APPROVED MINUTES

ACME TOWNSHIP PLANNING COMMISSION
SPECIAL MEETING
ACME TOWNSHIP HALL
6042 Acme Road Williamsburg, MI 49690
November 2, 2022 7:00 p.m.

CALL TO ORDER WITH PLEDGE OF ALLEGIANCE 7:00

ROLL CALL: Dan VanHouten, Steve Feringa, Dan Rosa, Jack Challender, Karly Wentzloff, Jean Aukerman, Marcie Timmins
Staff Present: Lindsey Wolf, Acme Planning and Zoning Administrator; Jeff Jocks, Acme Township Legal Counsel; Marcie Timmins, Recording Secretary

LIMITED PUBLIC COMMENT: Members of the public may address the Commission regarding any subject of community interest during public comment periods by filling out a Public Comment Card and submitting it to the Secretary. Public comments are limited to three minutes per individual. Comments during other portions of the agenda may or may not be entertained at the moderator's discretion.
Opened at 7:01

Brian Kelley - Wants to see this project be successful. Would like the planning commission to apply a condition that complies with the Best Management Practices for Michigan Golf courses as recommended by the Watershed Center. Quoted Acmes stormwater ordinance pertaining to the removal of vegetation within 50 feet of a lake or stream, and 25 feet from a wetland.

APPROVAL OF AGENDA: Motion by Timmins, support by Challender to approve the agenda with the addition of D. Tom Doak and G.2 Watershed center.
Motion carries

INQUIRY AS TO CONFLICTS OF INTEREST: none

SPECIAL PRESENTATIONS: Tom Doak -Gene phoned Tom at 7:07pm.
Tom Doak- Discussed his excitement about High Pointe golf course possibly making a comeback and his history of building the course. Discussed the back nine holes that make up most of the land that is in Acme Township. Those back nine holes will be easy to put back together as they are mostly just overgrown with weeds. Mostly they just need to be re-seeded and set up with irrigation. Referred fertilizer questions to Gene as he is the expert in that area. Doak has a reputation of building golf courses that are environmentally sensitive. Went through a list of different courses he has built in sensitive areas. Including the Chesapeake Bay and the Pacific Ocean on 3 or 4 different occasions. Discussed having buffers next to any environmentally sensitive areas. Original layout before it closed was closer to the creek then it is being proposed to be rebuilt now.

Timmins- asked about pest management practices and if what would be used would be safe for the birds of prey in the area so that they did not suffer from the effects of bioaccumulation.

Doak- said that was a Gene question. Doak did talk about their ability to work around different areas during nesting seasons.

Aukerman- wanted to clarify that the way the nine holes in Acme were designed, that it helps minimize the opportunity for fertilizer run off.

Doak- Discussed the fine fescue turf he recommended for the fairways, it is the lion's share of the property. It is well adapted to the climate and is a lower input grass that uses less fertilizer and chemicals. It is not as susceptible to many diseases. They won't be tearing up the ground as much as other golf courses so topsoil won't be as disturbed. Won't have to do much because the holes are already there and they won't have to do much dirt moving. Leaving the soil microbes intact which will minimize the chemicals needed for grass set up.

RECEIVE AND FILE:

RECEIVE AND FILE

a. None

APPROVAL OF MINUTES:

a. Approve Draft Planning Commission Meeting Minutes 10.10.22 **Motion by Feringa, support by Aukerman with corrections Pg.2 paragraph 3 bay to band and Yuma to Yuba, bottom of the page strike "in open". Pg. 4 fix the spelling of quadrant. Pg. 5 Fescud to Fescue. Motion carries**

CORRESPONDENCE:

1. **Stemo- was happy to read the ticker with the positive news of the development of the Kmart/Tom's building. Would like the contractors to be informed that the eagles show up to their nest in late December.**
2. **Watershed Center- Citizen concern about fertilizer use at the High Pointe golf course site. Would like the PC to carefully consider fertilizer use and application. Suggested that the developers look at the <u>Best Management Practices for Michigan Golf Courses.</u> Also recommends buffers and deep rooted native plants around all waterways and bodies of water, including wetlands and ponds.**

Gene Davis- briefly discussed tree buffers

Wolf- was satisfied with what was presented to her.

Wentzloff- quoted spots from Wolf's report to the PC that talked about elaborating further on fertilizer and application to aid in the public's concerns on fertilizer impact to satisfy the requirement. Feels that is what we need to have a conversation on.

Gene- Explained the significance of having Mr. Doak on this project. Reiterated Mr. Doak's environmental stance and the philosophies he follows. Talked about the new applications of Fertilizer use and how they are more directed now so that less is used. Granular fertilizers are being phased out. New application is all water soluble and applied by a sprayer through the leaf blade. The standards are much higher nowadays. They now do a lot of spot treating to just the areas that need the fertilizers instead of a blanket application. Foliar application eliminates the idea of erosion runoff that would occur with the granular fertilizers in the past. It is now common to use about ⅕ of the amount of fertilizer today as was used ten years ago. Fescue grass does not like much fertilizer; it is truly one of the lowest input grasses out there.
Addressed the Best management practices for golf courses in Michigan and how he uses them already and in fact had sent the same link to Lindsey the day before the watershed center sent their letter.
Where the Department of Agriculture is concerned about fertilizers are the mix and load areas. That is the highest risk for any major pollution or contamination to happen. When inspections are done the focus is on where the mixing and loading is taking place and fuel containment and storage. The proposed maintenance facility, the environmental center, is extremely state of the art. The wastewater set up is really one of the main concerns. Believes the Michigan best management practices are the best ones to use for the state of Michigan, it is very customized to our state.

Wentzloff- Asked if Gene knew who the superintendent of the golf course would be as she knows he is just consulting on this project.

Gene- he doesn't know who that would be.

Wentzloff- that's where the concern would be as to who would be operating the golf course and if they would be of the mindset to also follow the best management practices.

Gene- if he was concerned that the person who would be in that position would not be following the best management practices he would not be saying any of it, but he is very confident in the scope of this project and his industry and the trends that are in it. Firm and fast golfing conditions are what people want right now. Inorder to create the firm and fast conditions less fertilizer and water are used.

Aukerman- Asked who ensures that people are following the best management practices?

Gene- It is up to each individual golf course superintendent to go through and apply it to the individual conditions of that specific course. It is a document that gets customized and finalized. There is nobody that is coming in and going through your booklet; the superintendent creates it themselves. There is no organization that is policing the use of the best management practices. There are some checks and balances with the different permitting agencies.

Aukerman- asked who was responsible for doing the inspections?

Gene- for chemical and fertilizer inspection it is representatives from MDART.
All those that mix and apply fertilizer have to be certified every three years. It is highly regulated.
Addressed the issue of bioaccumulation. The only way that would be an issue is if an insecticide was used to control mole damage, which can be severe on a golf course. Moles do not tend to like sandy soil as much. Insecticide use is very rare for golf course applications.

Aukerman- how are wetlands handled?

Gene- Wetlands have to be left alone. That is more a question for Scott.

Wolf- Scott GPSed the locations of the points and Gosling Czubak went out and confirmed that the points were accurate. Still waiting for something in writing from Gosling Czubak for the record.

PUBLIC HEARINGS: opened at 7:59pm

Kelley- Stands by the scale that shows hole 16 is only a foot away from the lake. Glad everyone is in agreement about the BMP, best management practices. Concern is that it is the Planning commissions job to ensure that the buffers, slopes and constructed wetlands are protecting the wetlands. Acme's stormwater ordinance and the BMP requires this. There are also LID requirements now. The old course didn't comply with the stormwater ordinance but the new one needs to. There are a lot of raptures in the area so the poisons for chipmunks and stuff would be a big concern. Read from the Michigan BMP best practices for stormwater treatment to protect waterways and wetlands. Believes they need to be part of the conditions for the golf course

SUP/SPR 2022-03 High Pointe Golf Course - **Motion by VanHouten, support by Timmins to close the public hearing.**

Motion carries

OLD BUSINESS:

SUP/SPR 2022-03 High Pointe Golf Course-

Wolf- addressed making best management practices part of the conditions. She doesn't want to be pigeon holing them into something that down the line becomes more practical.

Wentzloff- is concerned about putting a condition on something that we can't enforce. There is recourse if a problem arises.
Rosa asked about the man made pond vs. the wetlands. And when you do man made features become a wetland that needs protecting.

Discussion followed

Aukerman asked if the Best Management Practices had yet been fully determined by High Pointe.

Gene- No, the BMP is a living breathing document that typically will be after establishment. Ideally it would be done before it is operating. But it is something that is revisited to keep improving it.
Discussion followed
Gene-Talked about the master plan for the golf course. It was put into the bylaws that the greens committee couldn't move forward with changes if they do not comply with the master plan.

Motion by Rosa, support by Challender to recommend approval of the application for SUP/SRP 2022-03 to the Acme Township Board for High Pointe Golf Course (parcel IDs: 28-01-002-001-00, 28-01-003-003-00,28-01-002-017-00) as it meets the criteria of 8.3 Standards for Site Plan Approval, 8.4 Application Requirements and 9.2 Special Use General Standards with the following conditions:

- **The stormwater maintenance plan and budget are recorded prior to the issuance of a land use permit. The stormwater system is subject to periodic maintenance inspections by the township engineer.**
- **The applicant will provide the township with escrow funds for Gosling Czubak's role in reviewing the wetland delineation and inspections during construction to ensure protection of the wetlands. A report will be provided to the township for each inspection.**
- **Applicable agency permits are to be obtained prior to the issuance of a land use permit.**
- **Provide a landscaping letter to credit, bond, cash surety to the township prior to the issuance of a land use permit.**
- **A copy of the as-builts to be provided to the township for inspection prior to the final occupancy. The stormwater system is subject to inspection by the township engineer.**

Motion carries

J. NEW BUSINESS:

SPR 2022-04 S&S Michigan Investments LLC, Self-Storage Facility

Ron Wilson - gave an introduction to the project. Looked for property in this area because this is where they live in their RV all summer.

Wolf- Only thing she would really like to discuss with the planning commission is the landscaping requirements. Section 6.4.5- right of way landscaping and 6.4.6- lot landscaping. For right of way landscaping the plan is short by thirteen trees, 36 additional bushes are needed. There is an easement, which is also considered right of way, by definition in our ordinance. It will also require right of way landscaping. The frontage for that area needs 4 more trees and 41 additional bushes are required.
Believes these landscaping requirements warrant further discussion and review. Spoke with Barker landscaping that specializes in native plants. He has concerns of clustering and certain

species killing out other species if planted together. When root systems are established they will start killing others out. It is not something we can waive at this time, but Wolf would like to explore this further. Would like to get some expert opinions and see if this is something the PC may want to modify.
The applicant had concerns about visibility when the plantings are fully grown.
Wolf -pointed out how deep rooted plants and trees could potentially impact the stormwater features and septic field on this property.This application is a right by use in the district it is in. The PC needs to decide if they will waive section 6.4.6
Discussion followed about how packed the property would be if all the trees and bushes were planted.

Wentzloff- asked why there is a septic and drain field if it is a storage facility.

Wilson said he was told they had to have that as well as a sprinkler system. He believes that if someone develops the property that the easement leads to, they will have similar issues with plantings on that property as well. The plantings the way they are, according to the engineers they worked with, will interfere with stormwater.

In order to change 6.4.5 the applicant would have to go to the ZBA or wait for the PC to look at and modify the ordinance.

Wilson asked about the landscaping being done before the issuance of an occupancy permit. He is looking to start ordering supplies and finalizing contractors.

Wentzloff clarified the difference between a land use permit and occupancy permit. The land use permit will allow him to order the buildings and get started. The occupancy permit is before the property is opened to the public and allowed to operate.

Wilson is worried about being able to find a landscaper that will work with the number of trees and bushes that are needed.

Wolf recommends looking for different varieties of plants that may work better in that space.

Motion by Timmins, support by Aukerman to approve the site plan submitted by RonWilson on behalf of S&S Michigan Investments LLC, to construct a five-unit self-storage facility located at 6140 E. Arnold Road Williamsburg, MI 49690 (parcel ID 28-01-015-005-05), subject to the following conditions:

- **The landscape plan, quantities, and species will be updated to reflect compliance with the requirements of 6.4.5 as indicated in the notes on the plan set subject to approval by the zoning administrator.**
- **Provide a landscaping letter of credit, bond, or cash surety to the township prior to the issuance of a land use permit.**
- **The stormwater maintenance plan and budget are recorded prior to the issuance of a land use permit. The stormwater system is subject to periodic maintenance inspections by the township engineer.**
- **waiving all the requirements of 6.4.6**
  Motion carries

K. PUBLIC COMMENT & OTHER PC BUSINESS
Public comment open at 9:03
Kelley- Thinks the township should have had an expert on the Golf course review. Had a BMP instead of any experts. BMP talks about how to monitor water quality depending on if the basin is lined or unlined. Wetlands on the plans were on at least 2 plan sets. Very clear on the plans. Quoted stormwater ordinance

that set back needs to be 50 feet from any lake. Did the PC deviate from the stormwater ordinance but wouldn't deviate from some shrubs? Confused by why it was treated differently. Could have at least held the golf course to the set backs on hole 16, which is a new hole.
closed at 9:07

Planning & Zoning Administrator Report – Lindsey Wolf- ADU's will be talked about after the first of the year as Wolf has not been able to do the research she would have liked to do.
Bob Verseve went and did the third stormwater inspection on Flint fields as well asTrail TrailSide Solar. Trailside Solar is in phase 2 of operations. She will have reports at the next meeting. The Kote development is moving along. Still waiting on a date for when the TART trail will be fully paved on that property, it is still open to the public.
Township Board Report – Jean Aukerman- boarded approved an assistant for Lindsey, the position was offered to Cristy Danca, who is our deputy clerk currently. She would like to follow up with the personnel committee before giving her answer. If she doesn't accept, they will continue the process to find someone.
Parks & Trails Committee Report – Wentzloff- Discussed the trail opening last Tuesday. A lot of people showed up to support it. Encouraged everyone to go check out the new trail. Talked about the signal at 31 and 72 being easier to cross if you push the button.
Wolf- briefly discussed a new grant that the township is looking at for the parks.

ADJOURN: Motion by Timmins, support by Rosa to adjourn the meeting.
Motion carries

ACME TOWNSHIP PLANNING COMMISSION
SPECIAL MEETING
ACME TOWNSHIP HALL
6042 Acme Road Williamsburg, MI 49690
November 2, 2022 7:00 p.m.

CALL TO ORDER
WITH PLEDGE OF ALLEGIANCE

ROLL CALL:

A. **LIMITED PUBLIC COMMENT:** Members of the public may address the Commission regarding any subject of community interest during public comment periods by filling out a Public Comment Card and submitting it to the Secretary. Public comments are limited to three minutes per individual. Comments during other portions of the agenda may or may not be entertained at the moderator's discretion

B. **APPROVAL OF AGENDA:**

C. **INQUIRY AS TO CONFLICTS OF INTEREST:**

D. **SPECIAL PRESENTATIONS:**

E. **RECEIVE AND FILE:**
- **1.** **RECEIVE AND FILE**
  - **a.** None

F. **APPROVAL OF MINUTES:**
- **a.** Approve Draft Planning Commission Meeting Minutes 10.10.22

G. **CORRESPONDENCE:**
- **1.** **Stemo**

H. **PUBLIC HEARINGS:**
- **1.** SUP/SPR 2022-03 High Pointe Golf Course

I. **OLD BUSINESS:**
- **1.** SUP/SPR 2022-03 High Pointe Golf Course

J. **NEW BUSINESS:**
- **1.** SPR 2022-04 S&S Michigan Investments LLC, Self-Storage Facility

K. **PUBLIC COMMENT & OTHER PC BUSINESS**
- **1.** Planning & Zoning Administrator Report – Lindsey Wolf
- **2.** Township Board Report – Jean Aukerman
- **3.** Parks & Trails Committee Report –

ADJOURN:

If you are planning to attend and are physically challenged, requiring any special assistance, please notify Lisa Swanson, Clerk, within 24 hours of the meeting at 938-1350.

UNAPPROVED DRAFT MINUTES

ACME TOWNSHIP PLANNING COMMISSION MEETING
ACME TOWNSHIP HALL
6042 Acme Road Williamsburg, MI 49690
October 10, 2022 7:00 p.m.

CALL TO ORDER WITH PLEDGE OF ALLEGIANCE 7:01

ROLL CALL: Present- Dan Rosa, Jack Challender, Dan VanHouten, Steve Feringa, Karly Wentzloff, Marcie Timmins, Jean Aukerman
Staff Present; Lindsey Wolf, Planning and Zoning Administrator; Jeff Jocks, Legal Counsel; Marcie Timmins, Recording Secretary.

A. LIMITED PUBLIC COMMENT: Members of the public may address the Commission regarding any subject of community interest during public comment periods by filling out a Public Comment Card and submitting it to the Secretary. Public comments are limited to three minutes per individual. Comments during other portions of the agenda may or may not be entertained at the moderator's discretion.

Public comment opened at 7:01m

Brian Kelley- Believes all the project information should come out long enough before the public hearing that the public has sufficient time to review it all. Having a site plan review before having the public hearing. He thinks it is a great project. Worried about fertilizer infiltration in the wetlands,creeks and aquifers. Concerned about the amount of fertilizers being used. Would like more information about the tank capacity and the capacity for vehicle washing and fertilizer spills in the outdoor storage site/washing station. Wet area on the west side of the property by the maintenance building, would like to know what is happening in that area.

Public comment closed at 7:06

B. APPROVAL OF AGENDA: Motion by Feringa, second by Timmins to approve the agenda with the addition of G.2 - Goran
Motion Carries

C. INQUIRY AS TO CONFLICTS OF INTEREST: none

D. SPECIAL PRESENTATIONS: none

Wentzloff discussed Jim Goran's correspondence request concerning the 8/22/22 meeting minutes.

E. RECEIVE AND FILE:
1. RECEIVE AND FILE
a. Approved Board Meeting Minutes 9.6.22

Motion by Timmins, second by Aukerman to approve the Board meeting minutes from 9-6-22
Motion carries

F. APPROVAL OF MINUTES:

a. Approve Draft Planning Commission Special Meeting Minutes 8.22.22-
Timmins- corrected typos. Challenders name was corrected and on page 3 second to the last paragraph, last sentence, changing "Four our build" to "four are built"
Feringa- page 3 second paragraph under Wentzloff spelling of "council" to "counsel"
Motion by Aukerman, second by VanHouten to approve the Draft planning commission special meeting minutes from 8/22/22 with changes mentioned. Motion carries

b. Approve Draft Planning Commission Meeting Minutes 9.12.22-
Timmins- one correction, top of page 2 under Aukerman. Changing "forty screws" to " forty acres"
Motion by Ferninga, second by Timmins to approve the draft planning commission meeting minutes from 9-12-22 with changes mentioned.

G. CORRESPONDENCE:

1. **Haggards-** Supports the Highpointe golf club
2. **Goran-** can you please update the record correction per actual audio: Wentzloff read into the record the area of audio he was asking to correct pertaining to Steve Ezell's introduction at the 8/22/22 meeting.

Discussion ensued as to whether or not all of the information for the Highpointe golf course was turned in on time or if the public hearing should be continued forward to the November PC meeting as was discussed at the September meeting.

Wolf- 99% of what was requested was received. Jozwiak will be talking about the fertilizer applications and narrative on the aquifers. Some of the outstanding things will be discussed tonight to satisfy the requirements for the record. There were also additional landscaping items and questions Jozwiak will be updating the PC on this evening as well.

Jozwiak- The only thing they didn't have was the landscaping in one other quadrinat, which was something new and the aquifer analysis, came from a public comment and they were able to have their engineer provide a response to.

Wolf- they still need to go out to that quadrant and count the number of trees to see if existing trees will satisfy the requirements.

Jozwiak- Went over the original Highpointe golf course layout and compared it to what the new boundary will be. They will be utilizing the existing holes that are there with some reshaping. The maintenance building will be in Acme, with the new club house and cabins in Whitewater township.
Proposing a new driveway off Bates Rd. for the maintenance building. Some tree removal around a few holes they will be shaping. Most of it they are working with the existing terrain and just reseeding and sodding.
Maintenance building will consist of a few different structures, the building being the primary one. Where the equipment is stored and repairs are made. Will also house offices and supplies. A smaller building will hold cold storage for fertilizer. They have a dumpster pad and some bunkers for sand traps.
There is a new facility - the environmental center pavilion, like the one they have at the Walloon Lake country club. It will house a fuel center, chemical containment, and vehicle wash. There are drains with a reclaiming system under the unit. It is a closed loop recycling system. It is filled in the spring and emptied in the fall. The company is Waste to Water. The only time you add water is when you replenish the system. There is a full scale treatment system within the station. There is a bacteria treatment put in there to keep the system balanced.

Wolf- went over the staff report- Things in red were from the previous report. Items in blue are questions that have been partially or fully satisfied or are in need of more elaboration.
Also spoke with Ryan, he used to work with Gene at the Grand Traverse Resort, about the fertilizer runoff near the wetlands. He agrees that the way the applicant is dealing with the runoff near the wetlands and vegetation is appropriate. Ryan couldn't elaborate how the fertilizer applications would remain on sight as opposed to leaching off the property. Wolf believes that is an important fact for the PC and public to understand. There are also the landscaping items she spoke about earlier in the meeting that need to be indicated on the plan set as well.

Wentzloff asked if the recommendation was to still continue the public hearing at the November meeting.

Wolf- Jocks thought that was appropriate since the public didn't get a chance to review the complete standards.

in open.

H. PUBLIC HEARINGS:

1. SUP/SPR 2022-03 High Pointe Golf Course

Public hearing opened at 7:37

Brian Kelley- talked about Whitewater townships continuing moratorium on applications and reviews. Where the maintenance building is planned is where the possible wet area is which may have some challenging soils. Likes the environmental center and some of the cautions. He wonders what the tank capacity is for it.

Talked about the master plan cornerstone that addresses maintaining and improving ground and surface water around the township. Building blocks continue to be working with the watershed center and Grand Traverse Bay Ottawa and Chippewa Indians on e coli and other quality monitoring in East Bay, Acme and Yuma creeks. Found many Scholarly best management practices online, thinks best practices should be used on this golf course and they should be part of the conditions. Wants to make sure we protect the watershed. Thinks this could use an extra pair of eyes on the project.

Dennis Arouca- Is from Traverse City, supports the Highpointe golf project. He has three reasons to green light the project. 1) golf is good for local philanthropy, golf courses host many events to raise money for nonprofits. 2) Good for the local economy. 3) Good for the environment - most new follow the audubon sanctuary for golf courses.

Casey Cowell- From Traverse City. Supports the High Pointe Golf course project.

Adam Shriver- Supports the golf project. Knows from personal experience how much golf can change peoples lives.

Stephanie Slawnik- Supports the Highpointe golf project, her husband is part of the building team and this project would allow him to be home while this project is being built.

Wentzloff went over the options for the motion concerning the public hearing. Discussion with Jozwiak followed over the continuation of the public hearing.

Jozwiak- talked about bringing Gosling Czubak on to the project to help with all of the environmental concerns. Wants to clarify what the township was looking for, feels like the bar is shifting a little bit.

Jocks-As he understood it when the information was sent to him the application was not complete from the staff review.

Jozwiak- is concerned with the information about the fertilizer leaving the property, not saying that will happen. He is confused as to how that would be proved.

Discussion followed as to the completeness of the application.

Wentzloff did a straw poll of the PC members' opinions.

Feringa went over the Staff Report, and all of the different sections that had not yet been satisfied or were only partially satisfied when Lindsey initially wrote the staff report. Also listed the four bullet points 1) Landscape buffer and screening 2) right of way landscaping 3) existing tree

inventory and 4) concerns about fertilizer leaving the property boundaries. Two of the four are still outstanding.
Discussion about landscaping followed and what the ordinance says about screening the sides that don't border agricultural uses.

Jozwiak- will agree to doing a buffer if that is necessary.

Motion by Timmins support by Rosa to continue the public hearing at the November 14th meeting.
Friendly amendment by Timmins, to continue the public hearing either at the November 14th PC meeting or a date requested by the applicant.
Rosa accepts the amendment
Roll call vote- Aukerman - yes, Timmins - yes, Feringa- yes, Wentzloff- yes, VanHouten-No, Challendar-yes, Rosa-yes
Motion carries

I. OLD BUSINESS:

1. SUP/SPR 2022-03 High Pointe Golf Course -
Jozwiak - asked for clarification about the areas that will need buffering to the North of the maintenance shed.

Wentzloff- asked Wolf what would satisfy the conditions of 6.4.4

Wolf- that area is fine, she is more concerned with the existing area bordering the side and rear property lines.

Wentzloff- clarified the north area is a side property line.

Wolf- a green belt consists of one deciduous or evergreen tree and six shrubs or every forty lineal feet. They can be clustered on approval of the planning commission.

Jozwiak- asked if he could cluster trees.

PC agreed the trees could be clustered.

Jozwiak clarified how the trees should be counted

Wentzloff - a buffer is 20 ft. so count all the trees within the 20 ft.

Jozwiak - talked about the aquifer. Explained the process when you have a well that pulls more than seventy gallons a minute. It gets kicked to a secondary review by EGLE and they have a program where you input your data and get a letter grading. Roger has done that and they were given an A rating on a 400 gal. a minute well. This takes into consideration all the other wells in the area.

Wentzloff- that area looks good.

Rosa- question is it possible, with technology, to come up with a number that shows it is not running off this property based on the topography off the land and weather events?

Gene- Not for all those factors, unless you wanted to be diligent and do soil samples on an hourly basis to figure it out. Last time he spoke he explained about the minimalist design that translates down the road to maintenance as well. Tom's design renders a minimalist input sort of golf course. The vast majority of the property that will be developed will be unmaintained turf, it really won't have any inputs whatsoever. A well

established stand of turf grass is the best defense against run off and any sort of leaching. The areas of input will be mostly far away from the edges of the property and with the Fescud grass which will require even less inputs. The perception of golf courses being polluters is so wrong, especially in this area where waterways are so abundant.
He doesn't know how it is possible to quantify amounts that may permeate and cross property lines.

Wentzloff- asked if he could speak to any best practices management(BMP) that will be used?

Gene- Golf Course Superintendent Association of America which is our nation chapter. Their big initiative over the last two years is to create a BMP for the nation. It provides golf courses the template of BMP and a really cool tool that one can go online and tailor it to individual properties. Highpointe golf course does not yet have their specific BMP in place. That is something that would be done down the line.

Timmins wanted to clarify that they know about the township's native plant ordinance and are using Native plants, not just non invasive ones as there is a middle ground.

Jozwiak - asked for clarification as to what was needed for the next meeting.

Wentzloff- Aquifer and fertilizer are good, they need to go count trees along the property lines and show landscaping. We need to know what is on the plan.

J. NEW BUSINESS:

1. Accessory Dwelling Unit Discussion - Will be moving this to the November meeting before we talk about it.
Wolf- did give a handout that was specific to Grand Traverse County, but not specific to Acme. Would like to get someone from Housing North to come in and talk to the township and see if they have any data on Acme.

Aukerman- would like to make sure we identity the problem in the area before we jump into a solution space as other housing could fill the needs of the township in a better way.

Wentzloff- thinks this is a good first step in identifying the problem. Would like to also get some information to provide to the PC for some other housing options.

K. PUBLIC COMMENT & OTHER PC BUSINESS
Public comment open - 8:56

Brian Kelley- Doesn't understand how the fertilizer issue can be considered resolved. The township needs to depend on subject matter experts. Talked about using hydrologic modeling and contour modeling to monitor the fertilizer issue. As well as using vegetated wetlands and riparian buffers. Using BMP's as a guide, and ask an expert what to do. Referred to item 3 in the master plan that refers to the use of riparian buffers near environmentally sensitive areas. Quoted the Michigan zoning and enabling act, about the conditions proposed for shoreline areas.

Planning & Zoning Administrator Report – Lindsey Wolf- Self storage was not ready yet for review and still had some outstanding items. There is a special meeting for the Strathmore public hearing on Oct. 17th at the feast of victory. Township is looking to get Lindsey an assistant.

1. Township Board Report – Jean Aukerman- the personnel committee has been looking at an assistant for Lindsey for a few months. Job description is already written. They will also be doing special projects for the supervisor, clerk and treasurer as needed.

2. Parks & Trails Committee Report – Wentzloff is no longer on the committee. Her replacement has

been appointed. Acme connector trail grand opening October 25th at 4:30pm over by the Meijer roundabout, people can park in the back of the Meijer parking lot.

ADJOURN: Motion by Feringa, second by Timmins to adjourn.
Motion carries

Lindsey Wolf

From: Mike Stemo <stemorows@gmail.com>
Sent: Tuesday, October 18, 2022 1:02 PM
To: Lindsey Wolf
Subject: Kmart Redevelopment

Congrats to the Planning Commission,

Great to read the Ticker today and the positive news regarding redevelopment of the Kmart building. In following the news over the past few years, no doubt that a huge amount of work, meetings, discussions etc have gone into this project and trying to finalize a plan to fit the use for that site. Hope that the entire team takes a deep breath and relaxes just bit, before the start of the construction.

Again, congratulations!

Mike Stemo

P.S. Can you inform the contractors that the eagle pair typically shows up at their nest in later December

Acme Township Planning & Zoning Report

Meeting Date: September 12, 2022; October 10, 2022 (public hearing)
Subject: High Point Golf Course
Application No: SUP/SPR 2022-03

Date: September 7, 2022; Revised October 3, 2022; Revised October 25, 2022

Project: High Pointe Golf Course
Arnold Road
Williamsburg, MI 49690

Applicant: High Pointe Holdings, LLC
332 Potter Road
West Palm Beach, FL 33405
(561)907-4700

Owner: 5555 Arnold Road
PO Box 12
Williamsburg, MI 49690

Request: Resurrect High Pointe Golf Course SUP/SPR approval

PROJECT OVERVIEW

High Pointe Golf Course was opened in June of 1989 – due to the economy and other factors the course closed, and the property was sold in 2008. A portion of the property was converted into a hop farm. High Pointe Golf Club intends to re-establish the golf course as a private, membership-based, economically sustainable destination. The golf course will be designed to be environmentally friendly. The club will operate from May until late October and will employ 60 to 80 employees at seasonal peak and 12 to 15 employees year-round.

The new project includes a land acquisition of all the property lying south of the hops farm and a segment of land extending to Moore Road into Whitewater Township. The existing club house will be sold and will remain with the farm parcel. A new maintenance building will be located off Bates Road. Twelve (12) of the eighteen (18) holes are proposed to be wholly or in portion in Acme Township. Whitewater will be the location of the new clubhouse, training facility, driving range, cabins and parking for guests and employees.

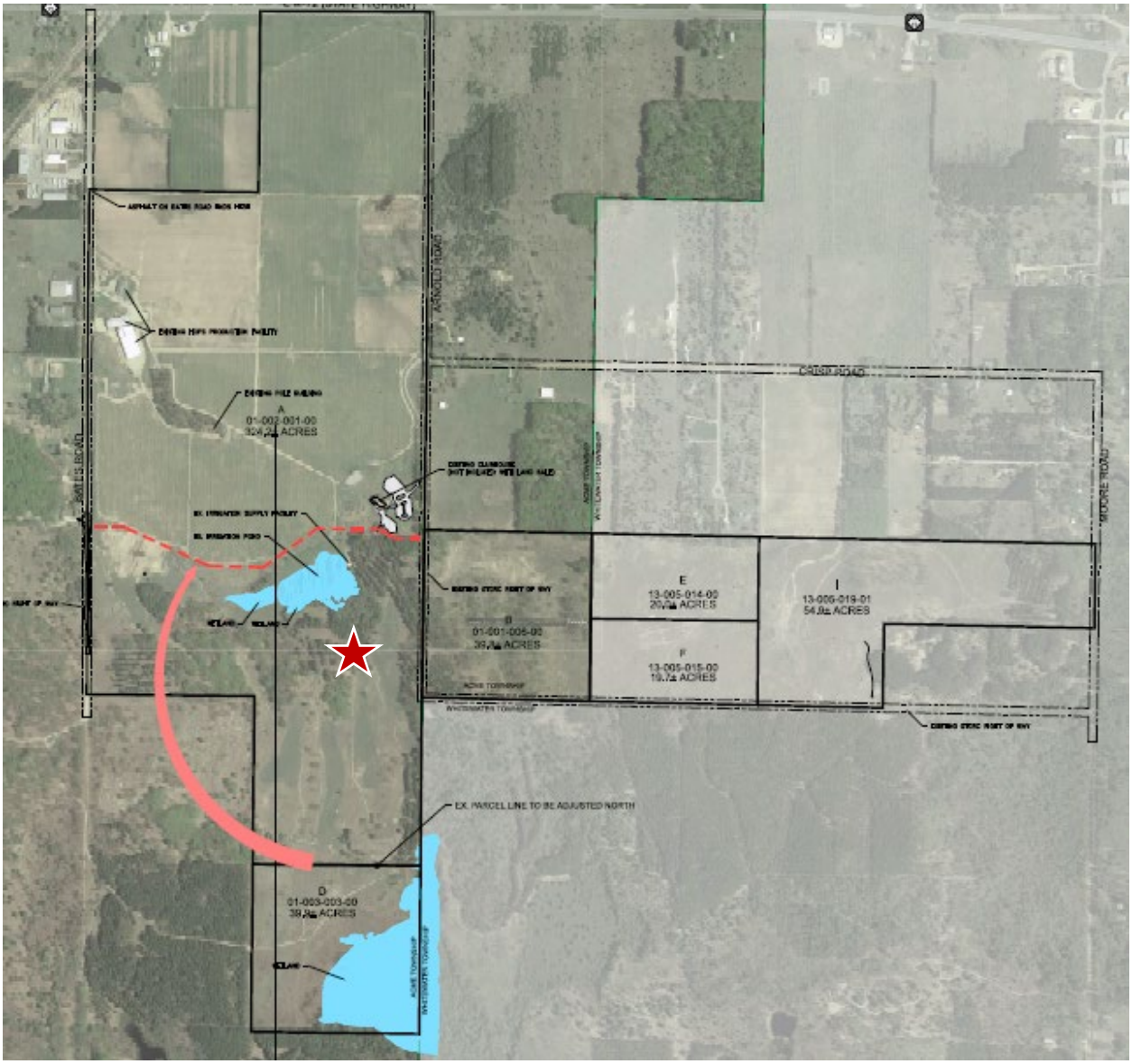
New wells will be drilled for the continued of the operation of the hop farm and golf course. Reliance of fertilizers is imperative.

PARCEL INFORMATION & OVERVIEW

Parcel Number: Acme:
28-01-002-001-00 (5555 Arnold, LLC)
28-01-003-003-00
28-01-002-017-00

Whitewater:
13-005-014-00
13-005-015-00
13-005-019-01

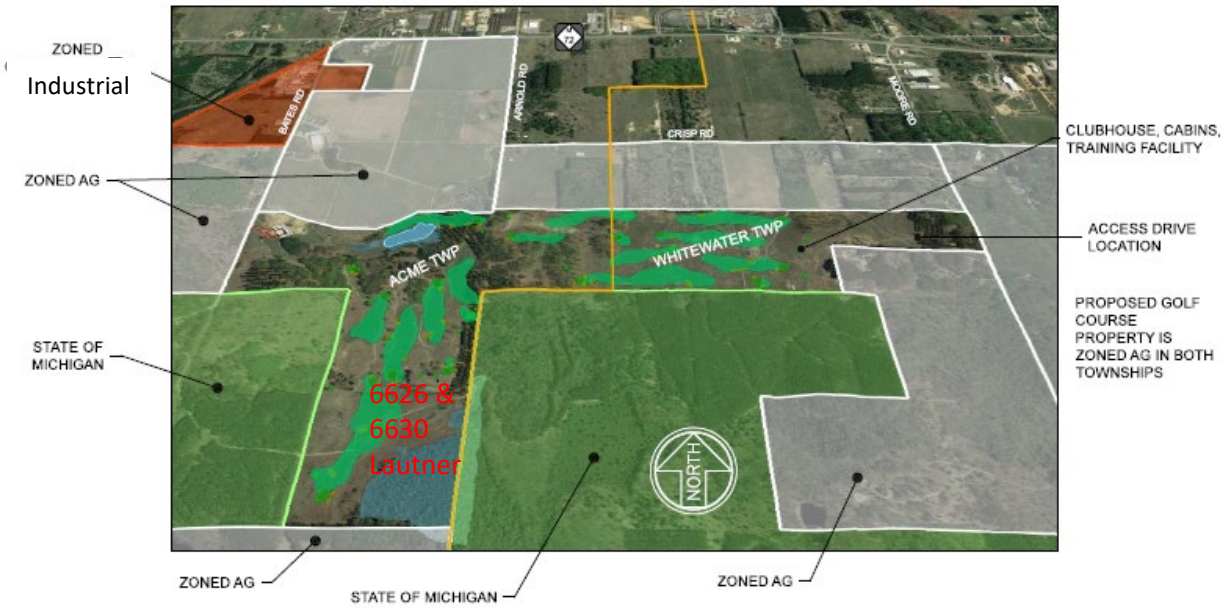
Location:



Zoning District: A-1: Agricultural District
Current Use: Hop Farm, Existing Golf Holes (still visible today)
Propose Use: Golf Course, Maintenance Building, Future Rest Room

Existing Permits: SUP #87-2Z

Adjacent Zoning & Land Uses:



ADJACENT ZONING MAP

<u>ZONING ORDINANCE OVERVIEW & ANALYSIS</u>

<u>3.2 Regulated Uses</u>

Golf Facilities permitted through a special Use.

<u>7.19 Golf Facilities</u>

7.19.1 Golf Courses And Country Clubs

A. These regulations shall not include stand-alone golf-driving ranges and miniature golf courses.

B. The site area shall be a minimum of fifty (50) acres and have its main ingress and egress from a major thoroughfare.

C. Development features shall be so located as to minimize any possible adverse effects upon adjacent property. All principal and accessory buildings, structures, and parking areas shall not be less than two hundred (200) feet from any property line of abutting residentially zoned land.

D. Whenever a swimming pool is to be provided, said pool shall be located at least one hundred (100) feet from abutting residentially zoned property lines and shall be enclosed with a protective fence six (6) feet in height, with entry limited by means of a controlled gate.

The proposed project meets the criteria of 7.19.1:

- The site area is over 50 acres (140+ in Acme Township).
- The site has access from Bates Road in Acme Township and Moore Road in Whitewater Township.
- There is no residentially zoned land within the project vicinity.

6.4.4 Landscape Buffers and Screening

A. Screening Materials: Effective screening shall be provided as required between incompatible land uses. The Planning Commission shall make the final determination on the required screening method and dimensions based on-

site conditions and the specific land use. Screening materials may include the following separately, or a combination thereof:

1. Vegetated Screens: Vegetated screens shall consist of evergreen trees planted no more than fifteen (15) feet apart and can be reasonably expected to achieve a complete visual barrier at a minimum height of six (6) feet in three (3) years. Deciduous trees may be incorporated for plant diversity provided the effectiveness of the screen is achieved.

2. Berms: Berms shall be constructed with slopes no greater than one (1) foot of vertical rise for every three (3) feet of horizontal run with at least a two (2) feet flat surface on top and sodded to provide adequate protection against erosion. Berms shall be landscaped with one (1) deciduous or evergreen tree and six (6) shrubs for every forty (40) lineal feet. Clustering of trees and shrubs is allowed upon approval of the Planning Commission.

3. Obscuring Walls or Fences: Obscuring walls or fences shall be a constructed of durable materials and placed inside and along the property lines. The Planning Commission has the authority to require specific materials based on the site conditions and the nature of the use. Walls and fences shall include one (1) vine or shrub for every ten (10) lineal feet, planted on the exterior face of the structure.

4. Green Belts: Green belts shall occupy a prescribed buffer zone and consist of vegetated ground cover, along with one (1) deciduous or evergreen tree and six (6) shrubs for every forty (40) lineal feet. Clustering of trees and shrubs is allowed upon approval of the Planning Commission.

B. Screening Required: The table below provides the instances when screening is required, along with applicable dimensions and buffer zones.

REQUIRED SCREENING STANDARDS				
Zoning District	Min. Buffer Width	Min. Screen Height	Material	Required Instances & Locations
AG	20 ft	---	Greenbelt	Rear and side property lines of non-agricultural uses

Being that a golf course is a non-agricultural use a greenbelt would be required to meet the requirements of section 6.4.4. Exiting vegetation may count towards the balance of plantings. The number and species of trees and shrubs located along the rear and side property lines is unknown/not indicated on the plan to see if it meets the existing landscaping credit ration. A mixture of pines and hardwoods indicated on sheets C101. The inclusion of the green belt has been added to the plan set – this item has been satisfied.

6.4.5 Right-of-Way Landscaping

All uses subject to the requirements of this Section that abut a right-of-way shall provide the following landscaping along the right-of-way:

A. A landscape zone shall be established along the right-of-way at a minimum width of ten (10) feet. The landscape zone shall only be used for landscaping, screening, drainage, non-motorized facilities or public space.

B. The landscape buffer shall include one (1) tree and six (6) shrubs for every thirty (30) feet of frontage. Trees shall be evenly spaced, but shrubs may be clustered.

The proposed project does not meet section 6.4.5 for right-of-way landscaping. Required as project is subject to site plan review. Landscaping has been incorporated along the right-of-way. The applicant would like to avoid trees being located within the electrical easement and has moved them further back on the property. The applicant would also like to request that the existing trees on page C701 count towards the balance of right-of-way plantings. That is acceptable per section 6.4.7. However, the number and species of trees and shrubs located is unknown/not indicated on the plan to see if it meets the existing landscaping credit ration. A mixture of hardwoods indicated on sheet C101. Right-of-way landscaping has been extended along the entire length of Bates Road – this item has been satisfied.

6.4.7 Existing Vegetation

A. Preservation: Existing deciduous trees, evergreens, flowering trees, and shrubs shall be protected and incorporated into the site plan wherever feasible.

B. Credit: Existing vegetation may be credited as detailed below for the purpose of calculating landscaping compliance provided that the plants are in healthy growing condition, are at least the minimum size, and are the appropriate species.

EXISTING LANDSCAPING CREDIT RATION		
Vegetation Type	Maturation	Landscaping Credit
Deciduous Tree	3" or less caliper	1:1
Deciduous Tree	4" – 6" caliper	1:2
Deciduous Tree	7" – 9" caliper	1:3
Deciduous Tree	10" – 12" caliper	1:4
Deciduous Tree	Greater than 12" caliper	1:5
Evergreen or Ornamental Tree	6' or less height	1:1
Evergreen or Ornamental Tree	7' – 12' height	1:2
Evergreen or Ornamental Tree	13' – 16' height	1:3
Evergreen or Ornamental Tree	Greater than 16' height	1:4
Shrub	Any size	1:1

C. Invasive Species: Invasive species shall be prohibited from being used for existing landscape credits.

8.4 SITE PLAN APPLICATION REQUIREMENTS

The tables below present the required elements for a special use/site plan review per the Zoning Ordinance, whether included in the site plan drawing, written narrative, or both. Items that do not satisfy the standards required by the Zoning Ordinance have been indicated with **bold, red text.**

8.4	Application Requirements		
Item	Description	Shown on Site Plan	Narrative
1	The date, north arrow, and scale. Scale shall be as follows: <3 acres: One (1) inche = fifty (50) feet >3 acres: One (1) inch = one hundred (100) feet	**No. Currently One (1) = 400 feet. Varies on plan set from 1" to 400 feet, 1" to 200', 1" to 100', 1" to 20' where appropriate. Satisfied.**	
2	The boundary lines of the property to include all dimensions, gross and net acreage, and legal description	✓	
3	The location and width of all abutting rights -of-way.	✓	

4	The existing zoning district in which the site is located and the zoning of adjacent parcels. In the case of a request for a zoning change, the classification of the proposed new district must be shown.	✓	
5	The location of all existing and proposed drives, walkways, signs, exterior lighting, parking (showing the dimensions of a typical parking area), loading areas, common use areas and recreational areas and facilities.	**No. Cart paths, walkways, not shown. A detailed plan for each hole showing the grading and paths is required.** **Satisfied**	
6	The location and identification of all existing structures within a two hundred (200) foot radius of the site.	✓	
7	Natural features that will be retained, removed, and/or modified including vegetation, hillsides, drainage, streams, wetlands, shorelands, and wildlife habitat	**No** **Satisfied**	
8	A landscaping plan with all existing and proposed landscaping, walls and/or fences	**No. Landscaping shown at maintenance building, but not for course. Does not indicate species of shrub or trees. Landscaping required along right-of-way.** **Partially satisfied – see item 6.4.4, 6.4.5, & 6.4.7 (pages 4 &5)** **Satisfied**	
9	A grading plan showing the topography of the exiting and finished site, including ground floor elevations, shown by contours or spot elevations. Contours shall be shown at height intervals at two (2) feet or less.	**No. Cart paths, walkways, not shown. A detailed plan for each hole showing the grading and paths is required. No detail on holes 8, 9, 10, 11, 14, 15. Not clear if those will be modified.** **Satisfied**	
10	Location, type and size of all above and below grade utilities.	**Yes: Shown for maintenance and well house. No: will course holes have irrigation?** **Satisfied**	
11	Type, direction, and intensity of outside lighting shown on a photometric plan in compliance with exterior lighting standards.	**No. Need detail on lighting of maintenance building.** **Satisfied**	

12	Location of any cross access management easements, if required.	**No. How will golfers navigate the course over Arnold Road?** **Satisfied**	
13	Location of pedestrian and non-motorized facilities, if required.	**No. Cart paths and walkways not indicated.** **Satisfied**	
14	An indication of how the proposed use conforms to existing and potential development patterns and any adverse effects.	✓	Existing course. New wells will be drilled to allow continued operation of hop farm and setback from irrigation pond.
15	The number of units proposed, by type, including a typical floor plan for each unit, dimensions, and area in square feet.	**No. Floor plan will be required for maintenance building.** **Satisfied**	
16	Elevations for all building facades.	**No. Elevations required for maintenance building.** **Satisfied**	
17	Phasing of project, including ultimate development proposals	✓	
18	Sealed/stamped drawings from a licensed architect, engineer, or landscaped architect.	**No** **Satisfied**	
19	The location and description of the environmental characteristics of the sit prior to development such as topography, soils, vegetative cover, mature tree specimens, drainage, streams, wetlands, shorelands, or any other unusual environmental features.	**No. Soil information, vegetative cover, tree specimen information not provided.** **Satisfied**	**No** **Satisfied**
20	A stormwater management plan showing all existing above and below grade drainage facilities, and proposed plans incorporating low impact development water quality technologies and other best management practices.	**Yes. More information required from applicant. Reference Gosling Czubak report for more detail.** **Satisfied**	**No** **Satisfied**
21	Plans to control soil erosion and sedimentation, including during construction.	**Installation of silt fence along holes 12, 16. Restoration details not provided on plan set.** **Satisfied – Soil erosion items will need to be reviewed and permitted through the**	**No** **Satisfied – Soil erosion items will need to be reviewed and permitted through the appropriate agency. Soil erosion has indicated they will not**

		appropriate agency. Soil erosion has indicated they will not have an issue permitting the project.	**have an issue permitting the project.**
22	The name and address of the property owner.	✓	✓
23	Name(s) and address(es) of person(s) responsible for preparation of site plan drawings and supporting documentation.	✓	✓
24	The method to be used to control and increase in effluent discharge to the air or any increase in noise level emanating from the site. Consideration of any nuisance that would be created within the site or external to the site whether by reason of dust, noise, fumes, vibration, smoke or lights.		**Partially satisfied – fertilizer management/storage, and application materials provided. How will the applicant ensure that fertilizer applications will not leave boundaries of the property? A representative of the applicant will further elaborate on fertilizer application to aid in the public's concern on fertilizer impact to satisfy requirement.**
25	Description of all existing and proposed structures referenced in item 5.		**No. Cart paths, walkways, not shown. A detailed plan for each hole showing the grading and paths is required.** **Satisfied**
26	The description of the areas to be changed shall include their effect on the site and adjacent properties. An aerial photo may be used to delineate areas of change.		**Indicated for Hop Farm - not for property to the south or east. No detail on holes 8,9,14** **Conditionally satisfied: area of disturbance 50' to 200' feet away from eastern and southern properties. Gosling Czubak will work with the applicant beyond stormwater control to review the wetland delineation and inspections during construction to ensure that the wetlands will not be negatively impacted.** **Partially satisfied:**

			How will the applicant ensure that fertilizer applications will not leave boundaries of the property? A representative of the applicant will further elaborate on fertilizer application to aid in the public's concern on fertilizer impact to satisfy requirement.
27	General description of deed restrictions and/or cross access management easements, if any or required.		**No. How will golfers navigate the course over Arnold Road? Satisfied**
28	The method to be used to serve the development with water.		✓
29	The method to be used for sewage treatment.		✓
30	The number of people to be housed, employed, visitors or patrons, anticipated vehicular traffic counts, and hours of operation.		✓

B. Screening Required: The table below provides the instances when screening is required, along with applicable dimensions and buffer zones.

REQUIRED SCREENING STANDARDS				
Zoning District	Min. Buffer Width	Min. Screen Height	Material	Required Instances & Locations
AG	20 ft	---	Greenbelt	Rear and side property lines of non-agricultural uses

Submittal of Plan(s) to Agencies for Review	Permit or Sign Off Provided
Grand Traverse County Road Commission	✓
Grand Traverse Department of Public Works	N/A
Grand Traverse County Health Department	✓
Grand Traverse County Soil Erosion	**Conditionally satisfied permit will be obtained.**
Grand Traverse Metro Fire Department	**Partially satisfied. More information required from applicant. Reference Metro Fire report for more detail. Satisfied**
Michigan Department of Transportation (MDOT)	N/A
Michigan Department of Great Lakes & Energy (EGLE)	No. If not required applicant will need to clarify.

Gosling Czubak Stormwater Review	**Partially satisfied. More information required from applicant. Reference Gosling Czubak report for more detail.** **Conditionally satisfied with stormwater and wetland management from Gosling Czubak.**

9.2 GENERAL STANDARDS (Special Use Permits)

Each application shall be reviewed on an individual basis for conformity and compliance with the standards of this Ordinance, including the specific standards below:

9.2	General Standards	Finding
A	Meet the standards for site plan approval in Article 8.	**Partially satisfied.** **Partially satisfied when the following are addressed: #8 & #26. #8 Satisfied. # 26 A representative of the applicant will further elaborate on fertilizer application to aid in the public's concern on fertilizer impact to satisfy requirement.**
B	Will be in accordance with the general objectives, intent and purposes of this ordinance.	**To be Determined. Agency sign off, landscaping plan, grading outstanding.** **Conditionally Satisfied. Gosling Czubak will be working with the applicant concerning the wetland management during the construction of the project as a condition of approval. A stormwater maintenance plan will be required. Partially satisfied:** ***How will the applicant ensure that fertilizer applications will not leave boundaries of the property?** *** Pending clarification on item #8.**
C	Will be designed, constructed, operated, maintained and managed so as to be appropriate in appearance with the existing or intended character of the general vicinity.	**Partially satisfied. Further elaboration on fertilizer application and storage. Wetlands in vicinity. Detail on restoration needed.** **Partially satisfied pending clarification on item #8.** **#8 Satisfied. # 26 A representative of the applicant will further elaborate on fertilizer application to aid in the public's concern on fertilizer impact to satisfy requirement.**
D	Will be served adequately by essential public facilities and service such as highways, streets, police and fire protection, of drainage structures, refuse disposal, or those persons or agencies responsible for the establishment of the proposed use shall be able to provide adequately any such service.	**Partially satisfied. Metro Fire review outstanding.** **Satisfied.**
E	Will not be hazardous or disturbing to existing or future neighborhood purposes.	**To be Determined. A detailed plan for each hole showing the grading and paths is required. No detail on holes 8, 9, 10, 11, 14, 15. Not clear if those will be modified. Further elaboration on**

		fertilizer application and storage. Wetlands in vicinity. **Conditionally satisfied. Gosling Czubak will be working with the applicant concerning the wetland management during the construction of the project as a condition of approval.** ***How will the applicant ensure that fertilizer applications will not leave boundaries of the property? A representative of the applicant will further elaborate on fertilizer application to aid in the public's concern on fertilizer impact to satisfy requirement.**
F	Will not create excessive additional requirements at public expense for public facilities and services.	Satisfied. None required.
G	Will be in accordance with all required conditions of the district in which it will be located.	**To be Determined. A detailed plan for each hole showing the grading and paths is required. No detail on holes 8, 9, 10, 11, 14, 15. Not clear if those will be modified. Does not include a landscaping plan for the site or right-of-way.** **Partially satisfied pending clarification on item #8.** **Satisfied**
H	Will not cause any substantial injury to the value of other property in the neighborhood in which it is to be located, and will not be detrimental to existing and/or other permitted land uses in the applicable zoning district.	**To be Determined. A detailed plan for each hole showing the grading and paths is required. No detail on holes 8, 9, 10, 11, 14, 15. Not clear if those will be modified. Restoration details not provided on the plan set.** **Applicant to clarify that aquafer will not negatively compromised for the neighboring owners as mentioned in project narrative.** ***How will the applicant ensure that fertilizer applications will not leave boundaries of the property? A representative of the applicant will further elaborate on fertilizer application to aid in the public's concern on fertilizer impact to satisfy requirement.**

9.4 S SPECIAL USE PERMIT APPLICATION SUBMISSION PROCEDURES

The procedures for an application submittal for a special land use permit shall follow those outlined in Article 8 except that the applications shall be submitted at least 30 days prior to the Planning Commission meeting.

8.3 STANDARDS FOR SITE PLAN APPROVAL

The following criteria shall be used as a basis for which site plans will be reviewed and approved:

8.3	Standards for Approval	Findings
A	Adequacy of Information: The site plan shall include all required information in sufficiently complete and understandable form to provide an accurate description of the proposed uses and structures.	✓
B	Site Design Characteristics: All elements of the site shall be harmoniously and efficiently designed in relation to the topography, size, and type of land, and the character of the adjacent properties and the proposed use. The site shall be developed so as not to impede the reasonable and orderly development or improvement of surrounding properties for uses permitted on such property.	✓
C	Site Appearance: Landscaping, earth berms, fencing, signs, walls, structures and other site features shall be designed and located on the site so that the proposed development is aesthetically pleasing and harmonious with nearby existing or future developments.	**Partially satisfied per 8.4 #8** **Satisfied**
D	Compliance with District Requirements: The site plan shall comply with the district requirements for minimum floor space, height of building, lot size, open space, density and all other requirements set forth in the Article 3:, unless otherwise provided in these regulations.	✓
E	Privacy: The site design shall provide reasonable visual and sound privacy. Fences, walls, barriers, and landscaping shall be used, as appropriate, for the protection and enhancement of property and the safety and privacy of occupants and uses.	**Partially satisfied per 8.4 #8** **Satisfied**
F	Emergency Vehicle Access: All buildings or groups of buildings shall be so arranged as to permit convenient and direct emergency vehicle access.	✓
G	Circulation: Every structure or dwelling unit shall be provided with adequate means of ingress and egress via public streets and walkways. The site plan shall provide a pedestrian circulation system that is insulated as completely as is reasonably possible from the vehicular circulation system. The arrangement of public and common ways for vehicular and pedestrian circulation shall respect the pattern of existing or planned streets or pedestrian ways in the vicinity of the site. The width of streets and drives shall be appropriate for the volume of traffic they will carry.	✓
H	Parking: The parking provided for an intended use meets the standards of Article 6 of this Ordinance.	✓

I	Drainage: Appropriate measures shall be taken to insure that the removal or drainage of surface water will not adversely affect adjoining properties or the capacity of the public drainage system. Provisions shall be made for a feasible storm drainage system, the construction of storm water collection, storage and transportation facilities, and the prevention of erosion. Surface water on all paved areas shall be collected at intervals so that it will not obstruct vehicular or pedestrian traffic and will not create nuisance ponding in paved areas. Final grades may be required to conform to existing and future grades of adjacent properties. Grading and drainage plans shall be subject to review by the Township Engineer.	**Conditionally satisfied. Gosling Czubak will be working with the applicant concerning the wetland management during the construction of the project. A stormwater maintenance agreement is also required.**
J	Soil Erosion and Sedimentation: The proposed development shall include measures to prevent soil erosion and sedimentation during and upon completion of construction, in accordance with current Grand Traverse County soil erosion control standards.	**A permit from SESC will be obtained.** **Satisfied**
K	Exterior Lighting: Exterior lighting shall be designed so that it is deflected away from adjoining properties, visual glare is minimized, and so that it does not impede vision of drivers along adjacent streets.	✓
L	Public Services: Adequate services and utilities, including water, sewage disposal, sanitary sewer, and storm water control services, shall be available or provided, and shall be designed with sufficient capacity and durability to properly serve the development.	✓
M	Screening: Off-street parking, loading and unloading areas, outside refuse storage areas, and other storage areas that are visible from adjacent homes or from public roads, shall be screened by walls or landscaping of adequate height. All walls must be solid and constructed of masonry and shall be subject to the approval of the code official and cannot be located in required setbacks without written authorization from the code official.	**Partially satisfied per 8.4 #8** **Satisfied**
N	Danger from Fire and Hazards: The level of vulnerability to injury or loss from incidents involving fire and hazardous materials or processes shall not exceed the capability of the Township to respond to such incidents so as to prevent injury and loss of life and property. In making such an evaluation, the Township shall consider the location, type, characteristics, quantities, and use of materials or processes in relation to the personnel, training, equipment and materials, and emergency response plans and capabilities of the Township . Sites that include significant storage of flammable or hazardous materials or waste, fuels, salt, or chemicals shall be designed to prevent spills and discharges of polluting materials to the surface of the ground, groundwater, and public sewer system.	✓

O	Health and Safety Concerns: Any use in any zoning district shall comply with applicable federal, state, county, and local health and pollution laws and regulations with respect to noise; dust, smoke and other air pollutants; vibration; glare and heat; fire and explosive hazards; gases; electromagnetic radiation; radioactive materials; and, toxic and hazardous materials.	**A plan for fertilizer storage and environmental center has been included with the application materials in accordance with OSHA. *How will the applicant ensure that fertilizer applications will not leave boundaries of the property? A representative of the applicant will further elaborate on fertilizer application to aid in the public's concern on fertilizer impact to satisfy requirement.**
P	Phases: All development phases shall be designed in logical sequence to ensure that each phase will independently function in a safe, convenient and efficient manner without being dependent upon subsequent improvements in a later phase or on other sites.	✓

SUMMARY AND RECOMMENDATION:

Continued Discussion:

- Further elaboration on the Doak philosophy and what will make High Pointe "best in class".
- Are there any local partnerships that could be entered into to further ensure water quality protection?
- "*High Pointe does not have their specific BMP in place. That would be something that would be done down the line* (October 10, 2022, Meeting Minutes)". How long would that take to be put in place? Is that something that could be shared with the township? Is that put into place prior to the course being open to the members?
- How long does it take to develop a well-established turf grass? We have heard that "*A well-established turf grass is the beset defense against run off and any sort of leaching* (October 10, 2022, meeting minutes)".
- If a condition is put on the project, it will need to have a measurable outcome.
- Gosling Czubak will be conducting the wetland delineation review on Thursday October 27, 2022.

Moving forward

At this time the Planning Commission can:

1. Close the public hearing and request additional information from the applicant. The Planning Commission should require that this additional information be submitted at least 2 weeks prior to the Planning Commission meeting to allow for proper review of the additional information submitted.
2. Close the public hearing and make a decision on the application.

Suggested Motion for Consideration:

Motion to recommend approval of the application for SUP/SPR 2022-03 to the Acme Township Board for High Pointe Golf Course (parcel IDs: 28-01-002-001-00, 28-01-003-003-00, 28-01-002-017-00)as it meets the criteria of 8.3 Standards for Site Plan Approval, 8.4 Application Requirements, and 9.2 Special Use General Standards with the following conditions:

- The stormwater maintenance plan and budget are recorded prior to the issuance of a land use permit. The stormwater system is subject to periodic maintenance inspections by the township engineer.
- The applicant will provide the township with escrow funds for Gosling Czubak's role in reviewing the wetland delineation and inspections during construction to ensure protection of the wetlands. A report will be provided to the township for each inspection.
- Applicable agency permits be obtained prior to the issuance of a land use permit.
- Provide a landscaping letter of credit, bond, cash surety to the township prior the issuance of a land use permit.
- A copy of the as-builts be provided to the township for inspection prior to final occupancy. The stormwater system is subject to inspection by the township engineer.

**Any other conditions that the Planning Commission may find appropriate.*

PROJECT MANUAL

HIGH POINTE GOLF COURSE SUBMITTAL

Version 2.2

Rev. October 13, 2022

Project Location
Acme Township: Sections 6 and 7
Whitewater Township: Section 5

Project Owner
High Pointe Holdings, LLC
Rod Trump, Founder

Project Permits Coordinator
Scott Jozwiak, PE
Jozwiak Consulting

Project Consultants
Tom Doak, Golf Course Architect

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PROJECT OVERVIEW

High Pointe Golf Club seeks to reincarnate renowned golf course architect and Traverse City resident Tom Doak's first course, with Mr. Doak himself a key member of our project team. Since he designed the original High Pointe golf course in the late 1980's, Mr. Doak, author of "The Anatomy of a Golf Course", has gone on to design legendary courses all over the globe with six of his courses being recognized as Top 100 in the world, including Pacific Dunes in Oregon, Ballyneal in Colorado and Tara Iti in New Zealand. We intend to make High Pointe his seventh Top 100 course, and a "bucket list" golfing destination for golfers worldwide.

The Club intends to re-establish the golf course and bring it to a new level of greatness as a private, membership-based, economically-sustainable travel destination. The golf course itself is being purposefully designed to be environmentally friendly. High Pointe Golf Club will be open to and supported exclusively by its members and their guests. We anticipate that most of our members will be national members, residing outside of northwest lower Michigan, who will fly into Traverse City and be shuttled to the Club in one of our shuttles; as such we expect little to no impact on traffic. The Club will operate from early May until late October and will employ approximately 60 to 80 employees at seasonal peak and 12 to 15 employees year-round.

High Pointe Golf Course

HISTORY

High Pointe Golf Course was opened June of 1989 and consisted of 18 holes which were all located in Acme Township. The original clubhouse still exists and is located off of Arnold Road. The course layout at that time had the front nine to the north of the clubhouse and the back nine to the south of the clubhouse (more or less).

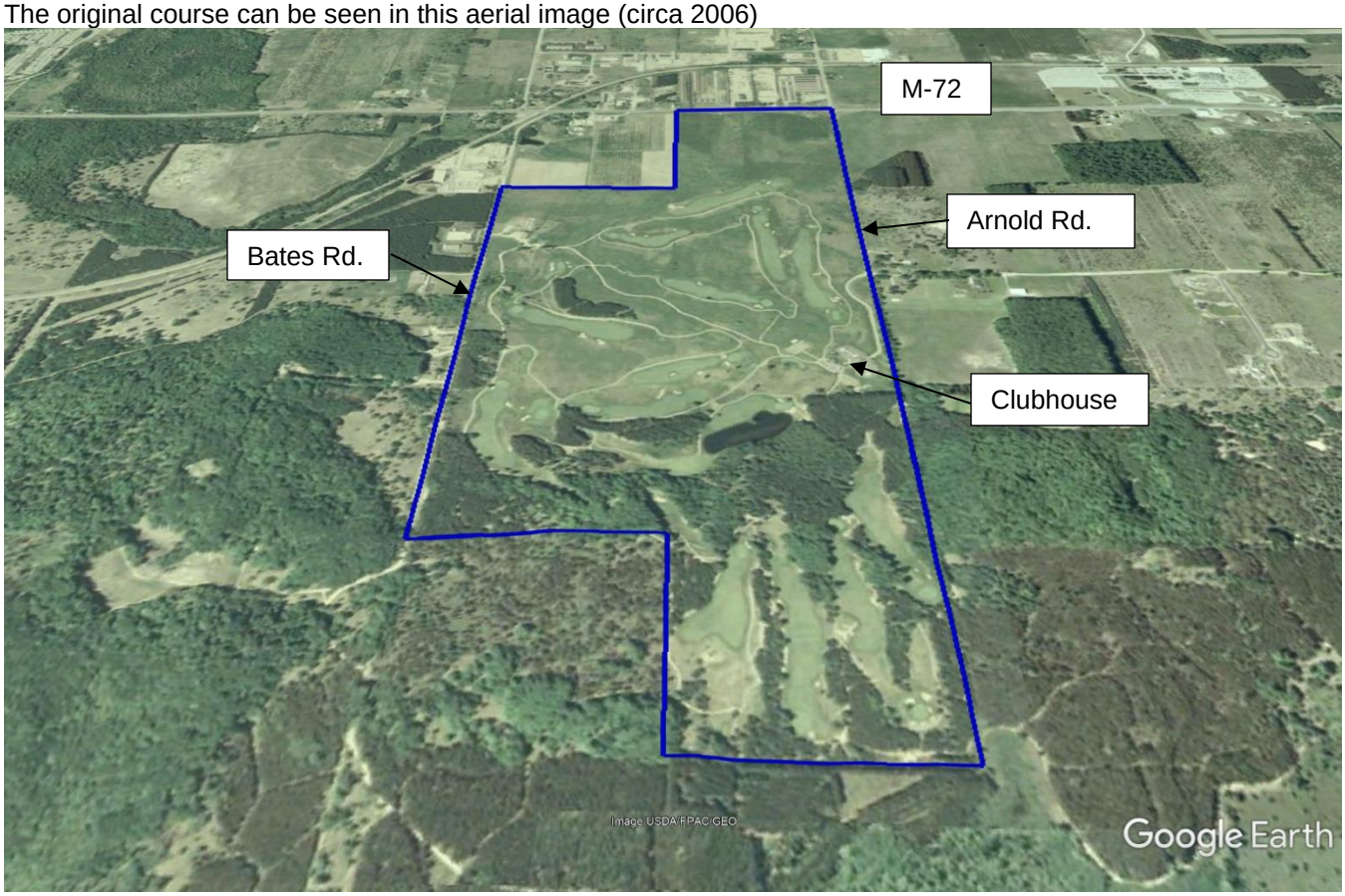
A few interesting reads about the course can be found in links below.

