
PLANNING COMMISSION MEETING

Wednesday, June 21, 2023 at 7:00 PM
Hamburg Township Hall Board Room

AGENDA

CALL TO ORDER

PLEDGE TO THE FLAG

APPROVAL OF THE AGENDA

APPROVAL OF MINUTES

1. May 31, 2023 Planning Commission meeting minutes

CALL TO THE PUBLIC

OLD BUSINESS

2. **Final Site Plan Review (SPA 23-0001)** for the construction of a 22,360 square-foot multi-tenant commercial building, with associated parking and site improvements. Site location 7749 E M-36; TID 15-25-200-068.

NEW BUSINESS

3. **Site Plan Review (SPA 23-0001)** for a private campground dedicated to use by United States military veterans and their families to include sports fields, tent camping area, cabins, recreational vehicle parking area, walking trail, service dog training facility, welcome center, memorial plaza, chapel, accessory structures, and docks on Gull Lake and Huron River at 6716 Winans Lake Road (TID 4715-14-400-008 and 4715-23-100-002).

ZONING ADMINISTRATOR'S REPORT

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Supervisor Pat Hohl Clerk Mike Dolan Treasurer Jason Negri Trustees Bill Hahn, Patricia Hughes, Chuck Menzies, Cindy Michniewicz

PLANNING COMMISSION MEETING

Wednesday, May 31 at 7:00 PM
Hamburg Township Hall Board Room

MINUTES

CALL TO ORDER

Commissioner Muck called the meeting to order at 7:00 pm.

PLEDGE TO THE FLAG

ROLL CALL OF THE BOARD:

1) PRESENT:

John Hamlin
Patricia Hughes
Victor Leabu Jr
Deborah Mariani
Ron Muir
Jeff Muck, Chair
Joyce Priebe

2) ABSENT:

APPROVAL OF MEETING AGENDA for tonight.

Approval Motion made by Commissioner Mariani, seconded by Commissioner Priebe, to approve the agenda as presented.

VOTE: MOTION CARRIED UNANIMOUSLY

APPROVAL OF THE MEETING MINUTES

Approval Motion made by Commissioner Muir, seconded by Commissioner Hughes, to approve April 19, 2023 Planning Commission Meeting Minutes with corrections as noted by Commissioner Muir.

VOTE: MOTION CARRIED UNANIMOUSLY

CALL TO THE PUBLIC- No public response

OLD BUSINESS

None

NEW BUSINESS

1. **Site Plan Review (SPA 22-0007)** to consider the remodel of the existing building and construction of 10 new storage buildings at 10776 Hall Road (parcel number 15-25-400-014).

Chair Muck opened the public hearing to the applicant's architect, David LeClaire. He reviewed the process thus far with this project, which began in August of 2022. David got guidance to reduce the size of the project, moving it to the east side of the property which they did. On November 16, 2022, the project was granted special land use approval with 5 conditions. The only thing that changed in the plan was that the road extension was removed, due to a consensus of the Planning Commission excluding Commissioner Hughes. A full landscape that meets the General Industrial zoning was submitted along with a photometric plan that met Scott Pacheco's recommendations as well as the General Industrial zoning of Hamburg Township's Ordinance. David said they would like to get approval to move forward on this site plan at tonight's meeting.

Chair Muck opened the hearing next to Amy Steffens, the Planning and Zoning Director. Amy presented her staff report to the PC board. She stated that due to the contamination from the prior use of this site that approval from EGLE, and other federal and state agencies may be needed before we could issue any land use permits for building at this location. The special land use permit will become null and void unless a land use permit is issued within 2 years of this approval. She read through our commercial standards for exterior lighting, sign lighting and signs, general parking, as well as the site plan review standards. Our township engineer has reviewed this project a few times, and his comments are attached to this report. No street trees or street lights have been proposed with this project. She reviewed the General Industrial supplementary standards in Section 36-187 (f) as well. She provided some suggested conditions for approval of this site plan as well.

Chair Muck again invited LeClaire to the podium. He stated that for storage facilities there were no parking requirements of anything greater than 6 parking spaces for this type of use. In most instances storage users pull up to their unit to load and unload their things. David stated regarding the road extension that they had considered that the road and the detention onsite would be extended sometime in the future. The depth of the storage units was based on the consensus of the PC members to use the building to the south as a gauge of 500 ft of building depth. This design has not changed since

the first meeting. He covered a few other items in the staff report that he did not support. Chair Muck then recommended that he turn the public hearing over to the PC members.

Commissioner Leabu started. He stated that he was on the PC when the Village Center Master Plan was created, and this road requirement was very vague at the time. Many board members thought this Industrial Zoning area would transition to something more residential, but it has not over the years. He said he would like to see the fence details, but he did not support a sidewalk due to the industrial use of the site. He said that he would like to see the architecture design of the remodeled existing building to see what kind of windows would be used there.

The owner of the property, Tim Purzycki addressed the PC members. He mentioned that they could use black out windows, but he wanted to create an inviting business establishment.

Commissioner Hamlin said that the township engineer's report stated that the septic system was going to be removed but no bathrooms were being proposed. He asked what staff would do to relieve themselves. David explained that many of the current storage facilities being built today are managed remotely rather than onsite. He said a customer pays online and receives a code with a unit number. Commissioner Hamlin also mentioned that moving the entrance gate back, increasing the landscaping, and fence aspects would be helpful for site review.

Commissioner Hughes asked Amy if this evening's site review was preliminary or final, since there is nothing noted in the project site plans as to how the existing building will look once the project is completed. Amy recommended that it be preliminary. Commissioner Hughes agreed with Hamlin, that she wants to see what the existing building will look like in the site plan before final approval due to the homes on the east side. She agreed that the PC should require that the road be developed now rather than just require a road easement to be shown on the site plan. She projected that if homes are built west of this site, having this road built to Hall Road would give the homeowners the ability to access other streets in the surrounding area. She suggested that it could be a private dirt road to provide protection and provision for this road. She mentioned that the six parking spaces that would normally be available for onsite staff might not be needed if this facility utilizes off site remote customer service.

Chair Muck asked if Amy wanted to address the issue of the road. Amy stated that the road should be built now since it is part of the Village Center Master Plan. She said that we either enact the Master Plan as we go through the site plan process for individual projects, or we don't. Master Plans are for long-range planning. Commissioner Hughes mentioned that this is a brown field site and there has been talk about splitting the property in half. She shared her concerns with the board on what type of housing will be introduced on that portion of the parcel and feels that the PC should be prepared for such development.

Commissioner Priebe stated that she agrees with Commissioner Leabu regarding the Village Center Master Plan. This area is industrial, it should be industrial. To try to change the area to residential is very difficult to do. Commissioner Priebe stated that she would like to see how the building will look before approval. She shared her doubts about whether there will be residential development on the west side of this parcel due to the contamination. She stated the PC needs to realistically look at what the site is to ensure that it will be planned for the best use. A residence might not be the best choice. She said she would not want her home to be built on that site.

Commissioner Muir stated that he agreed with Amy, either the PC follows the VC Master Plan or does not. He believes that the road should be required to be put in now. The west side of the parcel could be used for a park that does not disturb the soil. He also agreed with Commissioner Leabu that a sidewalk is not needed here as well. Commissioner Leabu stated the cost of putting in a road would cost as much as the self-storage project itself. He stated that both Commissioner Priebe and he felt that an emergency road easement would be more beneficial since no homeowner is going to go out of their way to drive through an industrial area. He asked David if the project plan would build anything within the road easement area.

David stated that the road is not needed to access the site once you get past the curve. That is where they are proposing to build the road. David stated they could leave a road easement to the end of the 5.3-acre property.

Commissioner Hamlin stated that he does not support building the road. He asked David how they could dedicate this easement to this future road extension. David said that is what they could do and would do here. David confirmed that this parcel would be split in the future, and they would plan to dedicate a road easement between these two split parcels. Commissioner Leabu stated there is no benefit to the road especially when you consider its cost.

Commissioner Hughes shared that she appreciates Commissioner Leabu's longevity with the township development and planning. She also shared that many of the homeowners off Livingston St really do not want any more homes built near them or increase density in the Village Center or Village Residential districts. She reminded the PC members that Amy might need to remind the group what the area on Hall Road is supposed to be. Currently, many companies are working remotely and closing their onsite work in office spaces. She reminded the group that even though we might have a Master Plan from 10 years ago, it might not make sense for today's business operations. These businesses might not be there in the future. Since this project is a brown field project, the owner has been given plenty of incentives regarding the price of the property, what has been allowed to be constructed on this parcel. The PC is fine with not requiring remediation of the soil on this parcel before any construction. This is saving a great deal of money.

Commissioner Leabu stated that it isn't economically justifiable to require this owner to build out this road for storage units. If he was proposing 50 condos on this parcel, then it would be more justifiable to require the road build-out. Commissioner Hughes stated that the cost of the road build-out will be placed on whomever purchases the remaining acreage from this parcel split for a different project. Commissioner Leabu followed back up to her comment that if any future projects that would require such a road would have that existing declared easement to utilize for their proposed project. He expressed gratitude that this owner and developer are still pursuing this project. Commissioner Mariani expressed her support of Commissioner Leabu's comments regarding the road easement and building of an unneeded road. She stated that she also would like to see what their building design will be for the existing building before final approval.

Amy expressed her concern about a future road across a road easement. She asked Commissioner Mariani how a future developer would be able to construct such a needed road to gain access across this owner's parcel and connect to Hall Road. Commissioner Leabu asked David about such a future scenario.

Say a new residential development on the west side needed such a road to be built. Would this road easement legally allow a new developer authority to access a road across this declared road easement across your property? This road easement would allow me to build the road straight through, correct? David said yes. Leabu stated that David would never build anything in that declared road easement and that the township attorney would review this agreement to ensure that this is established. This would be a utility, as well as an egress and ingress easement. David said it would be a 66-foot standard easement for utilities and road travel. Whoever needs the road, would build-out the road.

Commissioner Muir asked David if they knew exactly where the land split would occur. David showed that the future split would be around 497 feet from the end of their self-storage unit project, or fence line. David pointed to the map diagram on the easel showing where that area was defined. David showed where the split is being proposed and stated that it meets the industrial zone rear yard setback of our ordinance. This reference point came from the earlier Planning Commission meetings.

Amy asked for clarification from David regarding this proposed split. Will the balance of the two properties stay as one parcel? David affirmed that was the case. She asked him if he was proposing to split the residentially zoned portion. David said no. Commissioner Leabu and David had some more back and forth deliberation regarding this proposed road easement and connecting the future apartments to the north. Chair Muck said we are spending a lot of time debates on roads verses easements, but we need someone to make a motion regarding this project.

Amy then asked for some more clarification on the landscaping plan. She let David know that the 50-foot buffer zone is a requirement of the GI (general industrial) district in our ordinance. David asked if this area is along the east property line. Commissioner Chair Muck said that he agreed that this needed to be in the site plan. David said he thought their site plan showed that they meet the GI landscape requirements. Amy stated that the site plan meets the general landscaping requirements but not the supplementary landscaping requirements in Section 36-187 (f). This requires a 6 ft high wall or berm plus 24 canopy trees. Commissioner Leabu asked if we are talking about the road frontage on Hall Road. Amy said yes. Leabu clarified that the PC would not want a fence out there but would want landscaping. Amy reminded the PC members that they can waive the fence requirement. Commissioner Hamlin stated that it was Amy's condition #7. She said yes. Commissioner Priebe went over what a motion should include.

Approval motion was made by Commissioner Hamlin, seconded by Commissioner Priebe, that the Planning Commission recommends approval of the preliminary site plan (SPA 22-0007) for a self-storage facility to the Township Board with the following conditions, because (as conditioned) the project meets the site plan review standards (Section 36-73), and additional approval standards for the GI district as discussed at tonight's meeting and in the staff report, with the following conditions: 1) because the location of contamination from the prior use of the property before the issuance of a land user permit the approval of the project by the Michigan Department of Environment, Great Lakes, and Energy and any other federal or state agencies that may be required shall be received, 2) fence details shall be submitted for final site plan review, 3) site signage shall be submitted for final site plan review. Signage shall conform to Article XIII, Signs and land use permits shall be issued prior to installation of signage, 4) prior to issuance of a land use permit the applicant shall review approval from all required agencies including, but not limited to, Hamburg Township Fire Department, Hamburg Township engineer, Utilities Department, Livingston County Drain Commission, Livingston County Road Commission, and Livingston County Health Department, 6) architectural elevations of the existing building shall be submitted for

final site plan review, 7) the required landscaping along the east buffer strip shall be provided, 8) the gate on the south side of the existing building should be moved to the rear line of the building, 9) the final site plan shall note that “all lighting shall be turned off between 11:00 PM and Sunrise except when used for commercial and industrial uses, such as in the sales, assembly and repair areas, where such use is open for business after 11:00 PM but only for so long as such use open for business. Lighting used for security between 11:00 PM and sunrise shall be controlled by a motion sensor, 10) a 66-foot wide easement along the north property boundary line shall be provided from Hall Road to the existing west property boundary. Easement is subject to township attorney review and approval.

Roll Call Vote: **Ayes (5);** Priebe, Mariani, Leabu, Muir, Hamlin **Nayes (2);** Muck, Hughes

Motion carried.

2. **Site Plan Review (SPA 23-0001)** for the construction of a 27,461 multi-tenant commercial building, with associated parking and site improvements. The applicant is requesting waivers to the landscaping standards. Site location 7749 E M-36; TID 15-25-200-068.

Chair Muck opened the public hearing to the applicant. Next he opened the meeting to Amy Steffens. She reminded the PC members that this is the first time that this proposed project has been presented to the board. It has been through detailed reviews with our township engineer. Amy read through her staff report. The ZBA board granted a variance in April 2023 for the relocated driveway location to be less than 225 ft to the commercial driveways to the east and the west. Table 2 goes through the VC setback requirements. The project does meets all of the zoning ordinance setback standard requirements. Table 3 goes through the landscaping requirements. Amy walked the PC through Section 36-295 Exterior lighting requirements. No parking lot lighting was proposed on the site plan. No signs have been proposed in this project which is typical. This is in the Village Center District so staff recommends some signage detail is provided for final site plan review, to ensure they work with the architecture of the building. Without specific user types for this proposed site, it is difficult to determine if the proposed parking will be adequate for its future use.

Nick Zander stated that the building square footage was reduced on the east side to make room for the detention pond onsite, making it around 22,000 sq. ft. Amy said she would have to take a closer look at the site plan to determine that this is accurate.

Amy then walked the PC members through the VC and VR Residential District regulations (Section 36-73 (7)). Discussion was held on applicable zoning standards for this Village Center-zoned parcel: setbacks (which all comply), installation of a pedestrian pathway along M-36 (complies), and parking counts (complies). The plans are deficient in required parking stall sized (185 sq. ft. provided whereas 200 square feet is required), four landscaped islands, parking area screening from M-36 and pathway, Village Center-style lighting, and lighting along pathway. The Commission granted waivers to the parking stall size and the landscaped parking islands. Much discussion was had on staff's and Commissioner's concerns on the proposed architecture of the commercial structure.

Nike Zander came to the podium to explain that they had originally wanted to create a wood frame commercial building but wood was very high. As a steel building, it is type two non-combustible building. Tenants would not be retail or office space oriented since they are in decline. Their focus would be on tenants that provide gymnastics or exercise studios, and flooring showrooms. The building would be steel and glass. The Commission indicated that as proposed the building is not acceptable due to this site being in the gateway to the township and in the Village Center zoning district.

Commissioner Hughes mentioned that this structure resembled a warehouse. She felt this was a great idea in a wrong spot. Commissioner Mariani stated that she like the architecture photos in Amy's staff report and she hoped that Mr. Zander would use those as guides. He said he was.

Approval Motion was made by Commissioner Muir, seconded by Commissioner Priebe, that the Planning Commission recommend approve of the Preliminary **Site Plan (SPA 23-0001)** to the Township Board with the following conditions, because as conditioned, the project meets the site plan review standards A-L in Section 36-73 (7) and the additional approval standards of the Village Center district under section 36-187 as discussed at tonight's meeting and as presented in the Staff Report.

