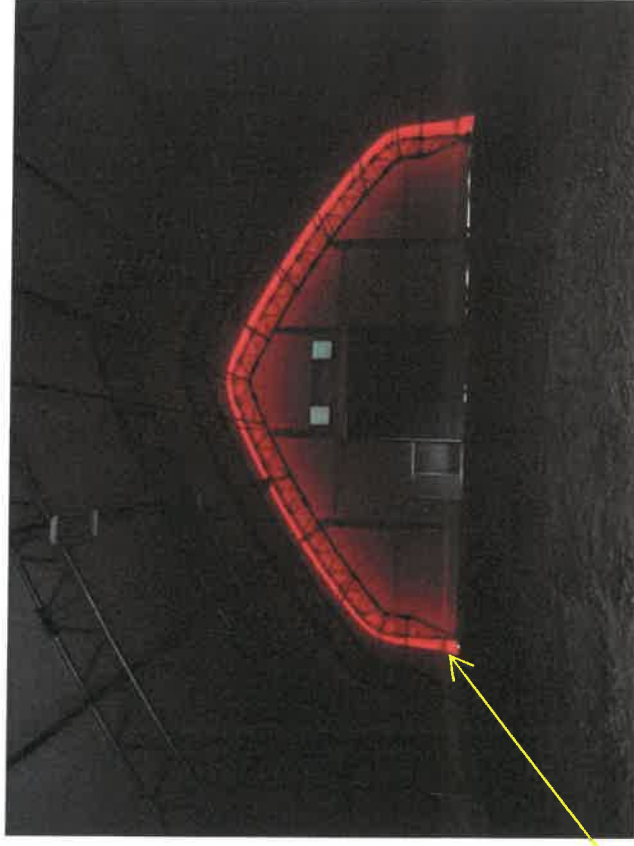
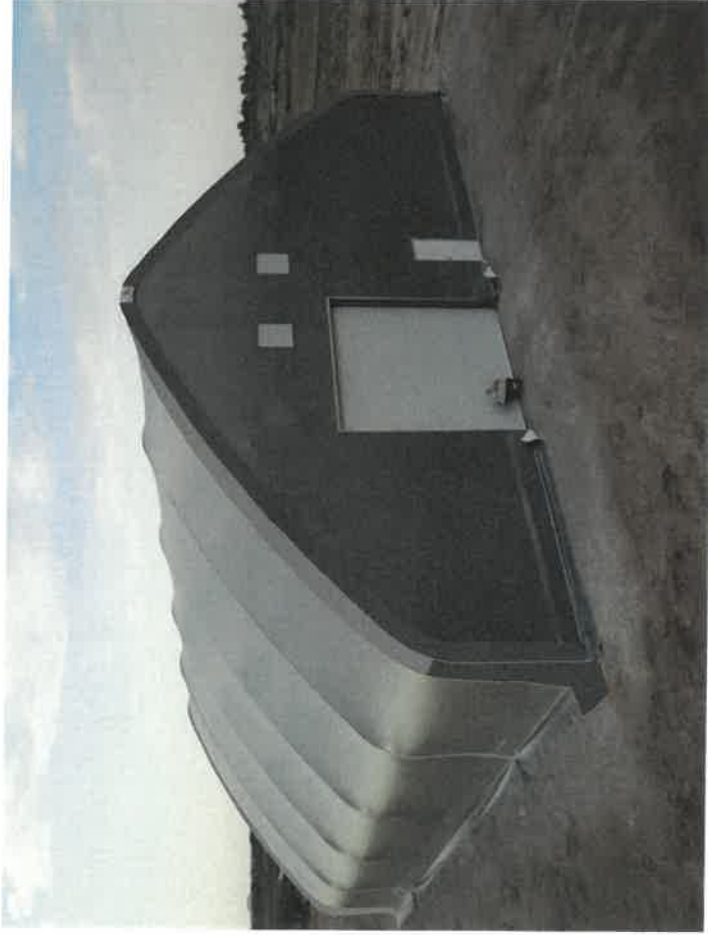
Luminar Technologies, Inc. (Luminar) is proposing construction of a temporary facility on land owned by the County of Kent and administrated by the Gerald R. Ford International Airport Authority (GFIAA). Lease negotiations are in progress. The proposed site has been named Site 5 by GFIAA as part of their overall development program. The Kent County Road Commission has assigned an address of 4300 Thornapple River Dr SE to Site 5. Access to the site is currently planned as a shared use of the driveway to 4190 Thornapple River Dr SE.

A gravel driveway constructed from 4190 Thornapple to the proposed structure will be access to the site which is graded to provide a level finished floor elevation. An 80' x 50' aggregate parking area will be constructed adjacent to the operations room and is for primarily for staging of construction equipment. The maximum normal vehicle capacity will be five. An aggregate drive will be placed along one side of the building for vehicle access.

The proposed structure is steel framed truss system with a fire-retardant fabric exterior and concrete floor. The operations room will be at the northerly end of the structure. The fabric exterior will be of an opaque nature and is intended to control light into and out of the testing area. The sensor equipment testing not designed nor intended to exceed township standards for noise generation. The structure will have electrical, communications and potentially domestic water services. A septic holding tank has been included on the site plan in case Luminar decides to construct a restroom instead of other restroom options. A building permit application has been submitted to the township. The site is not intended as occupied for normal office space but instead occupied intermittently and is temporary. Average site occupancy is anticipated to be two to six individuals at a time at intermittent intervals weekly.

Luminar currently intends to use the facility for sensor testing over a period of three to five years.

# LRF300m / Clearspan Structure - For Visual Reference ONLY



**Interior End Lighting  
not included with  
Luminar LRF300m**

# Flame Retardant Membrane Structure Fabric with ArmorKote

FRU88X-6, 400

## INTERTAPE POLYMER GROUP TECHNICAL DATA SHEET

### DESCRIPTION

FRU88X-6, 400 is a heavyweight fabric for applications requiring flame retardants and UV stability. The scrim is produced in a special weaving pattern to enhance flatness, abrasion resistance, and tear properties. The proprietary coating is used to enhance abrasion resistance, flex resistance, seam strength, UV resistance and longevity.

FRU88X-6, 400 is perfect for manufacturing facilities, livestock housing and sports arenas.

### FABRIC SPECIFICATIONS

Weave: Woven HDPE scrim using natural FR/UV tapes  
 Coating: LDPE, 4 mil average each side (95 g/m<sup>2</sup>/side)  
 Color: White, blue, green, grey, sandstone and other colors available upon request  
 Weight: 12.4 oz/yd<sup>2</sup> (407g/m<sup>2</sup>) +/- 5 %

### ROLL SPECIFICATIONS

Cores: 4 inch I.D. or 5 inch I.D. available  
 Width: Up to 144 inches (-0, +0.5) as ordered  
 Length: Minimum 250 yds/roll; up to 1000 yds/roll

*These values are typical data and are not intended as limiting specifications.*



100 Paramount Drive, Suite 300 | Sarasota, FL 34232 | USA  
 Customer Service: 800.565.2000  
[www.itape.com](http://www.itape.com) | [info@itape.com](mailto:info@itape.com)

While we believe them to be reliable, the statements and information herein are only for general guidance and are not warrants or guarantees for accuracy and completeness. The user must, by test or otherwise, determine suitability for this purpose. There is no warranty of fitness for a particular purpose. Our standard term and conditions of sale apply exclusively to all orders, and all liability for damages of any kind, including consequential, exceeding purchase price is excluded. No one is authorized by us to make oral warranties. We reserve the right to make changes without notice or obligation in our products and publications.

EFFECTIVE: 06/18

### PERFORMANCE PROPERTIES

The following data are typical values based on ASTM standard tests. These data should not be considered specification.

<b>Thickness</b> ASTM D1777	23 mil (0.59 mm)
<b>Grab Tensile</b> ASTM D5034	Warp 360 lb 1598 N / Weft 350 lb 1555 N
<b>Strip Tensile (N/5cm)</b> ASTM D5035	Warp 260 lb/in (2309)/Weft 250 lb/in (2220)
<b>Tongue Tear</b> ASTM D2261	Warp 120 lb 533 N / Weft 110 lb 488 N
<b>Trapezoidal Tear</b> ASTM D4533	Warp 110 lb 488 N / Weft 90 lb 400 N
<b>Mullen Burst</b> ASTM D3786	675 psi / 4650 kPa
<b>Accelerated UV Weathering<sup>1</sup></b> ASTM G154	>90 % strength retention after 2000 hrs exposure @ 0.77 W/m <sup>2</sup> /nm, or 1200 hrs exposure @ 1.35 W/m <sup>2</sup> /nm
<b>Accelerated Natural Weathering</b> ASTM G90	>80 % strength retention after 5 Florida Standard Years <sup>2</sup>
<b>Low Temperature Bend</b> ASTM D2136	-60°C

<sup>1</sup> Q.U.V [A-340 Lamps]; 8 hrs UV @ 60°C; 4hrs condensation @ 50°C <sup>2</sup> 1333 MJ

### FR PERFORMANCE

This product meets the requirements of NFPA 701 – 2015 (Method 1 and Method 2), 2010 (Method 1 and Method 2), 2004 (Method 1 and Method 2), 1989 (large and small scale) and 1996 (tests 1 and 2), CAN/ULC S109-14, CAN/ULC S109-03, CAN/ULC S109-M87 (small and large scale), CAN/ULC S102-10, CAN/ULC S102-03, CAN/ULC S102.2-03, ASTM E84-16 (Class 1), UBC31-1, California Fire Marshal (F-51405).



**NovaShield**  
SOLUTIONS



Steel Framed Fabric Shelter  
Example 1 (Source: ClearSpan)



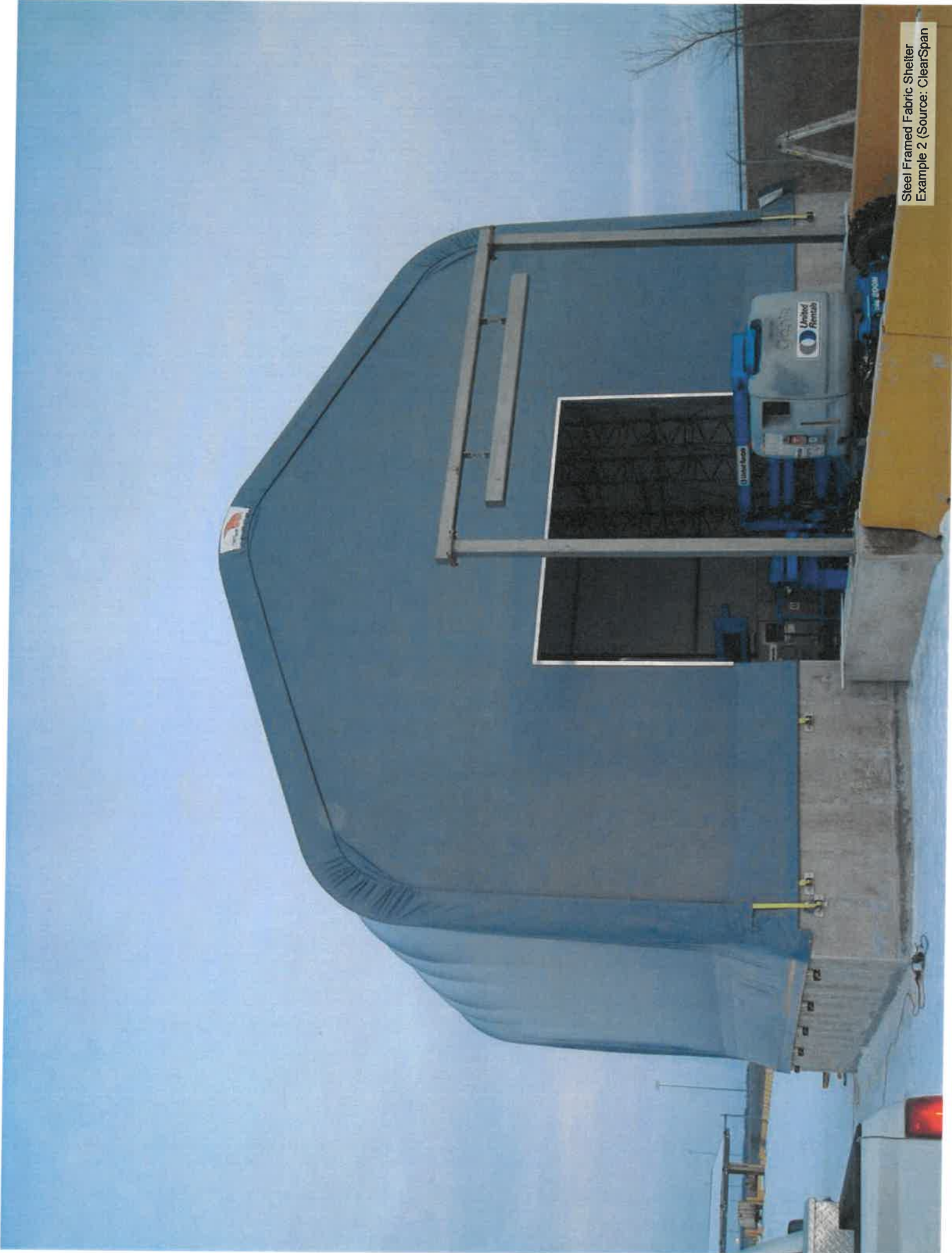
Steel Framed Fabric Shelter  
Example 1 (Source: ClearSpan)



Steel Framed Fabric Shelter  
Example 1 (Source: ClearSpan)



Steel Framed Fabric Shelter  
Example 1 (Source: ClearSpan)



Steel Framed Fabric Shelter  
Example 2 (Source: ClearSpan)

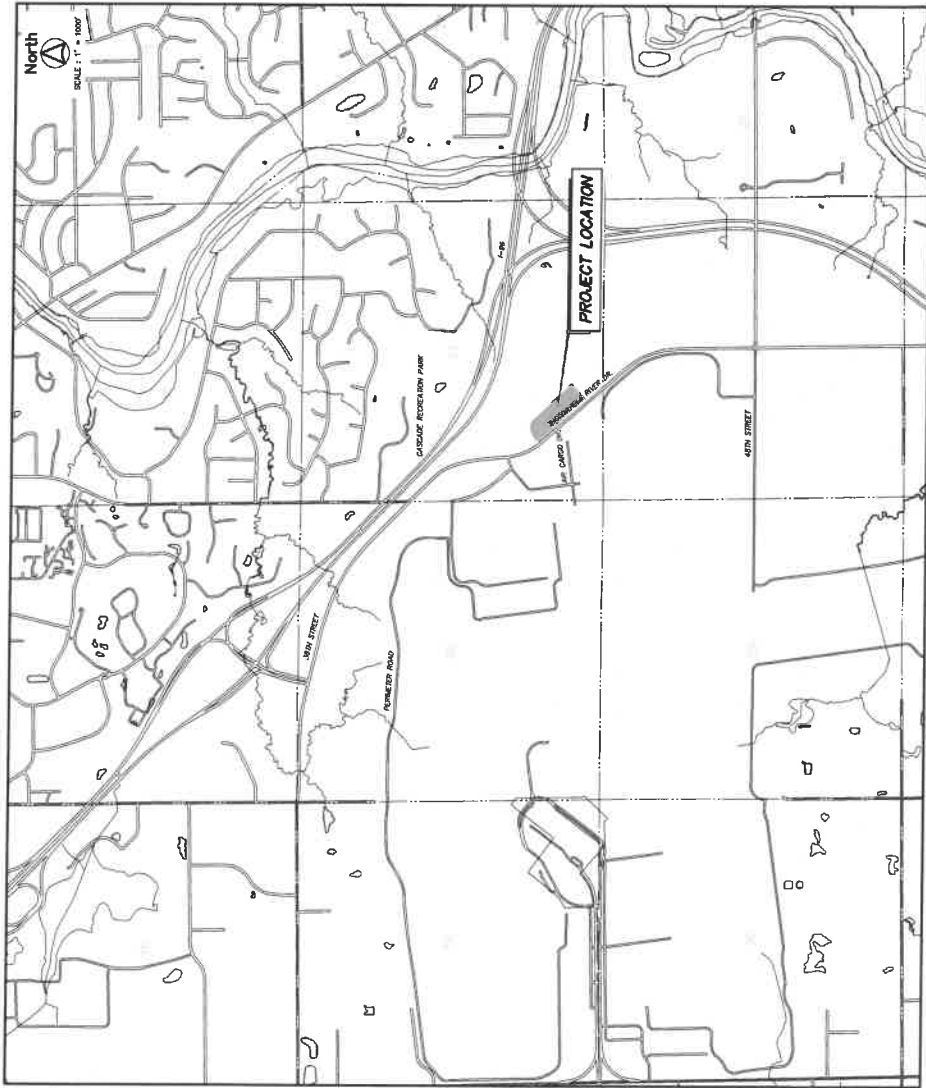


Steel Framed Fabric Shelter  
Example 1 (Source: ClearSpan)

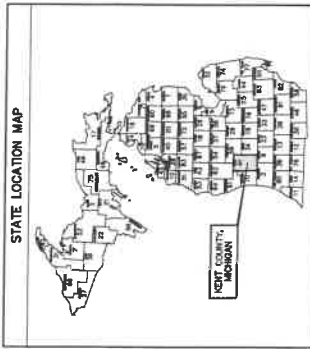
# LUMINAR TECHNOLOGIES, INC. - TESTING FACILITY

## KENT COUNTY, MICHIGAN

### SITE IMPROVEMENTS



**PROJECT DATUM INFORMATION**  
 COORDINATE SYSTEM : STATE PLANE CRD  
 DATUM : NAD 83  
 ELEVATION UNIT : FEET  
 HORIZONTAL UNIT : FEET  
 PROJECT CORNER SCALE FACTOR (CSF) : 0.9999999999999999  
 PROJECT CORNER SCALE FACTOR (CSF) : 0.9999999999999999



REVISED: 02/16/2022

SHEET No.	DESCRIPTION
1	COVER SHEET
2	SITE PLAN
3	GRADING & UTILITY PLAN
4	IRRIIGATION PLAN
5	PAVEMENT PLAN
6	CONSTRUCTION SAFETY PLAN

PROJECT NO.  
220234

SHEET NO.  
1 of 7

**Prein & Newhof**  
 Engineers & Surveyors  
 3355 EVERGREEN DR. NE  
 GRAND RAPIDS, MI 49525  
 PHONE: (616) 364-8491  
 info@preinnewhof.com



ENGINEER:  
 PREIN & NEWHOF  
 3355 EVERGREEN DR. NE  
 GRAND RAPIDS, MI 49525  
 PHONE: (616) 364-8491  
 info@preinnewhof.com

NOT FOR CONSTRUCTION

**SOIL BORING GENERAL NOTES**

1. ALL SOIL BORING LOGS SHALL BE SUBMITTED TO THE CLIENT FOR REVIEW AND APPROVAL. THE CLIENT SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE LOGS AND THE INFORMATION PROVIDED THEREON.

2. THE CLIENT SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED TO THE ENGINEER. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED TO THE CLIENT.

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20. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED TO THE CLIENT.