High Pointe Golf Club (renaissancegolf.com)
https://www.renaissancegolf.com/264/our-design/high-pointe-golf-club

The Story of High Pointe Golf Club – North Coast Golf Co.
https://northcoastgolfco.com/blogs/news/story-of-high-pointe

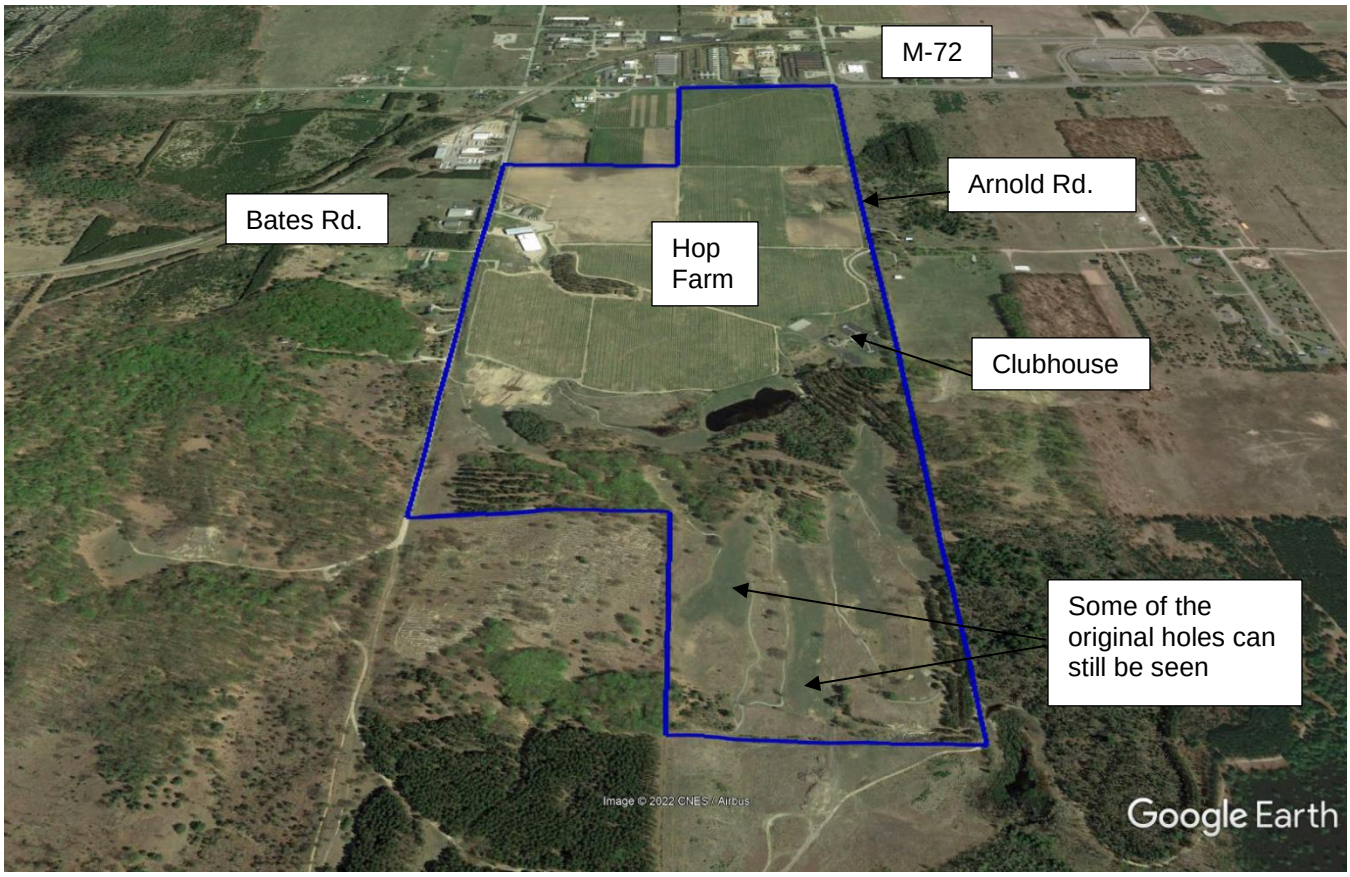
First Tom Doak-Designed Course to Become Hop Farm (golf.com)
https://golf.com/travel/first-tom-doak-designed-course-to-become-hops-farm/

The original course can be seen in this aerial image (circa 2006)



The economy and other factors caused the owners to close and sell the property in 2008. The portion of property lying between the clubhouse and M-72 was regraded and converted into a hop farm.

The aerial image below is current and you can still see some of the back nine holes along with the hop farm.



High Pointe Golf Course

PROJECT PROPOSAL

The new project includes the acquisition of all of the property lying south of the existing hop farm and that segment of land extending to Moore Road in Whitewater Township. A small portion (1/2 acre) of hops will be removed at the southern edge of the hop farm to allow for adequate width to be re-established between the hops and the irrigation pond.

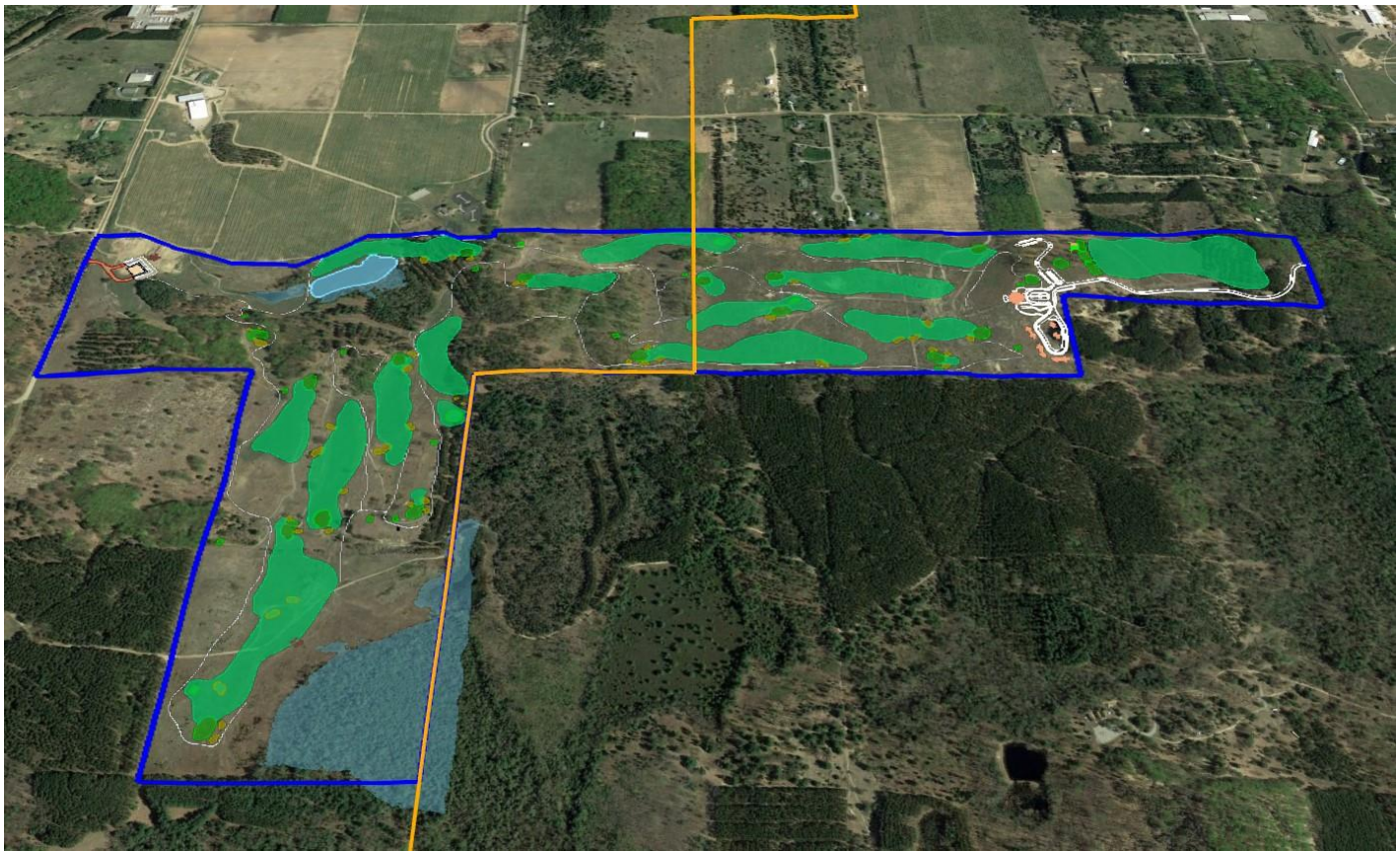
The existing clubhouse is not being sold and will remain with the farm parcel.

In Acme Township, we are constructing a new maintenance building that will be located off of Bates Road. Eventually we will be requesting to construct a small restroom and shelter in or around holes 9 and 10 as can be see on our site plans.

Whitewater Township will be the location of a new clubhouse, training facility, driving range, cabins and parking for guests and employees. Access will be from Moore Road.

Watering a golf course is essential. Fortunately the water supply system that was put in place for the original golf course remains intact and has been used by the hop farm. This includes several wells and a water withdrawal system located in the irrigation pond. A diver has confirmed that the infrastructure in the pond is adequate and will continue to be used. As part of the property acquisition, new wells will be drilled for the continued operation of the hop farm.

As with all golf courses, reliance on fertilizers is imperative. All persons managing and handling these materials are certified by the state and are inspected routinely.



SEED RESEARCH OF OREGON
The germination of ideas

IDEAS IN PLAY

Fine Fescue Low Maintenance Grass

The use of lower maintenance turfgrasses is increasing in the United States. The reasons for this trend are numerous. Restrictions on water use, environmental concerns, regulations on pesticide usage and shrinking maintenance budgets for non-showcase turfgrass areas are a few reasons to consider using low maintenance grasses.

In the past, low intensity grasses did not provide the quality needed for use in areas that also contained intensively managed high quality turf. However, with the advent of improved low maintenance varieties of fine fescues it is now much easier to integrate low maintenance grasses into high quality turfgrass areas. SR 3100, SR 3150 and Scaldis II hard fescue; SR 5210 and SR 5250 strong creeping red fescue; Dawson, Shoreline slender creeping red fescue and SR 3210 blue fescue are excellent examples of grasses that can be used in low maintenance planting that are part of showcase turfgrass areas. Areas such as golf course roughs, slopes and bunker edges as well as parks, roadsides and reclamation areas are just some examples of where the improved fine fescues can be used to provide low maintenance quality turf. The presence of an endophytic fungus has been shown to improve the performance of many turf species, and fine fescues are no exception. High levels of endophyte will provide natural resistance to many damaging turfgrass insects such as chinch bug, billbugs, sod webworms and armyworms. In addition, grasses that contain viable endophytes appear to have greater vigor, quicker recovery from summer stress and greater persistence during environmental stress periods. The persistence of endophytic grasses will reduce weed invasion by maintaining a denseground cover. SR 3100, SR 3150 and Scaldis II hard fescue; SR 5210 and SR 5250 strong creeping red fescue; Dawson, Shoreline slender creeping red fescue and SR 3210 blue fescue were developed with high endophyte levels to take advantage of these characteristics.

Improved Turf Quality

The improved fine fescues are excellent choices for low maintenance turf plantings, not just in shade. Fine fescues typically persist in turf sites that are droughty, acid and infertile. The term fine fescue refers to at least five types of fescue which have fine, tough, bristly leaves. These include: Chewings strong creeping red, sheep or blue and hard fescues; each with specific strengths, weaknesses and preferred uses. Chewings, sheep, blue and hard fescues all have a bunch-type growth habit while strong and slender creeping reds are rhizomatous. They all have good drought tolerance but the improved hard and sheep fescues have excellent heat and drought tolerance due to their leaf texture, deep rooting capabilities and high root to shoot ratio. These factors provide the hard fescues with one of the highest water use efficiency rates of any cool-season turfgrass species. All of the fine fescues have very good cold tolerance. Typically found in, and recommended for shade, the newer fine fescues such as SR 3100, SR 3150 and Scaldis II hard fescue; SR 5210 and SR 5250 strong creeping red fescue; Dawson, Shoreline slender creeping red fescue and SR 3210 blue fescue have recently been improved by breeding in stronger resistance to powdery mildew. These breeding programs have also improved resistance to a number of other diseases including Net Blotch, Red Thread and Anthracnose. The improved fine fescues are recommended for mixtures with other turfgrass species such as Kentucky bluegrass and perennial ryegrasss as well as with each other, with the best mixture dependent on the site.

Maintenance

From a maintenance standpoint the fine fescues are low in cultural intensity. The low growth rate will significantly reduce the amount of mowing needed throughout the growing season. Nitrogen application rates range from 0.1 to 0.3 lb./1000sq. ft./month for hard fescues. In addition to their low growth rates, all of the fine fescues except strong creeping red fescue will tolerate mowing heights of one half inch. Wear tolerance is good for all the improved fine fescues. Only new hard fescues with improved Summer Patch resistance are good for compacted sites. Seeding rates of 4 to 5 lbs./1000 sq. ft. are recommended.

Seed Research of Oregon • Phone: 800-253-5766 • 541-758-5305 (fax) • sro.seed.com

FINE FESCUE FERTILIZER PROGRAM

PART 1 GROW-IN PHASE FERTILIZER

The establishment of all turfgrasses including fine fescues requires a much different approach compared to managing an established stand of turfgrass. The "grow-in" process will require a higher number of inputs and nutrients. In some cases, the initial seeding process will be applied with a "hydromulch" approach and within that mulch there will be a starter fertilizer. That fertilizer will contain some phosphates to promote root growth and establishment. Subsequently there will be multiple fertilizer applications during the grow-in process. This could happen over a 4–5-month period depending on when the initial seed is applied. Again, those applications will be a starter type fertilizer utilizing Nitrogen, Phosphorus, and Potassium.

PART 2 LONG TERM MAINTENANCE FERTILIZER

Once established and the desired density is accomplished, the fine fescue areas will be a low input stand. Depending on factors like soil type, seed variety etc it is not uncommon to expect the fescue stands to require as little as .75-1lb of nitrogen per 1000 square feet per year, much lower than other varieties of turfgrass.

PART 3 FERTILIZER APPLICATION STATEMENT

Fertilizer applications will comply with all MDARD and EGLE requirements and all applicators will be properly licensed and certified. The applicant has engaged and consulted with Gene Davis (4 year Turfgrass Management Degree, Golf Course Superintendent, and certified commercial fertilizer/pesticide applicator for 21 years, qualifications attached) concerning fertilizer application and other issues related to golf course development and maintenance. The applicant will follow all guidelines on the labeled products in terms of application as the label is the law. The applicant will assure applications are done properly, timely and in accordance with the manufacturer's guidelines. The use of IPM's (Integrated Pest Management) programs, drift management programs and strict weather research prior and during the applications will eliminate translocation of products to areas that are not intended to receive these inputs. Records for any pesticide/fertilizer applications are filled out before and after the application. These records must be retained for 3 years. The narrative above describes only a few of the measures that a certified commercial applicator must follow in the State of Michigan. Beyond that, the applicant will adhere to "best management practices" in handling, mixing and applying pesticides and fertilizers.

All persons managing and handling these materials are certified by the state and the people and storage facilities are inspected routinely.

GOLF COURSE IRRIGATION

PART 1 OVERVIEW

Just like nutrients are required during the "grow in" phase, the use of water will be very important to make sure the turf is receiving the necessary inputs to establish turf health and density desired. However, water usage like other inputs will decrease as the turf is established. Fescue grass is known for its drought tolerance and actually will perform well with limited water usage.

PART 2 WATER SOURCE HISTORY

Irrigation will be sourced from the water supply system that was put in place for the original golf course. This includes the irrigation pond which was dredged for this purpose in the 80's when the course was initially constructed. A refill well was installed to maintain the water level in the pond. An intake screen and vault adjacent to the pond was connected to suction pumps which fed the irrigation system to the golf course.

Upon termination of the golf course and the construction of the hop farm, the system was reconfigured. Water quality from the pond intake system was difficult to manage and screen for use by the hop farm irrigation system which primarily consists of drip style emitters. A second well was put in near the original well and both are plumbed together to provide the necessary output. Use of the pond system has since been minimal. The existing wells each have an output rating of around 600 gpm at 60 psi each.

PART 3 PROPOSED WATER SUPPLY SYSTEM

The seller intends to continue operation of the hop farm and with that still requires a water source. The buyer and seller have held meetings to discuss the most economical and straightforward method for ensuring that both operations can be sustained and various plans are in consideration. The most current option that is being developed is that the seller (hop farm owner) would retain the existing wells and that the buyer would grant an easement to the seller that would include the area where the wells are located along with an easement over the water supply, appurtenances and electrical equipment that service the wells.

In this scenario, the buyer would install a new refill well for the irrigation pond. It is estimated that the output of the new well would have to produce a pumping rate of approximately 400 gpm. It is anticipated that this new well would be positioned closer to the maintenance facility so that operation equipment and concerns about the aquifer capacity are mitigated. This well would feed the irrigation pond. The well would be float operated, meaning it would only activate if the water level in the pond reached a certain threshold and would deactivate at a certain level.

Regardless of the water input, the irrigation system will be supplied by a high output pump system that would pull water from the irrigation pond via the existing intake pipe. The intake pipe has been confirmed to be in good condition by a diver that performed a visual inspection. The irrigation pump(s) will be able to deliver water at a rate of 1300 gpm and anticipated watering duration for the entire course will be about 6 hours during mid summer.

It is important to realize that with all systems, cost of operation hits the bottom line. Therefore, precise watering systems are going to be installed that allow watering of the areas that need it. It is not a "set it and forget it" system. As with fertilizers, golf course curators are constantly monitoring the turf condition and the goal is to give the turf "just enough".

PART 4 IRRIGATION POND OPERATION

The irrigation pond has a surface area of approximately 2.4 acres. At this size, there is approximately 65,000 gallons for every inch of pond surface.

A water withdrawal of the irrigation pumps at a rate of 1300 gpm equates to 78,000 gallons per hour which is approximately 1.2" of draw down per hour.

The recharge well operating at 400 gallons per minute puts 24,000 gallons of water into the pond per hour which is 0.37" of elevation increase to the pond.

During times of high demand which are times with little precipitation, the irrigation will run for approximately 6 hours. During that time, the pond will drawdown approximately 5”. A spreadsheet analysis concludes that under this scenario, the recharge well will run for a total of 17 hours (it will run simultaneous to the irrigation supply pumps and an additional 11 hours afterwards).

This peak scenario results in approximately 470,000 gallons of water used for irrigation during this peak demand. Other times of the year when precipitation is more common, the water duration will be significantly less frequent and less duration.

ENVIRONMENTAL

PART 1 WETLANDS

Wetlands are located on the property. The north location is an area that abuts the irrigation pond and the southeast corner of the property. Proposed disturbances in proximity (not in) to these locations is limited to stump removal, tilling, slight reshaping and restoration with turfgrass.

The pond along hole #16 consists of a very sharp drop from the existing grade to the waters edge. At this location we intend to install silt fence. This is a manmade pond from the initial construction of the golf course and impacts to it will be minimal.

The wetlands that abut the irrigation pond along the east side will be protected with silt fence and a ditch and berm. The ditch and berm will allow fertilizers that may be included in runoff to be entrapped. Regrowth vegetation in the ditch and on the berm will provide uptake of the nutrients and minimize impact to the wetland.

This same approach will be used along hole #12 at the south end of the project.

Additionally, Gosling Czubak, township engineering firm, will provide oversight and guidance during the project and in the event additional measures become necessary, they will be able to make and assist in implementing those. The firm will be contracted by the township and fees for this service provided by the developer.

PART 2 STORMWATER MANAGEMENT

The project in total consists of 280 acres of which 192 are located in Acme Township. The balance of the parcel is in Whitewater Township. The proposed impacts to Acme include the construction of the maintenance facility along 8.5' wide cart paths that are proposed throught the project. In total, there is about 2 acres of cart paths and about 1.5 acres of impervious and semi-impervious included in the maintenance facility. This equates to less than 2% of the 192 acres containing impervious surface.

The cart paths will be installed such that runoff from them does not leave the property. Since construction of the golf course is a fluid process, Gosling Czubak will provide evaluations to insure this priority is maintained.

The maintenance facility will utilize an existing low point adjacent to it for stormwater management and infiltration. Calculations are provided and the management plan is reviewed by Gosling Czubak to insure it meets the stormwater ordinance.

PART 3 FERTILIZER STORAGE

The fertilizer storage will occur in a stand along building. This will be a cold storage building and will comply with all of the regulations imposed by the state with regard to storage and safe handling procedures.

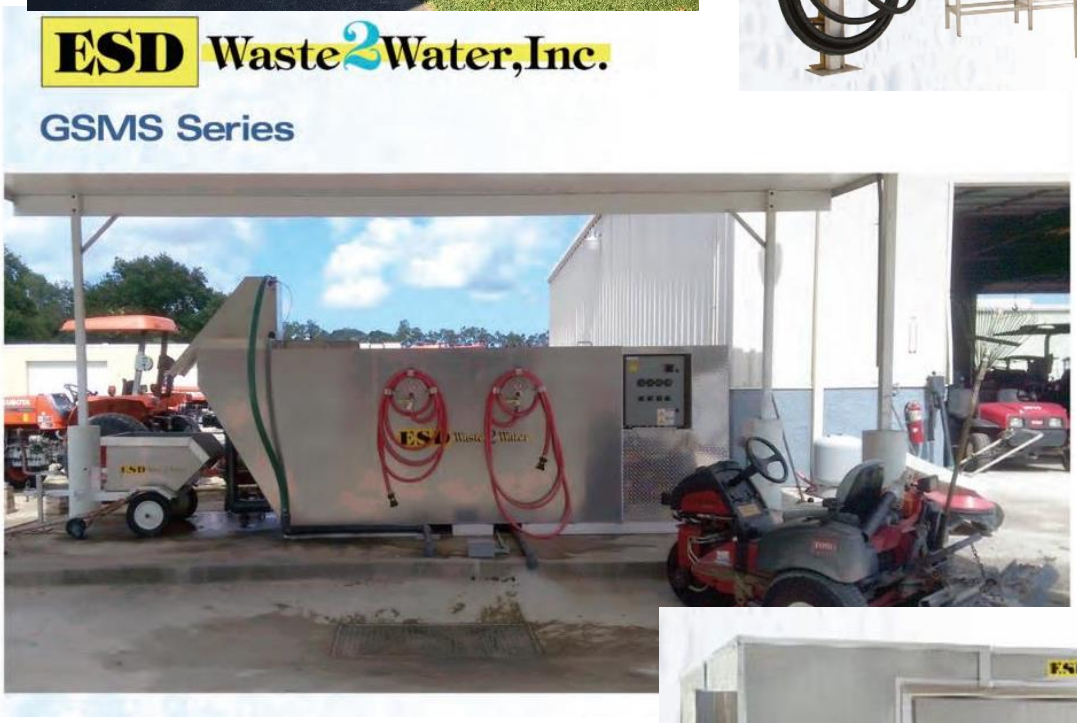
PART 4 ENVIRONMENTAL CENTER

Our project includes a pavilion type structure that is coined the Environmental Center. An identical facility exists at the Walloon Lake Country Club near Petoskey. This is a pavilion that is open on all sides. The environmental center provides for three things. Chemical storage, mower cleaning stations with wash water reclaim equipment and a fueling center. A raised concrete island runs along the center line of the pavilion and provides the refuge for the operation equipment to be placed.

1. Chemical storage cabinet which is a stainless, stand alone cabinet specifically developed for this purpose. Adjacent to the cabinet and under the pavilion is a concrete pad sloped to a water tight sump where filling and mixing of the chemicals occurs.
2. The next bay under the pavilion is for equipment washing. There is a wash bay on either side of the pavilion to allow two mowers to be washed simultaneously. The concrete floor is sloped to drains which collect the wash water and debris and send it to the reclaim equipment where grass clippings are separated. The system can recycle the water for reuse and is a closed system.
3. The next bay is the fueling bay. 500 gallon, double contained, fuel tanks (1 for diesel and 1 for gasoline) set on the island and will be bollard protected. The concrete pad is sloped to a sump whereby any spillage is collected.

The concrete in the environmental center is sealed to prevent any of the chemicals or fuel from collecting in pores found in concrete.

The company that supplies the equipment for the environmental center has had similar installs throughout the country. Information on this equipment is included with this narrative.



GREENBELT BUFFER LANDSCAPING
CONSISTS OF 1 DECIDUOUS OR EVERGREEN TREE AND 6 SHRUBS FOR EVERY 40 LINEAL FEET OF SIDE PROPERTY
2580 LINEAL FEET OF FRONTAGE=
65 TREES AND 387 SHRUBS CLUSTERED IN THE AREA SHOWN
A STRIP OF AT LEAST 20' WIDE SHALL BE VEGETATIVE GROUND COVER.
FOLLOWING THE CLEARING AND GRUBBING PHASE, AN INVENTORY OF REMAINING EXISTING VEGETATION WILL BE COMPLETED FOR EVALUATION OF EXISTING LANDSCAPE CREDIT RATION IN ACCORDANCE WITH SEC 6.4.7.

RIGHT OF WAY LANDSCAPING
SEE SHEET C701 FOR DETAIL

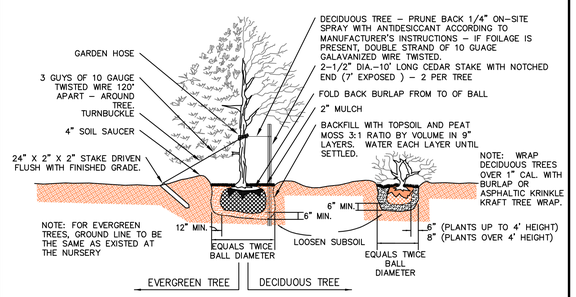
NOTE:
GREENBELT BUFFER IS INCLUSIVE OF THE AREA LYING BETWEEN THE PROPERTY LINE AND THE GOLF COURSE.

ALL EXISTING VEGETATION LYING BETWEEN THE OUTSIDE OF THE ROUGH AND THE PROPERTY LINE CAN BE COUNTED DURING THE FINAL INVENTORY PROCESS PROVIDED THE VEGETATION HAS NOT BEEN DISTURBED AND IS IN GOOD CONDITION.

TREES FOUND TO BE DISTURBED DURING CONSTRUCTION SHALL NOT BE INCLUDED IN THE FINAL INVENTORY.

TREES AND SHRUBS MAY BE CLUSTERED.

FENCE EXISTING TREES AND SHRUBS IN ACCORDANCE WITH THE ORDINANCE THAT ARE IN PROXIMITY TO CONSTRUCTION ACTIVITIES.



PLANTING DETAIL- TREES AND SHRUBS

BOTANICAL & COMMON NAME	SIZE	QTY
Canopy Trees		
Acer saccharum 'Green Mountain'/Sugar Maple	2.5" cal.	
Gleditsai I var inermis 'Skyline'/Honeylocust	2.5" cal.	
Evergreen Trees		131
Juniperus c "Hetzii Columnaris"/Green Columnar Juniper	6' ht	
Picea abies/Norway Spruce	6' ht	
Picea glauca/White Spruce	6' ht	

Shrubs		
Juniperus h "Broadmoor"/Low Juniper	2' ht	
Taxus "Tautonii"/Tauton Yew	2' ht	783
Juniperus c Pfitzer Compacta / Low Juniper	2' ht	

Contractor may substitute based on availability but shall make selections from the list found at the following site:
https://www.habitatmatters.org/uploads/9/5/0/6/95066352/isn_planting_guide_for_municipalities_final.pdf

PLANT SPECIES

GREENBELT BUFFER LANDSCAPING
CONSISTS OF 1 DECIDUOUS OR EVERGREEN TREE AND 6 SHRUBS FOR EVERY 40 LINEAL FEET OF SIDE PROPERTY
2635 LINEAL FEET OF FRONTAGE=
66 TREES AND 396 SHRUBS CLUSTERED IN THE AREA SHOWN
A STRIP OF AT LEAST 20' WIDE SHALL BE VEGETATIVE GROUND COVER.
FOLLOWING THE CLEARING AND GRUBBING PHASE, AN INVENTORY OF REMAINING EXISTING VEGETATION WILL BE COMPLETED FOR EVALUATION OF EXISTING LANDSCAPE CREDIT RATION IN ACCORDANCE WITH SEC 6.4.7.

SITE ENGINEER:
jozwiak consulting
p.o. box 5342 | traverse city, mi 49696 | 231-218-1201
www.jozwiakconsulting.com

PLAN DATE:
8-12-2022 ACME TOWNSHIP SUBMITTAL
9-12-2022 VARIOUS PLAN UPDATES
9-22-2022 ACME TOWNSHIP RESUBMITTAL
10-11-2022 LANDSCAPE PLAN AMENDMENTS

PROJECT: HIGH POINTE GOLF COURSE

LOCATION: M-72 AREA ACME / WILLIAMSBURG

CLIENT: HIGH POINTE HOLDINGS, LLC
322 POTTER RD.
WEST PALM BEACH, FL 33405

PROJECT NO.: **2022-113**

GOLF COURSE LAYOUT ACME TOWNSHIP

C700

Otwell Mawby, P.C.
Consulting Engineers

October 7, 2022

Mr. Scott Jozwiak PE
Jozwiak Consulting
PO Box 5342
Traverse City, MI 49696

Re: Water Withdrawal/Assessment High Pointe Golf Course

Dear Mr. Scott Jozwiak,

The High Pointe Golf Course project will require a source of water for irrigation of the course. An irrigation well is proposed to supply the needed water. The local (County) health department and State (Michigan Department of Environment, Great Lakes and Energy (EGLE) have regulatory oversight of evaluation, assessment and permitting wells and water withdrawal from an aquifer. Large water withdrawals (greater than 70 gallons per minute (gpm), 100,000 gallons per day (gpd)) must be evaluated with a Water Withdrawal Assessment Tool developed and implemented by EGLE. The purpose of this letter is to summarize the evaluation process for the proposed High Pointe irrigation well.

Michigan's Water Withdrawal Assessment Process is used to regulate new or increased large quantity withdrawals of water from aquifer. The assessment process is intended for use prior to installing a new or increased large quantity withdrawal for the purpose of determining the potential impact to nearby water resources. Use of the Water Withdrawal Assessment Tool is required prior to installation of any new or increased large quantity withdrawal.

Irrigation at a golf course takes place on an as needed basis which is continually evaluated utilizing precipitation, sunlight and other environmental/meteorological factors to determine when and how much to irrigate. For the initial water withdrawal evaluation, a conservative set of assumptions was utilized to evaluate potential resource impact. An irrigation volume of 400,000 gallons per day (gpd) equating to a withdrawal rate of 400 gallons per minute (gpm) for a period of 16.6 hours per day was assumed and evaluated. Although not anticipated to occur, the withdrawal was assumed to be required 7 days a week for a period of 6 months. In reality the actual volume of water required is anticipated to be less than this due to precipitation and other factors which will reduce the water needs for the golf course. The six month period of assumed operation is also longer than will occur once the course is operating.

Otwell Mawby completed a Water Withdrawal Assessment utilizing the EGLE Water Withdrawal Assessment Tool for the proposed irrigation well. The input parameters utilized are as follows:

- Maximum Pumping Rate 400 gpm
- Daily operation 17 hours/day
- Weekly operation 7 days/week
- Annual Operation 6 months/year
- Well Casing Depth 100 to 200 feet
- Water Source Ground water
- Aquifer Type Glacial

A copy of the data input and results sheets are attached.

The results of the analysis are in the upper range of zone 'A' well above a point when adverse resource impact has potential to occur. Assessment concludes that the proposed withdrawal has passed the screening process and is not likely to cause an adverse resource impact. High Pointe will continue to follow the required well permit process thru the local and state agencies tasked with the oversight of well permitting. Initial assessment of the proposed withdrawal does not indicate an adverse resource impact.

Respectfully Submitted,

OTWELL MAWBY, P.C.

Roger L. Mawby, P.E.
Sr. Environmental Engineer

Water withdrawal screening results

ARI Zone Graph

Result: Zone A
The proposed withdrawal has passed the screening process.

You must register below in order to begin using this withdrawal.

The graph above illustrates the estimated impact of the proposed withdrawal on the affected stream, and its potential for causing an adverse resource impact (ARI).

Results:
The proposed withdrawal has passed the screening process. The projected impact of the withdrawal lies within 'Zone A' and is not likely to cause an adverse resource impact.

Registration:
A large quantity withdrawal (LQW) with a capacity of 70 or more GPM must be registered before the withdrawal can begin. To register this withdrawal as you just entered it, use the button at the right.

A registration must be verified within 18 months by installation of the withdrawal. A registration that does not match actual installation, or that has not been installed within 18 months becomes void.

Stream Classification: Cold stream

Learn more..

Register Now

Rerun

Administrator

View Report

DISCLAIMER: The Water Withdrawal Assessment Tool is designed to estimate the likely impact of a proposed water withdrawal on nearby streams. It is not an indication of how much groundwater may be available for your use. The quantity and quality of groundwater varies greatly with depth and location. You should consult with a water resources professional or a local well driller about groundwater availability at your location.

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EGLE
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Water Withdrawal Assessment Tool

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Review Withdrawal Information

Important

This withdrawal must be registered before it can begin. Please review your withdrawal information below before registering. Click continue to register.

Summary

Pumping Capacity (gpm):	400
Well Casing Depth(ft):	100
Withdrawal Source:	Groundwater
Aquifer Type:	Glacial
Pumping Frequency:	Intermittent
Hrs/Day:	17
Days/Week:	7
Mons/Yr:	5,6,7,8,9,10
Latitude:	44.760847
Longitude:	-85.441373
Total Annual Withdrawal (gallons):	74,781,504
Total Annual Withdrawal (acre-inches):	2,754

Back Continue

DISCLAIMER: The Water Withdrawal Assessment Tool is designed to estimate the likely impact of a proposed water withdrawal on nearby streams. It is not an indication of how much groundwater may be available for your use. The quantity and quality of groundwater varies greatly with depth and location. You should consult with a water resources professional or a local well driller about groundwater availability at your location.

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ED

EUGENE DAVIS

daviseug@gmail.com | 2314997006 | RAPID CITY, MI 49676

PROFESSIONAL SUMMARY

Customer-oriented General Manager and Superintendent with 20 years of experience focused on providing members and guests with memorable experiences. Adaptive and deadline-oriented consistently executes and completes multiple projects in high-stress environments. Strong leader and strategic planner with comprehensive managerial acumen, offering vision and motivational leadership.

SKILLS

- Focus and Follow-Through
- Originality and Creativity
- Strong Communication Skills
- Ability to lead by example
- Excels at recruitment and retention of employees

WORK HISTORY

General Manager/Head Golf Course Superintendent 04/2015 - CURRENT | Elk Rapids Golf Club - Elk Rapids, United States

- Manage all aspects of maintenance on golf course including, ordering and purchasing of goods, pesticide and fertilizer applications, crew management
- Oversee and manage golf operations with Head Golf Professional.
- Delivered business strategy and developed systems and procedures to improve operational quality and team efficiency
- Manage budget implementations, employee reviews, training, schedules and contract negotiations.
- Develop and maintained relationships with members/guests and suppliers through account development.
- Implemented operational strategies and effectively built customer and employee loyalty.

Head Golf Course Superintendent | Grand Traverse Resort And Spa - Acme, MI 05/2003 - 03/2014

- Oversaw safe handling of all hazardous materials used in grounds maintenance.
- Managed purchasing of supplies such as chemicals, fertilizer, and other necessary products.
- Hosted and prepared golf courses for large group outings.
- Troubleshot and repaired issues with equipment.
- Directed special projects such as aerification and small renovation projects
- Recruited and trained solid team of grounds keepers, landscapers

and golf specialists to manage all golf course needs.

EDUCATION

Michigan State University, East Lansing, MI 05/2003

Bachelor of Science: Turfgrass Management

AFFILIATIONS

- Member of Elk Rapids Chamber of Commerce Board of Directors
- Member of Michigan Golf Course Superintendents Association Board of Directors
- Chairman of Scholarship Committee for MiGCSA
- Member of the Golf Course Superintends Association of America

PROJECT MANUAL

HIGH POINTE GOLF COURSE SUBMITTAL

Version 2.0

September 22, 2022

Project Location
Acme Township: Sections 6 and 7
Whitewater Township: Section 5

Project Owner
High Pointe Holdings, LLC
Rod Trump, Founder

Project Permits Coordinator
Scott Jozwiak, PE
Jozwiak Consulting

Project Consultants
Tom Doak, Golf Course Architect

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PROJECT OVERVIEW

High Pointe Golf Club seeks to reincarnate renowned golf course architect and Traverse City resident Tom Doak's first course, with Mr. Doak himself a key member of our project team. Since he designed the original High Pointe golf course in the late 1980's, Mr. Doak, author of "The Anatomy of a Golf Course", has gone on to design legendary courses all over the globe with six of his courses being recognized as Top 100 in the world, including Pacific Dunes in Oregon, Ballyneal in Colorado and Tara Iti in New Zealand. We intend to make High Pointe his seventh Top 100 course, and a "bucket list" golfing destination for golfers worldwide.

The Club intends to re-establish the golf course and bring it to a new level of greatness as a private, membership-based, economically-sustainable travel destination. The golf course itself is being purposefully designed to be environmentally friendly. High Pointe Golf Club will be open to and supported exclusively by its members and their guests. We anticipate that most of our members will be national members, residing outside of northwest lower Michigan, who will fly into Traverse City and be shuttled to the Club in one of our Sprinter vans; as such we expect little to no impact on traffic. The Club will operate from early May until late October and will employ approximately 60 to 80 employees at seasonal peak and 12 to 15 employees year-round.

High Pointe Golf Course

HISTORY

High Pointe Golf Course was opened June of 1989 and consisted of 18 holes which were all located in Acme Township. The original clubhouse still exists and is located off of Arnold Road. The course layout at that time had the front nine to the north of the clubhouse and the back nine to the south of the clubhouse (more or less).

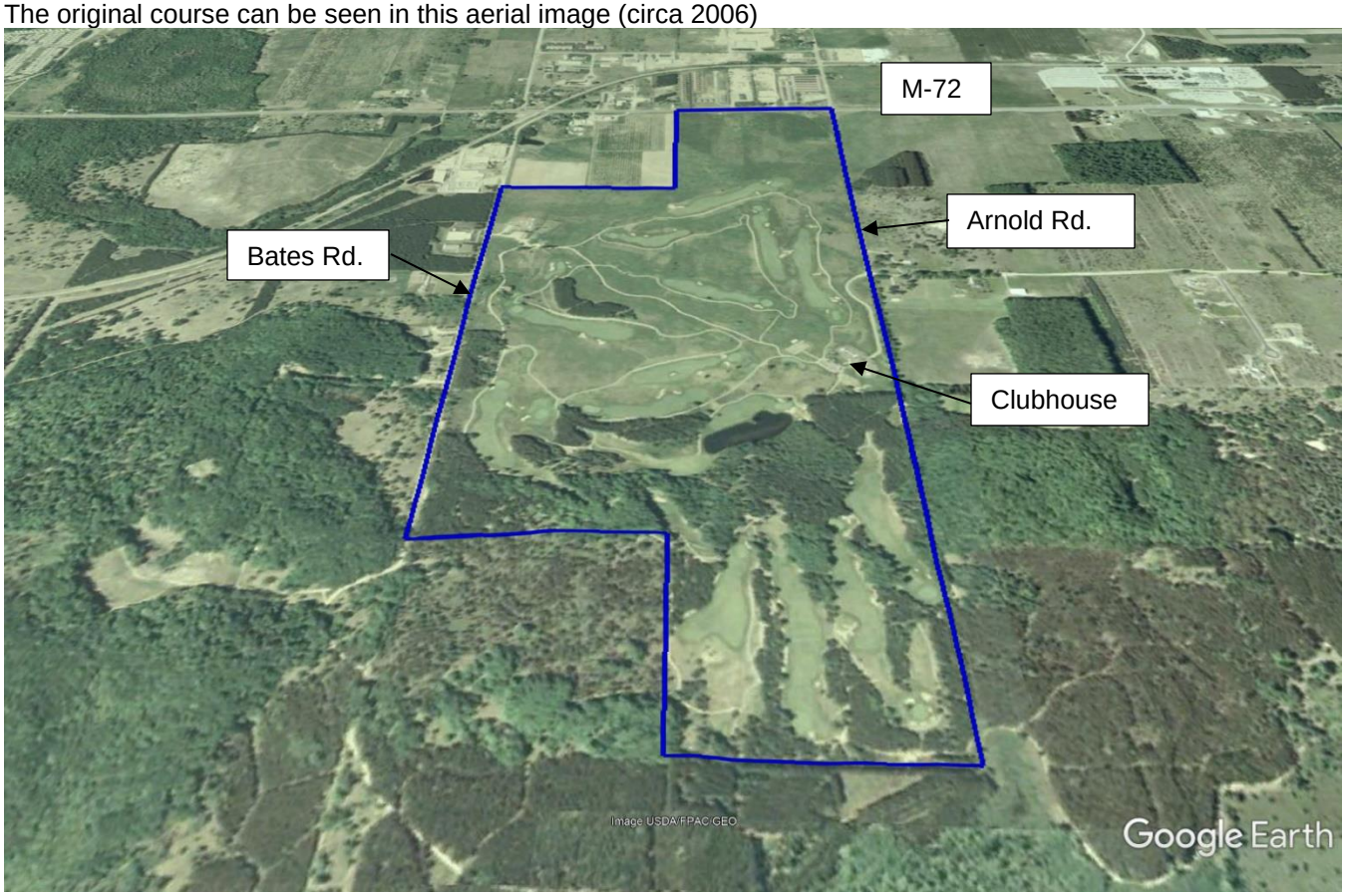
A few interesting reads about the course can be found in links below.

High Pointe Golf Club (renaissancegolf.com)
https://www.renaissancegolf.com/264/our-design/high-pointe-golf-club

The Story of High Pointe Golf Club – North Coast Golf Co.
https://northcoastgolfco.com/blogs/news/story-of-high-pointe

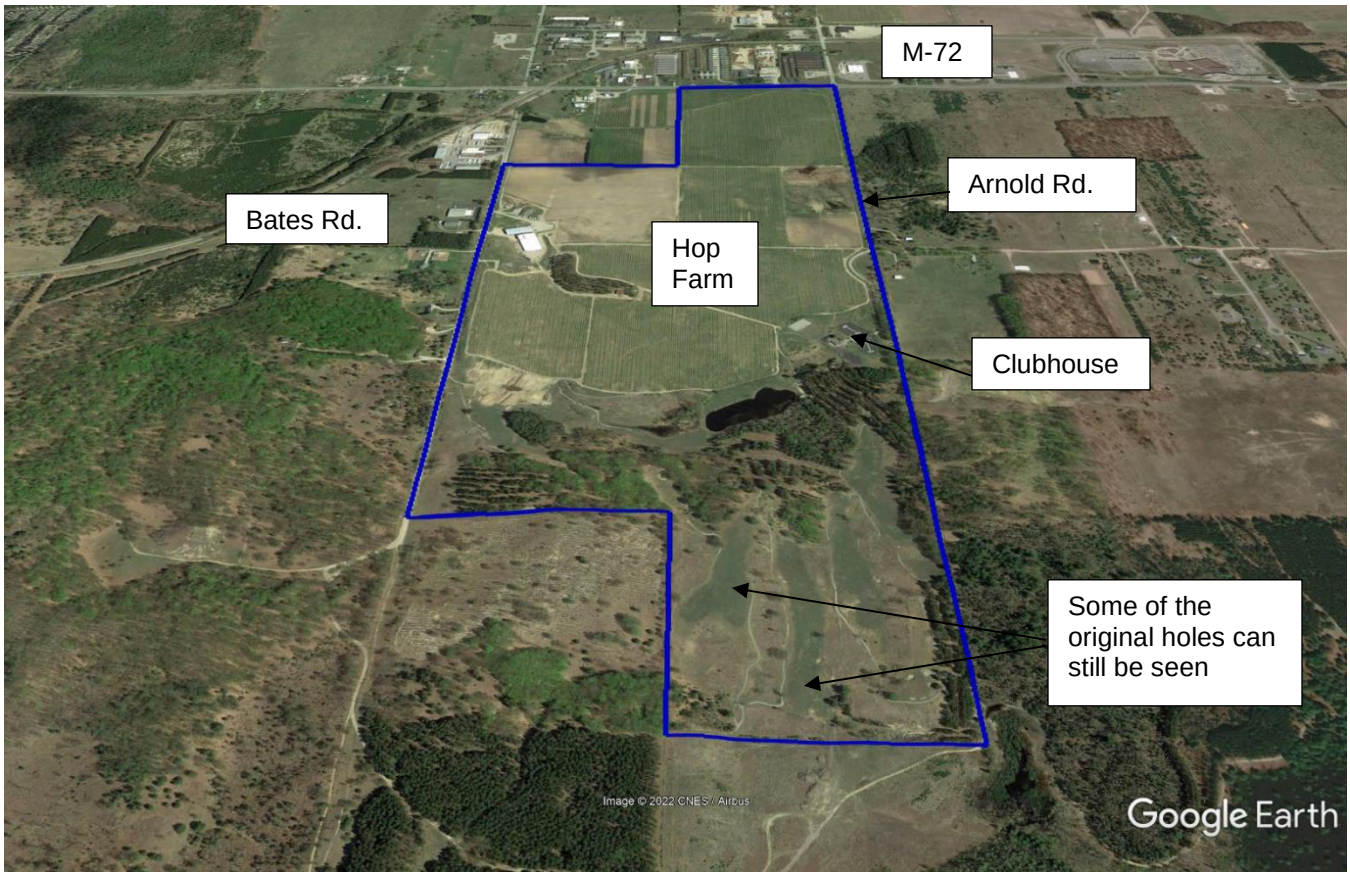
First Tom Doak-Designed Course to Become Hop Farm (golf.com)
https://golf.com/travel/first-tom-doak-designed-course-to-become-hops-farm/

The original course can be seen in this aerial image (circa 2006)



The economy and other factors caused the owners to close and sell the property in 2008. The portion of property lying between the clubhouse and M-72 was regraded and converted into a Hop Farm.

The aerial image below is current and you can still see some of the back nine holes along with the hop farm.



High Pointe Golf Course

PROJECT PROPOSAL

The new project includes the acquisition of all of the property lying south of the existing Hop Farm and that segment of land extending to Moore Road in Whitewater Township. A small portion (1/2 acre) of hops will be removed at the southern edge of the Hop Farm to allow for adequate width to be re-established between the hops and the irrigation pond.

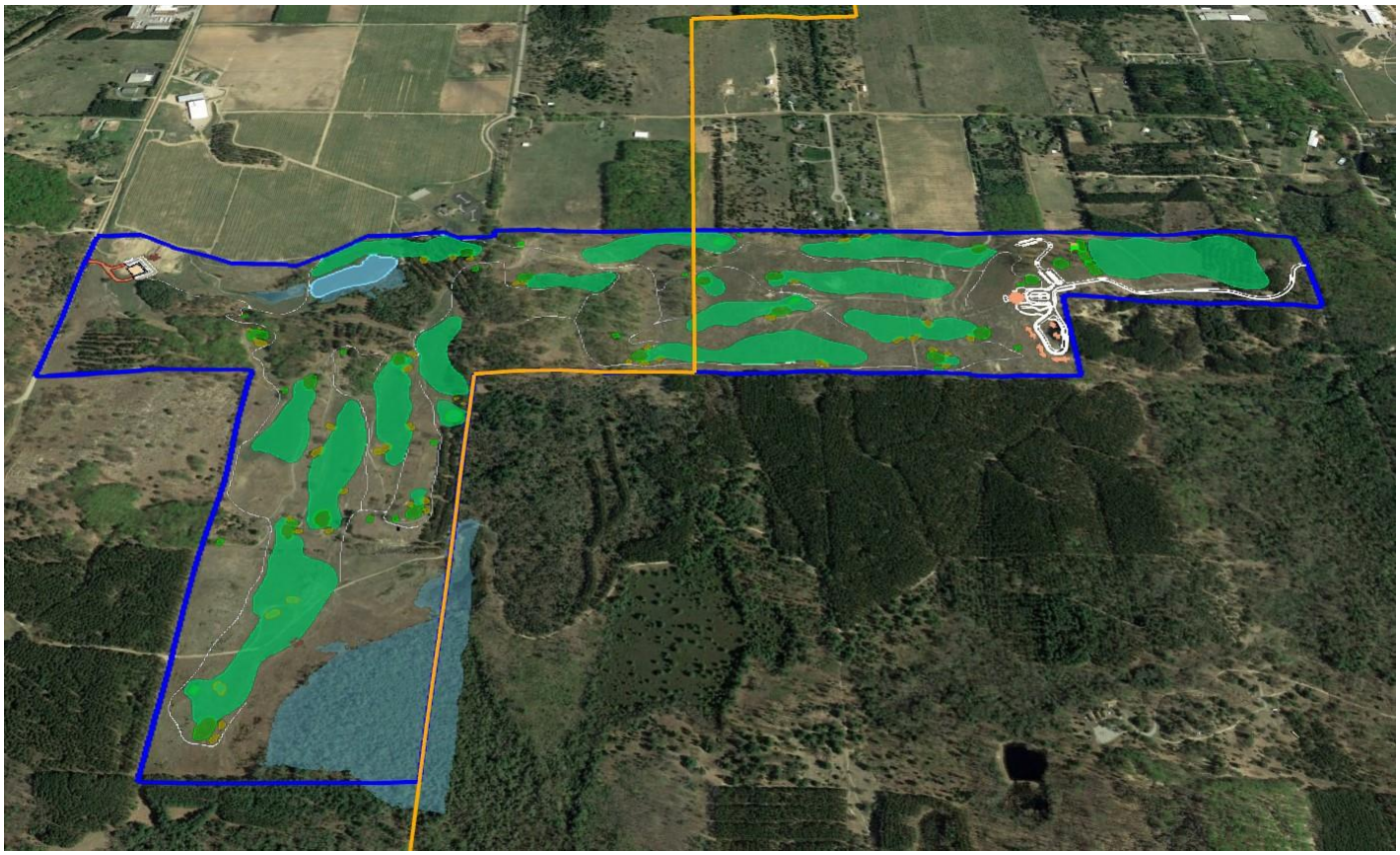
The existing clubhouse is not being sold and will remain with the farm parcel.

In Acme Township, we are constructing a new maintenance building that will be located off of Bates Road. Eventually we will be requesting to construct a small restroom and shelter in or around holes 9 and 10 as can be see on our site plans.

Whitewater Township will be the location of a new clubhouse, training facility, driving range, cabins and parking for guests and employees. Access will be from Moore Road.

Watering a golf course is essential. Fortunately the water supply system that was put in place for the original golf course remains in tact and has been used by the Hop Farm. This includes several wells and a water withdrawal system located in the irrigation pond. A diver has confirmed that the infrastructure in the pond are adequate and will continue to be used. As part of the property acquisition, new wells will be drilled for the continued operation of the Hop Farm.

As with all golf courses, reliance on fertilizers is imperative. All persons managing and handling these materials are certified by the state and are inspected routinely.



SEED RESEARCH OF OREGON
The germination of ideas

IDEAS IN PLAY

Fine Fescue Low Maintenance Grass

The use of lower maintenance turfgrasses is increasing in the United States. The reasons for this trend are numerous. Restrictions on water use, environmental concerns, regulations on pesticide usage and shrinking maintenance budgets for non-showcase turfgrass areas are a few reasons to consider using low maintenance grasses.

In the past, low intensity grasses did not provide the quality needed for use in areas that also contained intensively managed high quality turf. However, with the advent of improved low maintenance varieties of fine fescues it is now much easier to integrate low maintenance grasses into high quality turfgrass areas. SR 3100, SR 3150 and Scaldis II hard fescue; SR 5210 and SR 5250 strong creeping red fescue; Dawson, Shoreline slender creeping red fescue and SR 3210 blue fescue are excellent examples of grasses that can be used in low maintenance planting that are part of showcase turfgrass areas. Areas such as golf course roughs, slopes and bunker edges as well as parks, roadsides and reclamation areas are just some examples of where the improved fine fescues can be used to provide low maintenance quality turf. The presence of an endophytic fungus has been shown to improve the performance of many turf species, and fine fescues are no exception. High levels of endophyte will provide natural resistance to many damaging turfgrass insects such as chinch bug, billbugs, sod webworms and armyworms. In addition, grasses that contain viable endophytes appear to have greater vigor, quicker recovery from summer stress and greater persistence during environmental stress periods. The persistence of endophytic grasses will reduce weed invasion by maintaining a denseground cover. SR 3100, SR 3150 and Scaldis II hard fescue; SR 5210 and SR 5250 strong creeping red fescue; Dawson, Shoreline slender creeping red fescue and SR 3210 blue fescue were developed with high endophyte levels to take advantage of these characteristics.

Improved Turf Quality

The improved fine fescues are excellent choices for low maintenance turf plantings, not just in shade. Fine fescues typically persist in turf sites that are droughty, acid and infertile. The term fine fescue refers to at least five types of fescue which have fine, tough, bristly leaves. These include: Chewings strong creeping red, sheep or blue and hard fescues; each with specific strengths, weaknesses and preferred uses. Chewings, sheep, blue and hard fescues all have a bunch-type growth habit while strong and slender creeping reds are rhizomatous. They all have good drought tolerance but the improved hard and sheep fescues have excellent heat and drought tolerance due to their leaf texture, deep rooting capabilities and high root to shoot ratio. These factors provide the hard fescues with one of the highest water use efficiency rates of any cool-season turfgrass species. All of the fine fescues have very good cold tolerance. Typically found in, and recommended for shade, the newer fine fescues such as SR 3100, SR 3150 and Scaldis II hard fescue; SR 5210 and SR 5250 strong creeping red fescue; Dawson, Shoreline slender creeping red fescue and SR 3210 blue fescue have recently been improved by breeding in stronger resistance to powdery mildew. These breeding programs have also improved resistance to a number of other diseases including Net Blotch, Red Thread and Anthracnose. The improved fine fescues are recommended for mixtures with other turfgrass species such as Kentucky bluegrass and perennial ryegrasss as well as with each other, with the best mixture dependent on the site.

Maintenance

From a maintenance standpoint the fine fescues are low in cultural intensity. The low growth rate will significantly reduce the amount of mowing needed throughout the growing season. Nitrogen application rates range from 0.1 to 0.3 lb./1000sq. ft./month for hard fescues. In addition to their low growth rates, all of the fine fescues except strong creeping red fescue will tolerate mowing heights of one half inch. Wear tolerance is good for all the improved fine fescues. Only new hard fescues with improved Summer Patch resistance are good for compacted sites. Seeding rates of 4 to 5 lbs./1000 sq. ft. are recommended.

Seed Research of Oregon • Phone: 800-253-5766 • 541-758-5305 (fax) • sro.seed.com

FINE FESCUE FERTILIZER PROGRAM

PART 1 GROW-IN PHASE FERTILIZER

The establishment of all turfgrasses including fine fescues requires a much different approach compared to managing an established stand of turfgrass. The "grow-in" process will require a higher amount of inputs and nutrients. In some cases the initial seeding process will be applied with a "hydromulch" approach and within that mulch there will be a starter fertilizer. That fertilizer will contain some phosphates to promote root growth and establishment. Subsequently there will be multiple fertilizer applications during the grow-in process. This could happen over a 4-5 month period depending on when the initial seed is applied. Again those applications will be a starter type fertilizer utilizing Nitrogen, Phosphorus, and Potassium.

PART 2 LONG TERM MAINTENANCE FERTILIZER

Once established and the desired density is accomplished, the fine fescue areas will be a low input stand. Depending on factors like soil type, seed variety etc it is not uncommon to expect the fescue stands to require as little as .75-1lb of nitrogen per 1000 square feet per year, much lower than other varieties of turfgrass.

PART 3 CERTIFICATIONS

As with all golf courses, reliance on fertilizers is imperative. All persons managing and handling these materials are certified by the state and the people and storage facilities are inspected routinely.

GOLF COURSE IRRIGATION

PART 1 OVERVIEW

Just like nutrients are required during the "grow in" phase, the use of water will be very important to make sure the turf is receiving the necessary inputs to establish turf health and density desired. However, water usage like other inputs will decrease as the turf is established. Fescue grass is known for its drought tolerance and actually will perform well with limited water usage.

PART 2 WATER SOURCE HISTORY

Irrigation will be sourced from the water supply system that was put in place for the original golf course. This includes the irrigation pond which was dredged for this purpose in the 80's when the course was initially constructed. A refill well was installed to maintain the water level in the pond. An intake screen and vault adjacent to the pond was connected to suction pumps which fed the irrigation system to the golf course.

Upon termination of the golf course and the construction of the hop farm, the system was reconfigured. Water quality from the pond intake system was difficult to manage and screen for use by the hop farm irrigation system which primarily consists of drip style emitters. A second well was put in near the original well and both are plumbed together to provide the necessary output. Use of the pond system has since been minimal. The existing wells each have an output rating of around 600 gpm at 60 psi each.

PART 3 PROPOSED WATER SUPPLY SYSTEM

The seller intends to continue operation of the hop farm and with that still requires a water source. The buyer and seller have held meetings to discuss the most economical and straightforward method for ensuring that both operations can be sustained and various plans are in consideration. The most current option that is being developed is that the seller (hop farm owner) would retain the existing wells and that the buyer would grant an easement to the seller that would include the area where the wells are located along with an easement over the water supply, appurtenances and electrical equipment that service the wells.

In this scenario, the buyer would install a new refill well for the irrigation pond. It is estimated that the output of the new well would have to produce a pumping rate of approximately 400 gpm. It is anticipated that this new well would be positioned closer to the maintenance facility so that operation equipment and concerns about the aquifer capacity are mitigated. This well would feed the irrigation pond. The well would be float operated, meaning it would only activate if the water level in the pond reached a certain threshold and would deactivate at a certain level.

Regardless of the water input, the irrigation system will be supplied by a high output pump system that would pull water from the irrigation pond via the existing intake pipe. The intake pipe has been confirmed to be in good condition by a diver that performed a visual inspection. The irrigation pump(s) will be able to deliver water at a rate of 1300 gpm and anticipated watering duration for the entire course will be about 6 hours during mid summer.

It is important to realize that with all systems, cost of operation hits the bottom line. Therefore, precise watering systems are going to be installed that allow watering of the areas that need it. It is not a "set it and forget it" system. As with fertilizers, golf course curators are constantly monitoring the turf condition and the goal is to give the turf "just enough".

PART 4 IRRIGATION POND OPERATION

The irrigation pond has a surface area of approximately 2.4 acres. At this size, there is approximately 65,000 gallons for every inch of pond surface.

A water withdrawal of the irrigation pumps at a rate of 1300 gpm equates to 78,000 gallons per hour which is approximately 1.2" of draw down per hour.

The recharge well operating at 400 gallons per minute puts 24,000 gallons of water into the pond per hour which is 0.37" of elevation increase to the pond.

During times of high demand which are times with little precipitation, the irrigation will run for approximately 6 hours. During that time, the pond will drawdown approximately 5”. A spreadsheet analysis concludes that under this scenario, the recharge well will run for a total of 17 hours (it will run simultaneous to the irrigation supply pumps and an additional 11 hours afterwards).

This peak scenario results in approximately 470,000 gallons of water used for irrigation during this peak demand. Other times of the year when precipitation is more common, the water duration will be significantly less frequent and less duration.

ENVIRONMENTAL

PART 1 WETLANDS

Wetlands are located on the property. The north location is an area that abuts the irrigation pond and the southeast corner of the property. Proposed disturbances in proximity to these locations is limited to stump removal, tilling, slight reshaping and restoration with turfgrass.

The pond along hole #16 consists of a very sharp drop from the existing grade to the waters edge. At this location we intend to install silt fence. This is a manmade pond from the initial construction of the golf course and impacts to it will be minimal.

The wetlands that abut the irrigation pond along the east side will be protected with silt fence and a ditch and berm. The ditch and berm will allow fertilizers that may be included in runoff to be entrapped. Regrowth vegetation in the ditch and on the berm will provide uptake of the nutrients and minimize impact to the wetland.

This same approach will be used along hole #12 at the south end of the project.

Additionally, Gosling Czubak, township engineering firm, will provide oversight and guidance during the project and in the event additional measures become necessary, they will be able to make and assist in implementing those. The firm will be contracted by the township and fees for this service provided by the developer.

PART 2 STORMWATER MANAGEMENT

The project in total consists of 280 acres of which 192 are located in Acme Township. The balance of the parcel is in Whitewater Township. The proposed impacts to Acme include the construction of the maintenance facility along 8.5' wide cart paths that are proposed throught the project. In total, there is about 2 acres of cart paths and about 1.5 acres of impervious and semi-impervious included in the maintenance facility. This equates to less than 2% of the 192 acres containing impervious surface.

The cart paths will be installed such that runoff from them does not leave the property. Since construction of the golf course is a fluid process, Gosling Czubak will provide evaluations to insure this priority is maintained.

The maintenance facility will utilize an existing low point adjacent to it for stormwater management and infiltration. Calculations are provided and the management plan is reviewed by Gosling Czubak to insure it meets the stormwater ordinance.

PART 3 FERTILIZER STORAGE

The fertilizer storage will occur in a stand along building. This will be a cold storage building and will comply with all of the regulations imposed by the state with regard to storage and safe handling procedures.

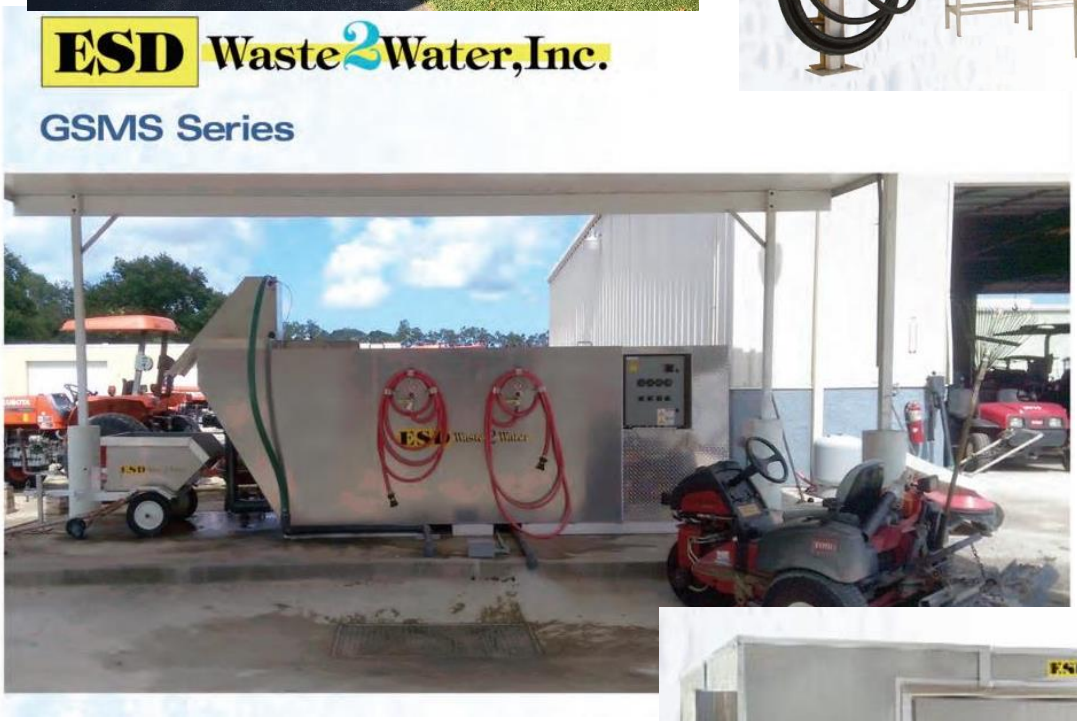
PART 4 ENVIRONMENTAL CENTER

Our project includes a pavilion type structure that is coined the Environmental Center. An identical facility exists at the Walloon Lake Country Club near Petoskey. This is a pavilion that is open on all sides. The environmental center provides for three things. Chemical storage, mower cleaning stations with wash water reclaim equipment and a fueling center. A raised concrete island runs along the center line of the pavilion and provides the refuge for the operation equipment to be placed.

1. Chemical storage cabinet which is a stainless, stand alone cabinet specifically developed for this purpose. Adjacent to the cabinet and under the pavilion is a concrete pad sloped to a water tight sump where filling and mixing of the chemicals occurs.
2. The next bay under the pavilion is for equipment washing. There is a wash bay on either side of the pavilion to allow two mowers to be washed simultaneously. The concrete floor is sloped to drains which collect the wash water and debris and send it to the reclaim equipment where grass clippings are separated. The system can recycle the water for reuse and is a closed system.
3. The next bay is the fueling bay. 500 gallon, double contained, fuel tanks (1 for diesel and 1 for gasoline) set on the island and will be bollard protected. The concrete pad is sloped to a sump whereby any spillage is collected.

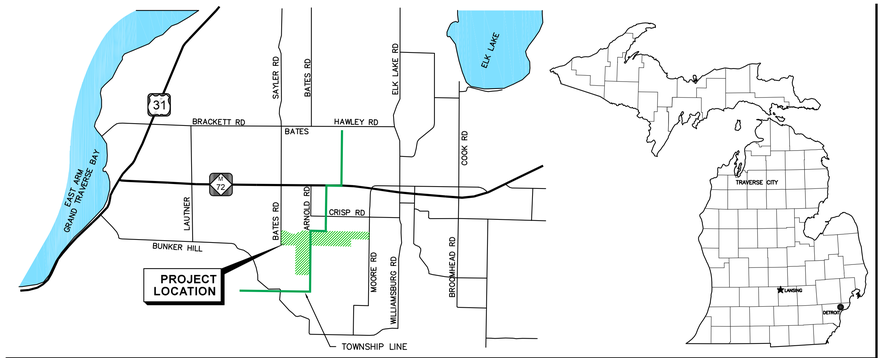
The concrete in the environmental center is sealed to prevent any of the chemicals or fuel from collecting in pores found in concrete.

The company that supplies the equipment for the environmental center has had similar installs throughout the country. Information on this equipment is included with this narrative.

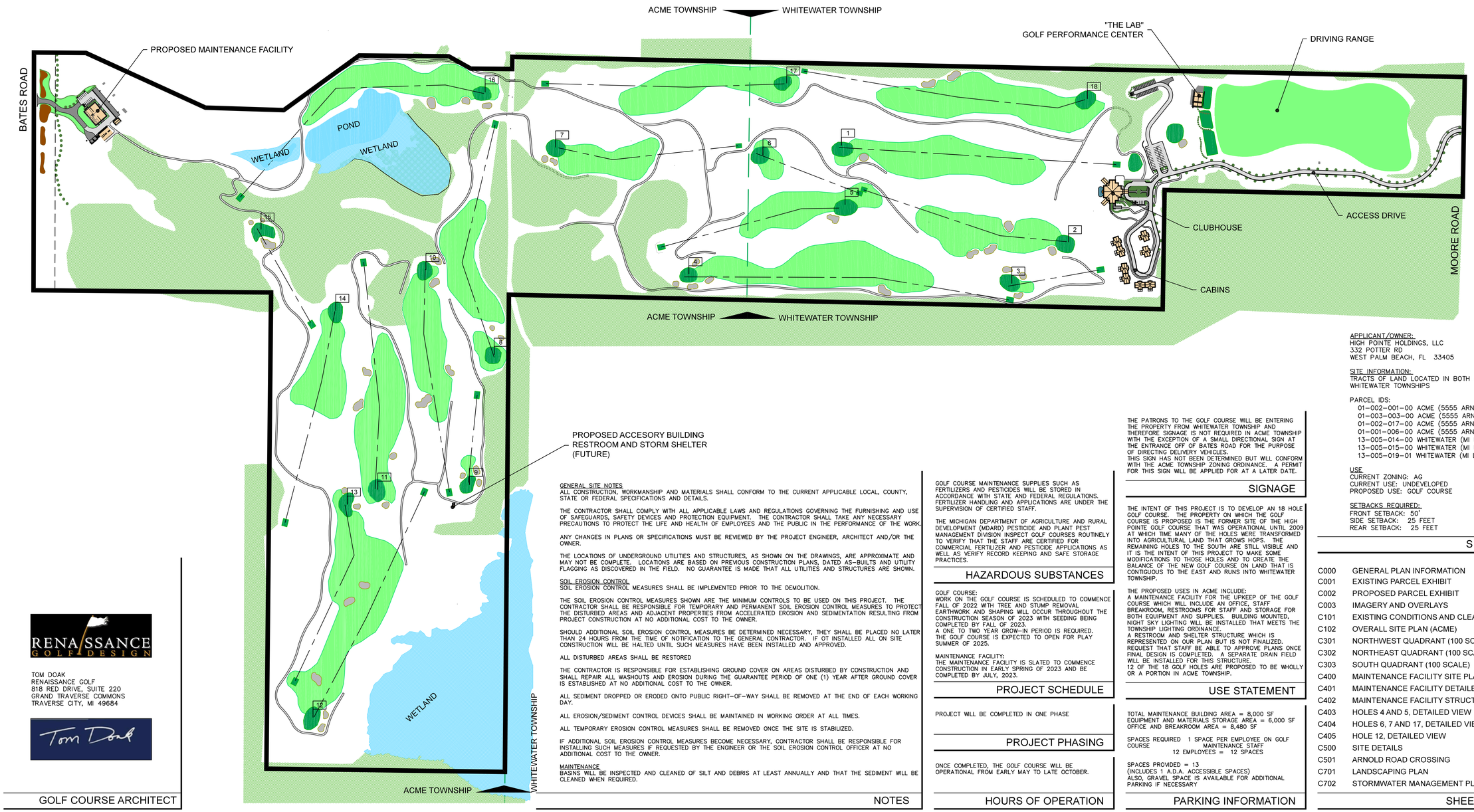


HIGH POINTE

REINCARNATION OF TOM DOAK'S ORIGINAL GOLF COURSE



PROJECT LOCATION MAP



GENERAL SITE NOTES
ALL CONSTRUCTION, WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE CURRENT APPLICABLE LOCAL, COUNTY, STATE OR FEDERAL SPECIFICATIONS AND DETAILS.

THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS GOVERNING THE FURNISHING AND USE OF SAFEGUARDS, SAFETY DEVICES AND PROTECTION EQUIPMENT. THE CONTRACTOR SHALL TAKE ANY NECESSARY PRECAUTIONS TO PROTECT THE LIFE AND HEALTH OF EMPLOYEES AND THE PUBLIC IN THE PERFORMANCE OF THE WORK.

ANY CHANGES IN PLANS OR SPECIFICATIONS MUST BE REVIEWED BY THE PROJECT ENGINEER, ARCHITECT AND/OR THE OWNER.

THE LOCATIONS OF UNDERGROUND UTILITIES AND STRUCTURES, AS SHOWN ON THE DRAWINGS, ARE APPROXIMATE AND MAY NOT BE COMPLETE. LOCATIONS ARE BASED ON PREVIOUS CONSTRUCTION PLANS, DATED AS-BUILTS AND UTILITY FLAGGING AS DISCOVERED IN THE FIELD. NO GUARANTEE IS MADE THAT ALL UTILITIES AND STRUCTURES ARE SHOWN.

SOIL EROSION CONTROL
SOIL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO THE DEMOLITION.

THE SOIL EROSION CONTROL MEASURES SHOWN ARE THE MINIMUM CONTROLS TO BE USED ON THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY AND PERMANENT SOIL EROSION CONTROL MEASURES TO PROTECT THE DISTURBED AREAS AND ADJACENT PROPERTIES FROM ACCELERATED EROSION AND SEDIMENTATION RESULTING FROM PROJECT CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.

SHOULD ADDITIONAL SOIL EROSION CONTROL MEASURES BE DETERMINED NECESSARY, THEY SHALL BE PLACED NO LATER THAN 24 HOURS FROM THE TIME OF NOTIFICATION TO THE GENERAL CONTRACTOR. IF OT INSTALLED ALL ON SITE CONSTRUCTION WILL BE HALTED UNTIL SUCH MEASURES HAVE BEEN INSTALLED AND APPROVED.

ALL DISTURBED AREAS SHALL BE RESTORED

THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING GROUND COVER ON AREAS DISTURBED BY CONSTRUCTION AND SHALL REPAIR ALL WASHOUTS AND EROSION DURING THE GUARANTEE PERIOD OF ONE (1) YEAR AFTER GROUND COVER IS ESTABLISHED AT NO ADDITIONAL COST TO THE OWNER.

ALL SEDIMENT DROPPED OR ERODED ONTO PUBLIC RIGHT-OF-WAY SHALL BE REMOVED AT THE END OF EACH WORKING DAY.

ALL EROSION/SEDIMENT CONTROL DEVICES SHALL BE MAINTAINED IN WORKING ORDER AT ALL TIMES.

ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS STABILIZED.

IF ADDITIONAL SOIL EROSION CONTROL MEASURES BECOME NECESSARY, CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING SUCH MEASURES IF REQUESTED BY THE ENGINEER OR THE SOIL EROSION CONTROL OFFICER AT NO ADDITIONAL COST TO THE OWNER.

MAINTENANCE
BASINS WILL BE INSPECTED AND CLEANED OF SILT AND DEBRIS AT LEAST ANNUALLY AND THAT THE SEDIMENT WILL BE CLEANED WHEN REQUIRED.

NOTES

GOLF COURSE MAINTENANCE SUPPLIES SUCH AS FERTILIZERS AND PESTICIDES WILL BE STORED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS. FERTILIZER HANDLING AND APPLICATIONS ARE UNDER THE SUPERVISION OF CERTIFIED STAFF.

THE MICHIGAN DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT (MDARD) PESTICIDE AND PLANT PEST MANAGEMENT DIVISION INSPECT GOLF COURSES ROUTINELY TO VERIFY THAT THE STAFF ARE CERTIFIED FOR COMMERCIAL FERTILIZER AND PESTICIDE APPLICATIONS AS WELL AS VERIFY RECORD KEEPING AND SAFE STORAGE PRACTICES.

HAZARDOUS SUBSTANCES

GOLF COURSE:
WORK ON THE GOLF COURSE IS SCHEDULED TO COMMENCE FALL OF 2022 WITH TREE AND STUMP REMOVAL. EARTHWORK AND SHAPING WILL OCCUR THROUGHOUT THE CONSTRUCTION SEASON OF 2023 WITH SEEDING BEING COMPLETED BY FALL OF 2023.
A ONE TO TWO YEAR GROW-IN PERIOD IS REQUIRED. THE GOLF COURSE IS EXPECTED TO OPEN FOR PLAY SUMMER OF 2025.

MAINTENANCE FACILITY:
THE MAINTENANCE FACILITY IS SLATED TO COMMENCE CONSTRUCTION IN EARLY SPRING OF 2023 AND BE COMPLETED BY JULY, 2023.

PROJECT SCHEDULE

PROJECT WILL BE COMPLETED IN ONE PHASE

PROJECT PHASING

ONCE COMPLETED, THE GOLF COURSE WILL BE OPERATIONAL FROM EARLY MAY TO LATE OCTOBER.

HOURS OF OPERATION

THE PATRONS TO THE GOLF COURSE WILL BE ENTERING THE PROPERTY FROM WHITEWATER TOWNSHIP AND THEREFORE SIGNAGE IS NOT REQUIRED IN ACME TOWNSHIP WITH THE EXCEPTION OF A SMALL DIRECTIONAL SIGN AT THE ENTRANCE OFF OF BATES ROAD FOR THE PURPOSE OF DIRECTING DELIVERY VEHICLES.
THIS SIGN HAS NOT BEEN DETERMINED BUT WILL CONFORM WITH THE ACME TOWNSHIP ZONING ORDINANCE. A PERMIT FOR THIS SIGN WILL BE APPLIED FOR AT A LATER DATE.

SIGNAGE

THE INTENT OF THIS PROJECT IS TO DEVELOP AN 18 HOLE GOLF COURSE. THE PROPERTY ON WHICH THE GOLF COURSE IS PROPOSED IS THE FORMER SITE OF THE HIGH POINTE GOLF COURSE THAT WAS OPERATIONAL UNTIL 2009 AT WHICH TIME MANY OF THE HOLES WERE TRANSFORMED INTO AGRICULTURAL LAND THAT GROWS HOPS. THE REMAINING HOLES TO THE SOUTH ARE STILL VISIBLE AND IT IS THE INTENT OF THIS PROJECT TO MAKE SOME MODIFICATIONS TO THOSE HOLES AND TO CREATE THE BALANCE OF THE NEW GOLF COURSE ON LAND THAT IS CONTIGUOUS TO THE EAST AND RUNS INTO WHITEWATER TOWNSHIP.

THE PROPOSED USES IN ACME INCLUDE:
A MAINTENANCE FACILITY FOR THE UPKEEP OF THE GOLF COURSE WHICH WILL INCLUDE AN OFFICE, STAFF BREAKROOM, RESTROOMS FOR STAFF AND STORAGE FOR BOTH EQUIPMENT AND SUPPLIES. BUILDING MOUNTED, NIGHT SKY LIGHTING WILL BE INSTALLED THAT MEETS THE TOWNSHIP LIGHTING ORDINANCE.
A RESTROOM AND SHELTER STRUCTURE WHICH IS REPRESENTED ON OUR PLAN BUT IS NOT FINALIZED. REQUEST THAT STAFF BE ABLE TO APPROVE PLANS ONCE FINAL DESIGN IS COMPLETED. A SEPARATE DRAIN FIELD WILL BE INSTALLED FOR THIS STRUCTURE.
12 OF THE 18 GOLF HOLES ARE PROPOSED TO BE WHOLLY OR A PORTION IN ACME TOWNSHIP.

USE STATEMENT

TOTAL MAINTENANCE BUILDING AREA = 8,000 SF
EQUIPMENT AND MATERIALS STORAGE AREA = 6,000 SF
OFFICE AND BREAKROOM AREA = 8,480 SF

SPACES REQUIRED 1 SPACE PER EMPLOYEE ON GOLF COURSE MAINTENANCE STAFF
12 EMPLOYEES = 12 SPACES

SPACES PROVIDED = 13
(INCLUDES 1 A.D.A. ACCESSIBLE SPACES)
ALSO, GRAVEL SPACE IS AVAILABLE FOR ADDITIONAL PARKING IF NECESSARY

PARKING INFORMATION

APPLICANT/OWNER:
HIGH POINTE HOLDINGS, LLC
332 POTTER RD
WEST PALM BEACH, FL 33405

SITE INFORMATION:
TRACTS OF LAND LOCATED IN BOTH ACME AND WHITEWATER TOWNSHIPS

PARCEL IDS:
01-002-001-00 ACME (5555 ARNOLD, LLC)
01-003-003-00 ACME (5555 ARNOLD, LLC)
01-002-017-00 ACME (5555 ARNOLD, LLC)
01-001-006-00 ACME (5555 ARNOLD, LLC)
13-005-014-00 WHITEWATER (MI LOCAL HOPS)
13-005-015-00 WHITEWATER (MI LOCAL HOPS)
13-005-019-01 WHITEWATER (MI LOCAL HOPS)

USE
CURRENT ZONING: AG
CURRENT USE: UNDEVELOPED
PROPOSED USE: GOLF COURSE

SETBACKS REQUIRED:
FRONT SETBACK: 50'
SIDE SETBACK: 25 FEET
REAR SETBACK: 25 FEET

SITE DATA

C000	GENERAL PLAN INFORMATION
C001	EXISTING PARCEL EXHIBIT
C002	PROPOSED PARCEL EXHIBIT
C003	IMAGERY AND OVERLAYS
C101	EXISTING CONDITIONS AND CLEARING
C102	OVERALL SITE PLAN (ACME)
C301	NORTHWEST QUADRANT (100 SCALE)
C302	NORTHEAST QUADRANT (100 SCALE)
C303	SOUTH QUADRANT (100 SCALE)
C400	MAINTENANCE FACILITY SITE PLAN OVERALL
C401	MAINTENANCE FACILITY DETAILED SITE PLAN
C402	MAINTENANCE FACILITY STRUCTURE DETAILS
C403	HOLES 4 AND 5, DETAILED VIEW
C404	HOLES 6, 7 AND 17, DETAILED VIEW
C405	HOLE 12, DETAILED VIEW
C500	SITE DETAILS
C501	ARNOLD ROAD CROSSING
C701	LANDSCAPING PLAN
C702	STORMWATER MANAGEMENT PLAN

SHEET INDEX

RENAISSANCE GOLF DESIGN

TOM DOAK
RENAISSANCE GOLF
818 RED DRIVE, SUITE 220
GRAND TRAVERSE COMMONS
TRAVERSE CITY, MI 49684

Tom Doak

GOLF COURSE ARCHITECT

SITE ENGINEER:
jozwiak consulting
p.o. box 5342 | traverse city, mi 49696 | 231-218-1201
www.jozwiakconsulting.com

PLAN DATE:
8-12-2022 ACME TOWNSHIP SUBMITTAL
9-12-2022 VARIOUS PLAN UPDATES
9-22-2022 ACME TOWNSHIP RESUBMITTAL

LOCATION:
M-72 AREA
ACME / WILLIAMSBURG

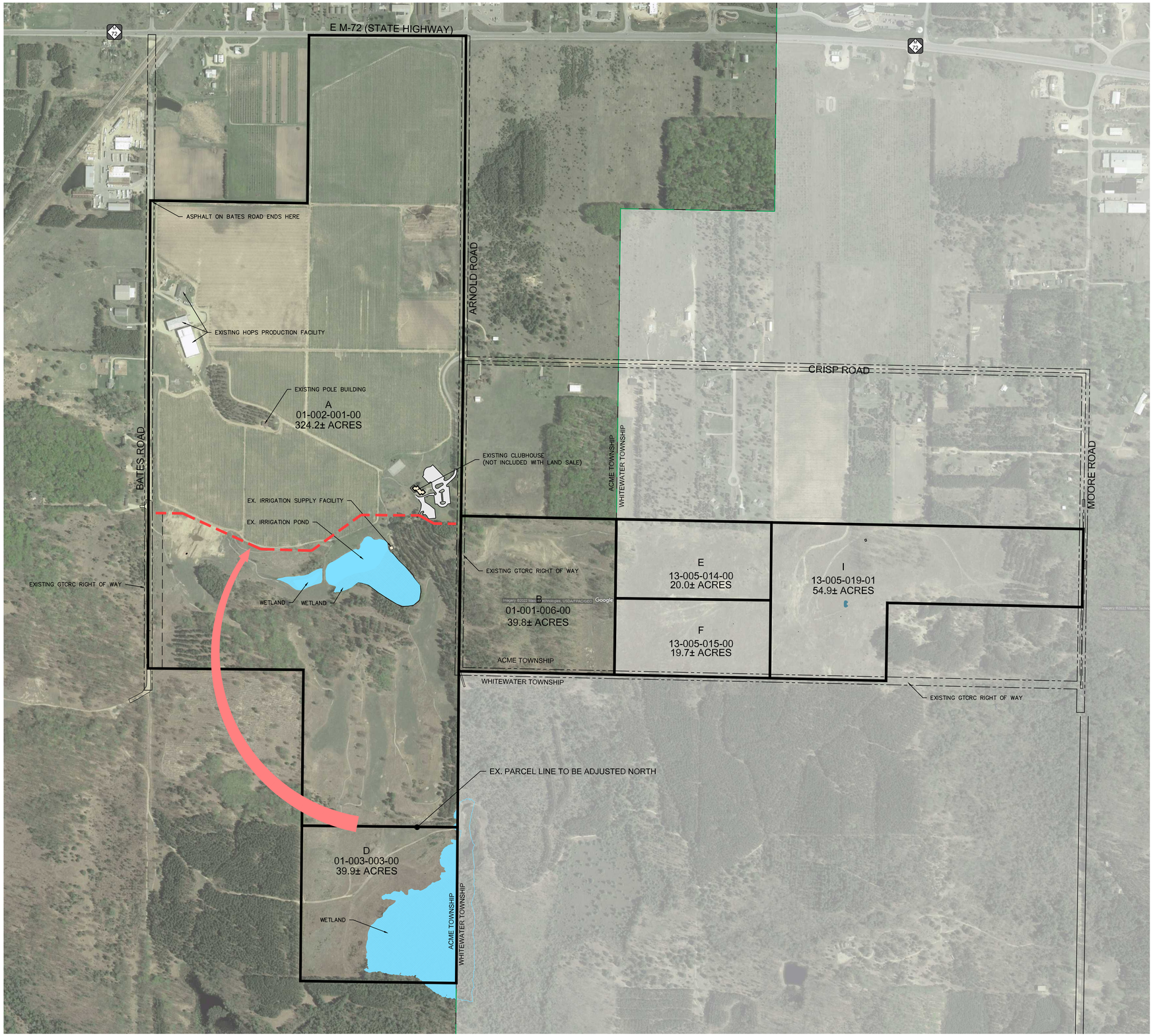
PROJECT:
HIGH POINTE GOLF COURSE

CLIENT:
HIGH POINTE HOLDINGS, LLC
322 POTTER RD.
WEST PALM BEACH, FL 33405

PROJECT NO.:
2022-113

GENERAL PLAN INFORMATION

C000



ACQUIRE THE FOLLOWING PARCELS
PART OF PARCEL A
ALL OF PARCELS D, B, E, F AND I

A LOT LINE ADJUSTMENT WILL BE COMPLETED THAT WILL INCREASE PARCEL D TO INCLUDE THAT PORTION OF PARCEL A INDICATED.

PARCELS D AND B ARE LOCATED IN ACME TOWNSHIP
PARCELS E, F AND I ARE LOCATED IN WHITEWATER TOWNSHIP AND WILL BE COMBINED AND DENOTED AS PARCEL I.

HIGH POINTE GOLF COURSE LAND ACQUISTION SUMMARY

NORTH

0' 400' 800'

SITE ENGINEER:
jozwiak consulting
p.o. box 3342 | traverse city, mi 49696 | 231-218-1201
www.jozwiakconsulting.com

PLAN DATE:
8-12-2022 ACME TOWNSHIP SUBMITTAL
9-12-2022 VARIOUS PLAN UPDATES
9-22-2022 ACME TOWNSHIP RESUBMITTAL

PROJECT:
HIGH POINTE GOLF COURSE

LOCATION:
M-72 AREA
ACME / WILLIAMSBURG

CLIENT:
HIGH POINTE HOLDINGS, LLC
322 POTTER RD.
WEST PALM BEACH, FL 33405

PROJECT NO.:
2022-113

EXISTING
PARCEL
EXHIBIT

C001

ACME TOWNSHIP

Part of Section 5, T27N, R9W, Acme Township, Grand Traverse County, Michigan, more fully described as:
BEGINNING at the Southwest corner of Section 5; thence N 00°49'31" E, 1315.94 feet along the West line fo Section 5; thence S 88°47'05" E, 1315.39 feet along the South 1/8 line; thence S 00°45'44" W, 1317.35 feet; thence N 88°43'26" W, 1316.85 feet along the South line of Section 5 to the POINT OF BEGINNING.
Containing 39.78 acres, more or less. Subject to and together with agreements, covenants, easements, and restrictions of record.

LEGAL DESCRIPTION (PARCEL B)

Part of Section 7, T27N, R9W, Acme Township, Grand Traverse County, Michigan, more fully described as:
BEGINNING at the East 1/4 corner of said Section 7;
thence N 89°14'31" W, 1319.69 feet along the East – West 1/4 line of Section 7; thence N 00°33'32" E, 2635.50 feet along the East 1/8 line of Section 7; thence N 89°28'03" W, 1314.59 feet; thence N 00°07'38" E, 1315.72 feet; thence S 89°28'21" E, 287.21 feet; thence S 65°24'46" E, 727.70 feet; thence S 88°12'11" E, 432.95 feet; thence N 54°04'18" E, 515.43 feet; thence S 89°28'21" E, 495.04 feet; thence S 60°52'40" E, 140.47 feet; thence S 89°28'21" E, 228.27 feet; thence S 00°34'57" W, 3889.39 feet along the East line of Section 7 to the POINT OF BEGINNING.
Containing 152.5 acres, more or less.
Subject to and together with agreements, covenants, easements, and restrictions of record.

PROPOSED LEGAL DESCRIPTION (PARCEL D)

WHITEWATER

Part of Section 5, T27N, R9W, Acme Township, Grand Traverse County, Michigan, more fully described as:
BEGINNING at the South 1/4 corner of Section 5; thence N 88°43'26" W, 1316.85 feet along the South line of Section 5; thence N 00°45'44" E, 1317.35 feet; thence S 88°47'05" E, 3954.08 feet along the S 1/j8 line of Section 5; thence S 00°54'58" W, 660.97 feet along the East line of Section 5; thence N 88°45'06" W, 1650.00 feet; thence S 00°54'58" W, 660.00 feet; thence N 88°42'32" W, 983.70 feet along said South line to the POINT OF BEGINNING.
Containing 94.71 acres, more or less. Subject to and together with agreements, covenants, easements, and restrictions of record.

PROPOSED LEGAL DESCRIPTION (PARCEL I)

GROSS COMBINED PARCEL SIZE=286.8 ACRES

NET COMBINED PARCEL SIZE=280.6 ACRES (6.2 ACRES OF RIGHT OF WAY)

LAND ACQUISITION SUMMARY

NORTH

0' 400' 800'

SITE ENGINEER:
jozwiak consulting
p.o. box 3342 | traverse city, mi 49696 | 231-218-1201
www.jozwiakconsulting.com

PLAN DATE:
8-12-2022 ACME TOWNSHIP SUBMITTAL
9-1-2022 VARIOUS PLAN UPDATES
9-22-2022 ACME TOWNSHIP RESUBMITTAL

LOCATION:
M-72 AREA
ACME / WILLIAMSBURG

PROJECT:
HIGH POINTE GOLF COURSE

CLIENT:
HIGH POINTE HOLDINGS, LLC
322 POTTER RD.
WEST PALM BEACH, FL 33405

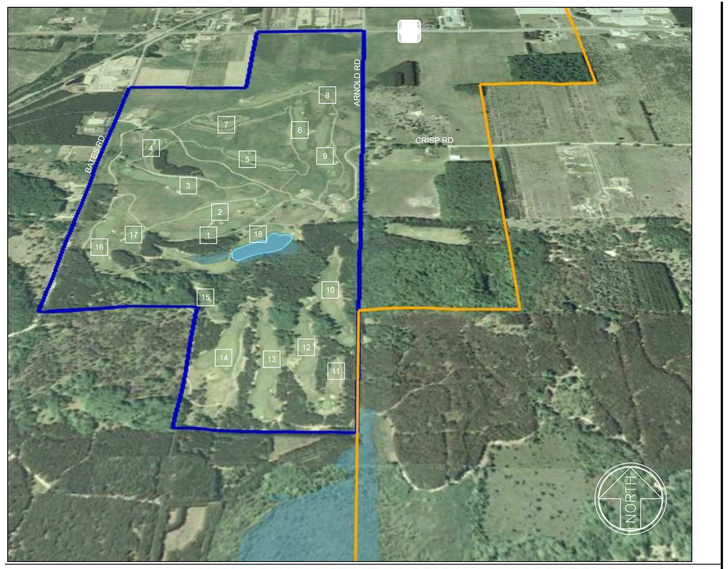
PROJECT NO.:
2022-113

PROPOSED
PARCEL
EXHIBIT

C002

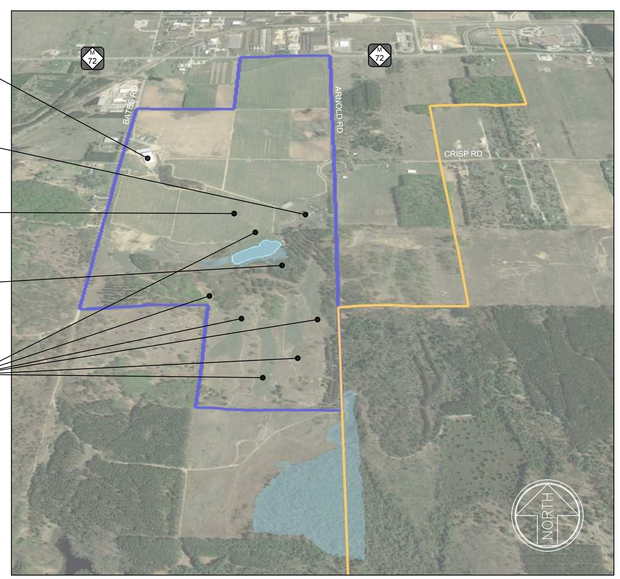
HIGH POINTE

REINCARNATION OF TOM DOAK'S ORIGINAL GOLF COURSE

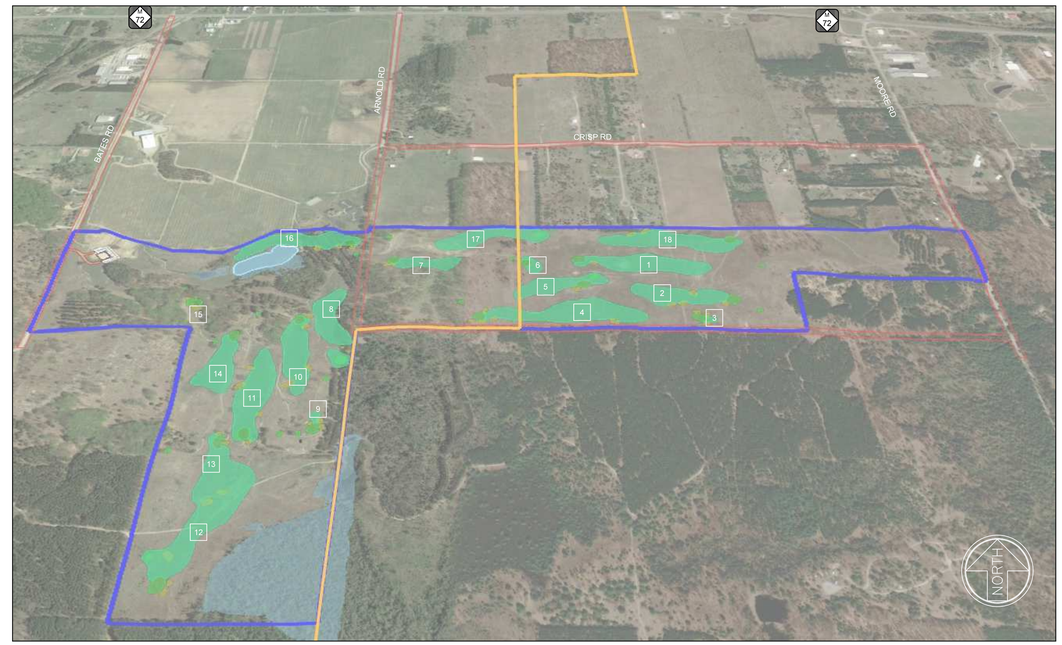


2006 IMAGERY ILLUSTRATING ORIGINAL HIGH POINTE GOLF COURSE

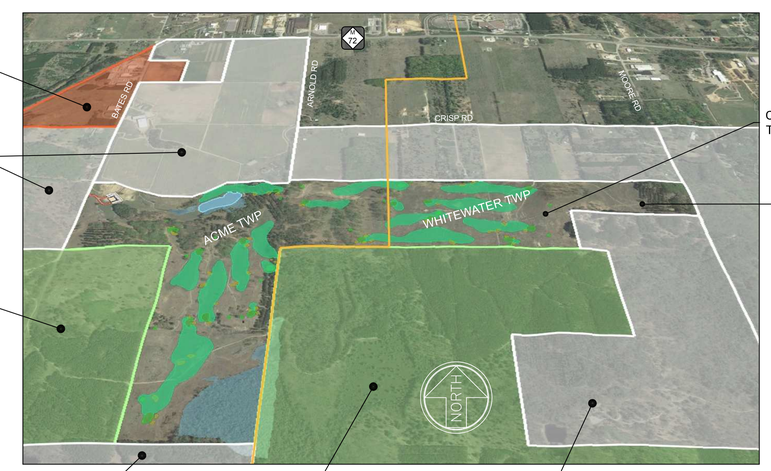
ORIGINAL COURSE SCORE CARD



2018 IMAGERY ILLUSTRATING REMNANTS OF ORIGINAL GOLF COURSE



PROPOSED GOLF COURSE LAYOUT



ADJACENT ZONING MAP

SITE ENGINEER:
jozwiak consulting
p.o. box 5342 | traverse city, mi 49696 | 231-218-1201
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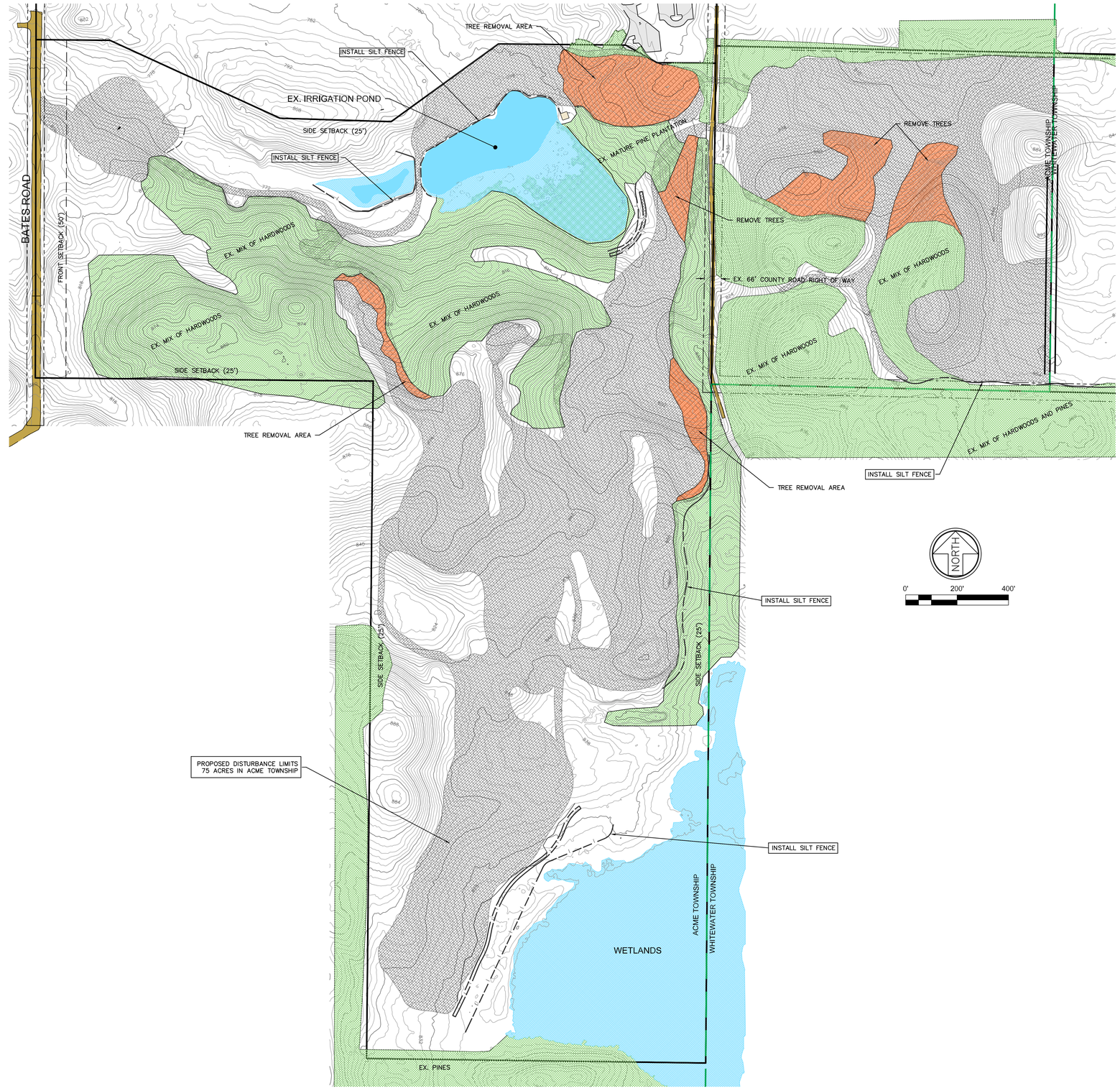
WEST PALM BEACH, FL 33405

PROJECT NO.:
2022-113

IMAGERY AND OVERLAYS

C003



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SESC AND TREE CLEARING

C101

SITE ENGINEER:
jozwiak consulting
p.o. box 5342 | traverse city, mi 49696 | 231-218-1201
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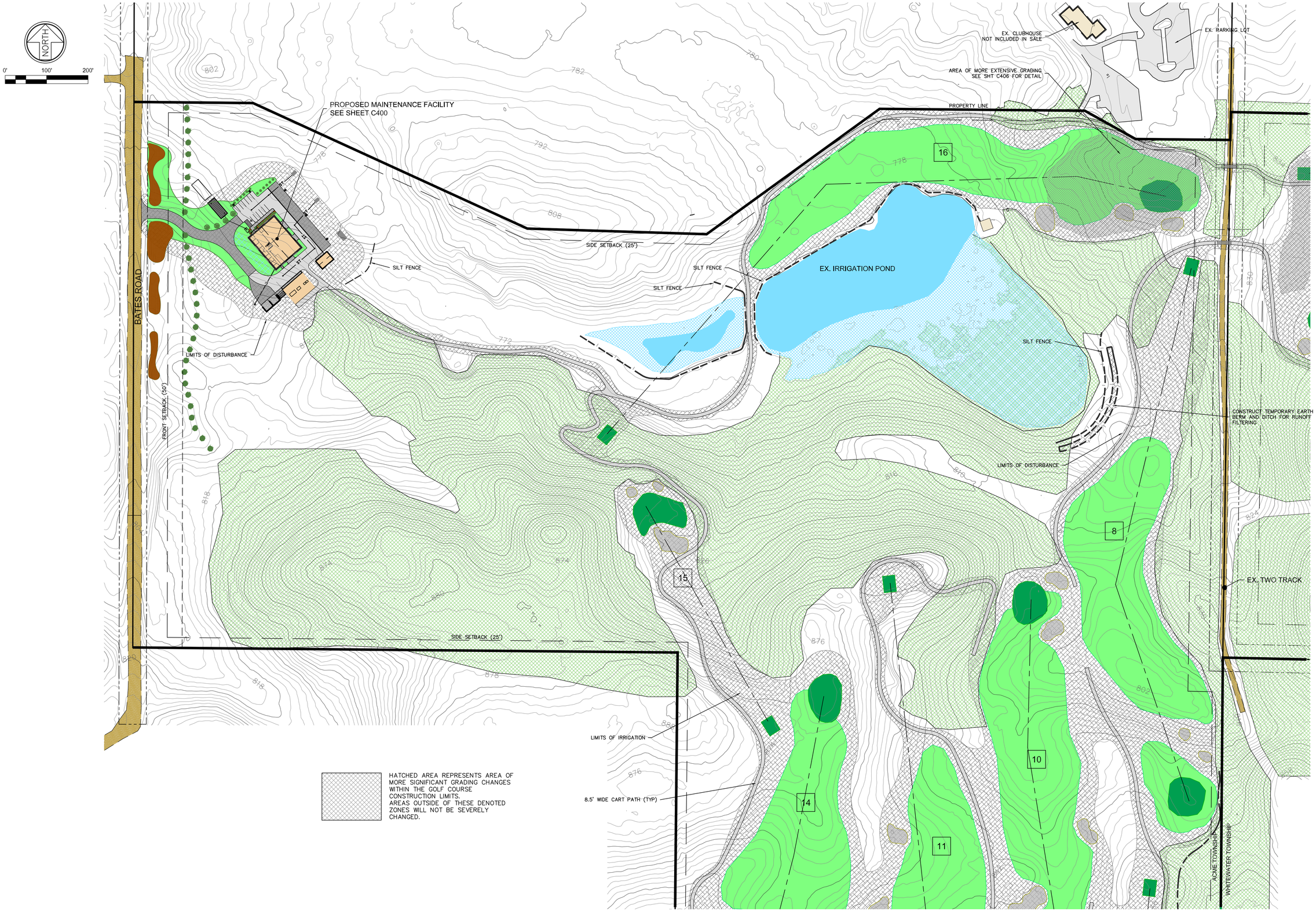
322 POTTER RD.
WEST PALM BEACH, FL 33405

PROJECT NO.:
2022-113

GOLF COURSE
LAYOUT
ACME
TOWNSHIP

C102



SITE ENGINEER:
jozwiak consulting
p.o. box 5342 | traverse city, mi 49696 | 231-218-1201
www.jozwiakconsulting.com

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PROJECT NO.:
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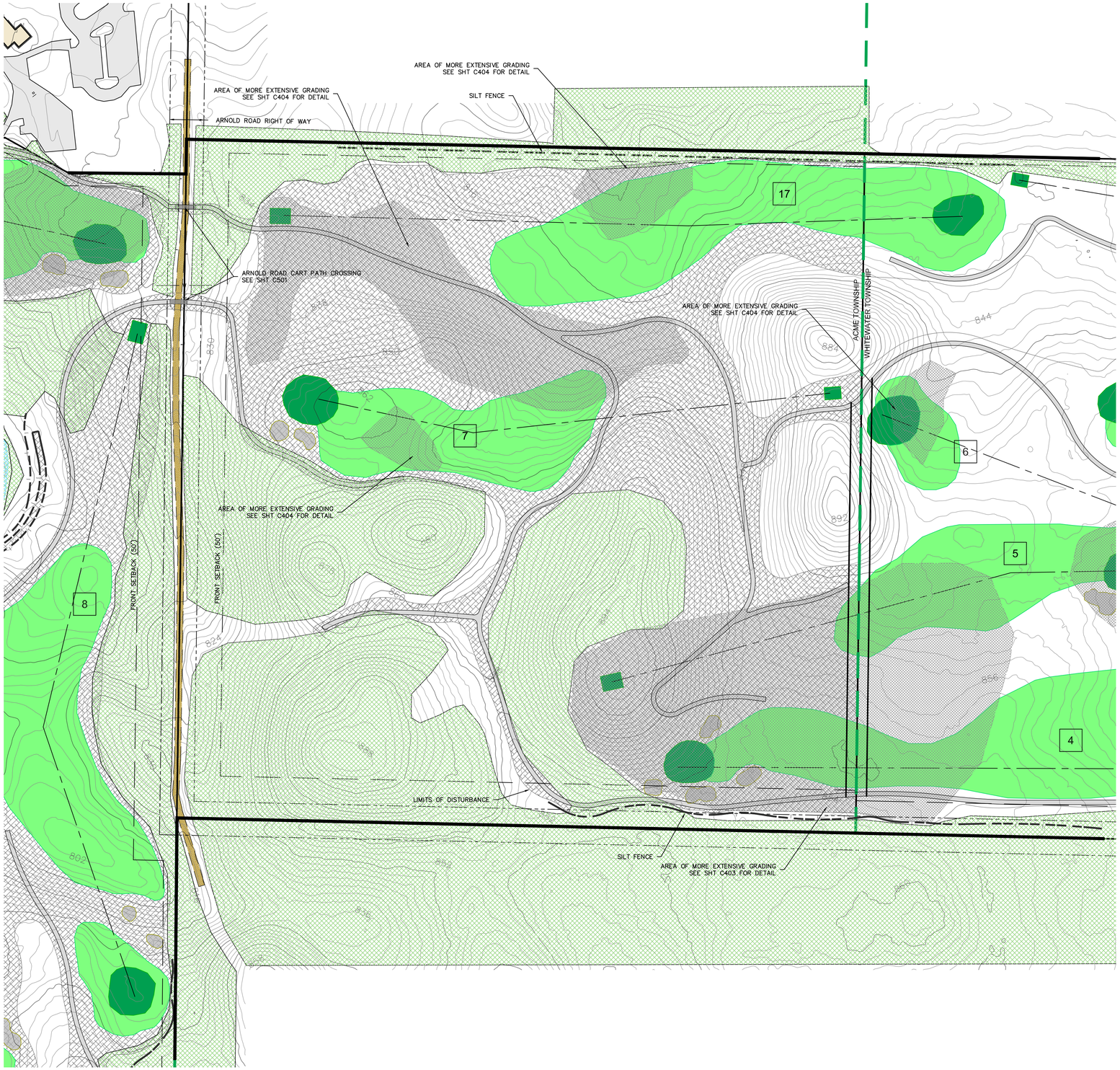
GOLF COURSE
LAYOUT
ACME
TOWNSHIP

C301

NORTH

0' 100' 200'



HATCHED AREA REPRESENTS AREA OF MORE SIGNIFICANT GRADING CHANGES WITHIN THE GOLF COURSE CONSTRUCTION LIMITS. AREAS OUTSIDE OF THESE DENOTED ZONES WILL NOT BE SEVERELY CHANGED.

SITE ENGINEER:
jozwiak consulting
p.o. box 5342 | traverse city, mi 49696 | 231-215-1201
www.jozwiakconsulting.com

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9-22-2022 ACME TOWNSHIP RESUBMITTAL

PROJECT: HIGH POINTE GOLF COURSE

LOCATION: M-72 AREA ACME / WILLIAMSBURG

CLIENT: HIGH POINTE HOLDINGS, LLC
322 POTTER RD.
WEST PALM BEACH, FL 33405

PROJECT NO.: **2022-113**

GOLF COURSE LAYOUT ACME TOWNSHIP

C302

NORTH

0' 100' 200'

HATCHED AREA REPRESENTS AREA OF MORE SIGNIFICANT GRADING CHANGES WITHIN THE GOLF COURSE CONSTRUCTION LIMITS.
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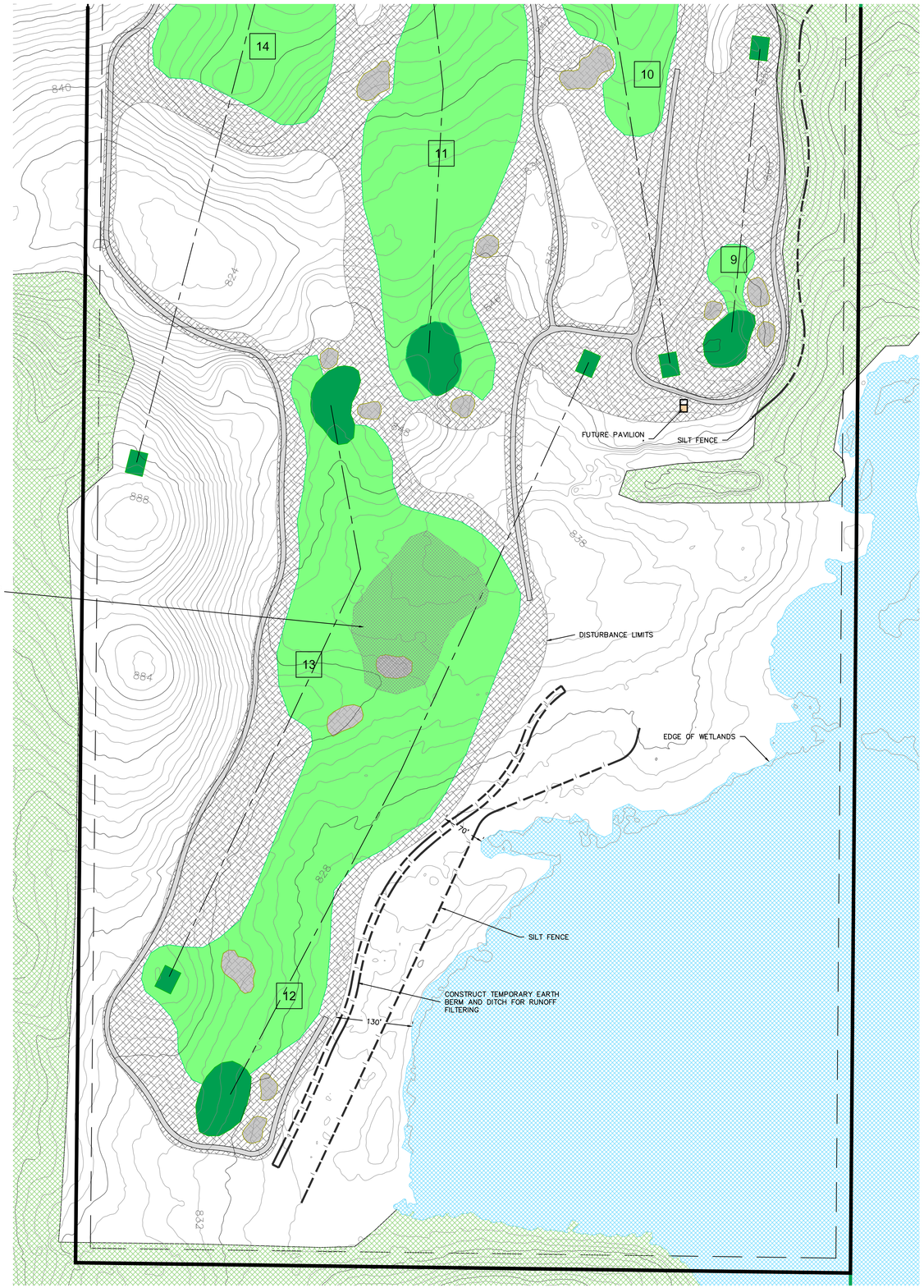

SITE ENGINEER:
jozwiak consulting
p.o. box 3342 | traverse city, mi 49696 | 231-218-1201
www.jozwiakconsulting.com

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ACME / WILLIAMSBURG

CLIENT:
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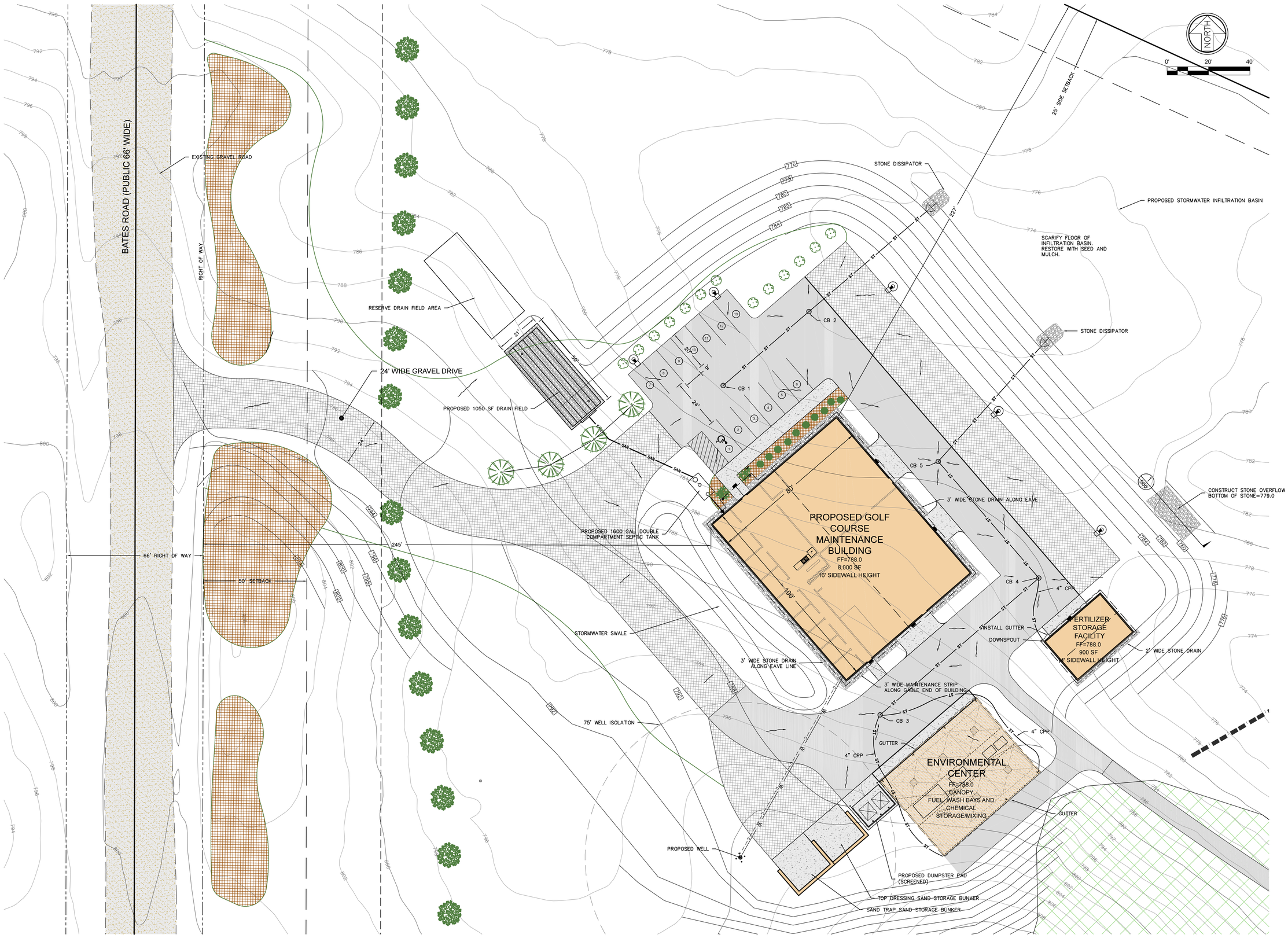
322 POTTER RD.
WEST PALM BEACH, FL 33405

PROJECT NO.:
2022-113

GOLF COURSE
LAYOUT
ACME
TOWNSHIP

C303



SITE ENGINEER:
jozwiak consulting
p.o. box 5342 | traverse city, mi 49696 | 231-218-1201
www.jozwiakconsulting.com

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HIGH POINTE GOLF COURSE

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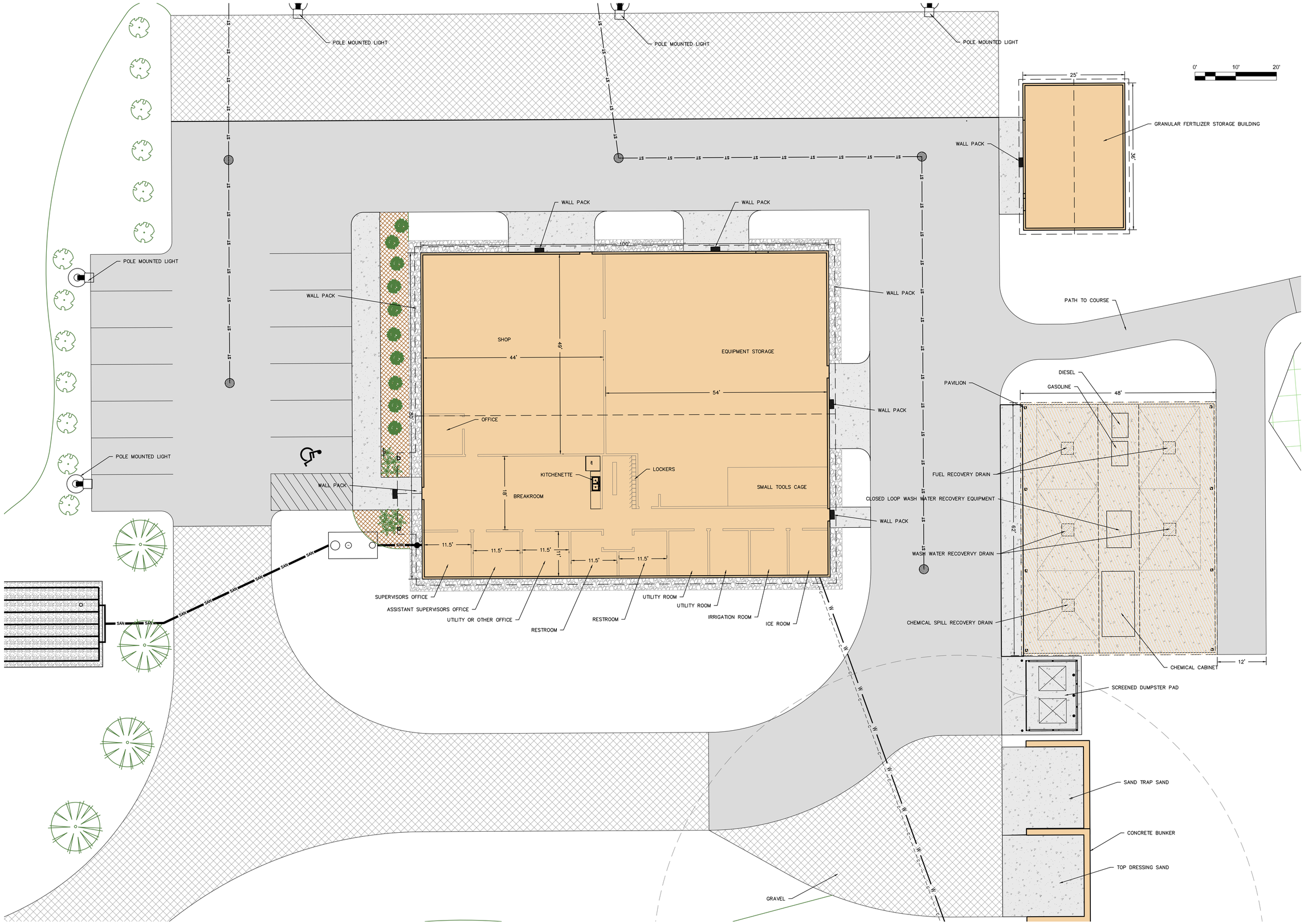
322 POTTER RD.
WEST PALM BEACH, FL 33405

PROJECT NO.:
2022-113

MAINTENANCE FACILITY SITE PLAN

C400



SITE ENGINEER:
jozwiak consulting
p.o. box 5342 | traverse city, mi 49696 | 231-218-1201
www.jozwiakconsulting.com

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CLIENT:
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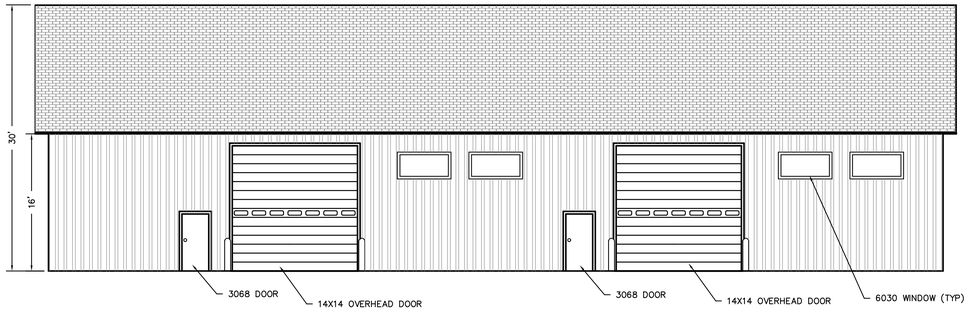
322 POTTER RD.
WEST PALM BEACH, FL 33405

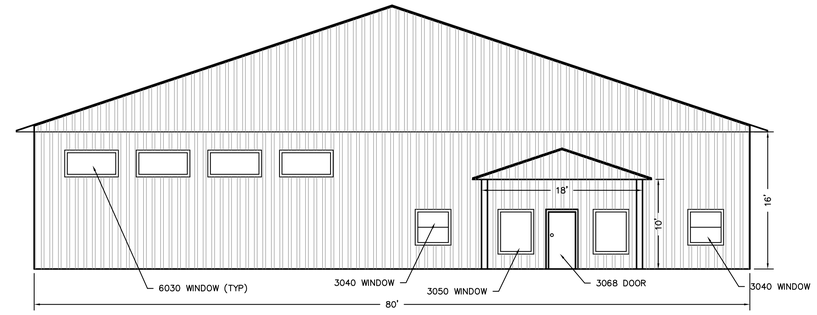
PROJECT NO.:
2022-113

MAINTENANCE FACILITY ENLARGED SITE PLAN

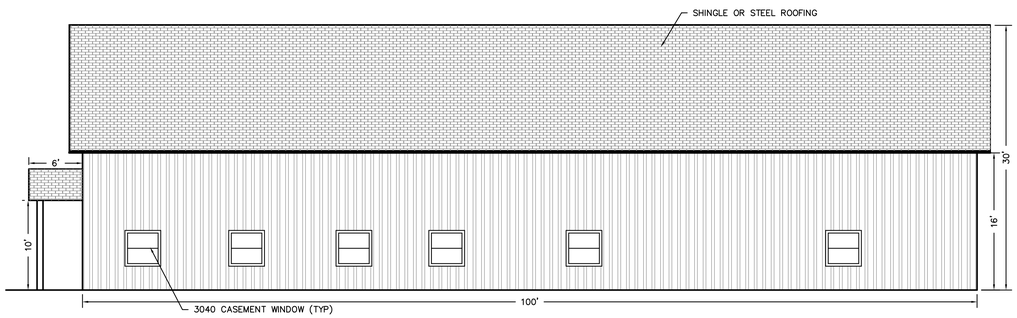
C401



NORTH ELEVATION



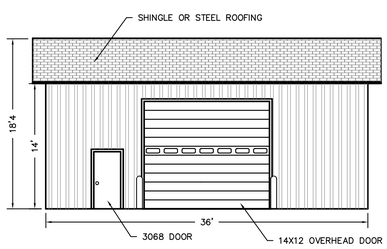
WEST ELEVATION



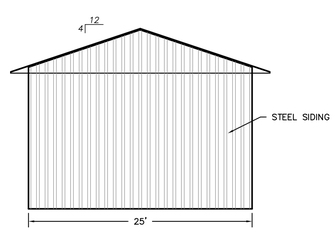
SOUTH ELEVATION

EAST ELEVATION

MAINTENANCE BUILDING ELEVATIONS

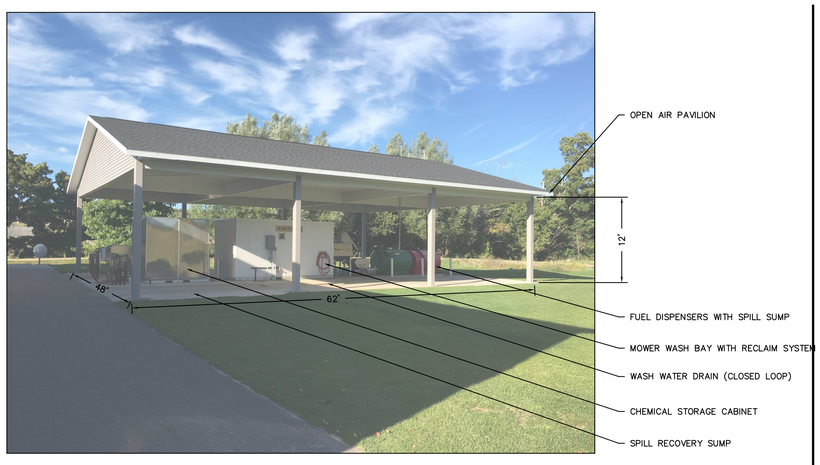


WEST ELEVATION

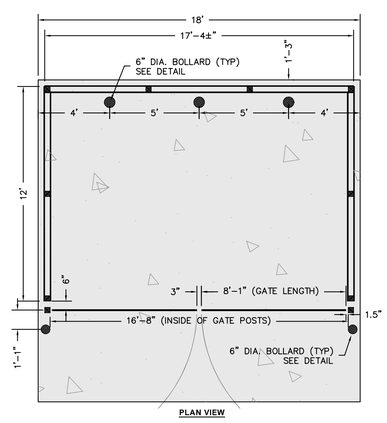


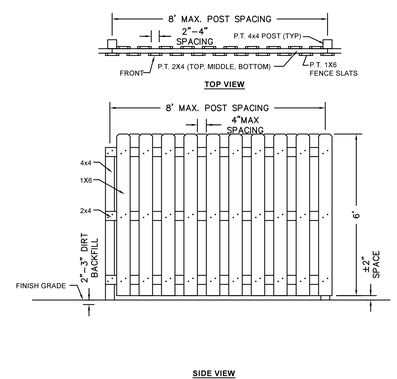
NORTH AND SOUTH ELEVATION

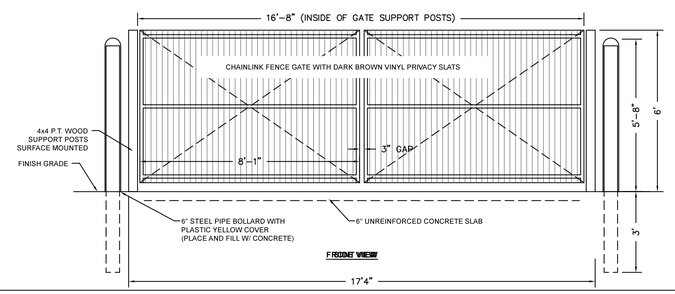
COLD STORAGE BUILDING ELEVATIONS



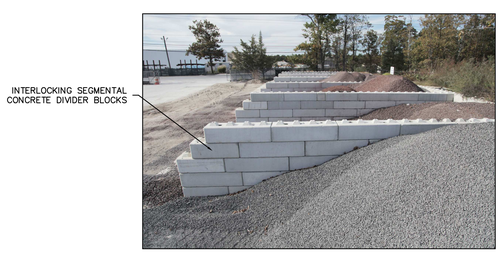
ENVIRONMENTAL CENTER







DUMPSTER ENCLOSURE DETAIL



BUNKER BLOCK TYPICAL FOR SAND STORAGE

SITE ENGINEER:
jozwiak consulting
p.o. box 5342 | traverse city, mi 49696 | 231-218-1201
www.jozwiakconsulting.com

PLAN DATE:
8-12-2022 ACME TOWNSHIP SUBMITTAL
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ACME / WILLIAMSBURG

PROJECT:
HIGH POINTE GOLF COURSE

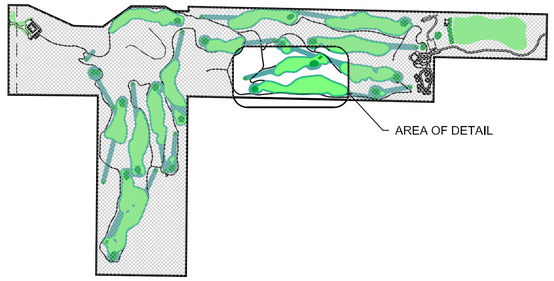
CLIENT:
HIGH POINTE HOLDINGS, LLC
322 POTTER RD.
WEST PALM BEACH, FL 33405

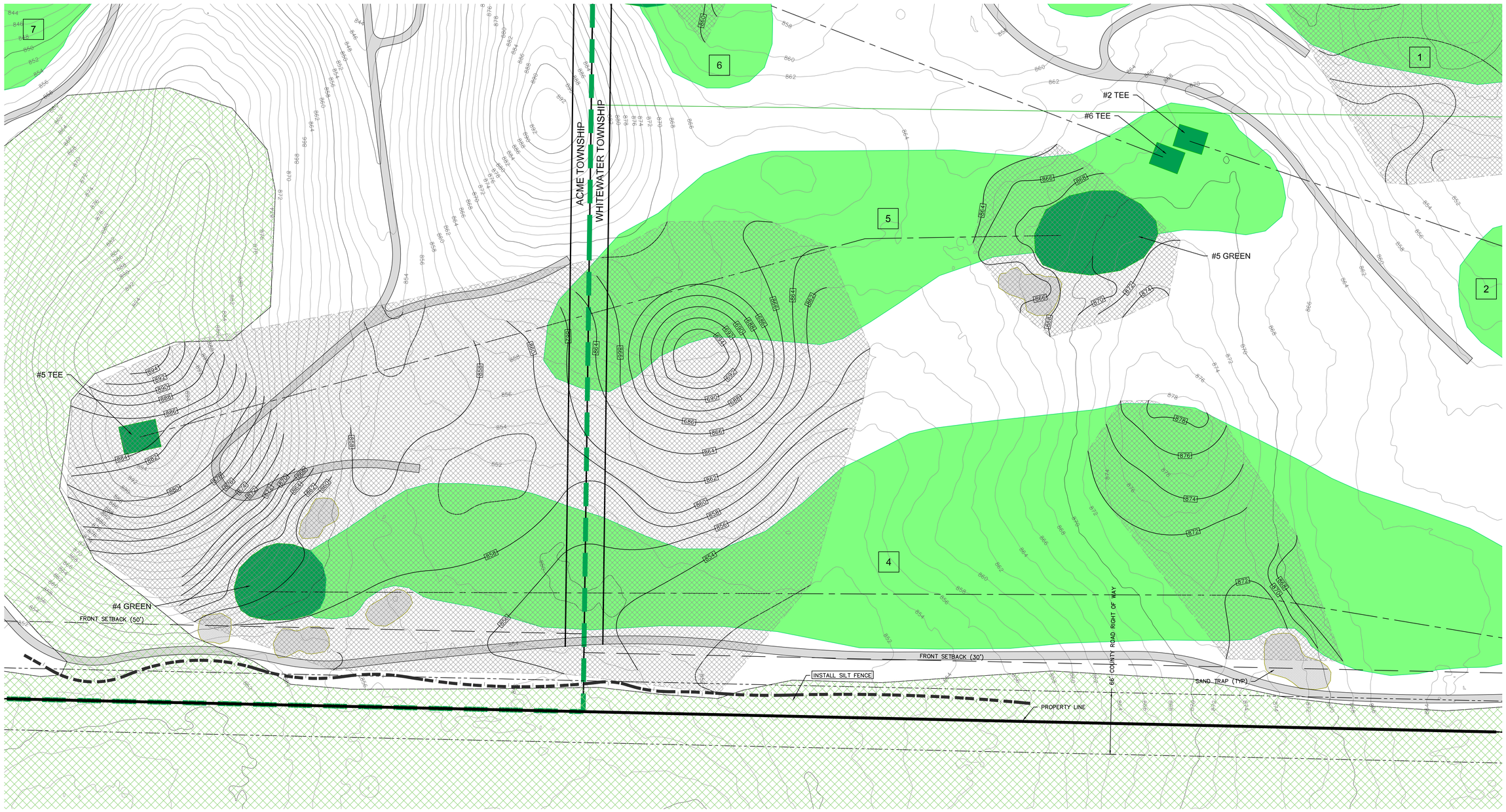
PROJECT NO.:
2022-113

MAINTENANCE FACILITY BUILDING ELEVATIONS AND DETAILS

C402

HATCHED AREA REPRESENTS AREA OF MORE SIGNIFICANT GRADING CHANGES WITHIN THE GOLF COURSE CONSTRUCTION LIMITS. AREAS OUTSIDE OF THESE DENOTED ZONES WILL NOT BE SEVERELY CHANGED.