The Planning Commission approves that landscaping waiver for the four parking lot islands because it meets the standards in section 36-283. 1) Cross access easement for the pedestrian pathway shall be submitted for the township attorney approval and recorded prior to issuance of a land use permit for any site improvements. 2) A floating easement to allow cross-access subject site from adjacent properties should the subject site be redeveloped shall be submitted for township attorney approval and recorded prior to issuance of a land use permit for any site improvements. 3) All sewer fees shall be paid in full prior to issuance of a land use permit for any site improvements. 4) Prior to issuance of a land use permit, the applicant shall submit a photometric plan that shows that the intensity of light within a site does not exceed ten (10) footcandles or one (1) footcandle at any property line, except where it abuts a residential used or zoned site whereby a maximum of 0.5 footcandles is permitted. Applicant shall propose an exterior light that is similar to the suggested Village Center lighting. 5) Final site plan shall indicate required lighting along M-36 pathway and parking area. Light fixtures to match approved Village Center fixtures and shall comply with light intensity requirements. 6) The final site plan shall note that "All lighting shall be turned off between 11:00 pm and sunrise except when used for commercial and industrial uses, such as in sales, assembly and repair areas, where such use is open for business after 11:00 pm but only for so long as such use open for business. Lighting used for security between 11:00 pm and sunrise shall be controlled by a motion sensor." 7) Prior to issuance of a land use permit the applicant shall receive approval from all required agencies including, but not limited to, Hamburg Township Fire, Utilities Department, Livingston County Drain Commissioner, MDOT, and Livingston County Water Authority. 8) A sign program meeting the standards of Section 36-479 shall be submitted for approval by the Planning Commission prior to the issuance of a land use permits for signage. 9) Tree preservation location and details shall be delineated on the final site plan. 10) A change of use permit shall be issued for every occupant of the structure. At the time of the permit application, a parking count shall be provided by the property owner indicating the available parking for each use. 11) Parking space size can be reduced to 185 sq. ft. 12) Final site plan shall show required screening of parking area and mechanical and electrical equipment, plus one more tree along M-36. 13) No outside storage areas are permitted. 14) Prior to final site plan review, the architecture has to be reviewed and approved by the planning commission. 15) Shrubs must be maintained at 3 ft. tall and additional screening is required along the eastern property boundary.

Roll Call Vote: Ayes (5); Muck, Hughes, Priebe, Mariani, Leabu, Muir, Hamlin

Motion carried unanimously.

3. **Special use permit (SUP 23-002)** for a public hearing for Special use permit review to allow an addition to the Hamburg Township Police Department building located at 10409 Merrill Rd (TID 15-26-100-017) per Sections 36-171 and 36-36 of the Township Zoning Ordinance.

Chair Muck opened the public hearing for public comment. No one from the audience came forward to speak so he closed the public hearing.

Approval motion made by Commissioner Hamlin, seconded by Commissioner Muir, the Planning Commission approves Special Use Permit (SUP 23-002) to allow a 2,100 square foot addition to the Hamburg Township Police Department building located at 10409 Merrill Rd (TID 15-26-100-017) per section 36-171 and 36-36 of the Township Zoning Ordinance, with the following conditions; 1) The special land use permit for the proposed addition to the Hamburg Township Police Department buildings is only valid with approval of a final site plan from Hamburg Township. The site plan submitted for the project on this site shall not increase the size or significantly change the location of the proposed use on the subject site and 2) The special land use permit shall be null and void unless a land use permit for the addition on the site is granted within one year from the date of this approval.

Roll Call Vote: Ayes (5); Muck, Hughes, Priebe, Mariani, Leabu, Muir, Hamlin

Motion carried unanimously.

4. **Final Site Plan Review (SPA 23-0004)** for a 2,100-square foot addition to the Hamburg Township Police Department building at 10409 Merrill Rd (TID 15-26-100-017) per Sections 36-171 and 36-36 of the Township Zoning Ordinance.

Chairman Muck opened the public meeting to Carl Wilmer, the architect. He introduced himself. Then Chairman Muck opened the meeting to Amy. She reviewed her staff report with the PC members. Commissioner Hughes asked the architect for clarification on how large the addition to the police department was. He walked the image of the building design over to her. He explained that the room is for police training.

Approval motion made by Commissioner Mariani, seconded by Commissioner Priebe, that the Planning Commission recommends approval of the **Final Site Plan (SPA 23-0004)** for an expansion of the Hamburg Police Department building located at 10409 Merrill Rd to the Township Board with the following conditions because as condition the project meets the site plan review standards A-L in section 36-73 (7) and the additional approval standards of the RA zoning district under section 36-187 as discussed at tonight's meeting and as presented in the staff report, with the following conditions; 1) prior to issuance of a land use permit that applicant shall receive approval from all required agencies including, but not limited to, Hamburg Township Fire, Engineering and Public Works Departments, Livingston County Drain Commissioner, Livingston County Road Commission and the Health Department.

Roll Call Vote: Ayes (5); Muck, Hughes, Priebe, Mariani, Leabu, Muir, Hamlin

Motion carried unanimously.

5. **Final Site Plan Review (SPA 23-005)** to amend Ore Lake Estates site condo development to reduce the number of lots to 7, removing a portion of the common elements, and adding a portion of the property formerly unit 8) to the common area. Parcel IDs (15-13-204-901, -001, -002, -003, -004, -005, -006, -007).

Chairman Muck opened the public meeting to the applicant, Logan explained that this project was hybrid of development and family enterprise for their residence. Chairman Muck then opened the meeting to Amy. She reviewed her staff report with the PC members. Logan explained

Approval motion made by Commissioner Priebe, seconded by Commissioner Hughes, that the Planning Commission recommends approval of the **Final Site Plan (SPA 23-0005)** to the Township Board with the following conditions because the project meets the site plan review standards A-L of Section 36-73 (7) and Section 18-78 as discussed at the tonight's meeting and as presented in the staff report.

Conditions are; 1) an administratively complete land division application for Parcels A and B shall be made to Hamburg Township. The master deed and by-laws shall be viewed and approved by the Hamburg Township attorney and recorded upon approval of the land division for Parcels A and B, 2) the Hamburg Township fire marshal shall approve the removal of the fire suppression tank prior to the completion of site improvements, and 3) State of Michigan permits will be obtained for any impact to the wetlands, work below the OHM, or occupation of a state-regulated floodplain prior to issuance of a land use permit for site work or construction of a single family dwelling, as deemed necessary by the township zoning administrator.

Roll Call Vote: Ayes (5); Muck, Hughes, Priebe, Mariani, Leabu, Muir, Hamlin

Motion carried unanimously.

ADJOURNMENT

Approval motion made by Commissioner Priebe, seconded by Commissioner Muir for adjournment.
Adjourn at 9:26 pm.

VOTE: MOTION CARRIED UNANIMOUSLY

Respectfully submitted,

Lisa Perschke

Planning/Zoning Coordinator & Recording Secretary

Amy Steffens

Planning & Zoning Director

The minutes were approved as presented/corrected: _____

Commissioner **Jeff Muck**, Chairperson

PHONE: 810-231-1000
FAX: 810-231-4295



P.O. Box 157
10405 Merrill Road
Hamburg, Michigan 48139-0157

To: Planning Commissioners
From: Amy Steffens, AICP
Planning and Zoning Director
Date: June 21, 2023

Project address and Description: **Site Plan Review (SPA 23-0001)** for the construction of a 22,360 square-foot multi-tenant commercial building, with associated parking and site improvements. Site location 7749 E M-36; TID 15-25-200-068.

Owner: Jet Set Group LLC
Applicant: Nick Zander

LOCATION:



PROJECT HISTORY

On February 28, 2023, Hamburg Township received a site plan review application for the construction of a 27,461-square foot multi-tenant commercial structure and associated parking at the site of the old Roadies restaurant that was lost to fire in 2014. This site is zoned in the Village Center district. The applicant has since reduced the size of the structure to 22,484 square feet to allow for on-site stormwater management. The existing curb cut off of M-36 will be relocated to the west by approximately 90 feet. On April 12, 2023, the Zoning Board of Appeals granted variance approval to permit a relocated driveway less than 225 feet from the commercial driveways to the east and west.

The Planning Commission considered the preliminary site plan at their May 31, 2023 meeting. Discussion was held on applicable zoning standards for this Village Center-zoned parcel: setbacks (which all comply), installation of a pedestrian pathway along M-36 (complies), and parking count (complies). The plans are deficient in required parking stall size (185 square feet provided whereas 200 square feet is required), four landscaped islands, parking area screening from M-36 and pathway, Village Center-style lighting, and lighting along pathway. The Commission granted waivers to the parking stall size and the landscaped parking islands.

Much discussion was had on staff's and Commissioner's concerns on the proposed architecture of the commercial structure. The Commission indicated that as proposed the building is not acceptable due to this site being in the gateway to the township and in the Village Center zoning district. Staff's report from May 31, 2023 provides in-depth analysis of the architecture as compared to the Village Center requirements of Section 36-73(7). The Commission made architectural approval a condition of final site plan approval.

Staff recommended to the Commission that a floating easement be considered over the property to encourage future connectivity from this property to the properties to the east and west should future redevelopment of any site occur. The easement is intended to connect uses along this portion of M-36 without having to use M-36.

After taking comment from both the applicant and staff, the Commission recommended preliminary site plan approval with the following conditions:

1. Cross access easement for the pedestrian pathway shall be submitted for township attorney approval and recorded prior to issuance of a land use permit for any site improvements.
2. A floating easement to allow cross-access across subject site from adjacent properties should the subject site be redeveloped shall be submitted for township attorney approval and recorded prior to issuance of a land use permit for any site improvements.
3. All sewer fees shall be paid in full prior to issuance of a land use permit for any site improvements.
4. Prior to issuance of a land use permit the applicant shall submit a photometric plan that shows that the intensity of light within a site does not exceed ten (10) footcandles or one (1) footcandle at any property line, except where it abuts a residentially used or zoned site whereby a maximum of 0.5 footcandles is permitted. Applicant shall propose an exterior light that is similar to the suggested Village Center lighting.

5. Final site plan shall indicate required lighting along M-36 pathway and parking area. Light fixtures to match approved Village Center fixtures and shall comply with light intensity requirements.
6. The final site plan shall note that “All lighting shall be turned off between 11:00 PM and Sunrise except when used for commercial and industrial uses, such as in sales, assembly and repair areas, where such use is open for business after 11:00 p.m. but only for so long as such use open for business. Lighting used for security between 11:00 pm and sunrise shall be controlled by a motion sensor.”
7. Prior to issuance of a land use permit the applicant shall receive approval from all required agencies including, but not limited to, Hamburg Township Fire, Utilities Department, Livingston County Drain Commissioner, MDOT, and Livingston County Water Authority.
8. A sign program meeting the standards of Section 36-479 shall be submitted for approval by the Planning Commission prior to issuance of a land use permits for signage.
9. Tree preservation location and details shall be delineated on the final site plan.
10. A change of use permit shall be issued for every occupant of the structure. At the time of permit application, a parking count shall be provided by the property owner indicating the available parking for each use.
11. Parking space size may be reduced as indicated on the site plan.
12. Final site plan shall show required screening of parking area and mechanical and electrical equipment.
13. No outside storage areas are permitted.
14. Prior to final site plan approval architecture shall be approved by the Planning Commission.
15. Shrubs shall be maintained at three feet tall and additional screening shall be provided along the east property boundary.

At the June 6, 2023 Township Board meeting, the Board approved the preliminary site plan as conditioned by the Planning Commission at the May 31 meeting.

On June 6, 2023, the applicant submitted revised final site plans and a response letter (attached).

On June 13, 2023, the applicant’s architect, Todd Calloway, Commissioner Victor Leabu, and I (Amy Steffens), met to discuss building architecture. It was agreed that the Mr. Calloway would show elevations with a covered porch across the front south elevation, provide awnings above the entry and overhead doors on the east elevation, and provide additional masonry detail. As of this writing, no building elevations have been submitted but staff is confident that the applicant will work with the township to create a building that meets the intent of the Village Center zoning district.

Staff provides the following response to the conditions of the May 31 preliminary site plan approval recommendation:

1. Cross access easement for the pedestrian pathway shall be submitted for township attorney approval and recorded prior to issuance of a land use permit for any site improvements.
An easement is indicated on the site plan. Staff will work with the applicant and township attorney to formalize the easement for recording prior to issuance of land use permits.
2. A floating easement to allow cross-access across subject site from adjacent properties should the subject site be redeveloped shall be submitted for township attorney approval and recorded prior to issuance of a land use permit for any site improvements.

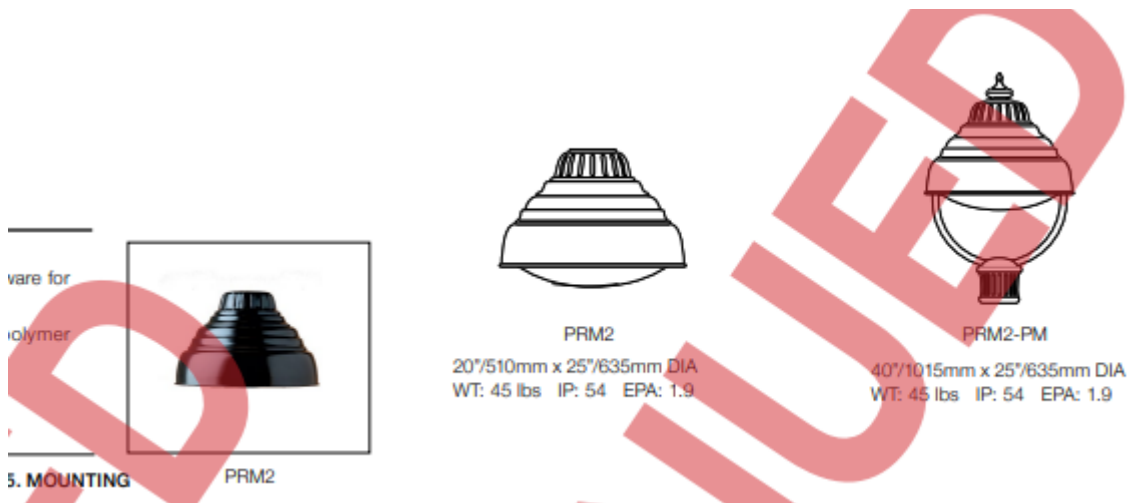
An easement is indicated on the site plan. Staff will work with the applicant and township attorney to formalize the easement for recording prior to issuance of land use permits.

3. All sewer fees shall be paid in full prior to issuance of a land use permit for any site improvements.

The applicant's engineer has been in contact with Brittany Campbell, utilities coordinator. REU review will be required for each individual user and sewer fees paid in full prior to issuance of a land use permit.

4. Prior to issuance of a land use permit the applicant shall submit a photometric plan that shows that the intensity of light within a site does not exceed ten (10) footcandles or one (1) footcandle at any property line, except where it abuts a residentially used or zoned site whereby a maximum of 0.5 footcandles is permitted. Applicant shall propose an exterior light that is similar to the suggested Village Center lighting.

The light fixtures most recently installed for a project in the Village Center zoning district, Hampton Manor senior housing facility, have been discontinued.



The applicant found fixtures of similar design (attached at end of report) that the Commission should consider and decide if any of those fixtures would be acceptable substitutes.

5. Final site plan shall indicate required lighting along M-36 pathway and parking area. Light fixtures to match approved Village Center fixtures and shall comply with light intensity requirements.
See above.
6. The final site plan shall note that "All lighting shall be turned off between 11:00 PM and Sunrise except when used for commercial and industrial uses, such as in sales, assembly and repair areas, where such use is open for business after 11:00 p.m. but only for so long as such use open for business. Lighting used for security between 11:00 pm and sunrise shall be controlled by a motion sensor."
7. Prior to issuance of a land use permit the applicant shall receive approval from all required agencies including, but not limited to, Hamburg Township Fire, Utilities Department, Livingston County Drain Commissioner, MDOT, and Livingston County Water Authority. The fire marshal has amended his review letter to no longer require a fire hydrant. MDOT permit has been issued.

8. A sign program meeting the standards of Section 36-479 shall be submitted for approval by the Planning Commission prior to issuance of a land use permits for signage.
9. Tree preservation location and details shall be delineated on the final site plan.

Completed; see sheet LA1.1

10. A change of use permit shall be issued for every occupant of the structure. At the time of permit application, a parking count shall be provided by the property owner indicating the available parking for each use.
11. Parking space size may be reduced as indicated on the site plan.