NO.	DEPTH (FEET)	SOIL TYPE	REMARKS
1	0.0 - 1.0	CLAY	
2	1.0 - 2.0	SAND	
3	2.0 - 3.0	CLAY	
4	3.0 - 4.0	SAND	
5	4.0 - 5.0	CLAY	
6	5.0 - 6.0	SAND	
7	6.0 - 7.0	CLAY	
8	7.0 - 8.0	SAND	
9	8.0 - 9.0	CLAY	
10	9.0 - 10.0	SAND	
11	10.0 - 11.0	CLAY	
12	11.0 - 12.0	SAND	
13	12.0 - 13.0	CLAY	
14	13.0 - 14.0	SAND	
15	14.0 - 15.0	CLAY	
16	15.0 - 16.0	SAND	
17	16.0 - 17.0	CLAY	
18	17.0 - 18.0	SAND	
19	18.0 - 19.0	CLAY	
20	19.0 - 20.0	SAND	

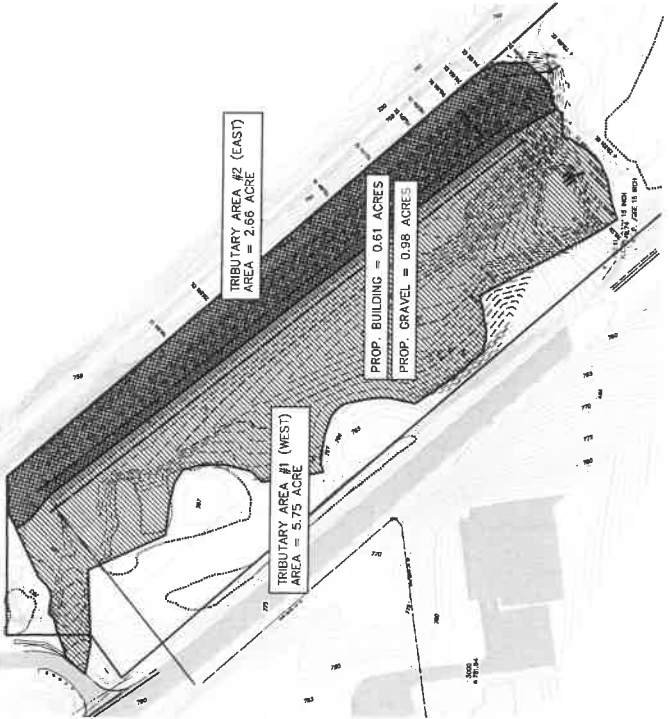
811

CALL BEFORE YOU DIG

FOR A LIST OF PARTICIPATING COMPANIES, VISIT [www.811.com](http://www.811.com)







5/20/22

Proposed Run Off

Area	Area (Acres)	Runoff (CFS)
Tributary Area #1 (West)	5.75	1.18
Tributary Area #2 (East)	2.66	0.58
Proposed Building	0.61	0.13
Proposed Gravel	0.98	0.21
<b>Total</b>	<b>10.00</b>	<b>2.10</b>

PROPOSED RUN OFF

5/20/22

Proposed Volume Required

Lumber Technology, Inc. - Testing Facility  
 4300 Thornapple River Drive  
 Grand Rapids, MI 49508

Design of Runoff (Stormwater Management)  
 Design Storm: 2.5" (1.01 in)  
 Time of Concentration: 15.0 min  
 Runoff Coefficient: 0.45  
 Peak Runoff: 1.18 cfs  
 Volume: 1.18 cfs x 15 min = 10.62 cu ft

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 Design Storm: 2.5" (1.01 in)  
 Time of Concentration: 15.0 min  
 Runoff Coefficient: 0.45  
 Peak Runoff: 1.18 cfs  
 Volume: 1.18 cfs x 15 min = 10.62 cu ft

Design of Runoff (Stormwater Management)  
 Design Storm: 2.5" (1.01 in)  
 Time of Concentration: 15.0 min  
 Runoff Coefficient: 0.45  
 Peak Runoff: 1.18 cfs  
 Volume: 1.18 cfs x 15 min = 10.62 cu ft

PROPOSED VOLUME REQUIRED

4/20/22

Proposed Volume Provided

Area	Area (Acres)	Runoff (CFS)
Tributary Area #1 (West)	5.75	1.18
Tributary Area #2 (East)	2.66	0.58
Proposed Building	0.61	0.13
Proposed Gravel	0.98	0.21
<b>Total</b>	<b>10.00</b>	<b>2.10</b>

PROPOSED VOLUME PROVIDED

4/20/22

Staged Release

Area	Area (Acres)	Runoff (CFS)
Tributary Area #1 (West)	5.75	1.18
Tributary Area #2 (East)	2.66	0.58
Proposed Building	0.61	0.13
Proposed Gravel	0.98	0.21
<b>Total</b>	<b>10.00</b>	<b>2.10</b>

STAGED RELEASE

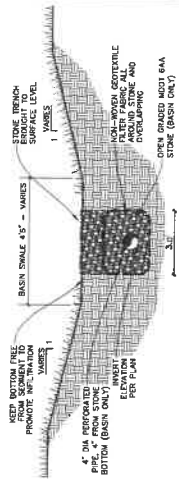
NOT FOR CONSTRUCTION

LUMBER TECHNOLOGIES, INC. - TESTING FACILITY  
 4300 THORNAPPLE RIVER DRIVE  
 GRAND RAPIDS, MI 49508

**Prein & Newhof**  
 ENGINEERS ARCHITECTS PLANNERS

PROJECT NO. 2220234  
 SHEET NO. 4 of 7  
 TRIBUTARY AREAS

NO.	REVISIONS	BY	DATE
1	REVISED	APR 22	2022
2	REVISED	APR 22	2022



**DETENTION BASIN**  
SCALE: 1/8" = 1'-0"



**2' DIAMETER INLET W/ SUMP**  
SCALE: 1/8" = 1'-0"



**UNDERDRAIN SECTION**  
SCALE: NONE



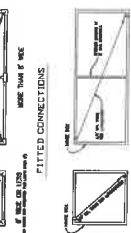
**GRAVEL SECTION**  
SCALE: NONE

**GATE FRAME AND GATE POST, DIMENSIONS AND WEIGHTS**

DESCRIPTION	SECTION	HEIGHT (IN)	WIDTH (IN)	WEIGHT (LBS)
1. 1/2" DIA. 1/2" DIA. PIPE	1	120	120	100
2. 1/2" DIA. 1/2" DIA. PIPE	2	120	120	100
3. 1/2" DIA. 1/2" DIA. PIPE	3	120	120	100
4. 1/2" DIA. 1/2" DIA. PIPE	4	120	120	100
5. 1/2" DIA. 1/2" DIA. PIPE	5	120	120	100
6. 1/2" DIA. 1/2" DIA. PIPE	6	120	120	100
7. 1/2" DIA. 1/2" DIA. PIPE	7	120	120	100
8. 1/2" DIA. 1/2" DIA. PIPE	8	120	120	100
9. 1/2" DIA. 1/2" DIA. PIPE	9	120	120	100
10. 1/2" DIA. 1/2" DIA. PIPE	10	120	120	100
11. 1/2" DIA. 1/2" DIA. PIPE	11	120	120	100
12. 1/2" DIA. 1/2" DIA. PIPE	12	120	120	100
13. 1/2" DIA. 1/2" DIA. PIPE	13	120	120	100
14. 1/2" DIA. 1/2" DIA. PIPE	14	120	120	100
15. 1/2" DIA. 1/2" DIA. PIPE	15	120	120	100
16. 1/2" DIA. 1/2" DIA. PIPE	16	120	120	100
17. 1/2" DIA. 1/2" DIA. PIPE	17	120	120	100
18. 1/2" DIA. 1/2" DIA. PIPE	18	120	120	100
19. 1/2" DIA. 1/2" DIA. PIPE	19	120	120	100
20. 1/2" DIA. 1/2" DIA. PIPE	20	120	120	100



**GATE FRAMES**  
SCALE: 1/8" = 1'-0"



**GATE POST & CONCRETE BASE**  
SCALE: 1/8" = 1'-0"



**TYPICAL GATE INSTALLATIONS**  
SCALE: 1/8" = 1'-0"



**TYPICAL FENCE LAYOUT**  
SCALE: 1/8" = 1'-0"

**GENERAL NOTES:**

1. ALL MATERIALS SHALL BE OF THE HIGHEST QUALITY AVAILABLE AND SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE ENGINEER.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

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5. THE CONTRACTOR SHALL MAINTAIN ADEQUATE DRAINAGE AND EROSION CONTROL MEASURES THROUGHOUT THE PROJECT.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND RESTORATION OF ALL VEGETATION AND SOILS.

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**BARBED WIRE EXTENSION ARMS**

TYPE No. 1  
TYPE No. 2

SCALE: 1/8" = 1'-0"

**BARBED WIRE EXTENSION ARMS**  
SCALE: 1/8" = 1'-0"

**WIRE, GALV. CL. 12**

SCALE: 1/8" = 1'-0"

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**CONCRETE**

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**CONCRETE**  
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**STEEL**

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**STEEL**  
SCALE: 1/8" = 1'-0"

**BRASS**

SCALE: 1/8" = 1'-0"

**BRASS**  
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**PAINT**

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**GLASS**

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**BRICK**

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**ROOFING**

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**INSULATION**

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**INSULATION**  
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**ELECTRICAL**

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**ELECTRICAL**  
SCALE: 1/8" = 1'-0"

**PLUMBING**

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**PLUMBING**  
SCALE: 1/8" = 1'-0"

**HEATING**

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**HEATING**  
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**Cooling**

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**Cooling**  
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**Lighting**

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**Lighting**  
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**Acoustics**

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**Security**

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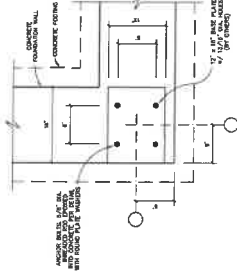
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**PAINT**  
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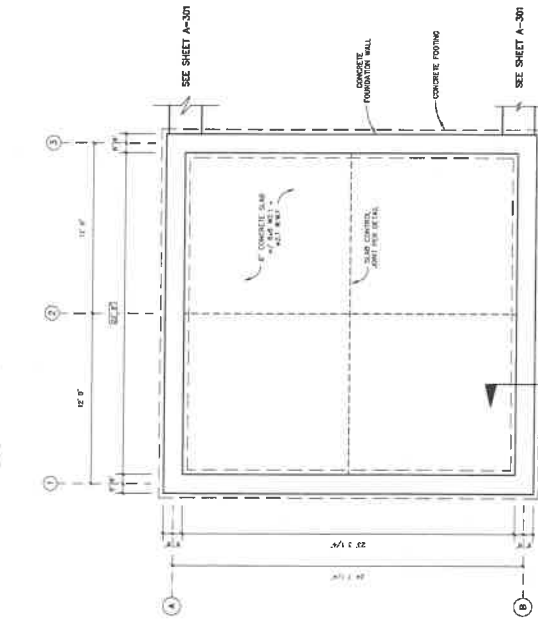
**GLASS**

SCALE: 1/8" = 1'-0"

**GLASS**  
SCALE: 1/8" = 1'-0"



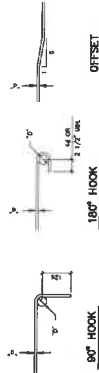
**BASE PLATE DETAIL**  
SCALE: 1" = 1'-0"



**FOUNDATION & SLAB PLAN**  
SCALE: 1/4" = 1'-0"

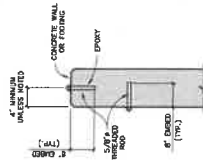
**FOUNDATION & SLAB PLAN NOTES**

1. SLAB SHALL BE CAST IN PLACE CONCRETE WITH STRUCTURAL ORANGE (SLAB LEVEL = 78.0' MEAN SEA LEVEL ON ONE OF THE PILES).
2. ALL PILES SHALL BE CAST IN PLACE CONCRETE WITH STRUCTURAL ORANGE (PILE LEVEL = 78.0' MEAN SEA LEVEL ON ONE OF THE PILES).
3. ALL PILES SHALL BE CAST IN PLACE CONCRETE WITH STRUCTURAL ORANGE (PILE LEVEL = 78.0' MEAN SEA LEVEL ON ONE OF THE PILES).
4. ALL PILES SHALL BE CAST IN PLACE CONCRETE WITH STRUCTURAL ORANGE (PILE LEVEL = 78.0' MEAN SEA LEVEL ON ONE OF THE PILES).
5. ALL PILES SHALL BE CAST IN PLACE CONCRETE WITH STRUCTURAL ORANGE (PILE LEVEL = 78.0' MEAN SEA LEVEL ON ONE OF THE PILES).
6. ALL PILES SHALL BE CAST IN PLACE CONCRETE WITH STRUCTURAL ORANGE (PILE LEVEL = 78.0' MEAN SEA LEVEL ON ONE OF THE PILES).
7. USE PRECAST JOINT PILES SHALL BE USED WHEN EXTENSION SHALL BE ADJUSTED TO MATCH FOUNDATION.



**REBAR BENDS & END HOOKS**  
SCALE: NONE

- NOTE**
1. 90° FOR #3 THRU #6
  2. 180° FOR #3 THRU #6
  3. 180° FOR #7 THRU #11
  4. 180° FOR #12 THRU #18
- ALL BENDS SHALL BE MADE COLD



**EPOXY ADHESIVE ANCHORS**  
SCALE: NONE

- NOTES**
1. HOLE SIZE SHALL BE AS PER EPOXY MANUFACTURER'S RECOMMENDATION.
  2. HOLE SIZE SHALL BE AS PER EPOXY MANUFACTURER'S RECOMMENDATION.
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  5. HOLE SIZE SHALL BE AS PER EPOXY MANUFACTURER'S RECOMMENDATION.
  6. HOLE SIZE SHALL BE AS PER EPOXY MANUFACTURER'S RECOMMENDATION.
  7. SPECIAL INSPECTION OF ANCHOR INSTALLATION IS REQUIRED.

**GENERAL STRUCTURAL NOTES**

- GENERAL**
1. CONTRACTOR SHALL CONFORM TO THE LATEST EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION INC. (AISC) SPECIFICATIONS FOR STRUCTURAL STEEL CONNECTIONS.
  2. CONTRACTOR SHALL VERIFY AND PROTECT EXISTING WALLS AND STRUCTURES.
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  100. CONTRACTOR SHALL VERIFY AND PROTECT EXISTING WALLS AND STRUCTURES.



**CONTROL/CONSTRUCTION JOINT**  
SCALE: 3/4" = 1'-0"

**NOTE**

SAW CUT WITHIN 12 HOURS OF FINISHING

NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
1		J.E.V./E.S.D.	APR 22
2		J.E.V./E.S.D.	APR 22
3		J.E.V./E.S.D.	APR 22
4		J.E.V./E.S.D.	APR 22
5		J.E.V./E.S.D.	APR 22
6		J.E.V./E.S.D.	APR 22
7		J.E.V./E.S.D.	APR 22
8		J.E.V./E.S.D.	APR 22
9		J.E.V./E.S.D.	APR 22
10		J.E.V./E.S.D.	APR 22

**Prein&Newhof**  
Engineers, Surveyors & Environmental Scientists



**LEGEND**

[Symbol]	CONSTRUCTION AREA
[Symbol]	STAGING & STORAGE AREA
[Symbol]	ACCESS ROUTE
[Symbol]	RPA
[Symbol]	RPA PROTECTION ZONE (RPA)
[Symbol]	RSA
[Symbol]	RSA PROTECTION ZONE (RSA)
[Symbol]	RPA
[Symbol]	RPA PROTECTION ZONE (RPA)
[Symbol]	RSA
[Symbol]	RSA PROTECTION ZONE (RSA)
[Symbol]	BUILDING RESTRICTION LINE
[Symbol]	100
[Symbol]	FOR PAVEMENT
[Symbol]	UNIT RUNWAY CLOSED MARKER
[Symbol]	LIGHTED RUNWAY CLOSED MARKER
[Symbol]	PROJECT COORDINATE LOCATION
[Symbol]	BARRETT PLACEMENT (BY PHASE)
[Symbol]	COSTING PAVEMENT
[Symbol]	EXISTING BUILDING

**CONSTRUCTION SAFETY AND OPERATION NOTES**

1. THE NOTICE TO PROCEED FOR THE CONTRACT WORK IS ANTICIPATED TO BE ISSUED IN APRIL 2022.
2. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING UTILITIES AND SERVICES AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AND STATE AUTHORITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AND STATE AUTHORITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AND STATE AUTHORITIES.
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**PROJECT COORDINATE TABLE**

POINT #	LOCATION	LATITUDE	LONGITUDE	ELEVATION	MAX. EQUIPMENT HEIGHT	ANSL
101	W1	40°42' 53" 16.94"	80°02' 30" 13.07"	774	35'	804
102	W2	40°42' 53" 16.57"	80°02' 30" 13.84"	781	35'	791
103	W3	40°42' 53" 07.20"	80°02' 30" 02.87"	741	35'	751
104	W4	40°42' 53" 08.87"	80°02' 30" 07.96"	753	35'	763
105	W5	40°42' 53" 14.88"	80°02' 30" 16.31"	760	35'	815

**STAGING AND STORAGE AREA COORDINATES**

POINT #	LOCATION	LATITUDE	LONGITUDE	ELEVATION	MAX. EQUIPMENT HEIGHT	ANSL
200	S1	40°42' 53" 16.94"	80°02' 30" 14.37"	769	35'	804
202	S2	40°42' 53" 13.29"	80°02' 30" 15.07"	771	35'	806
203	S3	40°42' 53" 14.88"	80°02' 30" 16.91"	778	35'	811

**BUILDING COORDINATE TABLE**

POINT #	LOCATION	LATITUDE	LONGITUDE	ELEVATION	MAX. EQUIPMENT HEIGHT	ANSL
301	B1	40°42' 53" 16.50"	80°02' 30" 13.07"	769	14'	782
302	B2	40°42' 53" 15.37"	80°02' 30" 13.29"	768	14'	781
303	B3	40°42' 53" 14.17"	80°02' 30" 14.57"	768	14'	781
304	B4	40°42' 53" 07.81"	80°02' 30" 04.57"	768	14'	781
305	B5	40°42' 53" 07.20"	80°02' 30" 06.07"	768	14'	781
306	B6	40°42' 53" 07.20"	80°02' 30" 05.07"	768	14'	781



PREPARED BY: LUMINA TECHNOLOGIES, INC. - TESTING FACILITY  
 DATE: APR 22  
 SHEET NO.: 2202034  
 PROJECT NO.: 4300 THORNAPPLE RIVER DRIVE  
 DRAWN BY: [Name]  
 CHECKED BY: [Name]  
 DATE: APR 22  
 SCALE: AS SHOWN  
 PROJECT: CONSTRUCTION SAFETY PHASING PLAN  
 7 OF 7

**Prein & Newhof**  
 ENGINEERS ARCHITECTS INTERIORS LANDSCAPE ARCHITECTS



LUMINAR

# GRR-Long Range Test Facility (LRF) PROJECT

6 & 7 April 2022  
Gerald R. Ford Airport, Grand Rapids MI

# ATTENDEES INTRODUCTION - LUMINAR



- ★ Brooke Swartzlander - Director of System Test and Validation
- ★ Allyn Basore - Program Manager, LRF300m Project
- ★ Yogesh Kanabar - Test and Validation Lead for Vertex
- ★ Matt Loory - Facilities Manager

## AGENDA - Day 1 Thursday 4/7/2022



1. Meet 'n Greet with GRR / Lunch
2. Introductions, project team and organization
3. Project Overview, Timing, Status & Risks
  - a. Company Overview
  - b. LRF300m Project description
  - c. Project timing and key milestones: GRR Lease, Permitting
  - d. Current status
  - e. Roadblocks and project risks
4. Risk review and mitigation strategy discussion
5. Site walk with GRR and Thornapple
6. Wrap-up

## AGENDA - Day 2 Thursday 4/7/2022



1. Weekly Project build status meeting
2. LRF300m Interior Design Review with Intertek

# COMPANY OVERVIEW

Q1 2022

# LUMINAR



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## THE NEED TO INCREASE SAFETY

**1M+**

vehicle fatalities globally

**50**

million injuries

Source: WHO, esurance

During an average person's lifetime, they will experience three to four accidents.

The majority of vehicles will experience an accident over a 10 year span of operating.



**OUR VISION**

**Eradicate vehicle accidents**

## OUR STRATEGY



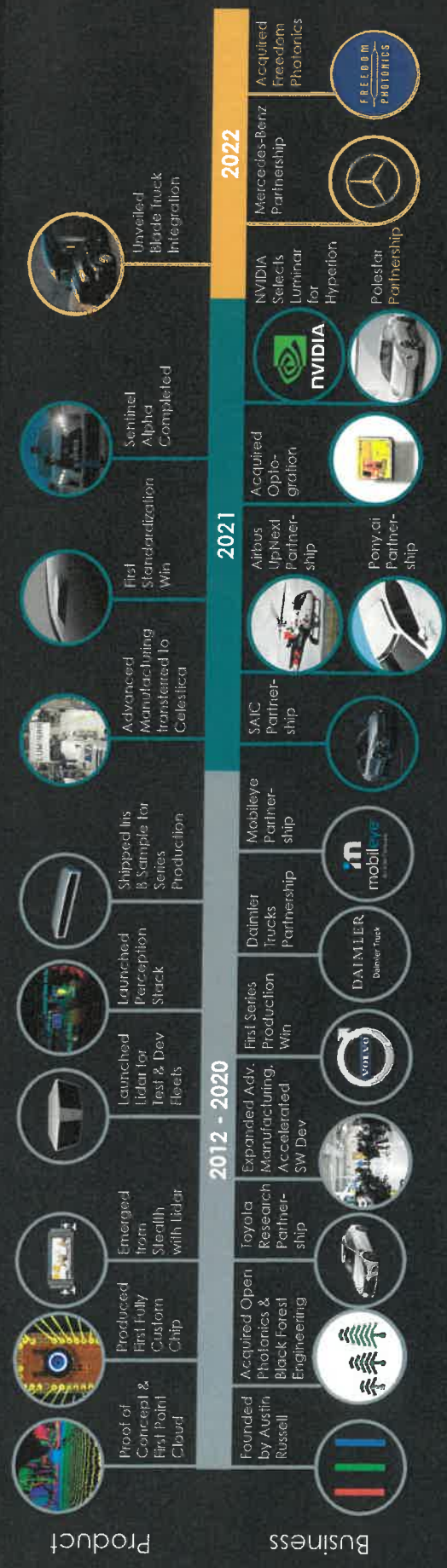
**1** Create the **world's best lidar** for production cars & trucks

**2** **Launch and enable** the safest & most advanced production vehicles on the road

**3** Enable **Proactive Safety™** & **highway autonomy** across all major automakers

**4** Provide advanced **safety to all**, while enabling paid upgrades for autonomy

# ESTABLISHED FOUNDATION FOR RAPID GROWTH



## A GLOBAL FOOTPRINT

**PALO ALTO, CA**  
Operations, Software Engineering

**ORLANDO, FL**  
Hardware Engineering, R&D, Manufacturing

**DETROIT, MI**  
BD, Program Support

**WASHINGTON, DC**  
Government Affairs

**COLORADO SPRINGS, CO**  
Chip Design

**GERMANY**  
Software Engineering, Customer Integration

## 50+ PARTNERS

**CHINA**  
Business Development, Program Support

**SWEDEN**  
Business Development, Program Support

**ISRAEL**  
Business Development, Program Support

**JAPAN**  
Business Development, Program Support

**INTEGRATION PARTNERS:**

## SERIES PRODUCTION / MAJOR CUSTOMER WINS

**MAJOR CUSTOMER WINS:**

**SERIES PRODUCTION:**

# LEADERSHIP TEAM



**Austin Russell**

Founder & CEO

Industry Pioneer  
30 Under 30 Lead & Thiel Fellow



**Jason Eichenholz, PhD**

Co-Founder & CTO

Optics Industry Executive  
Ocean Optics CTO



**Tom Fennimore**

CFO

Global Head of Automotive IBD  
@ Goldman Sachs / Jefferies



**Sameer Ladiwala**

Chief Accounting Officer

Chief Account Officer @ Arm



**Chris Charlton**

Chairman

Automotive Advisory Board



**Alan Prescott**

General Counsel

Chief Counsel @ Tesla



**Jason Wajack**

Engineering

VP of Engineering @ Motorola



**Christoph Schroeder, PhD**

Software

Autonomous Industry Leader  
VP Autonomy @ Mercedes



**Brent Schwarz**

Business Development

VP, Sales & Marketing @ Velodyne  
Founded LIDAR Co. (Acq. by Uber)