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HOLES 4 AND 5 DETAILED VIEW

C403

HATCHED AREA REPRESENTS AREA OF MORE SIGNIFICANT GRADING CHANGES WITHIN THE GOLF COURSE CONSTRUCTION LIMITS.
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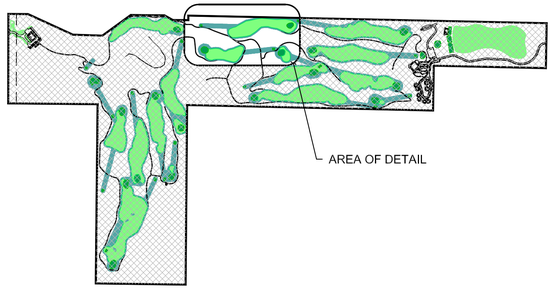
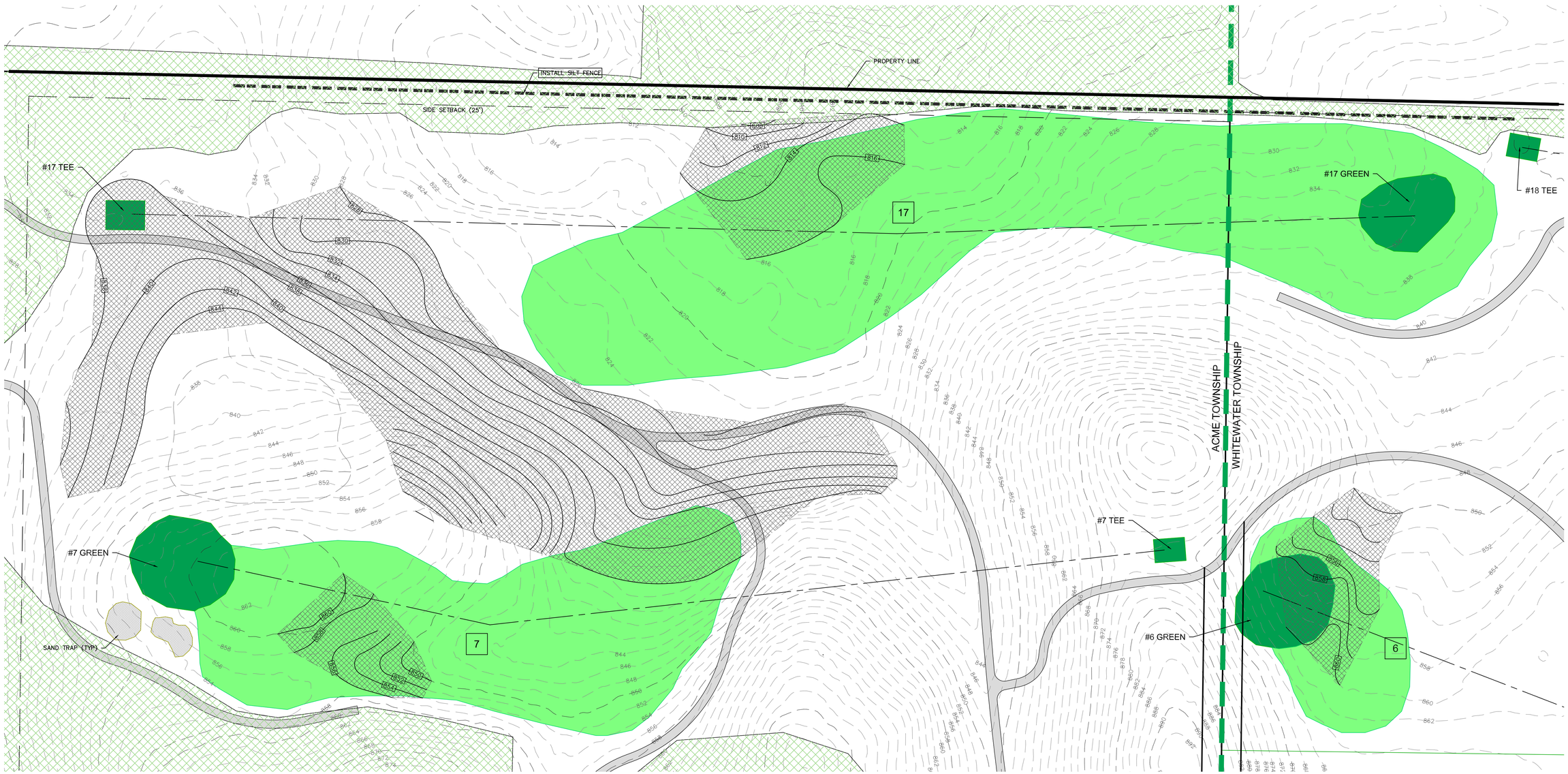


NORTH

0' 50' 100'



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LOCATION: M-72 AREA
ACME / WILLIAMSBURG

CLIENT: HIGH POINTE HOLDINGS, LLC
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WEST PALM BEACH, FL 33405

PROJECT NO.: **2022-113**

HOLES 6, 7 AND 17 DETAILED VIEW

C404

HATCHED AREA REPRESENTS AREA OF MORE SIGNIFICANT GRADING CHANGES WITHIN THE GOLF COURSE CONSTRUCTION LIMITS.
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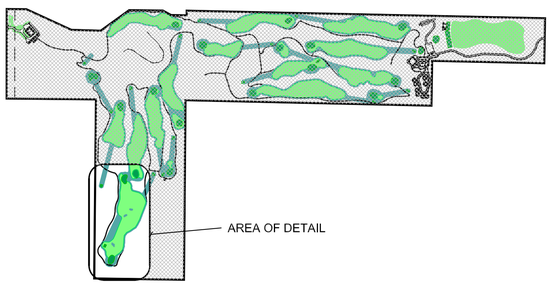

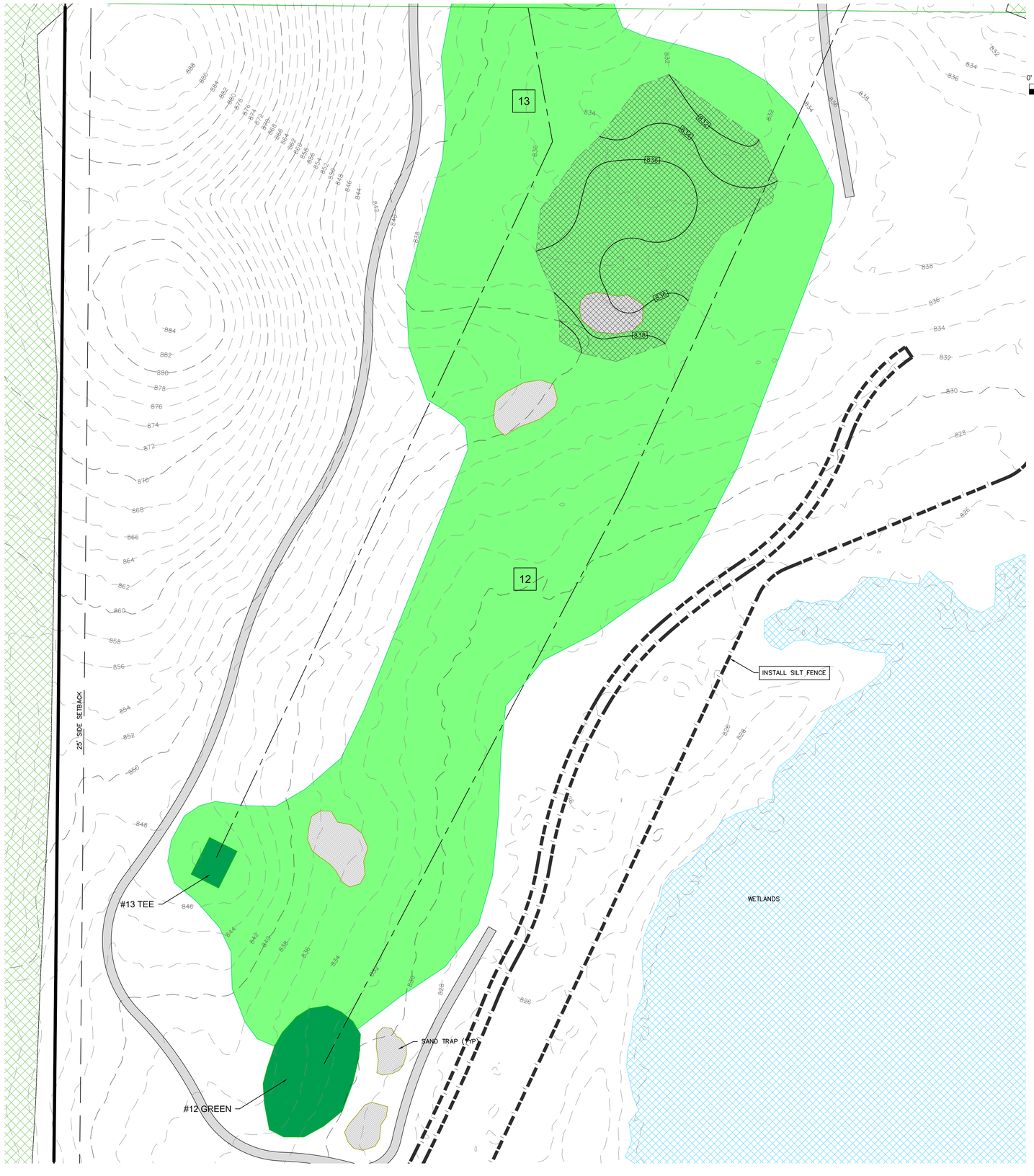

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WEST PALM BEACH, FL 33405

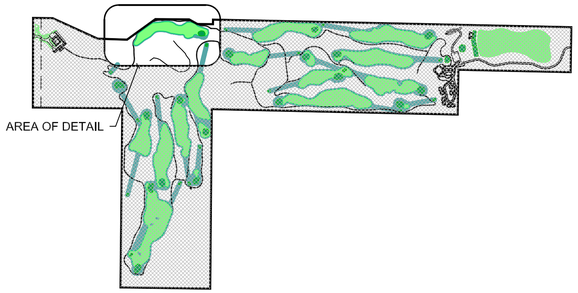
LOCATION: M-72 AREA
ACME / WILLIAMSBURG

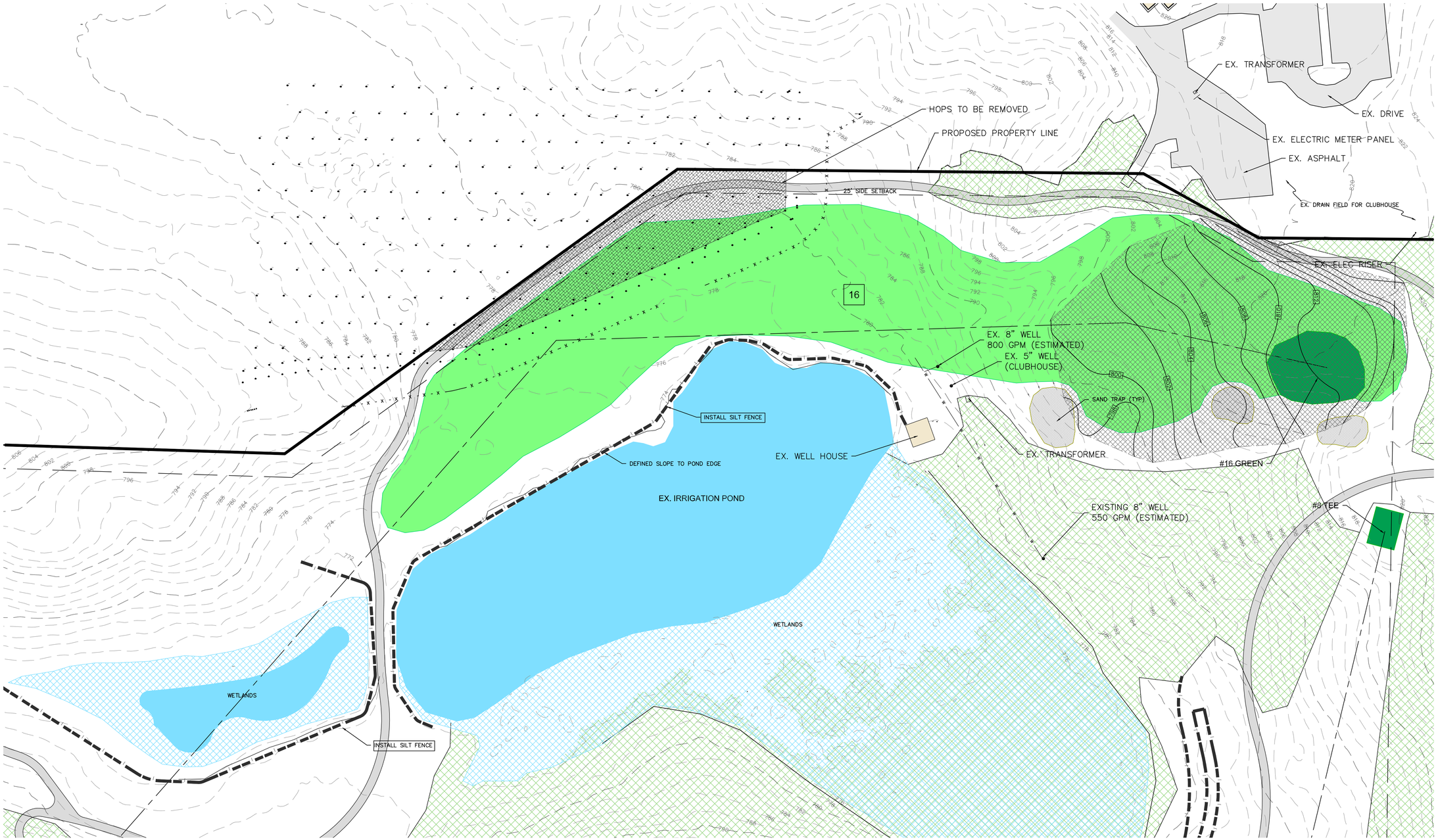
PROJECT NO.: 2022-113

HOLE 12
DETAIL VIEW

C405

HATCHED AREA REPRESENTS AREA OF MORE SIGNIFICANT GRADING CHANGES WITHIN THE GOLF COURSE CONSTRUCTION LIMITS.
AREAS OUTSIDE OF THESE DENOTED ZONES WILL NOT BE SEVERELY CHANGED.





SITE ENGINEER:
jozwiak consulting
p.o. box 3342 | traverse city, mi 49696 | 231-218-1201
www.jozwiakconsulting.com

PLAN DATE:
8-12-2022 ACME TOWNSHIP SUBMITTAL
9-12-2022 VARIOUS PLAN UPDATES
9-22-2022 ACME TOWNSHIP RESUBMITTAL

PROJECT:
HIGH POINTE GOLF COURSE

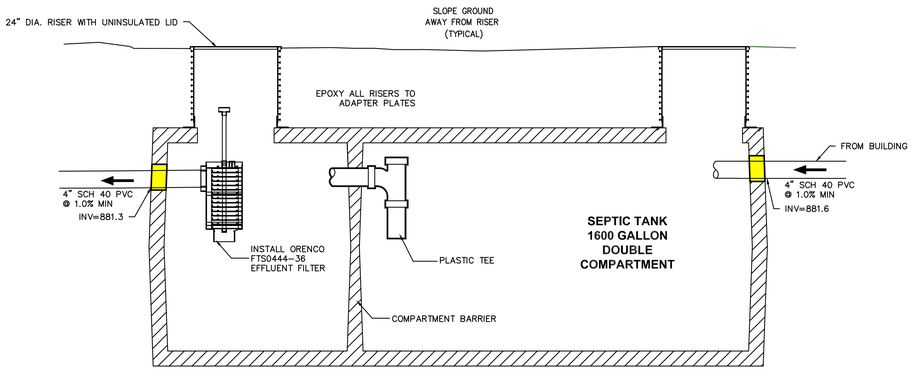
LOCATION:
M-72 AREA
ACME / WILLIAMSBURG

CLIENT:
HIGH POINTE HOLDINGS, LLC
322 POTTER RD.
WEST PALM BEACH, FL 33405

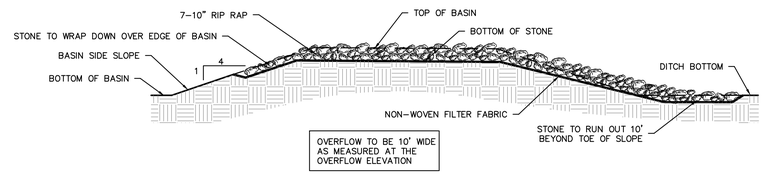
PROJECT NO.:
2022-113

HOLE 16
DETAILED
VIEW

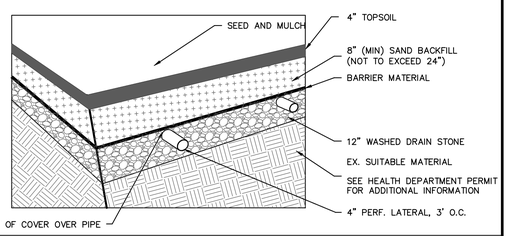
C406



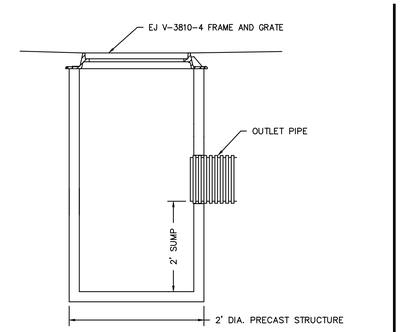
SEPTIC TANK DETAIL



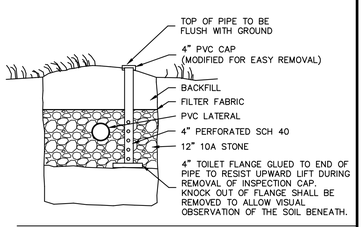
EMERGENCY OVERFLOW DETAIL



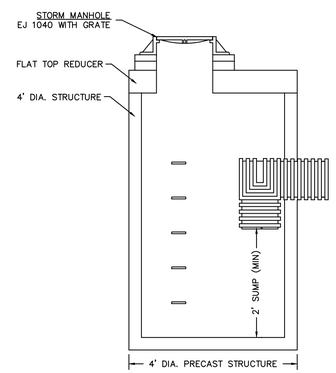
DRAIN FIELD SECTION VIEW DETAIL



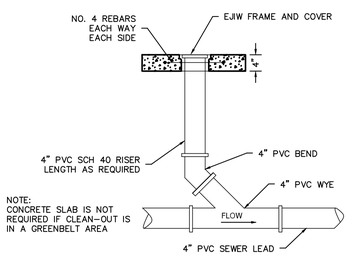
2' DIA. CATCH BASIN DETAIL



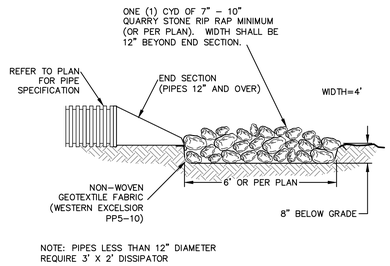
INSPECTION PORT DETAIL



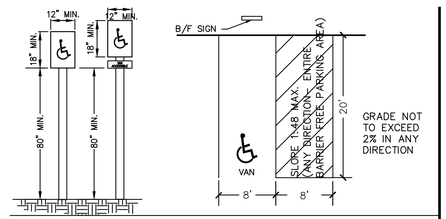
4' DIA. STORM STRUCTURE DETAIL



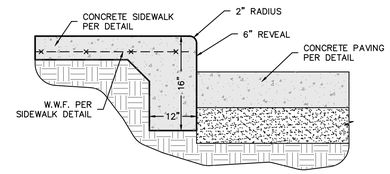
CLEAN-OUT DETAIL



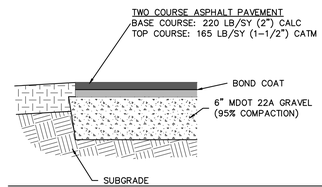
STORM OUTLET



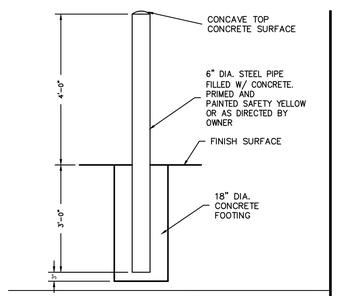
B/F DETAIL



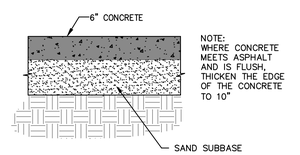
INTEGRAL CURB/SIDEWALK DETAIL



PAVING DETAIL



BOLLARD DETAIL



CONCRETE APRON DETAIL

SITE ENGINEER:
jozwiak consulting
p.o. box 5342 | traverse city, mi 49696 | 231-218-1201
www.jozwiakconsulting.com

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LOCATION:
M-72 AREA
ACME / WILLIAMSBURG

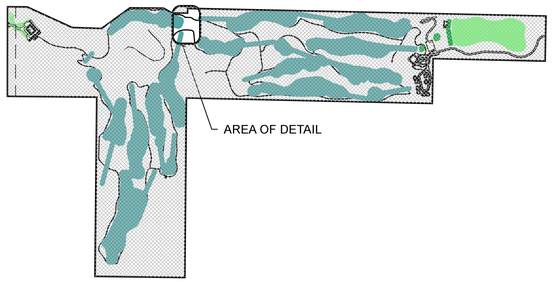
PROJECT:
HIGH POINTE GOLF COURSE

CLIENT:
HIGH POINTE HOLDINGS, LLC
322 POTTER RD.
WEST PALM BEACH, FL 33405

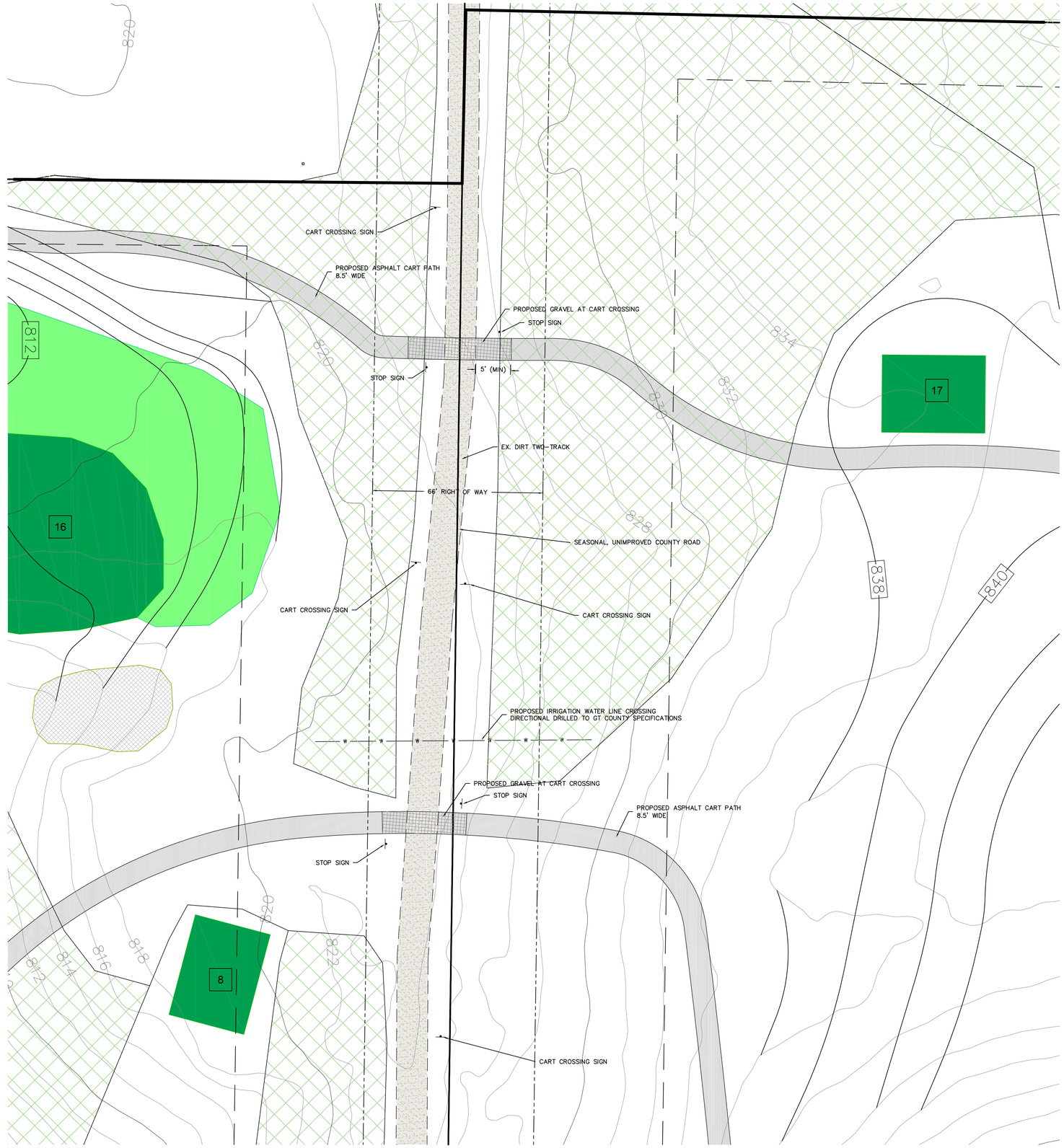
PROJECT NO.:
2022-113

MAINTENANCE BUILDING SITE DETAILS

C500



GOLF CART / PEDESTRIAN CROSSING WARNING SIGN



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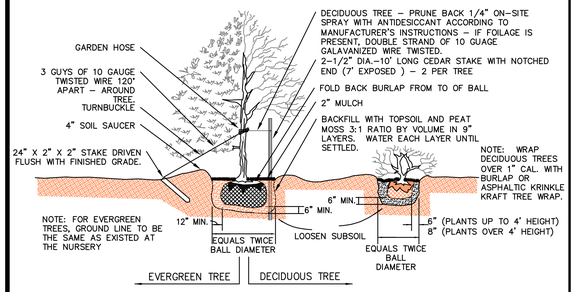
PROJECT NO.:
2022-113

ARNOLD ROAD
RIGHT OF WAY
CROSSING

C501



PLANTING DETAIL- TREES AND SHRUBS

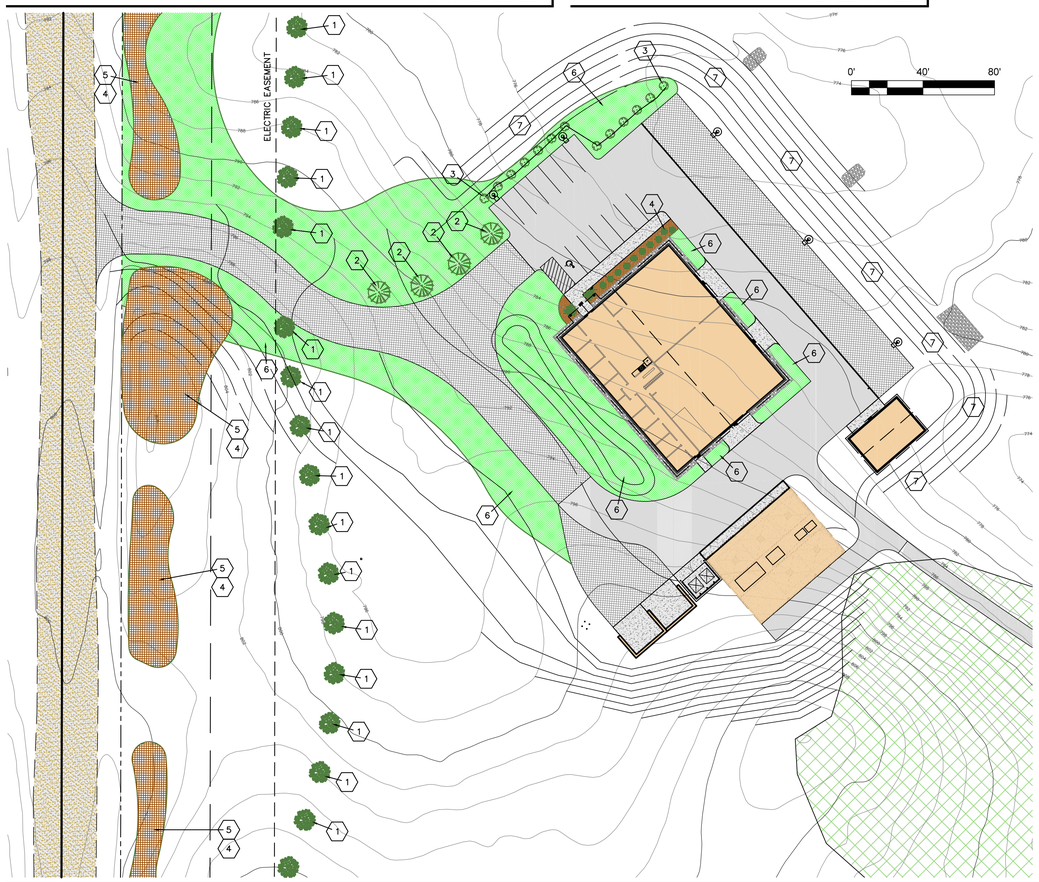
KEY	BOTANICAL & COMMON NAME	SIZE	QTY
	Canopy Trees		
1	Acer saccharum 'Green Mountain'/Sugar Maple	2.5" cal.	
	Gleditsai I var inermis 'Skyline'/Honeylocust	2.5" cal.	29
	Ornamental Trees		
2	Amelachier x g. "Autumn Brilliance"Serviceberry	2" cal.	
	Malus "Royal Raindrops/Pink Flowering Crabapple	2" cal.	4
	Prunus s. "Kwanzan"/Kwanzan Flowering Cherry	2" cal.	
	Evergreen Trees		
3	Juniperus c "Hetzii Columnaris"/Green Columnar Juniper	6' ht	
	Picea abies/Norway Spruce	6' ht	13
	Picea glauca/White Spruce	6' ht	
	Shrubs		
4	Juniperus h "Broadmoor"/Low Juniper	2' ht	
	Taxus "Tautonii"/Tauton Yew	2' ht	273
	Juniperus c Pfitzer Compacta / Low Juniper	2' ht	

Contractor may substitute based on availability but shall make selections from the list found at the following site:
https://www.habitatmatters.org/uploads/9/5/0/6/95066352/isn_planting_guide_for_municipalities_final.pdf

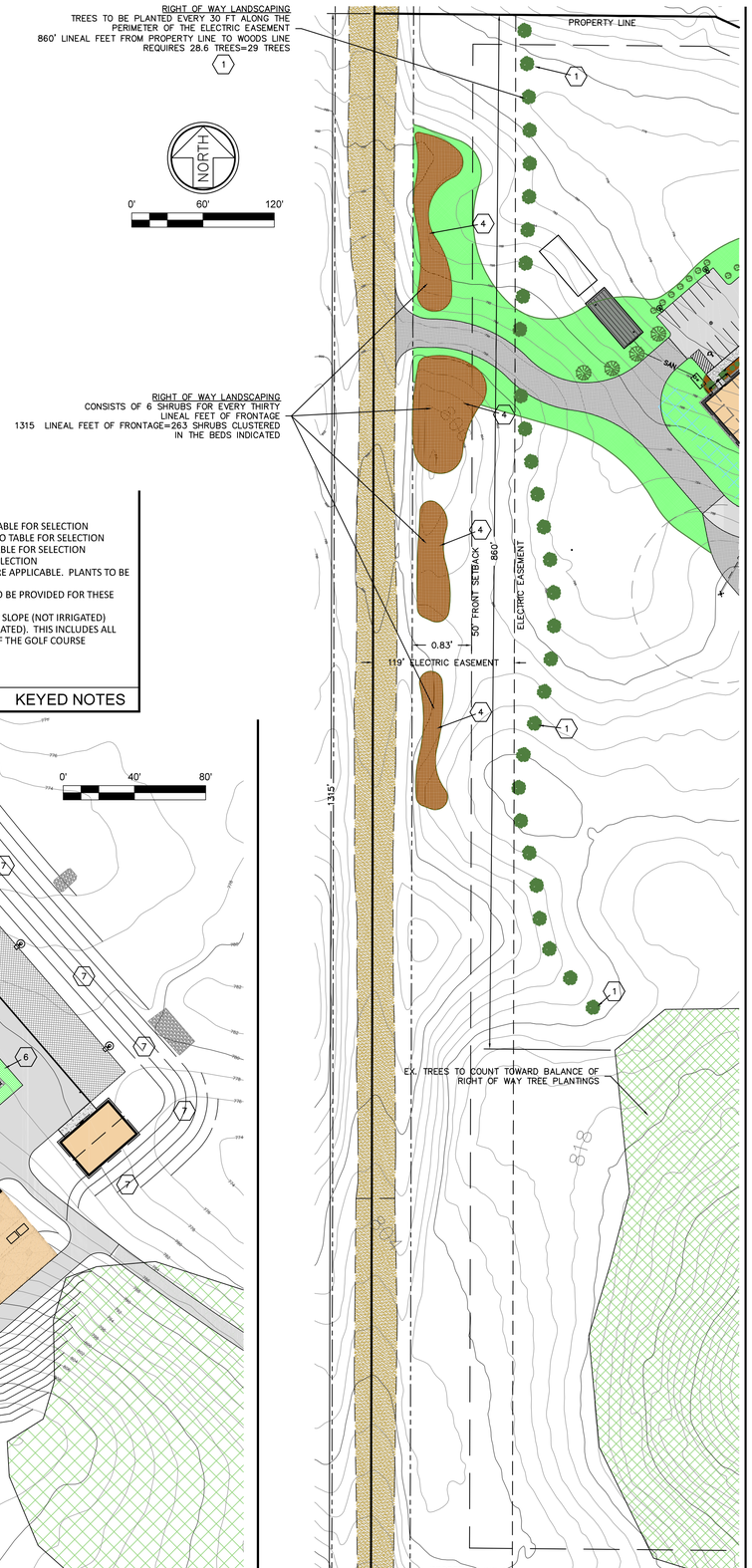
PLANT SPECIES

1 CANOPY TREE. 2.5" CALIPER. REFER TO TABLE FOR SELECTION
2 ORNAMENTAL TREE. 2" CALIPER. REFER TO TABLE FOR SELECTION
3 EVERGREEN TREES. 6' HIGH. REFER TO TABLE FOR SELECTION
4 SHRUBS. 2' HIGH. REFER TO TABLE FOR SELECTION
5 WOOD MULCH AREA WITH EDGING WHERE APPLICABLE. PLANTS TO BE EITHER SPRAY OR DRIP IRRIGATED.
6 MAINTAINED LAWN AREA. IRRIGATION TO BE PROVIDED FOR THESE AREAS.
7 NON-INVASIVE WILDFLOWER MIX ON FILL SLOPE (NOT IRRIGATED)
8 NON-INVASIVE FIELD GRASSES (NOT IRRIGATED). THIS INCLUDES ALL DISTURBED AREAS THAT ARE NOT PART OF THE GOLF COURSE

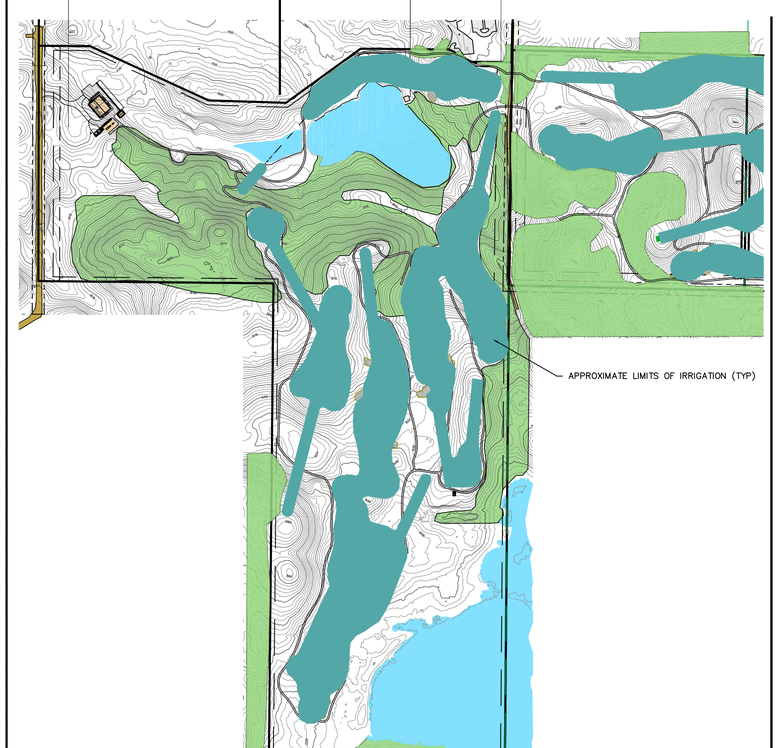
KEYED NOTES



MAINTENANCE FACILITY LANDSCAPE PLAN



BATES ROAD RIGHT OF WAY LANDSCAPE PLAN



GOLF COURSE IRRIGATION AREAS

SITE ENGINEER:
jozwiak consulting
p.o. box 5342 | traverse city, mi 49696 | 231-218-1201
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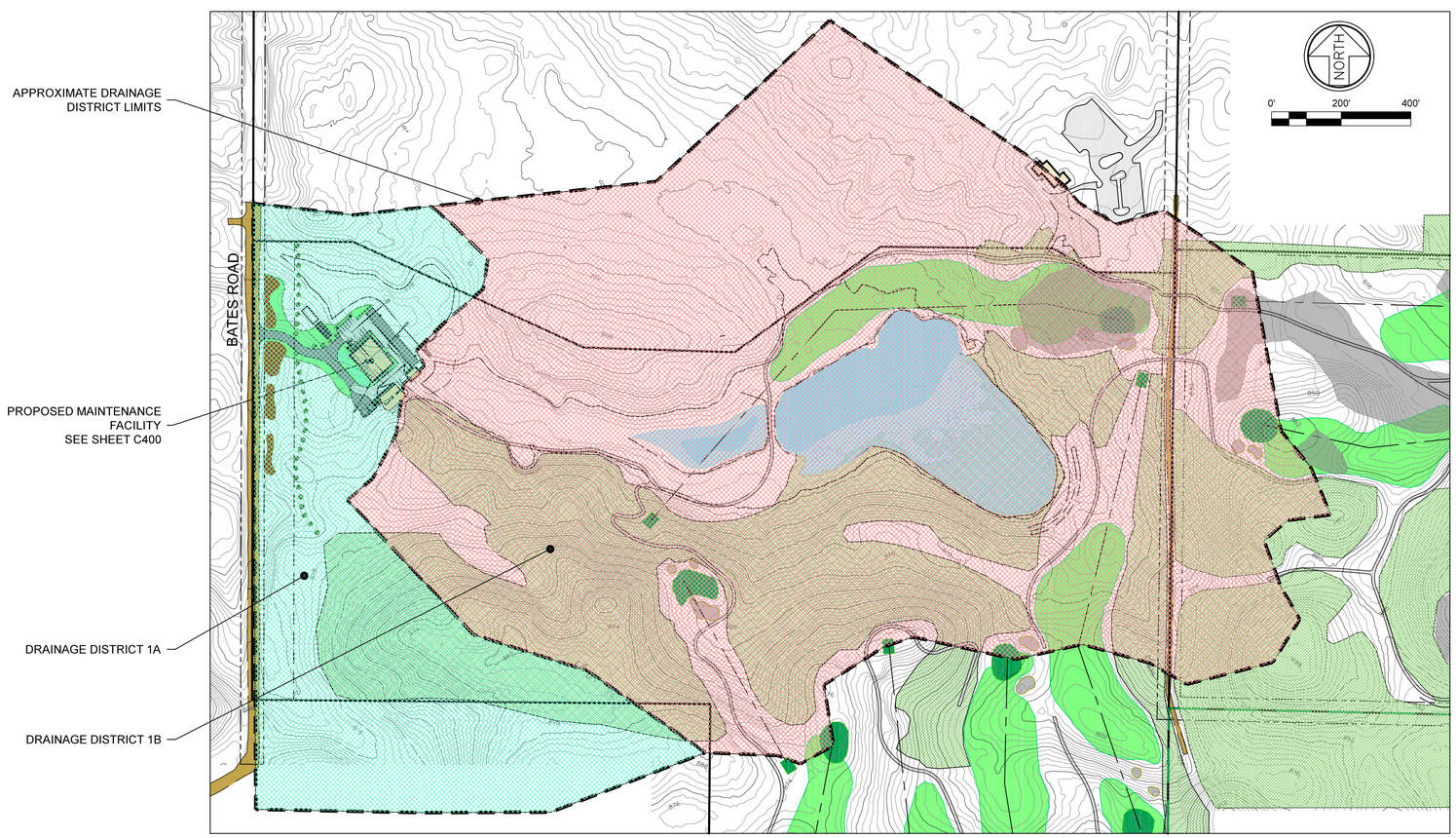
322 POTTER RD.
WEST PALM BEACH, FL 33405

LOCATION:
M-72 AREA
ACME / WILLIAMSBURG

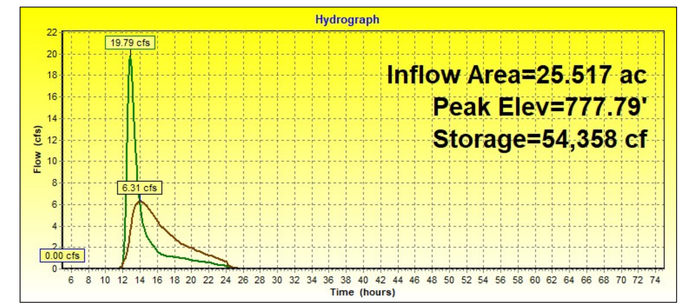
PROJECT NO.:
2022-113

LANDSCAPE PLAN

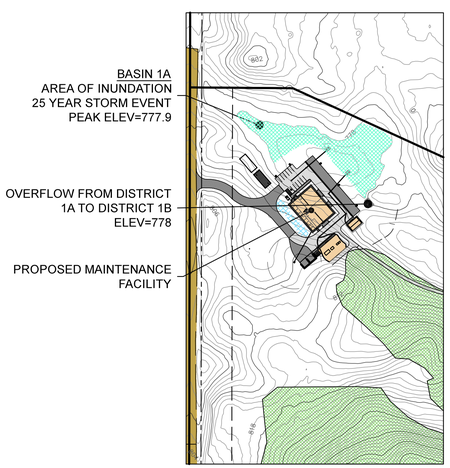
C701



DRAINAGE DISTRICT MAP FOR IRRIGATION POND AND MAINTENANCE BUILDING



MAXIMUM DRAIN TIME BASED ON 8 IN/HR INFILTRATION RATE



Inflow Area = 25.517 ac, 3.15% Impervious, Inflow Depth = 1.40" for 25-Year event
Inflow = 19.79 cfs @ 12.87 hrs, Volume= 2.979 af
Outflow = 6.31 cfs @ 14.00 hrs, Volume= 2.979 af, Atten= 68%, Lag= 67.8 min
Discarded = 6.31 cfs @ 14.00 hrs, Volume= 2.979 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Pond 3P : BASIN 1B

Routing by Stor-Ind method, Time Span= 5.00-75.00 hrs, dt= 0.05 hrs
Peak Elev= 777.79' @ 14.00 hrs Surf.Area= 34,079 sf Storage= 54,358 cf

Plug-Flow detention time= 118.2 min calculated for 2.977 af (100% of inflow)
Center-of-Mass det. time= 118.1 min (993.2 - 875.1)

Volume	Invert	Avail.Storage	Storage Description
#1	774.00'	169,600 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

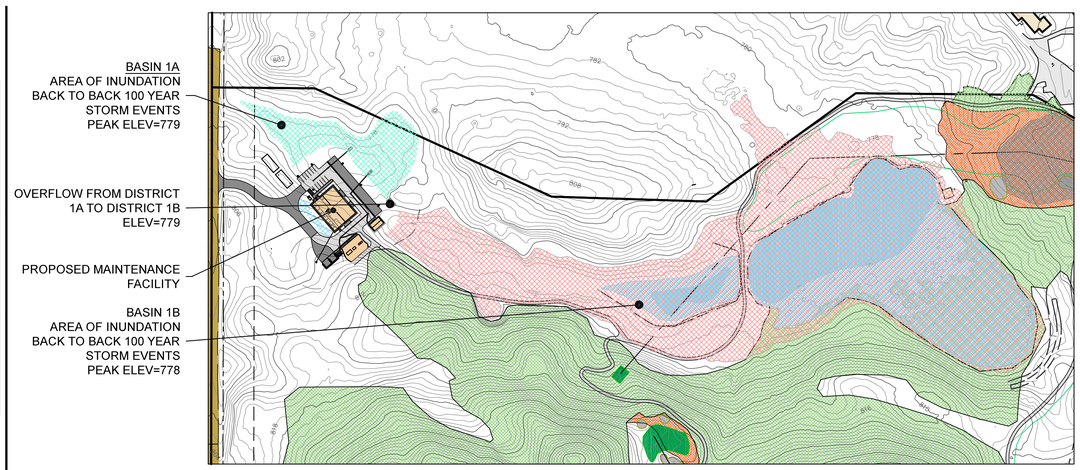
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
774.00	3,070	0	0
776.00	12,413	15,483	15,483
777.00	21,585	16,999	32,482
778.00	37,480	29,533	62,015
780.00	70,105	107,585	169,600

Device	Routing	Invert	Outlet Devices
#1	Discarded	774.00'	**8.000 in/hr Exfiltration over Surface area**
#2	Primary	779.00'	**50.0' long x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=6.31 cfs @ 14.00 hrs HW=777.79' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 6.31 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=774.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

25 YEAR STORM INUNDATION AREA FOR DRAINAGE DISTRICT 1A



Inflow Area = 109.699 ac, 0.73% Impervious, Inflow Depth = 5.42" for BACK TO BACK 100 YEAR
Inflow = 214.64 cfs @ 36.91 hrs, Volume= 49.504 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-75.00 hrs, dt= 0.05 hrs
Peak Elev= 777.90' @ 51.40 hrs Surf.Area= 579,273 sf Storage= 2,156,351 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	772.00'	3,541,037 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
772.00	78,800	0	0
774.00	303,200	382,000	382,000
776.00	471,600	774,800	1,156,800
778.00	584,801	1,056,401	2,213,201
780.00	743,035	1,327,836	3,541,037

BACK TO BACK 100 YEAR STORM FLOOD AREA - DRAINAGE DISTRICT 1A AND 1B

SITE ENGINEER:
jozwiak consulting
p.o. box 5342 | traverse city, mi 49696 | 231-218-1201
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CLIENT:
HIGH POINTE HOLDINGS, LLC
322 POTTER RD.
WEST PALM BEACH, FL 33405

PROJECT NO.:
2022-113

STORMWATER MANAGEMENT PLAN

C702

Otwell Mawby, P.C.
Consulting Engineers

September 19, 2022

Mr. Scott Jozwiak
Jozwiak Consulting
13300 S. West Bayshore Drive
Traverse City, Michigan 49684

EMAIL: scott@jozwiakconsulting.com

RE: INFILTRATION TESTING / SOIL BORING INVESAGATION
HIGH POINTE GOLF COURSE

Dear Scott:

Infiltration Test

OMPC completed infiltration testing at the location of a proposed infiltration basin at the High Pointe Gold Course. The test was proposed at the High Point golf course located to the NE of the proposed maintenance building for the High Pointe golf course. The testing was completed to confirm infiltration rates for roof and hard surface runoff. The location of the test is shown on the attached drawing.

The test was completed at a depth of 5 feet below the proposed bottom of basin elevation. The soils encountered were a fine to medium grained sand with trace silt. A clayey sand layer was encountered at a depth of 2 to 2.5 feet below the ground surface. The results of the test indicated an infiltration rate of 139 in/hour. A test location plan and the test report are attached.

Soil Borings

Two soil borings were completed at the locations shown on the attached drawing. The borings were advanced to evaluate groundwater levels at the two locations. Groundwater was encountered at the depth of 13 feet at the HA-2 and groundwater was not encountered to the boring determination depth of 15 feet at the HA-1 location although wet/saturated conditions were observed on top of the clayey sand at a depth of 7 feet. The boring logs which graphically depict the soils encountered are attached.

Please call with any questions.

Sincerely,

Very truly yours,

OTWELL MAWBY, P.C.

Roger L. Mawby, P.E.
Sr. Engineer

Attachments:
Location
Test Report 1
Boring Logs
Site Plan

Client: Jozwiak
Project: 22-120
Location: High Point Golf Course, Acme, MI

Boring Log Of: HA - 1
Date Drilled: 9/15/2022
Drilling Contractor: OMPC

Std. Penetration Resistance (N)	Recovery (inches)	Sample Method	Sample Type/Interval	Depth (feet)	Soil Type	Soil Description		Comments
						Surface Conditions: Grass		
						TOPSOIL (6") sand, silty, w/ organics, darkbrown		Boring advanced utilizing stainless steel hand auger.
						SAND, medium to fine grained, brown, moist		
						-grades tan		
				5		SAND, medium to fine grained, clayey, tan, moist		Water saturated on top of clay at 7' possible perched water
						-grades w/ trace gravel		
				10		SAND, medium to fine grained, tan moist		
								No ground water encountered
				15		End of Boring at 15 ft		
				20				
				25				
				30				

Top of Casing : N/A
Ground Elev.: N/A
Casing: N/A
Screen: N/A
Screen Setting: N/A

Well Construction / Boring Data

Water Encountered: Not Encountered
Date: 9/15/22
Logging Method: Visual-Manual
Development Method: N/A

Driller: JY
Helper: N/A
Logged By: JY

Otwell Mawby, P.C.
309 E. Front Street
Traverse City, MI 49684
231-946-5200
Fax 231-946-5216

Client: Jozwiak Project: 22-120 Location: High Point Golf Course, Acme, MI	Boring Log Of: HA - 2 Date Drilled: 9/16/2022 Drilling Contractor: OMPC Page 1 of 1

Std. Penetration Resistance (N)	Recovery (inches)	Sample Method	Sample Type/Interval	Depth (feet)	Soil Type	Soil Description Surface Conditions: Grass		Comments
						TOPSOIL (4") sand, silty w/ organics, darkbrown		Boring advanced utilizing stainless steel hand auger.
						SAND, medium to fine grained, brown, moist		
						-grades tan		
				5		CLAY, tan, sandy, moist		
						SAND, medium to fine grained, tan, moist		
						SAND, medium to fine grained, tan, clayey, moist		
				10		SAND, medium to fine grained, tan, moist		
						-grades more moist		
						-saturated at 13'		- boring caved at 13.5'
				15		End of Boring at 14 ft		
				20				
				25				
				30				

Well Construction / Boring Data

Top of Casing : N/A
Ground Elev.: N/A
Casing: N/A
Screen: N/A
Screen Setting: N/A

Water Encountered: 13' +/-
Date: 9/16/22
Logging Method: Visual-Manual
Development Method: N/A

Driller: JY
Helper: N/A
Logged By: JY

Otwell Mawby, P.C.
309 E. Front Street
Traverse City, MI 49684
231-946-5200
Fax 231-946-5216

INFILTRATION TEST DATA FORM

Location: Maintenance Building **PN# 22-120**

Test Hole Number: 1

Test By: JY

Date of Test: 9/15/2022

Depth to Bottom of Hole: 5' **Diameter of Hole:** 4"

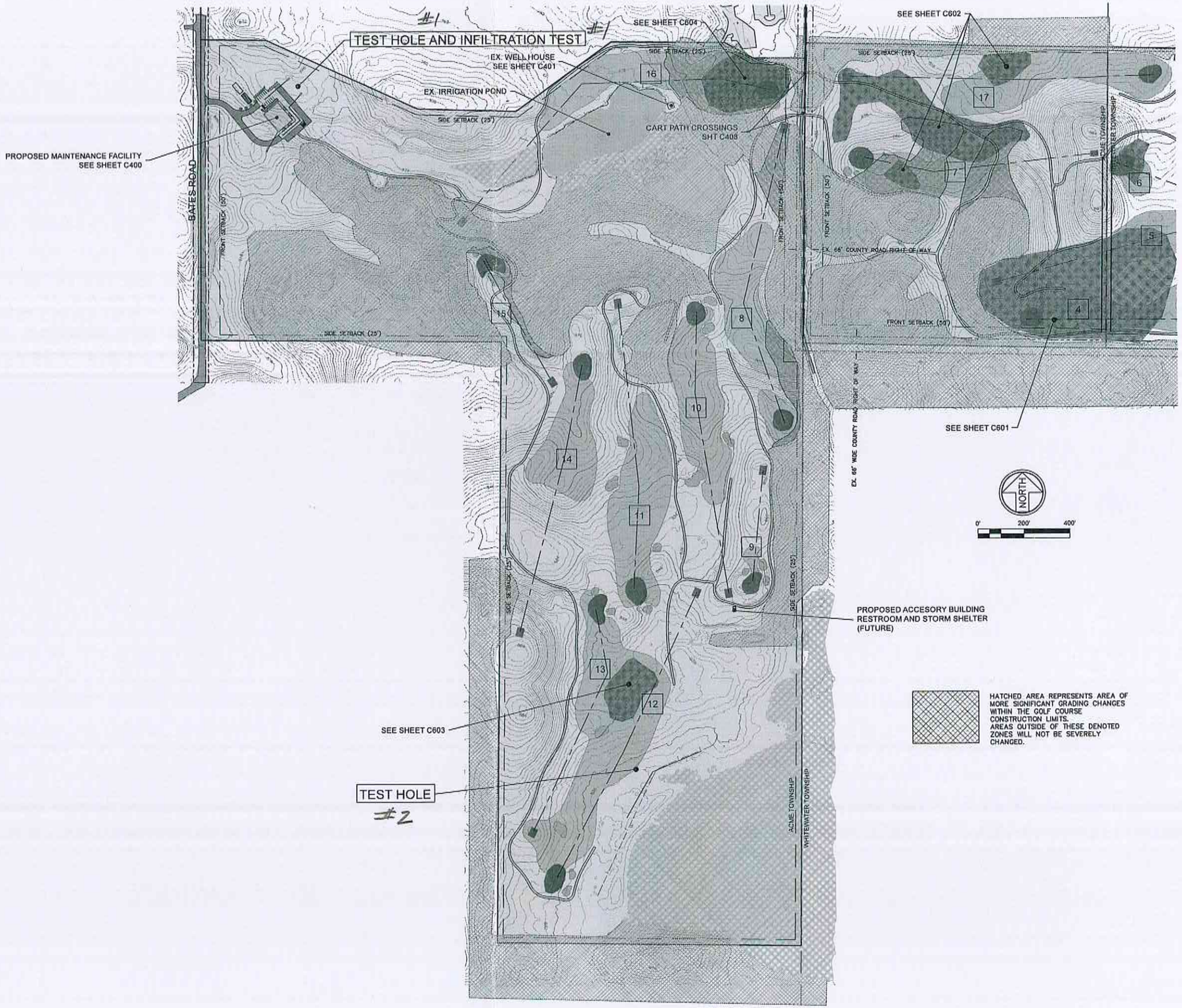
Note: Infiltration test was conducted through 4" diameter PVC pipe with well sand placed at the bottom. Test completed at 5' below grade.

Depth (ft)	Soil Texture
0 – 6"	TOPSOIL
6" – 24"	SAND, brown, medium to fine, moist
24" – 30"	SAND, clayey, medium to fine, moist
30" – 60"	SAND, tan, medium to fine, moist

Time	Time Interval (min)	Measurement (ft)	Drop in Water Level (ft)	Avg Drop in Water/Level (ft/min)	Percolation Rate (in/hr)	Remarks
1:50	1	0.71				
1:51	1	2.06	-4.35			
1:52	1	2.97	-0.91			
1:53	1	3.69	-0.72			
1:54	1	4.21	-0.52			
1:55	1	4.63	-0.42			
1:56	1	4.97	-0.34			
1:57	1	5.1	-0.22			
1:58	1	5.39	-0.20			
1:59	1	5.52	-0.13	.183	132	
2:02	1	0.79	Refill			
2:03	1	2.21	-1.51			
2:04	1	3.06	-0.85			
2:05	1	3.81	-0.75			
2:06	1	4.31	-0.50			
2:07	1	4.68	-0.37			
2:08	1	5.00	-0.32			
2:09	1	5.23	-0.23			
2:10	1	5.39	-0.16			
2:11	1	5.55	-0.16	.123	132	
2:14	1	0.70	Refill			
2:15	1	2.17	-1.47			
2:16	1	3.11	-0.94			
2:17	1	3.71	-0.70			

2:18	1	4.26	-0.55			
2:19	1	4.69	-0.43			
2:20	1	4.95	-0.26			
2:21	1	5.21	-0.26			
2:22	1	5.39	-0.18			
2:23	1	5.51	-0.12	.183	135	
2:25	1	0.70	Refill			
2:26	1	2.10	-1.40			
2:27	1	3.04	-0.96			
2:28	1	3.71	-0.67			
2:29	1	4.22	-0.51			
2:30	1	4.62	-0.40			
2:31	1	4.93	-0.31			
2:32	1	5.17	-0.24			
2:33	1	5.35	-0.18			
2:34	1	5.51	-0.16	.193	139	
2:37	1	0.72	Refill			
2:38	1	2.15	-1.43			
2:39	1	2.99	-0.84			
2:40	1	3.68	-0.69			
2:41	1	4.22	-0.54			
2:42	1	4.61	-0.39			
2:43	1	4.93	-0.32			
2:44	1	5.16	-0.23			
2:45	1	5.36	-0.20			
2:46	1	5.51	-0.15	.193	139	
2:49	1	0.70	Refill			
2:50	1	2.12	-1.42			
2:51	1	2.97	-0.85			
2:52	1	3.71	-0.74			
2:53	1	4.22	-0.51			
2:54	1	4.62	-0.40			
2:55	1	4.91	-0.29			
2:56	1	5.17	-0.26			
2:57	1	5.36	-0.19			
2:58	1	5.5	-0.14	.197	142	
3:01	1	0.70	Refill			
3:02	1	2.06	-1.39			
3:03	1	2.92	-0.86			
3:04	1	3.63	-0.71			
3:05	1	4.20	-0.57			
3:06	1	4.57	-0.37			
3:07	1	4.40	-0.33			
3:08	1	5.14	-0.24			
3:09	1	5.35	-0.21			
3:10	1	5.49	-0.14	.197	142	

Borehole saturated 1 hour prior to performing test. Minimum Infiltration Rate for last 30 minutes: 139 in/hr. The actual infiltration rate of the system will depend on factors such as sedimentation of the basin, soil saturation, and other factors. The infiltration test is an empirical test applying relatively high head over a small area. The infiltration rate decreases with a decrease in head. The maximum infiltration rate should be limited by the designer's judgement or local restrictions; however, test data indicates an infiltration rate of 139 inches per hour.



jozwiak consulting

SITE ENGINEER

PLAN DATE:
8-12-2022
9-12-2022

ACME TOWNSHIP SUBMITTAL
WADDS PLAN UPDATES

LOCATION:
M-72 AREA
ACME / WILLIAMSBURG

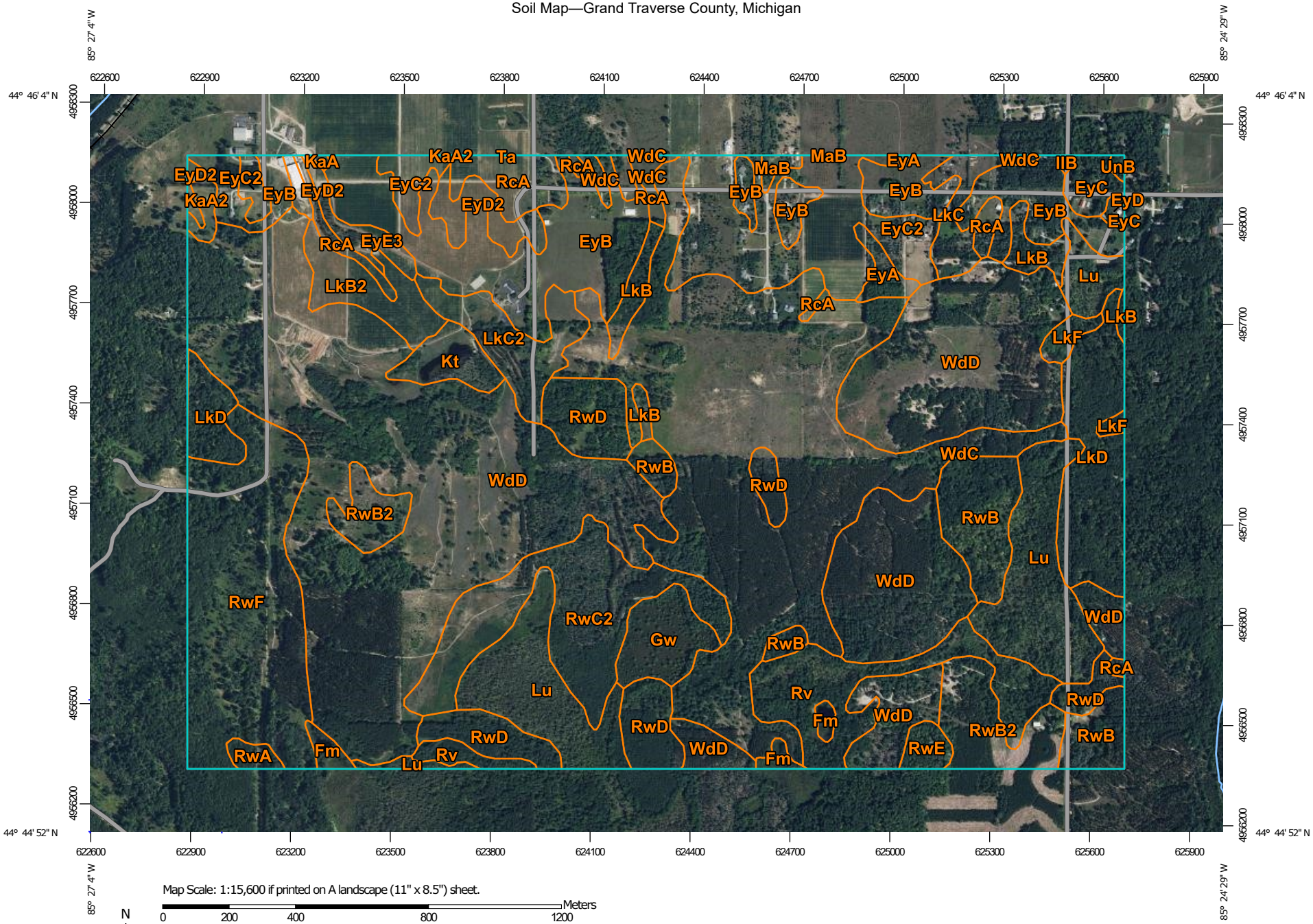
PROJECT:
HIGH POINTE GOLF COURSE

CLIENT:
HIGH POINTE HOLDINGS, LLC
322 POTTER RD.
WEST PALM BEACH, FL 33405

PROJECT NO.:
2022-113

GOLF COURSE
LAYOUT
ACME
TOWNSHIP

C301



Map Scale: 1:15,600 if printed on A landscape (11" x 8.5") sheet.

Meters: 0 200 400 800 1200

Feet: 0 500 1000 2000 3000

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Grand Traverse County, Michigan
Survey Area Data: Version 15, Sep 1, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 2, 2020—Nov 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
EyA	Emmet sandy loam, 0 to 2 percent slopes	4.7	0.4%
EyB	Emmet sandy loam, 2 to 6 percent slopes	101.0	7.9%
EyC	Emmet sandy loam, 6 to 12 percent slopes	6.1	0.5%
EyC2	Emmet sandy loam, 6 to 12 percent slopes, moderately eroded	61.6	4.8%
EyD	Emmet sandy loam, 12 to 18 percent slopes	1.1	0.1%
EyD2	Emmet sandy loam, 12 to 18 percent slopes, moderately eroded	12.0	0.9%
EyE3	Emmet sandy loam, 18 to 25 percent slopes, severely eroded	6.8	0.5%
Fm	Fresh water marsh	5.6	0.4%
Gw	Greenwood peat	15.0	1.2%
IIB	Iosco loamy sand, 2 to 6 percent slopes	0.5	0.0%
KaA	Kalkaska loamy sand, 0 to 2 percent slopes	0.4	0.0%
KaA2	Kalkaska loamy sand, 0 to 2 percent slopes, moderately eroded	2.9	0.2%
Kt	Kerston muck	9.9	0.8%
LkB	Leelanau-Kalkaska loamy sands, 2 to 6 percent slopes	12.6	1.0%
LkB2	Leelanau-Kalkaska loamy sands, 2 to 6 percent slopes, moderately eroded	15.5	1.2%
LkC	Leelanau-Kalkaska loamy sands, 6 to 12 percent slopes	9.2	0.7%
LkC2	Leelanau-Kalkaska loamy sands, 6 to 12 percent slopes, moderately eroded	20.0	1.6%
LkD	Leelanau-Kalkaska loamy sands, 12 to 18 percent slopes	44.3	3.5%
LkF	Leelanau-Kalkaska loamy sands, 25 to 45 percent slopes	4.4	0.3%
Lu	Carlisle muck, 0 to 2 percent slopes, cool	76.6	6.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MaB	Mancelona gravelly sandy loam, 2 to 6 percent slopes	1.7	0.1%
RcA	Richter loams, 0 to 2 percent slopes, overwash	23.3	1.8%
Rv	Roscommon sand	38.4	3.0%
RwA	Rubicon sand, 0 to 2 percent slopes	2.7	0.2%
RwB	Rubicon sand, 0 to 6 percent slopes	35.0	2.7%
RwB2	Rubicon sand, 2 to 6 percent slopes, moderately eroded	28.7	2.2%
RwC2	Rubicon sand, 6 to 12 percent slopes, moderately eroded	51.6	4.0%
RwD	Rubicon sand, 6 to 18 percent slopes	42.9	3.3%
RwE	Rubicon sand, 18 to 25 percent slopes	4.3	0.3%
RwF	Rubicon sand, 25 to 45 percent slopes	82.4	6.4%
Ta	Tawas-Roscommon complex	0.0	0.0%
UnB	Ubly-Nester complex, 2 to 6 percent slopes	0.7	0.1%
WdC	Wind eroded land, sloping	195.9	15.3%
WdD	Wind eroded land, strongly sloping	364.3	28.4%
Totals for Area of Interest		**1,282.2**	**100.0%**

ESD Waste2Water, Inc.
Partnership for a Cleaner Tomorrow

Chemical Mix, Containment & Recovery System

For Turf Care Facility - Chemical Mix/Load/Storage Areas

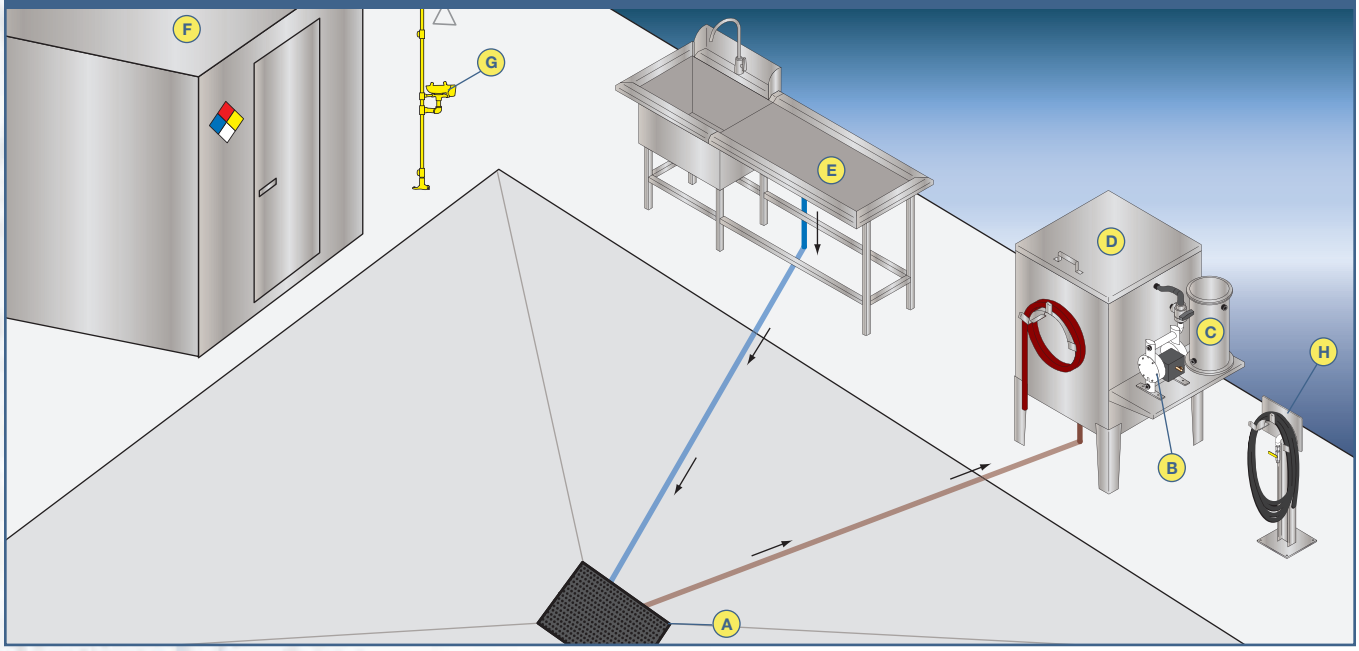
The Chemical Mix, Containment and Recovery System by ESD allows you to transform your chemical area so that you can safely and effectively mix and load your turf care chemicals in a single contained area. In the event of a chemical spill, the chemical solution will be contained in the Chemical Sump and can be recovered with the Chemical Recovery Tank for reuse or proper disposal. The Chemical Sink drains to the Chemical Sump as well, to complete the containment process. All three products are constructed of marine-grade aluminum for maximum durability and chemical resistance.