Commission granted a waiver for reduced parking stall size.

12. Final site plan shall show required screening of parking area and mechanical and electrical equipment.

A solid row of boxwoods is shown along the eastern property boundary, shielding the parking area from off-site views. The Commission should determine if this row of shrubs, to be maintained at a height of at least 3 feet, will be adequate to meet the intent of Section 36-187(i), Parking lot screening: *All off street parking spaces or loading areas must be screened from view of any public road or pedestrian path right-of-way, or private road or pedestrian path easement by an evergreen hedge row or masonry wall, which is consistent with building architecture and site design, at least three feet in height.*

13. No outside storage areas are permitted.
14. Prior to final site plan approval architecture shall be approved by the Planning Commission.
15. Shrubs shall be maintained at three feet tall and additional screening shall be provided along the east property boundary.

See above.

RECOMMENDATIONS:

Staff recommend the Planning Commission review, discuss and make a recommendation to the Township Board to either approval or denial of the Final Site Plan Application (PSPA23-0001) or table the application and request any additional information deemed necessary for review.

Site Plan Review 23-0001 Draft Approval Motion:

The Planning Commission recommends approval of the final site plan (SPA23-0001) for the construction of a 22,360 square-foot multi-tenant commercial building, with associated parking and site improvements (site location 7749 E M-36; TID 15-25-200-068) to the Township Board because as conditioned the project meets the site plan review standards A-L in section 36-73 (7) and the additional approval standards of the Village Center district under section 36-187 as discussed at tonight's meeting and as presented in the staff report.

Conditions:

1. Cross access easement for the pedestrian pathway shall be submitted for township attorney approval and recorded prior to issuance of a land use permit for any site improvements.
2. A floating easement to allow cross-access across subject site from adjacent properties should the subject site be redeveloped shall be submitted for township attorney approval and recorded prior to issuance of a land use permit for any site improvements.
3. All sewer fees shall be paid in full prior to issuance of a land use permit for any site improvements.

4. Prior to issuance of a land use permit the applicant shall submit a photometric plan that shows that the intensity of light within a site does not exceed ten (10) footcandles or one (1) footcandle at any property line, except where it abuts a residentially used or zoned site whereby a maximum of 0.5 footcandles is permitted. Applicant shall propose an exterior light that is similar to the suggested Village Center lighting.
5. Final site plan shall indicate required lighting along M-36 pathway and parking area. Light fixtures to match approved Village Center fixtures and shall comply with light intensity requirements.
6. Prior to issuance of a land use permit the applicant shall receive approval from all required agencies including, but not limited to, Hamburg Township Fire, Utilities Department, Livingston County Drain Commissioner, MDOT, and Livingston County Water Authority.
7. A sign program meeting the standards of Section 36-479 shall be submitted for approval by the Planning Commission prior to issuance of a land use permits for signage.
8. Final site plan shall show required screening of parking area and mechanical and electrical equipment.
9. No outside storage areas are permitted.
10. Shrubs along south and east property boundaries shall be maintained at no less than three feet tall.

The subject site is a 2.0-acre parcel located on the north side of M-36, west of the Hamburg/Green Oak Township boundary. The site is currently vacant but was previously developed with a restaurant that was lost to a fire in 2014. Table 1, below, lays out the zoning districts, use, and future land use designations for immediate area.

Table 1	Current Zoning Classification	Current Use of Property	Future Land use Designation
Subject Site	Village Center	Vacant	South: Village Gateway District North: Industrial
North	Village Center	Office	Industrial
South	Village Center	CEI	Village Gateway District
East	Village Center	Office/professional	South: Village Gateway District North: Industrial
West	Village Center	Religious	South: Village Gateway District North: Industrial

PROJECT DESCRIPTION

Site plan review application to allow construction of a 22,360-square foot multi-tenant commercial building, with associated parking and site improvements. The proposed project would relocate the existing driveway location approximately 90 feet to the west to accommodate the multi-use building on the west side of the parcel and parking on the east side. The relocated driveway will be approximately 70 feet (centerline to centerline) from the curb cut for the commercial use to the east. Section 36-339 of the Zoning Ordinance requires that the minimum spacing between two commercial driveways on the same side of the road shall be determined based upon posted speed limits along the parcel frontage. The minimum spacings are measured from centerline to centerline. The posted speed limit along this stretch of M-36 is 40 miles per hour, which requires a minimum driveway spacing of 225 feet. On April 12, 2023 the Zoning Board of Appeals granted variance approval to permit a relocated driveway to be less than 225 feet from the commercial driveways to the east and west (meeting minutes attached).

The project plans and building elevations are attached to this report for the Planning Commissions review.

Table 2 (Section 36-186)

	Required	Proposed	Status
Front	No more than 20 feet from front lot line. PC may permit front yard setback greater than 20 feet but not to exceed average front yard setbacks for the adjacent buildings (181 feet)	18 feet	Conforms
Rear	15 feet		Conforms
West Side	Minimum 10 feet*	22.1 feet	Conforms
East Side	Minimum 10 feet*	52 feet	Conforms
Height	2.5 stories/35 feet maximum	1 story/27.6 feet	Conforms
Lot size	10,600 square feet with sanitary sewer		Conforms
Lot coverage			
Buildings	50 percent	32%	Conforms
Impermeable	80 percent	76%	Conforms
Bikepath (Section 36-187)	Required in locations designated in the Hamburg Village Master Plan	8-foot along south property boundary	Conforms

Table 3	Required	Proposed	Status
Section: 36-187(i): South M-ROW	One canopy street tree shall be planted within five feet of the front lot line for each 40 linear feet of frontage.	5 trees	Deficient one tree
North (237 linear feet)	10-foot buffer zone: 1 canopy or evergreen tree or 4 shrubs for every 20 linear feet along property line rounded upward = 12 trees or 48 shrubs	12 trees, no shrubs	Conforms
East (368)	10-foot buffer zone: 1 canopy or evergreen tree or 4 shrubs for every 20 linear feet along property line rounded upward = 19 trees or 74 shrubs	19 trees (preserving one), no shrubs	Conforms
West (368)	10-foot buffer zone: 1 canopy or evergreen tree or 4 shrubs for every 20 linear feet along property line rounded upward = 19 trees or 74 shrubs	30 (preserving nine)	Conforms
Section 36-283: Parking lot landscaping (26,100 square feet)	One canopy tree required for each 2,000 square feet of paved driveway and parking lot surface; two tree minimum = 13 trees required within parking lot envelope, with 4 trees in landscaped islands	13 trees; no landscaped islands	No landscaped islands; waiver requested

Section 36-187(i) Parking lot screening	All off street parking spaces or loading areas must be screened from view of any public road or pedestrian path right-of-way, or private road or pedestrian path easement by an evergreen hedge row or masonry wall, which is consistent with building architecture and site design, at least three feet in height.	32 two-foot tall shrubs along south; none proposed along east parking area	Shrubs must be maintained at 3 feet tall; additional screening required along easter property boundary
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Sec. 36-280. Existing plant material.

- (a) *Consideration of existing elements in the landscape design.* In instances where healthy plant material exists on a site prior to its development, the planning commission may permit substitution of such plant material in place of the requirements set forth in this section.
- (b) *Preservation of existing plant material.* Site plans shall show all existing trees which are located in the portions of the site that will be built upon or otherwise altered, and are six inches or greater in caliper, measured 12 inches above grade.
 - (1) Trees shall be labeled "To Be Removed" or "To Be Saved" on the site plan. If existing plant material is labeled "To Be Saved" on the site plan, protective measures should be implemented, such as the placement of a tree guard at the dripline around each tree. No vehicle or other construction equipment shall be parked or stored within the dripline of any tree or other plant material intended to be saved.
 - (2) In the event that healthy plant materials which are intended to meet the requirements of this article are cut down, damaged or destroyed during construction, said plant material shall be replaced with the same species as the damaged or removed tree or approved substitute, in accordance with the following schedule, unless otherwise approved by the zoning administrator based on consideration of the site and building configuration, available planting space, and similar considerations:

<i>Damaged Tree*</i>	<i>Replacement Tree</i>	<i>Replacement Ratio</i>
Less than 6 inches	2½ to 3 inches	1 for 1
More than 6 inches	2½ to 3 inches	1 replacement tree for each 6 inches in caliper or fraction thereof of damaged tree

Staff analysis: Existing plant material to be saved is not noted on the site plan; tree protection details are included in the site plan.

Staff suggested condition: Tree preservation details shall be delineated on the final site plan.

Section 36-283:

Waivers and Modifications. The Planning Commission may waive or modify the fencing or landscape buffering requirements upon a determination that a solid fence or landscaping buffer will not be necessary or effective for screening. In making such a determination, the following shall be considered.

1. Need for security;
2. Abutting district or existing use;
3. Extent that existing natural vegetation provides the desired screening;
4. Topography which would eliminate the benefits of required landscaping;
5. Building heights and views in relation to existing topography and vegetation as well as views from adjacent uses;

6. Similar conditions existing such that no good purpose would be served by providing the required landscaping plan.

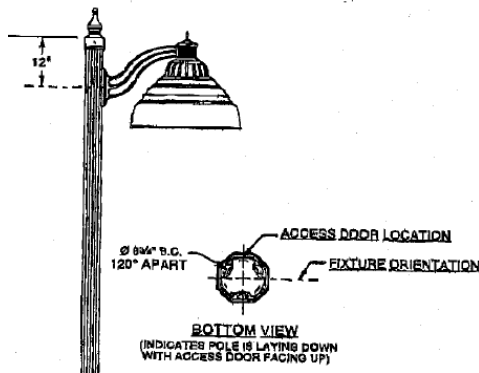
Staff analysis: The request for no landscaped parking islands appears to be reasonable, given that the site's parking lot is designed to accommodate required parking, on-site stormwater management, and emergency vehicle access.

LIGHTING:

Section 36-295:

1. Exterior lighting shall be fully shielded and directed downward toward the Earth's surface, away from residential uses, roads, glass, water or other reflective materials which would create excessive off-site glare or incident rays.

The lighting plan provided is adequate to determine the conformance to the zoning ordinance requirements. However, staff would suggest that the exterior light style does not match the Village Center lighting style that has been installed in various locations throughout the Village Center, most recently at the senior living facility on the south side of M-36 (below).



Staff Suggestion Condition: Applicant shall propose an exterior light that is similar to the suggested Village Center lighting and shall re-submit a photometric plan prior to issuance of a land use permit that is specific to the approved lighting style.

2. The Zoning Administrator and/or Planning Commission may approve decorative light fixtures as an alternative to shielded fixtures when it can be proven that there will be no off-site glare and the proposed fixtures will improve the appearance of the site.

See discussion above.

3. Lights on poles shall not be taller than the building whose area they illuminate nor taller than fifteen (15) feet whichever is shorter. Lights on poles may exceed fifteen (15) feet up to twenty (20) feet if the fixtures are located a minimum of seventy-five (75) feet from any planned, zoned or used residential areas.

No light poles are proposed.

4. Lighting shall not be of a flashing, moving or intermittent type.

No flashing lighting is proposed.

5. **Except where used for security purposes, all outdoor lighting fixtures, existing or hereafter installed and maintained shall be turned off between 11:00 p.m. and sunrise, except when used for commercial and industrial uses, such as in sales, assembly and repair areas, where such use is open for business after 11:00 p.m. but only for so long as such use open for business. Businesses with light fixtures used for security purposes are encouraged to use a motion detection device which is directed to detect motion within the property.**

Staff Suggested Condition: Final site plan shall note that “all outdoor lighting fixtures, existing or hereafter installed and maintained shall be turned off between 11:00 p.m. and sunrise, except when used for commercial and industrial uses, such as in sales, assembly and repair areas, where such use is open for business after 11:00 p.m. but only for so long as such use open for business.”

6. **Any light fixture must be placed in such a manner that no light emitting surface is visible from any residential area or public/private roadway, walkway, trail or other public way when viewed at ground level.**
7. **The intensity of light within a site shall not exceed ten (10) footcandles or one (1) footcandle at any property line, except where it abuts a residentially used or zoned site whereby a maximum of 0.5 footcandles is permitted. The only exception is with gas station canopy and automobile dealership lighting, where a maximum of twenty (20) footcandles is permitted within the site but the above standards shall apply to intensity at the property line.**
See discussion above under standard one.

Section 36-187(i):

Lighting.

1. A consistent type of pedestrian scale ornamental lighting shall be provided along all sidewalks, within any off-street parking lots and along road frontages.

Staff analysis: The site plan does not include lighting along the pedestrian path on M-36 or within the parking lot.

Staff suggested condition: Final site plan shall indicate required lighting along M-36 pathway and parking area. Light fixtures to match approved Village Center fixtures and shall comply with light intensity requirements.

Sec. 36-295(e). Sign Lighting Standards.

1. **Indirect illumination of signs, canopies and buildings is permitted provided a maximum 125 watt bulb is utilized and there is no glare.**
2. **The use of laser light source, searchlights or any similar high intensity light for outdoor advertisement or entertainment is prohibited.**
3. **Luminous tube and exposed bulb fluorescent lighting is prohibited as part of a sign provided the proposed luminous tube or exposed bulb fluorescent lighting is determined to be consistent with the architectural character of the building.**
4. **Internally illuminated signs shall have a minimum of 60% of the sign face composed of an opaque surface which allows no light to transmit through.**

Staff analysis: No signs have been submitted for review. Any future signage shall comply with the above lighting standards.

Section 36-334 Parking space requirements

The applicant proposes one parking space for every 400 square feet of floor area, which is the standard for both “Furniture and appliance stores, personal services (except beauty parlors and barbershops), household equipment or furniture repair shops, clothing or shoe repair or service shops, hardware stores” and for “general office building.” Without knowing the individual tenants, it is difficult for staff to determine if the provided parking is adequate. The applicant should be aware that for each change of use application submitted for each tenant, the parking for that user will be calculated using the standards set forth in 36-334. For example, if a restaurant use applied for a change of use, the restaurant parking requirements would be calculated at one parking space for each four-patron seats, plus one parking space for each two employees. If the sum total of every user in the commercial building exceeds the provided parking, the change of use permit application would not be approvable based on parking requirements.

Staff suggested condition: A change of use permit shall be required for every tenant. At the time of permit application a parking count shall be provided by the property owner indicating the available parking for each use.