**Marc Losiewicz**

Business Development

VP ADAS and Global Safety  
@ ZF



**Nicole Phelan**

Marcum & Chief of Staff

AV Industry Comms Leader  
VP, Launch Squad



**Steve Gaalema, PhD**

ASIC Design

President @ Black Forest  
Engineering (Acq. by Luminar)



**Joe LaChapelle**

R&D

Leading Expert on LIDAR &  
InGAs receiver technology



**Leslie Della Russo**

People

Senior HR Professional



**Vijay Albuquerque**

Strategic Initiatives

Optics Industry CEO / COO  
Led Laser Co Acq. for \$300m



**Cheryl Zula**

Sourcing and Materials

VP of Electronics, Global  
Purchasing at Stellantis



**Debbie Poppas**

Global Quality

VP Quality @ PACCAR



**Trey Campbell**

Investor Relations

VP of Investor Relations, Intel



**Aaron Jefferson**

Product

VP Product Strategy, Global  
Electronics @ ZF



**Sardar Gauham**

Operations & Alignment

Head of Hardware Strategy @  
Waymo



# DEMOCRATIZING SAFETY AND AUTONOMY



## PROACTIVE SAFETY™



L0



L1/L2



L3/L4

### Enhanced & extended functionality

- Substantially improved Automatic Emergency Braking (AEB)
- Improved safety with small object detection
- Enables Automatic Emergency Steering (AES)
- Reliable ACC (> 10x fewer driver interventions)
- Reliable Lane Centering Control in more scenarios extended to urban environments

## HIGHWAY AUTONOMY

### Enabled new functionality

- First to enable highway autonomy on production vehicles
- Reduces impact of driver distraction at high speed
- Eyes-off functionality gives time back to the driver vs constantly paying attention

# ENABLED BY SUPERIOR SENSING



## — IRIS LIDAR SENSOR

Range and resolution performance enable highway autonomy



**600m Max Range**  
250m @ <10% reflectivity

**Camera-Like Resolution**  
>300 points per square degree

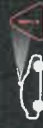
**120° Field of View**  
Dynamic Vertical FoV

**High Data Fidelity**  
1 cm Range Precision

## — SAFETY AT HIGH SPEEDS



seconds of reaction time at 65 mph with Luminar



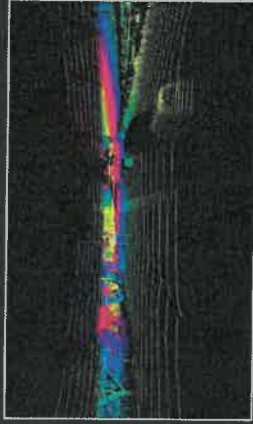
second of reaction time at 65 mph without Luminar

## — SOFTWARE

**SENSOR CONTROL & INTEGRATION**

**300pt/sqdeg**

All-weather operation



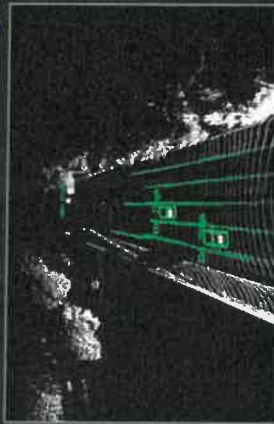
**OBJECT DETECTION & CLASSIFICATION**

**250m**



**LANE & ROAD TRACKING**

**150m**



# PROPRIETARY TECH ENABLING INDUSTRY-LEADING PERFORMANCE



## BREAKTHROUGH INNOVATIONS

## INDUSTRY-LEADING PERFORMANCE



Receiver

Ultra high efficiency, low-cost architecture



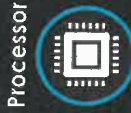
Scanner

Dynamic scanning with low-mass, auto-grade mirrors



Emitter

Proprietary hybridized low-cost 1550nm laser



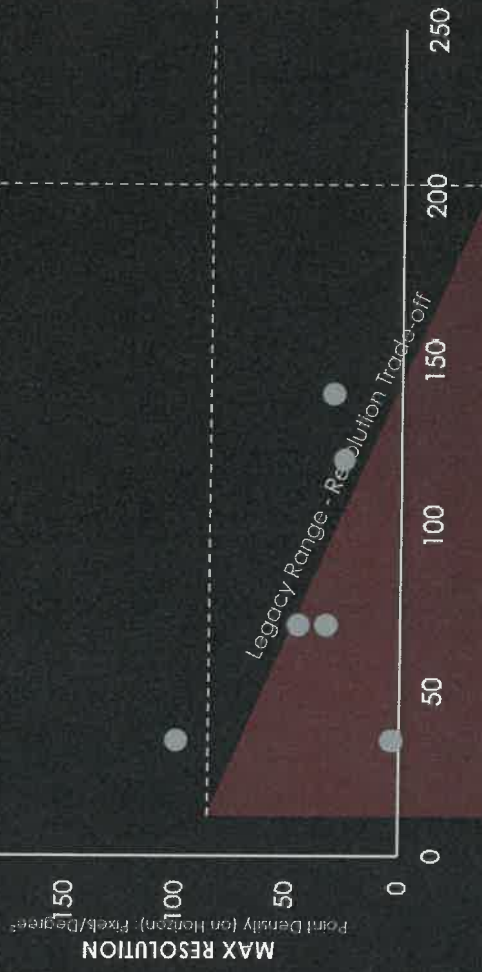
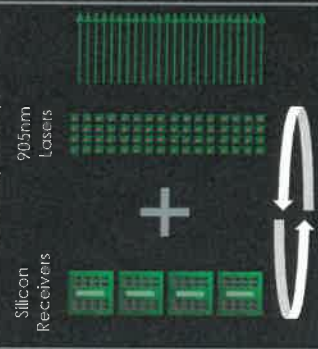
Processor

4<sup>th</sup> major generation Luminar ASICs, designed from scratch in-house

## PROPRIETARY ARCHITECTURE

Luminar Lidar Architecture

Traditional lidar Architecture (Spinning Turret)



**RANGE**  
Meters, 5% Reflectivity (Dark Objects)

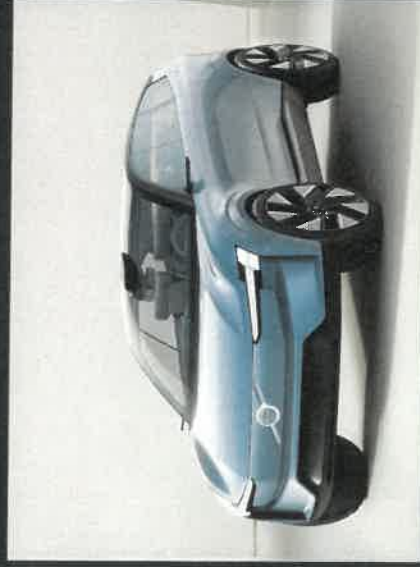


Note: All data sourced from company spec sheets & physics. OEM requirement based on Luminar's assessment of OEM RfK.

# ENABLING SAFETY AND AUTONOMY ACROSS VERTICALS



Consumer Vehicle  
1 lidar configuration



Trucking  
1-4 lidar configuration



Robo-taxi  
4 lidar configuration



# LANDMARK COMMERCIAL PRODUCTION DEAL WITH VOLVO

# V O L V O

## 2022E START OF PRODUCTION



Volvo, a global leader in automotive safety, is setting new safety and technology standards by partnering with Luminar to enable its first fully self-driving technology for highways in next-generation production vehicles

Leveraging Luminar's hardware and software for series production also paves the way for future active safety developments

Flagship customer de-risks industrialization, enables economies of scale, and accelerates widespread adoption

### — POWER OF DATA



Collecting data for continuous software improvement



Over-the-air updates enable performance capability and safety upgrades over time



Validates technology and de-risks industrialization



Enables economies of scale required for enhanced unit economics



Completed Volvo's comprehensive RFQ audits



Auto qualification accelerates transition of OEM partners to series production across the industry

### — INDUSTRIALIZATION

# MERCEDES-BENZ: MAJOR COMMERCIAL WIN

Luminar's Iris lidar technology planned to be integrated into production vehicle platform.



Enables enhanced safety and autonomy on Mercedes-Benz next generation cars



Validates technology and Luminar holistically as a direct partner to the leading luxury vehicle OEM



Data from development and production vehicles to be provided to Luminar for continuous product improvement and updates



Further enables economies of scale required for unit economics



On-site collaboration in Florida, California and Germany, and strategic guidance to accelerate industrialization



"Luminar is the perfect addition to our existing roster of first-class cooperations with leading and cutting-edge tech companies."



~ Markus Schäfer

Member of the Board of Management of Daimler AG  
Mercedes-Benz AG, Chief Technology Officer

# LANDMARK COMMERCIAL TRUCKING PARTNERSHIP ANNOUNCED



DAIMLER | Daimler Truck



“Luminar has pioneered a critical enabling technology for bringing automated vehicles to the road, and we’re excited to work closely with them to drive this technology forward. Their company has proven visionary in its focus and unique ability to enable long-range sensing and high-speed driving on the highway. Our common goal is to enable safe deployment of highly automated trucks and shape the future of the trucking and logistics industry at large.”

Dr. Peter Vaughan Schmidt  
Head of Autonomous Technology Group at Daimler Trucks

## — DAIMLER



40% Market Share of North American Class 8 Truck Market



Pursuing a common goal of bringing series-produced highly automated (L-4) trucks to roads globally



Daimler acquired a minority stake in Luminar

## — TRUCK MARKET VALUE PROPOSITION



Dramatic improvements in efficiency, safety, utilization, hours of service and operating expenses



Leveraging same Luminar hardware and software as passenger vehicles for highway autonomy



Opportunity to reduce annual insurance premiums and relatively unfavorable insurance loss ratios

# LANDMARK COMMERCIAL DEAL WITH MOBILEYE

## Partnering with ADAS Leader

Signed production deal for Mobileye's AV Series solution offering as they advance from ADAS to Autonomy



## Enabling Autonomy

While cameras alone are sufficient for basic Level 2 assisted driving, Levels 3-5 autonomy requires high-performance lidar. Mobileye's camera solution and Luminar's lidars are complementary to achieve required redundant safety.

## For All Markets

Mobileye's AV Series solution can enable both OEM and Mobility-as-a-Service markets, which includes launch of Mobileye's robo-taxi fleet at global scale



## Key Points



Top global company for ADAS; 54M product shipped to date; ~80% L2 Market Share



Deep working relationships with majority of major global OEMs



High-volume business opportunity; Contributes to Luminar's \$1.3B estimated order book



Validates Luminar's position as automotive technology leader



Validation of high-performance lidar's critical role to achieving safe autonomy



Mobileye AV Series solution incorporates Luminar lidar built for series production

# EXPANSION INTO CHINA WITH STRATEGIC PARTNERSHIP



上汽集团  
SAIC MOTOR



We have partnered with China's largest automaker to deeply integrate lidar and software technology into its new production EV line launching next year with the parties' longer-term goal being widespread standardization across all vehicle lines.

As part of the close collaboration, Luminar will also be establishing an office in China, to be located in Shanghai alongside SAIC Motor, where SAIC would also be providing local support for the partnership.



Luminar will establish a presence in Shanghai via co-location with SAIC.



SAIC will provide local engineering & project resources to support vehicle integration & system validation.



Enables economies of scale required for enhanced unit economics.

# PARTNERING WITH PONY.AI FOR NEXT-GEN ROBOTAXIS



Pony.ai introduces next-generation autonomous platform with Luminar, launching in five global cities



Pony.ai has now driven more than five million kilometers across an operational coverage area of over 850 km<sup>2</sup> and has provided more than 220,000 robo-taxi rides

Goal of partnership is to increase safe, autonomous driving in complex urban environments with an integrated sensor design that leads from advanced development to production scale

Features a multi-sensor 360-degree configuration and the slimmest profile roofline at just 10cm off of the vehicle roof

# LUMINAR TAKES TO THE SKIES



Luminar expands to focus on making ground and air transportation autonomous and safer for everyone



## Integrating Luminar's Technology into Airbus UpNext's Vertex platform

Primary goal is to increase aircraft safety and ultimately enable autonomous operation with automatic obstacle detection

## Luminar's lidar sensors are key to enabling future technologies, including autonomous urban air mobility (UAM)

Luminar's technology serves as a central basis for safe takeoff, landing and in-flight decision-making

LUMINAR

# LRF300m Project Overview

# LUMINAR and Project Team Partners



LUMINAR

Gerald R Ford Airport Authority



Kent County



Cascade Township



Yellow Stone Architect



Consumers Energy



Thornapple Excavation



ClearSpan



Consumers Energy



ClearSpan Fabric Structures International



Fairview Concrete



Prein & Newhof



Advantage Mechanical Refrigeration



Intertek

AT&T





**Purpose:** Core company infrastructure necessary to characterize, verify and validate Luminar's Lidar sensor performances over the true range of 300m+.

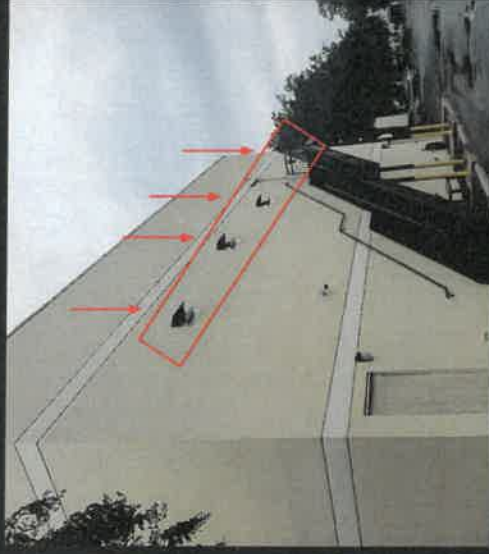
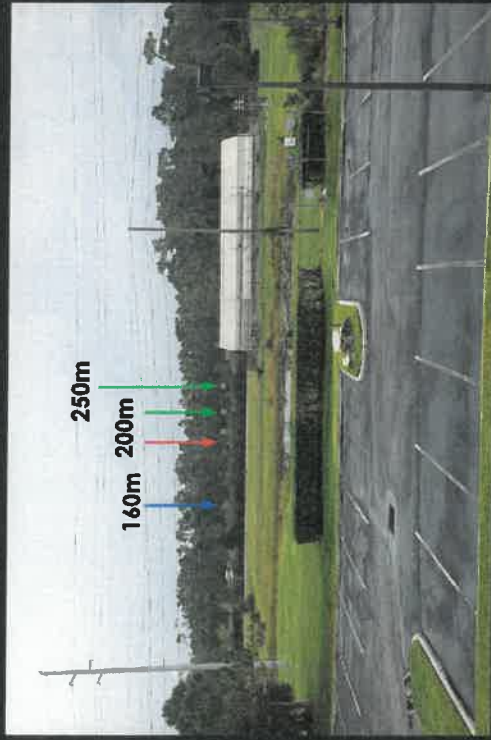
### **Main drivers: Requirements / Repeatability / Reproducibility**

- ✓ Controlled environment for repeatability and reproducibility (over time / over seasons)
- ✓ Lack of sufficient data to support correlation with alternative measurement methods
- ✓ Permanent set up to meet strict MSA requirements and avoid timely setup/teardown
- ✓ Loss of test time due to inclement weather
- ✓ OEM requirements for parameter (performance) testing as a part of DV testing

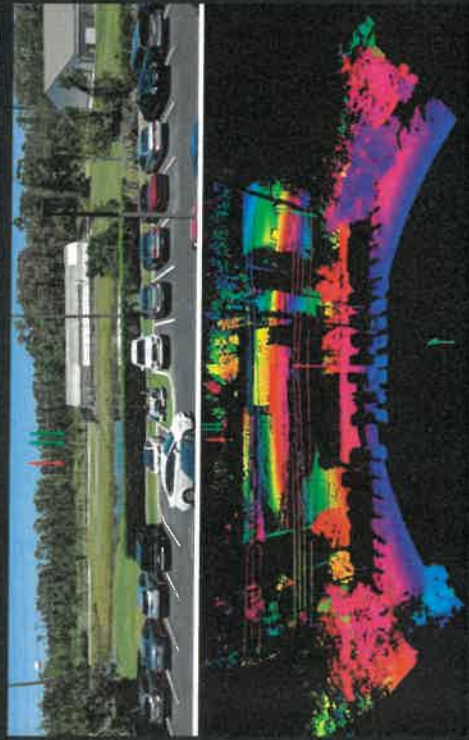
### **Project Timing: Current timing currently at risk**

- ✓ Initial Evaluation: 4 month effort to find the most cost effective solution
- ✓ Location Selection: 2 months to finalize location for structure
- Planning / Design / Procurement: 2-3 months lead time to bring-up infrastructure (material procurement)
- Build: 3 months for site preparation and construction
- Commissioning: Required by July 2022
- Verification / Validation: 1-2 months

# Current setup Range/PoD - 200m



Capability to capture point cloud performance over temp

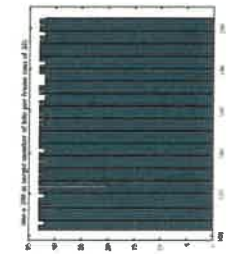


## Probability Of Detection

Site-a estimated PoD is 99%. System is go. High chance of true positive for site-a POD.

Site-b estimated PoD is 95%. System is go. High chance of true positive for site-b POD.

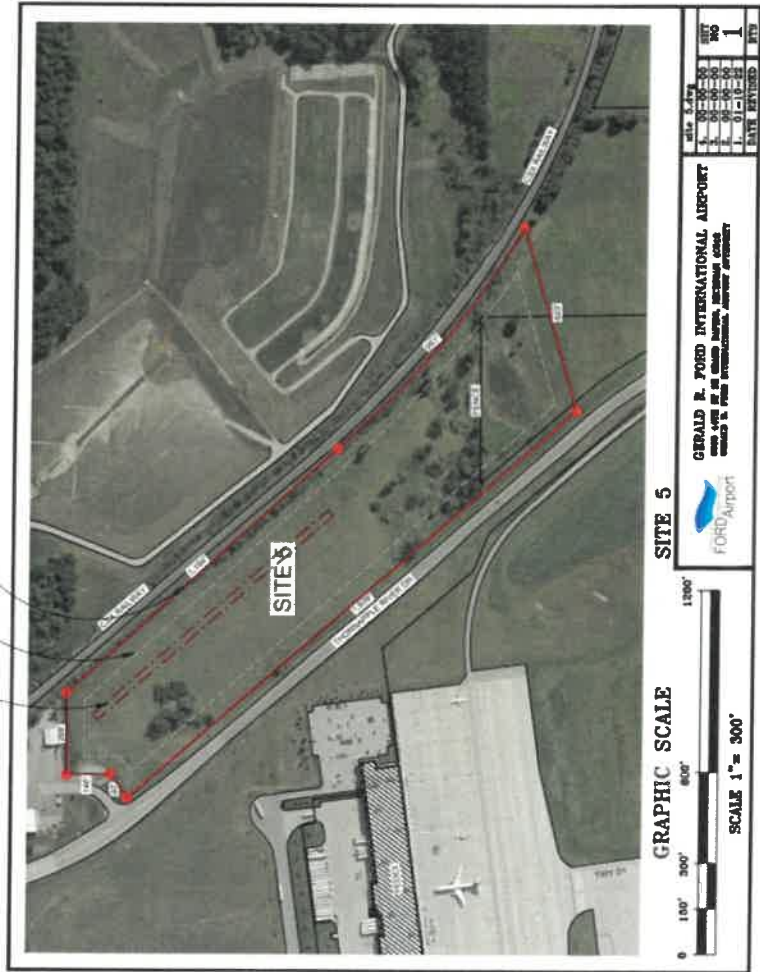
### 6.1. Site A



# LRF300m / Location



- approximate location of proposed structure. Provide 60'-0" minimum clearance on all sides
- Grey dashed line denotes approximate location of 60'-0" setback from property lines
- Red lines denote approximate locations of property lines



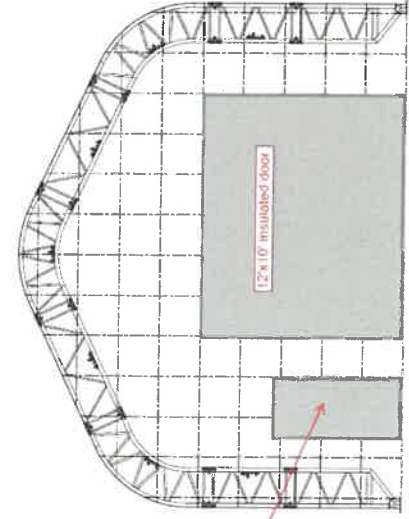
# LRF300m / Outer Structure



PROVIDE A SKETCH OF THE FRONT PROFILE AS SEEN FROM THE OUTSIDE. IDENTIFY ALL OPENINGS. PROVIDE ALL DOOR DIMENSIONS. (SOME RESTRICTIONS MAY APPLY.) IF DOORS ARE TO BE CENTERED IN THE END WALL, WRITE "DOOR CENTERED IN END" ON THE SKETCH. IF NOT CENTERED, PROVIDE THE DIMENSIONS FROM EACH SIDE WE WILL TRY TO ACCOMMODATE. (RESTRICTIONS MAY APPLY.)

PROVIDE A SKETCH OF RAISED CONCRETE WALLS AND PIERS AND ALL ADDITIONAL DETAILS THAT COULD AFFECT FINAL DESIGN.