Specifications:

Chemical Recovery Tank:	
Approximate Dimensions	35"L x 46 1/2"W x 55" H
Tank Capacity	148 gallons
Filtration	100 microns
Utility Requirement	20-100 psi compressed air for air-powered diaphragm pump, 1/4" air inlet
Chemical Sump:	
Approximate Dimensions	30½"L x 30½"W x 26" H
Cover Screen	20 gauge perforated Stainless Steel
Chemical Sink:	
Approximate Dimensions	78 3/16" L x 25 1/16" W x 51" H
Utility Requirement	3/4" fresh or irrigation water
Chemical FIll Hose & Hanger:	
Hose Specification	1 1/2" diameter, 25' long
Utility Requirement	1 1/2" fresh or irrigation water

ESD Waste2Water, Inc.
Partnership for a Cleaner Tomorrow

Chemical Mix, Containment and Recovery System



A Chemical Containment Sump.

Potential chemical spills are captured by the Chemical Containment Sump. The sump has a perforated stainless steel cover to strain out unwanted debris such as twigs, leaves and pebbles. The V-bottom of the sump allows for nearly 100% evacuation, and recapture, of liquids from the sump.

B Air-Actuated Pump.

Located on the Chemical Recovery Tank is an Air-Actuated Pump. When activated by manually turning on the air control valve, the pump will draw solution from the Chemical Containment Sump. The pump is constructed of polypropylene with a Viton® diaphragm for maximum chemical resistance and longevity. The pump may also be run dry for periods of time without sustaining damage.

C Filter.

The air pump suctions the liquid through a reusable 100 micron poly bag filter to remove fine particulates from the waste stream. The filtration allows the liquid to be pumped into the spray rig for proper disposal without clogging the chemical sprayer's nozzles. The filter can also prepare a chemical spill for recovery and reuse.

D Chemical Recovery Tank.

The filtered chemical solution can be pumped to the inside of the 148 gallon Chemical Recovery Tank for storage. Alternatively, with the twist of a valve, the solution can be directed to the hose on the front of the tank, and can be pumped into a spray rig, spray tank, or chemical container.

E Chemical Sink.

The 4 foot long counter of the ESD Chemical Sink makes it a handy tool for handling and premixing chemicals. The goose-neck faucet allows for a 5-gallon bucket to be placed and filled directly in the sink. Any drainage from the sink flows to, and is captured in, the Chemical Containment Sump for appropriate handling and disposal.

F Chemical Storage Building.

Chemicals should be stored directly adjacent to the chemical mix/load area in an appropriately marked storage facility. An adjacent structure allows for complete containment from storage to use. A variety of sizes of Chemical Storage Buildings are available from ESD Waste2Water, Inc. Detailed specification sheets are available upon request.

G Emergency Eye Wash/Shower Station.

No chemical area is complete without an Emergency Eye Wash / Shower Station. These are also available through ESD.

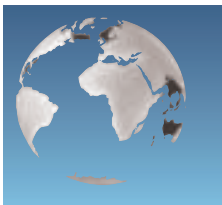
H Fill Hose & Hose Hanger.

A 1½" Fill Hose is recommended for rapid filling of spray rigs. ESD supplies both the Fill Hose and the Hose Hanger.

Custom Design. ESD offers free design assistance for your chemical area, adding our experience to your specific needs. Detailed designs available in both PDF and DWG formats.

Option: Rapid Chemical Mix Station. *The Chemical Recovery Tank can be replaced by a ESD Rapid Chemical Mix Station. When you need to mix chemicals quickly and efficiently to "stay ahead of play", the Rapid Chemical Recovery Station is an effective solution. Detailed specifications are available from ESD Waste2Water, Inc.*

495 Oak Road
Ocala, Florida 34472
Tel: 800.277.3279 • Fax: 352-680-9278
www.waste2water.com



ESD Waste2Water, Inc.
Partnership for a Cleaner Tomorrow

Chemical Storage Buildings

Chemical Storage Buildings by ESD Waste2Water, Inc. are specifically designed for storing chemicals used in the turf care industry. The buildings are expressly intended for golf course maintenance, park maintenance, and grounds maintenance operations. Constructed of marine-grade aluminum, the buildings will not rust, and do not require routine painting. Each storage unit has the capacity of storing and containing hundreds of gallons of chemical, and is designed to allow for easy clean up, and to reduce the probability of cross-contamination of spilled chemicals. ESD offers the chemical storage units in a variety of sizes, and is able to customize buildings to fit your unique requirements. Portable by design, the buildings can be easily relocated for site flexibility. Coupled with other ESD products and designs, you can use ESD chemical buildings to develop an ideal chemical mix/load/storage area for your turf care maintenance facility.

Chemical Building Specifications:

Model	8x8	8x12	8x16	8x20
Exterior Dimension	8' D x 8' W x 8' H	8' D x 12' W x 8' H	8' W x 16' D x 8' H	8' D x 20' W x 8' H
Elictrical Requirements	115 V, 20 amps	115 V, 20 amps	115 V, 20 amps	115 V, 20 amps
With Heat or Air Conditioning	240 V, 1 ph, 30amps	240 V, 1 ph, 30amps	240 V, 1 ph, 30amps	240 V, 1 ph, 30amps
Sq. Ft. of Shelving	107	128	149	218
Maximum Chem. Spill Containment	279 gal.	419 gal.	558 gal.	698 gal.
Door(s)				
Number of Doors on Bldg.	Single Door	Double Doors	Double Doors	Double Doors
OA Door Opening	36 3/4" W x 77" H	75 3/8" W x 77" H	75 3/8" W x 77" H	75 3/8" W x 77" H
Approximate Shipping Weight	1700 lbs.	2300 lbs.	2700 lbs.	2900 lbs.
with optional insulation	1900 lbs.	2600 lbs.	3100 lbs.	3400 lbs.

Certified to UL-508A Standards

ESD Waste2Water, Inc.
Partnership for a Cleaner Tomorrow

Chemical Storage Building

A Marine Grade Aluminum Construction.
The ESD Chemical Storage Buildings are constructed of 5052 marine grade aluminum for maximum chemical resistance and absolute minimum maintenance.

B Easy Placement.
The Buildings can be placed on virtually any flat and level surface whether it is cement, asphalt, crushed rock or dirt. Forklift holes are located in two sides of the buildings for easy placement.

C Easy Installation.
Once placed, a simple electrical connection to the building's junction box renders the building completely operational and ready to use. Relocating the building to an alternative site can be done easily with a forklift and a screwdriver.

D Containment Area.
The diamond plate floor of the building is double welded for secure containment of potential spills. For ease of clean up and recapturing spilled chemicals, the floor does not have grating that needs to be removed before cleaning.

E Shelving.
The building includes 24" deep, 3-tier, diamond plate aluminum shelving around the available inside perimeter. Shelf space is maximized in each building and shelves are extremely sturdy and non-porous.

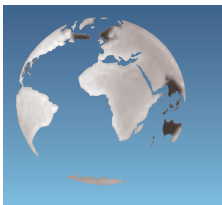
F Exhaust Fan.
All buildings are equipped with a 24/7 150 cfm exhaust fan to evacuate chemical fumes from inside the chemical storage area.

G Lighting.
The buildings include incandescent lighting with smash guards and moisture proof wiring.

H Hazardous Material Placard.
Each building is shipped with a NFPA 704M, hazardous material placard. The placard can be correctly labeled for the hazard level of the specific chemicals that are being stored in the building.

Chemical Building Options:
• Insulation • Heating • Air Conditioning • 24/7 Programmable Timer for Exhaust Fan

495 Oak Road
Ocala, Florida 34472
Tel: 800.277.3279 • Fax: 352-680-9278
www.waste2water.com



ESD Waste2Water, Inc.

GSMS Series

The GSMS Series is the latest in wash water recycling technology. The GSMS Series is designed for treating Turf Care maintenance facility equipment with up to 4-hose stations. The addition of the Grass Clipping Separator, the integrated Inclined Plate Clarifier combined with the Biological Treatment System creates a water quality with a low Turbidity. The GSMS provides the versatility to separate grass clippings, suspended solids and hydrocarbons all in one compact system to produce a high quality recycled wash water. Contact ESD Waste2Water, Inc. to discuss a Turf Care Facility design today and learn more about the GSMS Advantage.

GOLF SOLIDS MANAGEMENT SYSTEM SPECIFICATIONS	INCLINED PLATE SEPARATOR SURFACE	WASHING STATIONS	MEDIA	DIMENSIONS	OPERATING CAPACITY	ELECTRICAL	FRESH WATER	NET WEIGHT
700 Series	277 Square Feet	1 to 2	822.5 Square Feet Surface Area	132 1/2" x 48 1/2 " x 64 (L x W x H)	622 Gallon	240 Volt, Single Phase, 40 Amp with Neutral Wire	3/4"	Approx 1,500 lbs. Dry
800 Series	480 Square Feet	1 to 4	2,115 Square Feet Surface Area	186" x 60 1/2 " x 64 (L x W x H)	1,834 Gallon	240 Volt, Single Phase, 40 Amp with Neutral Wire	3/4"	Approx 2,000 lbs. Dry

Certified to UL-508A Standards

1-800-277-3279

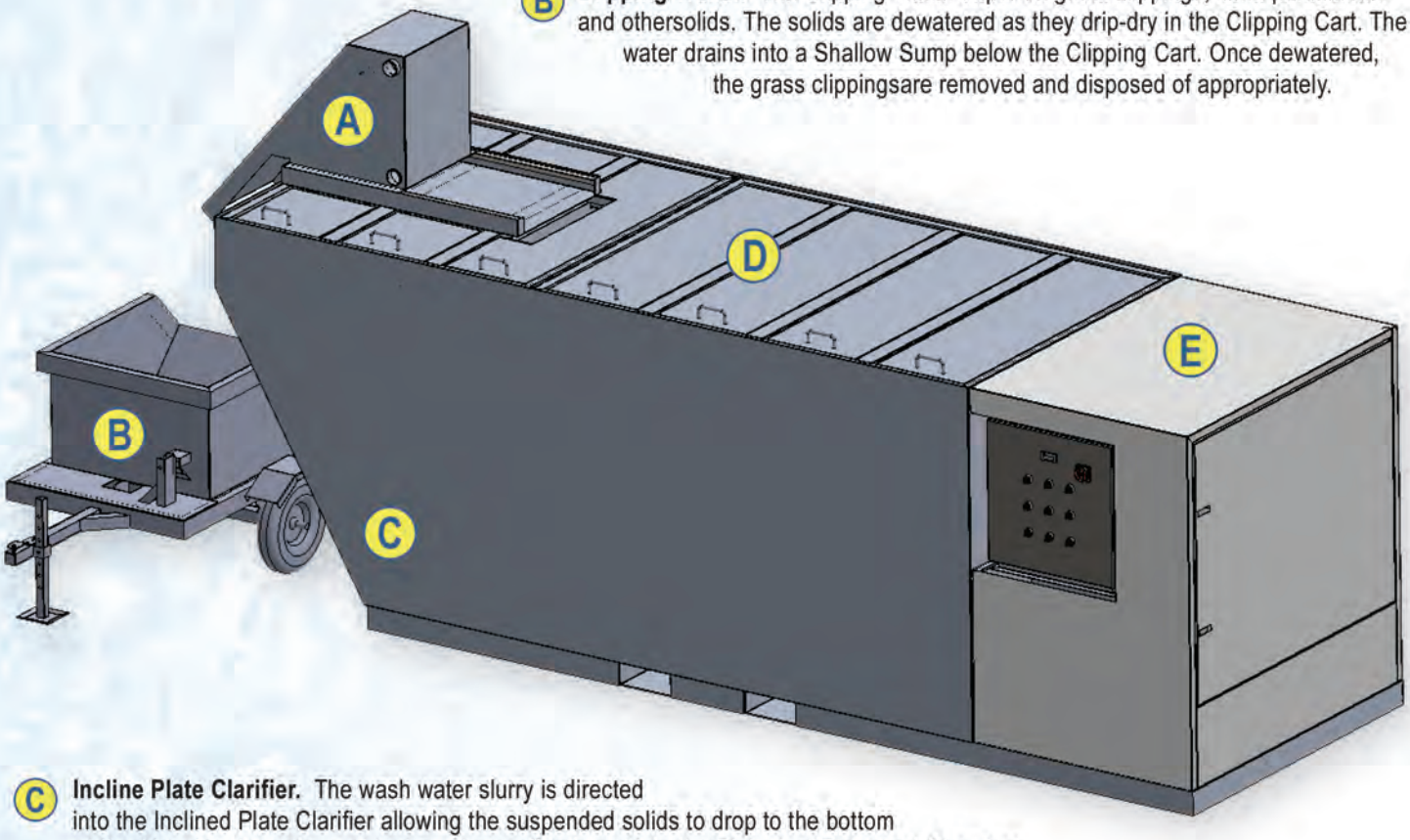
495 Oak Road
Ocala, Florida 34472
www.waste2water.com

ESD Waste2Water, Inc.

GSMS Series

A **Clipping Separator.** The wash water slurry flows over the fine mesh clipping screen where grass and other solids slide down the clipping screen and into the Clipping Cart. At the same time, water drops through the clipping screen and into the Solids Separator.

B **Clipping Trailer.** The Clipping Trailer captures grass clippings, sand particulates and othersolids. The solids are dewatered as they drip-dry in the Clipping Cart. The water drains into a Shallow Sump below the Clipping Cart. Once dewatered, the grass clippingsare removed and disposed of appropriately.



C **Incline Plate Clarifier.** The wash water slurry is directed into the Inclined Plate Clarifier allowing the suspended solids to drop to the bottom while skimming the water and hydrocarbons off to travel into the Biological Treatment Chamber.

D **Biological Treatment Chamber.** Once in the Biological Treatment System, the water travels over and under a series of baffles and through a mass of honeycomb bio media covered with specially-formulated microbes. Organic contaminants are consumed by the microbes, and the contaminants are converted into carbon dioxide and water. Creating a low turbidity recycled wash water.

E **Covered Controls.** The marine grade aluminum covering is designed to protect the intrinsically safe controls from the environment. The GSMS also provides a Water Flow Meter to report the amount of Recycled Water for Sustainability.

1-800-277-3279

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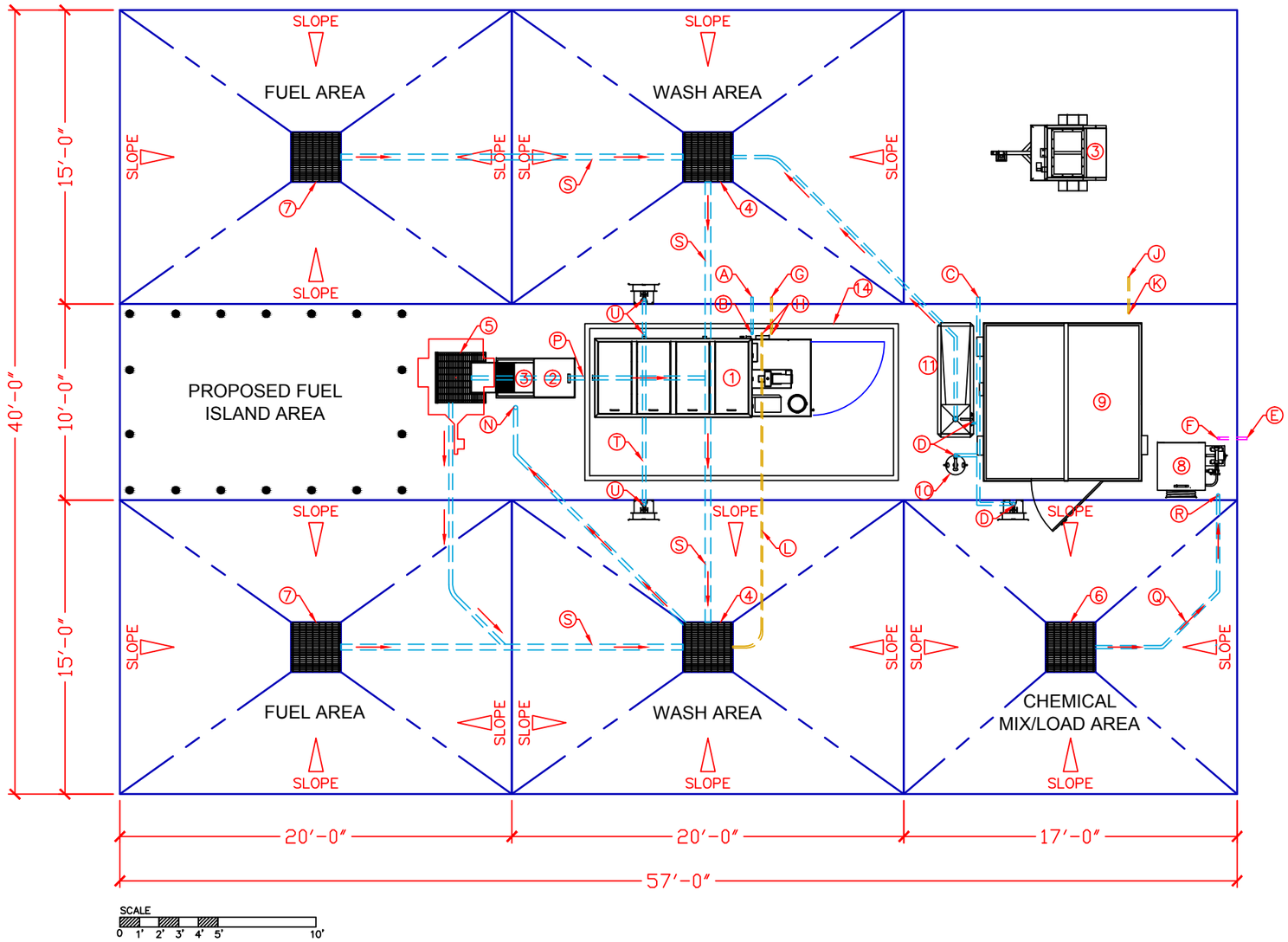


ESD EQUIPMENT

1. ESD 1500GC-0 RECYCLE SYSTEM W/ COVER [103C]
2. ESD SOLID SEPARATOR 2'X4' 1500 GOLF [401]
3. ESD CLIPPING SEPARATOR W/ CLIPPING TRAILER [499.5]
4. ESD ROUND SUMP GOLF SETUP W/ SEWAGE PUMP [500] (02 PLACES)
5. ESD SHALLOW DRAIN SUMP W/ 2" GRAVITY DRAIN [503]
6. ESD CHEMICAL CONED BOTTOM SUMP [504]
7. ESD IN GROUND OIL/WATER SEPARATOR [505] (02 PLACES)
8. ESD RINSATE MANAGEMENT TANK W/ BAG FILTER HOUSING [600]
9. ESD 8'X8'X8' CHEMICAL STORAGE BLDG. W/ 3 TIER SHELVING [602]
10. ESD EMERGENCY EYE WASH & SHOWER STATION [614]
11. ESD ALUMINUM SINK [619]
12. ESD REMOTE HOSE STATION 3/4" HOSE & NOZZLE [900] (02 PLACES)
13. ESD REMOTE HOSE STATION 1-1/2" HOSE & NOZZLE [902]
14. ESD 8'X16' FOAM CORE BUILDING [FC816]

PLUMBING PIPE

- Ⓐ FRESH WATER, 3/4"SCH 40 PVC
- Ⓑ STUB-UP, 3/4"SCH 40 PVC
- Ⓒ FRESH WATER, 1-1/2"SCH 40 PVC
- Ⓓ STUB-UP, 1-1/2"SCH 40 PVC (03 PLACES)
- Ⓔ COMPRESSED AIR, 3/4"SCH 40 PVC
- Ⓕ STUB-UP, 3/4"SCH 40 PVC

ELECTRIC

- Ⓖ SYSTEM POWER, 240V/40A, 3/4"CONDUIT
- Ⓗ STUB-UP, 3/4"ELEC. CONDUIT (02 PLACES)
- Ⓙ CHEMICAL BLDG. POWER, 230V/15A, 3/4"CONDUIT
- Ⓚ STUB-UP, 3/4"ELEC. CONDUIT
- Ⓛ 3/4" ELEC. CONDUIT, FR "H" TO "4"

PROCESS PIPE

- Ⓜ FORCED SUPPLY LINE, 2"SCH 40 PVC
- Ⓝ STUB-UP NIPPLE, 2" S.S.
- Ⓠ CHEMCIAL RECYCLE, 1-1/2"SCH 40 PVC, FR "6" TO "R"
- Ⓡ STUB-UP, 1-1/2"SCH 40 PVC
- Ⓢ GRAVITY DRAIN, 2"SCH 40 PVC (03 PLACES)

SUPPLY PIPE:

- Ⓣ REMOTE HOSE SUPPLY LINE, 1-1/2"SCH 40 PVC
- Ⓤ STUB-UP, 1-1/2"SCH 40 PVC (03 PLACES)

NOTE:

ALL ELECTRIC CONDUIT AND PLUMBING PIPE ABOVE GROUND IS NOT SHOWN.

DATE	BY	REVISION
06/26/14	JS	REV-1

ESD
Waste2Water,Inc.
495 Oak Road
Ocala, FL 34472

PREPARED FOR: WALLOON LAKE COUNTRY CLUB

PROJECT NAME: WASH WATER SYSTEM

TITLE: PLAN

DRAWN BY: SF

ENGINEERING: JS

MFG:

QC:

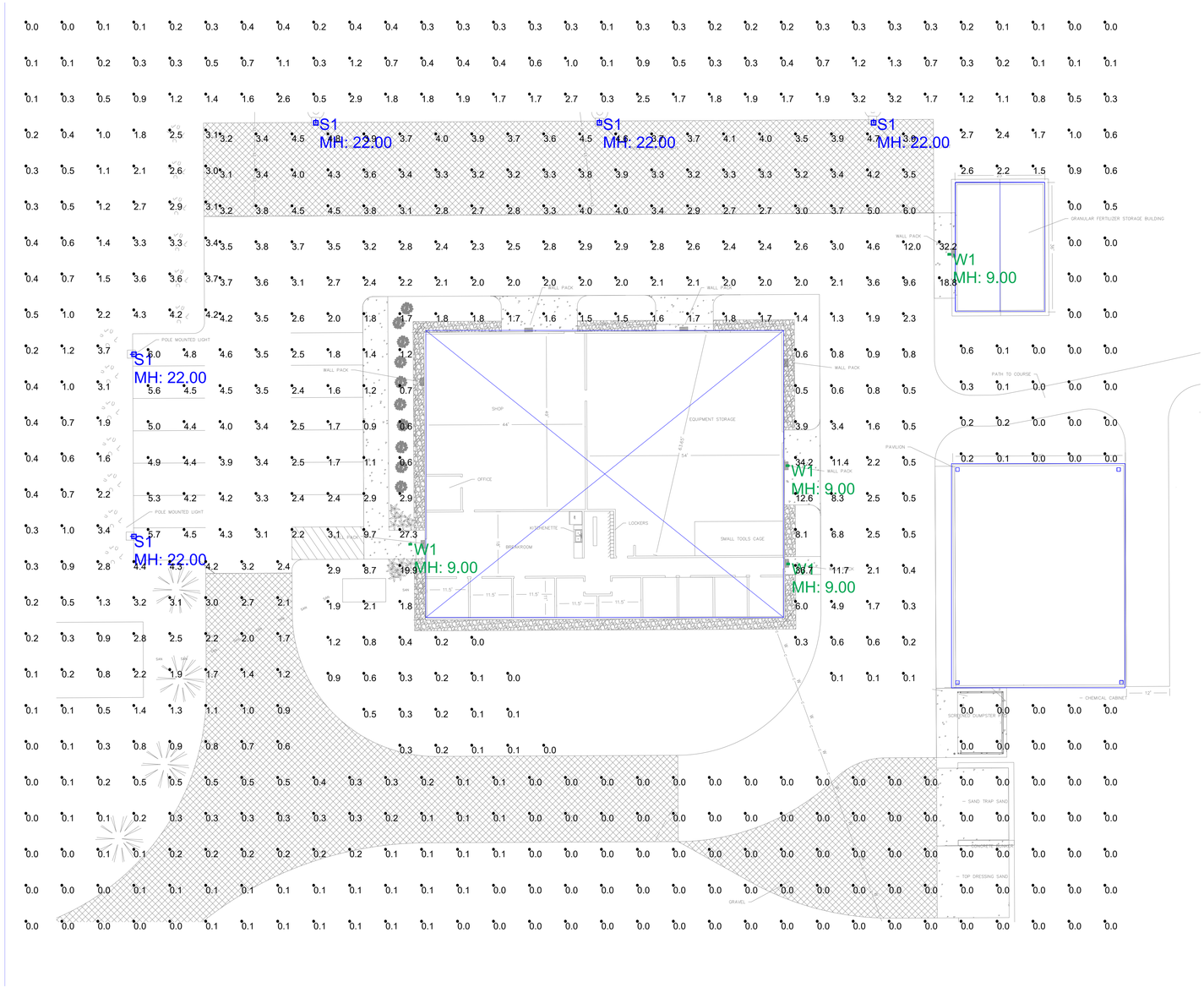
DATE: 12/12/12

DWG NO: JS120712-02

SCALE: NTS

SHEET: 01 OF 01

ESD



PHOTOMETRIC PLAN

SCALE: NTS

Filename: S:\GRAND RAPIDS\Layouts\Brian Briggs\HIGH POINTE GOLF COURSE\SITE LIGHTING.AGI

Crites, Tidey & Assoc., Inc
908C West River Center Dr
Comstock Park MI 49321
PH: 616-647-2400
www.critestidey.com

DISCLAIMER

Illumination results shown on this lighting design are based on project parameters provided to Crites,Tidey & Assoc used in conjunction with luminaire test procedures conducted under laboratory conditions. Actual project conditions differing from these design parameters may affect field results. The customer is responsible for verifying compliance with applicable lighting or energy codes. Any changes to the room reflectances and/or obstructions not noted will alter the light levels. Please verify the data listed to assure the accuracy of the report. Values represent an approximation. Footcandle Levels are considered at the end of the life of the lamp and ballast.

DESIGNED FOR:

HIGH POINTE GOLF COURSE

ADDRESS

SALES
B BRIGGS

DATE
9.19.2022

DESIGNER
JEN YONKERS

REVISIONS

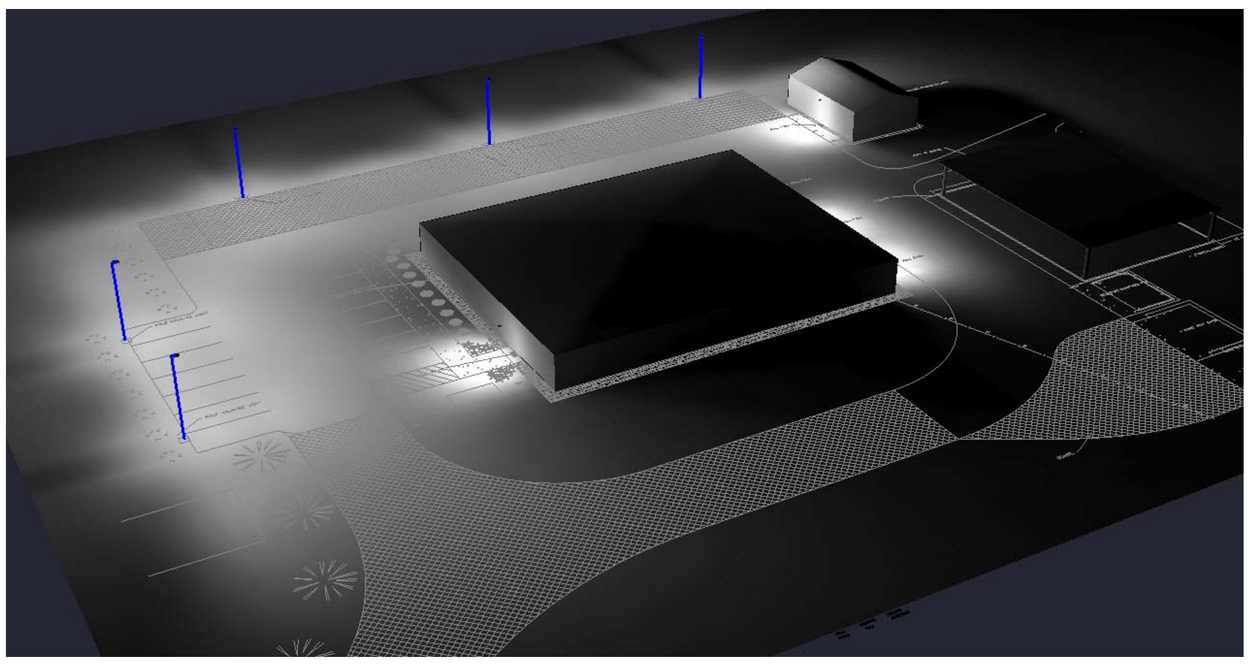
DATE	NAME
XX	XX

SHEET
1

Luminaire Schedule										
Scene: GEN										
Symbol	Qty	Label	Arrangement	LLD	LDD	BF	[MANUFAC]	Description	MNT HEIGHT	MNT TYPE
	5	S1	Single	0.980	0.940	1.000	COOPER - LUMARK	PRV-PA2B-740-U-T4W-XX	22	POLE
	4	W1	Single	0.980	0.940	1.000	COOPER - LUMARK	XTOR8B-W-XX	9	WALL

Calculation Summary							
Scene: GEN							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
LIGHT TRESPASS	Illuminance	Fc	0.63	4.4	0.0	N.A.	N.A.
PARKING LOT	Illuminance	Fc	3.53	36.7	0.0	N.A.	N.A.

NOTES:
- CALC AT GRADE



SCHEDULES

SCALE: NTS

Filename: S:\GRAND RAPIDS\Layouts\Brian Briggs\HIGH POINTE GOLF COURSE\SITE LIGHTING.AGI

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DESIGNED FOR:

HIGH POINTE GOLF COURSE

ADDRESS

SALES
B BRIGGS

DATE
9.19.2022

DESIGNER
JEN YONKERS

REVISIONS

DATE	NAME
XX	XX

SHEET
2

Lindsey Wolf

From: Bob Verschaeve, P.E. <rmverschaeve@goslingczubak.com>
Sent: Friday, September 23, 2022 8:57 AM
To: Lindsey Wolf
Cc: Doug White; Scott Jozwiak
Subject: FW: High Pointe Golf Course: Environmental oversight
Attachments: Fine_Fescue_Low_Maintenance_Grass.pdf; The establishment.docx

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Lindsey,
I'm sure you're aware that we've been talking to Scott Jozwiak about the High Pointe project and the other environmental assurances the Township is looking for with several elements of it. Scott has suggested expanding GCES's role beyond the stormwater review to also include reviewing the wetland delineation and inspections during construction of berms and diverters they are proposing to further protect wetlands. See his message below. These are services that GCES has expertise in and can provide to the Township on this project. The general process and administration would be similar to how we have done construction inspection of sewer extension projects in the township. Give me a call to discuss further if you'd like.

Thanks,
Bob

From: Scott Jozwiak <scott@jozwiakconsulting.com>
Sent: Thursday, September 22, 2022 10:25 AM
To: Bob Verschaeve, P.E. <rmverschaeve@goslingczubak.com>
Subject: High Pointe Golf Course: Environmental oversight

CAUTION: This email originated from outside of GCES. Do not click links or open attachments unless you recognize the sender and know the content is safe.
Good morning Bob.

As you know, we are working to bring back the golf course. The project consists mostly of tilling, slight shaping and reseeding. There are a few areas where more aggressive grading will be done as is illustrated on our plans.

Concerns were expressed with respect to the wetland impacts and golf course runoff especially during the grow-in phase when starter fertilizers are used which contain phosphorus. Once the grow in period is complete, the turf requires very low input of additional fertilizer as we are planting a fine fescue which is unlike other golf course turfs. A summary of the fertilizer management plan is attached and an explanation on fine fescue is included as well.

In response to the concerns by the planning commission, we have prepared our plans such that implementation of temporary and permanent barriers are in place. These measures are typical for golf courses and include strategically placed temporary berms and the growth of high density grasses that are mowed to increasing heights. The grasses and berm provide for the collection and uptake of residual fertilizers and minimize introduction into the wetlands.

Of concern with our submittal is the wetland delineation. There are very few firms that conduct this service in the area and you are one of them that do. Since you are also the township engineer, we are proposing that we fund our escrow with the township to review the wetland delineation and provide continued examination of our plans and provide periodic oversight through the grow in phase. I feel that this option lends itself to not only keeping the townships

interests in mind but can also provide unbiased recommendations as the project moves forward. As with any project, better ideas are oftentimes derived during construction and with the township entrusting your judgement, we can adjust and implement rapidly.

While we believe this is a very low impact use of the property especially after the shaping and grow-in phase, we do want to be stewards to the community and continue to mitigate concerns for water quality.

Our proposal would be to fund the escrow account initially to enable your wetland consultant to confirm our wetland delineation. The initial funding would also include evaluation of our strategy for mitigating runoff impacts to the wetlands.

We will have a soil erosion and sediment control plan for which the county will permit and provide periodic inspection. However, this wouldn't necessarily include inspections of the berms, diverters and grasses for the purpose of mitigating the fertilizer concerns so prior to any seeding of an area that is within proximity to the wetlands, your firm would conduct an inspection to verify those measures are in place. Your firm would also provide periodic inspections of these temporary devices throughout the grow-in period. Further, you would provide inspection of the permanent devices at the completion. Escrow funds can be put in place to cover these inspections. The township would be able to issue a stop work order in the event that you are not satisfied with the efforts and or if the funds drop below a certain point.

Our incentive is to implement the measures and maintain them in hopes that we reduce the number of inspections that you have to do. Obviously, if we falter, the number of inspections will most likely go up which will cause us to use more of your services at our expense.

Again, while I believe that this is a low impact use of the property, strategic measures can be put in place that offset concerns. One being the installation of various devices such as berms and dense grass growth at the perimeter of the golf course adjacent to wetlands but the other being oversight by your firm which is currently the township engineer for Acme.

Please let me know if your firm can assume this role on behalf of Acme Township. We are hoping to obtain permits necessary to commence clearing trees and stumps through the early part of winter thus allowing grading and shaping to occur early spring. Throughout this grubbing phase, review of SESC measures would be done by the county as part of the SESC permit. We would begin to prepare for seeding in areas starting in late spring at which time your firm would become involved. It is anticipated the golf course would be entirely seeded by fall of next year and the grow in phase would commence. We would then petition you at some point in the process, once the fertilizer mitigation measures are in place and stabilized, to cease or reduce the need for your continued observation at which you can accept, decline or amend based on your judgement.

During the entire time of your involvement, it will be a collaborative effort as we desire the same protections of our water resources as the community of Acme does. I look forward to your feedback on this proposal and am hopeful that this provides a better assurance to the community than just a plan review would offer.

Thanks Bob,
Scott.

Scott Jozwiak, PE
Jozwiak Consulting
p 231.218.1201
PO Box 5342, Traverse City, MI 49696
13300 S W. Bayshore Dr., Traverse City, MI 49684
scott@jozwiakconsulting.com | www.jozwiakconsulting.com

300' PARCEL # 28-01-002-001-00

MORAN BARBARA J TRUST
P O BOX 624
ALPENA MI 49707

AU CAROLYN
AU DAVID A
253 MAPLEWOOD DR
EAST LANSING MI 48823

DCHJ LLC
10260 ELK LAKE RD
WILLIAMSBURG MI 49690

PENNINGTON CONNIE R
7070 CRISP RD
WILLIAMSBURG MI 49690

5555 ARNOLD LLC
PO BOX 12
WILLIAMSBURG MI 49690

5555 ARNOLD LLC
PO BOX 12
WILLIAMSBURG MI 49690

NOMAD PROPERTY HOLDINGS LLC
2500 KROUPA RD
TRAVERSE CITY MI 49686

OGRADY KEVIN
901 S GARFIELD RD STE 202
TRAVERSE CITY MI 49686

MARSHVIEW PROPERTIES LLC
1630 NORTH HIDDEN FALLS CT
DE PERE WI 54115

MARSHVIEW PROPERTIES LLC
1630 NORTH HIDDEN FALLS CT
DE PERE WI 54115

LELICH LLC
5210 HIDDEN DUNES LN
KEWADIN MI 49648

KC PROPERTIES LLC
PO BOX 6328
TRAVERSE CITY MI 49696

ROMBERG BRYAN J & BARBARA L TRUST
5493 BATES RD
WILLIAMSBURG MI 49690

AMHURST ASHWAY LLC
4066 WESTRIDGE DR
WILLIAMSBURG MI 49690

ROMBERG BRYAN & BARBARA
5493 BATES RD
WILLIAMSBURG MI 49690

5555 ARNOLD LLC
PO BOX 12
WILLIAMSBURG MI 49690

KONSTANZER KENNETH
6225 BRACKETT RD
WILLIAMSBURG MI 49690

TOCHILNIK DMITRIY & KOVAL ANNA
OSS VADIM
PO BOX 923
DIABLO CA 94528

MOORE KENNETH A
5361 BATES ROAD
WILLIAMSBURG MI 49690

5555 ARNOLD LLC
PO BOX 12
WILLIAMSBURG MI 49690

MI DEPT OF NATURAL RESOURCES
LAND & MINERAL SERVICES DIV
P O BOX 30028
LANSING MI 48909-7528

MUNN PROPERTIES LLC
P O BOX 7
ACME MI 49610

MUNN PROPERTIES LLC
P O BOX 7
ACME MI 49610

WOLVERINE POWER SUPPLY
10125 W WATERGATE RD
CADILLAC MI 49601

ACME MINE STORAGE LLC
9866 OLD M 72
WILLIAMSBURG MI 49690

NICOLE ROSE PROPERTIES LLC
3131 BAY SHORE DR
ORCHARD LAKE MI 48324

BARR WILLIAM C & BETTY A TRUST
484 W SILVER LAKE RD N
TRAVERSE CITY MI 49684

BRUNACKEY ANDREA L
PO BOX 36
RAPID CITY MI 49676

WESTFALL WARREN W & VAUNNIE L
7859 PEACEFUL VALLEY RD
WILLIAMSBURG MI 49690

BOWLING VERN R & JENNIFER
9565 CENTER RD
TRAVERSE CITY MI 49686

PAVELKA JAMES TRUST
2548 E CROWN DR
TRAVERSE CITY MI 49684

DEEPWATER DWELLINGS LLC
6597 DEEPWATER POINT
WILLIAMSBURG MI 49690

COSGROVE TOM A & LYNDA K
945 E EIGHTH ST
TRAVERSE CITY MI 49686

300' PARCEL # 28-01-003-003-00

5555 ARNOLD LLC
PO BOX 12
WILLIAMSBURG MI 49690

WILLIAMS MARY ELLEN M TTEE
WILLIAMS MARY ELLEN M TRUST
2430 HOPWOOD DR
CARMEL IN 46032

5555 ARNOLD LLC
PO BOX 12
WILLIAMSBURG MI 49690

MI DEPT OF NATURAL RESOURCES
LAND & MINERAL SERVICES DIV
P O BOX 30028
LANSING MI 48909-7528

300' PARCEL # 28-01-002-017-00

5555 ARNOLD LLC
PO BOX 12
WILLIAMSBURG MI 49690

5555 ARNOLD LLC
PO BOX 12
WILLIAMSBURG MI 49690

TYSON ANNE G
1924 SHAWNEE ST
TRAVERSE CITY MI 49686

KONSTANZER KRISTOPHER & MEGAN R
5265 BATES RD
WILLIAMSBURG MI 49690

KONSTANZER KENNETH
6225 BRACKETT RD
WILLIAMSBURG MI 49690

MI DEPT OF NATURAL RESOURCES
LAND & MINERAL SERVICES DIV
P O BOX 30028
LANSING MI 48909-7528

Parcel #: 28-01-001-006-00

ARNOLD GLENN G & CHRISTINE R
7094 CRISP RD
WILLIAMSBURG MI 49690

PENNINGTON CONNIE R
7070 CRISP RD
WILLIAMSBURG MI 49690

5555 ARNOLD LLC
PO BOX 12
WILLIAMSBURG MI 49690

5555 ARNOLD LLC
PO BOX 12
WILLIAMSBURG MI 49690

01-001-006-00
RADDATZ
7282 CRISP RD
WILLIAMSBURG MI 49690

SANDERSON
5495 SCOFIELD TR
WILLIAMSBURG MI 49690

T. C. RECORD-EAGLE, INC.
120 WEST FRONT STREET
TRAVERSE CITY MI 49684
(231)946-2000
Fax (231)946-8273

ORDER CONFIRMATION

Salesperson: Miranda Roy Printed at 09/23/22 09:32 by mroy

Acct #: 6 Ad #: 591533 Status: New WHOLD

ACME TOWNSHIP
LISA SWANSON, CLERK
6042 ACME ROAD
WILLIAMSBURG MI 49690

Start: 09/25/2022 Stop: 09/25/2022
Times Ord: 1 Times Run: ***
STDAD 3.00 X 5.85 Words: 348
Total STDAD 17.55
Class: 147 LEGALS
Rate: LEGAL Cost: 144.45
Affidavits: 1

Contact:
Phone: (231)938-1350
Fax#: (231)938-1510
Email: dwhite@acmetownship.org ls
Agency:

Ad Descrpt: LEGAL NOTICE TOWNSHIP OF
Given by: LINDSEY WOLF
P.O. #:
Created: mroy 09/23/22 09:26
Last Changed: mroy 09/23/22 09:32

PUB	ZONE	EDT	TP	START	INS	STOP	SMTWTFS
RE	A	97	W	Sun 09/25/22	1	Sun 09/25/22	SMTWTFS
IN	AIN	97	W	Sun 09/25/22	1	Sun 09/25/22	SMTWTFS

AUTHORIZATION

Thank you for advertising in the Record-Eagle, our related publications and online properties. If you are advertising with the Record-Eagle classifieds, your ad will begin running on the start date noted above.

Please be sure to check your ad on the first day it appears. Although we are happy to make corrections at any time, the Record-Eagle is only responsible for the first day's incorrect insertions. Also, we reserve the right to edit or reclassify your ad to better serve buyers and sellers.

No refunds or rebates will be issued if you cancel your ad prior to the stop date.

We appreciate your business.

(CONTINUED ON NEXT PAGE)

T. C. RECORD-EAGLE, INC.
120 WEST FRONT STREET
TRAVERSE CITY MI 49684
(231)946-2000
Fax (231)946-8273

ORDER CONFIRMATION (CONTINUED)

Salesperson: Miranda Roy Printed at 09/23/22 09:32 by mroy

Acct #: 6 Ad #: 591533 Status: New WHOLD WHOL

LEGAL NOTICE
TOWNSHIP OF ACME
NOTICE OF HEARING

PLEASE TAKE NOTICE that the ACME TOWNSHIP PLANNING COMMISSION will hold a public hearing at its regular meeting on Monday, October 10, 2022 at 7:00 p.m. at the Acme Township Hall, 6042 Acme Road, Williamsburg, MI 49690 to consider the following application:

An application has been received by High Pointe Holdings , LLC, 332 Potter Road, West Palm Beach, FL 33405, on behalf of 5555 Arnold Road, PO Box 12, Williamsburg, MI 49690, for a Special Use Permit and Site Plan Approval to re-establish High Pointe Golf Club, an 18-hole, 286.8-acre golf course located off Bates Road, extending into Whitewater Township to Moore Road, more fully described as:

Parcel No.: 28-01-002-001-00
NE 1/4 EXC NW 1/4 OF NE 1/4 AND SE 1/4 SEC 6 T27N R9W AND NE /14 NE 1/4 SEC 7 T27N R9W (10/96)

Parcel No.: 28-01-003-003-00
SE 1/4 OF NE 1/4 SEC 7 T27N R9W

Parcel No.: 28-01-002-017-00
SE 1/4 OF SW 1/4 SEC 6 T27N R9W EXC W 330' & EXC RD R/W.

Parcel No.: 28-01-001-006-00
SW 1/4 OF SW 1/4 SEC 5 T27N R9W 40 A.

Remainder of Parcels in Whitewater:
13-005-014-00
13-005-015-00
13-005-019-01

All interested persons are invited to attend and be heard at the public hearings before the Planning Commission. After the public hearings the Planning Commission may or may not deliberate and make its recommendation based on the Acme Township Zoning Ordinance to the Township Board, which will subsequently take appropriate action on the application.

Applications may be inspected at the Acme Township Hall between 7:30 a.m. and 5:00 p.m. Monday through Thursday. The application materials will also be available on the Acme Township website www.acmetownship.org as an attachment to the agenda and minutes of the meeting(s) at which they are discussed. If you are planning to attend and require any special assistance, please notify Lisa Swanson, Township Clerk, within 24 hours of the meeting at 938-1350. Written comments may be directed to:

Lindsey Wolf, Planning & Zoning Administrator
6042 Acme Rd, Williamsburg, MI 49690, (231) 938-1350, zoning@acmetownship.org

September 25, 2022-1T 591533

Acme Township Planning & Zoning Report

Meeting Date: November 2, 2022
Subject: S&S Self Storage
Application No: SPR 2022-04

Date: 10.25.2022

Project: S & S Michigan Investments LLC, Self-Storage Facility
6140 E. Arnold Road
Williamsburg, MI 49690

Applicant: Ronald Wilson
437 Lincoln Street
Cadillac, MI 49601
(517)404-6235

Owner: Ronald Wilson
437 Lincoln Street
Cadillac, MI 49601
(517)404-6235

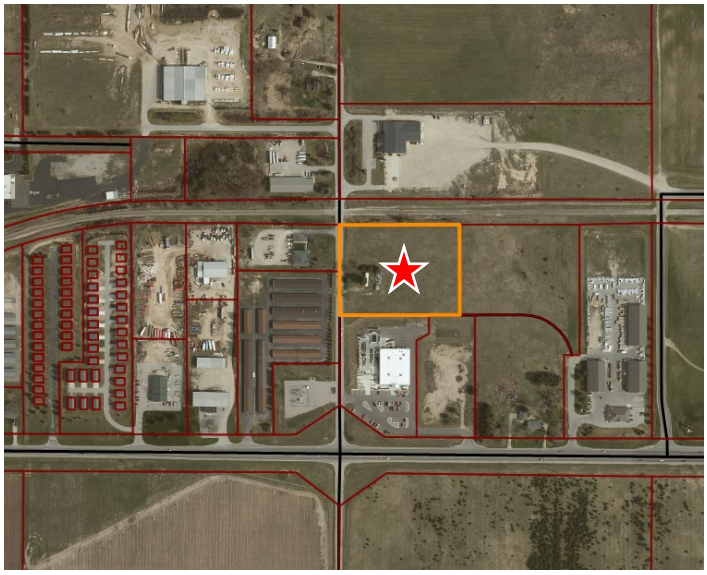
Request: Construct a self-storage facility on a vacant lot.

GENERAL DESCRIPTION

Proposal: The Applicant is proposing a construct a five (5) unit self-storage facility on a currently vacant lot within the LIW: Light Industrial Warehousing District.

Parcel Number: 28-01-015-005-05

Location: 6140 E. Arnold Road



Acres: 4.40

Zoning District: LIW Light Industrial Warehousing
Current Use: Vacant
Propose Use: Self-Storage Facility/use permitted by right

Legal Description:
PART OF SW 1/4 SEC 32 T28N R9W COM AT SW CNR SAID SECTION TH N 00 DEG 55'01" W 583.51' TO POB TH N 89 DEG 10'55" E 504.61' TH N 00 DEG 55'01" W 380' TO SOUTHERN EDGE OF RR R/W TH S 89 DEG 10'55" W 504.62' TH S 00 DEG 55'01" E 380' TO POB SPLIT/COMBINED ON 07/18/2012 FROM 01-015-005-02;

Existing Permits: None

Adjacent Zoning & Land Uses:

Traffic Access: Arnold Road

<u>ZONING ORDINANCE OVERVIEW & ANALYSIS</u>

Listed below are the applicable sections of the Zoning Ordinance that pertain to the proposed project. Items that do not satisfy the standards required by the Zoning Ordinance have been indicated with red text.

<u>3.2 Regulated Uses</u>
Golf facilities permitted as a use by right. Due the development resulting in over 1000 SF of new development or construction site plan review is required by the Planning Commission (8.6.1 &8.6.2).

3.4.9 LIW - Light Industrial and Warehousing District

A. Dimensional Standards:

LIW - LIGHT INDUSTRIAL & WAREHOUSING DISTRICT	
LOT OCCUPATION	STANDARD
Minimum Lot Width	150 feet
Minimum Lot Area	---
Maximum Lot Coverage	70%
Maximum Impervious Coverage	85%
Base Density	---
PRINCIPAL BUILDING	STANDARD
Front Setback	40 feet
Side Setback	10 feet
Rear Setback	40 feet
Maximum Height	45 feet / 4 stories
Minimum Ground Floor Area	---
Minimum Floor Area / Unit	---
ACCESSORY BUILDING	STANDARD
Permitted Location	Rear or side yard
Front Setback	---
Side Setback	10 feet
Rear Setback	20 feet
Principal Building Setback	10 feet
Maximum Height	4 stories - not to exceed 60 feet
Maximum Ground Floor Area (cumulative)	---
PARKING	STANDARD
Permitted Location	Side or rear yard only
Front Setback	---
Side Setback	10 feet
Rear Setback	10 feet

The proposed development meets all the dimensional requirements of section 3.4.9.

6.2.2 A. Parking Requirements:

There are no minimum parking requirements. The applicant has not proposed any parking spaces.

6.4.5 Right-of-Way Landscaping:

All uses subject to the requirements of this Section that abut a right-of-way shall provide the following landscaping along the right-of-way:

A. A landscape zone shall be established along the right-of-way at a minimum width of ten (10) feet. The landscape zone shall only be used for landscaping, screening, drainage, non-motorized facilities or public space.

B. The landscape buffer shall include one (1) tree and six (6) shrubs for every thirty (30) feet of frontage. Trees shall be evenly spaced, but shrubs may be clustered.

Landscaping is required along Arnold Road as well as the southern property line along the easement.
The frontage along Arnold Road is 380': 380/30=12.6 trees. (12.6)6=75.6 bushes**
Thirteen (13) trees are required, twelve (12) provided. One (1) additional tree is required.
Seventy-six (76) bushes are required, only forty (40) are provided. Thirty-six (36) additional bushes are required.

The frontage along the easement is 471': 471/30= 15.7 trees. (15.7)6=94 bushes*
Sixteen (16) trees are required, twelve are provided. Four (4) additional trees are required.
Ninety-four (94) bushes are required, fifty-three (53) are provided. Forty-one (41) additional bushes are required.

**6.4.3 B. Fractional Requirements: Where any calculation of required plant materials in this Ordinance results in a fractional requirement, such requirement shall be rounded up to the next highest whole number.*

Landscape plan indicates it will meet the requirements of section 6.4 (typo 4.6 on plan set) – the quantity does not reflect that requirement.

On another note, I think the quantity of landscaping materials warrants further discussion. Once these plantings reach maturity due to the elevations of the property the applicant is concerned about the visibility of the business from Arnold Road. Also, this poses a future visual impairment for those using the easement for access when the parcels to the east are developed. The inclusion of the additional tree along Arnold Road will also interfere with the visibility of the free-standing sign. Deep-rooted plantings may also interfere with the stormwater design, proposed septic, and drain fields.

6.4.6 Lot Landscaping:

In addition to any required buffer, right-of-way or treed island landscaping requirements, the following lot landscaping requirements shall apply:

A. All unpaved or undeveloped portions of a lot shall be planted with grass, ground cover, or shrubs.

B. All properties zoned MHN, RMH, CS, C, CF and LIW shall provide one (1) tree per four thousand (4,000) square feet of unpaved or undeveloped lot area for the first twenty four thousand (24,000) square feet, and one (1) tree per six thousand (6,000) square feet of unpaved or undeveloped lot area over twenty four thousand (24,000) square feet. The Planning Commission may modify or waive this requirement if upon determination that such a modification or waiver is necessitated by site conditions. C. Credit for existing trees shall be given based on the Existing Landscaping Credit Ration table in this Section.

D. Trees may be grouped or evenly distributed.

Total area of the parcel = 191,664 SF. Total developed area of buildings and pavement = 110,834 SF.
Total undeveloped area = 80,830 SF
Six (6) trees required for the first 24,000 SF
Nine (9) trees required for the additional 56,830 SF
Fifteen (15) Trees required in addition to the right-of-way requirements. Per 6.4.6 B. The Planning Commission may modify or waive this requirement if upon determination that such a modification or waiver is necessitated by site conditions. Such as: the locations of the stormwater controls, snow storage areas, and site topography.

7.17 Self-Storage Facilities

A. Minimum Lot Size: The minimum size of the site devoted to such use shall not be less than three (3) acres.

B. Building Separation: Building separation between self-storage buildings on the same site shall be fifteen (15) feet, as measured from side-to-side, or equal to the building height, whichever is greater.

C. Lot Coverage: The total lot coverage of all structures shall be limited to fifty (50%) percent of the total lot area.

D. Internal driveway aisles shall be a minimum of twenty four (24) feet in width.

E. All off-street parking areas and driveways shall be hard surfaced and properly drained.

F. All ingress and egress from this site shall be directly onto a public street.

G. All storage on the property shall be kept within an enclosed building except as approved by the Planning Commission.

H. The use of the premises shall be limited to storage only, and shall not be used for any residential, commercial, or industrial uses.

The proposed project meets the criteria of 7.17:

A. *The site is > than 3 acres – 4.40 acres in size.*
B. *The buildings are a maximum of 22' feet in height – the building separation is 26'.*
C. *The proposed lot coverage is of all structures is 49,250SF/25.69%*

D. *Internal driveways aisles are a minimum of 24' in width.*
E. *All driveways are hard surfaced, and property drained. There is no proposed parking.*
F. *Access is provided from Arnold Road and existing property easement.*
G. *All storage will be located within the enclosed buildings unless otherwise permitted by the Planning Commission.*
H. *The use of the premises is for storage only.*

SITE PLAN REVIEW

The table below presents the required elements for a site plan review per the Zoning Ordinance, whether included in the site plan drawing, written narrative, or both. Items that do not satisfy the standards required by the Zoning Ordinance have been indicated with red text.

8.4	Application Requirements		
Item	Description	Shown on Site Plan	Narrative
1	The date, north arrow, and scale. Scale shall be as follows: <3 acres: One (1) inche = fifty (50) feet >3 acres: One (1) inch = one hundred (100) feet	Satisfied -scale 1"-30' & 1"-100' where appropriate	
2	The boundary lines of the property to include all dimensions, gross and net acreage, and legal description	Satisfied	
3	The location and width of all abutting rights -of-way.	Satisfied	
4	The existing zoning district in which the site is located and the zoning of adjacent parcels. In the case of a request for a zoning change, the classification of the proposed new district must be shown.	Satisfied	
5	The location of all existing and proposed drives, walkways, signs, exterior lighting, parking (showing the dimensions of a typical parking area), loading areas, common use areas and recreational areas and facilities.	Satisfied	
6	The location and identification of all existing structures within a two hundred (200) foot radius of the site.	Satisfied	
7	Natural features that will be retained, removed, and/or modified including vegetation, hillsides, drainage, streams, wetlands, shorelands, and wildlife habitat	Satisfied	
8	A landscaping plan with all existing and proposed landscaping, walls and/or fences	Partially satisfied - the notes indicate that it will meet the requirements of 6.4 Landscaping - but the quantities do not reflect that. Planning Commission	

		also has the authority to waive the requirement of 6.4.6.	
9	A grading plan showing the topography of the exiting and finished site, including ground floor elevations, shown by contours or spot elevations. Contours shall be shown at height intervals at two (2) feet or less.	Satisfied	
10	Location, type and size of all above and below grade utilities.	Satisfied	
11	Type, direction, and intensity of outside lighting shown on a photometric plan in compliance with exterior lighting standards.	Satisfied	
12	Location of any cross access management easements, if required.	Satisfied	
13	Location of pedestrian and non-motorized facilities, if required.	N/A	
14	An indication of how the proposed use conforms to existing and potential development patterns and any adverse effects.	Satisfied	
15	The number of units proposed, by type, including a typical floor plan for each unit, dimensions, and area in square feet.	Satisfied	
16	Elevations for all building facades.	Satisfied	
17	Phasing of project, including ultimate development proposals	Satisfied	
18	Sealed/stamped drawings from a licensed architect, engineer, or landscaped architect.	Satisfied	
19	The location and description of the environmental characteristics of the sit prior to development such as topography, soils, vegetative cover, mature tree specimens, drainage, streams, wetlands, shorelands, or any other unusual environmental features.	Satisfied	Satisfied
20	A stormwater management plan showing all existing above and below grade drainage facilities, and proposed plans incorporating low impact development water quality technologies and other best management practices.	Satisfied	Satisfied
21	Plans to control soil erosion and sedimentation, including during construction.	Satisfied	Satisfied
22	The name and address of the property owner.	Satisfied	Satisfied

23	Name(s) and address(es) of person(s) responsible for preparation of site plan drawings and supporting documentation.	Satisfied	Satisfied
24	The method to be used to control and increase in effluent discharge to the air or any increase in noise level emanating from the site. Consideration of any nuisance that would be created within the site or external to the site whether by reason of dust, noise, fumes, vibration, smoke or lights.		Satisfied
25	Description of all existing and proposed structures referenced in item 5.		Satisfied
26	The description of the areas to be changed shall include their effect on the site and adjacent properties. An aerial photo may be used to delineate areas of change.		Satisfied
27	General description of deed restrictions and/or cross access management easements, if any or required.		Satisfied
28	The method to be used to serve the development with water.		Satisfied
29	The method to be used for sewage treatment.		Satisfied
30	The number of people to be housed, employed, visitors or patrons, anticipated vehicular traffic counts, and hours of operation.		Satisfied

Submittal of Plan(s) to Agencies for Review	Permit or Sign off Provided
Grand Traverse County Road Commission	Satisfied
Grand Traverse Department of Public Works	N/A
Grand Traverse County Health Department	Satisfied
Grand Traverse County Soil Erosion	Satisfied
Grand Traverse Metro Fire Department	Satisfied
Michigan Department of Transportation (MDOT)	N/A
Michigan Department of Great Lakes & Energy (EGLE)	N/A
Gosling Czubak Stormwater Review	Satisfied

8.3	Standards for Approval	Findings
A	Adequacy of Information: The site plan shall include all required information in sufficiently complete and understandable form to provide an accurate description of the proposed uses and structures.	Satisfied

B	Site Design Characteristics: All elements of the site shall be harmoniously and efficiently designed in relation to the topography, size, and type of land, and the character of the adjacent properties and the proposed use. The site shall be developed so as not to impede the reasonable and orderly development or improvement of surrounding properties for uses permitted on such property.	Satisfied
C	Site Appearance: Landscaping, earth berms, fencing, signs, walls, structures and other site features shall be designed and located on the site so that the proposed development is aesthetically pleasing and harmonious with nearby existing or future developments.	Satisfied
D	Compliance with District Requirements: The site plan shall comply with the district requirements for minimum floor space, height of building, lot size, open space, density and all other requirements set forth in the Article 3:, unless otherwise provided in these regulations.	Satisfied
E	Privacy: The site design shall provide reasonable visual and sound privacy. Fences, walls, barriers, and landscaping shall be used, as appropriate, for the protection and enhancement of property and the safety and privacy of occupants and uses.	Satisfied
F	Emergency Vehicle Access: All buildings or groups of buildings shall be so arranged as to permit convenient and direct emergency vehicle access.	Satisfied
G	Circulation: Every structure or dwelling unit shall be provided with adequate means of ingress and egress via public streets and walkways. The site plan shall provide a pedestrian circulation system that is insulated as completely as is reasonably possible from the vehicular circulation system. The arrangement of public and common ways for vehicular and pedestrian circulation shall respect the pattern of existing or planned streets or pedestrian ways in the vicinity of the site. The width of streets and drives shall be appropriate for the volume of traffic they will carry.	Satisfied
H	Parking: The parking provided for an intended use meets the standards of Article 6 of this Ordinance.	Satisfied
I	Drainage: Appropriate measures shall be taken to insure that the removal or drainage of surface water will not adversely affect adjoining properties or the capacity of the public drainage system. Provisions shall be made for a feasible storm drainage system, the construction of storm water collection, storage and transportation facilities, and the prevention of erosion. Surface water on all paved areas shall be collected at intervals so that it will not obstruct vehicular or pedestrian traffic and will not create nuisance ponding in paved areas. Final grades may be required to conform to existing and future grades of adjacent properties. Grading and drainage plans shall be subject to review by the Township Engineer.	Satisfied

J	Soil Erosion and Sedimentation: The proposed development shall include measures to prevent soil erosion and sedimentation during and upon completion of construction, in accordance with current Grand Traverse County soil erosion control standards.	Satisfied
K	Exterior Lighting: Exterior lighting shall be designed so that it is deflected away from adjoining properties, visual glare is minimized, and so that it does not impede vision of drivers along adjacent streets.	Satisfied
L	Public Services: Adequate services and utilities, including water, sewage disposal, sanitary sewer, and storm water control services, shall be available or provided, and shall be designed with sufficient capacity and durability to properly serve the development.	Satisfied
M	Screening: Off-street parking, loading and unloading areas, outside refuse storage areas, and other storage areas that are visible from adjacent homes or from public roads, shall be screened by walls or landscaping of adequate height. All walls must be solid and constructed of masonry and shall be subject to the approval of the code official and cannot be located in required setbacks without written authorization from the code official.	N/A
N	Danger from Fire and Hazards: The level of vulnerability to injury or loss from incidents involving fire and hazardous materials or processes shall not exceed the capability of the Township to respond to such incidents so as to prevent injury and loss of life and property. In making such an evaluation, the Township shall consider the location, type, characteristics, quantities, and use of materials or processes in relation to the personnel, training, equipment and materials, and emergency response plans and capabilities of the Township . Sites that include significant storage of flammable or hazardous materials or waste, fuels, salt, or chemicals shall be designed to prevent spills and discharges of polluting materials to the surface of the ground, groundwater, and public sewer system.	Satisfied
O	Health and Safety Concerns: Any use in any zoning district shall comply with applicable federal, state, county, and local health and pollution laws and regulations with respect to noise; dust, smoke and other air pollutants; vibration; glare and heat; fire and explosive hazards; gases; electromagnetic radiation; radioactive materials; and, toxic and hazardous materials.	Satisfied
P	Phases: All development phases shall be designed in logical sequence to ensure that each phase will independently function in a safe, convenient and efficient manner without being dependent upon subsequent improvements in a later phase or on other sites.	Satisfied

SUMMARY OF REVIEW

- The proposed site plan and associated use is allowed by right in the LIW: Light Industrial & Warehouse District. The scale and use of the proposed building is consistent with the existing development on the surrounding properties, and the intent and purpose of the district.
- Landscaping plan/quantities need to be updated to reflect the requirements of section 6.4 for landscaping (as indicated in the notes on the plan set - unless waived by the appropriate township authority); Particularly 6.4.5 Right-of-Way Landscaping.
- Planning Commission discussion is needed to modify or waive the requirements of 6.4.6 Lot Landscaping. If no waiver is granted landscaping plan will need to updated to reflect the requirements of 6.4.6.

SUGGESTED MOTION FOR CONSIDERATION

Motion to approve the site plan submitted by Ron Wilson on behalf of S&S Michigan Investments LLC, to construct a five-unit self-storage facility located at 6140 E Arnold Road Williamsburg, MI 49690 (parcel ID 28-01-015-005-05), subject to the following conditions:

- The landscape plan and quantities will be updated to reflect compliance with the requirements of 6.4.5 as indicated in the notes on the plan set (unless waived by the appropriate township authority)
- Provide a landscaping letter of credit, bond, or cash surety to the township prior to the issuance of a land use permit.
- The stormwater maintenance plan and budget are recorded prior to the issuance of a land use permit. The stormwater system is subject to periodic maintenance inspections by the township engineer.

- *Any other conditions that may apply:*
  Planning Commission modification or waiver of 6.4.6. If no waiver is granted landscaping plan will need to updated to reflect the requirements of 6.4.6.

Application Number:_____

Special Use Permit/Site Plan Review Application

Township of Acme, Grand Traverse County, Michigan
6042 Acme Road, Williamsburg, MI 49690
Phone: (231) 938-1350 Fax: (231) 938-1510 Web: www.acmetownship.org
Planning & Zoning Administrator: Lindsey Wolf Email: zoning@acmetownship.org

Owner Information (please type or print clearly):

Name: S + S MICHIGAN INVESTMENTS LLC Phone: 517-404-6325
Mailing Address: 437 LINCOLN ST.
City: CADILLAC State: MI Zip: 49601
Email Address: NIMSOB321@gmail.com

Applicant Information (please type or print clearly):

Name: RONALD C. WILSON Phone: 517-404-6325
Mailing Address: 437 LINCOLN ST.
City: CADILLAC State: MI Zip: 49601
Email Address: NIMSOB321@gmail.com

A. Property Information:

1. **Address:** 6140 E. ARNOLD Rd
   WILLIAMSBURG, MI 49690
2. **Parcel Number/Property Description:**
   01-15-05-05 4.40 ACRES
3. **Current Zoning of Property:**
   LIW
4. If this project is one phase of a larger development and/or property subject to an **existing/previous Site Plan Review, Special Use Permit, or Variance, what is/are the applicable permit number(s)?**
5. **Provide proof of current property ownership.** If applicant is not the current property owner, also provide written permission to act as agent of, and complete contact information for the current property owner.

   SEE PROPERTY MANAGEMENT AGREEMENT

(Updated 01/04/2016 SW)

Application Number:_____

6. **Proposed Use/Change to Property**

SELF STORAGE FACILITY. OPEN 24 HOURS a day, 7 days A WEEK. ACCESS by SWIPE CODE

7. **Estimated Start and Completion Dates:** OCTOBER 15, 2022 To July 15, 2022

B. Application Packet Requirements: REFER TO ACME TOWNSHIP ZONING ORDINANCE AND COMPLETE ATTACHED CHECKLIST

C. Fees: Include initial fee as required by the Acme Township Ordinance #2004-01

D. Fee Escrow Policy Acknowledgement: Provide completed and signed form with initial escrow fee deposit.

E. Affidavit: The undersigned affirms that he/she is the RONALD C. WILSON (owner, agent, lessee, or other interested party) involved in this petition and that the foregoing answers, statements and information are in all respects true and, to the best of his/her knowledge, correct. By making this application, the undersigned grants all officials, staff and consultants of Acme Township access to the subject property as required and appropriate to assess site conditions in support of a determination as to the suitability of the proposed project and/or current or future Special Use Permit and Zoning Ordinance compliance.