General Parking Requirements:

- | | |
|--|---|
| 1. Off-street parking for non-residential uses shall be located on the same lot or parcel or within three hundred (300) feet of the building it is intended to serve provided the provisions of Section 10.2.2., Collective Parking, are met. | Conforms |
| 2. A minimum area of 200 square feet shall be provided for each vehicle parking space and each space shall be designated and reserved for parking. | Proposed parking space size 185 square feet; waiver requested |
| 3. A suitable means of ingress and egress shall be provided and located to minimize traffic congestion and interference with pedestrian movement. The location of all entrances and exits and directional signs, shall be approved by the Planning Commission, and where required by the Livingston County Road Commission and the Michigan Department of Transportation. | Conforms |
| 4. Parking areas with a capacity of four or more vehicles shall be hard surfaced (either concrete, bituminous asphalt or other stabilized engineered surface) prior to occupancy and shall provide adequate drainage facilities to dispose of all collected surface water. The requirement for paving may be waived by the Planning Commission through paragraph 10.2.1.I. | Conforms |
| 5. Except for single-family residential lots, lighting shall be provided for use when a parking area is in operation. The installation of such lighting shall be so hooded or shielded as to reflect the light away from abutting or neighboring property. | See photometric plan |
| 6. When required off-street parking in a non-residential district abuts a residential district, there shall be located a landscaped buffer strip fifteen (15) feet wide and parallel to the mutual boundary. The buffer strip shall be composed of trees and/or foliage. In lieu of a buffer strip, the Planning Commission may permit or require | Conforms |

<p>a solid fence or wall between six (6) and eight (8) feet in height shall be located along the mutual boundary.</p> <p>7. Federal and State requirements regarding handicapped parking and access shall apply.</p>	<p>Conforms; will be reviewed by LCBD</p>
<p>Staff analysis: A 185-square foot parking stall is not inappropriately sized and would be an acceptable deviation from the ordinance requirement.</p> <p>DRIVEWAYS: COMMERCIAL Section 36-335</p>	
<p>General Standards</p> <p>A. Driveways shall be located so as to minimize interference with the free movement of traffic, to provide adequate sight distance, and to provide the most favorable driveway grade.</p> <p>B. Driveways, including the radii but not including right turn lanes, passing lanes and tapers, shall be located entirely within the right-of-way frontage, unless otherwise approved by Livingston County or the Michigan Department of Transportation and upon written certification from the adjacent property owner agreeing to such encroachment.</p>	<p>MDOT permit issued</p>
<p>SIGNS</p> <p>Section 36-478:</p>	
<p>The following signs are permitted in the Village Center district. However, nonresidential multi-tenant developments must create a sign program. No signage or sign program has been submitted by the applicant.</p> <p><i>Wall signs.</i> Wall signs shall be placed generally within a sign band located above the store front and not to exceed 80 percent of the linear frontage. Maximum size per facade is 0.75 square feet per linear foot up to 24 square feet. Letters shall not exceed 18 inches and shall be mounted flush against the wall.</p> <p><i>Awning sign.</i> Sign lettering and/or logo shall not comprise more than 20 percent or ten square feet of the exterior surface of the canopy.</p> <p><i>Projecting signs.</i> signs shall not project more than 48 inches from the building face and shall have a maximum size of five square feet per side. These signs shall have wrought iron mounting hardware.</p> <p><i>Window signs.</i> Window signs shall not exceed ten percent of the window so that visibility into and out of the window is not obscured. Window signs shall be directly applied to the window or hung inside the window, concealing all mounting hardware and equipment.</p> <p><i>Freestanding signs.</i> Freestanding signs must be ground mounted and architecturally harmonious with the character of the building. They must meet the size requirements of this chapter and be located in a landscaped area.</p> <p><i>One-day portable signs.</i> must be made of wood or decorative metal with cast iron brackets and shall be architecturally compatible with the style, composition, materials, colors, and details of the building.</p> <p>Staff analysis: A sign program must be submitted and approved by the Commission prior to issuance of a land use permit for signage.</p>	

Section 36-187(i) VC and VR Village Center and Village Residential Districts: the Zoning Ordinance specifies additional Village Center district standards, below, with staff analysis for each applicable standard.

(1) Design standards. The following design standards shall apply to all site plans reviewed under article III of this chapter special uses reviewed under section 36-36 subdivision plats reviewed under the subdivision control ordinance, and condominium projects reviewed under the condominium ordinance.

a. General. The overall design and mixture of uses shall be consistent with the intent of this district. Compatibility of uses shall be determined by the following:

1. The uses shall not create noise, dust, odors, fumes or other nuisances that will have an obnoxious effect on surrounding residences.

Staff analysis: There is no existing adjacent residential use that would be impacted by the proposed commercial project. If adjacent lots were to be developed with residential uses in the future, staff does not find that the commercial structure would have a negative impact in terms of noise, dust, odors, fumes, or other similar nuisances.

2. Traffic volumes generated by the use shall not have a negative impact on surrounding residential character.

Staff analysis: The expected traffic for a commercial use is not likely to have a negative impact on surrounding residential character. The Commission could request a traffic impact analysis be submitted for final site plan review.

3. Architecture shall meet the requirements of section 36-73(7).

Staff analysis: see below

4. Location and use of yards shall contribute to the continuation of open space areas within the immediate vicinity.

Staff analysis: There is no open space in the vicinity other than the required yards on adjacent parcels.

5. Location and design of landscaping and pedestrian areas shall be compatible with and enhance the area pedestrian and open space network.

Staff analysis: The sidewalk and streetscape landscaping will be pedestrian in scale.

6. Location, size and types of architectural projections such as porches or awnings shall be compatible with other structures along the same block.

Staff analysis: See architecture discussion below.

7. Location, scale and design of signs shall be consistent with the character of other signs, street elements structures and uses located along the same street.

Staff analysis: No signage is proposed but a sign program will be required for Planning Commission approval.

8. Residential development shall be designed to be compatible with surrounding land uses, while providing a mixture of housing types to meet the varied needs of Township residents.

Staff analysis: No residential development proposed.

b. Sidewalks/pedestrian circulation.

1. Site design shall demonstrate a special sensitivity to pedestrian circulation and safety.
2. Sidewalks at least five feet wide and at least seven feet wide where abutting parking shall be provided along public streets and private roads; bike paths shall be required in locations designated in the Hamburg Village master plan or to provide linkages with existing or planned bike paths.
3. All developments shall provide pedestrian linkages between public sidewalks and the building entrances.

Staff analysis: An eight-foot wide paved path along M-36 will be installed.

Staff suggested condition: Cross access easement agreement shall be approved by the township attorney

c. Common open space. For any development which includes ten or more dwelling units, 1,500 square feet of common open space shall be provided per dwelling unit. Such open space may be counted towards meeting open space requirements for minimum lot size reductions, provided that it meets all of the following requirements:

1. Open space shall be set aside by the developer through an irrevocable conveyance that is found acceptable to the planning commission, such as:
 - (i) Recorded deed restrictions;
 - (ii) Covenants that run perpetually with the land; or
 - (iii) A conservation easement established per section 8204 of Public Act No. 451 of 1994 (MCL 324.8204).
2. The common open space shall be used for social, recreational and/or natural preservation. Common open space within the village shall be of a distinct geometric shape, generally rectilinear or square. The common open space shall include landscaping, sidewalks, pedestrian benches and pedestrian scale lamp posts. Open space at the edges of the village, as shown on the Hamburg Village master plan shall be left in a natural state, with the exception of trails or boardwalks.

Staff analysis: No residential uses proposed.

d. Parking/loading areas.

1. The amount of parking for nonresidential uses required under article IX of this chapter may be reduced by the planning commission by up to 50 percent upon a finding that patrons will be able to walk to the use from nearby residential areas, patrons are parked at other uses and visiting several uses, and/or on-street parking is available.

2. Off street parking lots shall be located behind the front line of the principal building. Where this is not feasible or practical, the planning commission may permit off street parking within the front yard. Parking lots must be setback from any front lot line a minimum of 20 feet.

Staff analysis: Proposed parking conforms to this standard.

3. All off street parking spaces or loading areas must be screened from view of any public road or pedestrian path right-of-way, or private road or pedestrian path easement by an evergreen hedge row or masonry wall, which is consistent with building architecture and site design, at least three feet in height.

Staff analysis: The proposed row of boxwoods would screen the parking lot from M-36, so long as the height is maintained at three feet, but additional boxwoods should be planted within the east setback to further screen parking from M-36.

4. Where parking or loading areas abut a residential use, a six-foot-tall masonry wall, which is consistent with building architecture and site design, shall be constructed between the parking lot or loading area and the adjacent residential use. The planning commission may substitute the masonry wall with one or more rows of six-foot-tall evergreens.

5. Loading/unloading from secondary streets may be permitted by the planning commission rather than the required on-site loading, upon demonstration by the applicant that through traffic flow and access to neighboring uses will not be disrupted.

Staff analysis: Not proposed

e. Architecture: See staff discussion of architecture under Site Plan Review Standards, below

1. Buildings shall possess architectural variety but enhance the overall cohesive and historic village character.

2. Building architecture shall meet the standards of section 36-73(7).

3. The first floor of front facades shall include at least 30 percent windows. The approximate size, shape, orientation and spacing shall match that of buildings on adjacent lots.

4. The mass and proportion of structures shall be similar to structures on adjacent lots and on the opposite side of the street. Larger buildings may be broken-up with varying building lines and rooflines to provide a series of smaller scale sections which are individually similar in mass and proportion to surrounding structures.

5. Buildings located on corner lots shall provide distinct and prominent architectural features or site elements which reflect the importance of the building's corner location and creates a positive visual landmark. An entry feature or site landmark shall be required at corners designated for such a feature in the Hamburg Village master plan. The architectural feature or site element shall be subject to planning commission approval.

On sites which contain commercial structures over 50 years old, no exterior portion of any commercial building or structure (including walls, fences, light fixtures, steps, pavement, or other appurtenant features), or aboveground utility structures shall be erected, altered, restored, moved or demolished without the review of the planning commission prior to the issuance of a land use permit. The purpose of the planning commission review is to advise on actions which may or may not be compatible with the desirable historic, architectural or cultural aspects of the district. The planning commission may consider Standards for Rehabilitation and Guidelines for Rehabilitation of Historic Buildings prepared by the U.S. Department of Interior for reviewing actions within the Old Hamburg Village. Such standards are made part of this chapter.

Staff analysis: Not applicable.

6. For proposed alterations to commercial structures for which site plan review is not required under article III of this chapter, the review of the planning commission shall be advisory to the zoning administrator in the issuance of a land use permit. The provisions of this section shall not be construed to prevent the ordinary maintenance or repair of any exterior feature. Further, the provisions of this section shall not prevent the construction, alteration, restoration or demolition of any feature which the building inspector certifies is required because of a threat to public safety.

f. Signs. Signs shall be designed to be compatible with the principal building's architecture and materials.

Staff analysis: Sign program will be required for Planning Commission approval.

g. Street and access design. Streets shall meet the following, with the acknowledgment that for any public streets, any more stringent standards of the county road commission or the Michigan Department of Transportation shall apply.

1. Access points to M-36 shall be spaced at least 500 feet apart.
2. Access points along streets or driveways intersecting with M-36 shall be setback at least 60 feet from the M-36 right-of-way line.
3. The Township may require shared access or connections between adjacent uses as a means to limit conflict points and preserve capacity along M-36.
4. The maximum length of blocks shall be 700 feet.

5. Street connections to adjacent parcels shall be provided where the master plan identifies a future street connection or there is the possibility to create future street connections. Road stubs for future connections shall be improved to the parcel line.

Staff analysis: No new street installation is proposed. Access will be from M-36 only.

h. Landscaping. All landscaping shall meet the minimum requirements of article VIII of this chapter. Because of the higher density of development permitted in the VC and VR districts, the following standards shall apply to frontage landscaping in place of the standards contained in article VIII of this chapter:

1. At least an 80-foot-wide landscaped greenbelt shall be provided along undeveloped areas of M-36, as designated on the Hamburg Village master plan, with at least two rows of trees spaced no greater than 25 feet on center. Trees shall be a mixture of evergreen and canopy trees meeting the minimum plant size requirements of article VIII of this chapter. Provision of this landscaped greenbelt may be counted towards the common open space requirements of subsection (c) of this section.

2. Along all road frontages, other than M-36 section identified in subsection (i)(1)h.1 of this section, one canopy street tree shall be planted within five feet of the front lot line for each 40 linear feet of frontage.

Staff analysis: One additional tree should be planted along the M-36 frontage in order to comply with this requirement.

i. Lighting.

1. A consistent type of pedestrian scale ornamental lighting shall be provided along all sidewalks, within any off-street parking lots and along road frontages.

Staff analysis: No lighting is proposed. Final site plan should indicate location and light fixture details for Commission approval.

2. Parking lot lighting shall not be greater than 20 feet in height.

(2) Approval standards. The following criteria shall be used, in addition to the standards contained in article III of this chapter or the subdivision control ordinance, as a basis upon which site plans or subdivision plats shall be reviewed and approved by the Township:

a. Compatibility with adjacent uses. The proposal shall be designed, constructed, and maintained to be compatible with permitted uses on surrounding land to the extent that is reasonably feasible, giving consideration to economic and site conditions. Consideration may be given to:

1. The location and screening of vehicular circulation and parking areas in relation to surrounding development, to the maximum extent feasible.

2. The location and screening of outdoor storage, outdoor activity and work areas, and mechanical equipment in relation to surrounding development.

3. The bulk, placement, and materials of construction of the proposed use in relation to surrounding development shall be compatible as determined by the general requirements listed in section 36-187(i)(1)a.

Staff analysis: With the additional screening along M-36 and the east property boundary of the parking lot, this requirement will be met, although mechanical equipment is not indicated on the site plan.

Staff suggested condition: Final site plan shall show location and screening of mechanical equipment.

4. Proposed site amenities.

5. The site grading and stormwater drainage plan.

b. Transportation and access. The proposed use shall be designed to minimize the impact of traffic generated by the use to the extent that is reasonably feasible, giving consideration to economic and site conditions. Consideration may be given to the following:

1. Relationship between the proposed development and existing and proposed streets.
2. Estimated traffic generated by the proposed use.
3. Location and access to on-street parking.
4. Location and access to off-street parking.
5. Provisions for vehicular traffic.
6. Continuation of the planned street network for the village.

The planning commission may require a traffic impact study for special uses.

Staff analysis: A roadway to the north of this site, connecting M-36 and Industrial Drive, is proposed in the Village Future Land Use plan. Staff's suggested condition of a floating easement for cross access could be used for this future connection between the two existing roadways.

c. Building architecture. In determining the appropriateness of buildings, design elements shall be evaluated in relation to existing and proposed surrounding buildings and uses. The design shall meet the standards of subsection (i)(1)g of this section

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

Staff analysis: Public Safety approval will be required prior to final site plan approval.

e. Health and safety concerns. Any use shall comply with applicable federal, state, county, and local health and pollution laws and regulations related to noise; dust, smoke and other air pollutants; vibration; glare and heat; fire and explosive hazards; gases; electromagnetic; radioactive materials; and toxic and hazardous materials. The planning commission may require an environmental impact study for special uses.

Staff analysis: No negative health or safety concerns are expected from proposed commercial development. Each tenant will require a change of use review by the township zoning administrator and fire marshal and will be reviewed in light of zoning requirements.

f. Screening. Off-street parking, outside refuse, storage areas, and mechanical and electrical equipment which are within sight of adjacent residential districts or public roads shall be adequately screened.

Staff suggested condition: Final site plan shall show required screening of parking area and mechanical and electrical equipment. No outside storage areas are proposed.

g. Appearance. Signs and other site features shall be designed and located on the site so that the proposed development is aesthetically pleasing and harmonious with nearby developments.

Staff analysis: A sign program will be required to be approved by the Commission prior to issuance of land use permits.

SITE PLAN REVIEW STANDARDS

In the review of all site plans, the Zoning Administrator and the Planning Commission shall endeavor to assure the following:

A. The proposed development conforms to all provisions of the Zoning Ordinances.
Please see the discussion of ordinance compliance for analysis on the project compliance and consistency with the intent and purpose of the Township's Zoning Ordinance.

Variances have been granted for the relocated driveway along M-36.

B. All required information has been provided.

The information submitted appears to be adequate to allow the Planning Commission to review and make comment on the preliminary site plan for the subject site.

C. The movement of vehicular and pedestrian traffic within the site and in relation to access streets and sidewalks will be safe and convenient.

Michigan Department of Transportation has approved the relocated driveway. Additionally, the proposed sidewalk along M-36 will connect with the walkway immediately in front of the commercial building.

D. The proposed development will be harmonious with existing and future uses in the immediate area and the community.

The proposed development will provide for a general use commercial structure, which is compatible with the zoning and the future uses of the Master Plan. However, staff has serious reservations about the architecture of the proposed building, as discussed

below, as well as providing future connectivity through this site to accommodate future redevelopment of this site.

- E. The proposed development provides the necessary infrastructure improvements, such as roads, drainage, pedestrian facilities and utilities, to serve the site, and be adequately coordinated with the current and future use of adjacent properties.**

The site is proposing on-site stormwater management, a pedestrian path, and one right-in only access point from a relocated driveway. However, a cross-access easement for the path and a floating easement for future connectivity to adjacent parcels would facilitate future connectivity and ensure that the pedestrian path remains accessible to the public.

Staff suggested conditions: Cross access easement for the pedestrian pathway shall be submitted for township attorney approval and recorded prior to issuance of a land use permit for any site improvements.

A floating easement to allow cross-access across subject site from adjacent properties should the subject site be redeveloped shall be submitted for township attorney approval and recorded prior to issuance of a land use permit for any site improvements.

- F. The applicable requirements of Township, County and State agencies are met regarding grading and surface drainage and for the design and construction of storm sewers, storm water holding facilities, water mains, and sanitary sewers.**

The site plan has been forwarded to the Township Engineer, Utilities Department and the Livingston County Water Authority. Prior to issuance of a building permit the applicant will need approvals from all the required local, state, and federal agencies. The Utilities Department has provided a preliminary opinion of probably cost for sewer REUs and has requested that a condition of site plan approval be as follows: *All sewer fees shall be paid in full prior to issuance of a land use permit for any site improvements.*

- G. Natural resources will be preserved to the maximum extent possible in the site design by developing in a manner which will not detrimentally affect or destroy natural features such as lakes, ponds, streams, wetlands, steep slopes, and woodlands.**

There are no natural features present on the site.