**FRONT PROFILE: Grid is approximately 24" per square.**

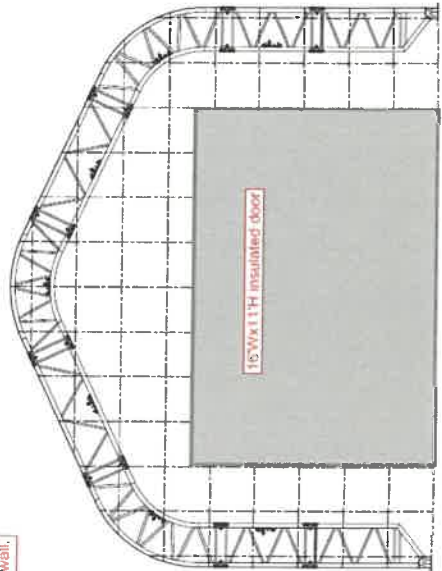


PROVIDE A SKETCH OF THE REAR PROFILE AS SEEN FROM THE OUTSIDE. IDENTIFY ALL OPENINGS. PROVIDE ALL DOOR DIMENSIONS. (SOME RESTRICTIONS MAY APPLY.) IF DOORS ARE TO BE CENTERED IN THE END WALL, WRITE "DOOR CENTERED IN END" ON THE SKETCH. IF NOT CENTERED, PROVIDE THE DIMENSIONS FROM EACH SIDE WE WILL TRY TO ACCOMMODATE. (RESTRICTIONS MAY APPLY.)

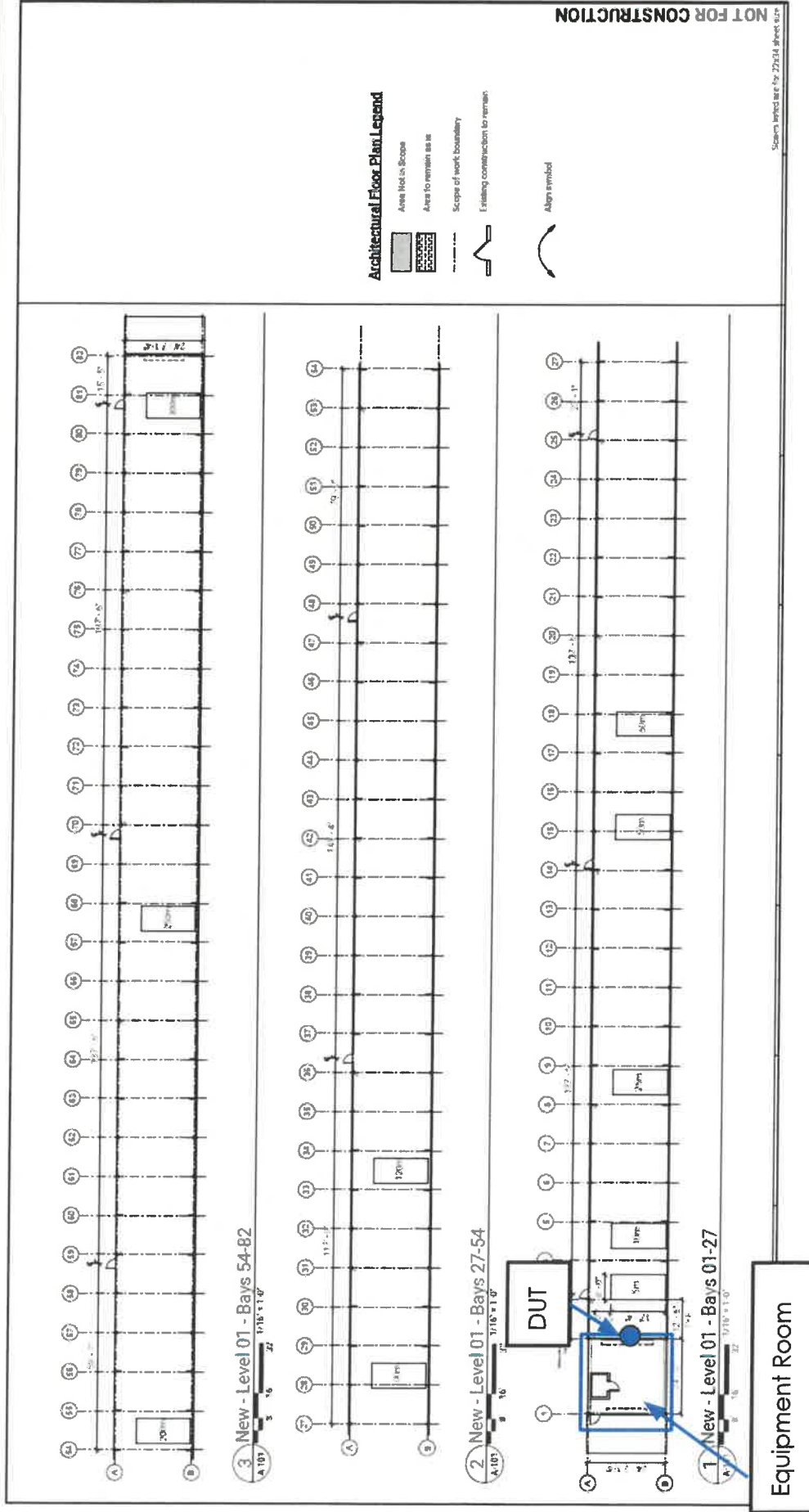
PROVIDE A SKETCH OF RAISED CONCRETE WALLS AND PIERS AND ALL ADDITIONAL DETAILS THAT COULD AFFECT FINAL DESIGN.

**REAR PROFILE: Grid is approximately 24" per square.**

Wall thickness is 24" from west end wall.



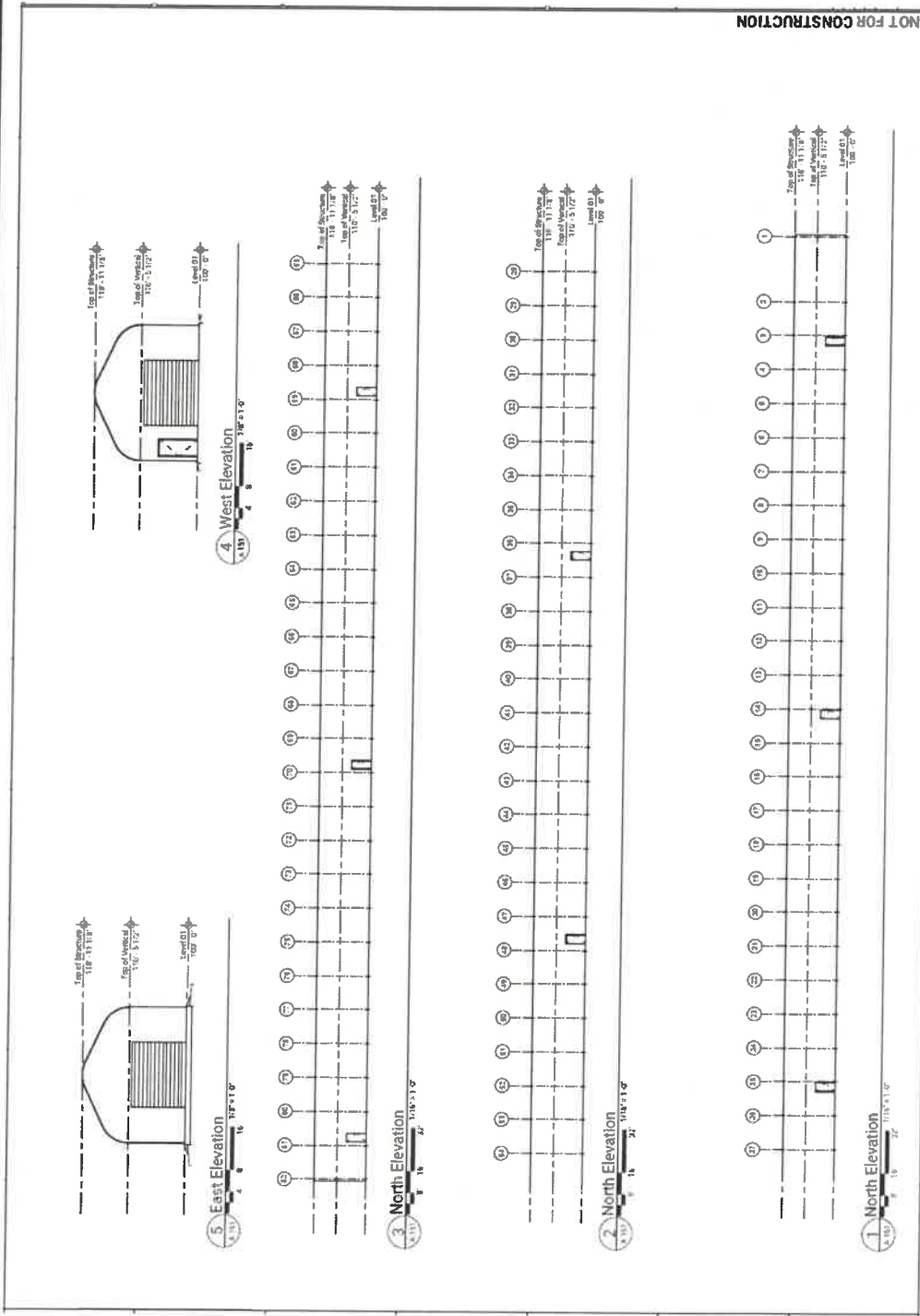
# LRF300m / Interior Structure



# LRF300m / Interior Structure

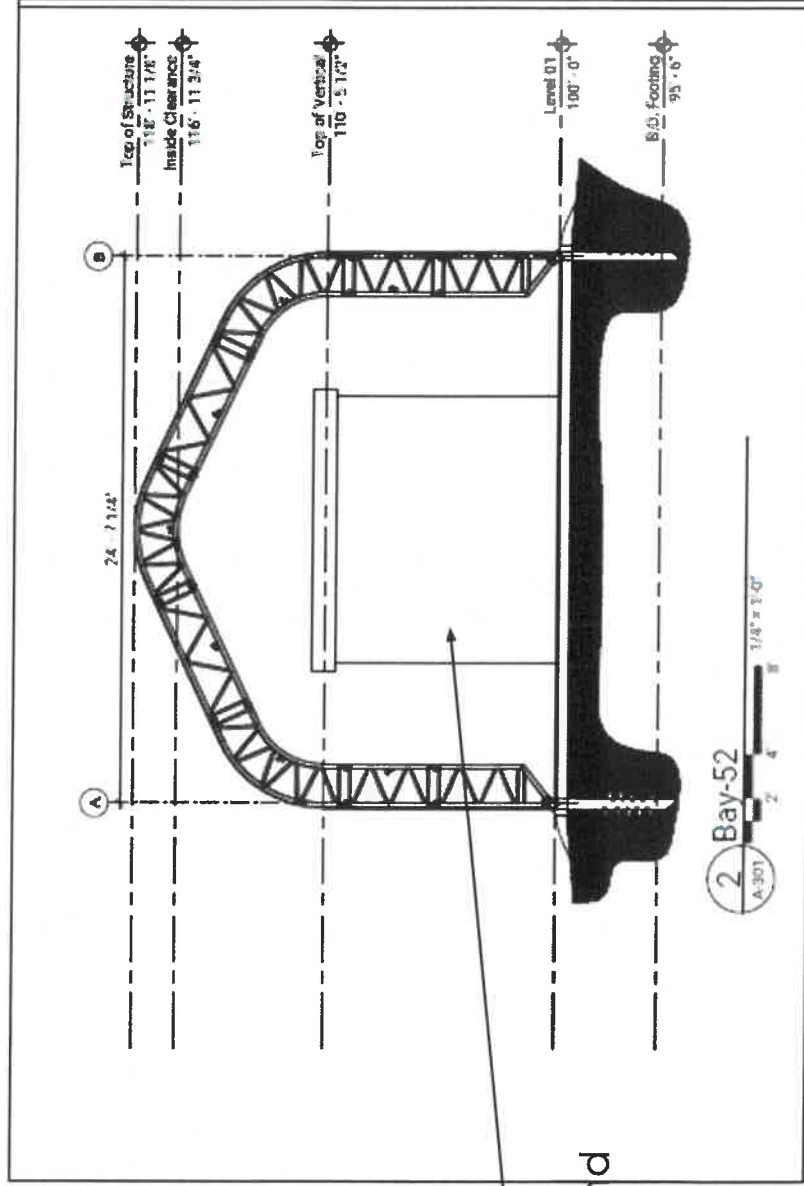


Long range foundations is concrete flooring



NOT FOR CONSTRUCTION

# LRF300m / Dimensions for Reference

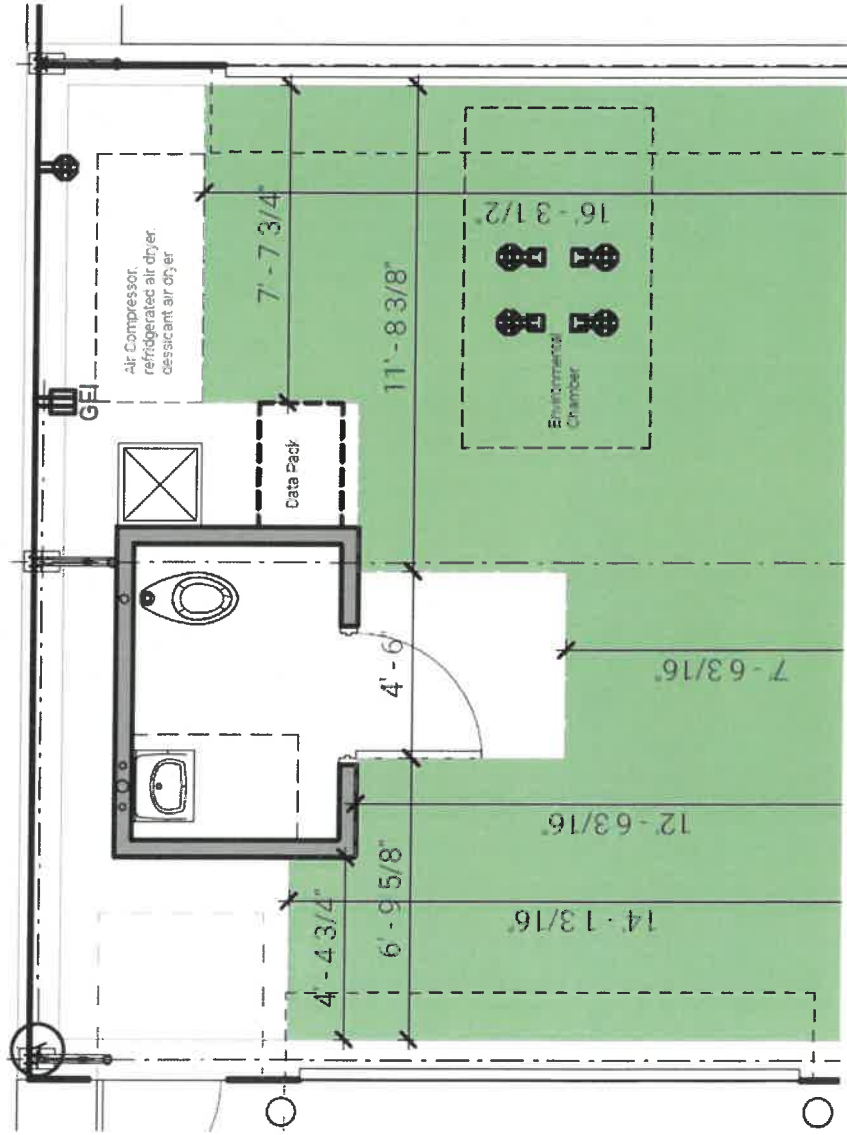


Garage Door at Entrance and Exit Only for the Long Range

# LRF300m / Clearspan Structure - For Visual Reference ONLY



# LRF300m / Bay 01-03

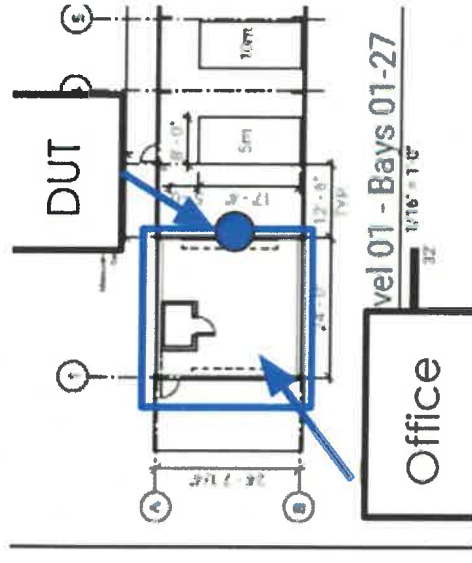




## LRF300m / Structure Open Questions



1. Portion (bays) of interior is climate controlled -
  - See slide 31
2. Exact dimensions for data rack space



LUMINAR

# LRF300m Project Schedule



**Dependencies and Variance:**

- ✓ Force Majeure:
  - Material availability - compression with outsourcing due diligence
  - Permitting - scope, facility classification, and communication strength with Kent and Cascade
  - Weather

LUMINAR

# LRF300m Project Milestones & Risk



## **Milestones**

Authority Lease agreement  
Project supplier Estimates  
Material Receipt  
Site commissioning - July 5 2022

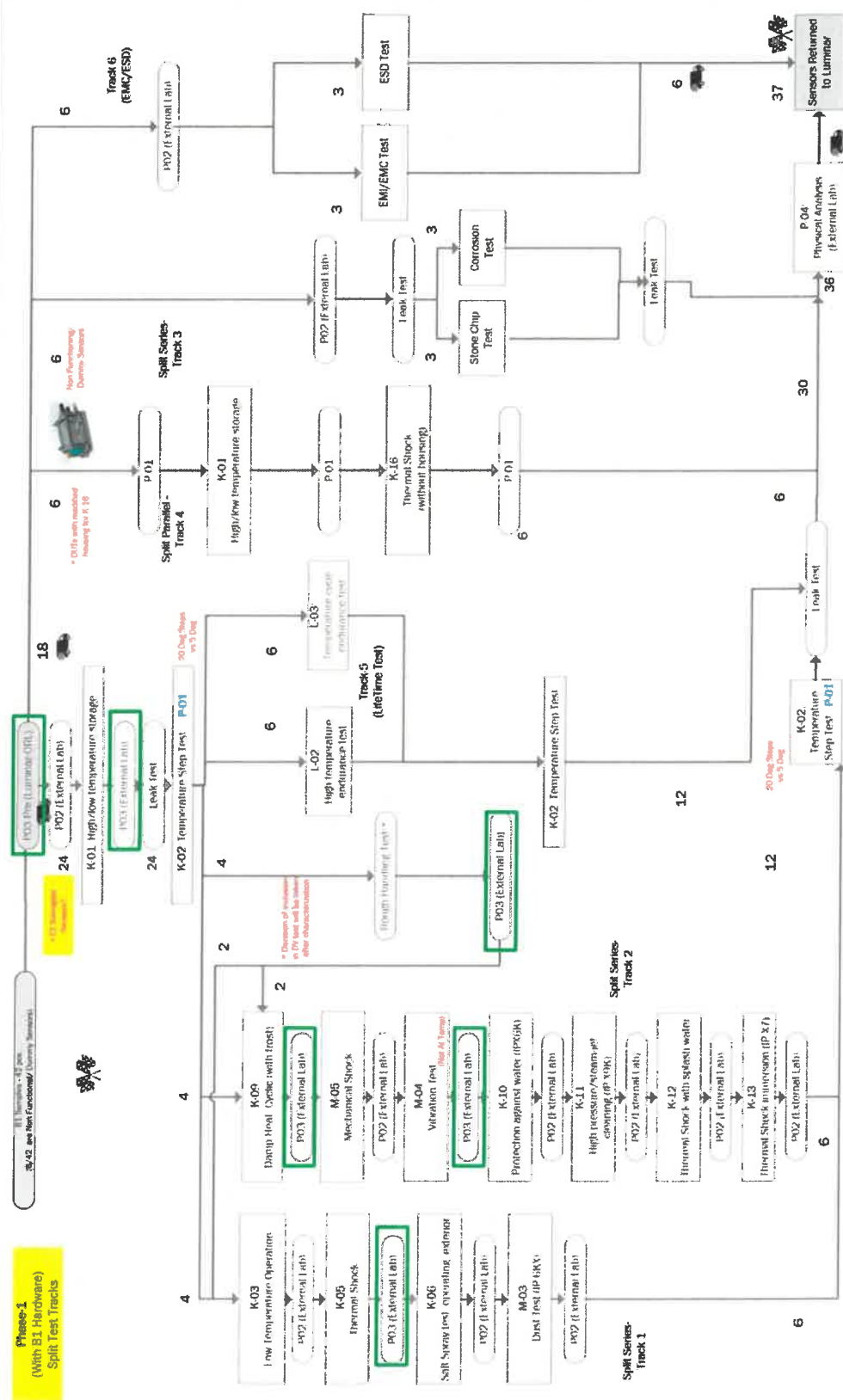
## **Risk**

Permitting: Site Build and Soil Erosion (YS and PN)  
Material receipt due to global shortages and / or logistics gaps (2020 force  
majuer  
One for one schedule impacts  
\*\* Mitigation - compression, parallel paths

LUMINAR

LRF300m Project Interior Design

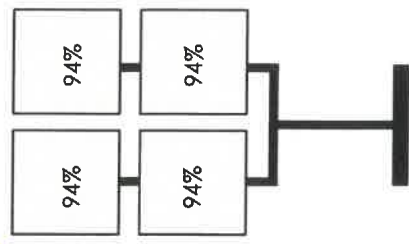
# Vertex DV Program / Split Tracks (DV Test)



# Targets Sample Set - distances varies



1



At: 5,10,25,60,125m  
GAPS shown below

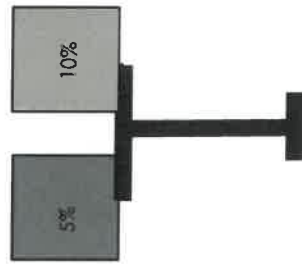
Distance (m)	Target Size (m)	GAP x (m)	GAP y (m)
5	0.5x0.5	0.148	0.056
10	0.5x0.5	0.297	0.112
25	0.5x0.5	0.742	0.279
60	1x1	1.78	0.67
125	1.5x1.5	3.56	1.34