Signed: Ronald C. Wilson Date: 9-19-22

FOR TOWNSHIP USE ONLY

Application Number:_____ Date Received:_____

Public Hearing/Meeting:_____

Date of Advertising:_____ T&A Account:_____

NOTES:

(Updated 01/04/2016 SW)

MACHINENGINEERING

Civil ▪ Structural ▪ Sciences

October 12, 2022

Acme Township Planning/Zoning

Re: 6140 Arnold Rd Development
Unit C (4.40 acres) per survey by Mitchell & Associates (1/30/2012)
S&S Michigan Investments
ME Project No: 22127

Development Narrative

Item 19: The existing site is an undeveloped parcel where the near past residence included a mobile home and an outbuilding. The structures have since been removed. Land is comprised of grass vegetation with a few trees located near the original structure. A large Maple tree is located near the original driveway and is at its life's end. There are no wetlands, streams, or shorelines on or adjacent to the site. The site is situated to the south the of the railroad and to the east of the public road. Topography is gently sloping from the south, in general, to the north and northeast. Soils are sandy to silty sandy loam. Soils per Soil Survey are EyA and EyC2. Southern portion is EyA "Emmet Sandy Loam – 0-2% Slope", while the northern and NE portions are EyC2 "Emmet Sandy Loam – 6-12% Slope, Moderately Eroded". EyA comprises of 3.34 acres and EyC2 the balance of 1.06 acres.

Item 20: The stormwater management plan incorporates primary protection from runoff from each building and routed to basins with an emergency release to the NE into a natural drainage way. Steep slopes are protected from run-off by intercepting the water into basins with routing to the NE. Building #1 is a shallow pitched mono-sloped roof draining to the west into a French drain with infiltration and routing pipe to Rain Garden A with ultimate routing to Basin A and into Basin B. Structures 2-5 are shallow pitched gable roofs with run-off in both north and south directions onto pavement. Routing from each of the buildings is to Basins A and B. Sediment will be captured in the drainage swale to the south, long basins to the north and east. Ground infiltration is provided based on results from infiltration test.

Item 21: Erosion will be satisfied during construction with the use of silt fence and crushed stone ingress/egress. Post construction, silt fence will be left up for a period of 1-year, then removed, or until vegetation is established.

Item 22: The property owner is S&S Michigan Investments LLC, 437 Lincoln St, Cadillac, MI 49601.

Item 23: Person and company who prepared site plan drawings is Machin Engineering, Inc., 2301 N Garfield Rd Suite C, Travers City, MI 49686.

Item 24: Method to control dust during operation and use is via a paved surface of bituminous asphalt. There will no noise created per the use of the property.

Item 25: Signage will be provided along the western property line as shown on the drawings. A detail of the sign is shown below in the image. The sign will be less than 12' above grade, less than 40 sft of sign area, and like 'Acme Storage' sign that is immediately adjacent to this proposed development. See Image 1.

Image 1

Item 26: The general change to the parcel is to excavate and remove spoils from the site after final grading to maintain the required sloping and drainage features as designed. The single effected area to adjacent parcels will be limited to an emergency, rated runoff spillway to NE into a current drainage way. This follows the current drainage pattern for the original parent parcel prior to the land split. See sheet C1 for the location of this feature near the NE corner of the parcel.

Item 27: There is an ingress/egress easement along the south line of 66' in overall width. A copy of the easement is attached to this Narrative. There are no restrictions other than for the use of ingress, egress, and utilities. Use of the easement is shown for the overall benefit of the stormwater and sedimentation control (SE&SC) plan. The site is elevated above Arnold Rd and the railroad right-of-way (ROW). Because of the elevation, great care was taken in the design of the SE&SC system to prevent runoff off site and to provide for uniform routing of the stormwater without confinement of the water into limited areas. The parcels boundaries were utilized to 'spread-out' and to minimize impacts to the surroundings. The easement is provided as an ingress/egress easement for the purpose of accessing parcels. With the parcel considered a corner lot, with frontage on Arnold Rd, and the easement, the use of the easement is prescriptive, and allows for direct access the public ROW. The Grand Traverse County Road Commission (GTRC) disagreed with our original intended location to the southwest corner of the parcel accessing Arnold Road. They preferred the drive further north to align with an adjacent drive or more to the northwest corner. This would have impacted the stormwater routing to the detriment of the design. Further, they suggested we locate the drive within the easement as an option.

Item 28: There are no specific requirements for water to serve the development other than a single bathroom proposed within the southern portion of Building #1. The bathroom will be served by a new water well along the south line meeting all local Health Department requirements.

Item 29: There are no specific requirements for sanitary sewer to serve the development other than a single bathroom proposed within the southern portion of Building #1. The bathroom will be served by a drain field and septic tank along the western parcel line meeting all local Health Department requirements.

Item 30: General hours of operation are 7-days a week for persons renting storage space. There will be no office serving the development. All rentals will be on-line and not onsite. A single gated access is proposed with access restricted to those with paid access to their rental unit. Site lighting will include those installed along each building illuminating the access doors and building sides. It is anticipated vehicular traffic will be low. Accounting for access by renters to each unit once per month, for 213 individual units, yields an average of 7 cars per day.

This concludes our narrative

CERTIFICATE OF SURVEY

Legend

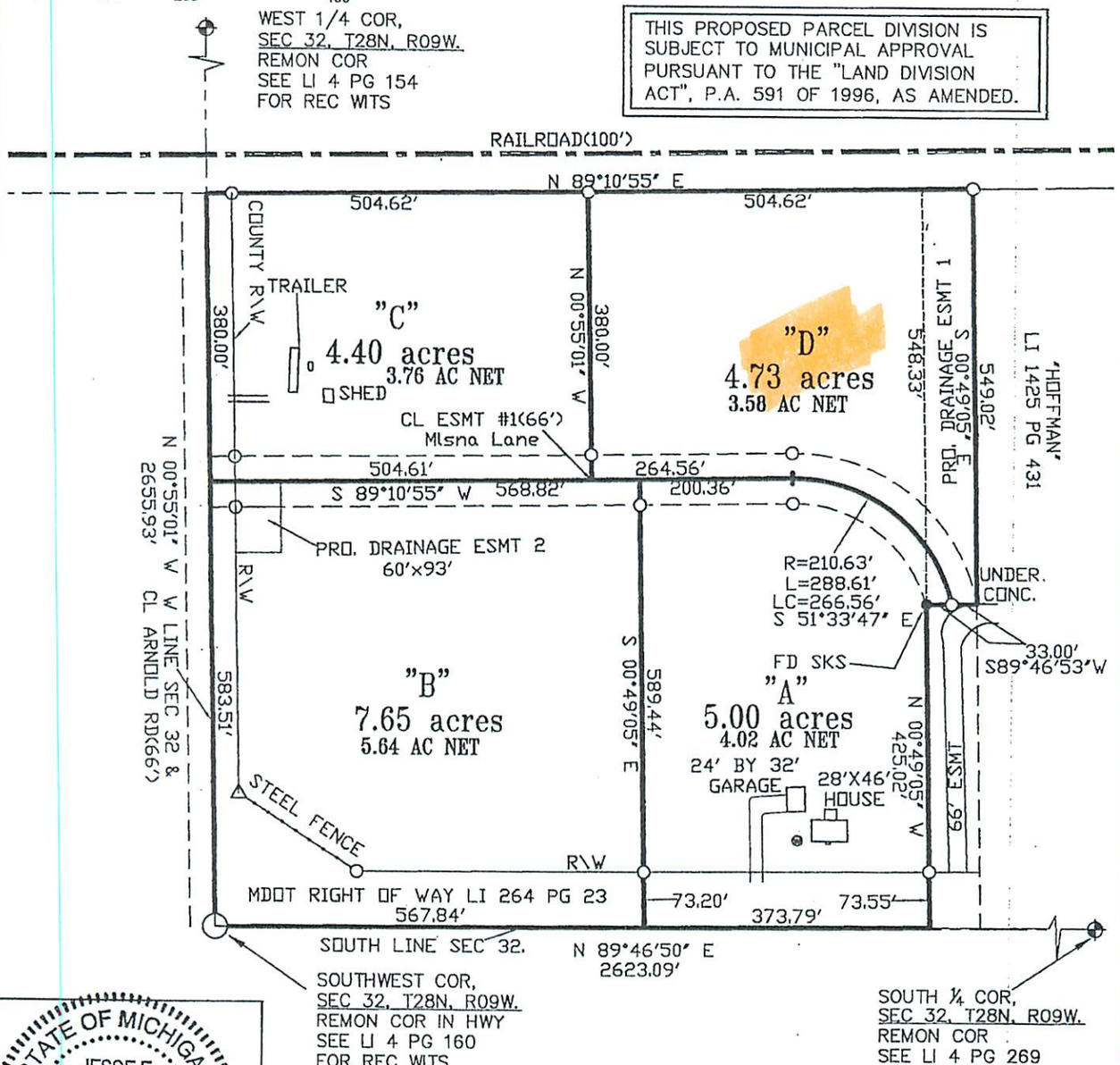
- IRON SET
- IRON FOUND
- MONUMENT FOUND
- NAIL SET
- NAIL FOUND
- GOVERNMENT 1/4 CORNER
- SECTION CORNER
- CENTER 1/4 CORNER
- (R) RECORD S. SMITH SURVEY 200528 (ELMERS)
- (M) MEASURED

Scale: 1" = 200'

0 100 200 400

SPACE RESERVED FOR REGISTER OF DEEDS

THIS PROPOSED PARCEL DIVISION IS SUBJECT TO MUNICIPAL APPROVAL PURSUANT TO THE "LAND DIVISION ACT", P.A. 591 OF 1996, AS AMENDED.



STATE OF MICHIGAN
JESSE E MITCHELL
PROFESSIONAL SURVEYOR
No. 54433
LICENSED PROFESSIONAL SURVEYOR

SURVEYOR'S NOTE: SURVEY BY S.SMITH DATED 7-9-00 HAS THE DISTANCE ON THE EASEMENT PARCEL OF 383.02', TAX MAPS UTILIZED SAID DISTANCE. THE DEED WAS RECORDED AS 425.02' AND UTILIZED BY THE WIMSAT PARCEL. THE DEED HOLDS.

ALTERATION OF ANY PART OF THIS DOCUMENT WITHOUT THE PERMISSION OF BOB MITCHELL & ASSOCIATES IS PROHIBITED.

Jesse E. Mitchell
Professional Surveyor No. 54433

ERROR OF CLOSURE IS 1/5,000

BASIS OF BEARING: PREVIOUS SURVEY BY STEVE SMITH

I, Jesse E. Mitchell, a Licensed Professional Surveyor in the State of Michigan, hereby certify that I have surveyed and mapped the above parcel of land; That the ratio of closure of the unadjusted field observations was within the accepted limits and that I have fully complied with the requirements of P.A. 132 of 1970.

CLIENT: MLSNA ESTATE

LOCATION:

SW 1/4, SECTION 32,
TOWN 28 NORTH, RANGE 09 WEST,
ACME TOWNSHIP, GRAND TRAVERSE COUNTY,
MICHIGAN.

BOB MITCHELL & ASSOCIATES
SURVEYING / ENGINEERING
108 West Main Street P.O. Box 306 Kingsley, MI 49649
NORTH 1ST STREET Harrison, MI 48625
(231) 263-5463 · FAX (231) 263-7921
Toll Free in Michigan 1-800-533-6627
email jesse@mapcivilsurvey.com

DWN. JEM	DATE 1.30.12	FILE NO. 20110233
CK. WPM	FLD. BK. LGO PG. X	SHEET 1 OF 5

4.40
4.73
9.13

SPACE RESERVED FOR REGISTER OF DEEDS

DESCRIPTION

PARCEL "D"

DESCRIPTION: A parcel of land situated in the Township of Acme, County of Grand Traverse, State of Michigan and described as follows to-wit:

Part of the Southwest One-Quarter of Section 32, Town 28 North, Range 09 West, more fully described as follows; Commencing at the Southwest corner of said section; thence North 00°55'01" West, along the West line of said section, 583.51 feet; thence North 89°10'55" East, 504.61 feet, to the Point of Beginning; thence North 00°55'01" West, 380.00 feet, to the Southern edge of C & O Railroad; thence North 89°10'55" East, along said railroad boundary, 504.62 feet, to the West line of a Parcel created in Liber 1425 Page 431; thence South 00°49'05" East, along said boundary line, 549.02 feet; thence South 89°46'53" West, 33.00 feet; thence 288.63 feet along the arc of 210.63 foot radius curve to the left with a long chord of North 51°33'47" West, 266.56 feet; thence South 89°10'55" West, 264.56 feet, to the Point of Beginning. Contains 4.73 Acres of land.

SUBJECT TO AND TOGETHER WITH a 66 foot wide easement for ingress and egress and the installation and maintenance of utilities as recorded in Liber 1425 Page 431.

ALSO SUBJECT TO AND TOGETHER WITH a 66 foot wide easement for ingress and egress and the installation of public and private utilities over part of the Southwest 1/4 of Section 32, Town 28 North, Range 09 West, the centerline of which is more fully described as Commencing at the Southwest corner of said Section 32; thence North 00°55'01" West, along the West line of said section 583.51 feet, to Point of Beginning of said easement centerline; thence North 89°10'55" East, along said centerline, 769.17 feet; thence 288.61 feet, along the arc of a 210.63 foot radius curve to the right with a long chord of South 51°33'47" East, 266.56 feet, to the Point of Ending. Said easement sidelines are to begin at the West line of said section and to terminate at the West line of a Parcel created in Liber 1425 page 431.

ALSO SUBJECT TO AND TOGETHER WITH an easement for Storm water storage and management, aka Proposed drainage easement #1, over part of the Southwest 1/4 of Section 32, Town 28 North, Range 09 West, the exterior of which is more fully described as Commencing at the Southwest corner of said Section 32; thence North 00°55'01" West, along the West line of said section, 963.51 feet; thence North 89°10'55" East, 1009.24 feet, to the West line of a Parcel created in Liber 1425 page 431, to the Point of Beginning; thence South 00°49'05" East, 549.02 feet; thence South 89°46'53" West, 66.00 feet; thence North 00°49'05" West, 548.33 feet; thence North 89°10'55" East, 66.00 feet, to the Point of Beginning.

FURTHER SUBJECT TO AND TOGETHER WITH an easement for Storm water storage and management, Proposed drainage easement #2, over part of the Southwest 1/4 of Section 32, Town 28 North, Range 09 West, the exterior of which is more fully described as Commencing at the Southwest corner of said Section 32; thence North 00°55'01" West, along the West line of said section, 583.51 feet; thence North 89°10'55" East, 33.00 feet, to the Point of Beginning; thence North 89°10'55" East, 60.00 feet; thence South 00°55'01" East, 93.00 feet; thence South 89°10'55" West, 60.00 feet, to the right of way of Arnold Road; thence North 00°55'01" West, along said right of way, 93.00 feet, to the Point of Beginning.

SUBJECT TO the right of way of M-72 over the Southerly portion thereof as recorded in Liber 264 Page 23.

SUBJECT TO all agreements, covenants, easements, right-of-ways, reservations and restrictions of record, if any.

STATE OF MICHIGAN
JESSE E MITCHELL
PROFESSIONAL SURVEYOR
No. 54433
LICENSED PROFESSIONAL SURVEYOR

ALTERATION OF ANY PART OF THIS DOCUMENT WITHOUT THE PERMISSION OF BOB MITCHELL & ASSOCIATES IS PROHIBITED.

Jesse E. Mitchell
Professional Surveyor No. 54433

I, Jesse E. Mitchell, a Licensed Professional Surveyor in the State of Michigan, hereby certify that I have surveyed and mapped the above parcel of land; That the ratio of closure of the unadjusted field observations was within the accepted limits and that I have fully complied with the requirements of P.A. 132 of 1970.

BOB MITCHELL & ASSOCIATES
SURVEYING / ENGINEERING
108 West Main Street P.O. Box 306 Kingsley, MI 49649
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Toll Free in Michigan 1-800-533-6627
email jesse@mapcivilsurvey.com

CLIENT: MLSNA ESTATE

LOCATION: SW 1/4, SECTION 32, TOWN 28 NORTH, RANGE 09 WEST, ACME TOWNSHIP, GRAND TRAVERSE COUNTY, MICHIGAN.

DWN. JEM	DATE 1.30.12	FILE NO. 20110233
CK. WPM	FLD. BK. LGO PG. X	SHEET 5 OF 5

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS: That Green Peak Industries, Inc. f/k/a Green Peak Industries, LLC whose address is 6140 E. Arnold Rd, Williamsburg, MI 49690 convey(s) and warrant(s) to S & S Michigan Investments, LLC, whose address is 437 Lincoln St, Cadillac, MI 49601, the following described premises:

Land situated in the Township of Acme, County of Grand Traverse, State of Michigan, described as follows:

PARCEL "C"

Part of the Southwest One-Quarter of Section 32, Town 28 North, Range 09 West, Township of Acme, Grand Traverse County, Michigan, more fully described as follows: Commencing at the Southwest corner of said section; thence North 00°55'01" West, along the West line of said section, 583.51 feet, to the Point of Beginning; thence North 89°10'55" East, 504.61 feet; thence North 00°55'01" West, 380.00 feet, to the Southern edge of C & 0 Railroad; thence South 89° 10'55" West, along said railroad boundary, 504.62 feet, to the West line of said section; thence South 00°55'01" East, along said West line, 380.00 feet, to the Point of Beginning.

SUBJECT TO AND TOGETHER WITH a 66 foot wide easement for Ingress and egress and the Installation and maintenance of utilities as recorded In Liber 1425 Pages 429 through 431, inclusive.

ALSO SUBJECT TO AND TOGETHER WITH a 66 foot wide easement for Ingress and egress and the Installation of public and private utilities over part of the Southwest 1/4 of Section 32, Town 28 North, Range 09 West, the centerline of which is more fully described as Commencing at the Southwest corner of said Section 32; thence North 00°55'01" West, along the West line of said section 583.51 feet to Point of Beginning of said easement centerline; thence North 89°10'55" East, along said centerline, 769.17 feet; thence 288.61 feet, along the arc of a 210.63 foot radius curve to the right with a long chord of South 51°33'47" East, 266.56 feet, to the Point of Ending. Said easement sidelines are to begin at the West line of said section and to terminate at the West line of a Parcel created in Liber 1425 Pages 429 through 431, inclusive.

ALSO SUBJECT TO AND TOGETHER WITH an easement for Storm water storage and management, aka Proposed drainage easement #1, over part of the Southwest 1/4 of Section 32, Town 28 North, Range 09 West, the exterior of which is more fully described as Commencing at the Southwest corner of said Section 32; thence North 00°55'01" West, along the West line of said section, 963.51 feet; thence North 89°10'55" East, 1009.24 feet, to the West line of a Parcel created in Liber 1425 Pages 429 through 431, inclusive, to the Point of Beginning; thence South 00°49'05" East, 549.02 feet; thence South 89°46'53" West, 66.00 feet; thence North 00°49'05" West, 548.33 feet; thence North 89°10'55" East, 66.00 feet, to the Point of Beginning.

FURTHER SUBJECT TO AND TOGETHER WITH an easement for Storm water storage and management, Proposed drainage easement #2, over part of the Southwest 1/4 of Section 32, Town 28 North, Range 09 West, the exterior of which is more fully described as Commencing at the Southwest corner of said Section 32; thence North 00°55'01" West, along the West line of said section, 583.51 feet; thence North 89°10'55" East, 33.00 feet, to the Point of Beginning; thence North 89°10'55" East, 60.00 feet; thence South 00°55'01" East, 93.00 feet; thence South 89°10'55" West, 60.00 feet, to the right of way of Arnold Road; thence North 00°55'01" West, along said right of way, 93.00 feet, to the Point of Beginning.

SUBJECT TO the right of way of M-72 over the Southerly portion thereof as recorded in Liber 264 Page 23.

SUBJECT TO the right of way of Arnold Road over the Westerly 33 feet thereof.

Commonly known as: 6140 E. Arnold Rd, Williamsburg, MI 49690
Parcel ID No(s).: 28-01-015-005-05

This property may be located within the vicinity of farmland or a farm operation. Generally accepted agricultural and management practices which may generate noise, dust, odors and other associated conditions may be used and are protected by the Michigan Right of Farm Act.

The Grantors herein convey to Grantees all rights of division under Section 108 of the Michigan Land Division Act for the full consideration of Three Hundred Five Thousand And No/100 Dollar(s) ($305,000.00) subject to easements and restrictions of record, if any, and further subject to liens, encumbrances and other matters subsequent to the date of this notice.

Dated this 20 day of June, 2022.

Green Peak Industries, Inc. f/k/a Green Peak Industries, LLC

BY: _____
Jeffrey Donahue, its General Counsel

State of Michigan
County of Eaton

Signed, sworn and acknowledged before me the 20 of June, 2022, by Jeffrey Donahue, General Counsel for Green Peak Industries, Inc. f/k/a Green Peak Industries, LLC.

_____
Notary Public

Ember Lynne Osborn
Notary Public of Michigan
Eaton County
Expires 01/14/2025
Acting in the County of Eaton

Affix stamp/seal:

Prepared by:
Jeffrey Donahue
10070 Harvest Park
Dimondale, MI 48821

Assisted by:
Crossroads Title Agency
413 South Union Street
Traverse City, MI 49684

When recorded mail to:
Crossroads Title Agency
413 South Union Street
Traverse City, MI 49684

File No.:
21110

S&S MICHIGAN INVESTMENTS, LLC

SELF-STORAGE UNITS

CIVIL SITE PLAN

SHEET INDEX

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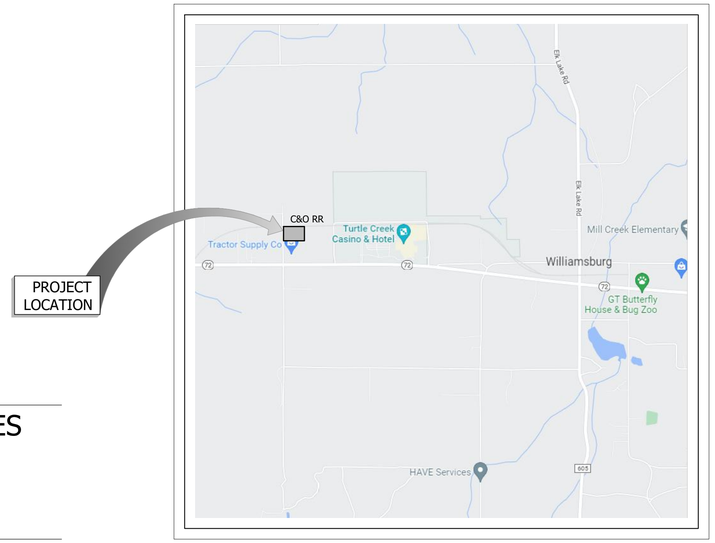
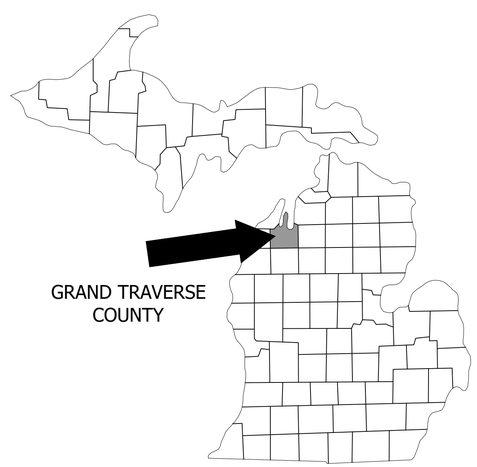


LOCATION MAP

SECTION 32, T28N, R9W, ACME TOWNSHIP, GRAND TRAVERSE CO
NO SCALE



VICINITY MAP

OWNER/APPLICANT

S&S MICHIGAN INVESTMENTS, LLC
437 LINCOLN STREET
CADILLAC, MI 49601

AGENCIES

PLANNING/ZONING
ACME TOWNSHIP
6042 ACME ROAD
WILLIAMSBURG, MI 49690
Contact:
Phone: (231) 938-1350

BUILDING CODES
GRAND TRAVERSE COUNTY
2650 LAFRANIER RD
TRAVERSE CITY, MI 49686
Contact:
Phone: (231) 995-6051

D.P.W.
GRAND TRAVERSE COUNTY
2650 LAFRANIER RD
TRAVERSE CITY, MI 49686
Contact: JOHN DIVOZZO
Phone: (231) 995-6039

ELECTRIC
CONSUMERS ENERGY
821 HASTINGS ST
TRAVERSE CITY, MI 49686
Contact:
Phone: (800) 477-5050

EGLE
ENVIRONMENT, GREAT LAKES & ENERGY
120 W CHAPIN ST
CADILLAC, MI 49601
Contact: .
Phone: (231) 775-1511

CABLE TELEVISION
SPECTRUM
1392 TRADE CENTER DR
TRAVERSE CITY, MI 49686
Contact:
Phone:

SOIL AND EROSION
GRAND TRAVERSE COUNTY
2650 LAFRANIER RD
TRAVERSE CITY, MI 49686
Contact:
Phone: (231) 995-6051

TELEPHONE
AT&T
142 E. STATE ST
TRAVERSE CITY, MI 49684
Contact:
Phone: (231) 941-2707

ROADS AND STREETS
GRAND TRAVERSE COUNTY RD COMM
1881 LAFRANIER RD
TRAVERSE CITY, MI 49696
Contact:
Phone: (231) 922-4848

NATURAL GAS
DTE
1011 HASTINGS ST
TRAVERSE CITY, MI 49686
Contact: LAUREL HALL
Phone: (231) 932-2832

FIRE CODE
GRAND TRAVERSE COUNTY METRO
897 PARSONS RD
TRAVERSE CITY, MI 49686
Contact:
Phone: (231) 947-3000

EMERGENCIES
POLICE DEPARTMENT: 9-1-1
FIRE DEPARTMENTS: 9-1-1
AMBULANCE: 9-1-1

Know what's **below.**
Call before you dig.
(3 WORKING DAYS)

THE LOCATION OF THE EXISTING UTILITIES, AS SHOWN ON THIS PLAN, ARE APPROXIMATE ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ACTUAL LOCATION AND DEPTH OF ALL EXISTING UTILITIES. THE OWNER AND THE SURVEYOR SHALL NOT BE RESPONSIBLE FOR ANY OMISSION OR VARIATION FROM THE LOCATION SHOWN. THE CONTRACTOR SHALL NOTIFY "MISS DIG" AT 1 (800) 482-7171 OR 811 THREE (3) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION

MACHINENGINEERING
incorporation
2301 N Garfield Road, Suite C
TRAVERSE CITY, MI PH 231.935.1530
www.machinengineering.net

STATE OF MICHIGAN
PATRICK J. MACHIN
ENGINEER
No. 6201051471
10/19/2022
LICENSED PROFESSIONAL ENGINEER

ON 22x34 SHEET SCALE: FULL (AS NOTED)
ON 11x17 SHEET SCALE: HALF

REV#	DESCRIPTION	DATE
A	REVIEW - 30% DESIGN	KA0071727
B	REVIEW - 60% DESIGN	KA0080927
C	REVIEW - 75% DESIGN	KA0081027
0	ISSUED FOR CONSTRUCTION	KA0081727
1	UPDATED PER REQUEST	KA0091427
2	UPDATED PER ACME TWP ZA COMMENTS	KA0101821

DRAWN BY:	CHECK BY:	APPROVED BY:	CREATED:
AAS	PJM	PJM	07/15/2022

REVISION	REV #2 10/18/2022
DATE ISSUED:	08/17/2022
ISSUE PHASE:	PERMIT

PROJECT TITLE:
SELF-STORAGE UNITS
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CLIENT:
S&S MICHIGAN INVESTMENTS, LLC
437 LINCOLN STREET
CADILLAC, MI 49601

PROJECT LOCATION:
GRAND TRAVERSE CO, MI

SHEET TITLE:
COVER SHEET

PROJECT NUMBER 22127
SHEET NUMBER T1

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GENERAL NOTES

1. ALL ELEVATIONS ARE BASED ON NAVD88 VERTICAL DATUM.
2. ALL PROPERTY IRONS AND MONUMENTS, IF DISTURBED OR DESTROYED BY THE CONTRACTOR, SHALL BE REPLACED BY A MICHIGAN REGISTERED PROFESSIONAL SURVEYOR AT THE CONTRACTOR'S EXPENSE.
3. LOCATION OF UTILITIES OR OTHER STRUCTURES SHOWN ON THE PLANS ARE TAKEN FROM UTILITY COMPANY OR OTHER RECORDS BELIEVED TO BE RELIABLE. THE OWNER AND ENGINEER ARE NOT RESPONSIBLE FOR ANY OMISSIONS OR VARIATIONS IN THE LOCATION OF THE UTILITIES ENCOUNTERED IN THE WORK.
4. THE CONTRACTOR SHALL NOTIFY "MISS DIG" (800) 482-7171, A MINIMUM OF THREE WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION IN THE AREA OF THE WORK.
5. PRIOR TO THE INSTALLATION OF ANY PROPOSED STORMWATER MANAGEMENT, THE EXISTING UTILITIES WHICH CROSS THE PROPOSED WORK AREA SHALL BE EXPOSED BY THE CONTRACTOR TO DETERMINE ANY POSSIBLE CONFLICTS WITH THE PROPOSED WORK.
6. ANY UTILITIES, MAINS, SERVICES, UNDERDRAINS, OIL LINES, OR OTHER SIMILAR ITEMS DAMAGED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE UTILITY OWNER IN A MANNER ACCEPTABLE TO THE UTILITY OWNER. ALL COSTS FOR REPAIR OR REPLACEMENT SHALL BE PAID BY THE CONTRACTOR, INCIDENTAL TO THE PROJECT.
7. CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT FOR UTILITY POLES AS NECESSARY. CONTRACTOR SHALL CONSULT WITH THE UTILITY COMPANY PRIOR TO ANY DISTURBANCE OF UTILITY POLE OR ANCHORING SYSTEM.
8. GRADING PERMITS HAVE NOT BEEN OBTAINED WITHIN FUTURE ROAD EASEMENT TO THE SOUTH NOR THE RAILROAD. GRADING LIMITS ARE SHOWN TO THE LIMITS OF THE PROPERTY LINES. MAINTAIN ALL WORK WITHIN THE LIMITS OF THE PARCEL.
9. DEVELOPMENT IS A SPECIFIC USE BY RIGHT PER THE ZONING LIW USE DESIGNATION. AN ADJACENT STORAGE UNIT DEVELOPMENT EXISTS TO THE WEST, A TRUSS FABRICATION COMPANY IS TO THE NORTH, WITH FARM RETAIL TO THE SOUTH. THERE WILL BE NO ADVERSE EFFECTS IN TERMS OF NOISE OR DUST. TRAFFIC WILL BE LOW WITH AN ESTIMATED COUNT OF 7 CARS PER DAY ASSUMING RENTERS VISIT THEIR UNIT 1 TIME PER MONTH ACROSS 213 TOTAL UNITS OF THE SITE

CONSTRUCTION SEQUENCE

1.	INSTALL SOIL EROSION PREVENTION MEASURES (SILT FENCE):	NOVEMBER, 2022
2.	REMOVE EXISTING TOPSOIL / DEMOLITION / REMOVALS:	NOVEMBER, 2022
3.	CONSTRUCT STORMWATER MANAGEMENT BASIN AND GRADE:	NOVEMBER, 2022
4.	PLACE GRAVEL BASE	NOVEMBER, 2022
5.	EXCAVATE BUILDING FOUNDATION & START BUILDING CONSTRUCTION	DECEMBER, 2022
6.	PAVE PARKING LOT AND DRIVE:	APRIL, 2023
7.	RE-SPREAD TOP SOIL AND GRASS SEED AND MULCH:	APRIL, 2023

SOIL EROSION AND STORM WATER CONTROL NOTES

1. THE CONTRACTOR SHALL PROVIDE TEMPORARY SOIL EROSION CONTROL MEASURES PER P.A. 451 AS AMENDED. WITH THE USE OF SILT FENCE AND OTHER TEMPORARY MEASURES THE CONTRACTOR SHALL PROTECT THE ADJACENT AREA FROM ACCELERATED EROSION AND SEDIMENTATION FLOWS RESULTING FROM CONSTRUCTION. THE CONTRACTOR SHALL INSTALL ADDITIONAL TEMPORARY AND PERMANENT SOIL EROSION CONTROL MEASURES, IF DIRECTED BY THE ENGINEER OR SOIL EROSION CONTROL OFFICER, AT NO ADDITIONAL COST TO THE PROJECT.
2. INSTALLATION AND MAINTENANCE OF TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. SHOULD ADDITIONAL SOIL EROSION CONTROL MEASURES BE DETERMINED TO BE NECESSARY BY EITHER THE SOIL EROSION CONTROL OFFICER OR THE OWNER'S ENGINEER THEY SHALL BE IN PLACE NO LATER THAN 24 HOURS FROM THE TIME OF NOTIFICATION TO THE GENERAL CONTRACTOR FOR THE PROJECT. IF NOT IN PLACE WITHIN 24 HOURS OR LESS, ALL ON SITE CONSTRUCTION WILL BE HALTED UNTIL SUCH MEASURES ARE INSTALLED AND APPROVED BY EITHER THE SOIL EROSION CONTROL OFFICER OR THE OWNER'S ENGINEER.
4. ALL DISTURBED NON-HARD SURFACE AREAS TO BE STABILIZED WITH TOPSOIL, SEEDED, FERTILIZED AND MULCHED. DISTURBED AREAS SHALL BE TOPSOILED TO A DEPTH NOT LESS THAN FOUR (4) INCHES.
5. EXISTING STORM DRAINAGE DITCHES SHALL BE REBUILT IF FILLED IN REMOVED DURING CONTRACTION. THE CONTRACTOR IS RESPONSIBLE TO REPAIR OR REPLACE, AS REQUIRED, ALL DRAINAGE CULVERTS DAMAGED DURING CONSTRUCTION AND SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
6. THE CONTRACTOR SHALL REMOVE OR CAUSE TO BE REMOVED ALL SEDIMENT OR SOILS THAT HAVE BEEN DROPPED, WASHED ONTO OR TRACKED OUT ONTO PUBLIC RIGHT-OF-WAY OR PRIVATE ROADS IMMEDIATELY OR AFTER EACH RAIN EVENT ON NON-WORK DAYS.
7. BASINS WILL BE INSPECTED AND CLEANED OF SILT AND DEBRIS AT LEAST ANNUALLY AND THE SEDIMENT WILL CLEANED WHEN REQUIRED. THIS INCLUDES DURING THE COURSE OF CONSTRUCTION.

LEGEND

	EXISTING	PROPOSED
WATERMAIN		
SANITARY SEWER		
STORM SEWER		
SANITARY FORCEMAIN		
PROPERTY LINE		
RIGHT OF WAY		
SECTION LINE		
EASEMENT LINE		
CONTOURS	100	100
FENCE		
SILT FENCE		
UTILITY POLE		
SIGN		
CURB STOP & BOX		
PROPOSED ASPHALT		
PROPOSED CONCRETE		

SPECIFICATIONS

DIVISION 01 – GENERAL CONDITIONS

GENERAL

1. CONTACT MISS DIG AT 8-1-1 A MIN. OF 72 HOURS PRIOR TO COMMENCING WORK
2. ALL DEMOLITION WORK SHALL BE COORDINATED AND SCHEDULED TO FACILITATE OTHER EFFORTS REQUIRED FOR THE PROJECT PER BID DOCUMENTS.
3. CONTRACTOR SHALL MAKE THEMSELVES FAMILIAR WILL ALL ASPECTS OF THE WORK.
4. IF DISCREPANCIES BETWEEN PHASES ARE IDENTIFIED CONTACT THE DESIGN ENGINEER PRIOR TO COMMENCING WORK.
5. COMPLY WITH ALL OTHER GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT.
6. CONTRACTOR SHALL MAINTAIN EXISTING STORM CONTROLS UNTIL PERMANENT CONTROLS ARE IN PLACE, UNLESS TEMPORARY ARRANGEMENTS ARE IN PLACE.
7. ELECTRICAL AND LIGHTING DESIGN IS BY SITE ELECTRICAL CONTRACTOR.

DIVISION 02 – EXISTING CONDITIONS

GENERAL

1. ALL ITEMS TO BE DEMOLISHED SHALL BE REMOVED FROM SITE UNLESS OTHERWISE STATED.
2. SITE IS NOT BALANCED. SPOILS WILL BE GENERATED AND HAULED TO APPROVED OFFSITE LOCATION FOR DISPOSAL.

DIVISION 31 – EARTHWORK

SITE CLEARING

1. CONTACT MISS DIG AT 8-1-1 A MIN. OF 72 HOURS PRIOR TO COMMENCING WORK
2. INSTALL TEMPORARY SOIL AND EROSION CONTROL MEASURES. REMOVE UPON COMPLETION OF PROJECT AND ONCE VEGETATION IS ESTABLISHED. MAINTAIN THESE MEASURES IN WORKING ORDER AT ALL TIMES.
3. COMPLY WITH THE INDIVIDUAL REQUIREMENTS ON THE AGENCY PERMITS.

EARTHWORK

1. PROTECT ALL STRUCTURES AND THOSE AREAS DESIGNATED FOR PROTECTION.
2. CONSTRUCT ALL GRADES TO THAT DESIGNATED ON THE PLANS. ANY DISCREPANCIES SHOULD BE IDENTIFIED AHEAD OF CONSTRUCTION TO THE ENGINEER. ENGINEER WILL NOT BE RESPONSIBLE FOR ANY DISCREPANCIES THAT ARE NOT DISCUSSED PRIOR TO CONSTRUCTION.
3. ALL STORED MATERIALS SUCH AS FILL MATERIALS, TOPSOIL, AND ANY OTHER TEMP. STOCKPILES SHALL BE STORED ON OWNER'S PROPERTY IN DESIGNATED AREAS.
4. MAINTAIN ALL SLOPES TO A MIN OF 3H:1V U.N.O. WHERE SLOPES ARE GREATER THAN 3H:1V, SLOPE STABILIZATION PRACTICES SHALL BE MAINTAINED UNTIL ADEQUATE VEGETATION IS ESTABLISHED.
5. ALL SUBBASE MATERIAL SHALL BE MDOT CLASS II
6. COMPACT ALL BACKFILLS AND FOUNDATIONS SOILS TO A MIN. OF 98% OF MAX. DRY DENSITY.
7. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING GROUND COVER ON AREAS DISTURBED BY CONSTRUCTION AND SHALL REPAIR ALL WASHOUTS AND EROSION DURING THE GUARANTEE PERIOD ON ONE (1) YEAR AFTER GROUND COVER IS ESTABLISHED AT NO ADDITIONAL COST TO THE OWNER.
8. FINAL GRADES OF PAVED PARKING AREA SHALL BE SUCH THAT POSITIVE DRAINAGE IS ATTAINED TOWARD LOW POINTS OR VALLEYS WHERE INDICATED.

LAWNS AND GRASSES

1. PROCEED WITH PLANTING ONLY WHEN EXISTING AND FORECASTED WEATHER CONDITIONS PERMIT PLANTING TO BE PERFORMED WHEN BENEFICIAL AND OPTIMUM RESULTS MAY BE OBTAINED.
2. SEEDING ON NON-MAINTAINED AREAS: CEREAL RYE MIX
3. SEEDING ON MAINTAINED AREAS: KENTUCKY BLUEGRASS
4. FERTILIZER: 240 LBS/ACRE
5. MULCH: STRAW MULCH AT 2 TONS/ACRE OR SPRAY APPLIED TACKIFIER.
6. EXCELSIOR MULCH BLANKETS: NORTH AMERICAN GREEN DS150 ON SLOPES GREATER THAN 3H:1V AND ALONG ALL TRAFFIC AREAS
7. USE TURF REINFORCEMENT MATS IN AREAS WHERE SLOPES ARE GREATER THAN 3H:1V
8. ROLL AND RAKE TOPSOIL, REMOVE RIDGES, FILL DEPRESSIONS. REMOVE ALL DELETERIOUS DEBRIS, ROCKS GREATER THAN 1" IN DIA., CONSTRUCTION DEBRIS, ET CETERA.
9. PROMPTLY CLEANUP DEBRIS FROM OPERATIONS.

DRAINAGE CALCULATIONS

GENERAL

1. ALL STORMWATER WAS DESIGNED USING A 100-YR BACK TO BACK STORM FOR THE DEVELOPED CONDITION

CALCULATIONS

HYDROCAD® 10.20-2f s/n 08377 ©2022 HydroCAD Software Solutions LLC

MI-WILLIAMSBURG PF DEPTH 24-HR S1 100-YR BACK TO BACK RAINFALL=**5.15"** X 2

EXISTING CONDITIONS CONTRIBUTING TO R/W RUN-OFF TO NORTH
RUN-OFF = 4.17 CFS @ 36.01 HRS, VOLUME = 0.292 AF, DEPTH = 2.25"
RUN-OFF BY SCS TR-20 METHOD 67,800 SFT CONTRIBUTING AREA 100% PERVIOUS, CN= 39
TC= 9.8 MIN, LENGTH= 244 FT, S= 0.02 '/', 0.41 FPS, SHEET FLOW FALLOW GROUND, N= 0.05, P2= 2.29"

SUMMARY FOR POND 21P: BASIN A & B

INFLOW AREA = 2.555 AC, 82.72% IMPERVIOUS, INFLOW DEPTH = **8.80"** FOR 100-YR BACK TO BACK EVENT
INFLOW = 18.55 CFS @ 35.95 HRS, VOLUME= 1.874AF
OUTFLOW = 0.76 CFS @ 37.15 HRS, VOLUME= 1.874AF, ATTEN= 96%, LAG= 71.9 MIN
DISCARDED = 0.65 CFS @ 37.15 HRS, VOLUME= 1.855 AF
PRIMARY = 0.11 CFS @ 37.15 HRS, VOLUME = 0.019 AF

ROUTING BY SIM-ROUTE METHOD, TIME SPAN= 0.00-72.00 HRS, DT= 0.01 HRS
PEAK ELEV= 745.67' @ 37.15 HRS SURF.AREA= 13,065 SF STORAGE= **24,487 CFT**
FLOOD ELEV= 746.07' SURF.AREA= 13,894 SF STORAGE= **29,988 CFT**
PLUG-FLOW DETENTION TIME = 385.3 MIN CALCULATED FOR 1.874 AF (100% OF INFLOW)
CENTER-OF-MASS DET. TIME= 385.2 MIN

VOLUME	INVERT	AVAIL.STORAGE	STORAGE DESCRIPTION
#1	743.50'	9,235 CFT	BASIN A (PRISMATIC) LISTED BELOW
#2	743.00'	19,753 CFT	BASIN B (PRISMATIC) LISTED BELOW
		28,988 CFT	**TOTAL STORAGE AVAILABLE**

BASIN A

ELEVATION (FT)	SURFACE AREA (SQ-FT)	INC STORE (CFT)	CUM STORE (CFT)
743.50'	1,615	0	0
745.50'	4,965	6,580	6,580
746.00'	5,654	2,655	9,235

BASIN B

ELEVATION (FT)	SURFACE AREA (SQ-FT)	INC STORE (CFT)	CUM STORE (CFT)
743.00'	4,929	0	0
745.50'	7,688	15,771	15,771
746.00'	8,240	3,982	19,753

DEVICE	ROUTING	INVERT	OUTLET DEVICES
#1	DISCARDED	743.00'	2.150 IN/HR EXFILTRATION OVER SURFACE AREA PHASE-IN= 0.50'
#2	PRIMARY	745.50'	10.00' LONG X 6.00' BREADTH X 1.00' HIGH ROCK FILL ROCK DIAM = 6.00", S.D. = 2.000", VOIDS= 40.0%

#1 DISCARDED OUTFLOW MAX=0.65 CFS @ 37.15 HRS HW=745.67' (FREE DISCHARGE) EXFILTRATION
#2 PRIMARY OUTFLOW MAX = 0.11 CFS @ 37.15 HRS HW=745.67' (FREE DISCHARGE) (@ 0.13 FPS)

MAXIMUM DRAIN TIME FOR REQUIRED VOLUME
72 > 12D/I = (12"•(745.67'-743.00'))/(2.15 IN/HR)•2.0 FS = 29.8 HRS

SUMMARY FOR POND 7P: FRENCH DRAIN

INFLOW AREA = 0.304 AC, 100% IMPERVIOUS, INFLOW DEPTH = **10.06"** FOR 100-YR BACK TO BACK EVENT
INFLOW = 2.24 CFS @ 35.97 HRS, VOLUME= 0.255 AF
OUTFLOW = 1.49 CFS @ 36.02 HRS, VOLUME= 0.271 AF, ATTEN= 33%, LAG= 3.1 MIN
DISCARDED = 0.05 CFS @ 0.78 HRS, VOLUME= 0.153 AF
PRIMARY = 1.44 CFS @ 36.02 HRS, VOLUME= 0.119 AF
ROUTED TO POND 12P: RAIN GARDEN A

ROUTING BY SIM-ROUTE METHOD, TIME SPAN= 0.00-72.00 HRS, DT= 0.01 HRS
PEAK ELEV= 746.57' @ 36.04 HRS SURF.AREA= 1,060 SF STORAGE= **668 CFT**
PEAK ELEV= 747.17' SURF.AREA= 1,060 SF STORAGE= **954 CFT**

CENTER-OF-MASS DET. TIME= 12.7 MIN

VOLUME	INVERT	AVAIL.STORAGE	STORAGE DESCRIPTION
EXISTING			
#1	745.17'	**954 CFT**	4.00'Wx265.00'Lx2'H 2,120 CFT OVERALL x 45.0% VOIDS

DEVICE	ROUTING	INVERT	OUTLET DEVICES
#1	DISCARDED	745.17'	2.15 IN/HR EXFILTRATION OVER SURFACE AREA
#2	PRIMARY	745.25'	6.0" ROUND CULVERT L= 26.0', KE= 0.2 INLET / OUTLET INVERT= 745.25' / 744.60' S= 0.025 '/' CC= 1.00 N= 0.013 PVC, SMOOTH INTERIOR, FLOW AREA= 0.20 SF
#3	PRIMARY	745.25'	6.0" ROUND CULVERT L= 26.0', KE= 0.2 INLET / OUTLET INVERT= 745.25' / 744.6' S= 0.025 '/' CC= 1.00 N= 0.013 PVC, SMOOTH INTERIOR, FLOW AREA= 0.20 SF

#1 DISCARDED OUTFLOW MAX=0.05 CFS @ 0.78 HRS HW=745.17' (FREE DISCHARGE) EXFILTRATION
#2& 3 PRIMARY OUTFLOW MAX=1.41 CFS @ 36.02 HRS HW=746.54' TW = 745.89' (DYNAMIC TAILWATER)

MAXIMUM DRAIN TIME FOR REQUIRED VOLUME
72 > 12D/I = (12"•(746.57'-745.17'))/(2.15 IN/HR)•2.0 FS = 15.62 HRS

SUMMARY FOR POND 12P: RAIN GARDEN A

INFLOW AREA = 0.304 AC, 100% IMPERVIOUS, INFLOW DEPTH = **4.68"** FOR 100-YR BACK TO BACK EVENT
INFLOW = 1.44 CFS @ 36.02 HRS, VOLUME= 0.119 AF
OUTFLOW = 0.08 CFS @ 11.65 HRS, VOLUME= 0.119 AF, ATTEN= 94%, LAG= 0 MIN
DISCARDED = 0.08 CFS @ 11.65 HRS, VOLUME= 0.119 AF

ROUTING BY SIM-ROUTE METHOD, TIME SPAN= 0.00-72.00 HRS, DT= 0.01 HRS
PEAK ELEV= 746.23' @ 36.64 HRS SURF.AREA= 1,663 SF STORAGE= **1,777 CFT**
FLOOD ELEVATION = 746.85' SURF.AREA= 1,663 SF STORAGE= **3,210 CFT**

PLUG-FLOW DETENTION TIME = 196.7 MIN CALCULATED FOR 0.119 AF
CENTER-OF-MASS DET. TIME= 196.7 MIN

VOLUME	INVERT	AVAIL.STORAGE	STORAGE DESCRIPTION
EXISTING			
#1	745.68'	2,462 CFT	PROPOSED BASIN (PRISMATIC) LISTED BELOW
#2	744.68'	748 CFT	PROPOSED BASIN (PRISMATIC) LISTED BELOW 1,663 CFT OVERALL X 45.0% VOIDS
		3210 CFT	TOTAL AVAILABLE STORAGE

ELEVATION (FT)	SURFACE AREA (SQ-FT)	INC STORE (CFT)	CUM STORE (CFT)
745.68	1,663	0	0
746.85	2,545	2,462	2,462

ELEVATION (FT)	SURFACE AREA (SQ-FT)	INC STORE (CFT)	CUM STORE (CFT)
744.68	1,663	0	0
745.68	1,663	1,663	1,663

DEVICE	ROUTING	INVERT	OUTLET DEVICES
#1	DISCARDED	744.68'	2.15 IN/HR EXFILTRATION OVER SURFACE AREA, PHASE-IN = 0.15'

#1 DISCARDED OUTFLOW MAX=0.08 CFS @ 11.65 HRS HW=744.84' (FREE DISCHARGE) EXFILTRATION

MAXIMUM DRAIN TIME FOR REQUIRED VOLUME
72 > 12D/I = (12"•(746.23'-744.68'))/(2.15 IN/HR)•2.0 FS = 17.30 HRS

DRAINAGE CALCULATIONS

SUMMARY FOR POND 16P: BASIN C

INFLOW AREA = 0.094 AC, 100% IMPERVIOUS, INFLOW DEPTH = **10.06"** FOR 100-YR EVENT BACK TO BACK EVENT
INFLOW = 0.69CFS @ 35.97 HRS, VOLUME= 0.079 AF
OUTFLOW = 0.04 CFS @ 36.60 HRS, VOLUME= 0.079 AF, ATTEN= 94%, LAG= 37.9 MIN
DISCARDED = 0.04 CFS @ 36.60 HRS, VOLUME= 0.079 AF

ROUTING BY SIM-ROUTE METHOD, TIME SPAN= 0.00-72.00 HRS, DT= 0.01 HRS
PEAK ELEV= 744.88' @ 36.60 HRS SURF.AREA= 879 SF STORAGE= **785 CFT**
FLOOD ELEV= 746.00' SURF.AREA= 1,186 SF STORAGE= **1,421 CFT**
PLUG-FLOW DETENTION TIME = 176.4 MIN CALCULATED FOR 0.079 AF (100% OF INFLOW)
CENTER-OF-MASS DET. TIME= 176.4 MIN

VOLUME	INVERT	AVAIL.STORAGE	STORAGE DESCRIPTION
EXISTING			
#1	743.50'	**1,421 CFT**	BASIN (PRISMATIC) LISTED BELOW

ELEVATION (FT)	SURFACE AREA (SQ-FT)	INC STORE (CFT)	CUM STORE (CFT)
743.50'	256	0	0
745.00'	932	891	891
745.50'	1,186	530	1,421

DEVICE	ROUTING	INVERT	OUTLET DEVICES
#1	DISCARDED	743.50'	2.15 IN/HR EXFILTRATION OVER SURFACE AREA PHASE-IN= 0.15'

DISCARDED OUTFLOW MAX=0.04 CFS @ 36.60 HRS HW=744.88' (FREE DISCHARGE) EXFILTRATION

MAXIMUM DRAIN TIME FOR REQUIRED VOLUME
72 > 12D/I = (12"•(744.88'-743.50'))/(2.15 IN/HR)•2.0 FS = 15.40 HRS

SUMMARY FOR POND 13P: RAIN GARDEN B

INFLOW AREA = 0.023 AC, 100% IMPERVIOUS, INFLOW DEPTH = **10.06"** FOR 100-YR BACK TO BACK EVENT
INFLOW = 0.17 CFS @ 36.02 HRS, VOLUME= 0.019 AF
OUTFLOW = 0.03 CFS @ 11.65 HRS, VOLUME= 0.019 AF, ATTEN= 84%, LAG= 12.2 MIN
DISCARDED = 0.03 CFS @ 11.65 HRS, VOLUME= 0.019 AF

ROUTING BY DYN-STOR-IND METHOD, TIME SPAN= 0.00-72.00 HRS, DT= 0.01 HRS
PEAK ELEV= 744.97' @ 36.17 HRS SURF.AREA= 531 SF STORAGE= **149 CFT**
FLOOD ELEV= 746.00' SURF.AREA= 785 SF STORAGE= **571 CFT**
PLUG-FLOW DETENTION TIME = 62.5 MIN CALCULATED FOR 0.007 AF (100% OF INFLOW)
CENTER-OF-MASS DET. TIME= 62.5 MIN

VOLUME	INVERT	AVAIL.STORAGE	STORAGE DESCRIPTION
EXISTING			
#1	744.83'	**459 CFT**	RAIN GARDEN (PRISMATIC) LISTED BELOW
#2	743.83'	**112 CFT**	STONE (PRISMATIC) LISTED BELOW 248 CFT OVERALL X 45.0% VOIDS

ELEVATION (FT)	SURFACE AREA (SQ-FT)	INC STORE (CFT)	CUM STORE (CFT)
744.83'	248	0	0
746.00'	537	459	459

ELEVATION (FT)	SURFACE AREA (SQ-FT)	INC STORE (CFT)	CUM STORE (CFT)
743.83'	248	0	0
744.83'	248	248	248

DEVICE	ROUTING	INVERT	OUTLET DEVICES
#1	DISCARDED	743.83'	2.15 IN/HR EXFILTRATION OVER HORIZONTAL AREA PHASE-IN= 0.15'

DISCARDED OUTFLOW MAX=0.03 CFS @ 36.17 HRS HW=744.97' (FREE DISCHARGE) EXFILTRATION

MAXIMUM DRAIN TIME FOR REQUIRED VOLUME
72 > 12D/I = (12"•(744.97'-743.83'))/(2.15 IN/HR)•2.0 FS = 12.72 HRS

1 2 WHOLE PLAN SHEET REVISED

SNOW STORAGE REQUIRED

SNOW STORAGE AREA IS 56,000 SFT
STORAGE REQUIRED IS 15% OF TOTAL OR 8,396 SFT

SNOW STORAGE – BASIN A
2,442 SFT
17'x145'

BASIN A UPPER AREA = 5,654 SFT
SNOW STORAGE AREA = 2,442 SFT < 0.5 BASIN AREA

SNOW STORAGE – BASIN B
4,080 SFT
34'x120'

BASIN B UPPER AREA = 8,240 SFT
SNOW STORAGE AREA = 4,080 SFT < 0.5 BASIN AREA

MACHINENGINEERING incorporation
2301 N Garfield Road, Suite C
TRAVERSE CITY, MI PH 231.935.1530
www.machinengineering.net

STATE OF MICHIGAN
PATRICK J. MACHIN
ENGINEER
No. 6201051471
10/19/2022
LICENSED PROFESSIONAL ENGINEER

ON 22x34 SHEET SCALE: FULL (AS NOTED)
ON 11x17 SHEET SCALE: HALF

REV #	DESCRIPTION	DATE
A	REVIEW - 30% DESIGN	KA0071212
B	REVIEW - 60% DESIGN	KA0080922
C	REVIEW - 75% DESIGN	KA0081023
0	ISSUED FOR CONSTRUCTION	KA0081722
1	UPDATED PER REQUEST	KA0091422
2	UPDATED PER ACME TWP DI COMMENTS	KA0101823

DRAWN BY:	CHECK BY:	APPROVED BY:	CREATED:
KAS	PJM	PJM	01/15/2022

REVISION	REV #2	10/18/2022
DATE ISSUED:		08/17/2022
ISSUE PHASE:		PERMIT

PROJECT TITLE:
SELF-STORAGE UNITS
.
.
.

CLIENT:
S&S MICHIGAN INVESTMENTS, LLC
437 LINCOLN STREET
CADILLAC, MI 49601

PROJECT LOCATION:
GRAND TRAVERSE CO, MI

SHEET TITLE:
NOTES & SPECIFICATIONS

PROJECT NUMBER 22127
SHEET NUMBER R1

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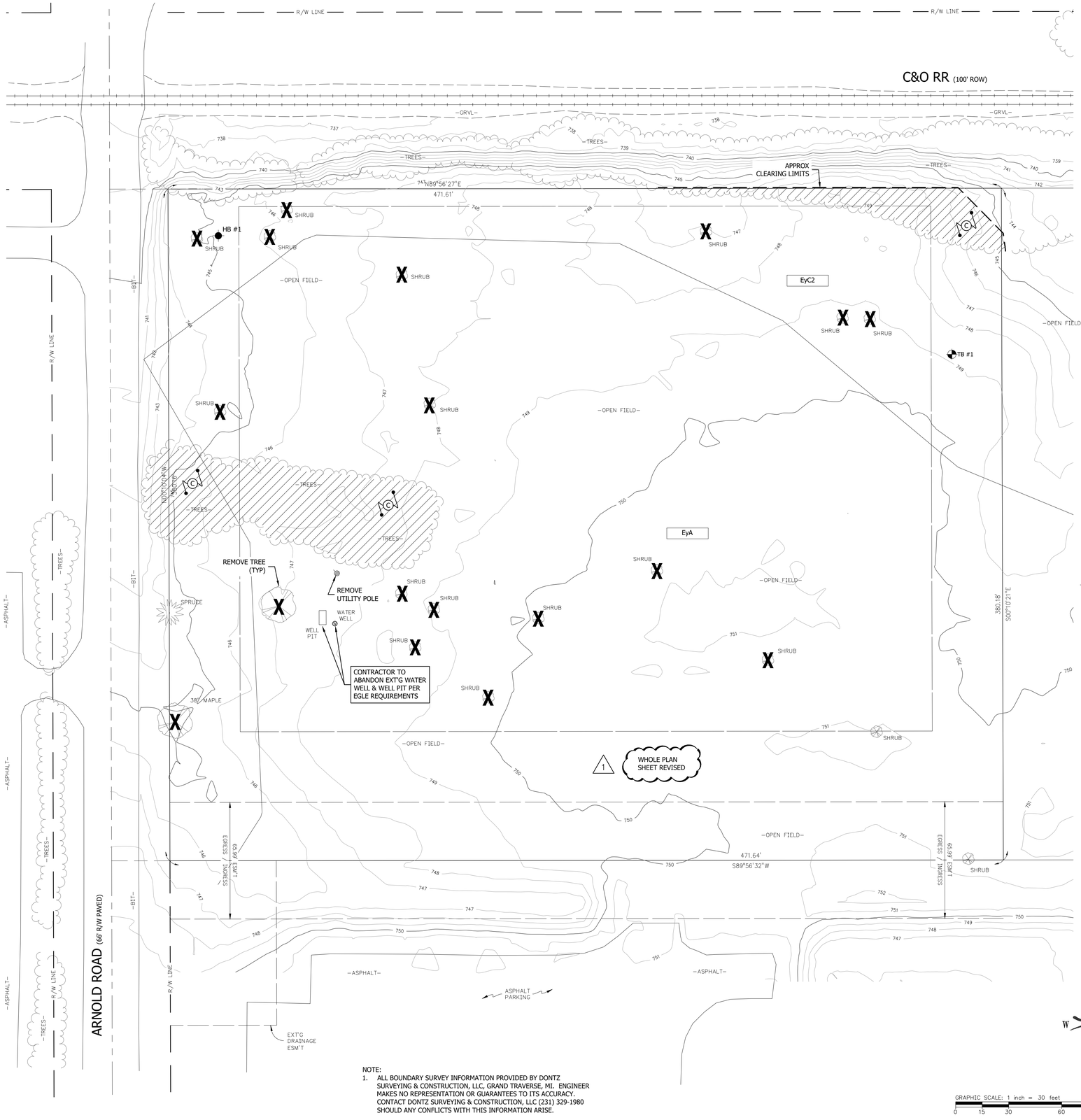
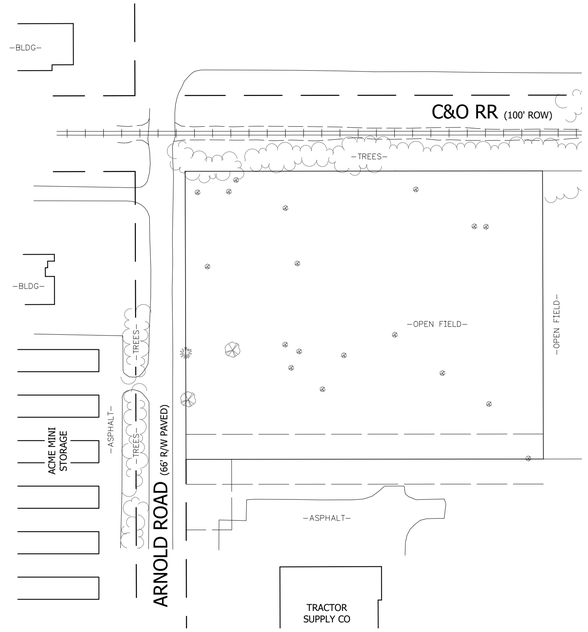
E:\MACHIN ENGINEERING DROPBOX\PROJECTS\2022\22127_S&S MICHIGAN INVESTMENTS_MI_ARNOLD RD STORAGE\DRAWINGS\22127_ENG_REVISING (10-19-22 8:19 AM) KURTDONALTZ





NEIGHBOR BUILDINGS

SCALE: 1"=100'-0"

N

LEGAL DESCRIPTION

PART OF THE SOUTHWEST ONE-QUARTER OF SECTION 32, TOWN 28 NORTH, RANGE 09 WEST, TOWNSHIP OF ACME, GRAND TRAVERSE COUNTY, MICHIGAN, MORE FULLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION; THENCE N 00° 55' 01" W, ALONG THE WEST LINE OF SAID SECTION, 583.51 FEET, TO POINT OF BEGINNING; THENCE N 89° 10' 55" E, 504.61 FEET; THENCE N 00° 55' 01" W, 380.00 FEET, TO THE SOUTHERN EDGE OF C&O RAILROAD; THENCE S 89° 10' 55" W, ALONG SAID RAILROAD BOUNDARY, 504.62 FEET, TO THE WEST LINE OF SAID SECTION; THENCE S 00° 55' 01" E, EAST, ALONG SAID WEST LINE, 380.00 FEET, TO THE POINT OF BEGINNING.

SUBJECT TO AND TOGETHER WITH A 66 FOOT WIDE EASEMENT FOR INGRESS AND EGRESS AND THE INSTALLATION AND MAINTENANCE OF UTILITIES AS RECORDED IN LIBER 1425 PAGES 429 THROUGH 431, INCLUSIVE.

ALSO SUBJECT TO AND TOGETHER WITH A 66 FOOT WIDE EASEMENT FOR INGRESS AND EGRESS AND THE INSTALLATION OF PUBLIC AND PRIVATE UTILITIES OVER PART OF THE SOUTHWEST 1/4 OF SECTION 32, TOWN 28 NORTH, RANGE 09 WEST, THE CENTERLINE OF WHICH IS MORE FULLY DESCRIBED AS COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 32; THENCE N 00° 55' 01" W, ALONG THE WEST LINE OF SAID SECTION 583.51 FEET TO POINT OF BEGINNING OF SAID EASEMENT CENTERLINE; THENCE N 89° 10' 55" E, ALONG SAID CENTERLINE, 769.17 FEET; THENCE 288.61 FEET, ALONG THE ARC OF A 210.63 FOOT RADIUS CURVE TO THE RIGHT WITH A LONG CHORD OF S 51° 33' 47" E, 266.56 FEET, TO THE POINT OF ENDING. SAID EASEMENT SIDELINES ARE TO BEGIN AT THE WEST LINE OF SAID SECTION AND TO TERMINATE AT THE WEST LINE OF A PARCEL CREATED IN LIBER 1425 PAGES 429 THROUGH 431, INCLUSIVE.

SOIL INFORMATION

INFILTRATION TEST (TB) #1 HAND BORING (749.8 +/-)

0 - 0.75' SAND, SILTY, FINE TO MED. GRAINED WITH SOME ORGANICS (TOPSOIL)

0.75' - 2' POORLY GRADED SAND; FINE TO MEDIUM GRAINED WITH OCCASIONAL GRAVEL AND ROCKS, BROWN TO TAN AND MOIST

2' - 10.5' SILTY SAND; FINE TO MEDIUM GRAINED WITH OCCASIONAL GRAVEL AND ROCKS, TAN

GROUND WATER NOT OBSERVED

HAND BORING (HB) #1 (745 +/-)

0 - 0.67' SAND, SILTY, FINE TO MED. GRAINED WITH ORGANICS (TOPSOIL)

0.67 - 3.2' SAND, SILTY

3.2' - 5.0' SAND, MED. TO COURSE, DRY.

GROUND WATER NOT OBSERVED

LEGEND

- EXISTING GRAVEL TO BE SALVAGE
- EXISTING BIT., CONC., & GRAVEL TO BE REMOVED
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- EXISTING CONTOURS
- REM — REMOVE ITEM
- REL — RELOCATE ITEM
- ADJ — ADJUST ITEM
- PRO — PROTECTION ITEM
- SALV — SALVAGE ITEM
- C — CLEARING
- X — REMOVAL

NOTE:
1. ALL BOUNDARY SURVEY INFORMATION PROVIDED BY DONTZ SURVEYING & CONSTRUCTION, LLC, GRAND TRAVERSE, MI. ENGINEER MAKES NO REPRESENTATION OR GUARANTEES TO ITS ACCURACY. CONTACT DONTZ SURVEYING & CONSTRUCTION, LLC (231) 329-1980 SHOULD ANY CONFLICTS WITH THIS INFORMATION ARISE.