- H. The proposed development shall respect the natural topography to the maximum extent possible by minimizing the amount of cutting, filling, and grading required.**

The subject property is relatively flat and minimal grading will be required as a part of this project.

- I. The proposed development will not cause soil erosion or sedimentation.**

The LCDC will review the plans and issue a soil erosion and sedimentation control permit prior to issuance of a building permit.

- J. Landscaping, including trees, shrubs and other vegetative material is provided to maintain, improve and/or restore the aesthetic quality of the site.**

Staff finds that the provided landscaping would improve the aesthetic quality of the site.

- K. Conformance to the adopted Hamburg Township Engineering and Design Standards.**

The engineer has reviewed the plans for compliance with the Engineering and Design Standard and provided comments.

- L. All proposed commercial, office, industrial, institutional and multiple family development shall utilize quality architecture to ensure that buildings are compatible with surrounding uses, protect the investment of adjacent landowners, blend harmoniously into the streetscape and meet the objectives the Township Master Plan. New buildings, additions and renovations shall be designed to preserve or complement the design character of existing development provide visual harmony between old and new buildings, and create a positive image for the Township's various commercial shopping nodes. Commercial, office, industrial, institutional and multiple family architecture shall be reviewed by the Planning Commission under the following criteria:**

- 1. Buildings shall front towards and relate to the public street. Buildings shall be located to create a define streetscape through uniform setbacks and proper relationship to adjacent structures. Proper relationship to existing structures in the area shall be maintained through building mass, proportion, scale, roof line shapes and rhythm. Buildings within the area designated on the M-36 Corridor Plan/Master Plan as the "Hamburg Village" shall be compatible with the historic character of the unincorporated place commonly referred to as the "Old Hamburg Village."**
- 2. Building materials and colors shall relate well and be harmonious with the surrounding area. Roof shape and materials shall be architecturally compatible with adjacent buildings and enhance the predominant streetscape. For any side of a principal building facing a public or private street, at least fifty percent (50%) of the facade shall be constructed of, or covered with, the following materials:**
 - a. Brick;**
 - b. Fluted or scored concrete block;**
 - c. Cut stone;**
 - d. Vinyl siding;**
 - e. Wood siding;**
 - f. Glass; or,**
 - g. Other materials similar to the above as determined by the Planning Commission.**
- 3. Buildings shall possess architectural variety, but enhance the overall cohesive community character. Buildings shall provide architectural features, details and ornaments such as archways, colonnades, towers, cornices or peaked roof lines.**

4. **Building walls over 100 feet in length shall be broken up with a combination of the following: varying building lines, windows, architectural accents and trees.**
5. **Building entrances shall utilize windows, canopies and awnings; provide unity of scale, texture, and color; and provide a sense of place.**
6. **Where the rear facade of a building will be visible from a residential zoning district, or the rear of the site will be used for public access or parking, such rear facade shall be constructed to a finished quality comparable to the front facade.**
7. **Signs, landscaping, lighting and other site elements shall be coordinated and compatible with the building design, as well as harmonious with other nearby developments. Developments shall provide site features such as decorative entry signs, ornamental lighting, pedestrian plazas and/or pedestrian furniture.**

Staff Analysis: The proposed multi-tenant commercial building is a 77-foot by 292-foot metal clad structure, with a 18.25-foot wall plate and a metal roof with a 2/12 pitch. Five solid overhead doors are on the east elevation and three glazed overhead doors on the south elevation along M-36. Metal canopies are located over the three overhead doors on the south elevation and over each entry door on the east elevation. A masonry facade is proposed, three feet from grade, along the south and east elevations; no finishes are proposed along the west or north elevations.

Section 36-73(7) specifies that “For any side of a principal building facing a public or private street, at least 50 percent of the facade shall be constructed of, or covered with, the following materials: brick; fluted or scored concrete block; cut stone, vinyl siding; vinyl siding; glass; or other materials similar to the above as determined by the Planning Commission.” The metal siding would need to be approved by the Commission as an acceptable substitute to the noted materials.

Additionally, building walls over 100 feet in length shall be broken up with a combination of the following: varying building lines, windows, architectural accents, and trees. The only windows on the 292-foot long east elevation are the windows on the tenant space entry doors.

The proposed elevations are uninspired and wholly inappropriate for a commercial structure along a gateway into Hamburg Township that is zoned Village Center. There are multiple ways to add interest to a metal-sided rectangular building. Height and depth articulations, additional windows, and a mix of exterior finishes would break up the expansive east elevation and add aesthetic interest to the south elevation. Staff offers the images below as examples of architectural details that could be used on the proposed building. The Commission should also consider requiring additional finishes on the south and north elevations.



RECOMMENDATIONS:

Staff recommend the Planning Commission review, discuss and make a recommendation to the Township Board to either approval or denial of the Preliminary Site Plan Application (PSPA23-0001) or table the application and request any additional information deemed necessary for review.

Site Plan Review 23-0001 Draft Approval Motion:

The Planning Commission recommends approval of the preliminary site plan (SPA23-0001) to the Township Board with the following conditions; because as conditioned the project meets the site plan review standards A-L in section 36-73 (7) and the additional approval standards of the Village Center district under section 36-187 as discussed at tonight's meeting and as presented in the Staff Report.

The Planning Commission approves the landscaping waiver for the parking lot islands (please state the specific landscaping requirements for which a waiver is granted) because it meets the standards set forth in Section 36-283.

1. Cross access easement for the pedestrian pathway shall be submitted for township attorney approval and recorded prior to issuance of a land use permit for any site improvements.
2. A floating easement to allow cross-access across subject site from adjacent properties should the subject site be redeveloped shall be submitted for township attorney approval and recorded prior to issuance of a land use permit for any site improvements.
3. All sewer fees shall be paid in full prior to issuance of a land use permit for any site improvements.
4. Prior to issuance of a land use permit the applicant shall submit a photometric plan that shows that the intensity of light within a site does not exceed ten (10) footcandles or one (1) footcandle at any property line, except where it abuts a residentially used or zoned site whereby a maximum of 0.5 footcandles is permitted. Applicant shall propose an exterior light that is similar to the suggested Village Center lighting.

5. Final site plan shall indicate required lighting along M-36 pathway and parking area. Light fixtures to match approved Village Center fixtures and shall comply with light intensity requirements.
6. The final site plan shall note that “All lighting shall be turned off between 11:00 PM and Sunrise except when used for commercial and industrial uses, such as in sales, assembly and repair areas, where such use is open for business after 11:00 p.m. but only for so long as such use open for business. Lighting used for security between 11:00 pm and sunrise shall be controlled by a motion sensor.”
7. Prior to issuance of a land use permit the applicant shall receive approval from all required agencies including, but not limited to, Hamburg Township Fire, Utilities Department, Livingston County Drain Commissioner, MDOT, and Livingston County Water Authority.
8. A sign program meeting the standards of Section 36-479 shall be submitted for approval by the Planning Commission prior to issuance of a land use permits for signage.
9. Tree preservation location and details shall be delineated on the final site plan.
10. A change of use permit shall be issued for every occupant of the structure. At the time of permit application, a parking count shall be provided by the property owner indicating the available parking for each use.
11. All sewer fees shall be paid in full prior to issuance of a land use permit for any site improvements.
12. Final site plan shall show required screening of parking area and mechanical and electrical equipment.
13. No outside storage areas are permitted.

EXHIBITS:

April 2023 Zoning Board of Appeals meeting minutes

Project plans

Site plan application

Township engineer review letter

Fire marshal review letter

MDOT permit

Utilities letter

LCWA

June 6, 2023

Hamburg Township Board
Hamburg Charter Township
10405 Merrill Road
P.O. Box 157
Hamburg, Michigan 48189

Re: Zander Flex Space, Responses to Conditions from

Dear Board,

Below are the responses to the conditions as set forth by the Hamburg Township Board of Trustees meeting which occurred on June 06, 2023 at 2:30 pm and in which the owner complies.

1. Cross access easement for the pedestrian pathway shall be submitted for township attorney approval and recorded prior to issuance of a land use permit for any site improvements.

Concur. Please see updated plans and legal description for review and record.

2. A floating easement to allow cross-access across subject site from adjacent properties should the subject site be redeveloped shall be submitted for township attorney approval and recorded prior to issuance of a land use permit for any site improvements.

Concur. Please see legal description for review and record.

3. All sewer fees shall be paid in full prior to issuance of a land use permit for any site improvements.

Concur. Fees are being accessed by Hamburg Utilities.

4. Prior to issuance of a land use permit the applicant shall submit a photometric plan that shows that the intensity of light within a site does not exceed ten (10) footcandles or one (1) footcandle at any property line, except where it abuts a residentially used or zoned site whereby a maximum of 0.5 footcandles is permitted. Applicant shall propose an exterior light that is similar to the suggested Village Center lighting.

Concur. Please see updated plans and details.

5. Final site plan shall indicate required lighting along M-36 pathway and parking area. Light fixtures to match approved Village Center fixtures and shall comply with light intensity requirements.

Concur. Please see updated plans and details.

6. The final site plan shall note that "All lighting shall be turned off between 11:00 PM and Sunrise except when used for commercial and industrial uses, such as in sales, assembly and repair areas, where such use is open for business after 11:00 p.m. but only for so long as such use open for business. Lighting used for security between 11:00 pm and sunrise shall be controlled by a motion sensor."

Concur. Please see updated plans.

7. Prior to issuance of a land use permit the applicant shall receive approval from all required agencies including, but not limited to, Hamburg Township Fire, Utilities Department, Livingston County Drain Commissioner, MDOT, and Livingston County Water Authority.

Concur. All agencies have reviewed the plans and made necessary comments other than the Livingston County Drain Commissioner who deferred to the review engineer IMEG and the Utilities Department. All comments have been fully addressed. Awaiting approval from the Utilities Department. Letters of approval are attached.

8. A sign program meeting the standards of Section 36-479 shall be submitted for approval by the Planning Commission prior to issuance of a land use permits for signage.

Concur.

9. Tree preservation location and details shall be delineated on the final site plan.

Concur. Please see updated plans.

10. A change of use permit shall be issued for every occupant of the structure. At the time of permit application, a parking count shall be provided by the property owner indicating the available parking for each use.

Concur.

11. Parking space size may be reduced as indicated on the site plan.

Concur. Plans reflect this size.

12. Final site plan shall show required screening of parking area and mechanical and electrical equipment.

Concur. Please see updated plans.

13. No outside storage areas are permitted.

Concur.

14. Prior to final site plan approval architecture shall be approved by the Planning Commission.

Concur. Please see updated attachments.

15. Shrubs shall be maintained at three feet tall and additional screening shall be provided along the east property.

Concur. Please see updated plans.

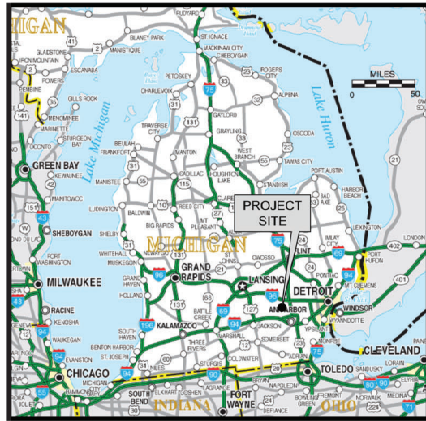
We respectfully request that Hamburg approves the subject site plans for Final Approval. If any additional information is required, please contact us for further assistance.

Sincerely,



Marc McIntire, PE
Open Door Consultants, LLC
Engineering & Design
PO Box 532
Madison, MS 39130

SITE PLANS FOR ZANDER FLEX SPACE WHITMORE LAKE, MICHIGAN 48189 JUNE 2023



LOCATION MAP
N.T.S.



VICINITY MAP
N.T.S.

SHEET INDEX	
CONTENTS	SHEET NO.
COVER AND INDEX	G1.1
LEGEND AND GENERAL NOTES	C1.1
BOUNDARY AND TOPOGRAPHIC SURVEY	C1.2
DIMENSION PLAN	C1.3
SITE PLAN	C2.1
GRADING AND EROSION CONTROL PLAN	C3.1
UTILITY PLAN	C4.1
TURNING ROUTE PLAN	C5.1
PAVEMENT AND MISCELLANEOUS DETAILS	C6.1
TRAFFIC AND EROSION DETAILS	C6.2
WATER MAIN STANDARD DETAILS	W1-M3
SANITARY SEWER DETAILS	UT
TITLE SHEET	T1.1
BARRIER FREE STANDARDS	T1.2
FOUNDATION PLAN	A1.1
FLOOR PLAN	A1.2
EXTERIOR ELEVATIONS	A1.3
WALL SECTIONS	A1.4
REFLECTED CEILING PLAN	A1.5
NOTES	N1.1
LANDSCAPE PLAN	LA1.1
MECHANICAL	M-0.0-M-1.0
ELECTRICAL	E-0.0-E-2.0
PLUMBING	P-0.0-P-2.0
PHOTOMETRIC CALCULATIONS	1-2

SUBMITTALS		
NO	DATE	DESCRIPTION
1	02/27/23	ISSUED FOR TOWNSHIP REVIEW
2	05/01/23	ISSUED FOR TOWNSHIP REVIEW AND APPROVAL
3	05/05/23	ISSUED FOR TOWNSHIP REVIEW AND APPROVAL

NO	DATE	DESCRIPTION

ZANDER COMPANIES
7879 WINANS LAKE RD
BRIGHTON, MI 48116

ZANDER FLEX SPACE
7749 E. M-36
WHITMORE LAKE, MICHIGAN 48189

COVER AND INDEX
DATE: JUNE 5, 2023
DRAWN BY: MM
CHECKED BY: CM
PROJECT NO.:
APPROVED BY: MM

DRAWING NO.:
SHEET: 1 OF 1
G1.1

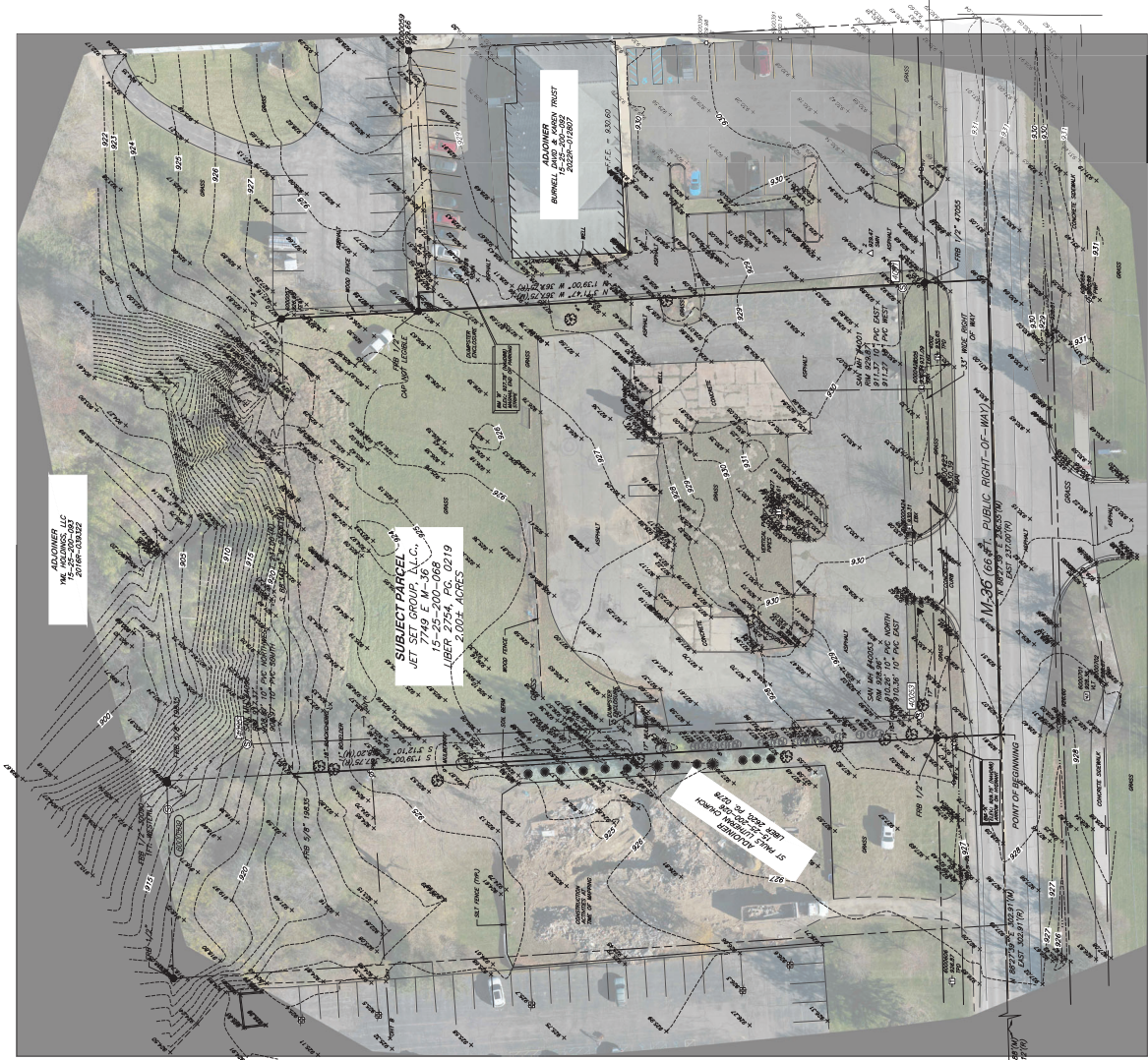
BOUNDARY & TOPOGRAPHIC SURVEY

SIDOCK GROUP, INC.
45650 GRAND RIVER AVE.
NOVI, MICHIGAN 48374

[illegible][illegible]

- 1) FIELD WORK PERFORMED IN NOVEMBER, 2022.
- 2) SITE IS LOCATED IN ZONE X, FIRM FLOOD INSURANCE RATE MAP, LIVINGSTON COUNTY, MICHIGAN.
MAP NO. 26093C0-64B, EFFECTIVE DATE: 04/17/2008
- 3) VEHICULAR ACCESS IS FROM THE NORTH SIDE OF M-36.
- 4) TITLE COMMENT / POLICY NOT PROVIDED TO SURVEYOR.
- 5) THE BOUNDARY LINE DIMENSIONS AS SHOWN ON THIS SURVEY.