2



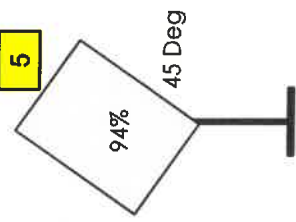
At: 10,25,60,120m  
At 120m: Max Individual Target size is 1m  
NO GAPS

3



At: 50,100,200,250, 300m  
GAPS: 0.5m

5



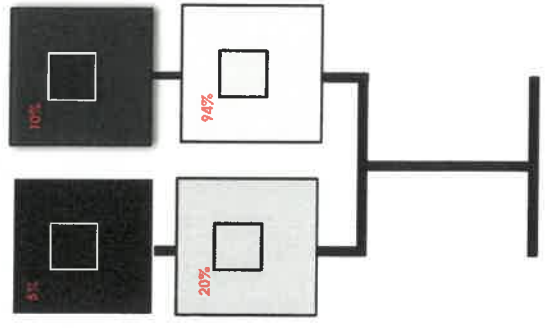
At: 5,10,25,60,120m

6



At: 15,35,70,100,130, 250, 300m  
Size: 36" at all distances

4



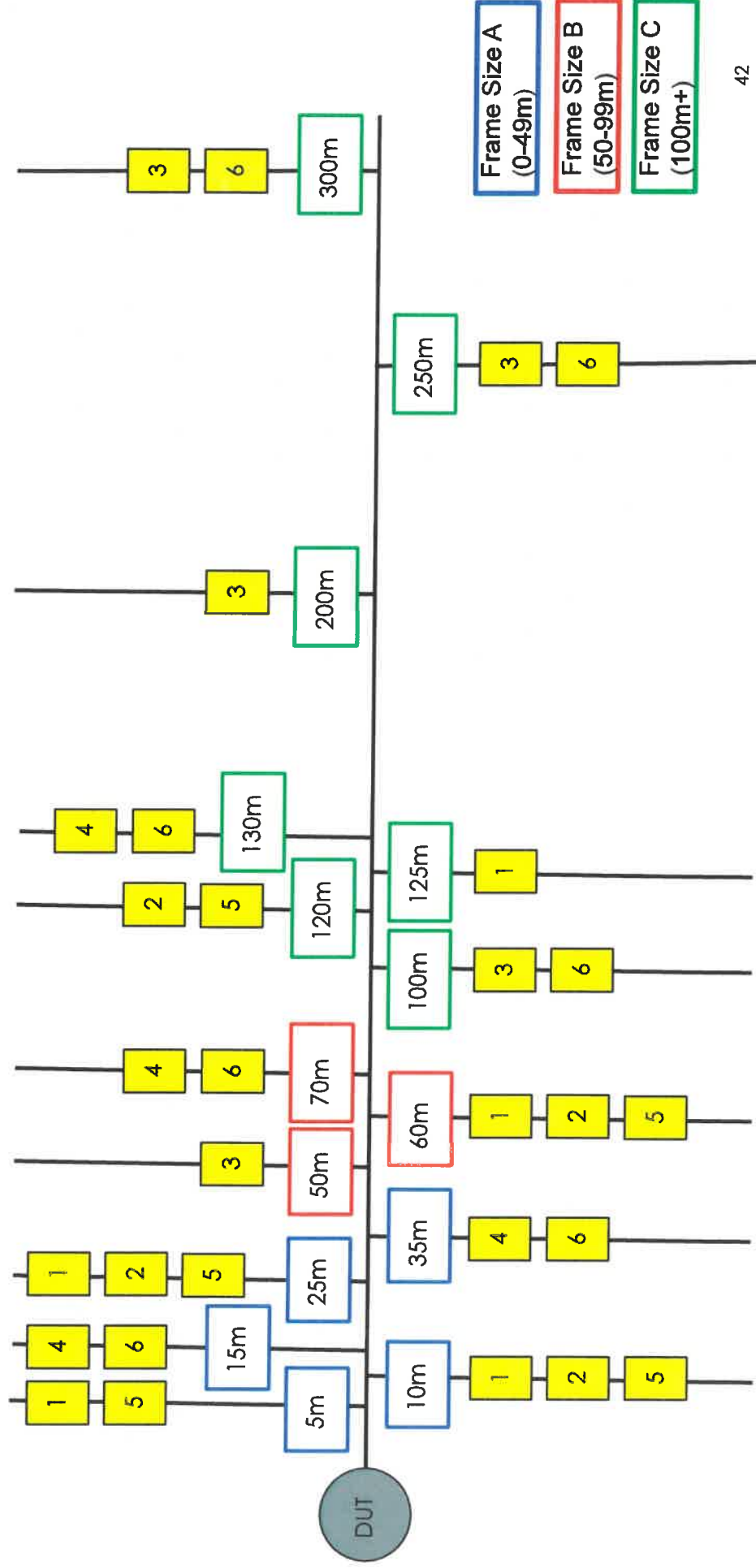
At: 15,35,70,130m  
GAPS: 0.5m

Individual Target Sizes- Unless Specified different

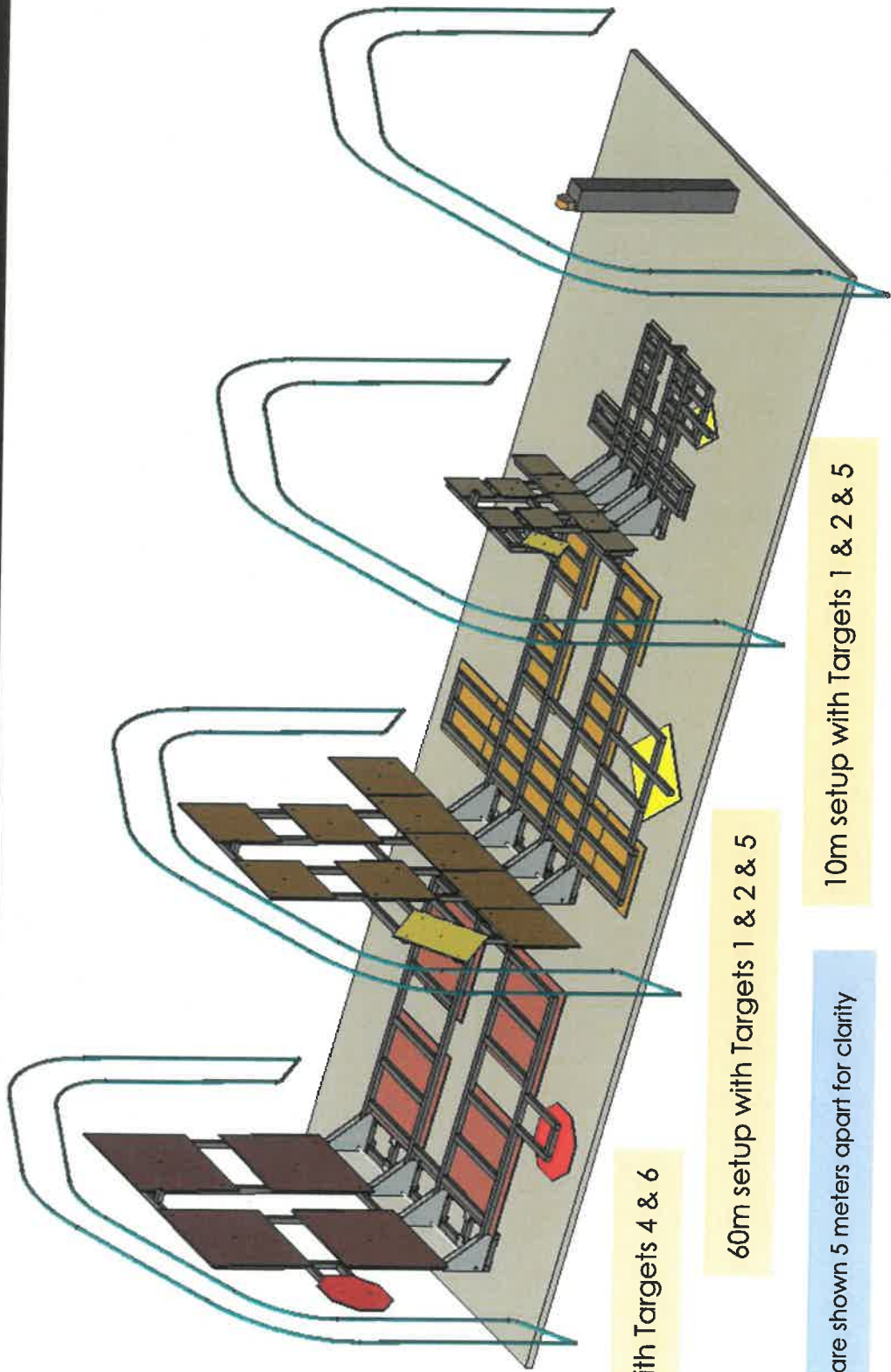
- Target Sizes : 0.5mx0.5m - 0 - 49m
- Target Sizes: 1mx1m - 50-99m
- Target Sizes: 1.5x1.5m- 100m+

Note: % indicate reflectivity of targets for reference only

# Visual Overview of Targets required at each test distance



# High Level Concept Preview - (Flip Up/Down)



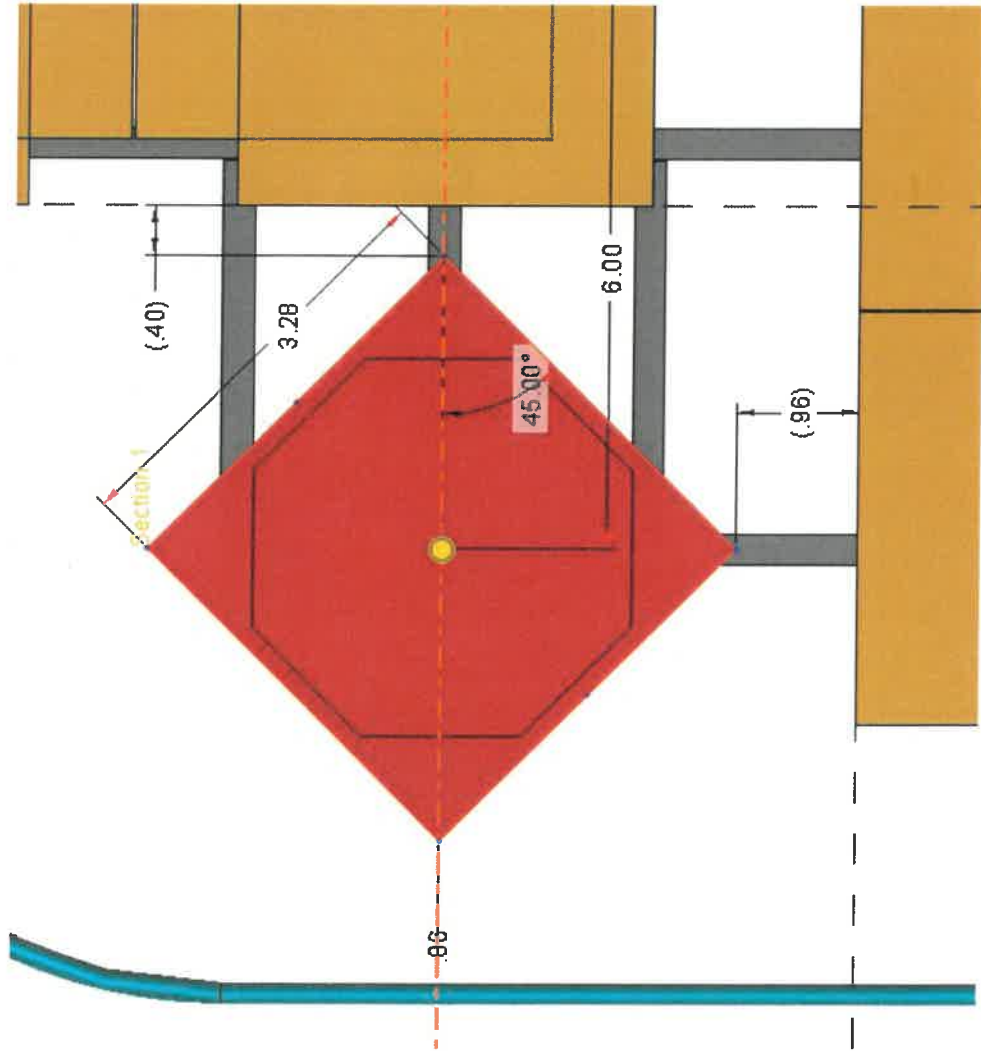
130m setup with Targets 4 & 6

60m setup with Targets 1 & 2 & 5

10m setup with Targets 1 & 2 & 5

NOTE: These 3 Stations are shown 5 meters apart for clarity

# Example - Individual Targets- Stop Sign 36"



# Targets Detail (example\_ - Stop Sign 36"



**Item #:** Y1249-E5H

**Sign Reads:** Stop

**Compliance:** • MUTCD

• OSHA 1910.1200(c)

• Shipping Declarations

[Design Your Own Sign](#)

**Note:** 12" Octagon is sold as a label. All other sizes are rigid aluminum and MUTCD Compliant. Read about the EG Reflective change from 3M EGP

- 12" Octagon
- 18" Octagon
- 24" Octagon
- 30" Octagon
- 36" Octagon

**Material:**

- .080" Engineering Grade Reflective Aluminum **1**
- .080" High Intensity Prismatic Reflective Aluminum **1**
- .080" Diamond Grade Reflective Aluminum **1**

Laminate: None

Mounting: Two 3/8" holes (one at top, one at bottom)

Packaging: Sold Individually. Ships in its own package.

Qty	1-2	3-4	5-9	10-19	20-39	40+
Each	\$89.65	\$86.05	\$82.60	\$79.30	\$76.10	\$73.10

Qty

**Price: \$89.65**

[Add to Cart](#)

- Heavy duty elodized aluminum construction makes this sign durable & fit for long term exterior use. Will not rust. Rigid design allows for either post or wall mounting.
- Laminated with **3M** High Intensity Prismatic (HIA) reflective sheeting for high visibility both day & night
- Pre-punched holes for fast & easy mounting to existing posts or poles or purchase our hardware and posts

Upgrade to **3M** High Intensity Prismatic (HIA) or Diamond Grade (DG<sup>3</sup>) for even brighter, longer optimum reflective performance!

Size/in.	36 x 36
Weight	12lbs
Graphics	
Ink Color	Red
Face Material/White	<b>3M (HIA)</b>
Alum Panel/Gauge & Alloy	.080"/5052-H38
Corners	N/A
Mounting	3/8" holes
Type III Reflectivity Level (HIA)	
Optimum Performance/Yrs.	<b>10+</b>

**Product Bulletins & Notes**

An additional reflectivity level is available for this item. Please make your selection at bottom of page.

**Size Guide:**

36" Public or private single & multi-lane conventional roads & expressways.

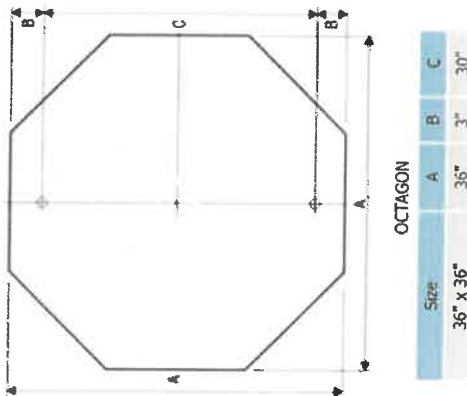
See [Table 2B-1](#) of the MUTCD for more info on size requirements.

**Reflective Upgrade:**

Type VII Diamond Grade (DGO)

Face Material	<b>3M DG<sup>3</sup></b>
Availability	
Reflectivity Level	
Optimum Performance/Yrs.	<b>12+</b>
Additional Lead Time	3-4 days

Refer to MUTCD [Table 2A-3](#) on minimum retroreflectivity levels.



**Data**

May 4, 2022  
Project No. 170168

Brian Hilbrands  
Interim Planning Director  
Cascade Charter Township  
2865 Thornhills Avenue, SE  
Grand Rapids, MI 49546

**4300 Thornapple River Drive**  
**Luminar Technologies**  
**Site Plan Review – Updated Site Plan May 4, 2022**

Dear Brian:

We have reviewed the revised site plan for 4300 Thornapple River Drive, prepared by Prein & Newhof. The site plan has been revised after comments received by the Gerald R. Ford International Airport (GFIA) indicating that the previous site plan was not acceptable from a storm water perspective. The applicant has revised the storm water design and this review is limited to those revisions.

The revised site plan was submitted on April 29, 2022. We performed an initial review on May 2, 2022 and identified a few items of concern. The applicant was notified that evening of the concerns, and they provided an updated site plan this morning, May 4, 2022 at 9:14 am. The name of the PDF being reviewed is "2220234\_Set\_2022-0503".

## **Stormwater and Drainage**

The proposed project is being reviewed under the current Stormwater Ordinance (SWO), Ordinance 7 of 2002, as amended by Ordinance 2 of 2008, May 14, 2008.

The GFIA review indicated they did not approve of the past proposed storm water facilities and controls, and they also had concerns about future maintenance of what was being proposed. The current site plan has simplified the proposed storm water facilities, eliminating the bioswales and check dams, and instead focusing on meeting the stormwater requirements using larger detention basins and staged outlets.

## **Flood Control**

The site plan includes storage volume sufficient to account for the new impervious areas (building and gravel lot). This storage volume is being achieved through the two detention basins. The two detention basins have been enlarged on the current site plan to account for the storage volume that was lost when the check dams were removed. This is acceptable and overall, with the improvements proposed, the peak flow rate from this site will be slightly reduced compared to the existing site.

## **Water Quality and Channel Protection (Bank Erosion) Control**

These requirements are being met in the west detention basin using a staged outlet. There are three inlet pipes at different elevations to meet the requirements. The east basin is much smaller and shallower, which results in a more challenging scenario to meet the requirements. The applicant has proposed a perforated PVC pipe wrapped

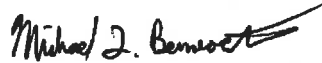
in geotextile with a pea stone infiltration trench. This is acceptable given the small size of the basin and the potential for the normally required small orifices to become fouled and render the system ineffective. The proposed pea stone and perforated pipe will help mitigate that potential issue; however, it will still be important that this infiltration trench is maintained, especially during construction when the vegetation is being established.

## Summary

The proposed stormwater management design meets the Township SWO requirements, given the soil conditions and location. The applicant will need to apply for several permits prior to beginning any construction. We recommend approval of the site plan from an engineering standpoint.

If you have any questions or require additional information, please contact me at 616.464.3927 or [mberrevoets@fishbeck.com](mailto:mberrevoets@fishbeck.com).

Sincerely,



**Michael L. Berrevoets, PE**  
Senior Civil Engineer

By email

April 5, 2022  
Project No. 170168

Brian Hilbrands  
Interim Planning Director  
Cascade Charter Township  
2865 Thornhills Avenue, SE  
Grand Rapids, MI 49546

**4300 Thornapple River Drive  
Luminar Technologies  
Site Plan Review**

Dear Brian:

We have reviewed the site plan for 4300 Thornapple River Drive, prepared by Prein & Newhof. The current site plan and the basis of this review were delivered by email as a PDF and the file is dated March 21, 2022. The applicant is proposing a “Temporary” structure which includes a 996-foot-long by 26-foot-wide fabric building with a gravel surface surrounding the building. While this may be considered a temporary building, we don’t know when the building will be removed; therefore, we are reviewing as if it would be a permanent structure.

Plan Sheet 2 includes a note about a future 640-foot by 26-foot fabric building. This site plan does not include grading details or stormwater controls for that future building. If the applicant decides to construct that future building, then an additional review would be required at that time.

## **Stormwater and Drainage**

The proposed project is being reviewed under the current Stormwater Ordinance (SWO), Ordinance 7 of 2002, as amended by Ordinance 2 of 2008, May 14, 2008.

The overall layout of the site includes a long building and gravel pad dividing the site east and west. The proposed stormwater controls include drainage swales, including check dams on the east and west, and detention basins on the south side of the site with restricted outlets.

## **Flood Control**

The proposed project is a new development, so all improvements shall comply with the requirements of the Cascade Charter Township and Stormwater Ordinance (SWO). The site is located in Stormwater Management Zone A, which requires infiltration of the 100-year storm event if soil conditions are conducive to infiltration. The applicant provided a geotechnical report including 6 soil borings to a depth of 15 feet each and all the borings indicate clay soils for the entire depth. Infiltration is not possible on this site given the underlying soil conditions. In that case, the SWO allows for detention of the 25-year storm event to satisfy the Flood Control requirements.

The site plan includes storage volume sufficient to account for the new impervious areas (building and gravel lot). This storage volume is being achieved through the two detention basins and storage in the swales behind the check dams. It is imperative that the check dams are installed during the project and constructed to the detail shown on the plans, to provide the required storage volume.

At our request, the applicant also provided an overall drainage area map and the flow path of the runoff to the Thornapple River. The overflow path routes east through airport property and then under the I-96/M-6 ramps before discharging to the Thornapple River. The improvements to the site will not change the current flow path to the river. Overall, with the improvements proposed, the peak flow rate from this site will be slightly reduced compared to the existing site.

## **Water Quality and Channel Protection (Bank Erosion) Control**

Both of these requirements are being met through the use of the two detention basins and 4-inch inlet pipes covered by pea stone and the permeable soil per the ST11 detail on Plan Sheet 5. The applicant provided the completed Lower Grand River Organization of Watersheds spreadsheet that calculates the volume required to satisfy these requirements.

## **Drainage Plan**

The applicant has submitted plans, calculations, and additional documentation as required in SWO Section 2.03, Drainage Plan. Please refer to the attached checklist for items and comments on each item. Please note a maintenance agreement is required before construction begins. The agreement should be submitted to the Township for review. The maintenance agreement and plan should include, at a minimum, the cleaning of the detention basins, cleaning of catch basin sumps, and sediment and debris removal from the detention basins and outlet structures.