MACHINENGINEERING incorporation
2301 N Garfield Road, Suite C
TRAVERSE CITY, MI PH 231.935.1530
www.machinengineering.net

STATE OF MICHIGAN
PATRICK J. MACHIN
ENGINEER
No. 6201051471
10/19/2022
LICENSED PROFESSIONAL ENGINEER

ON 22x34 SHEET SCALE: FULL (AS NOTED)
ON 11x17 SHEET SCALE: HALF

REV#	DESCRIPTION	DATE
A	REVIEW - 30% DESIGN	KA0027/127
B	REVIEW - 60% DESIGN	KA0080/027
C	REVIEW - 75% DESIGN	KA0081/027
0	ISSUED FOR CONSTRUCTION	KA0081/127
1	UPDATED PER ACME TWP ZA COMMENTS	KA0101/827

DRAWN BY:	CHECK BY:	APPROVED BY:	CREATED:
AAS	PJM	PJM	07/15/2022

REVISION	REV #1	10/18/2022
DATE ISSUED:		08/17/2022
ISSUE PHASE:		PERMIT

PROJECT TITLE:
SELF-STORAGE UNITS

CLIENT:
S&S MICHIGAN INVESTMENTS, LLC
437 LINCOLN STREET
CADILLAC, MI 49601

PROJECT LOCATION:
GRAND TRAVERSE CO, MI

SHEET TITLE:
DEMOLITION PLAN

PROJECT NUMBER 22127

SHEET NUMBER C1

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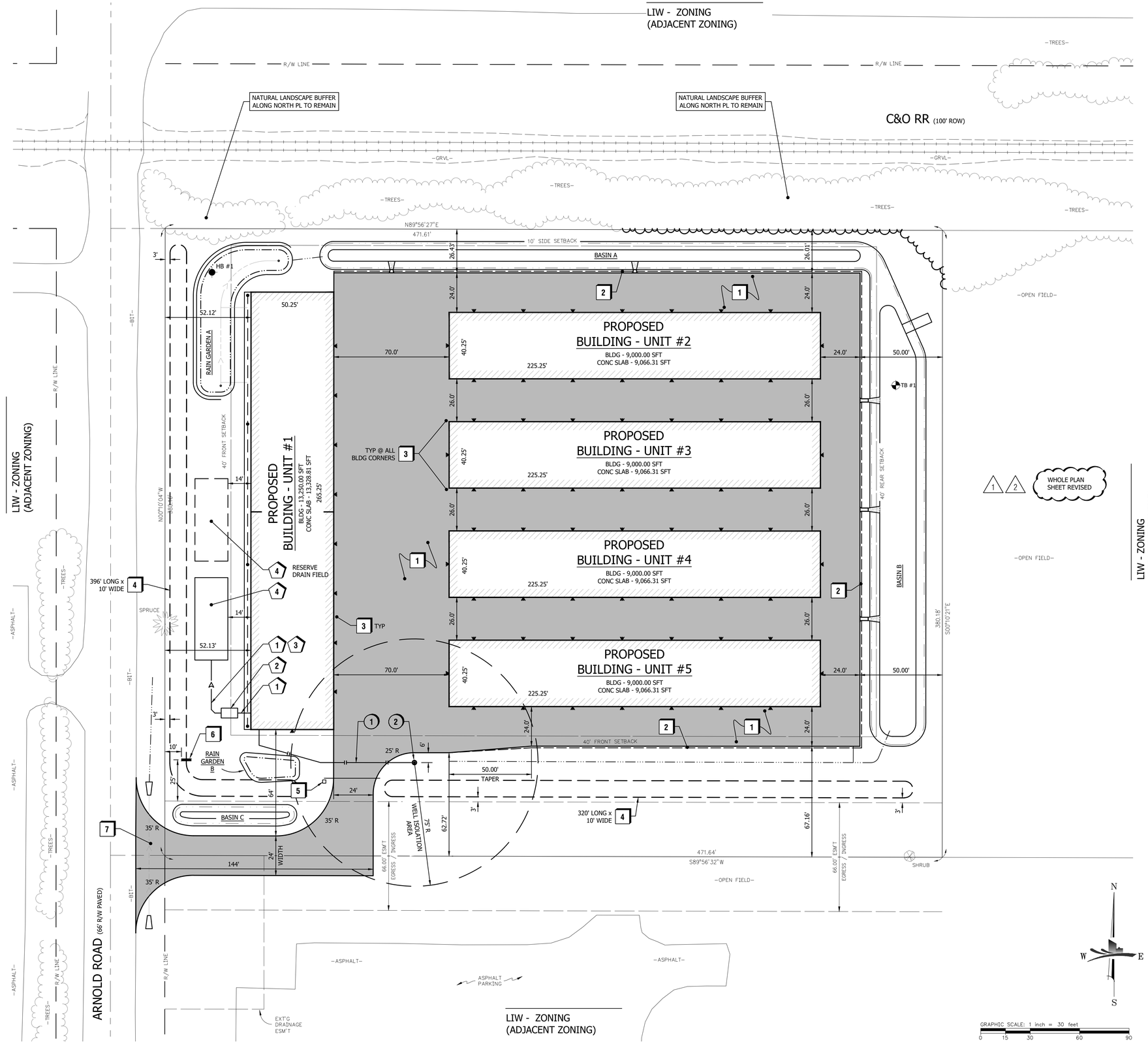

NOTES

1. DEVELOPMENT OF THIS SITE SHALL BE IN ACCORDANCE WITH STATE, COUNTY AND CITY REQUIREMENTS
2. DRIVE OPENING SHALL CONFORM TO GRAND TRAVERSE COUNTY ROAD COMMISSION REQUIREMENTS FOR COMMERCIAL DRIVE ENTRANCE.
3. SIGNAGE SHALL MEET ACME TOWNSHIP REQUIREMENTS
4. LANDSCAPING SHALL MEET ACME TOWNSHIP REQUIREMENTS.
5. LANDSCAPE BUFFER SHALL MEET ACME TOWNSHIP REQUIREMENT, SECTION 4.6 FOR 84,000 SFT OF UNDEVELOPED AREA.
6. ALL DISTURBED AREAS SHALL BE TOPSOILED, SEEDED, MULCHED, AND FERTILIZED.
7. LIGHTING IS TO MEET ACME TOWNSHIP REQUIREMENTS.
8. COORDINATE WELL AND SEPTIC SYSTEM LOCATION WITH MECH PLANS.

PROJECT INFORMATION

APPLICANT

S&S MICHIGAN INVESTMENTS, LLC
437 LINCOLN STREET
CADILLAC, MI, 49601

PROPOSED BUILDING

5 - SINGLE STORY STRUCTURE W/METAL EXTERIOR WALL

BUILDING #1 - 13,250 SFT
BUILDING #2 - 9,000 SFT
BUILDING #3 - 9,000 SFT
BUILDING #4 - 9,000 SFT
BUILDING #5 - 9,000 SFT

BUILDING HEIGHT = 22 FT (MAX)

SITE INFORMATION

SITE ADDRESS:	6140 E ARNOLD ROAD WILLIAMSBURG, MI 49690
PARCEL CURRENT ZONING:	LIW LIGHT INDUSTRIAL WAREHOUSING DISTRICT
PROPOSED USE:	SELF-STORAGE FACILITY
PROPERTY TAX ID:	01-015-005-05
SECTION, TOWN, RANGE:	SEC. 17, T29N, R6W
GROSS AREA OF PARCELS:	= 4.40 ACRES

YARD SETBACKS:

- FRONT 40'
- SIDE 10'
- REAR 40'

PARCEL CONSIDERED A CORNER PARCEL

LOT COVERAGE CALCULATIONS

PROPOSED:

PROP BUILDING (5 UNITS)	49,250 SFT
PROP PAVEMENT	61,584 SFT
	TOTAL 110,834 SFT / 2.54 AC
MAX COVERAGE FROM STRUCTURES:	25% (50% MAX PER ORDINANCE)
MAX IMPERVIOUS COVERAGE:	56% (MAX 85% PER ORDINANCE)

PARKING REQUIREMENTS

NO PARKING IS REQUIRED. ALL STORAGE IS INTERIOR TO THE UNITS.

CONSTRUCTION NOTES

1. INSTALL BITUMINOUS PAV'T SEE DETAIL '1/C5'
2. INSTALL 12" GRAVEL SHOULDER SEE DETAIL '1/C5'
3. INSTALL 6" BOLLARD POST SEE DETAIL '2/C5'
4. INSTALL LANDSCAPE BUFFER SEE LANDSCAPE SHEET
5. INSTALL SLIDING GATE W/ KEY PAD ACCESS
6. INSTALL PYLON SIGN 10' OFFSET FROM PROPERTY LINE SIGN WILL BE < 12' ABOVE GRADE AND < 40SFT IN AREA
7. INSTALL COMMERCIAL DRIVE ENTRANCE PER G.T.C.R.C.

(1) INSTALL 1" POLY DOMESTIC WTR SERVICE TO BUILDING

(2) INSTALL WATER WELL PER LOCAL HEALTH DEPT

(1) INSTALL 4" SCH40 PCV SAN SWR

(2) INSTALL SEPTIC TANK PER LOCAL HEALTH DEPT

(3) INSTALL 4" ONE-WAY SANITARY CLEAN-OUT ASSEMBLY AT BUILDING

(4) INSTALL DRAIN FIELD PER LOCAL HEALTH DEPT

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incorporation
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No. 6201051471
10/19/2022
LICENSED PROFESSIONAL ENGINEER

ON 22x34 SHEET SCALE: FULL (AS NOTED)
ON 11x17 SHEET SCALE: HALF

REV #	DESCRIPTION	DATE
A	REVIEW - 30% DESIGN	KA0021212
B	REVIEW - 60% DESIGN	KA0080927
C	REVIEW - 75% DESIGN	KA0081020
0	ISSUED FOR CONSTRUCTION	KA0081122
1	UPDATED PER REQUEST	KA0091402
2	UPDATED PER ACME TWP DA COMMENTS	KA0101823

DRAWN BY:	CHECK BY:	APPROVED BY:	CREATED:
KAS	PJM	PJM	01/15/2022

REVISION	REV #2 10/18/2022
DATE ISSUED:	08/17/2022
ISSUE PHASE:	PERMIT

PROJECT TITLE:
SELF-STORAGE UNITS

CLIENT:
S&S MICHIGAN INVESTMENTS, LLC
437 LINCOLN STREET
CADILLAC, MI 49601

PROJECT LOCATION:
GRAND TRAVERSE CO, MI

SHEET TITLE:
DIMENSIONAL SITE PLAN & UTILITY PLAN

PROJECT NUMBER 22127
SHEET NUMBER C2

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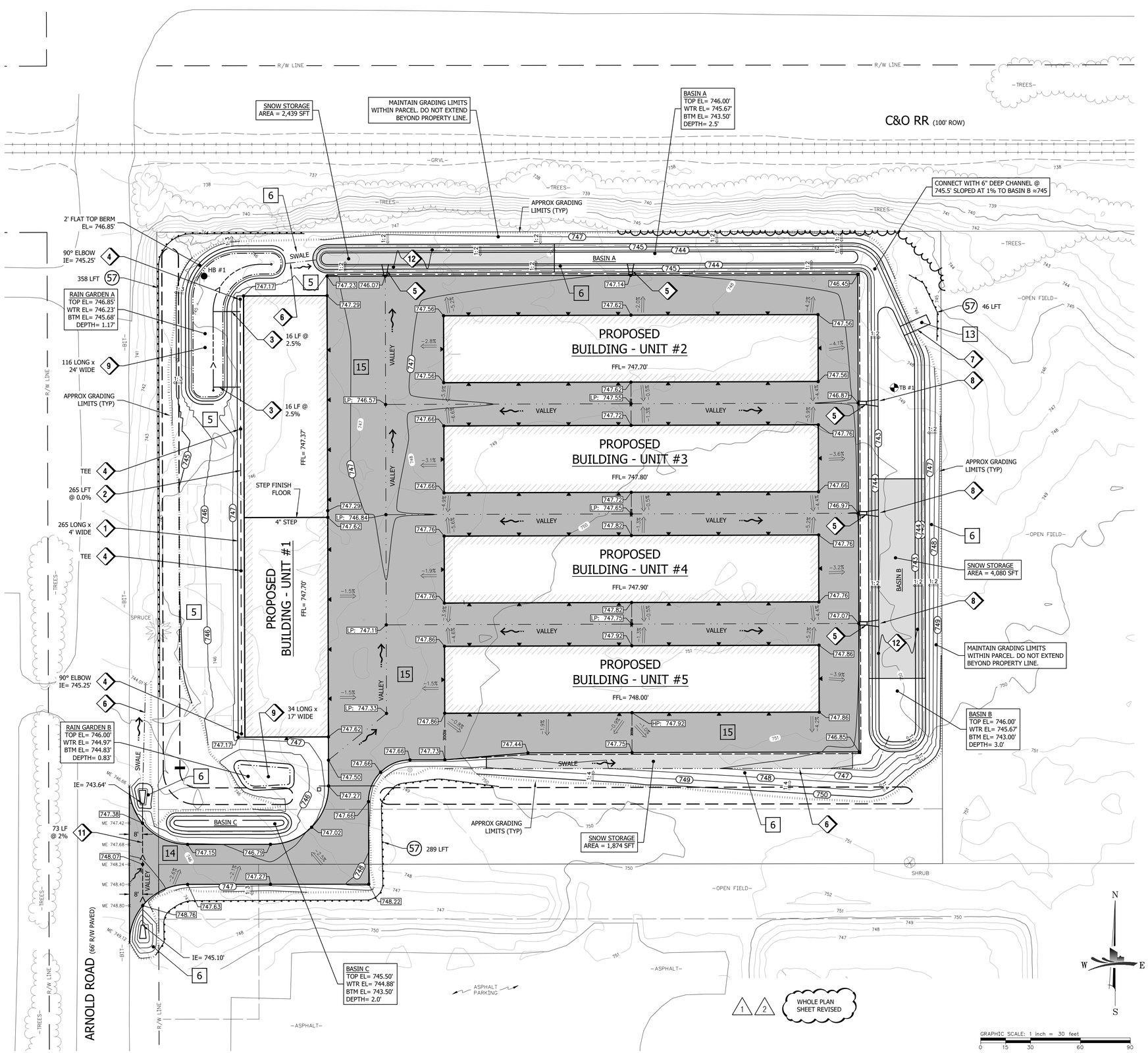

NOTES

1. VERTICAL DATUM IS NAVD88, CONTOUR INTERVAL IS 1.0 FEET.
2. LOCATION AND TYPE OF EROSION CONTROL MEASURES ARE IDENTIFIED ON THE SKETCH BY KEY NUMBERS. EG, RELATING TO THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY UNIFIED KEYING SYSTEM AND BEST MANAGEMENT PRACTICES.
3. ALL STRUCTURES SHALL BE KEPT FREE OF DEBRIS DURING CONSTRUCTION USING CATCH BASIN INLET FILTERS.
4. CONTRACTOR IS TO USE THIS KEYING SYSTEM FOR ALL RESTORATION AND STRUCTURES TO BE MAINTAINED DURING CONSTRUCTION.
6. IMMEDIATELY AFTER SEEDING, MULCH ALL SEED AREAS WITH UNWEATHERED SMALL GRAIN STRAW OR HAY. (NOT APPLICABLE IF HYDROSEEDING)
7. ALL MUD/DIRT TRACKED ONTO PAVING, OR EXISTING CITY, STATE OR COUNTY ROADS FROM THIS SITE, DUE TO CONSTRUCTION, SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.

(5) DENOTES TEMPORARY PRACTICES

[5] DENOTES PERMANENT PRACTICES

CONSTRUCTION NOTES

1. INSTALL 4' WIDE FRENCH DRAIN SEE DETAIL '4/C5'
2. INSTALL 6" PERFORATED PVC DRAIN SEE DETAIL '11/C5'
3. INSTALL 6" SCH 40 SOLID PVC DRAIN
4. INSTALL INSPECTION PORTS SEE DETAIL '11/C5'
5. INSTALL BIT SPILLWAY SEE DETAIL '3/C5'
6. INSTALL DRAINAGE CHANNEL W/ TURF REINFORCEMENT MAT SEE DETAIL '7/C5'
7. EMERGENCY OVERFLOW W/ TRM SEE DETAIL '8/C5'
8. INSTALL 0.5 CYD OF 4"-8" RIP RAP (5' x 3')
9. INSTALL RAIN GARDEN SEE DETAIL '12/C5'
10. INSTALL 6" DEEP LOW AREA IN LAWN SEE DETAIL '7/C5'
11. INSTALL 15" CMP CULVERT W/ FLARED END SECTIONS
12. APPROX SNOW STORAGE AREA

SE & SC KEYING SYSTEM

5	SEEDING	INEXPENSIVE AND VERY EFFECTIVE, STABILIZES SOIL, THUS MINIMIZING EROSION PERMITS RUNOFF TO INFILTRATE SOIL, REDUCING RUNOFF VOLUME SHOULD INCLUDE PREPARED TOPSOIL BED
6	SEEDING w/MULCH OR MATTING	FACILITATES ESTABLISHMENT OF VEGETATIVE COVER, EFFECTIVE FOR DRAINAGEWAYS w/ LOW VELOCITY, EASILY PLACED IN SMALL QUANTITES BY INEXPERIENCED PERSONNEL SHOULD INCLUDE PREPARED TOPSOIL BED
13	RIPRAP, RUBBLE, GABIONS	USED WHERE VEGETATION IS NOT EASILY ESTABLISHED, EFFECTIVE FOR HIGH VELOCITIES OR HIGH CONCENTRATIONS, PERMITS RUNOFF TO INFILTRATE SOIL DISSIPATES ENERGY FLOW AT SYSTEM OUTLETS
14	AGGREGATE COVER	STABILIZES SOIL SURFACE, THUS MINIMIZING EROSION PERMITS CONSTRUCTION TRAFFIC IN ADVERSE WEATHER MAY BE USED AS PART OF PERMANENT BASE CONSTRUCTION OF PAVED AREAS
15	PAVING	PROTECTS AREA WHICH OTHERWISE CANNOT BE PROTECTED, BUT INCREASES RUNOFF VOLUME AND VELOCITY IRREGULAR SURFACE WILL HELP SLOW VELOCITY
57	GEOTEXTILE SILT FENCE	USES GEOTEXTILE AND POSTS OR BALES MAY BE CONSTRUCTED OR PREPACKAGED EASY TO CONSTRUCT AND LOCATE AS NECESSARY
58		USE AT STORMWATER INLETS ESPECIALLY AT CONSTRUCTION SITES

LEGEND

- PROPOSED ASPHALT
- PROPOSED CONCRETE
- EXISTING CONTOURS
- (100) PROPOSED CONTOUR
- PROPOSED VALLEY
- RIDGE PROPOSED RIDGE
- Granding Limits
- DIRECTION OF DRAINAGE
- PROPOSED SLOPE X.X%
- 40XX.XX SPOT GRADE
- ME MATCH EXISTING

MACHINENGINEERING incorporation
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10/19/2022
LICENSED PROFESSIONAL ENGINEER

ON 22x34 SHEET SCALE: FULL (AS NOTED)
ON 11x17 SHEET SCALE: HALF

REV#	DESCRIPTION	DATE
A	REVIEW - 30% DESIGN	KA0071237
B	REVIEW - 60% DESIGN	KA0080620
C	REVIEW - 75% DESIGN	KA0081027
0	ISSUED FOR CONSTRUCTION	KA0081727
1	UPDATED PER REQUEST	KA0091421
2	UPDATED PER ACME TWP ZA COMMENTS	KA0101827

DRAWN BY:	CHECK BY:	APPROVED BY:	CREATED:
KAS	PJM	PJM	07/15/2022

REVISION	REV #2
DATE ISSUED:	10/18/2022
ISSUE PHASE:	08/17/2022
	PERMIT

PROJECT TITLE:
SELF-STORAGE UNITS
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.
.

CLIENT:
S&S MICHIGAN INVESTMENTS, LLC
437 LINCOLN STREET
CADILLAC, MI 49601

PROJECT LOCATION:
GRAND TRAVERSE CO, MI

SHEET TITLE:
GRADING, SOIL EROSION & STORMWATER CONTROL PLAN

PROJECT NUMBER 22127

SHEET NUMBER C3

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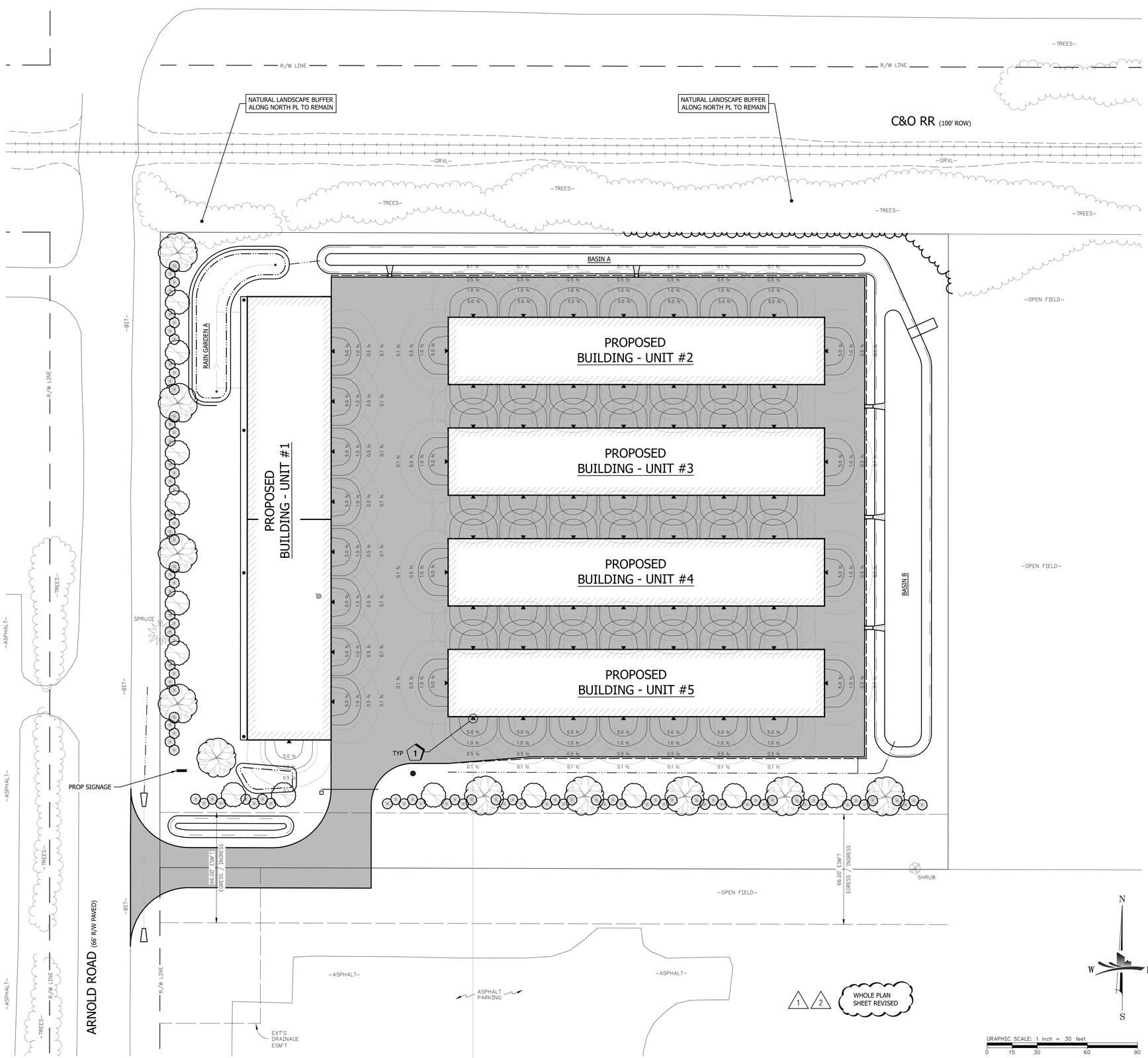

NOTES

1. 4,000 K OR WARMER COLOR TEMP
2. MAX BRIGHTNESS OF 800 LUMENS
3. LIGHTING TO BE OPERALE AT NIGHT FOR SECURITY AND LIMITED TO AREAS OF INGRESS AND EGRESS
4. LIGHTING IS TO MEET ACME TOWNSHIP REQUIREMENTS, SECTION 6.5.5, OF THE TOWNSHIP ZONING ORDINANCE

CONSTRUCTION NOTES

1 INSTALL "WST-LED" WALL MOUNT LIGHT

LEGEND

PROPOSED LIGHT PHOTOMETRIC CONTOURS

MACHINENGINEERING incorporation
2301 N Garfield Road, Suite C
TRAVERSE CITY, MI PH 231.935.1530
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ENGINEER
No. 6201051471
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ON 22x34 SHEET SCALE: FULL (AS NOTED)
ON 11x17 SHEET SCALE: HALF

REV #	DESCRIPTION	DATE
A	REVIEW - 30% DESIGN	KAS07/12/22
B	REVIEW - 60% DESIGN	KAS08/05/22
C	REVIEW - 75% DESIGN	KAS08/10/22
0	ISSUED FOR CONSTRUCTION	KAS08/17/22
1	UPDATED PER REQUEST	KAS09/14/22
2	UPDATED PER ACME TWP ZA COMMENTS	KAS10/18/22

DRAWN BY:	CHECK BY:	APPROVED BY:	CREATED:
KAS	PJM	PJM	01/15/2022

REVISION REV #2 10/18/2022
DATE ISSUED: 08/17/2022
ISSUE PHASE: PERMIT

PROJECT TITLE:
SELF-STORAGE UNITS

CLIENT:
S&S MICHIGAN INVESTMENTS, LLC
437 LINCOLN STREET
CADILLAC, MI 49601

PROJECT LOCATION:
GRAND TRAVERSE CO, MI

SHEET TITLE:
PHOTOMETETRIC LAYOUT

PROJECT NUMBER 22127
SHEET NUMBER C4

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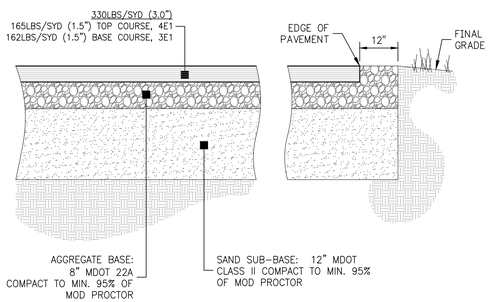
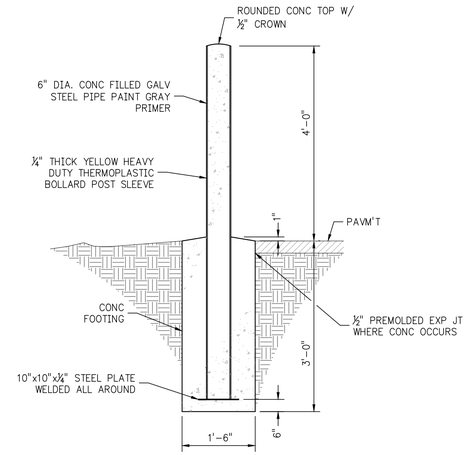
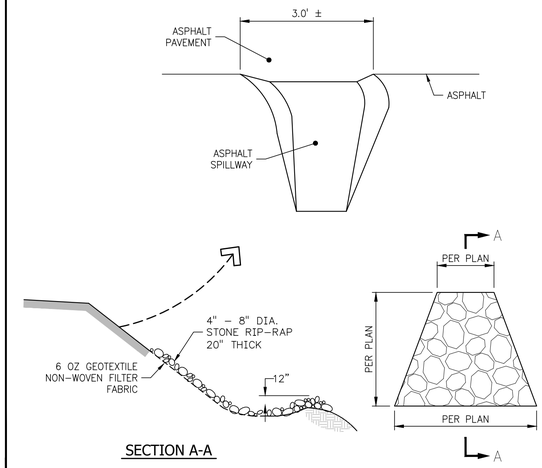


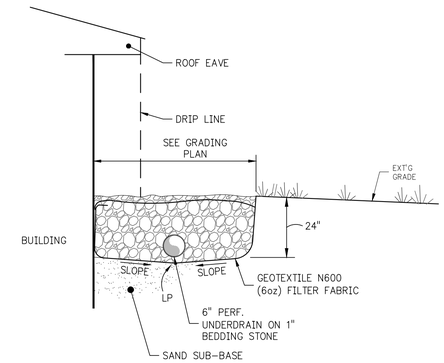
BITUMINOUS PAVEMENT DETAIL N.T.S. 1



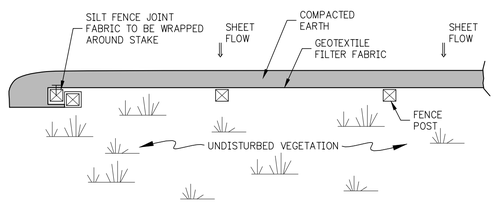
BOLLARD GUARD POST N.T.S. 2



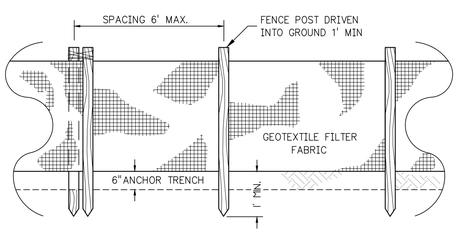
ASPHALT SPILLWAY & STONE RIP-RAP APRON DETAIL N.T.S. 3



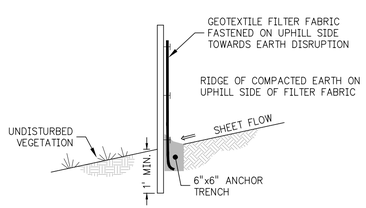
FRENCH DRAIN DETAIL N.T.S. 4



PLAN VIEW

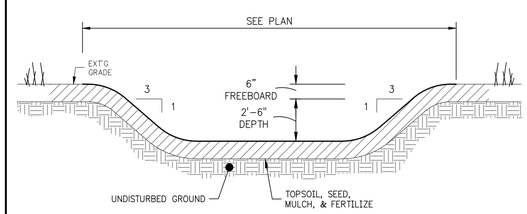


FRONT ELEVATION

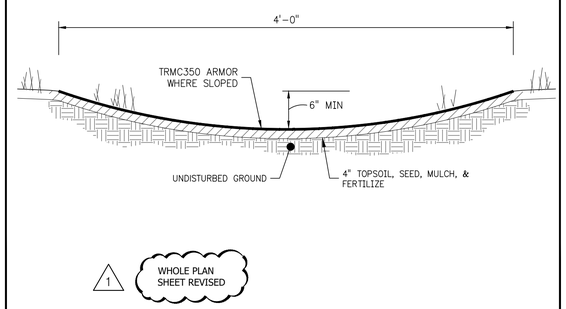


SECTION VIEW

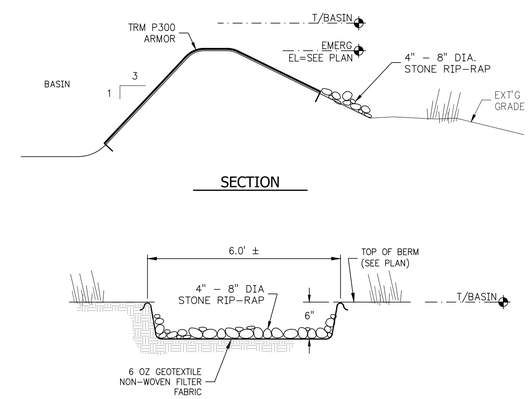
SILT FENCE N.T.S. 9



BASIN DETAIL N.T.S. 6



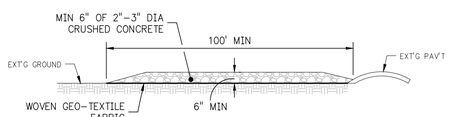
TURF REINF. CHANNEL DETAIL N.T.S. 7



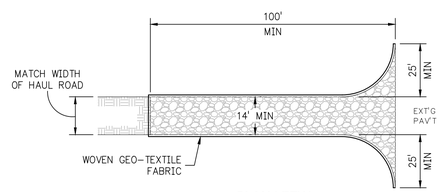
ARMORED EMERGENCY OVERFLOW DETAIL N.T.S. 8

GENERAL NOTE:
1. SIDE SLOPE NO STEEPER THAN 3H:1V
2. PLACE AND COMPACT AGGREGATE IN UNIFORM LAYERS OF NOT MORE THAN 6", NOR LESS THAN 3"

MAINTENANCE
1. ROUTINELY INSPECT (DAILY, DURING USE)
2. CLEAN, REPLENISH OR REPLACE
3. CHECK DRIVEWAY CULVERT SOIL EROSION MEASURES, CLEAN IF NECESSARY

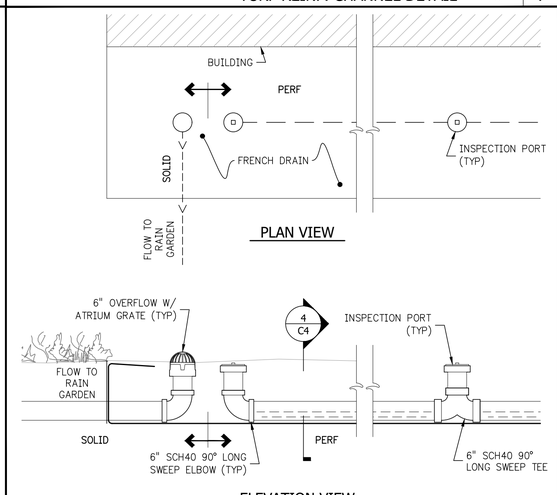


PROFILE

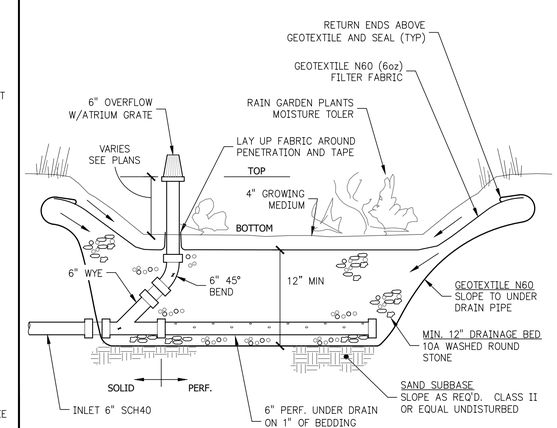


PLAN VIEW

TEMPORARY ACCESS ROAD DETAIL N.T.S. 10



FRENCH DRAIN DRAINAGE SYSTEM N.T.S. 11



RAIN GARDEN DETAIL N.T.S. 12

MACHINENGINEERING
incorporation
2301 N Garfield Road, Suite C
TRAVERSE CITY, MI PH 231.935.1530
www.machinengineering.net

STATE OF MICHIGAN
PATRICK J. MACHIN
ENGINEER
No. 6201051471
10/19/2022
LICENSED PROFESSIONAL ENGINEER

ON 22x34 SHEET SCALE: FULL (AS NOTED)
ON 11x17 SHEET SCALE: HALF

REV#	DESCRIPTION	DATE
A	REVIEW - 30% DESIGN	KAS07/21/22
B	REVIEW - 60% DESIGN	KAS08/08/22
C	REVIEW - 75% DESIGN	KAS08/10/22
D	ISSUED FOR CONSTRUCTION	KAS08/17/22
1	UPDATED PER REQUEST	KAS09/14/22

DRAWN BY:	CHECK BY:	APPROVED BY:	CREATED:
KAS	PJM	PJM	07/15/2022

REVISION	REV #1 09/14/2022
DATE ISSUED:	08/17/2022
ISSUE PHASE:	PERMIT

PROJECT TITLE:
SELF-STORAGE UNITS

CLIENT:
S&S MICHIGAN INVESTMENTS, LLC
437 LINCOLN STREET
CADILLAC, MI 49601

PROJECT LOCATION:
GRAND TRAVERSE CO, MI

SHEET TITLE:
CONSTRUCTION DETAILS

PROJECT NUMBER 22127

SHEET NUMBER C5

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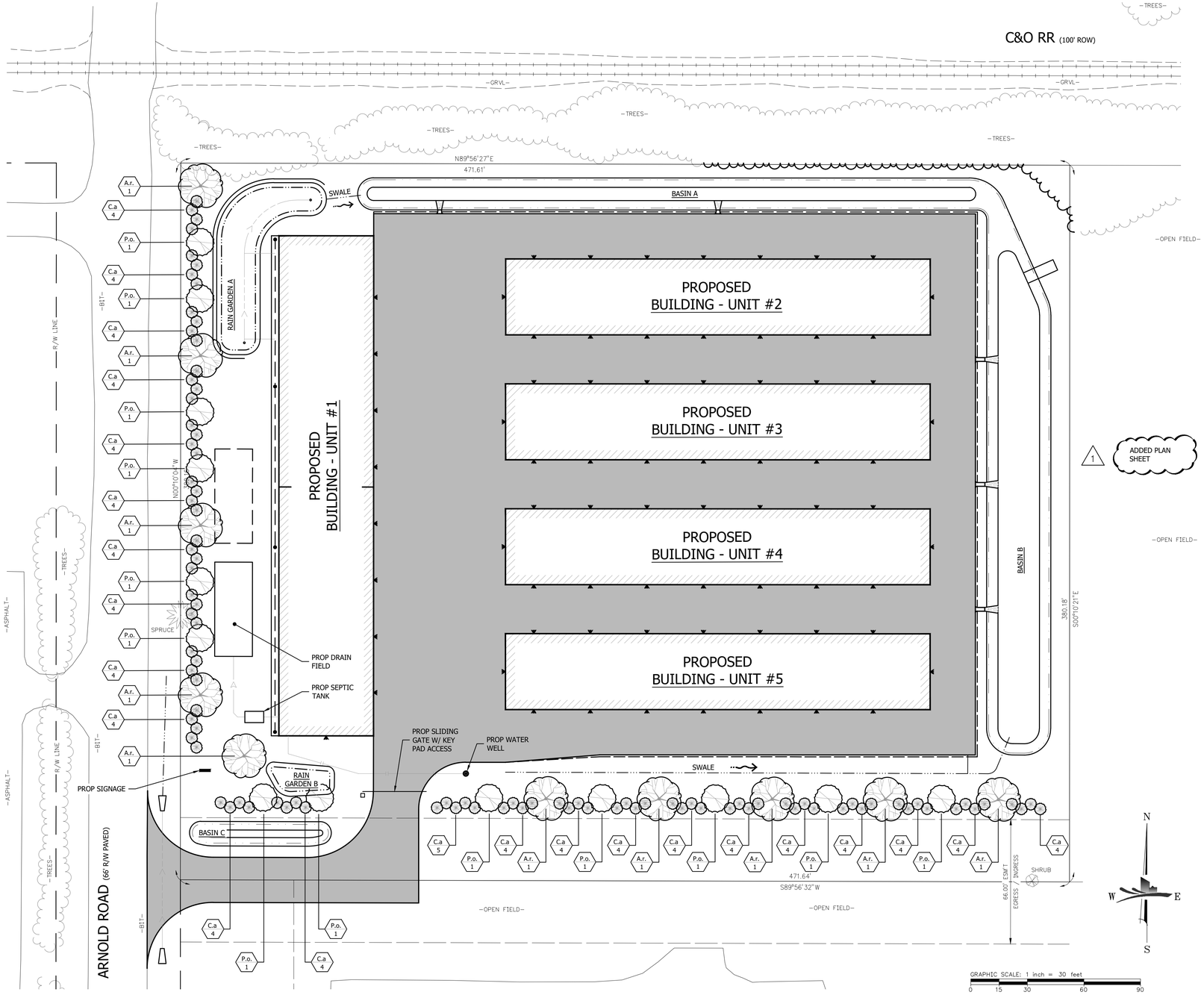
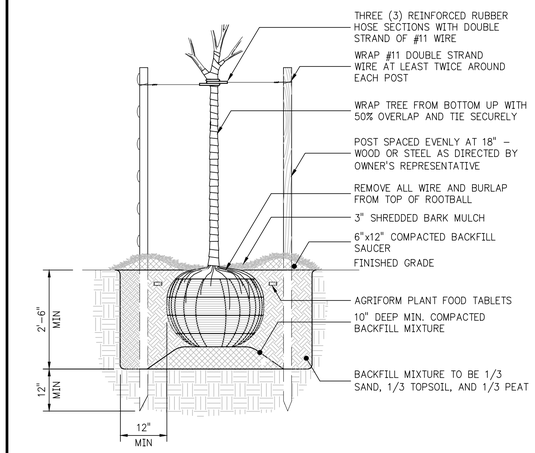
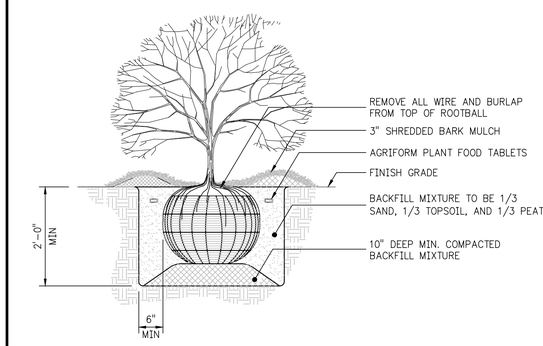
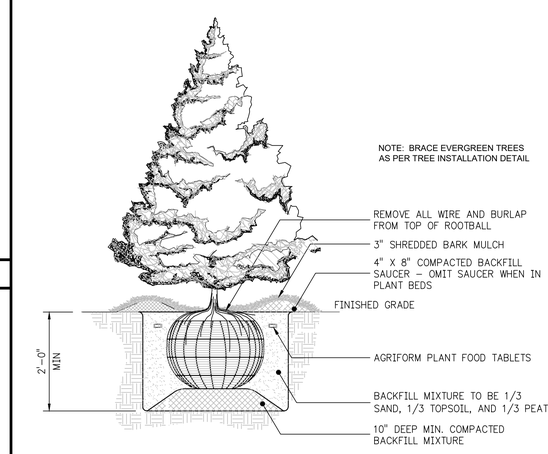




TREE INSTALLATION N.T.S. 1



SHRUB INSTALLATION N.T.S. 2



EVERGREEN INSTALLATION N.T.S. 3

NOTES

1. ALL SHRUB BEDS SHALL RECEIVE 4" OF EVENLY SPREAD 4A (2") STONE MULCH.
2. ALL NEW PLANTING BEDS SHALL BE PROVIDED WITH A 4" DEEP SPADE CUT EDGE AND "TYPAR" BRAND LANDSCAPE FABRIC / WEED BARRIER.
3. CONTRACTOR SHALL PROVIDE SPECIFIED SHRUBS, GROUNDCOVERS AND OTHER PLANT MATERIALS THAT COMPLY WITH ALL RECOMMENDATIONS AND REQUIREMENTS OF ANSI 280.1 "AMERICAN STANDARD FOR NURSERY STOCK". PLANT MATERIAL SHALL BE HEALTHY, VIGOROUS STOCK, GROWN WITH GOOD HORTICULTURAL PRACTICE AND INSTALLED IN ACCORDANCE WITH METHODS ESTABLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. SEED SHALL BE PLACED OVER 4" TOPSOIL IN ALL PROPOSED LAWN AREAS AND ALL AREAS DISTURBED BY CONSTRUCTION. SEED MIXES SHALL BE AS FOLLOWS:

   10% TALL FESCUE
   20% PERENNIAL RYE GRASS
   30% CREEPING RED FESCUE
   40% KENTUCKY BLUEGRASS
   AT 6 LBS. PER 1000 SFT

5. ALL PLANTINGS AND LANDSCAPE IMPROVEMENTS SHALL BE CONSISTENT WITH CURRENT ZONING REQUIREMENTS FOR THE TOWNSHIP.
6. ALL PLANTINGS AND LANDSCAPE IMPROVEMENTS ARE SHOWN AT APPROX 2/3's MATURE SIZE.
7. ALL PLANT SUBSTITUTIONS AND LAYOUT CHANGES TO BE COORDINATED AND APPROVED BY THE OWNER.
8. UNDERGROUND SPRINKLING DESIGN & LAYOUT BY OTHERS.
9. LANDSCAPE BUFFER SHALL MEET ACME TOWNSHIP REQUIREMENT, SECTION 4.6 FOR 84,000 SFT OF UNDEVELOPED AREA.
10. LOT LANDSCAPING PER 6.4.6 24,000 SFT OF UNDEVELOPED EXISTS. 6 TREES PROVIDED. TREE SPECIES IS RED MAPLE, YELLOW MAPLE, AND BLUE SPRUCE MIXED IN. SHRUBS ARE SILKY DOGWOOD AND CHOKECHERRY

PLANT MATERIAL LIST

KEY	BOTANICAL NAME / COMMON NAME	MIN. REQ'D SIZE	QTY	COMMENTS
	DECIDUOUS TREE			
A.r.	*Acer rubrum* Red Maple	3" Cal.	10	FULL & EVENLY BRANCHED HEADS
	EVERGREEN TREE			
P.o.	*Picea Omorika* Serbian Spruce	6'-8' HT MIN	14	
	DECIDUOUS SHRUBS			
C.a.	*Cornus amomum* Dogwood Silky	min 24" height above grade	95	

MACHINENGINEERING incorporation
2301 N Garfield Road, Suite C
TRAVERSE CITY, MI PH 231.935.1530
www.machinengineering.net

STATE OF MICHIGAN — PATRICK J. MACHIN — ENGINEER No. 6201051471 — 10/19/2022 — LICENSED PROFESSIONAL ENGINEER

ON 22x34 SHEET SCALE: FULL (AS NOTED)
ON 11x17 SHEET SCALE: HALF

REV#	DESCRIPTION	DATE
A	REVIEW - 30% DESIGN	KA0021122
B	REVIEW - 60% DESIGN	KA0080602
C	REVIEW - 75% DESIGN	KA0081022
0	ISSUED FOR CONSTRUCTION	KA0081122
1	UPDATED PER REQUEST	KA0091422
2	UPDATED PER ACME TWP ZA COMMENTS	KA0101822

DRAWN BY:	CHECK BY:	APPROVED BY:	CREATED:
EAS	PJM	PJM	07/15/2022

REVISION REV #2 10/18/2022
DATE ISSUED: 08/17/2022
ISSUE PHASE: PERMIT

PROJECT TITLE:
SELF-STORAGE UNITS

CLIENT:
S&S MICHIGAN INVESTMENTS, LLC
437 LINCOLN STREET
CADILLAC, MI 49601

PROJECT LOCATION:
GRAND TRAVERSE CO, MI

SHEET TITLE:
LANDSCAPING PLAN

PROJECT NUMBER 22127
SHEET NUMBER L1

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STRUCTURAL NOTES

BUILDER / CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT PLANS AND SPECIFICATIONS COMPLY WITH APPLICABLE REQUIREMENTS OF ANY GOVERNING BUILDING AUTHORITY.

METAL BUILDING STRUCTURE DESIGNED PER THE FOLLOWING LOADING:

- CODE: IBC 15
- WIND (MPH): 115
- EXPOSURE: C
- ROOF SNOW LOAD (PSF) 50.4
- GROUND SNOW LOAD (PSF): 60
- COLLATERAL LOAD (PSF) 0.5
- SEISMIC: 0.050
- SEISMIC ZONE: A
- THERMAL COEFFICIENT: 1.20

DESIGN LOADS DESIGNATED WITHIN CONTRACT AND DRAWINGS DO NOT ALLOW FOR ANY TYPE OF SUSPENDED SYSTEM (E.G. LIGHTS, INSULATION, DUCT WORK, PIPING, ETC.). SUSPENSION OF ANY LOAD INDUCING SYSTEM IS EXPLICITLY PROHIBITED UNLESS A CORRESPONDING REDUCTION IN CERTIFIED LIVE/SNOW LOADS CAN BE PERMITTED BY CODE.

DESIGN AND SPECIFICATION OF BASE STEEL TO CONCRETE SLAB ANCHORING IS NOT THE RESPONSIBILITY OF THE BUILDING MANUFACTURER.

BUILDING MANUFACTURER ASSUMES NO RESPONSIBILITY FOR CONCRETE SLAB FOUNDATION DESIGN, THICKNESS, MATERIALS, SITE SOIL CONDITIONS OR OTHER CONCRETE/MASONRY CONSTRUCTION.

ALL STRUCTURAL CONNECTIONS ARE TO BE MADE PER FASTENING DETAILS PRESENTED HEREIN. ALL STEEL FRAMING AND SHEETING MATERIALS MUST BE INSTALLED TO VERTICAL PLUMB AND HORIZONTALLY LEVEL.

THE BUILDING MANUFACTURER AND THE PROFESSIONAL ENGINEER SEALING THESE DRAWINGS ARE NOT THE PROFESSIONAL ENGINEER OF RECORD FOR THE ENTIRE PROJECT. THE PROFESSIONAL ENGINEER'S SEAL PERTAINS ONLY TO THE STRUCTURAL DESIGN OF THE METAL BUILDING SYSTEM. IT DOES NOT APPLY TO THE FOUNDATION SYSTEM, MASONRY DESIGN OR ANY OTHER ASPECT OF THE PROJECT UNLESS SPECIFICALLY STATED IN THESE DOCUMENTS.

JOBSITE / FIELD CONDITIONS NOTES:

BUILDING MANUFACTURER ASSUMES NO RESPONSIBILITY FOR ANY LOADS TO STRUCTURE NOT INDICATED AT THE TIME OF PURCHASE. ANY ALTERATIONS TO THE STRUCTURAL SYSTEM, REMOVAL OF ANY COMPONENT PARTS OR THE ADDITION OF OTHER CONSTRUCTION MATERIALS OR LOADS MUST BE DONE UNDER THE DIRECTION OF REGISTERED ARCHITECT, CIVIL OR STRUCTURAL ENGINEER.

ALL CONCRETE AND MASONRY CONSTRUCTION MUST BE FLAT, LEVEL AND SQUARE PER THE SLAB PLAN DIMENSIONS HEREIN.

ALL JOBSITE DIMENSIONS AND CONDITIONS SHALL BE FIELD VERIFIED BEFORE ERECTION OF BUILDING STRUCTURE.

ALL OMISSIONS, CONFLICTS AND DISCREPANCIES SHALL BE REPORTED TO THE BUILDING MANUFACTURER BEFORE PROCEEDING WITH PROJECT WORK.

ALL TEMPORARY SUPPORTS SUCH AS GUYS, BRACES, FALSEWORK, CRIBBING, WINDBRACES OR OTHER ELEMENTS REQUIRED FOR THE BUILDING ERECTION ARE TO BE DETERMINED BY AND SUPPLIED BY BUILDER/CONTRACTOR.

BUILDING MANUFACTURER HAS MADE A COMMITMENT TO MANUFACTURE QUALITY BUILDING COMPONENTS THAT CAN BE SAFELY ERECTED. JOB SITE SAFETY INSTRUCTION, SAFETY EQUIPMENT AND CONDITIONS ARE THE RESPONSIBILITY OF THE BUILDER/CONTRACTOR.

ALL COMPONENTS SHIPPED SHALL BE THOROUGHLY INSPECTED AND ACCOUNTED FOR AT THE TIME OF DELIVERY. ALL MATERIAL SHORTAGES OR DEFECTS MUST BE REPORTED WITHIN FIVE (5) WORKING DAYS OF MATERIAL DELIVERY TO THE BUILDING MANUFACTURER.

DIAPHRAGM ACTION OF THE METAL PANELS AT INTERIOR PARTITION WALLS IS UTILIZED FOR THE STABILITY OF THIS BUILDING. ANY MODIFICATION OR UNAUTHORIZED CUTTING OF INTERIOR PARTITION PANELS IS EXPRESSLY PROHIBITED BY THE BUILDING MANUFACTURER.

PARTITION PANELS HAVE BEEN SUPPLIED TO REACH ROOF LINE. THE TOP PARTITION PANEL CAN BE NOTCHED TO MATCH ROOF LINE AND CLEAR PURLIN LEG TO CLOSE IN THE UNIT AS DESIRED.

INSTALLATION NOTES:

FIELD CUTTING OF STRUCTURAL, SHEETING AND TRIMS FOR SPLICE AND FINAL FITTING OF COMPONENTS IS REQUIRED.

ALL ROOF PANEL LAPS SHALL BE SEALED WITH 3/8" (MINIMUM) WIDTH MASTIC TAPE AS PROVIDED FOR PROJECT. ALL SHEET PROFILE FOAM CLOSURES AT EAVE, WALL AND RIDGE CONDITIONS AS PROVIDED FOR PROJECT MUST BE INSTALLED AS SHOWN HEREIN.

WALL PANELS AND WALL TRIMS, AT INTERIOR AND EXTERIOR, ARE TO BE SET WITH 1/4" CLEARANCE ABOVE CONCRETE SURFACES AND AT ANY LOCATIONS WHICH MAY BE SUBJECTED TO CONTACT WITH STANDING WATER.

LAP ALL FLASHINGS 2" MINIMUM AND SEAL AS REQUIRED FOR WATER TIGHTNESS.

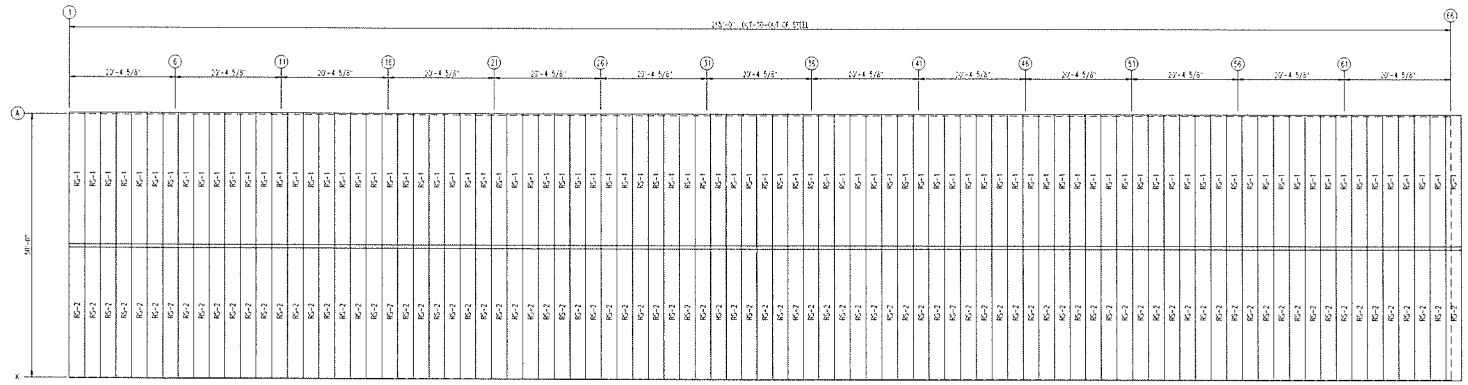
ALLOW 1/4" TOLERANCE AT EACH END FOR PURLINS, HEADERS AND GIRTS.

DRAWING INDEX

A1	LEAD SHEET, GENERAL NOTES, SCHEDULES, ROOF PLAN
A2	ELEVATIONS
A3	ELEVATIONS
A4	ELEVATIONS
A5	SLAB LAYOUT
A6	STUD LAYOUT
A7	UNIT LAYOUT
A8	REACTIONS

STANDARD ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	FBO	FURNISHED BY OTHERS	OC	ON CENTER
APPROX	APPROXIMATE	FDN	FOUNDATION	OD	OUTSIDE DIAMETER
BLDG	BUILDING	FF	FINISHED FLOOR	OH	OPPOSITE HAND
BLK	BLOCK	FOB	FACE OF BLOCK OR BRICK	OPP	OPPOSITE
BM	BEAM	FOS	FACE OF STEEL	PTN	PARTITION
BOT	BOTTOM	FT	FOOT OR FEET	RAD	RADIUS
BLKG	BLOCKING	FTG	FOOTING	REF	REFERENCE
C/L	CENTERLINE	GA	GAUGE	REQD	REQUIRED
CJ	CAULK JOINT	GALV	GALVANIZED	REINF	REINFORCED
CLG	CEILING	GC	GENERAL CONTRACTOR	RO	ROUGH OPENING
COL	COLUMN	GRND	GROUND	SECT	SECTION
CONC	CONCRETE	GR	GRADE	SF	SQUARE FOOTAGE
CTR	CENTER	GWB	GYPSUM WALL BOARD	SIM	SIMILAR
DBL	DOUBLE	HORIZ	HORIZONTAL	SQ	SQUARE
DET	DETAIL	HT	HEIGHT	STD	STANDARD
DIA	DIAMETER	ID	INSIDE DIAMETER	STL	STEEL
DWG	DRAWING	INSUL	INSULATION	TOB	TOP OF BEAM
DIM	DIMENSION	INT	INTERIOR	TOC	TOP OF CONCRETE
DR	DOOR	INFO	INFORMATION	TOS	TOP OF STEEL
EA	EACH	JT	JOINT	TOW	TOP OF WALL
ET	ERECTION TOLERANCE	MAX	MAXIMUM	TS	TUBE STEEL
EJ	EXPANSION JOINT	MIN	MINIMUM	TYP	TYPICAL
EL	ELEVATION	MISC	MISCELLANEOUS	UNO	UNLESS NOTED OTHERWISE
EXIST	EXISTING	MTL	METAL	VAR	VARIES
EXP	EXPANSION	NIC	NOT IN CONTRACT	VERT	VERTICAL
EXT	EXTERIOR	NTS	NOT TO SCALE	VIF	VERIFY IN FIELD
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM	NA	NOT APPLICABLE	WO	WITHOUT
		NO	NUMBER	WT	WEIGHT
EOS	EDGE OF SLAB	OA	OVERALL		



ROOF SHEETING & TRIM

PANELS 26 Ga PL - Galvalume Plus

CLOSURE NOTE:

(__) INSIDE CLOSURES INCLUDED FOR LOW EAVE. INSTALL BTR TAPE ON TOP AND BOTTOM OF INSIDE CLOSURE (SEE DETAILS AND INSTALLATION GUIDE)

(__) INSIDE CLOSURES INCLUDED FOR BASE OF EXTERIOR WALL PANELS.

(__) OUTSIDE CLOSURES INCLUDED FOR RAKE.

(__) OUTSIDE CLOSURES INCLUDED FOR ROOF AND WALL OF HIGH EAVE.

KEY PLAN

not to scale

ERECTOR NOTE:
A DETAILED INSTALLATION GUIDE IS AVAILABLE AND SHOULD BE CONSULTED DURING THE ERECTION OF THIS BUILDING PACKAGE. PLEASE CONTACT US IF YOU HAVE NOT RECEIVED A COPY OF THE INSTALLATION GUIDE AND ONE WILL BE PROVIDED TO YOU.

STRUCTURE ABBREVIATIONS

(BA)	B4216R 4 X 2 X 16GA ANGLE (5.9)	FLOOR BASE ANGLE
(BC)	U425162 4 1/8 X 2 7/8 X 16GA CHANNEL (9.9)	FLOOR BASE CHANNEL
(C4)	C4216R 4 X 2 X 16GA CEE (8.9)	4" COLUMN
(C6)	C62516R 6 X 2 1/2 X 16GA CEE (11.9)	6" COLUMN
(DH)	C4216R 4 X 2 X 16GA CEE (8.9)	DOOR HEAD
(DJ)	C43516R 4 X 3 1/2 X 16GA CEE (11.9)	DOOR JAMB
(EC)	U4216R 4 1/8 X 2 3/8 X 16GA CHANNEL (8.9)	EAVE CHANNEL
(ES)	E64316LR 4 X 6 X 3 X 16GA STRUT (13.9)	EAVE STRUT
(FC)	AS MANUFACTURED	FLOOR CLIP
(G)	C4216R 4 X 2 X 16GA CEE (8.9)	GIRT
(HA)	B4216R 4 X 2 X 16GA ANGLE (5.9)	HALL TOP ANGLE
(HR)	C4216R 4 X 2 X 16GA CEE (8.9)	DOOR HEAD REINFORCEMENT
(JR)	C62516R 6 X 2 1/2 X 16GA CEE (11.9)	JACK RAFTER
(M)	C12416R 12 X 4 X 16GA CEE (20.9)	MULLION
(MC)	B4216R 4 X 2 X 2" LONG 16GA ANGLE (5.9)	MINI CLIP
(P4)	Z42516R 2 1/2 X 4 X 2 1/2 X 16GA ZEE (9.9)	ROOF PURLIN
(P6)	Z62516R 2 1/2 X 6 X 2 1/2 X 16GA ZEE (11.9)	ROOF PURLIN
(P8)	Z82516R 2 1/2 X 8 X 2 1/2 X 16GA ZEE (13.9)	ROOF PURLIN
(PA)	B4216R 4 X 2 X 16GA ANGLE (5.9)	PARTITION ANGLE
(RA)	B4216R 4 X 2 X 16GA ANGLE (5.9)	RAKE ANGLE
(RS)	E64316LR 4 X 6 X 3 X 16GA STRUT (13.9)	RIDGE STRUT

SHEETING ABBREVIATIONS

(ML)	29GA M-LOC WALL PANEL
(RL)	29GA R-LOC WALL PANEL
(PL)	29GA PANEL-LOC WALL PANEL
(RR)	26GA PBR ROOF PANEL
(RW)	26GA PBR WALL PANEL
(CL)	24GA CENTRAL-LOC SSR 24" ROOF PANEL
(CL-200)	SSR LOW FIXED CLIP

FASTENER ABBREVIATIONS

(F1)	1/2" X 2 3/4" CONC. EXPANSION ANCHOR	BASE TO SLAB CONNECTIONS
(F2)	12 X 1 SELF-DRILLING TEK (PLTD)	STRUCTURAL STEEL CONNECTIONS
(F3)	12 X 1 SELF-DRILLING TEK (PLTD)	PARTITION SHEETING
(F4)	12 X 2 SELF-DRILLING TEK (PLTD)	PARTITION ANGLE CONNECTIONS
(F5)	12 X 1 1/4 WASHER TEK (PTD)	EXTERIOR WALL SHEETING
(F6)	12 X 1 1/4 WASHER ZAC (PTD)(PLTD)	ROOF SHEETING
(F7)	12 X 1 1/4 WASHER TEK (PTD)	EXTERIOR TRIM DRILLER
(F8)	12 X 7/8 WASHER TEK (PTD)	EXTERIOR WALL PANEL LAP
(F9)	12 X 7/8 WASHER ZAC (PTD)(PLTD)	ROOF PANEL LAP
(F10)	12 X 7/8 WASHER TEK (PTD)	EXTERIOR TRIM LAP
(F11)	1/8 POP RIVET	EXTERIOR TRIM
(F12)	12 X 1 1/4 WASHER TEK (PTD)	INTERIOR WALL SHEETING
(F13)	12 X 1 1/4 WASHER TEK (PTD)	INTERIOR TRIM DRILLER
(F14)	12 X 7/8 WASHER TEK (PTD)	INTERIOR WALL PANEL LAP
(F15)	12 X 7/8 WASHER TEK (PTD)(PLTD)	INTERIOR TRIM LAP
(F17)	1/4"-14 X 1" SDS W/ WASHER #1(PLTD)	"CL" CLIP/STRUCTURE CONNECTIONS
(F18)	1/4"-14 X 1 1/4" SDS ZAC W/WASHER #1E(PTD)(PLTD)	"CL" ROOF DRILLER
(F19)	14 X 7/8" SDS ZAC W/ WASHER #4(PTD)(PLTD)	"CL" ROOF LAP
(F20)	1/4"-14 X 1 1/4" SDS ZAC W/WASHER #1E(PTD)(PLTD)	"CL" TRIM DRILLER
(F21)	14 X 7/8" SDS ZAC W/WASHER #4(PTD)(PLTD)	"CL" TRIM LAP

TRIM ABBREVIATIONS

(BTR)	7/8" ROLL MASTIC	(ICB)	INSIDE CORNER BOX
(CLIN)	R PANEL INSIDE FOAM CLOSURE	(JA)	DOOR JAMB TRIM
(CLOUT)	R PANEL OUTSIDE FOAM CLOSURE	(JC)	DOOR JAMB COVER TRIM
(GEOCEL)	GUTTER SEAL	(MC)	DOOR MULLION COVER TRIM
(IN)	R PANEL INSIDE CORNER TRIM	(OCB)	OUTSIDE CORNER BOX
(OU)	R PANEL OUTSIDE CORNER TRIM	(PB)	PEAK BOX
(CM)	DOOR CORNER MULLION TRIM	(REND)	RAKE TRIM END CAP
(DK)	DOWNSPOUT WITH KICK OUT	(RT)	RAKE TRIM
(DSS)	DOWNSPOUT STRAP	(TI)	ROOF TIE IN TRIM
(EF)	EAVE FLASHING	(TR)	ROOF STEP TRANSITION FLASHING
(FRC)	FORMED RIDGE CAP	(4SP)	4OZ. TOUCH UP SPRAY PAINT
(GE)	GUTTER END CAP		
(GS)	GUTTER HANGER STRAP		
(GU)	GUTTER		
(HC)	DOOR HEAD COVER TRIM		
(HE)	DOOR HEAD TRIM		
(HI)	HIGH EAVE TRIM		
(HT)	HALL TOP TRIM		

PRINTS ISSUED FOR	BY	DATE
APPROVAL		9/16/22

CONFIDENTIAL AND PROPRIETARY INFORMATION

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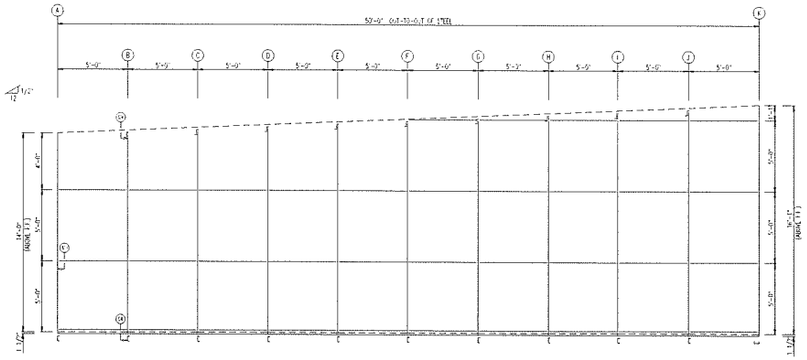
PROJECT: Ron Wilson
SIZE: 50.0 x 265.0 x 14.0 x 16.0
CITY: Williamsburg
STATE: MI

PEAK STEEL BUILDINGS
PO Box 1275
Madison, GA 30650
Phone: 844-333-7325
Fax: 706-343-1968

JOB ID: 39673

Sheet

A1



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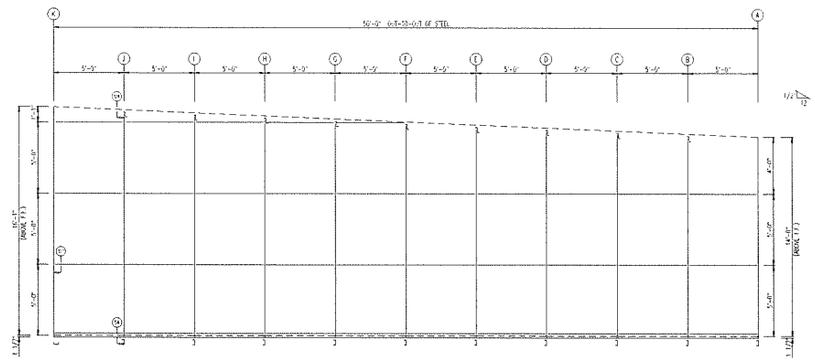
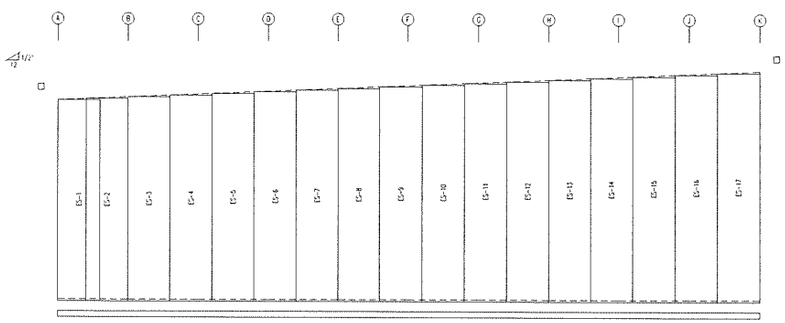
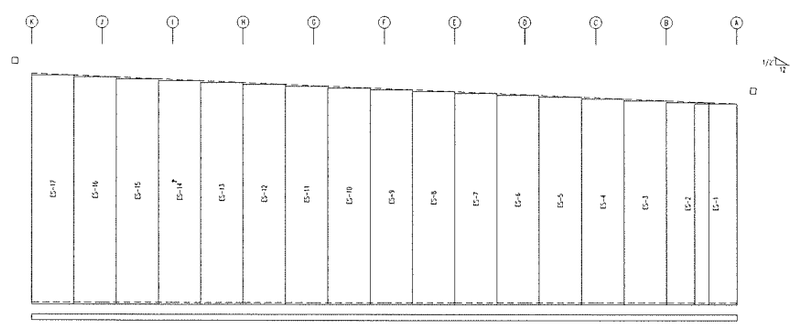


ENDWALL FRAMING FRAME LINE: 66



ENDWALL SHEETING & TRIM FRAME LINE: 1

PANELS 26 Ga PL - NEED COLOR



ENDWALL SHEETING & TRIM FRAME LINE: 66

PANELS 26 Ga PL - NEED COLOR

CONFIDENTIAL AND PROPRIETARY INFORMATION

THESE DRAWINGS ARE THE SOLE AND EXCLUSIVE PROPERTY OF PEAK STEEL BUILDINGS, LLC. THEY ARE PRIVILEGED AND CONFIDENTIAL INFORMATION CONTAINED IN THESE DRAWINGS MAY ONLY BE USED FOR THE BENEFIT OF PEAK STEEL BUILDINGS, LLC. UNAUTHORIZED PERSONS IS STRICTLY PROHIBITED. THESE DRAWINGS MAY NOT BE USED TO COMPLETE THE PROJECTS WITHOUT WRITTEN PERMISSION FROM THE BUILDING MANUFACTURER. THIS DOCUMENT AND ALL COPIES MUST BE RETURNED UPON REQUEST.