THE BEARINGS SHOWN ON THIS SURVEY ARE REFERENCED TO MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE 21 13.



SITE PLAN

DATE	JUNE 5, 2023
PROJECT NO.	T-207
CHECKED BY	DAVID
DATE	JUNE 5, 2023
PROJECT NO.	T-207
CHECKED BY	DAVID

ZANDER FLEX SPACE
7749 E. M-36
WHITMORE LAKE, MICHIGAN 48189

ZANDER COMPANIES
7749 WINANS LAKE RD
BRIGHTON, MI 48116



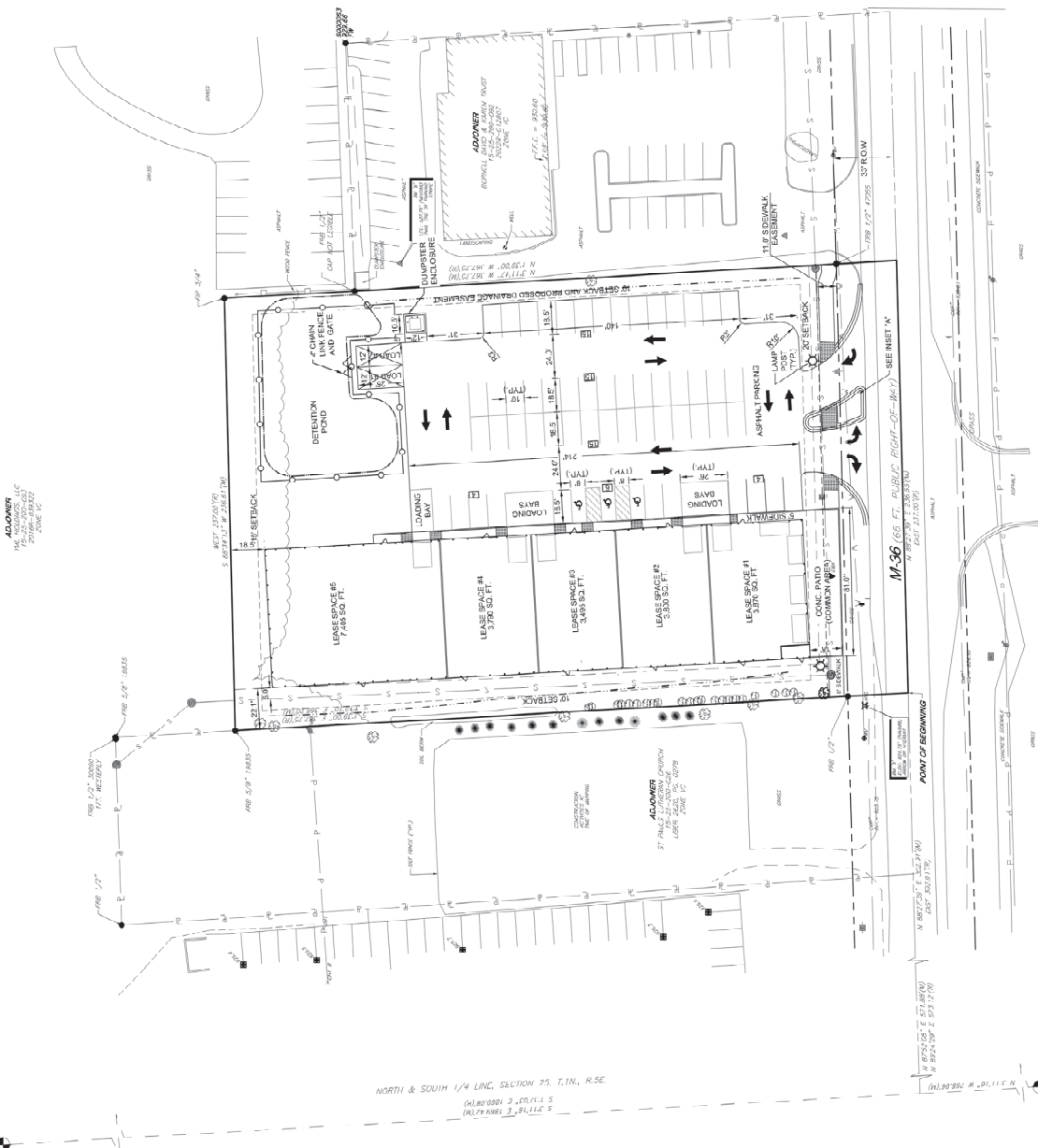
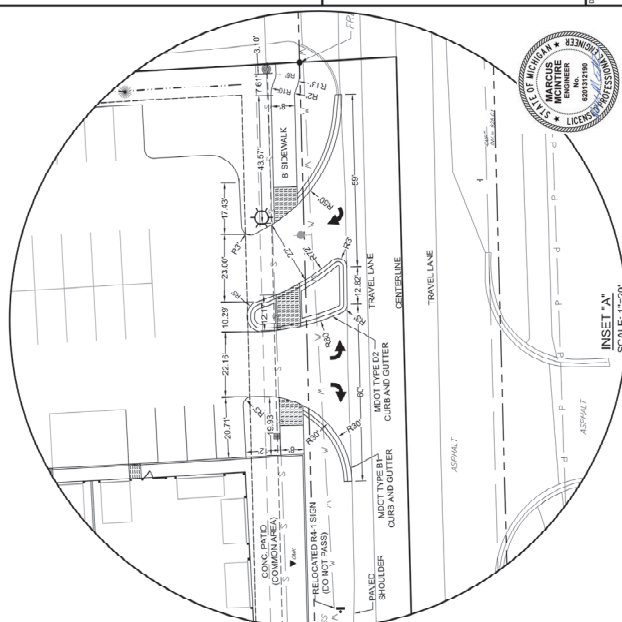
SCALE: 1" = 50'

NOTES:

- THE SUBJECT PROPERTY IS A 2.0 ACRE LOT AND ZONED VILLAGE CENTER (VC).
- GROSS BUILDING AREA IS 22,300 SQ. FT.
- THE PROJECT SHALL BE A MULTISTORY STRUCTURE DESIGNED TO ACCOMMODATE MULTIPLE GENERAL USE BUSINESS.
- NUMBER OF PARKING SPACES REQUIRED EQUALS 22,300 / 400, EQUALS 56 SPACES.
- NUMBER OF PARKING SPACES PROVIDED EQUALS 52 LOADING SPACES.
- ALL DIMENSIONS ARE REFERENCED TO THE EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL INCLUDE COST FOR 2" SCH 40 PVC CONDUIT, 100' PRICE. CONDUIT SHALL BE INSTALLED AT LOCATIONS DETERMINED DURING CONSTRUCTION FOR COMPLICATIONS AND POWER TO THE BUILDING.
- ALL STRIPING FOR TYPICAL PARKING STALLS SHALL BE 4" PAINTED WHITE. HANDICAPPED ACCESSIBLE PARKING STALLS SHALL BE PAINTED AS SHOWN IN THE DETAIL ON SHEET C-1.
- VEHICLES SHALL BE PARKED IN THE DESIGNATED LOADING AND UNLOADING AREAS. VEHICLES SHALL BE USED BY MEANS OF FORK-LIFT, PALLET JACK OR NECESSARY EQUIPMENT.
- ENTRANCE SHALL BE CONSTRUCTION ACCORDING TO A "PROVED" MOT PERMIT #1741-09317-2-067128.
- ASPHALT DRIVEWAY AND PARKING AREA LIGHT FIXTURES SHALL MATCH APPROVED VILLAGE CENTER FIXTURES AND SHALL BE 15' MAX. SPACING. LIGHT FIXTURES SHALL BE TURNED OFF BETWEEN 1:00 PM AND SUNRISE EXCEPT WHEN USED FOR COMMERCIAL INDUSTRIAL USES, SUCH AS SALES, ASSEMBLY AND REPAIR AREAS, WHERE SUCH USE IS OPEN FOR BUSINESS AFTER 11:00 PM. BUT ONLY FOR SUCH USES AS SUCH USE OPEN FOR BUSINESS. LIGHTING USED FOR SECURITY BETWEEN 11:00 PM AND SUNRISE SHALL BE CONTROLLED BY A MOTION SENSOR.

District	Minimum Lot Area (Square Feet)	Minimum Lot Width at Street (Feet)	Maximum Lot Coverage Building Footprint (%)	Minimum Yard Setback (Feet)	Maximum Building Height (Feet)	Additional Restrictions
Village Center	16,202	66	50.02	20' 5" R 10' B 15' D 2.5	25	Yes

* See Remount Township Code of Ordinances Sec. 36-116, Schedule of Area, Height and Bulk Regulations for footnotes.



WHITMORE LAKE, MICHIGAN 48189

ZANDER COMPANIES
7879 WINANS LAKE RD
BRIGHTON, MI 48116

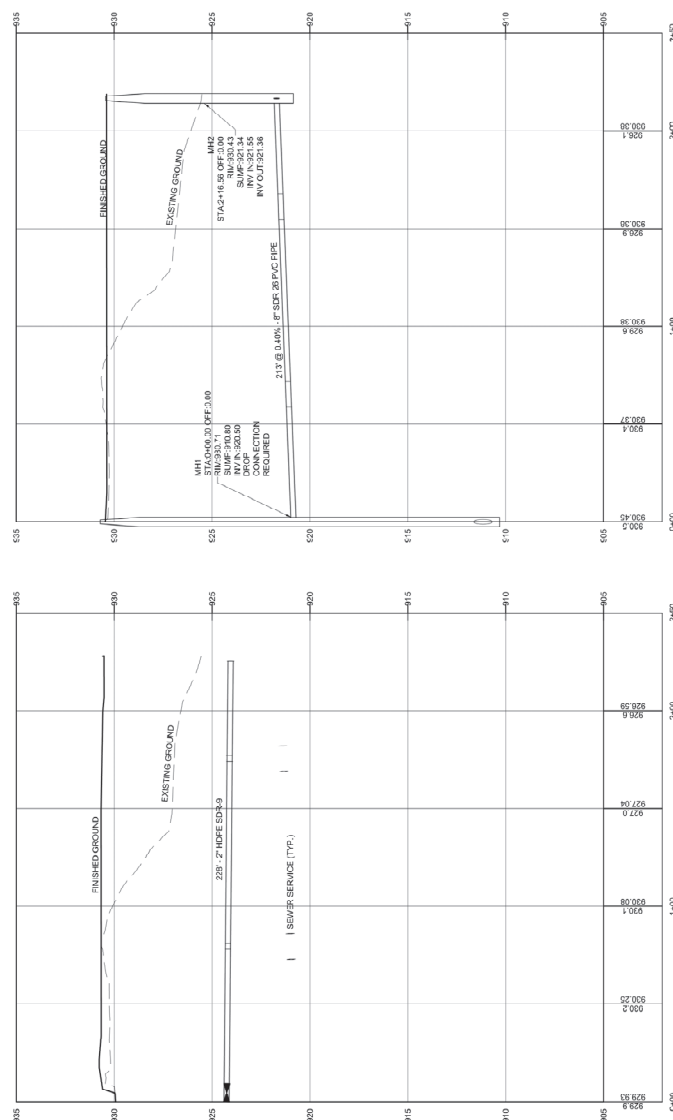
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1	6/1/23		



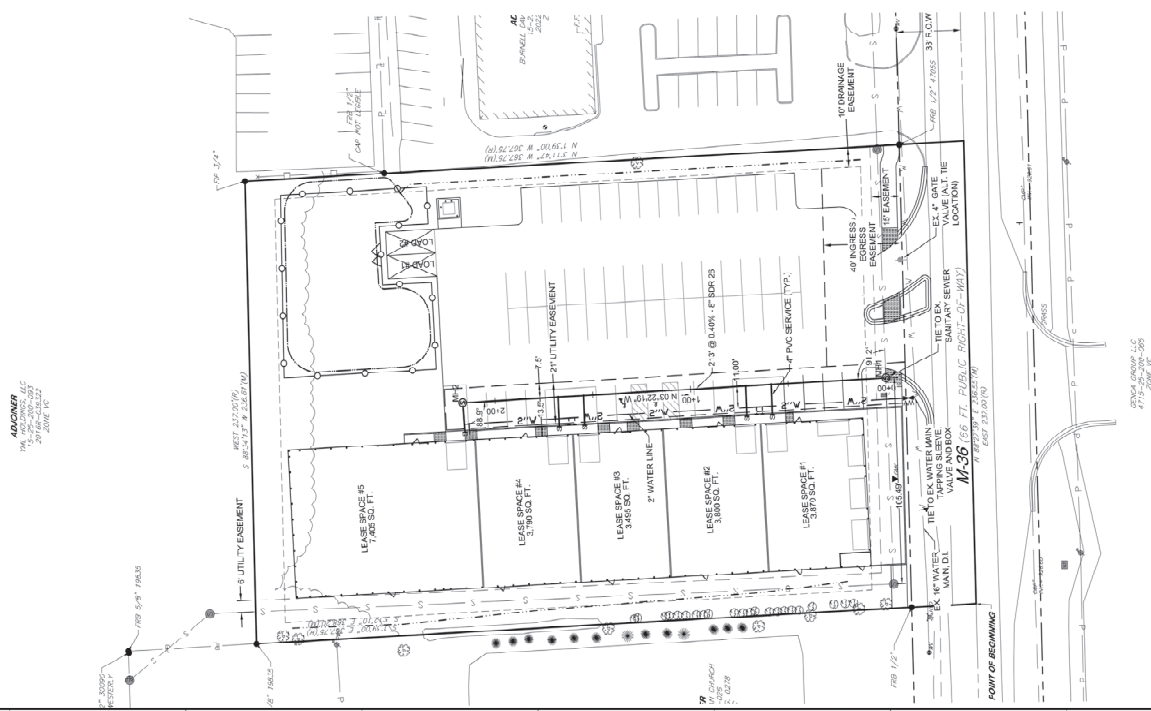
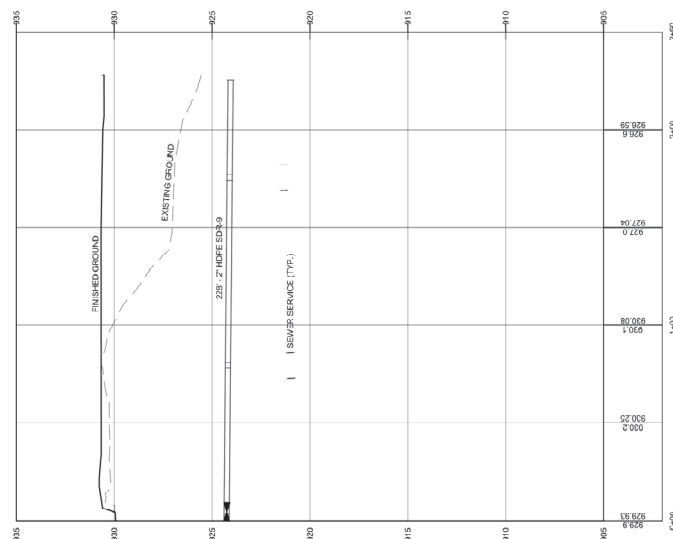
NOTES:

- [illegible]

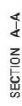
SANITARY SEWER



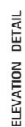
WATER LINE



ZANDER COMPANIES
7879 WINANS LAKE RD
BRIGHTON, MI 48116

[illegible]

- NOTE: END POINTS 'A' SHALL BE HIGHER



GULL LINKS FOR LENGTH OF LONGITUDINAL BUFFER SPACE "B"				
"B" FEET	FOGOT SPEED LIMIT, MPH TO WORK AREA			
	25	30	35	40
	10	15	20	25
10	25	30	35	40
20	25	30	35	40
30	25	30	35	40
40	25	30	35	40
50	25	30	35	40
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[illegible]

51

SANITARY SEWER DETAILS

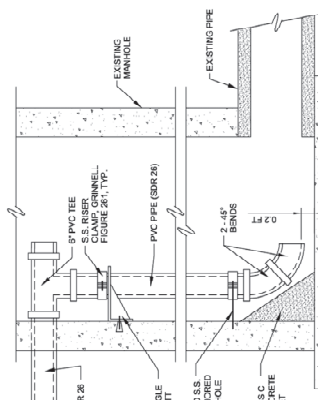
DATE	10.20.2023	DESIGNED BY	MM
DWG NO.	10.20.2023	CHECKED BY	MM
PROJECT NO.	10.20.2023	DATE	10.20.2023

ZANDER FLEX SPACE
9257 E. M-36
WHITMORE LAKE, MICHIGAN 48189

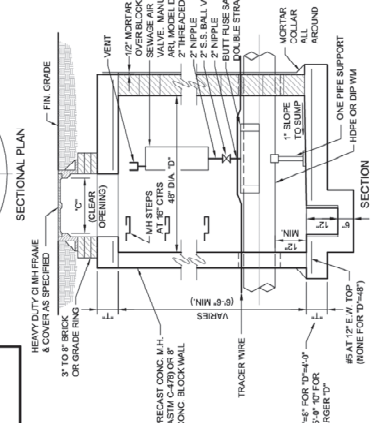
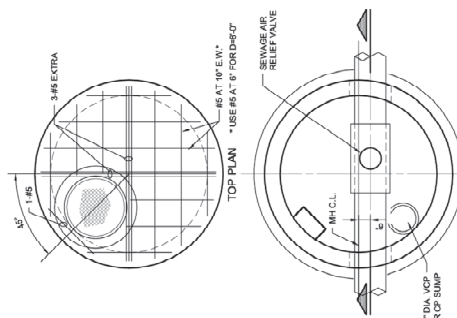
ZANDER COMPANIES
7879 WINANS LAKE RD
BRIGHTON, MI 48116

REVISION RECORD

NO	DATE	DESCRIPTION
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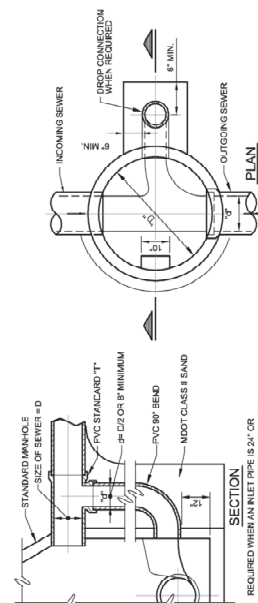


INTERIOR SEWER LATERAL DROP CONNECTION

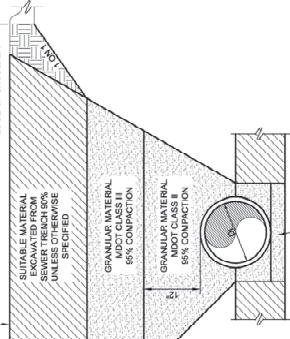


AIR RELIEF STRUCTURE

NOTE: ALL PLUMBING MATERIALS TO BE NON-CORROSIVE
ALL FITTINGS SHALL BE SPANLESS STEEL
(NONE FOR D-48\"/>

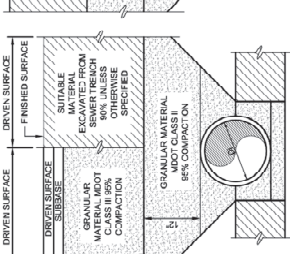


EXTERIOR DROP CONNECTION



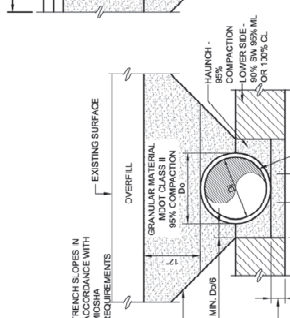
PIPE WITHIN INFLUENCE OF DRIVEN SURFACE

6. TRACER WIRE IS REQUIRED ON FORCE MAIN ONLY AND SHALL BE INSTALLED AT 100 FEET IN AN APPROVED CAST IRON TRACER WIRE BOX ENCASED IN CONCRETE OR WITH AN APPROVED GREEN WIRE POST.



PIPE UNDERNOT UNDER DRIVEN SURFACE

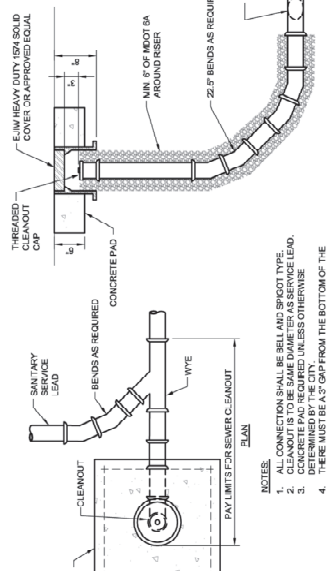
NOTES:
1. COMPACTION PRESENTED AS MINIMUM STANDARD PROCTOR VALUES.
2. 15 INCH SIEVE MATERIALS AROUND OTHER PIPES SHALL PASS 15 INCH SIEVE.
3. MATERIALS AROUND PIPE TO BE MOIST 6A OR 21A.
4. MATERIALS AROUND PIPE TO BE MOIST 6A OR 21A.
5. UTILITY TRENCHES LOCATED WITHIN A MOIST RCM SHALL CONFORM TO MOIST STANDARD DETAIL R-6.



PIPE BEDDING

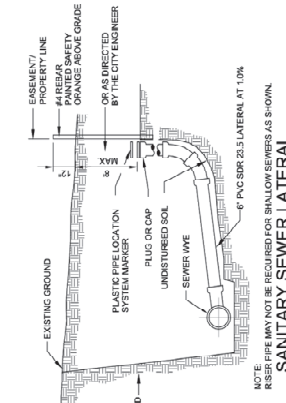
BRIDGING 4\"/>

TRENCH EXCAVATION & PIPE BEDDING



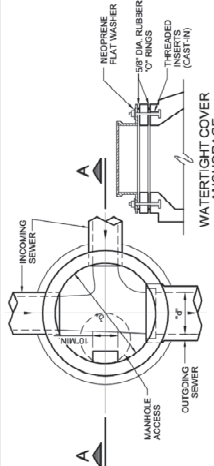
SEWER CLEANOUT DETAIL

NOTES:
1. ALL CONNECTION SHALL BE BELL AND SPIGOT TYPE.
2. CLEANOUT SHALL BE 12\"/>



SANITARY SEWER LATERAL

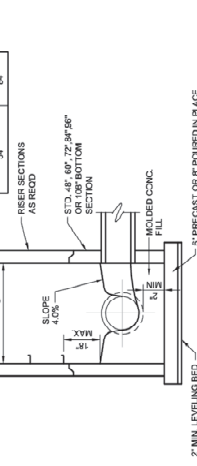
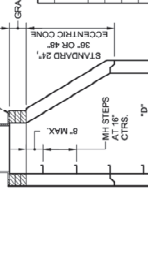
NOTE: PIPE MAY NOT BE REQUIRED FOR BLOW SEWERS AS 8\"/>



WATERTIGHT COVER ANCHORAGE

TO BE SURMOUNTED BY STANDARD FRAME AND COVER PER TABLE.

MANHOLE SCHEDULE	MANHOLE SIZE (\"/>
------------------	--------------------



SECTION A-A

NOTES:
1. ALL SANITARY MANHOLES TO BE PRECAST REINFORCED CONCRETE WITH PREMIUM JOINTS.
2. SEE SPECIFICATIONS FOR BASE SLAB AND PIPE OPENINGS AND CONNECTIONS.
3. PROVIDE 3\"/>

TYPE	COVER	MANUFACTURE OR EQUAL
WH	SANITARY - SOLID SELF-SEALING	NEENAH
WH	SANITARY - SOLID MANHOLE LIGHT	R-1642
CO	SOLID	1574A

STANDARD MANHOLE

SYMBOL	DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL PRICE	REMARKS
1	CONCRETE	CU YD	1.00	120.00	120.00	CONCRETE
2	STEEL	LB	100.00	1.50	150.00	STEEL
3	BRICK	SQ YD	1.00	100.00	100.00	BRICK
4	CEMENT	TON	1.00	100.00	100.00	CEMENT
5	SAND	CU YD	1.00	100.00	100.00	SAND
6	GRAVEL	CU YD	1.00	100.00	100.00	GRAVEL
7	ROOFING	SQ YD	1.00	100.00	100.00	ROOFING
8	PAINT	GA	1.00	100.00	100.00	PAINT
9	GLASS	SQ YD	1.00	100.00	100.00	GLASS
10	DOOR	EA	1.00	100.00	100.00	DOOR
11	WINDOW	EA	1.00	100.00	100.00	WINDOW
12	PLASTER	SQ YD	1.00	100.00	100.00	PLASTER
13	INSULATION	SQ YD	1.00	100.00	100.00	INSULATION
14	CEILING	SQ YD	1.00	100.00	100.00	CEILING
15	FLOORING	SQ YD	1.00	100.00	100.00	FLOORING
16	WALL	SQ YD	1.00	100.00	100.00	WALL
17	FOUNDATION	SQ YD	1.00	100.00	100.00	FOUNDATION
18	ROOF	SQ YD	1.00	100.00	100.00	ROOF
19	CEILING	SQ YD	1.00	100.00	100.00	CEILING
20	FLOORING	SQ YD	1.00	100.00	100.00	FLOORING
21	WALL	SQ YD	1.00	100.00	100.00	WALL
22	FOUNDATION	SQ YD	1.00	100.00	100.00	FOUNDATION
23	ROOF	SQ YD	1.00	100.00	100.00	ROOF
24	CEILING	SQ YD	1.00	100.00	100.00	CEILING
25	FLOORING	SQ YD	1.00	100.00	100.00	FLOORING
26	WALL	SQ YD	1.00	100.00	100.00	WALL
27	FOUNDATION	SQ YD	1.00	100.00	100.00	FOUNDATION
28	ROOF	SQ YD	1.00	100.00	100.00	ROOF
29	CEILING	SQ YD	1.00	100.00	100.00	CEILING
30	FLOORING	SQ YD	1.00	100.00	100.00	FLOORING
31	WALL	SQ YD	1.00	100.00	100.00	WALL
32	FOUNDATION	SQ YD	1.00	100.00	100.00	FOUNDATION
33	ROOF	SQ YD	1.00	100.00	100.00	ROOF
34	CEILING	SQ YD	1.00	100.00	100.00	CEILING
35	FLOORING	SQ YD	1.00	100.00	100.00	FLOORING
36	WALL	SQ YD	1.00	100.00	100.00	WALL
37	FOUNDATION	SQ YD	1.00	100.00	100.00	FOUNDATION
38	ROOF	SQ YD	1.00	100.00	100.00	ROOF
39	CEILING	SQ YD	1.00	100.00	100.00	CEILING
40	FLOORING	SQ YD	1.00	100.00	100.00	FLOORING
41	WALL	SQ YD	1.00	100.00	100.00	WALL
42	FOUNDATION	SQ YD	1.00	100.00	100.00	FOUNDATION
43	ROOF	SQ YD	1.00	100.00	100.00	ROOF
44	CEILING	SQ YD	1.00	100.00	100.00	CEILING
45	FLOORING	SQ YD	1.00	100.00	100.00	FLOORING
46	WALL	SQ YD	1.00	100.00	100.00	WALL
47	FOUNDATION	SQ YD	1.00	100.00	100.00	FOUNDATION
48	ROOF	SQ YD	1.00	100.00	100.00	ROOF
49	CEILING	SQ YD	1.00	100.00	100.00	CEILING
50	FLOORING	SQ YD	1.00	100.00	100.00	FLOORING
51	WALL	SQ YD	1.00	100.00	100.00	WALL
52	FOUNDATION	SQ YD	1.00	100.00	100.00	FOUNDATION
53	ROOF	SQ YD	1.00	100.00	100.00	ROOF
54	CEILING	SQ YD	1.00	100.00	100.00	CEILING
55	FLOORING	SQ YD	1.00	100.00	100.00	FLOORING
56	WALL	SQ YD	1.00	100.00	100.00	WALL
57	FOUNDATION	SQ YD	1.00	100.00	100.00	FOUNDATION
58	ROOF	SQ YD	1.00	100.00	100.00	ROOF
59	CEILING	SQ YD	1.00	100.00	100.00	CEILING
60	FLOORING	SQ YD	1.00	100.00	100.00	FLOORING
61	WALL	SQ YD	1.00	100.00	100.00	WALL
62	FOUNDATION	SQ YD				

FIRE WALL DETAILS (2) HOUR RATED

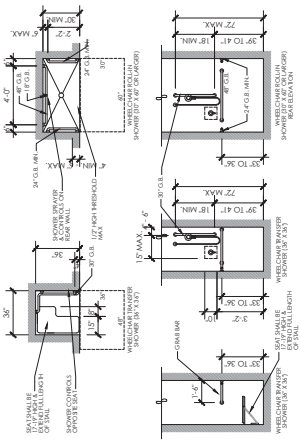
[illegible]

The location map is a rectangular area on the right side of the page. It features a north arrow in the top left corner, pointing upwards and labeled 'N'. A grid of horizontal and vertical lines covers the map area. A road, labeled 'M-30 HWY.', runs vertically on the right side. A shaded rectangular area, representing the site location, is situated to the left of the road. A line points from the text 'SITE LOCATION' to this shaded area.