## **Utilities**

The plan includes a 1.5-inch domestic water line that will be connected to the existing water main west of Thornapple River Drive. The plan indicates that the new water service will be drilled under the roadway to minimize disruption. The applicant will need to obtain a permit from the KCRC for work in the Right-of-Way and they will need to coordinate with the City of Grand Rapids for the new tap.

Sanitary sewage is shown as being collected in a 1,000-gallon septic tank with high water alarm and control panel. This will allow for the tank to be pumped and hauled. This will need approval from the Kent County Health Department.

## **Soil Erosion and Sedimentation Control**

**Soil Erosion and Sedimentation Control (SESC) falls under the review and approval of the Kent County Road Commission (KCRC) and a permit is required before construction can begin.**

SESC measures are provided on the plan drawings. The applicant has included silt fence along the southern limits of the project, mulch blanket on steep slopes, and silt sacks in catch basins.

This is a relatively large site with clay soils and steep slopes. Sites like this have the potential to be problematic with SESC during large rain events. It is imperative that appropriate measures be taken by the developer to reduce the risk of soil erosion. KCRC may require additional SESC measures beyond what is shown on the drawing.

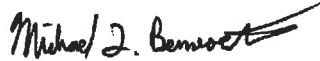
The disturbed area on the site exceeds five acres and a Notice of Coverage is required with EGLE.

## Summary

The proposed stormwater management design meets the Township SWO requirements given the soil conditions and location. The applicant will need to apply for several permits prior to beginning any construction. We recommend approval of the site plan from an engineering standpoint.

If you have any questions or require additional information, please contact me at 616.464.3927 or [mberrevoets@fishbeck.com](mailto:mberrevoets@fishbeck.com).

Sincerely,



**Michael L. Berrevoets, PE**  
Senior Civil Engineer

Attachment  
By email

## Cascade Charter Township

Storm Water Ordinance, Ordinance 7 of 2002, as amended by Ordinance No. 2 of 2008, May 14, 2008

*Reviewing Engineer Comments are Italicized*

*OK – Received and Acceptable*

*NA – Not Applicable*

*NR – Not Received, Needs Follow-up, See Comments*

## 4300 Thornapple River Drive, Luminar Technologies

### Drainage Plan Checklist

- OK (1) Location of the development site and water bodies that will receive stormwater runoff  
*Stormwater runoff from the site will discharge to 2 detention basins through swale with check dams.*
- OK (2) Existing and proposed topography of the development site, including the alignment and boundary of the natural drainage courses, with contours having a maximum interval of one foot (using USGS datum). The information shall be superimposed on the pertinent Kent County soil map  
*Existing and proposed contours have been provided. Soils data provided with geotechnical report.*
- OK (3) Development tributary area to each point of discharge from the development.  
*The applicant provided a tributary area for the portions draining to the detention basin.*
- OK (4) Calculations for the final peak discharge rates  
*The applicant provided calculations for the new detention basins and onsite storm sewer system.*
- OK (5) Calculations for any facility or structure size and configuration  
*The applicant provided calculations for the new detention basin and onsite storm sewer system.*
- OK (6) Drawing showing all proposed storm water runoff facilities with existing and final grades  
*The applicant provided plans showing all proposed storm water runoff facilities.*
- OK (7) The sizes and locations of upstream and downstream culverts serving the major drainage routes flowing into and out of the development site. Any significant off-site and on-site drainage outlet restrictions other than culverts should be noted on the drainage map  
*No significant offsite drainage routing through the site. Thornapple River Drive has roadside ditches that act as a barrier to offsite runoff coming from the west.. Applicant provided downstream runoff path route to the river for review.*
- NR (8) An implementation plan for construction and inspection of all storm water runoff facilities necessary to the overall drainage plan, including a schedule of the estimated dates of completing construction of the storm water runoff facilities shown on the plan and an identification of the proposed inspection procedures to ensure that the storm water runoff facilities are constructed in accordance with the approved drainage plan  
***A construction schedule was not included on the drawings. Applicant will need to inform Township when construction is expected to take place to allow periodic inspections if necessary.***

- OK (9) Plan to ensure the effective control of construction site storm water runoff and sediment track-out onto roadways  
*SESC falls under the review and approval of the KCRC and a permit is needed before construction can begin. SESC measures shown on plan and subject to review by KCRC.*
- OK (10) Drawings, profiles, and specifications for the construction of the storm water runoff facilities reasonably necessary to ensure that storm water runoff will be drained, stored, or otherwise controlled in accordance with this ordinance  
*The applicant provided a plan and design details for construction of the proposed detention basin.*
- NR (11) Maintenance agreement, in form and substance acceptable to the Township, for ensuring maintenance of any privately owned storm water runoff facilities. The maintenance agreement shall include the developer's written commitment to provide routine, emergency, and long-term maintenance of the facilities and, in the event that the facilities are not maintained in accordance with the approved drainage plan, the agreement shall authorize the Township to maintain any on-site storm water runoff facility as reasonably necessary, at the developer's expense  
***Maintenance agreement was not provided and is required.***
- OK (12) Name of the engineering firm and the registered professional engineer that designed the drainage plan and that will inspect final construction of the storm water runoff facilities
- NA (13) All design information must be compatible for conversion to Grand Valley Regional Geographic Information System (REGIS)  
*This is a privately owned system and will not be uploaded to REGIS.*
- OK (14) Other information necessary for the Township to verify that the drainage plan complies with the Township's design and performance standards for drains and storm water management systems

**STAFF REPORT**

STAFF REPORT: Case #22-3703/Matthews  
REPORT DATE: May 3, 2022  
PREPARED FOR: Cascade Charter Township Planning Commission  
MEETING DATE: May 9, 2022  
PREPARED BY: Brian Hilbrands, Planning Director

APPLICANT:  
James Matthews  
8320 45 St SE  
Ada, MI 49301

STATUS  
OF APPLICANT: Property owner

REQUESTED ACTION: The applicant is requesting a special use permit to construct an accessory building larger than 832 square feet.

EXISTING ZONING OF  
SUBJECT PARCEL(S): R-1

GENERAL LOCATION: South side of 45<sup>th</sup> St, west of Cherry Lane.

PARCEL SIZE: Approximately 1.3 acres

EXISTING LAND USE  
ON THE PROPERTY: Residential

ADJACENT AREA  
LAND USES: N,W,E – Residential  
S – Agricultural/vacant

ZONING ON  
ADJOINING PARCELS: All R-1

**STAFF COMMENTS:**

1. The applicant is requesting permission to construct an accessory building on the property. The building will be 30' x 40' (1,200 square feet).
2. The building will be 14' tall as measured to the midpoint of the roof.
3. This requires a minimum of a 10-foot setback to the side property lines and 25-feet to the rear property line. The applicant shows a setback of 14' to the side property line and a

setback of approximately 99' to the rear property line. The building will also have to be at least 10' from any other building.

4. With less than 3 acres the applicant is only permitted to have one accessory building. There is an existing shed on the property which will have to be removed.
5. The property is actually located back off of 45<sup>th</sup> Street behind another property, so it is not right along the street.
6. The applicant has indicated that the building will be used for general storage.
7. The size of the building is "normal" for the zoning district.
8. The building is planned to have a steel roof and siding. The property is located in a more agricultural area of the Township.
9. Any outdoor lighting will have to meet our standards, requiring it to be shielded and downcast or at a level that is exempted.
10. It should be noted that accessory buildings cannot be used for living space or to run a business.

**Conditions for Special Use Permit Approval**

Upon review of a Type 1 Special Use Permit for an accessory building, Section 17.03(1)(a) of the Zoning Ordinance requires the Planning Commission to consider several factors. I have listed those items for your consideration followed by my comments for each.

Factors	Comment
The intended use of the building.	The applicant has indicated that the building will be used for general storage.
The proposed location, type and kind of construction and general architectural character of the building.	The building is planned to have a steel roof and siding.
The size of the building in relation to the house, lot and zoning district.	The property is about 1.3 acres, and the home has about 1,550 square feet of finished living area.
The type and kind of principal and accessory buildings and structures located on properties which are adjoining and in the general area.	There are other detached buildings in the general area.
The topography and vegetation in the area.	Wooded and flat.
Whether the proposed building will affect the light and air circulation of any adjoining properties.	No impact.
Whether the proposed building will adversely affect the view of any adjoining property owner or occupant.	The location of the building would not have an adverse effect on adjoining property views.

Points of access to the proposed building and their relationship to adjoining properties and the view from the adjacent streets.	No new access to the street will be created.
--	--

**STAFF RECOMMENDATION:**

I recommend that you approve the special use permit as requested with the following conditions. The building should be in compliance with all applicable zoning ordinance regulations, including:

1. The building is not used for living space or to run a business.
2. Any outdoor lighting meets our regulations.
3. The existing shed must be removed before a final inspection of the new accessory building can be scheduled.

Attachments: application package, accessory building inventory



CASCADE RD

CHERRY LN

45TH ST

8320 45th St

95

96

# TITLE



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Printed 5/4/2022 4:17:20 PM



# CASCADE CHARTER TOWNSHIP

5920 Tahoe Dr. SE, Grand Rapids,  
Michigan 49546-7140

## PLANNING & ZONING APPLICATION

**APPLICANT:**

Name: James Matthews

Address: 8320 45th St. SE

City & Zip Code Ada, MI 49301

Telephone: 616-437-8059

Email Address: matthews.jim18@yahoo.com

**OWNER: \* (If different from Applicant)**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City & Zip Code: \_\_\_\_\_

Telephone: \_\_\_\_\_

Email Address: \_\_\_\_\_

**NATURE OF THE REQUEST: (Please check the appropriate box or boxes)**

- |   |  |
|---|--|
| <input type="checkbox"/> Administrative Appeal                | <input type="checkbox"/> Administrative Site Plan Review |
| <input type="checkbox"/> Deferred Parking                     | <input type="checkbox"/> P.U.D. – Rezoning *             |
| <input type="checkbox"/> P.U.D. – Site Condominium *          | <input type="checkbox"/> Rezoning                        |
| <input type="checkbox"/> Site Plan Review *                   | <input type="checkbox"/> Sign Variance Subdivision       |
| <input checked="" type="checkbox"/> <u>Special Use Permit</u> | <input type="checkbox"/> Plat Review *                   |
| <input type="checkbox"/> Zoning Variance                      | <input type="checkbox"/> Other: _____ *                  |

*\* Requires an initial submission of 5 copies of the completed site plan*

**BRIEFLY DESCRIBE YOUR REQUEST:\*\***

30' X 40' pole barn. 14' tall to mid point of roof.  
Steel building ~~and~~ and steel roof.

General Storage Building

(\*\*Use Attachments if Necessary)

**-SEE OTHER SIDE-**

LEGAL DESCRIPTION OF PROPERTY\*\*:

S 279.60 FT of W 197.24 FT of E 599.54 FT  
of N 1/2 NW 1/4 Sec. 26 T6N

(\*\*Use Attachments if Necessary)

PERMANENT PARCEL (TAX) NUMBER: 41-19 -26 -127 -006

ADDRESS OF PROPERTY: 9320 45th St. SE, Ada, MI 49301

PRESENT USE OF THE PROPERTY: Residential

NAME(S) & ADDRESS(ES) OF ALL OTHER PERSONS, CORPORATIONS, OR FIRMS HAVING A LEGAL OR  
EQUITABLE INTEREST IN THE PROPERTY:

Name(s)	Address(es)
_____	_____
_____	_____

**SIGNATURES**


*I (we) the undersigned certify that the information contained on this application form and the required documents attached hereto are to the best of my (our) knowledge true and accurate. I (we) also agree to reimburse the Cascade Charter Township for all costs, including consultant costs, to review this request in a timely manner. I (we) understand that these costs may also include administrative reviews which may occur after the Township has taken action on my (our) request.*

*I (we) the undersigned also acknowledge that the proposed project does not violate any known property restrictions (i.e. plat restrictions, deed restrictions, covenants, etc.)*

James D. Matthews

Owner – Print or Type Name  
(\*If different from Applicant)

Applicant – Print or Type Name

\* 

Owner's Signature & Date  
(\*If different from Applicant)

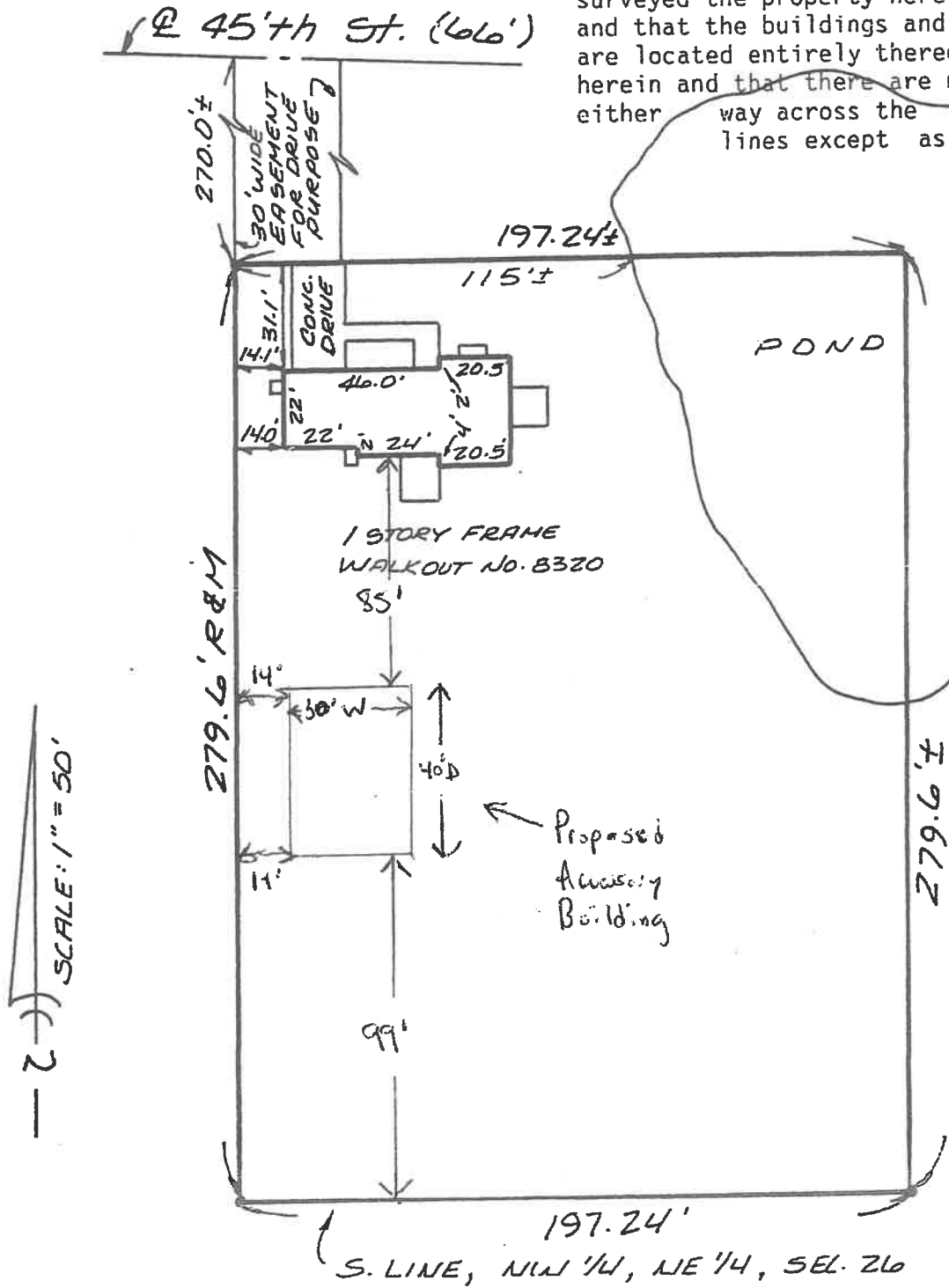
Applicant's Signature & Date

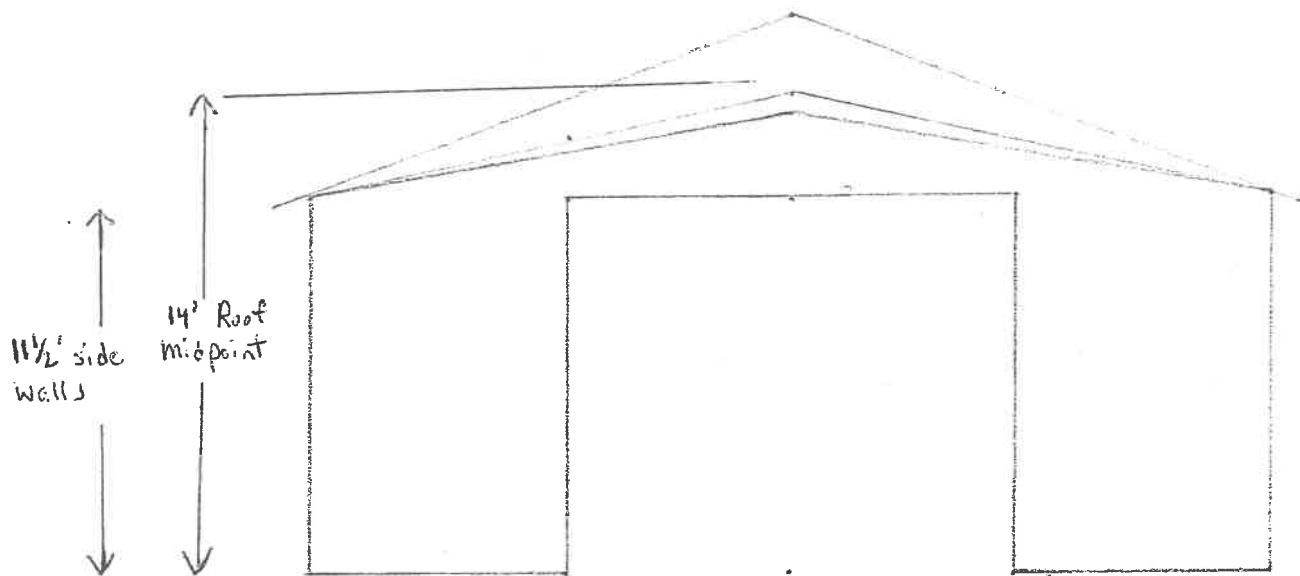
PLEASE ATTACH ALL REQUIRED DOCUMENTS NOTED IN THE PROCESS REVIEW SHEET – THANK YOU

Project No. 90163      Loan No. 1-430808-6  
 Date: February 14, 2000  
 For: First Federal of Michigan - Debbie  
 3205 28th SE  
 Grand Rapids, Michigan 49506  
 Property Address: 8320 45th St. SE  
 Buyer: James D. & Kimberly D. Matthews

LEGAL DESCRIPTION FURNISHED

The South 279.60 feet of the West 197.24 feet of the East 599.54 feet of that part of the North 1/2 of the Northwest 1/4, lying South of the centerline of 45th Street, Section 26, T6N, R10W, Cascade Township, Kent County, Michigan, together with a 30 foot wide driveway easement described as: The West 30 feet of the East 599.54 feet of that part of the North 1/2 of the Northwest 1/4, lying South of the centerline of 45th Street, except the South 279.60 feet thereof.  
 We hereby certify to First Federal of Michigan and Transamerica Title that we have surveyed the property herein described and that the buildings and improvements are located entirely thereon as shown herein and that there are no encroachments either way across the property lines except as shown hereon





40' D x 30' W

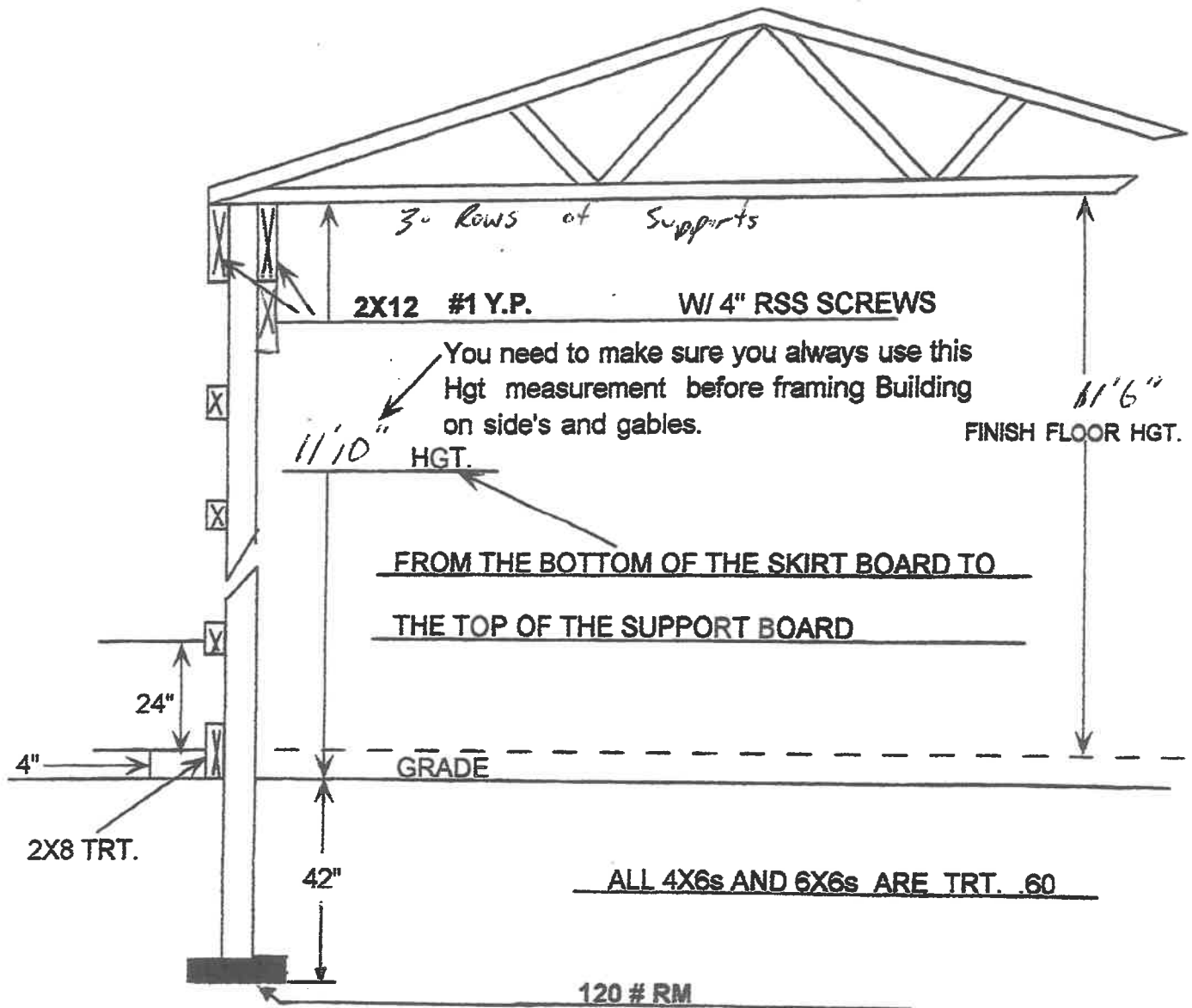


**DELTON  
POLE  
BUILDING  
SUPPLIES**

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**10036 M-43  
Delton, MI 49046  
(616) 623-3300**