APPROVAL			
PRINTS ISSUED FOR:	BY	DATE	
		9/16/22	

PROJECT: Ron Wilson

SIZE: 50.0 x 265.0 x 14.0 x 16.0

CITY: Williamsburg

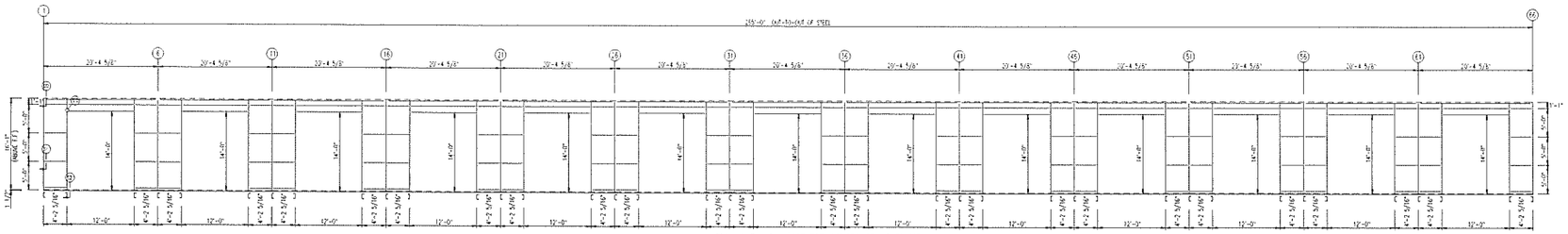
STATE: MI

PEAK STEEL BUILDINGS
PO Box 1275
Madison, GA 30650
Phone: 844-333-7325
Fax: 706-343-1968

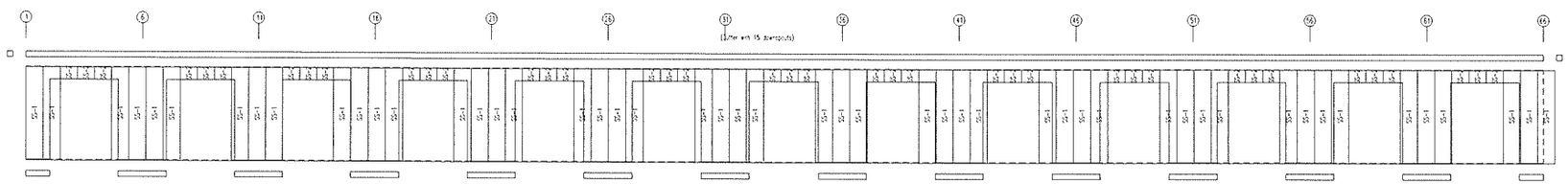
JOB ID. 39673

Sheet

A2



Sidewall Framing (NOT FOR CONSTRUCTION) FRAME LINE: K



Sidewall Sheeting (NOT FOR CONSTRUCTION) & TRIM FRAME LINE: K

PANELS 24 Ga. PL - NEED COLOR

CONFIDENTIAL AND PROPRIETARY INFORMATION

THESE DRAWINGS ARE THE SOLE AND EXCLUSIVE PROPERTY OF THE BUILDING MANUFACTURER. SENSITIVE INFORMATION CONTAINED IN THESE DRAWINGS, INCLUDING BUT NOT LIMITED TO DIMENSIONS, DETAILS AND DESIGNS IN THESE DRAWINGS MAY ONLY BE USED FOR ITS INTENDED PURPOSE. DISCLOSURE OF THESE DRAWINGS TO UNAUTHORIZED PERSONS IS STRICTLY PROHIBITED. THESE DRAWINGS MAY NOT BE USED TO CONSTRUCT ONE PRODUCT WITHOUT PERMISSION FROM THE BUILDING MANUFACTURER. THIS DOCUMENT AND ALL COPIES MUST BE RETURNED UPON REQUEST.

PRINTS ISSUED FOR	BY	DATE
APPROVAL		9/16/22

PROJECT: Ron Wilson

SIZE: 50.0 x 265.0 x 14.0 x 16.0

CITY: Williamsburg

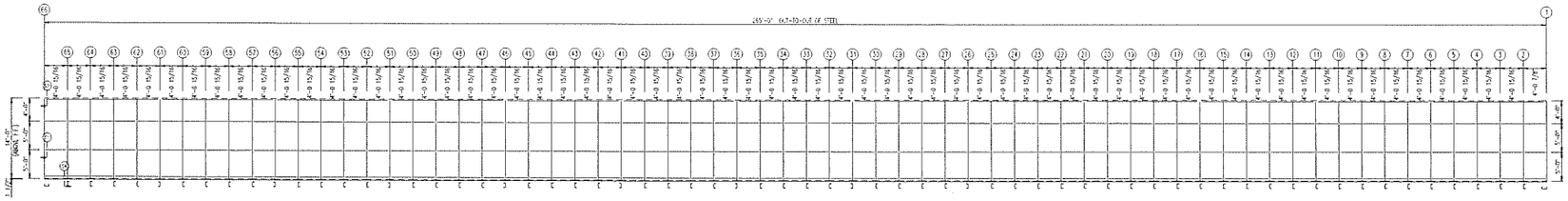
STATE: MI

PEAK STEEL BUILDINGS
PO Box 1275
Madison, GA 30650
Phone: 844-333-7325
Fax: 706-343-1988

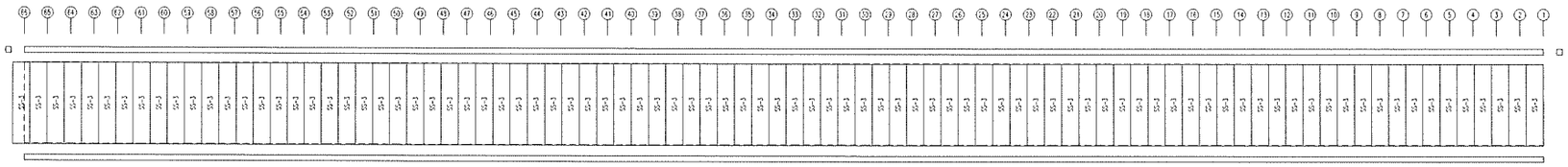
JOB ID: 39673

Sheet

A3



Sidewall Framing (NOT FOR CONSTRUCTION) FRAME LINE: A



Sidewall Sheeting (NOT FOR CONSTRUCTION) & TRIM FRAME LINE: A

PANELS 26 Ga PL - NEED COLOR

CONFIDENTIAL AND PROPRIETARY INFORMATION

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APPROVAL		9/16/22

PROJECT: Ron Wilson

SIZE: 50.0 x 265.0 x 14.0 x 16.0

CITY: Williamsburg

STATE: MI

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PO Box 1275
Madison, GA 30650
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Fax: 706-343-1988

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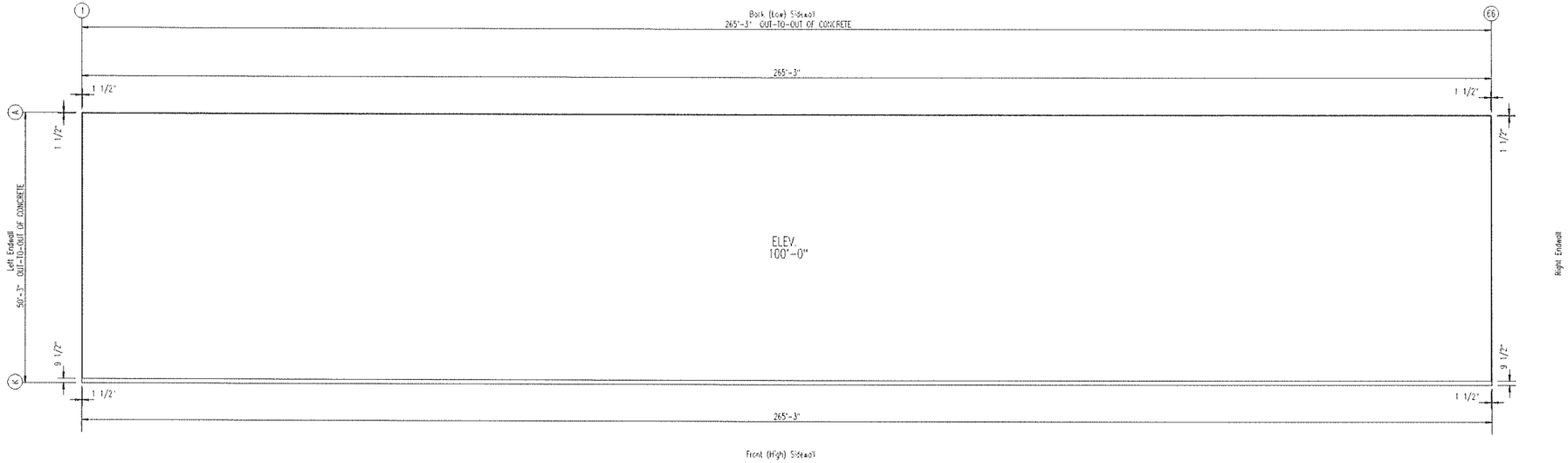
Sheet

A4



Slab Plan

PEAK STEEL BUILDINGS
PO Box 1275
Madison, GA 30650
Phone: 844-333-7325
Fax: 706-343-1988

JOB ID: 39673

Sheet

A5

PROJECT: Ron Wilson

SIZE: 50.0 x 265.0 x 14.0 x 16.0

CITY: Williamsburg

STATE: MI

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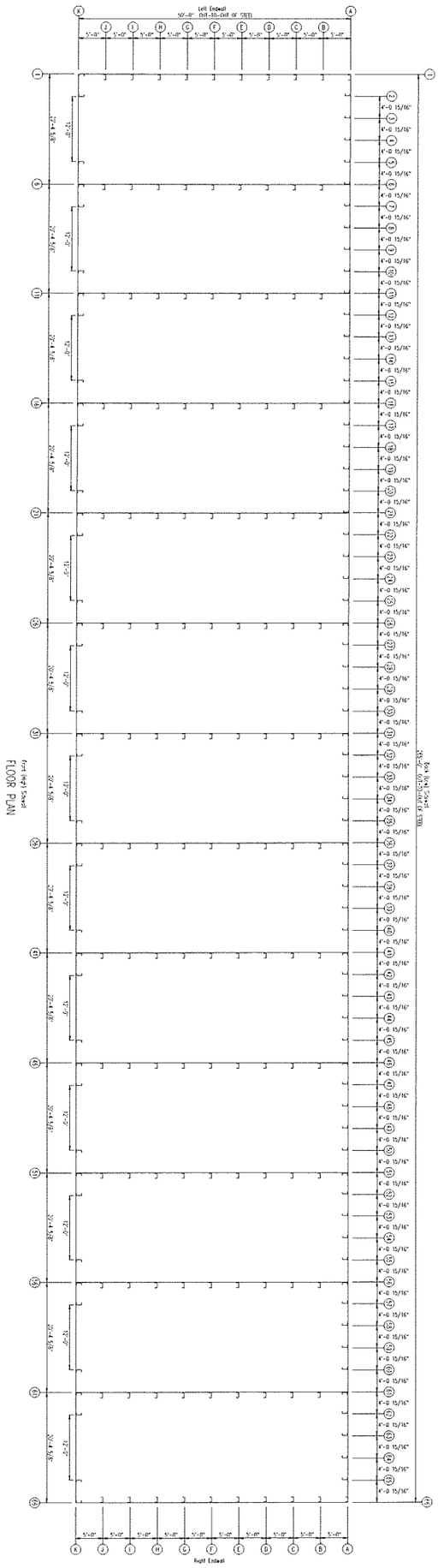
APPROVAL		9/16/22



FLOOR PLAN

A6

Sheet

JOB ID: 39673

PEAK STEEL BUILDINGS
PO Box 1275
Madison, GA 30650
Phone: 844-333-7325
Fax: 706-343-1968

PROJECT:	Ron Wilson
SIZE:	50.0 x 265.0 x 14.0 x 16.0
CITY:	Williamsburg
STATE:	MI

CONFIDENTIAL AND PROPRIETARY INFORMATION

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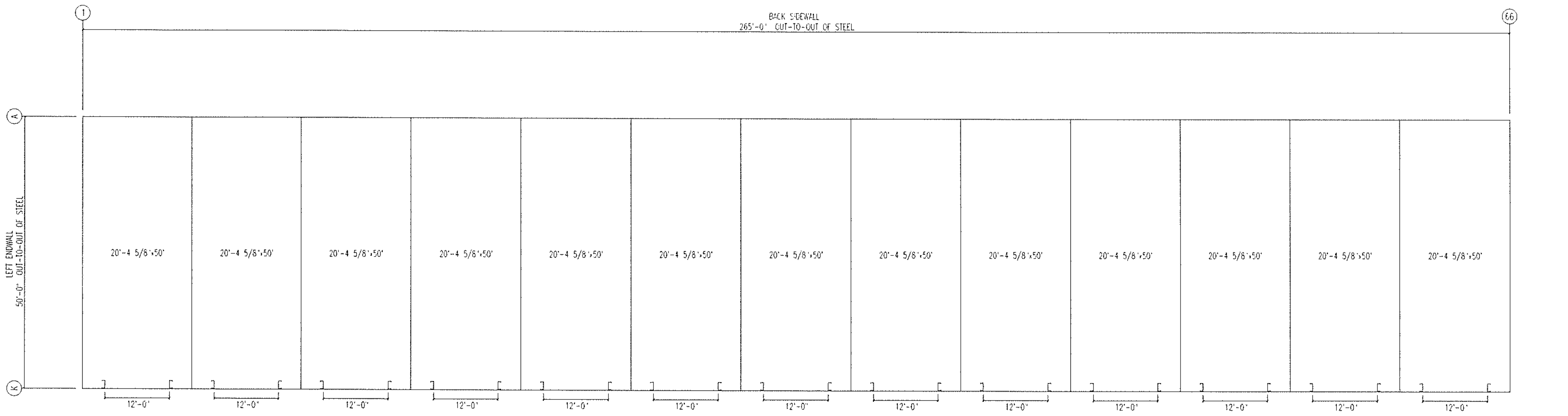
PRINTS ISSUED FOR	BY	DATE
APPROVAL		9/16/22



FLOOR PLAN

PRINTS ISSUED FOR	BY	DATE
APPROVAL		9/16/22

CONFIDENTIAL AND PROPRIETARY INFORMATION

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SIZE: 50.0 x 265.0 x 14.0 x 16.0
CITY: Williamsburg
STATE: MI

PEAK STEEL BUILDINGS
PO Box 1275
Madison, GA 30650
Phone: 844-333-7325
Fax: 706-343-1968

JOB ID: 39673

Sheet

A7

9/14/2022

Grand Traverse County Health Department
2650 LAFRANIER RD
TRAVERSE CITY, MI 49686
231-995-6051

Receipt # 56392

RECEIPT FOR FEES COLLECTED
DATE AND TYPE: 9/14/2022 - Check 107

RECEIVED FROM:
S & S MICHIGAN INVESTMENT
6140 E ARNOLD RD
Williamsburg, MI 49690

SERVICE PROVIDED	FEE PAID
SOIL EROSION PERMIT	$880.00
SOIL EROSION SURETY DEPOSIT	$4,000.00
Total Amount Received:	$4,880.00

Received By: L. MAHER

(signature)

Additional Detail / Comments:

6140 ARNOLD RD PERMIT# 22-01949

08/29/2022

Grand Traverse County Health Department
2650 LAFRANIER RD
TRAVERSE CITY, MI 49686
231-995-6051

Receipt # 56271

RECEIPT FOR FEES COLLECTED
DATE AND TYPE: 08/25/2022 - Check 102

RECEIVED FROM:
6140 E ARNOLD RD
Williamsburg, MI
517-404-6325

SERVICE PROVIDED	FEE PAID
SEPTIC COMBO PERMIT	$330.00
SEPTAGE TREATMENT FEE	$175.00
SEPTAGE TREATMENT FEE (PROCESS	$10.00
WELL COMBO PERMIT	$175.00
Total Amount Received:	$690.00

Received By: A. CURTIS

(signature)

Additional Detail / Comments:

Grand Traverse County Health Department

2650 LAFRANIER RD
TRAVERSE CITY, MI 49686
231-995-6051
eh@gtcountymi.gov

GT #: **41057**

OWNER S&S MICHIGAN INVESTMENT LLC
CURRENT MAILING ADDRESS 6140 ARNOLD RD
Williamsburg, MI 49690 PH. 517-404-6325
NEW No EXISTING Replacement
TYPE OF ESTABLISHMENT Commercial
PROPERTY ADDRESS 6140 ARNOLD RD
SUBDIVISION
CITY Williamsburg LOT #
TOWNSHIP Acme Twp. SECTION 32

SEPTIC PERMIT ☒
WELL PERMIT ☒

PROPERTY TAX # - 280101500505

SOIL: Sandy Loam Topsoil 0-8"
SOIL HORIZONS TO A DEPTH OF 6 FEET
Loamy Sands ~~8"-48"~~
Clay ~~48"-56"~~
Sand Loam ~~56-66"~~
medium Sand ~~66"-72"~~
DEPTH TO GROUND WATER No GW

SEPTIC TANK SIZE 1000g DBL
PUMP CHAMBER —
EFFLUENT FILTER —
DRAIN BED 18x50
LINEAL FEET 300
SQUARE FEET 900
6 TILE LINES ON 2'c
TILE FIELD
TRENCH WIDTH
LINEAL FEET
OTHER

NUMBER OF BEDROOMS
NUMBER OF BATHS 1
LAUNDRY NO
DISHWASHER NO
GARBAGE DISPOSAL NO
BASEMENT PLUMBING NO
SEWAGE EJECTOR NO
EXISTING FUEL TANKS NO
SHARED WELL NO
OTHER

ADDITIONAL PERMIT SPECIFICATIONS:

SEE REVERSE SIDE FOR DRAWING AND CONSTRUCTION DETAILS

CERTIFICATION OF INSPECTION
(PERMIT TO COVER)

SEWER SEPTIC TANK PUMP CHAMBER
MANUFACTURER OF SEPTIC TANK
FINAL DISPOSAL ISOLATION DIST
NOTES
INSPECTION BY DATE
CONTRACTOR
SEPTIC
WELL

APPROVAL OF A PLAN AND THE INSTALLATION CANNOT BE CONSIDERED BY THE OWNER AS A GUARANTEE THAT SUCCESSFUL OPERATION IS ASSURED. THERE ARE MANY WAYS A SYSTEM CAN BE ABUSED CAUSING FAILURE.

WATER SUPPLY INFORMATION

WATER SUPPLY TYPE Type III Well
MINIMUM DEPTH 25'
SPECIAL REQUIREMENTS 24hr equipt. bacti, Nitrite, Nitrate tests
EXISTING WELL TO BE ABANDONED AND PLUGGED YES
WELL CONSTRUCTION APPROVAL
PER REVIEW OF WELL LOG ☐ PER ONSITE INSPECTION ☐

WATER SAMPLE RESULTS

BACTERIOLOGICAL DATE SAMPLED
NITRATES DATE SAMPLED
RESULTS REVIEWED BY DATE

WATER SAMPLING REQUIREMENT

(1) Before placing a new, repaired, or reconditioned water supply system into service, and after all traces of chlorine have been flushed out, 1 or more water samples shall be collected from the sampling faucet. Organisms of the coliform group shall not be present in the sample or samples.
(2) The water supply owner shall be responsible for collecting the water sample or shall arrange for the owner's designated representative to collect the sample. The well drilling contractor or pump installer shall notify the water supply owner of the owner's responsibility for collecting the water sample.

AGREEMENT

I HERE BY AGREE TO COMPLY WITH REQUIREMENTS OF THE SANITARY CODE FOR THE COUNTY OF GRAND TRAVERSE, AND THE APPLICABLE LAWS OF THE STATE OF MICHIGAN IN THE INSTALLATION OF A SEPTIC TANK SEWAGE DISPOSAL SYSTEM AND/OR WELL INSTALLATION ON THE ABOVE DESCRIBED PROPERTY, AND TO CONSTRUCT THE SAME ACCORDING TO THE PLANS AND SPECIFICATIONS AS DESCRIBED AND APPROVED ABOVE; OTHERWISE I UNDERSTAND, THE PERMIT WILL BE VOID.

FINAL INSPECTION OF SEPTIC REQUIRED BEFORE COVERING. ONE DAY NOTICE SHALL BE GIVEN FOR INSPECTION.

SIGNED On file see attached DATE 8/25/22
OWNER OR AGENT

THE SPECIFICATIONS AS STATED ON THIS PERMIT MEET WITH MINIMUM REQUIREMENTS OF THE SANITARY CODE. THE OWNER SHOULD BE ADVISED THAT ADDITIONAL CONSTRUCTION OPTIONS MAY BE AVAILABLE WHICH COULD EXTEND THE LIFE EXPECTANCY OF THE SEWAGE SYSTEM. CONSULT WITH THE HEALTH DEPARTMENT REGARDING THESE OPTIONS.

PERMIT TO INSTALL, CONSTRUCT OR REPLACE
EXPIRES 2 YEARS AFTER DATE OF ISSUE
PERMIT IS NON-TRANSFERABLE TO PLACE
OTHER TRANSFER SUBJECT TO RESTRICTIONS

ISSUED TO S&S Michigan Investment LLC
DATE 9/1/22 BY
HEALTH DEPT. REPRESENTATIVE

RECEIPT # ~~47314~~ 56271 DATE ~~4/2/2019~~ 8/25/22
$690.00

RECEIVED
$560.00 SEPTIC PERMITS
$225.00 WELL PERMITS

08/25/2022

Grand Traverse County Health Department
2650 LAFRANIER RD
TRAVERSE CITY, MI 49686
231-995-6051

Receipt # 56271

RECEIPT FOR FEES COLLECTED
DATE AND TYPE: 08/25/2022 - Check 102

RECEIVED FROM:
S & S MICHIGAN INVESTMENT
6140 E ARNOLD RD
Williamsburg, MI 49690

SERVICE PROVIDED	FEE PAID
SEPTIC COMBO PERMIT	$690.00
Total Amount Received:	$690.00

Received By: A. CURTIS AC

(signature)

Additional Detail / Comments:

PHONE: 231.995.6051 FAX: 231.995.6033 EMAIL: eh@gtcountymi.gov

Health Department
GRAND TRAVERSE COUNTY

GRAND TRAVERSE COUNTY ENVIRONMENTAL HEALTH
SEPTIC AND/OR WELL PERMIT APPLICATION

Permit Type: ☑ BOTH
☑ SEPTIC PERMIT
☑ WELL PERMIT

☐ NEW CONSTRUCTION (first time septic has been installed on parcel)
☐ REPLACE EXISTING (includes remodels, and demo/rebuild)
☐ NON-FAILURE ☐ FAILURE (slow drainage, ponding, back-up, roots, etc.)

PROPERTY ADDRESS: 6140 E ARNOLD Rd PARCEL ID:

CITY: WILLIAMSBURG ZIP: 49690 TOWNSHIP: ACME SECTION:

SUBDIVISION: LOT #:

PROPOSED USE: (PLEASE CHECK ONE)

☐ **RESIDENTIAL**
BEDROOMS:
BATHROOMS:

☐ **COMMERCIAL**
MAX EMPLOYEES/DAY: 1
BATHROOMS: 1

TYPE OF FACILITY: STORAGE UNITS
MAX PEOPLE SERVED PER DAY: 1
BUILDING SQUARE FOOTAGE:

GARBAGE DISPOSAL:	☐ YES	☑ NO	WATER SOFTENER:	☐ YES	☑ NO
DISHWASHER:	☐ YES	☑ NO	HVAC HUMIDIFIER:	☐ YES	☑ NO
LAUNDRY:	☐ YES	☑ NO	WALKOUT BASEMENT:	☐ YES	☑ NO
BASEMENT PLUMBING:	☐ YES	☑ NO	GEOTHERMAL:	☐ YES	☑ NO if yes, OPEN or CLOSED LOOP (circle one)
SEWAGE EJECTOR:	☐ YES	☑ NO	MUNICIPAL SEWER:	☐ AVAILABLE	☐ CONNECTED ☑ N/A
SHARED WELL:	☐ YES	☑ NO	MUNICIPAL WATER:	☐ AVAILABLE	☐ CONNECTED ☑ N/A
FUEL OIL TANKS:	☐ YES	☑ NO	DRINKING FOUNTAIN:	☐ YES	☑ NO (COMMERCIAL ONLY)

OLD WELL TO BE RETAINED FOR USE (requires health department approval) : ☐ YES ☐ NO ☑ N/A

RECEIVED
AUG 25 2022
Environmental Health

OTHER:

OWNER NAME 545 MICHIGAN INVESTMENT LLC PHONE: 517-404-6325

ADDRESS: 437 LINCOLN ST CITY, STATE, ZIP: CADILLAC MI

APPLICANT NAME (if other than owner): RON WILSON PHONE: 517-404-6325

ADDRESS: CITY, STATE, ZIP:

CONTACT EMAIL:

ALL APPLICATIONS MUST BE ACCOMPANIED BY AN ACCURATE SITE PLAN. PLEASE PROVIDE ADDITIONAL SHEETS AS NECESSARY OR YOU MAY USE THE BACK OF THIS PAGE TO DRAW A DIAGRAM. PLEASE INCLUDE STRUCTURE(S), DRIVEWAY, ROAD NAMES AND DIRECTION, EXISTING AND/OR PROPOSED WELL AND SEPTIC LOCATIONS.

I hereby authorize Grand Traverse County Health Department to evaluate the above described property to determine its suitability for the development plans indicated, and to conduct such tests as may be necessary in order to obtain the information required for this evaluation. I also agree to comply with the Environmental Health Regulations for Grand Traverse County, and with the applicable laws of the State of Michigan.

SIGNATURE (owner or agent) Ronald C Wilson DATE: 8-25-22

AGENTS MUST HAVE WRITTEN AUTHORIZATION STATEMENT FROM LANDOWNER IN ORDER TO SIGN FOR PERMITS

GRAND TRAVERSE COUNTY ENVIRONMENTAL HEALTH
SOIL EROSION AND SEDIMENTATION CONTROL
SITE DETERMINATION FORM

PART 91, SOIL EROSION & SEDIMENTATION CONTROL, ACT 451 OF 1994,
AS AMENDED & GTCHD SOIL EROSION SEDIIMENTATION CONTROL ORDINANCE

RECEIVED AUG 25 2022 Environmental Health

Office Use Only	
	Amount: $ 25.00
	Receipt #:
	Received By:

Project Type: ☐ Residential ☐ Multi-Family ☑ Commercial

Project Address: 6140 ARNOLD Rd City, Zip: Williamsburg

Tax #: Twp: ACME Section: Town: Range:

Subdivision: Lot:

Size of Earth Change: 4 ACRES Start Date: 10-15-22 Completion Date: 12-15-22

Name & Distance to Nearest Surface Water, Wetland or Drain:

Describe Project: STORAGE UNITS

***** DETERMINATIONS MUST BE SUBMITTED WITH AN ACCURATE SITE PLAN OF PROPOSED WORK*****

Owner's Name: S+S INVESTMENTS LLC / RON WILSON

Owner's Mailing Address: 437 LINCOLN St. City, State, Zip: CADILLAC, MI 49601

Owner's Phone: 517-404-6325 Owner's email: NIMSOB321@GMAIL.COM

Applicant (if other than owner):

Address: City, State, Zip:

Phone: Email:

****Signature:** **Date:**

----------**DEPARTMENT USE ONLY: COMPLETED BY SANITARIAN**----------

THE FOLLOWING CRITERIA DO NOT APPLY:

SOM PA 451, PART 91 REQUIREMENTS	GTCHD SESC REQUIREMENTS	
☐ Within 500' of Lake or Stream	☐ Within 500' of Regulated Wetland	☐ Slopes of 20% or greater
☑ Disturb 1 acre or more	☐ Within 500' of a County Drain	☐ Group D Hydrologic Soils

Comments:

☐ OFFICE REVIEW ☐ FIELD REVIEW

Based on information provided by the Land Owner, the requirement for a Soil Erosion/Sedimentation Control (SESC) Permit has been reviewed in accordance with Part 91, Act 451 of 1994 and the Grand Traverse County Soil Erosion and Sedimentation Control Ordinance, as amended. Grand Traverse County Health Department, County Enforcing Agency, has determined that a SESC Permit is:

☐ **NOT REQUIRED** ☐ **REQUIRED**

Sanitarian Reviewer: **Date:**

GRAND TRAVERSE METRO FIRE DEPARTMENT
FIRE PREVENTION BUREAU

897 Parsons Road ~ Traverse City, MI 49686
Phone: (231) 947-3000 Fax: (231) 947-8728 ~ Website: www.gtmetrofire.org Email: Info@gtmetrofire.org

SITE PLAN REVIEW APPLICATION

DATE: 8-25-22 (FOR OFFICE USE ONLY) ID# _____

APPLICANT/ COMPANY NAME: S+S Michigan Investments LLC

CONTACT PERSON: Ken Nelson

ADDRESS: 437 Lincoln St.

CITY: Cadillac STATE: Mi ZIP: 49601

PHONE NUMBERS: BUSINESS _____ CELL 517-404-6325

EMAIL: NIMSOB.321@GMAIL.COM

DEVELOPMENT/ BUSINESS NAME: S+S Self Storage

SITE ADDRESS: 6140 Arnold Rd TOWNSHIP: Acme

CITY: Williamsburg STATE: Mi ZIP: 49690

SPECIFIC USE OF BUILDING: _____

BUILDING SIZE (LxWxH): See prints NUMBER of STORIES: 1

CONSTRUCTION TYPE: Steel SITE SERVICED BY MUNICIPAL WATER YES NO

Complete civil engineering drawings shall be submitted with this application including the following: submit 2 sets of hard copy and one electronic on flash drive or cd of all documents.

Plans drawn to scale showing property boundaries, building locations, topography, water supply main sizes and hydrant locations, all roads/designated fire lanes/ property access/egress points with dimensions and turning radius, building construction type, use group and presence of automatic fire protection systems.

Site Plan Review -available in district only (Acme, East Bay & Garfield Twps.)
$75.00 Includes 2 reviews
Additional reviews charged at $75.00 per hour, minimum charge 1 hour

** All fees shall be paid before permit can be issued, requests for inspections, or approvals for occupancy.

APPLICANT SIGNATURE: Ronald C. Nelson

GRAND TRAVERSE METRO FIRE DEPARTMENT

FIRE PREVENTION BUREAU

897 Parsons Road ~ Traverse City, MI 49686
Phone: (231) 922-2077 Fax: (231) 922-4918 ~ Website: www.gtfire.org Email: Info@gtfire.org

SITE PLAN REVIEW RECORD

ID # M7237 DATE: 8/26/2022

PROJECT NAME: S & S Self Storage

PROJECT ADDRESS: 6140 Arnold Rd.

TOWNSHIP: Acme

APPLICANT NAME: Ron Wilson

APPLICANT COMPANY: S & S Michigan Investments LLC

APPLICANT ADDRESS: 437 Lincoln St.

APPLICANT CITY: Cadillac STATE:MI ZIP: 49601

APPLICANT PHONE: 517-404-6325 FAX #

REVIEW FEE: $75.00

Reviewed By: Kathy Fordyce, Plan Reviewer

This review is based solely on the materials submitted for review and does not encompass any outstanding information. Compliance with all applicable code provisions is required and is the responsibility of the permit holder. Items not listed on the review do not negate any requirements of the code nor the compliance with same. Inspection requests must be made a minimum of 48 hours prior to needed inspection. This plan review is based on the 2015 International Fire Code, as adopted.

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SITE PLAN REVIEW

ID # M7237 DATE: 8/26/2022

1. **505.1 Address identification.**

New and existing buildings shall be provided with approved address identification. The address identification shall be legible and placed in a position that is visible from the street or road fronting the property. Address identification characters shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall not be spelled out. Each character shall be not less than 4 inches (102 mm) high with a minimum stroke width of 1/2 inch (12.7 mm). Where required by the fire code official, address identification shall be provided in additional approved locations to facilitate emergency response. Where access is by means of a private road and the building cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure. Address identification shall be maintained.
-Provide address on the street side of building #1 and a sign adjacent to the road if applicable, using numbers that are a minimum height of 4 inches.
-Provide the designation for each building on the ends of each building so that they are visible as you drive into the complex.

2. **506.1 Knox Box where required.**

Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box to be installed in an approved location. The key box shall be of an approved type listed in accordance with UL 1037, and shall contain keys to gain necessary access as required by the fire code official.
-Provide a Knox Box at the door to the maintenance portion of building #1. Provide a key to that door and emergency contact information. Box can be ordered from www.KnoxBox.com. Order from the 3200 Series.

GRAND TRAVERSE METRO FIRE DEPARTMENT
FIRE PREVENTION BUREAU

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Phone: (231) 922-2077 Fax: (231) 922-4918 ~ Website: www.gtfire.org Email: Info@gtfire.org

3. **503.6 Security gates.**

The installation of security gates across a fire apparatus access road shall be approved by the fire chief. Where security gates are installed, they shall have an approved means of emergency operation. The security gates and the emergency operation shall be maintained operational at all times. Electric gate operators, where provided, shall be listed in accordance with UL 325. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F 2200.
-Plans indicate that this is a manual, key operated sliding gate. Provide a Knox Padlock, a regular padlock and two lengths of chain to secure the gate. This gives access to the fire department through the Knox Padlock and all others through the normal padlock. Knox Padlock can be ordered at www.KnoxBox.com.
***** If gate is any other configuration other than above, provide details for approval.**

****Project ok to proceed with township approval process.**

Lindsey Wolf

From: Patrick J. Machin, P.E. <pat@machinengineering.net>
Sent: Thursday, October 13, 2022 4:44 PM
To: Lindsey Wolf
Cc: Ron Wilson
Subject: Re: 6140 Arnold Rd Development Narrative

Fantastic!!! I am sending a memo to Bob shortly on our calcs and will work on updated plans.

Please note my extension number has changed to Ext 700.

Patrick J. Machin, P.E.* | Principal

MACHINENGINEERING
Civil ▪ Structural ▪ Sciences

2301 N Garfield Rd, Suite C
Traverse City, MI 49686
T: 231-935-1530 Ext 700
O: 855-935-1530
** For a complete list of states where licensed, please visit the website.*
To view our company video, visit:
www.machinengineering.net
A Bright Ideas Company!

From: Lindsey Wolf <Zoning@acmetownship.org>
Sent: Thursday, October 13, 2022 4:42 PM
To: Patrick J. Machin, P.E. <pat@machinengineering.net>
Cc: Ron Wilson <nimsob321@gmail.com>
Subject: RE: 6140 Arnold Rd Development Narrative

Thank you, Patrick – the attorney has reviewed and finds the proposed entrance from the easement to be acceptable 😊.

Here is what I will need:
Updated plan set to meet the requirements we spoke of yesterday.
Complete sign off from Bob.

If that can be accomplished by the end of next week that would be great. I have another applicant who is requesting a special meeting on November 2nd or 3rd. You could piggy back off that meeting and share the cost.

Lindsey Wolf
Planning & Zoning Administrator
Acme Township
6042 Acme Road

Williamsburg, MI 49690

(231)938-1350 ext. 106
zoning@acmetownship.org

From: Patrick J. Machin, P.E. <pat@machinengineering.net>
Sent: Thursday, October 13, 2022 4:14 PM
To: Lindsey Wolf <Zoning@acmetownship.org>
Subject: Re: 6140 Arnold Rd Development Narrative

Lindsey,

Below is that provided to me from the developer in his conversation with the RC:

> **From:** Steve Barry <sbarry@gtcrc.org>
> **Date:** August 29, 2022 at 12:17:53 PM EDT
> **To:** Ron Wilson <nimsob321@gmail.com>
> **Subject: RE: Arnold Road Storage Project**
>
> Ron,
>
> After review of the submitted proposed development of S&S Michigan Investments, LLC Self-Storage Units, the GTCRC has determined it is a permittable development with conditions and requirements:
>
> 1. Drive needs to align with existing drive of Acme Mini Storage across the street.
> 2. Can drive be built off easement?
> 3. Look at possibly flipping design to have entrance line up with drive at the north end of property.
>
> Than you,
>
> Steve Barry
> GTCRC Permit and Violations Agent
> 231-922-4849 EXT 205

Please note my extension number has changed to Ext 700.

Patrick J. Machin, P.E.* | Principal

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2301 N Garfield Rd, Suite C
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From: Lindsey Wolf <Zoning@acmetownship.org>
Sent: Thursday, October 13, 2022 3:51 PM
To: Patrick J. Machin, P.E. <pat@machinengineering.net>
Subject: FW: 6140 Arnold Rd Development Narrative

Hi Patrick,

Were you able to obtain the following information below? Jeff will need that for a complete analysis.

Lindsey Wolf
Planning & Zoning Administrator
Acme Township
6042 Acme Road
Williamsburg, MI 49690

(231)938-1350 ext. 106
zoning@acmetownship.org

From: Lindsey Wolf
Sent: Wednesday, October 12, 2022 4:14 PM
To: Patrick J. Machin, P.E. <pat@machinengineering.net>
Subject: RE: 6140 Arnold Rd Development Narrative

What we need to see is correspondence from them not allowing the other locations for a driveway. I would reach out to Steve to get something in writing – Jeff can't do a complete review without knowing the proposed locations and the reasoning behind the RC's denial of those locations.

Thank you in advance!

Lindsey Wolf
Planning & Zoning Administrator
Acme Township
6042 Acme Road
Williamsburg, MI 49690

(231)938-1350 ext. 106
zoning@acmetownship.org

From: Patrick J. Machin, P.E. <pat@machinengineering.net>
Sent: Wednesday, October 12, 2022 4:11 PM

To: Lindsey Wolf <Zoning@acmetownship.org>
Subject: Re: 6140 Arnold Rd Development Narrative

Lindsey,

Below is all the correspondence I have between the road commission and us as the design team/client. Steve Barry did discuss this with me in person as well. Option 3 was the use of the easement, which is what was chosen.

From: Steve Barry <sbarry@gtcrc.org>
Date: September 19, 2022 at 9:43:54 AM EDT
To: Ron Wilson <nimsob321@gmail.com>
Subject: RE: Arnold Rd Plan - Rev1

Ron,

GTCRC would approve this entrance. Let me know if there is anything that you need.

Thank you,

Steve Barry
GTCRC Permit and Violations Agent
231-922-4849 EXT 205

From: Ron Wilson <nimsob321@gmail.com>
Sent: Monday, September 19, 2022 8:29 AM
To: Steve Barry <sbarry@gtcrc.org>
Subject: Fwd: Arnold Rd Plan - Rev1

Steve,

Please find the attached revised plan using the easement you listed as option 3.

Kind regards,

Ron Wilson
Sent from my iPhone

Begin forwarded message:

Please note my extension number has changed to Ext 700.

Patrick J. Machin, P.E.* | Principal

MACHINENGINEERING
Civil ▪ Structural ▪ Sciences
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** For a complete list of states where licensed, please visit the website.*
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From: Lindsey Wolf <Zoning@acmetownship.org>
Sent: Wednesday, October 12, 2022 4:03 PM
To: Patrick J. Machin, P.E. <pat@machinengineering.net>
Subject: RE: 6140 Arnold Rd Development Narrative

Hi Patrick,
Can you pass along the correspondence from the road commission?

Lindsey Wolf
Planning & Zoning Administrator
Acme Township
6042 Acme Road
Williamsburg, MI 49690

(231)938-1350 ext. 106
zoning@acmetownship.org

From: Patrick J. Machin, P.E. <pat@machinengineering.net>
Sent: Wednesday, October 12, 2022 2:57 PM
To: Lindsey Wolf <Zoning@acmetownship.org>; Ron Wilson <nimsob321@gmail.com>
Subject: 6140 Arnold Rd Development Narrative

Lindsey,

Thank you for your time this morning. From our conversation, I have revised the Development Narrative to items discussed. Most notably, the easement. I have included the supporting documents with the Narrative.

Please forward to the Township Attorney at your earliest convenience for his review. If needed, I request an in person between us, the Township, and the Attorney.

Any questions on the attached, please let me know.

Sincerely,

TECHNICAL MEMORANDUM

Arnold Road Storage Units - Storm Water Review

To:	Lindsey Wolf, Planning & Zoning Administrator Doug White, Supervisor	Date:	October 4, 2022 REV. October 20, 2022
From:	Robert Verschaeve, P.E.	Re:	Arnold Road Storage Units - Storm Water Review

This review is being provided as requested by Acme Township for storm water control measures proposed for the referenced project in accordance with Ordinance No. 2007-01 Acme Township Storm Water Control Ordinance. Other items such as soil erosion and sedimentation controls (SESC) will need to be reviewed and permitted through the appropriate agency having jurisdiction.

The project plans submitted are for a self-storage unit development on Arnold Road just north of the Tractor Supply store. Machin Engineering is the design engineer for the project. The plans and calculations submitted for this stormwater review are noted Rev. #1 dated 09-14-2022. Rev #2 dated 10-18-2022 has been submitted for this revised review

The project generally consists of the construction of five self-storage buildings, paved driveway & parking lot, and storm water infrastructure. The overall site is a 4.4-acre parcel located on the east side of Arnold Road and bordered by Tractor Supply to the south and C&O railroad to the north.

The overall building area identified on the plans is 49,250 sft with Unit 1 at 13,250 sft and Units 2, 3, 4, and 5 at 9,000 sft each. A 24-foot-wide asphalt drive extends from Arnold Road into the maneuvering and circulation area between the buildings. The overall paved area is noted on the plans at 61,584 sft. Areas scaled from the plans are consistent with the noted areas.

The plans show a series of rain gardens and storm water basins to handle storm water. A french drain along the west side of Unit 1 is also included in the system. Runoff from the buildings and pavement is directed to the basins or a swale connected to a basin. Infiltration is noted in the calculations and no outlet is identified on the plans. Therefore, this review is completed with respect to the Infiltration/Retention System section of the Ordinance. The items listed from this section are noted below with the text from the Ordinance in italics followed by our review comments.

a. <u>Physical Feasibility</u>

Infiltration systems will be required at all sites with soil permeability greater than 1 inch per hour.

The bottom of the infiltration system shall be a minimum of 4 feet above the highest known water table elevation.

The calculations included on the plans include an infiltration rate of 2 inches per hour to model the 25-year storm event indicating soils with permeability greater than 1 inch per hour. NRCS soil maps indicate sandy loams with water transmissivity in the range of .57 to 1.98 inches per hour. Additional information is needed to fully assess this item.

The following additional information is needed:

- Existing USDA NRCS soils classifications identified on the plans.
  USDA NRCS soils classifications have been added to the plans. Soil profiles from two hand borings have also been added.
- Data on highest known water table elevation in relation to bottom or infiltration basin.
  It is noted that ground water was not observed in the hand borings.
- Infiltration test data supporting 2 inches per hour infiltration or other supporting information.
  Infiltration test data indicating an infiltration rate of 4.3 inches per hour was provided. System analysis uses 2.15 in/hour as allowed by ordinance (.5 times measured rate)

b. Design Criteria

i. Volume

The volume of the infiltration system shall be calculated by comparing the volume of runoff of the undeveloped site during a 2-year, 24-hour duration storm versus the volume of runoff from the developed site during a 25-year, 24-hour duration storm.

The infiltration system volume shall be designed to store the runoff from back-to-back 100-year, 24-hour rainfall events from the entire contributing area for retention systems or if the discharge will cause downstream flooding. Certification that an adequate outlet for infiltration systems is available shall be provided by a licensed professional engineer.

The plans include HydroCAD summary calculations that modeled the stormwater system's ability to handle the 25-year storm event over the developed site with an infiltration rate of 2 inches per hour. An analysis of the system's capacity for back-to-back 100-year storm events was not included.

The following additional information is needed:

- Analysis of the 100-year back-to-back storm condition and/or certification that an adequate outlet is available.
  Plans have been updated with a 100 year back-to-back analysis.
- Infiltration test data supporting 2 inches per hour infiltration or other supporting information.
  Provided as previously noted.

ii. Maximum Drain Time

The infiltration basin shall be designed to drain completely within 72 hours. A design infiltration rate of 0.5 times the infiltration rate determined by geotechnical investigation (not to exceed 1 in/hr for underground systems), or an infiltration rate of 0.52 in/hr, shall be used to estimate the maximum time to drain by the equation: 72> 12D/I

The calculations included on the plans used an infiltration rate of 2 inches per hour to model the 25-year storm event. Additional information is needed to meet this item including:

- Infiltration test data supporting 2 inches per hour infiltration or other supporting information.
  Provided as previously noted.
- A drain time calculation on the plans that shows the basin should drain within 72 hours of a design storm event.
  This is provided for each basin and indicates between 12.7 and 29.8 hours.

iii. Underground Infiltration and Retention Systems

Underground infiltration or retention systems are discouraged and will be allowed only when adequate space for an aboveground system is not available. The site grading shall provide for parking lot storage of excess runoff should the underground infiltration or retention system fail to function adequately.

The proposed system is not underground. This section is not applicable to this project.

iv. Construction

The contractor shall avoid compacting the soil in the infiltration or retention basin area during excavation and grading. Use of equipment with low earth pressure loading is required. The final 2 feet of depth shall be removed by excavating to finished grade.

Basins A, B, and C generally appear to be in areas that will be dug out to establish the bottom of the basin. The applicant is advised of the general requirements of this section and to avoid construction traffic or to use low earth pressure equipment to avoid compacting soil anytime moving within the basin area.

v. Snow Storage

Snow storage in the infiltration or retention system shall not displace more than 50% of the available storage volume and shall not impede drainage through the system.

The plans identify snow storage within Basin B but do not quantify the area within the basin.

- Plans should be updated to identify the anticipated area(s) that will accommodate snow storage and verify the that not more than 50% of the storage volume will be displaced.
  Snow storage areas are shown on the updated plans.

c. Treatment Criteria

i. Treatment Forebay

A treatment forebay or equivalent storm water filter shall be used to treat storm water runoff prior to an infiltration or retention system for all sites with a significant potential of exposing storm water to oil, grease, toxic chemicals, or other polluting materials. A list of representative sites is included in Appendix 1.

A Treatment Forebay is not required for this project.

iv. Sediment Forebay

Sediment forebays or equivalent upstream treatment shall be used to provide energy dissipation and to trap and localize incoming sediment.

Runoff from the pavement is directed to the stormwater basins at five spillways and a swale along the south end of the site. The spillway detail identifies a depressed end to further slow runoff. This criteria is met.

d. Controls

Detention basin design criteria for inlets and emergency overflow shall also apply to the design of infiltration basins.

Details for the inlets into the infiltration basin and emergency overflow are acceptable.

e. Erosion Control

Upland construction areas shall be completely stabilized prior to final infiltration basin construction. All accumulated sediment shall be removed prior to final acceptance.

Plans include a soil erosion and stormwater control plan with appropriate restoration details and specifications. Applicant is advised that soil erosion and sedimentation controls (SESC) will ultimately be reviewed and permitted through the Grand Traverse County Health Department which has jurisdiction over SESC permits in Grand Traverse County.

Overflow spillways shall be protected with riprap or a permanent erosion control blanket to prevent erosion of the structure.

Plans identify permanent erosion control blanket at the overflow spillway and meet the criteria of this item.

Inlets and outlets require energy dissipation and transition from outlet to open channel based on the maximum velocities given in Section II - Grassed Waterways.

Inlet details include energy dissipation and meet the criteria of this item.

f. Geometry

The floor of the infiltration basin shall be flat to encourage uniform ponding and infiltration.

The floor of the basin shall be scarified to a depth of 4 to 6 inches after final grading has been established

The grading plan shows flat basin bottoms and meets this intent of this section. The applicant is advised to scarify the basin floor as noted.

g. Public Safety

Side slopes shall not be steeper than 3:1 (H:V).

A minimum 5-foot-wide safety ledge with a maximum slope of 6% shall be provided around the perimeter of open basins with water depths over 5 feet.

The side slopes of this basin are 3H:1V and meet the requirements of the section. The water depth at high water elevations for each basin are 2 feet. A safety ledge or other measures are not required.

h. Maintenance

A minimum 15-foot-wide maintenance access route from a public or private right-of-way to the basin shall be provided. The access way shall have a slope of no greater than 5:1 (H:V) and shall be stabilized to withstand the passage of heavy equipment. Direct access to the forebay, control structures, and the overflow shall be provided.

The stormwater basins are adjacent to the proposed vehicle circulation areas where they are readily accessible for maintenance.

Infiltration basin maintenance plans will require that sediment be removed from the treatment forebay when it reaches a depth equal to 50% of the depth of the forebay or 12 inches, whichever is less.

The applicant is advised of this requirement. Additionally, construction plans shall include a note identifying that the basins will be inspected and cleaned of silt and debris at least annually and that the sediment will be cleaned when required. This note has been added.

The storm water controls for this site are typical for similar sites that can be found in Acme Township and Grand Traverse County. The storm water control plan for the self-storage unit development can be conditionally approved subject to review of an updated set of plans that satisfactorily addresses the bolded items outlined in this memo and summarized below:

- Provide existing USDA NRCS soils classifications and identify on the plans.
- Provide data on highest known water table elevation in relation to bottom or infiltration basin.
- Provide infiltration test data supporting 2 inches per hour infiltration or other supporting information.
- Provide an analysis of the 100-year back-to-back storm condition for the stormwater management system and/or certification that an adequate outlet is available.
- Provide a drain time calculation on the plans that shows the basin should drain within 72 hours of a design storm event.
- Update plans to identify the anticipated area(s) that will accommodate snow storage and verify the that not more than 50% of the storage volume will be displaced.
- Add a construction note identifying that the basins will be inspected and cleaned of silt and debris at least annually and that the sediment will be cleaned when required.

These items have been added as noted herein. The stormwater control plan can be approved.

MACHINENGINEERING

Civil ▪ Structural ▪ Sciences

MEMO OF FINDINGS REVIEW

October 12, 2022

Project: S&S Michigan Investments_MI_Arnold Rd Storage
Project No: 22127

In response to the review conducted by Gosling Czubak for Acme Township in relation to storm water control, Machin Engineering ha reviewed the findings and offers the following summary.

An infiltration study was conducted by Otwell Mawby, P.C. (OMPC) between October 8, 2022 and October 10, 2022 at the subject property within the area noted as "Basin B" on the proposed plan set. The infiltration rate determined form the findings indicated a rate of 4.3 inches per hour and as such the design rate is required to be at 0.5 of the actual. For the purposes of this design a rate of 2.15 inches/hr will be used. Soil borings were conducted to a depth of 10.5' with the following observations made:

Table 1 Soil Information from OMPC

Depth (ft) Soil Texture	Depth (ft) Soil Texture
0'-0.75'	SAND; silty, fine to medium grained with some organics (topsoil)
0.75' – 2.0'	Poorly graded SAND; fine to medium grained with occasional gravel and rocks, brown to tan and moist.
2.0' – 10.5'	Silty SAND; fine to medium grained with occasional gravel and rocks, tan

The logs did not indicate a ground water level and as such it is assumed that the ground water level is at or below the 10.5'. The boring was conducted at an elevation of 749', therefore the ground water table would be below 738.5'.

A 100 year 24 hr back-to-back storm was analyzed with a 10' Long 6' Wide outlet and 6" Rip Rap. The maximum water level shown in the Basin A and Basin B combined system was shown at 745.67'. The outlet had a maximum discharge rate of 0.11 cfs. Basin B was augmented to a depth of 743.00', the depth approaches 2.67', but is still contained within the Basin system.

At a rate of 2.15in/hr (4.3in/hr *0.5) the basins should drain in (2.67'*12"/ft)/2.15in/hr = 14.90 hrs for the 100 year 24 hr back-to-back storm.

Will need to size Basin C according to the identified depth on plans (3 on 1 at 2' deep will need larger offset from bottom of basin outline.

(Basins A &B) (2 on 1 to 3' and 3.5' respectively)

Pre-developed Flows for 67,800 sft contributing with ≈1.7% grade and CN of 39 >75% Grass HSG A:

Storm Event	Run-off (CFS)
10-yr	0 CFS
25-yr	0.01 CFS
50-yr	0.02 CFS
100-yr	0.07 CFS
100-yr Back-to-Back	4.17 CFS

Basin B Outlet

Storm Event	Max Elevation of Basins A & B	Overflow (CFS)
10-yr	744.40	0
25-yr	744.74	0
50-yr	745.01	0
100-yr	745.30	0
100-yr Back-to-Back	745.67	0.11

Otwell Mawby, P.C.
Consulting Engineers

October 11, 2022

Mr. Pat Machin PE
Machin Engineering
2301 N. Garfield Rd. Ste C
Traverse City, MI 49686

EMAIL: pat@machinengineering.net

RE: INFILTRATION TESTING
ARNOLD ROAD STORAGE UNITS
PN# 22-134

Dear Pat:

OMPC completed infiltration testing at a proposal infiltration basin for the Arnold Road Storage Unit Project. The testing was completed to confirm an infiltration rate for roof and hard surface runoff. The location of the test is shown on the attached drawing.

The test was completed at a depth of approximately 5 feet below the proposed bottom of basin elevation, approximately 10.5' below grade. The soils encountered were a fine to medium grained silty sand with occasional rocks and gravel. The results of the test indicated an infiltration rate of 4.3 in/hr. A test location plan and the test report are attached.

Please call with any questions.

Sincerely,

Very truly yours,

OTWELL MAWBY, P.C.

Roger L. Mawby, P.E.
Sr. Engineer

Attachments:
Location Plan
Test Report

309 E. Front Street, Traverse City, MI 49684 231.946.5200 Fax: 231.946.5216

INFILTRATION TEST DATA FORM

Location: Arnold Road Storage Units **PN# 22-134**

Test Hole Number: 1

Test By: W. McSorley

Date of Test: 10/8/2022 and 10/10/2022

Depth to Bottom of Hole: 10.5' Diameter of Hole: 4"

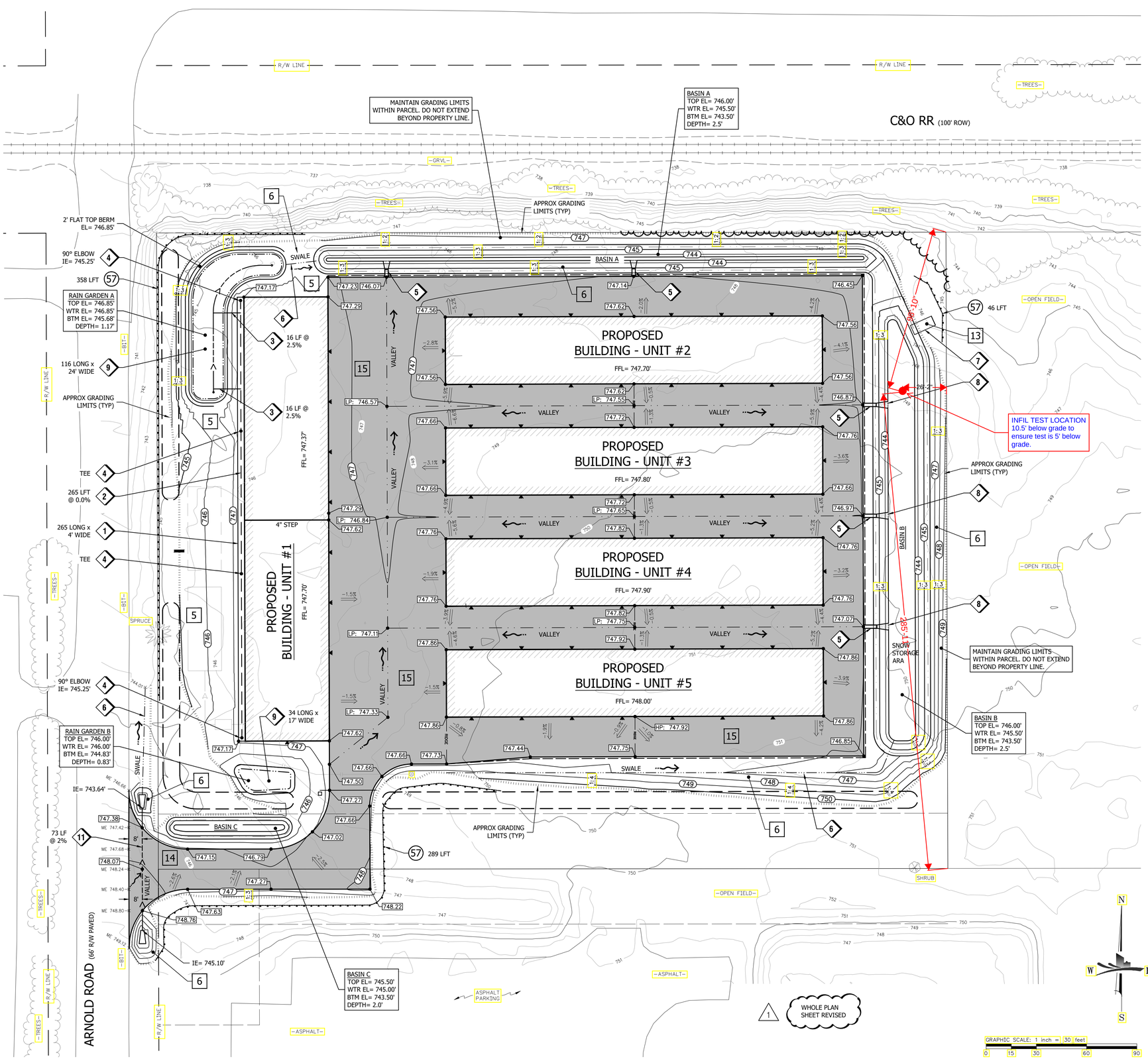
Note: Seventh hole attempt. First six met refusal from rocks from 4 to 6'. Infiltration test was conducted through 4" diameter PVC pipe with well sand placed at the bottom. Test completed at 5' below bottom of proposed basin.

Depth (ft)	Soil Texture
0"-0.75'	SAND; silty, fine to medium grained with some organics (top soil)
0.75' – 2'	Poorly graded SAND; fine to medium grained with occasional gravel and rocks, brown to tan and moist.
2' – 10.5'	Silty SAND; fine to medium grained with occasional gravel and rocks, tan

Time	Time Interval (min)	Measurement (ft)	Drop in Water Level (ft)	Avg Drop in Water/Level (ft/min)	Percolation Rate (in/hr)	Remarks
10:35	5	9.03				
10:40	5	9.14	-.11			
10:45	5	9.23	-.09			
10:50	5	9.31	-.08			
10:55	5	9.38	-.07			
11:00	5	9.45	-.07			
11:05	5	9.52	-.07			
11:10	5	9.58	-.06			
11:15	5	9.62	-.04			
11:20	5	9.68	-.06			
11:25	5	9.73	-.05			
11:30	5	9.78	-.05			
11:35	5	9.82	-.04			
11:40	5	9.86	-.04			
11:45	5	9.89	-.03			
11:46	5	9.50	Fill			
11:51	5	9.57	-.07			
11:56	5	9.63	-.06			
12:01	5	9.68	-.05			
12:06	5	9.72	-.04			
12:11	5	9.77	-.05			
12:16	5	9.81	-.04			
12:21	5	9.85	-.04			
12:26	5	9.89	-.04			
12:31	5	9.92	-.03			

12:36	5	9.96	-.04			
12:38	5	9.98	-.02			
12:40	5	9.99	-.01			
12:41	5	10.00	-.01 (-.04 from 12:36)			
12:42	5	9.50	Fill			
12:52	5	9.57	-.07			
12:57	5	9.62	-.05			
1:02	5	9.65	-.03			
1:07	5	9.70	-.05			
1:12	5	9.73	-.03			
1:17	5	9.77	-.04		7.2	
1:22	5	9.81	-.04		7.2	
1:27	5	9.85	-.04		7.2	
1:32	5	9.89	-.04		7.2	
1:37	5	9.93	-.04		7.2	
1:42	5	9.95	-.02		3.6	
1:47	5	9.98	-.03		4.3	
1:49	5	10.00				
1:59	5	9.73	Fill			
2:04	5	9.77	-.04		7.2	
2:09	5	9.81	-.04		7.2	
2:14	5	9.84	-.03		4.3	
2:19	5	9.87	-.03		4.3	
2:24	5	9.90	-.03		7.3	
2:29	5	9.94	-.04		7.2	
2:34	5	9.97	-.03		4.3	
2:39	5	10.00	-.03		4.3	

Borehole saturated 1 hour prior to performing test. Minimum Infiltration Rate for last 30 minutes: 4.3 in/hr. The actual infiltration rate of the system will depend on factors such as sedimentation of the basin, soil saturation, and other factors. The infiltration test is an empirical test applying relatively high head over a small area. The infiltration rate decreases with a decrease in head. The maximum infiltration rate should be limited by the designer's judgement or local restrictions; however, test data indicates an infiltration rate of 4.3 inches per hour. Test was initiated/saturated on 10/8/2022 but was re-saturated and completed on 10/10/2022.



NOTES

1. VERTICAL DATUM IS NAVD88, CONTOUR INTERVAL IS 1.0 FEET.
2. LOCATION AND TYPE OF EROSION CONTROL MEASURES ARE IDENTIFIED ON THE SKETCH BY KEY NUMBERS. EG, RELATING TO THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY UNIFIED KEYING SYSTEM AND BEST MANAGEMENT PRACTICES.
3. ALL STRUCTURES SHALL BE KEPT FREE OF DEBRIS DURING CONSTRUCTION USING CATCH BASIN INLET FILTERS.
4. CONTRACTOR IS TO USE THIS KEYING SYSTEM FOR ALL RESTORATION AND STRUCTURES TO BE MAINTAINED DURING CONSTRUCTION.
6. IMMEDIATELY AFTER SEEDING, MULCH ALL SEED AREAS WITH UNWEATHERED SMALL GRAIN STRAW OR HAY. (NOT APPLICABLE IF HYDROSEEDING)
7. ALL MUD/DIRT TRACKED ONTO PAVING, OR EXISTING CITY, STATE OR COUNTY ROADS FROM THIS SITE, DUE TO CONSTRUCTION, SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.

(5) DENOTES TEMPORARY PRACTICES

[5] DENOTES PERMANENT PRACTICES

CONSTRUCTION NOTES

1. INSTALL 4' WIDE FRENCH DRAIN SEE DETAIL '4/C5'
2. INSTALL 6" PERFORATED PVC DRAIN SEE DETAIL '11/C5'
3. INSTALL 6" SCH 40 SOLID PVC DRAIN
4. INSTALL INSPECTION PORTS SEE DETAIL '11/C5'
5. INSTALL BIT SPILLWAY SEE DETAIL '3/C5'
6. INSTALL DRAINAGE CHANNEL W/ TURF REINFORCEMENT MAT SEE DETAIL '7/C5'
7. EMERGENCY OVERFLOW W/ TRM SEE DETAIL '8/C5'
8. INSTALL 0.5 CYD OF 4"-8" RIP RAP (5' x 3')
9. INSTALL RAIN GARDEN SEE DETAIL '12/C5'
10. INSTALL 6" DEEP LOW AREA IN LAWN SEE DETAIL '7/C5'
11. INSTALL 15" CMP CULVERT W/ FLARED END SECTIONS

SE & SC KEYING SYSTEM

5	SEEDING	INEXPENSIVE AND VERY EFFECTIVE, STABILIZES SOIL, THUS MINIMIZING EROSION PERMITS RUNOFF TO INFILTRATE SOIL, REDUCING RUNOFF VOLUME SHOULD INCLUDE PREPARED TOPSOIL BED
6	SEEDING w/MULCH OR MATTING	FACILITATES ESTABLISHMENT OF VEGETATIVE COVER, EFFECTIVE FOR DRAINAGEWAYS w/ LOW VELOCITY, EASILY PLACED IN SMALL QUANTITES BY INEXPERIENCED PERSONNEL SHOULD INCLUDE PREPARED TOPSOIL BED
13	RIPRAP, RUBBLE, GABIONS	USED WHERE VEGETATION IS NOT EASILY ESTABLISHED, EFFECTIVE FOR HIGH VELOCITIES OR HIGH CONCENTRATIONS, PERMITS RUNOFF TO INFILTRATE SOIL DISSIPATES ENERGY FLOW AT SYSTEM OUTLETS
14	AGGREGATE COVER	STABILIZES SOIL SURFACE, THUS MINIMIZING EROSION PERMITS CONSTRUCTION TRAFFIC IN ADVERSE WEATHER MAY BE USED AS PART OF PERMANENT BASE CONSTRUCTION OF PAVED AREAS
15	PAVING	PROTECTS AREA WHICH OTHERWISE CANNOT BE PROTECTED, BUT INCREASES RUNOFF VOLUME AND VELOCITY IRREGULAR SURFACE WILL HELP SLOW VELOCITY
57	GEOTEXTILE SILT FENCE	USES GEOTEXTILE AND POSTS OR BALES MAY BE CONSTRUCTED OR PREFABCAGED EASY TO CONSTRUCT AND LOCATE AS NECESSARY
58		USE AT STORMWATER INLETS ESPECIALLY AT CONSTRUCTION SITES

LEGEND

- PROPOSED ASPHALT
- PROPOSED CONCRETE
- EXISTING CONTOURS
- (100) PROPOSED CONTOUR
- PROPOSED VALLEY
- RIDGE PROPOSED RIDGE
- Grading Limits
- DIRECTION OF DRAINAGE
- PROPOSED SLOPE X.X%
- 40XX.XX SPOT GRADE
- ME MATCH EXISTING

MACHINENGINEERING incorporation
TRAVERSE CITY, MI PH 231.935.1530
www.machinengineering.net

STATE OF MICHIGAN
PATRICK J. MACHIN
ENGINEER
No. 6201051471
09/15/2022
LICENSED PROFESSIONAL ENGINEER

ON 22x34 SHEET SCALE: FULL (AS NOTED)
ON 11x17 SHEET SCALE: HALF

REV#	DESCRIPTION	DATE
A	REVIEW - 30% DESIGN	KA0027122
B	REVIEW - 60% DESIGN	KA0080622
C	REVIEW - 75% DESIGN	KA0081022
0	ISSUED FOR CONSTRUCTION	KA0081122
1	UPDATED PER REQUEST	KA0091422

DRAWN BY:	CHECK BY:	APPROVED BY:	CREATED:
AKE	FJM	FJM	07/15/2022

REVISION	REV #1	09/14/2022
DATE ISSUED:		08/17/2022
ISSUE PHASE:		PERMIT

PROJECT TITLE:
SELF-STORAGE UNITS

CLIENT:
S&S MICHIGAN INVESTMENTS, LLC
437 LINCOLN STREET
CADILLAC, MI 49601

PROJECT LOCATION:
GRAND TRAVERSE CO, MI

SHEET TITLE:
GRADING, SOIL EROSION & STORMWATER CONTROL PLAN

PROJECT NUMBER 22127

SHEET NUMBER C3

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