Drawing	
Building	
Revision	Scale



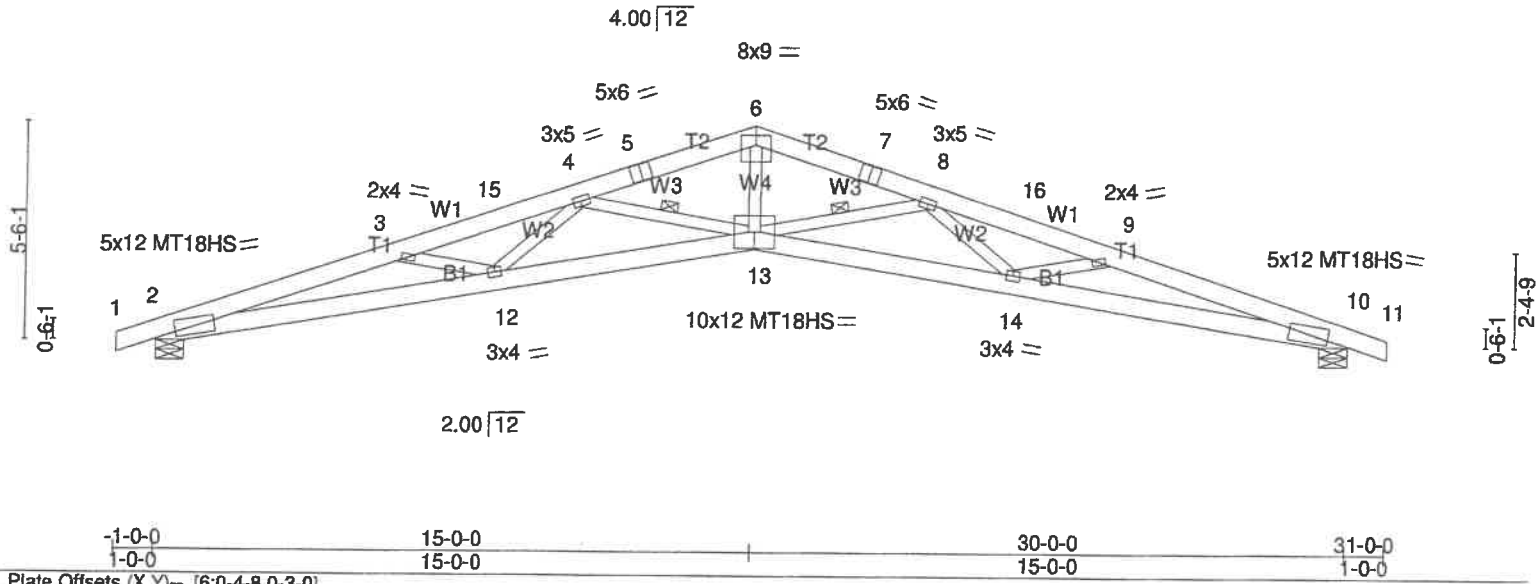
Job 12203-10633	Truss A	Truss Type ROOF TRUSS	Qty 9	Ply 1	Matthews
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Truss Technologies Inc., Cedar Springs, MI 49319, KA

8.420 s Apr 16 2021 MiTek Industries, Inc. Tue Mar 22 08:51:03 2022 Page 1  
ID:gx\_KuAKhtjRmRwJaWhAiYzYRvz-ZWo6R\_?AwbfdsudulZA3QBHAatKC6SH0mSrYrzYRv6

# Preliminary

Scale = 1:58.3



<b>LOADING</b> (psf)		<b>SPACING</b>		<b>CSL</b>		<b>DEFL</b>				<b>PLATES</b>		<b>GRIP</b>	
TCLL	35.0	Plate Grip DOL	4-0-0	TC	0.80	in	(loc)	l/defl	L/d	MT20	197/144		
(Roof Snow=35.0)		Lumber DOL	1.15	BC	0.81	Vert(LL)	-0.92	13	>384	360	MT18HS	197/144	
TCDL	5.0	Rep Stress Incr	NO	WB	0.68	Vert(CT)	-1.18	13-14	>298	180			
BCLL	0.0	Code IBC2015/TPI2014		Matrix-SH		Horz(CT)	0.60	10	n/a	n/a			
BCDL	5.0												Weight: 172 lb FT = 20%

<b>LUMBER-</b>		<b>BRACING-</b>	
TOP CHORD	2x6 SPF 1650F 1.5E *Except* T1: 2x6 SP 2400F 2.0E	TOP CHORD	2-0-0 oc purlins (2-6-0 max.).
BOT CHORD	2x6 SP 2400F 2.0E	BOT CHORD	Rigid ceiling directly applied or 8-10-10 oc bracing.
WEBS	2x4 SPF Stud *Except* W4: 2x4 SPF 1650F 1.5E	WEBS	1 Row at midpt 4-13, 8-13

**REACTIONS.** (lb/size) 2=2853/0-8-8, 10=2853/0-8-8  
Max Horz 2=90(LC 16)  
Max Uplift 2=-348(LC 8), 10=-348(LC 9)

**FORCES.** (lb) - Maximum Compression/Maximum Tension  
TOP CHORD 1-2=0/38, 2-3=-10583/1544, 3-15=-9874/1366, 4-15=-9768/1376, 4-5=-7837/1099, 5-6=-7730/1110, 6-7=-7729/1110, 7-8=-7836/1099, 8-16=-9768/1376, 9-16=-9874/1366, 9-10=-10583/1544, 10-11=0/38  
BOT CHORD 2-12=-1373/9886, 12-13=-1167/9149, 13-14=-1167/9149, 10-14=-1373/9886  
WEBS 6-13=-533/4174, 3-12=-521/238, 4-12=0/608, 4-13=-2276/365, 8-13=-2276/365, 8-14=-7/608, 9-14=-521/246

- NOTES-** (12)
- 1) Wind: ASCE 7-10; Vult=120mph Vasd=95mph; TCDL=3.0psf; BCDL=3.0psf; h=22ft; Cat. II; Exp B; Enclosed; MWFRS (envelope) and C-C Interior(1) zone; cantilever left and right exposed; end vertical left and right exposed; C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
  - 2) TCLL: ASCE 7-10; Pf=35.0 psf (flat roof snow); Category II; Exp B; Partially Exp.; Ct=1.20
  - 3) Unbalanced snow loads have been considered for this design.
  - 4) This truss has been designed for greater of min roof live load of 20.0 psf or 1.00 times flat roof load of 35.0 psf on overhangs non-concurrent with other live loads.
  - 5) Dead loads shown include weight of truss. Top chord dead load of 5.0 psf (or less) is not adequate for a shingle roof. Architect to verify adequacy of top chord dead load.
  - 6) All plates are MT20 plates unless otherwise indicated.
  - 7) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
  - 8) Bearing at joint(s) 2, 10 considers parallel to grain value using ANSI/TPI 1 angle to grain formula. Building designer should verify capacity of bearing surface.
  - 9) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 348 lb uplift at joint 2 and 348 lb uplift at joint 10.
  - 10) This truss is designed in accordance with the 2015 International Building Code section 2306.1 and referenced standard ANSI/TPI 1.
  - 11) Graphical purlin representation does not depict the size or the orientation of the purlin along the top and/or bottom chord.
  - 12) TTI quotes and drawings are PROPRIETARY and CONFIDENTIAL. Do not copy or distribute without the consent of Truss Technologies Inc.

**LOAD CASE(S)** Standard

Accessory Building Inventory 2010-2022 (4/19/22)

Case	Name	address	Zoning	accessory building sq.ft	acres	home (FLS)
11-3029	Korhorn	3480 Buttrick Ave	ARC	900	2.5	1,800
11-3052	Buckius	4900 Streamside Point	ARC	2,304	4.5	3,500
10 2999	Downing	1400 Windy Ridge	ARC	1,728	5.6	2,600
10 3010	Pepin	5640 McCords	ARC	2,400	10	3,000
10 3017	Halfmann	4590 Quiggle Ave	ARC	1,020	3.6	3,000
12-3070	Thornapple Pointe GC	7211 48th St	ARC			
12-3073	Burd	5630 Buttrick Ave	ARC	1,200	4.9	2,700
12-3077	Morris	5225 Buttrick Ave	ARC	2,432	5	2,000
12-3101	Hilbrands	6482 52nd St	ARC	1,536	80	1,500
13-3145	harold Cornelisse	8773 Running Deer Lane	ARC	1,440	10	2,200
14-3216	Gary Jehnke	5766 Buttrick Ave	ARC	1,920	7.6	1,800
15-3239	Chad Weldy	9575 52nd St	ARC	1,728	2.3	2,400
15-3256	Robert Harmon	4150 Cherry Lane	ARC	1,536	7.8	3,100
15-3260	Jay Nehls	3100 Foxfire Lane	ARC	1,575	5	4,000
15-3267	Paul Kucharczyk	9150 52nd St	ARC	1,728	2.9	1,500
16-3315	Roelofs	9554 52nd St	ARC	4,864	4.4	3,700
17-3379	Shaffer	8665 28th st	ARC	1,066	2.5	2,500
17-3404	Teppo	3777 Cherry Lane	ARC	2,720	8.3	3,000
17-3411	Ruby	8358 28th St	ARC	2,192	1.9	2,500
18-3439	McConnell	5470 McCords	ARC	15,120	160	1,600
18-3448	Van note	8233 28th St	ARC	1,800	4.3	2,500
18-3482	Seeley	9404 28th St	ARC	1,680	17	2,800
18-3483	Hillman	8790 52nd St	ARC	2,688	4	2,800
18-3486	DeMeester	9478 Grand River Dr	ARC	3,136	12	3,300
18-3496	Eisen	7233 60th	ARC	1,728	4.4	2,300
19-3511	Doering	5500 McCords Ave	ARC	1,200	160	1,600
19-3524	Tolan	8505 60th St	ARC	1,600	11	2,100
19-3529	Hulst	3717 Cherry Lane	ARC	1,600	8	3,300
19-3530	Howard	8125 45th St	ARC	1,200	2.9	2,900
19-3546	Swift	8730 52nd St	ARC	1,344	2.5	2,600
20-3589	Dykhouse	2645 Meadow Crossing	ARC	1,634	13	7,900
20-3598	Maslowski	9585 60th St	ARC	1,296	2	1,900
20-3601	Poolman	6667 60th St	ARC	4,288	4.5	3,800
20-3616	Staples	5288 Buttrick Ave	ARC	1,300	2.3	4,500
21-3637	Seely	4200 Cherry Ln	ARC	1,224	0.97	1,100
21-3638	Davis Flia Construction	6541 60th St	ARC	4,000	14.7	2,900

Accessory Building Inventory 2010-2022 (4/19/22)

21-3659	Lange	9205 28th St	ARC	1,600	3.4	2,800
21-3664	Eggleston	9091 36th St	ARC	1,680	9.2	2,900
21-3677	Elliott	6870 48th St	ARC	1,536	0.9	1,400
21-3682	Warren	5650 McCords Ave	ARC	1,561	2.9	2,700
22-3695	Downey	3030 Wood Duck Ln	ARC	3,456	4.6	5,100
12-3076	Lash	8951 Cascade Rd	FP	1,680	2.4	1,800
15-3265	Randy Gaskin	3505 Snow Ave	FP	1,536	2	1,400
18-3443	Carpenter	8650 36th St	FP	1,560	15	3,400
19-3531	Beatson	9100 Cascade Rd	FP	3,200	15	2,600
20-3600	Grzywacz	8683 Cascade Rd	FP	1,440	3.7	4,000
21-3625	Randall Burri Builder	4670 Quiggle Ave	FP	1,728	3.6	1,700
13-3161	Epieque Homes	1415 Ballybunion Dr	PUD	4,500	6	6,600
16-3314	Reynolds	5701 Buttrick Ave	PUD 52	1,256	2.2	2,500
18-3494	Stibitz	3494 Bloomington Hills	PUD 66	1,500	1.39	2,200
10 3008	Koetje/Proos	8091 Ashwood Dr	PUD 89	1,120	2.5	4,520
19-3561	Hayes	3570 Buttrick Ave	PUD 61	1,200	2.2	2,600
21-3619	Krause	2439 Sturbridge Dr	PUD 65	1,728	6.6	4,000
21-3631	Bigger	4983 Clear Ridge Dr	PUD 72	1,200	1.2	2,800
10 3001	Ike	4390 Whitneyville	R1	1,200	3.8	1,000
10 3014	Borisch	5333/5200 Dayenu	R1	2,304	44	6,000
12-3082	DeVos	2020 Devonwood Lane	R1	8,500	35	17,000
14-3184	Jon DeGraff	6960 Thornview	R1	1,520	4.6	3,500
14-3185	James Hackett	1547 Briarcliff Dr	R1	1,400	2.2	7,500
14-3190	Aaron Schaap	1910 Laraway Lake Dr	R1	2,604	13	8,200
14-3197	John Shipley	7373 Biscayne Way	R1	1,000	2.6	3,200
15-3241	John Borisch	5200 Dayenu Dr	R1	3,000	9	6,000
15-3253	Derek Benedict	1961 Steketee Woods Lane	R1	1,936	2.9	6,900
15-3257	Jeff Shull	7500 Buttrick Park Dr	R1	1,440	3.03	3,600
15-3290	Hockstra	1350 Briarcliff	R1	1,232	1	4,000
16-3301	Keeler	8100 45th st	R1	1,504	1.2	2,500
16-3311	Borisch	5292 Dayenu	R1	5,000	3.8	5,000
16-3337	Romence	5752 Hall St	R1	1,200	1.7	2,200
16-3352	Rise	8200 48th st	R1	1,600	1.05	3,000
17-3383	Popp	1360 Briarcliff	R1	1,200	1.16	4,800
17-3417	Salmon	6350 Cascade Rd	R1	1,440	4.6	1,300
18-3452	Kortman	4555 Little Harbor Dr	R1	1,296	0.95	3,000
18-3474	Rowland	4250 Whitneyville Ave	R1	1,300	5	2,800



**STAFF REPORT**

STAFF REPORT: Case #22-3707/Harwood  
REPORT DATE: May 3, 2022  
PREPARED FOR: Cascade Charter Township Planning Commission  
MEETING DATE: May 9, 2022  
PREPARED BY: Brian Hilbrands, Planning Director

APPLICANT:  
Jeffery Harwood  
3100 Fuller NE  
Grand Rapids, MI 49505

STATUS OF APPLICANT: Builder for Owner

REQUESTED ACTION: The applicant is requesting a special use permit to construct an accessory building larger than 832 square feet.

EXISTING ZONING OF SUBJECT PARCEL(S): PUD 89

PROPERTY ADDRESS: 8189 Ashwood Dr

GENERAL LOCATION: North side of Ashwood Dr on the east side of Buttrick Ave

PARCEL SIZE: Approximately 1.9 acres

EXISTING LAND USE ON THE PROPERTY: Residential

ADJACENT AREA LAND USES: W,E,S – Residential  
N – Agricultural/vacant

ZONING ON ADJOINING PARCELS: W,E,S – PUD 89  
N – ARC

**STAFF COMMENTS:**

1. The applicant is requesting permission to construct an accessory building on the property. The building will be approximately 18’ x 40’ with a small bump out. It will also include a 14’ x 30’ covered patio, so the total size will be approximately 1,260 square feet.
2. The building will be 14’ tall as measured to the midpoint of the roof.

3. This requires a minimum of a 10-foot setback to the side property lines and 25-feet to the rear property line. The applicant shows a setback of 40' to the side property line and a setback of approximately 75' to the rear property line. The building will also have to be at least 10' from any other building.
4. With less than 3 acres they applicant is only permitted to have one accessory building.
5. The applicant has indicated that the building will be used to store a boat and also serve as a pool house.
6. The size of the building is “normal” for the zoning district.
7. The building is planned to have board and batten siding and an asphalt shingle roof to match the house.
8. Any outdoor lighting will have to meet our standards, requiring it to be shielded and downcast or at a level that is exempted.
9. It should be noted that accessory buildings cannot be used for living space or to run a business.

**Conditions for Special Use Permit Approval**

Upon review of a Type 1 Special Use Permit for an accessory building, Section 17.03(1)(a) of the Zoning Ordinance requires the Planning Commission to consider several factors. I have listed those items for your consideration followed by my comments for each.

Factors	Comment
The intended use of the building.	The applicant has indicated that the building will be used to store a boat and serve as a pool house.
The proposed location, type and kind of construction and general architectural character of the building.	The building is planned to have board and batten siding and an asphalt shingle roof to match the house.
The size of the building in relation to the house, lot and zoning district.	The property is about 1.9 acres, and the home has about 4,545 square feet of finished living area.
The type and kind of principal and accessory buildings and structures located on properties which are adjoining and in the general area.	There are other detached buildings in the general area.
The topography and vegetation in the area.	Flat and partly wooded.
Whether the proposed building will affect the light and air circulation of any adjoining properties.	No impact.

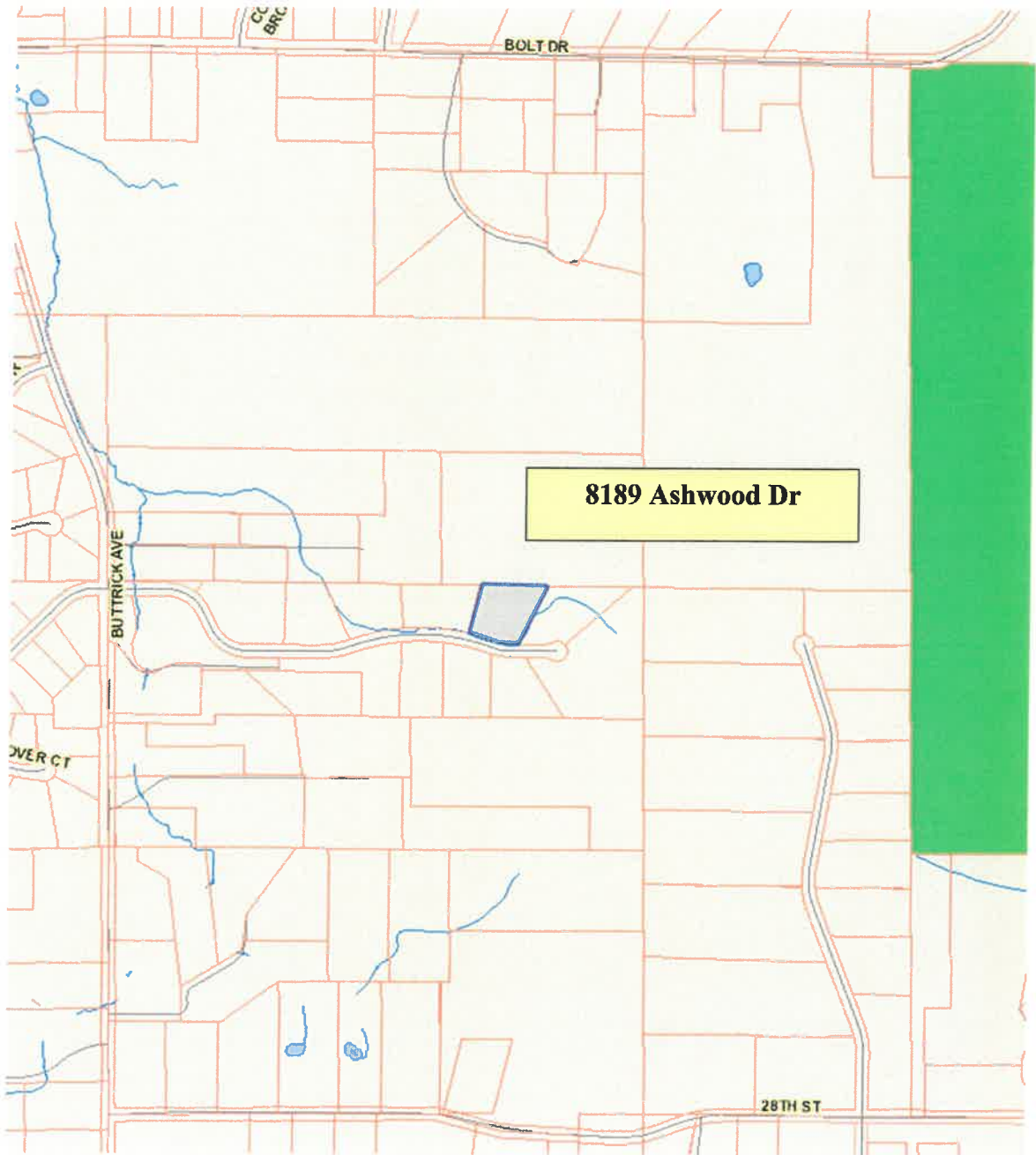
Whether the proposed building will adversely affect the view of any adjoining property owner or occupant.	The location of the building would not have an adverse effect on adjoining property views.
Points of access to the proposed building and their relationship to adjoining properties and the view from the adjacent streets.	No new access to the street will be created.

**STAFF RECOMMENDATION:**

I recommend that you approve the special use permit as requested with the following conditions. The building should be in compliance with all applicable zoning ordinance regulations, including:

1. The building is not used for living space or to run a business.
2. Any outdoor lighting meets our regulations.

Attachments: application package, accessory building inventory



8189 Ashwood Dr

TITLE



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Printed 5/4/2022

4:11:24 PM



# CASCADE CHARTER TOWNSHIP

5920 Tahoe Dr. SE, Grand Rapids,  
Michigan 49546-7140

## PLANNING & ZONING APPLICATION

**APPLICANT:**

Name: Jeffery Harwood  
Address: 3100 Fuller NE  
City & Zip Code: Grand Rapids, 49505  
Telephone: 504-261-8034  
Email Address: jeffh@wlpae.com

**OWNER: \* (If different from Applicant)**

Name: Mike and Rachel Kluce  
Address: 8189 Ashwood Dr. SE.  
City & Zip Code: Ada, MI, 49301  
Telephone: 810.577.8901  
Email Address: mkluce@gmail.com

**NATURE OF THE REQUEST:** (Please check the appropriate box or boxes)

- |   |  |
|---|--|
| <input type="checkbox"/> Administrative Appeal                | <input type="checkbox"/> Administrative Site Plan Review |
| <input type="checkbox"/> Deferred Parking                     | <input type="checkbox"/> P.U.D. – Rezoning *             |
| <input type="checkbox"/> P.U.D. – Site Condominium *          | <input type="checkbox"/> Rezoning                        |
| <input type="checkbox"/> Site Plan Review *                   | <input type="checkbox"/> Sign Variance Subdivision       |
| <input checked="" type="checkbox"/> <u>Special Use Permit</u> | <input type="checkbox"/> Plat Review *                   |
| <input type="checkbox"/> Zoning Variance                      | <input type="checkbox"/> Other: _____ *                  |

**\* Requires an initial submission of 5 copies of the completed site plan**

**BRIEFLY DESCRIBE YOUR REQUEST:\*\***

Building will be used to store a boat and serve as a pool house. Size and square footage has been reduced to meet setback variance, however unable to reduce further to meet 832 sq. ft.. Requesting approval for 840 sq. ft.

(\*\*Use Attachments if Necessary)

**-SEE OTHER SIDE-**

**LEGAL DESCRIPTION OF PROPERTY\*\*:**

Outbuilding to store a boat and outdoor living space connecting to existing pool area.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(\*\*Use Attachments if Necessary)

PERMANENT PARCEL (TAX) NUMBER: 41-19 11326006

ADDRESS OF PROPERTY: 8189 Ashwood Dr. SE., Ada, MI, 49301

PRESENT USE OF THE PROPERTY: Residence

**NAME(S) & ADDRESS(ES) OF ALL OTHER PERSONS, CORPORATIONS, OR FIRMS HAVING A LEGAL OR  
EQUITABLE INTEREST IN THE PROPERTY:**

Name(s)	Address(es)
_____	_____
_____	_____

**SIGNATURES**

*I (we) the undersigned certify that the information contained on this application form and the required documents attached hereto are to the best of my (our) knowledge true and accurate. I (we) also agree to reimburse the Cascade Charter Township for all costs, including consultant costs, to review this request in a timely manner. I (we) understand that these costs may also include administrative reviews which may occur after the Township has taken action on my (our) request.*

*I (we) the undersigned also acknowledge that the proposed project does not violate any known property restrictions (i.e. plat restrictions, deed restrictions, covenants, etc.)*

Mike Kluce

Jeffery Harwood/ Architect

\_\_\_\_\_  
Owner – Print or Type Name  
(\*If different from Applicant)

\_\_\_\_\_  
Applicant – Print or Type Name

\*   
\_\_\_\_\_  
Owner's Signature & Date  
(\*If different from Applicant)

  
\_\_\_\_\_  
Applicant's Signature & Date

02-09-21

PLEASE ATTACH ALL REQUIRED DOCUMENTS NOTED IN THE PROCESS REVIEW SHEET – THANK YOU





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By The Architect Only.

Building For:

**KLUCE  
RESIDENCE**

**NEW BUILD  
GARAGE**

6148 S. SHILOH DR. SC.  
AZA, TX 75201

ISSUED FOR	DATE	DESCRIPTION
11-16-21	FINAL ISSUE	
10-21-21	FINAL DESIGN	
11-18-20	FINAL BIDDING	
2-2-20	ISSUE FOR PERMITS	
3-16-20	ISSUE FOR PERMITS	
3-18-20	ISSUE FOR PERMITS	

NO.	DATE	DRAWN BY
1		

Drawn by: NLL

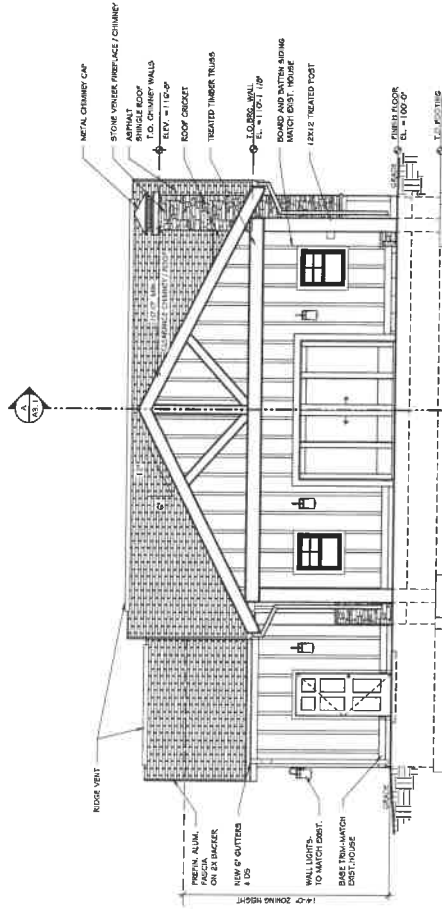
**ELEVATIONS**

Scale: AS NOTED

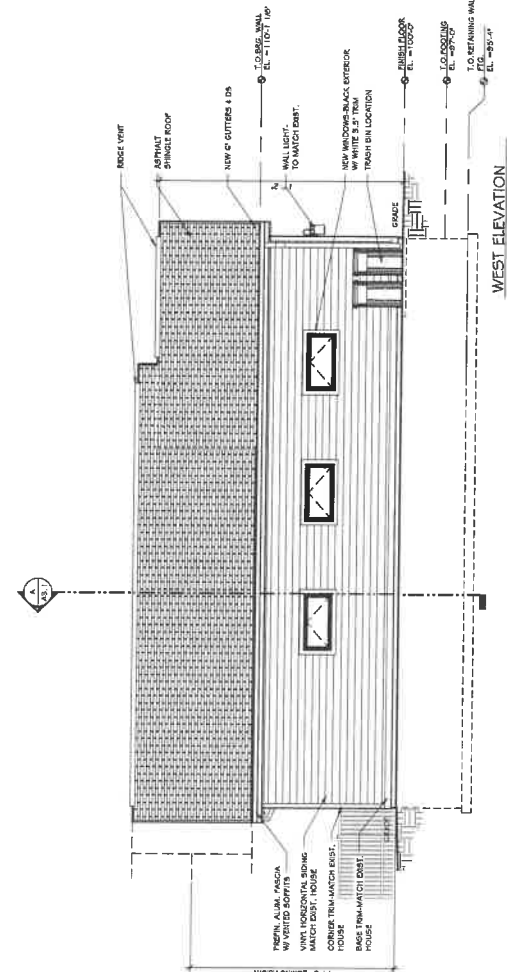
Sheet No. **A1.2**

Project No. **21-150**

**PRELIMINARY  
NOT FOR CONSTRUCTION**



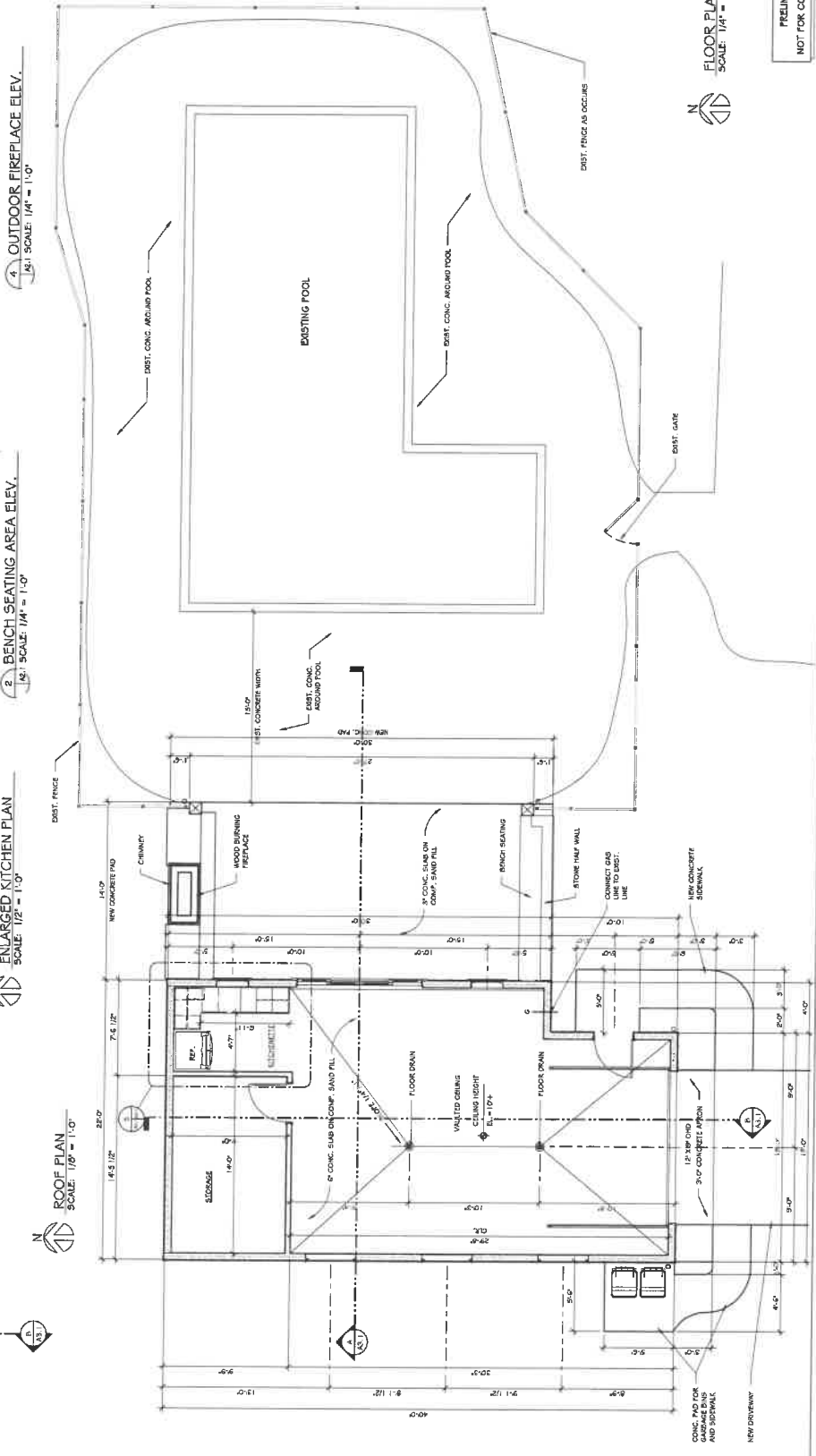
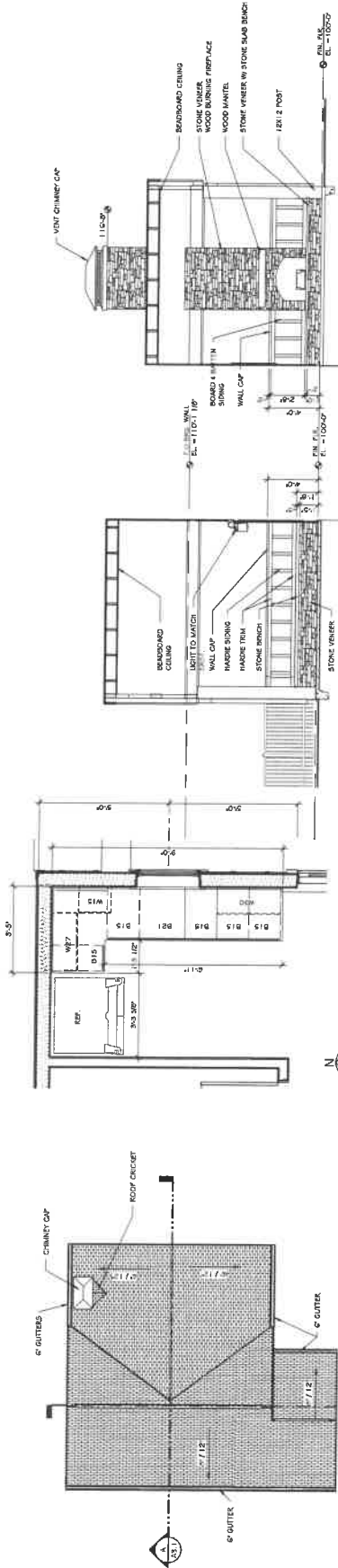
**EAST ELEVATION  
SCALE: 1/4" = 1'-0"**



**WEST ELEVATION  
SCALE: 1/4" = 1'-0"**

DATE	DESCRIPTION
11-15-21	FINAL DESIGN
11-15-21	FINAL DESIGN
11-15-21	FINAL DESIGN
11-15-21	FINAL DESIGN
11-15-21	FINAL DESIGN
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11-15-21	FINAL DESIGN
11-15-21	FINAL DESIGN
11-15-21	FINAL DESIGN

No.	Date	Revised By





Accessory Building Inventory 2010-2022 (4/19/22)

Case	Name	address	Zoning	accessory building sq.ft	acres	home (FLS)
11-3029	Korhorn	3480 Buttrick Ave	ARC	900	2.5	1,800
11-3052	Buckius	4900 Streamside Point	ARC	2,304	4.5	3,500
10 2999	Downing	1400 Windy Ridge	ARC	1,728	5.6	2,600
10 3010	Pepin	5640 McCords	ARC	2,400	10	3,000
10 3017	Halfmann	4590 Quiggle Ave	ARC	1,020	3.6	3,000
12-3070	Thornapple Pointe GC	7211 48th St	ARC			
12-3073	Burd	5630 Buttrick Ave	ARC	1,200	4.9	2,700
12-3077	Morris	5225 Buttrick Ave	ARC	2,432	5	2,000
12-3101	Hilbrands	6482 52nd St	ARC	1,536	80	1,500
13-3145	harold Cornelisse	8773 Running Deer Lane	ARC	1,440	10	2,200
14-3216	Gary Jehnke	5766 Buttrick Ave	ARC	1,920	7.6	1,800
15-3239	Chad Weldy	9575 52nd St	ARC	1,728	2.3	2,400
15-3256	Robert Harmon	4150 Cherry Lane	ARC	1,536	7.8	3,100
15-3260	Jay Nehls	3100 Foxfire Lane	ARC	1,575	5	4,000
15-3267	Paul Kucharczyk	9150 52nd St	ARC	1,728	2.9	1,500
16-3315	Roelofs	9554 52nd St	ARC	4,864	4.4	3,700
17-3379	Shaffer	8665 28th st	ARC	1,066	2.5	2,500
17-3404	Teppo	3777 Cherry Lane	ARC	2,720	8.3	3,000
17-3411	Ruby	8358 28th St	ARC	2,192	1.9	2,500
18-3439	McConnell	5470 McCords	ARC	15,120	160	1,600
18-3448	Van note	8233 28th St	ARC	1,800	4.3	2,500
18-3482	Seeley	9404 28th St	ARC	1,680	17	2,800
18-3483	Hillman	8790 52nd St	ARC	2,688	4	2,800
18-3486	DeMeester	9478 Grand River Dr	ARC	3,136	12	3,300
18-3496	Eisen	7233 60th	ARC	1,728	4.4	2,300
19-3511	Doering	5500 McCords Ave	ARC	1,200	160	1,600
19-3524	Tolan	8505 60th St	ARC	1,600	11	2,100
19-3529	Hulst	3717 Cherry Lane	ARC	1,600	8	3,300
19-3530	Howard	8125 45th St	ARC	1,200	2.9	2,900
19-3546	Swift	8730 52nd St	ARC	1,344	2.5	2,600
20-3589	Dykhouse	2645 Meadow Crossing	ARC	1,634	13	7,900
20-3598	Maslowski	9585 60th St	ARC	1,296	2	1,900
20-3601	Poolman	6667 60th St	ARC	4,288	4.5	3,800
20-3616	Staples	5288 Buttrick Ave	ARC	1,300	2.3	4,500
21-3637	Seely	4200 Cherry Ln	ARC	1,224	0.97	1,100
21-3638	Davis Fila Construction	6541 60th St	ARC	4,000	14.7	2,900

Accessory Building Inventory 2010-2022 (4/19/22)

21-3659	Lange	9205 28th St	ARC	1,600	3.4	2,800
21-3664	Eggleston	9091 36th St	ARC	1,680	9.2	2,900
21-3677	Elliott	6870 48th St	ARC	1,536	0.9	1,400
21-3682	Warren	5650 McCords Ave	ARC	1,561	2.9	2,700
22-3695	Downey	3030 Wood Duck Ln	ARC	3,456	4.6	5,100
12-3076	Lash	8951 Cascade Rd	FP	1,680	2.4	1,800
15-3265	Randy Gaskin	3505 Snow Ave	FP	1,536	2	1,400
18-3443	Carpenter	8650 36th St	FP	1,560	15	3,400
19-3531	Beatson	9100 Cascade Rd	FP	3,200	15	2,600
20-3600	Grzywacz	8683 Cascade Rd	FP	1,440	3.7	4,000
21-3625	Randall Burri Builder	4670 Quiggle Ave	FP	1,728	3.6	1,700
13-3161	Epique Homes	1415 Ballyunion Dr	PUD	4,500	6	6,600
16-3314	Reynolds	5701 Buttrick Ave	PUD 52	1,256	2.2	2,500
18-3494	Stibitz	3494 Bloomington Hills	PUD 66	1,500	1.39	2,200
10 3008	Koetje/Proos	8091 Ashwood Dr	PUD 89	1,120	2.5	4,520
19-3561	Hayes	3570 Buttrick Ave	PUD 61	1,200	2.2	2,600
21-3619	Krause	2439 Sturbridge Dr	PUD 65	1,728	6.6	4,000
21-3631	Bigger	4983 Clear Ridge Dr	PUD 72	1,200	1.2	2,800
10 3001	Ike	4390 Whitneyville	R1	1,200	3.8	1,000
10 3014	Borisch	5333/5200 Dayenu	R1	2,304	44	6,000
12-3082	DeVos	2020 Devonwood Lane	R1	8,500	35	17,000
14-3184	Jon DeGraff	6960 Thornview	R1	1,520	4.6	3,500
14-3185	James Hackett	1547 Briarcliff Dr	R1	1,400	2.2	7,500
14-3190	Aaron Schaap	1910 Laraway Lake Dr	R1	2,604	13	8,200
14-3197	John Shiple	7373 Biscayne Way	R1	1,000	2.6	3,200
15-3241	John Borisch	5200 Dayenu Dr	R1	3,000	9	6,000
15-3253	Derek Benedict	1961 Steketee Woods Lane	R1	1,936	2.9	6,900
15-3257	Jeff Shull	7500 Buttrick Park Dr	R1	1,440	3.03	3,600
15-3290	Hockstra	1350 Briarcliff	R1	1,232	1	4,000
16-3301	Keeler	8100 45th st	R1	1,504	1.2	2,500
16-3311	Borisch	5292 Dayenu	R1	5,000	3.8	5,000
16-3337	Romence	5752 Hall St	R1	1,200	1.7	2,200
16-3352	Rise	8200 48th st	R1	1,600	1.05	3,000
17-3383	Popp	1360 Briarcliff	R1	1,200	1.16	4,800
17-3417	Salmon	6350 Cascade Rd	R1	1,440	4.6	1,300
18-3452	Kortman	4555 Little Harbor Dr	R1	1,296	0.95	3,000
18-3474	Rowland	4250 Whitneyville Ave	R1	1,300	5	2,800

Accessory Building Inventory 2010-2022 (4/19/22)

18-3480	Stachowiak	7871 Shadybrook	R1	1,800	2	2,200
18-3481	Doezema	5625 Alaska Ave	R1	1,944	5	2,000
19-3567	Brinks	1596 Buttrick Ave	R1	1,296	1.5	2,700
20-3595	Mayton	1468 Buttrick Ave	R1	1,326	1.8	4,700
21-3621	Engler	7080 Hidden Ridge	R1	3,312	4.4	7,000
21-3652	Waugh	7630 Cascade Rd	R1	1,200	1.8	2,000
21-3685	Renucci	5175 Buttrick	R1	2,520	55	
22-3699	D. Carpenter Homes	2011 Devonwood	R1	1,320	3.3	9,700
22-3702	Underwood	7675 Sudbury Ln	R1	1,292	2.4	3,100
11-3028	Slauer	3824 Goodwood Dr	R2	900	0.88	3,500
Case	Name	address	Zoning	accessory building sq.ft	acres	home (FLS)
AVG				2,100	10.92	3,458
AVG ARC				2,274	15.33	2,790
AVG FP				1,857	6.95	2,483
AVG PUD				1,786	3.16	3,603
AVG R1				2,025	7.78	4,626