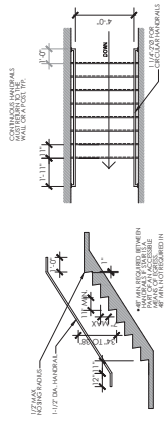
WHITMORE LAKE, MICHIGAN 0207 EN 00

TYPICAL BARRIER FREE STANDARDS

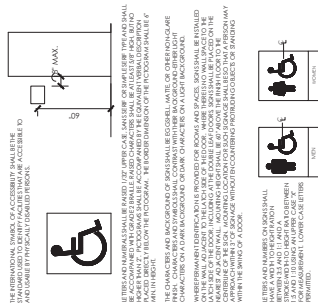
18 | SPOKE DESIGN



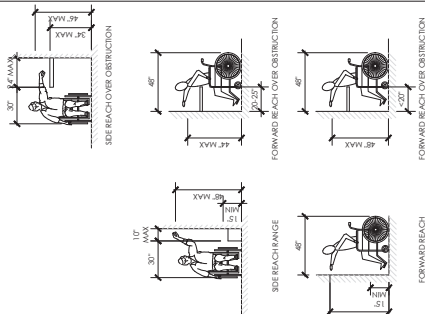
19 | STAIR DETAILS



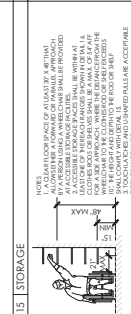
17 | GENERAL SIGNAGE



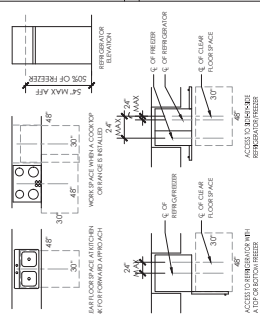
16 | REACH RANGES



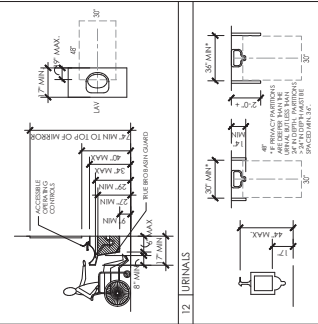
15 | STORAGE



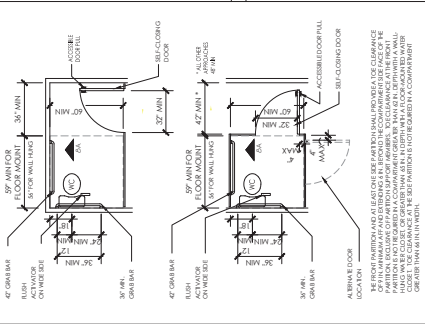
14 | STORAGE



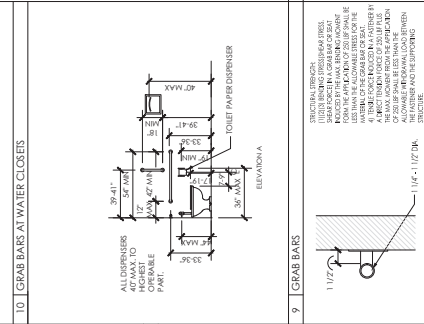
13 | LAVATOIRES AND MIRRORS



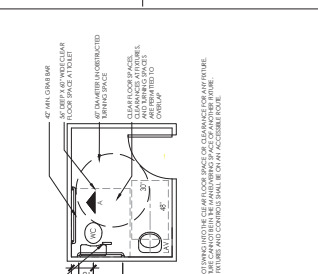
11 | WATER CLOSETS



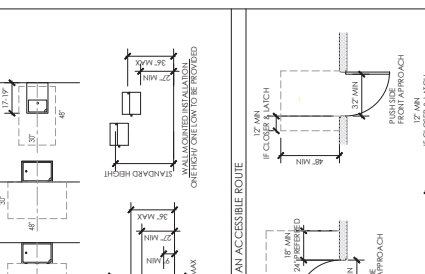
10 | GRAB BARS AT WATER CLOSETS



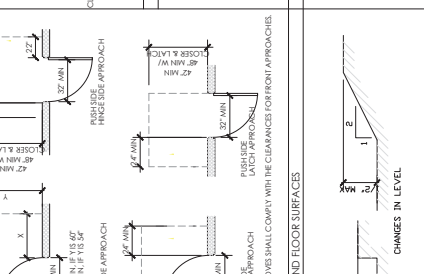
8 | TOILET ROOMS AND WATER CLOSETS



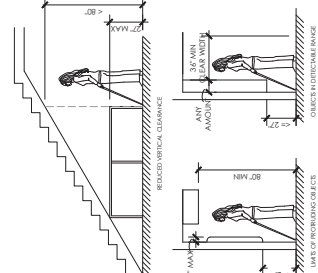
7 | DRINKING FOUNTAINS



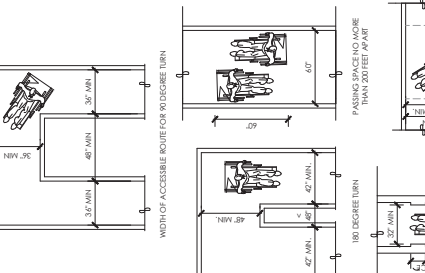
6 | DOORS ON AN ACCESSIBLE ROUTE



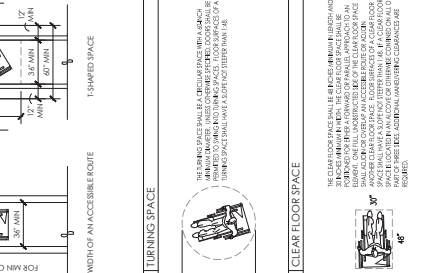
4 | PROTRUDING OBJECTS



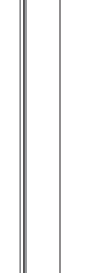
3 | ACCESSIBLE ROUTE



2 | TURNING SPACE



1 | CLEAR FLOOR SPACE



TODD R. CALLAWAY & ASSOCIATES
ARCHITECTS - DESIGNERS
4600 River Street, Bloomington, IL 61709
P: 309-243-9545, email: toddr@tcallaway.com, www.tcallaway.com

NEW BUILDING

ZANDER FLEX SPACE
9257 E. M-36
WHITMORE LAKE, MICHIGAN

Item 2.

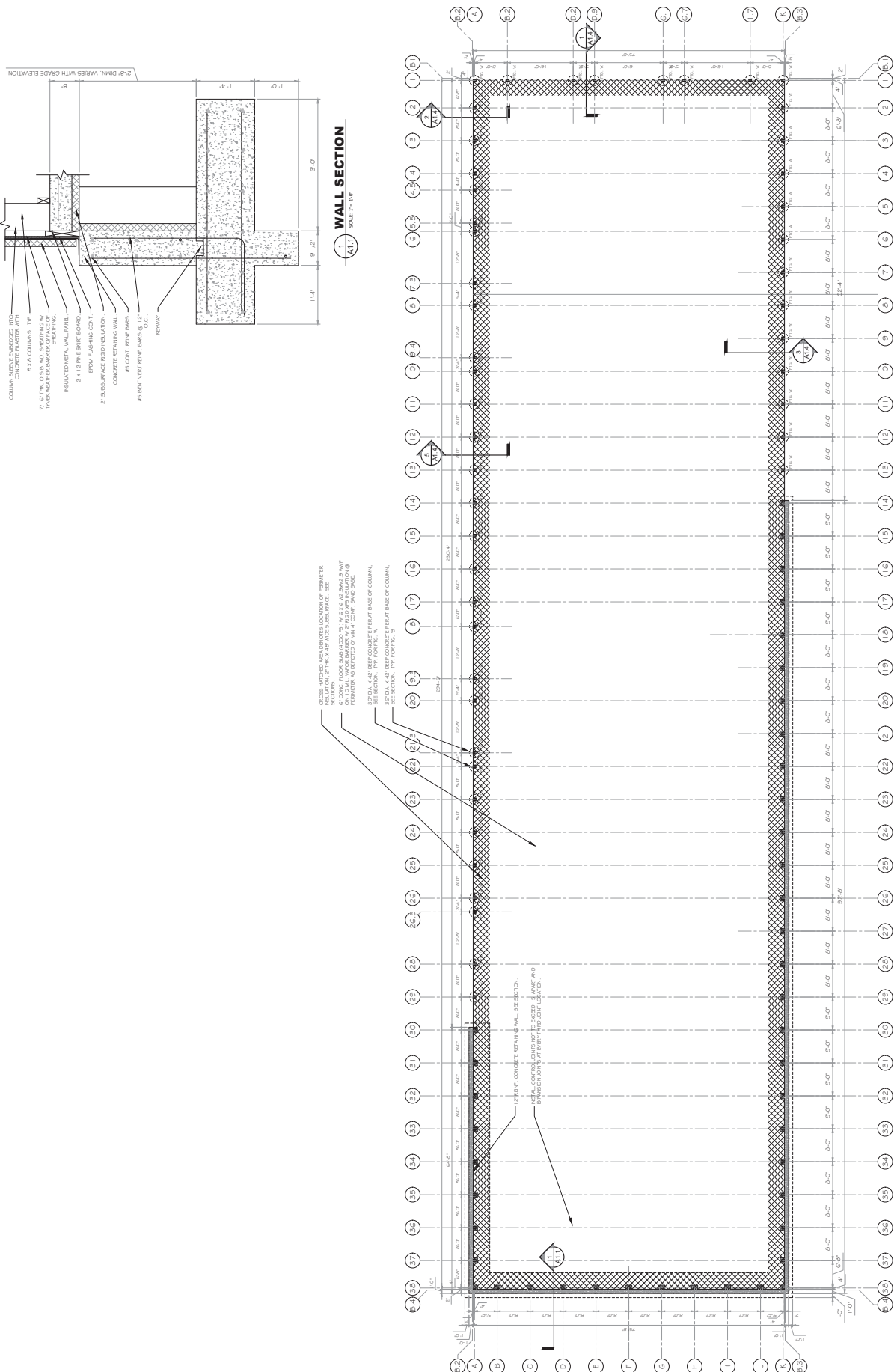
T14.2




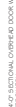
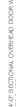
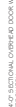












SHEET DATES / DESC:

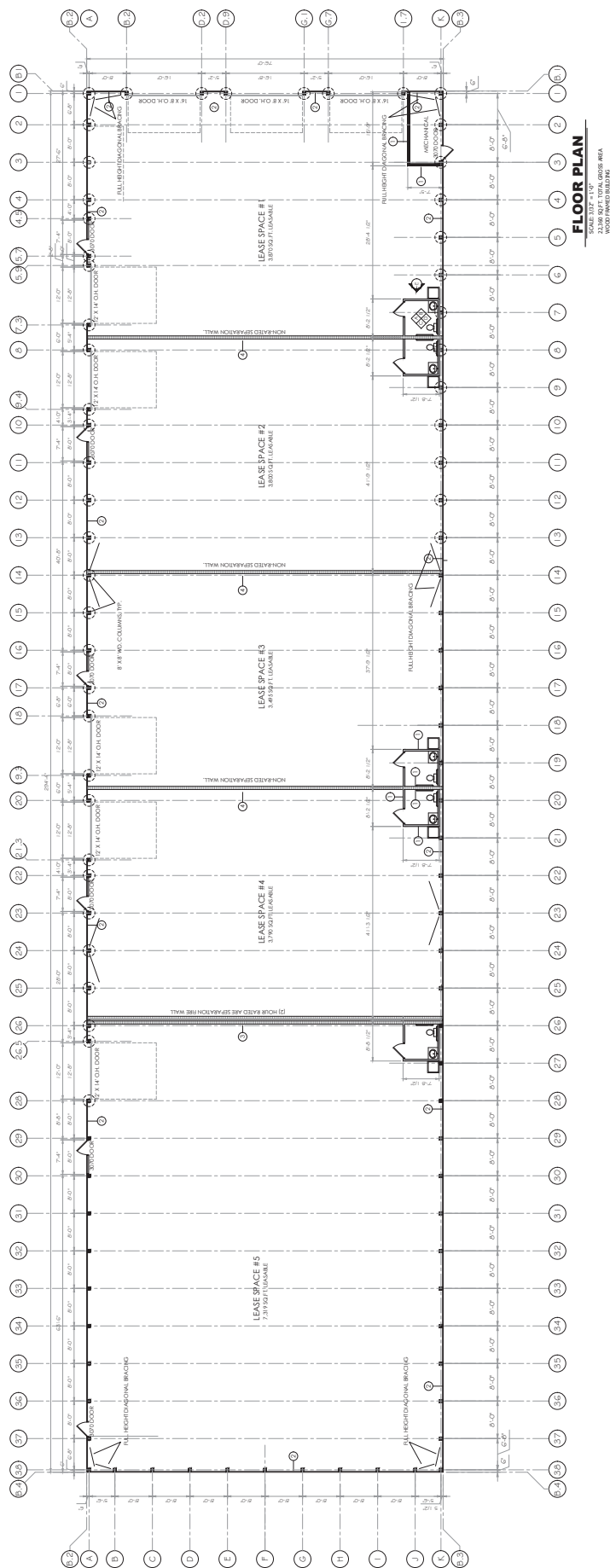
2/20/23 PERMITS

4/20/23 PERMITS

FOUNDATION PLAN



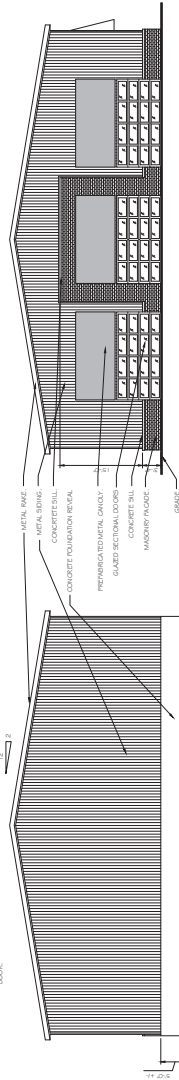
WALL TYPES	GENERAL NOTES	FLOOR PLAN NOTES	BLOCK SYMBOLS
 <p>WALL TYPE 1 : 100 MM INSUL. @ 100 CM. 100 CM. CONCRETE CORE. 100 CM. INSUL. @ 100 CM. 100 CM. CONCRETE CORE. 100 CM. INSUL. @ 100 CM. 100 CM. CONCRETE CORE.</p>	1. THE WALLS OF CONSTRUCTION, NOT CONSIDERED AS PART OF THE STRUCTURE, SHALL BE CONSIDERED AS PART OF THE STRUCTURE.	 <p>WALL TAG</p>	 <p>WALL TAG</p>
 <p>WALL TYPE 2 : 100 MM INSUL. @ 100 CM. 100 CM. CONCRETE CORE. 100 CM. INSUL. @ 100 CM. 100 CM. CONCRETE CORE. 100 CM. INSUL. @ 100 CM. 100 CM. CONCRETE CORE.</p>	2. ALL CONSTRUCTION SHALL BE CONSIDERED AS PART OF THE STRUCTURE. THE WALLS OF CONSTRUCTION SHALL BE CONSIDERED AS PART OF THE STRUCTURE.	 <p>WALL TAG</p>	 <p>WALL TAG</p>
 <p>WALL TYPE 3 : 100 MM INSUL. @ 100 CM. 100 CM. CONCRETE CORE. 100 CM. INSUL. @ 100 CM. 100 CM. CONCRETE CORE. 100 CM. INSUL. @ 100 CM. 100 CM. CONCRETE CORE.</p>	3. THE WALLS OF CONSTRUCTION, NOT CONSIDERED AS PART OF THE STRUCTURE, SHALL BE CONSIDERED AS PART OF THE STRUCTURE. THE WALLS OF CONSTRUCTION SHALL BE CONSIDERED AS PART OF THE STRUCTURE.	 <p>WALL TAG</p>	 <p>WALL TAG</p>
 <p>WALL TYPE 4 : 100 MM INSUL. @ 100 CM. 100 CM. CONCRETE CORE. 100 CM. INSUL. @ 100 CM. 100 CM. CONCRETE CORE. 100 CM. INSUL. @ 100 CM. 100 CM. CONCRETE CORE.</p>	4. THE WALLS OF CONSTRUCTION, NOT CONSIDERED AS PART OF THE STRUCTURE, SHALL BE CONSIDERED AS PART OF THE STRUCTURE. THE WALLS OF CONSTRUCTION SHALL BE CONSIDERED AS PART OF THE STRUCTURE.	 <p>WALL TAG</p>	 <p>WALL TAG</p>
 <p>WALL TYPE 5 : 100 MM INSUL. @ 100 CM. 100 CM. CONCRETE CORE. 100 CM. INSUL. @ 100 CM. 100 CM. CONCRETE CORE. 100 CM. INSUL. @ 100 CM. 100 CM. CONCRETE CORE.</p>	5. THE WALLS OF CONSTRUCTION, NOT CONSIDERED AS PART OF THE STRUCTURE, SHALL BE CONSIDERED AS PART OF THE STRUCTURE. THE WALLS OF CONSTRUCTION SHALL BE CONSIDERED AS PART OF THE STRUCTURE.	 <p>WALL TAG</p>	 <p>WALL TAG</p>
 <p>WALL TYPE 6 : 100 MM INSUL. @ 100 CM. 100 CM. CONCRETE CORE. 100 CM. INSUL. @ 100 CM. 100 CM. CONCRETE CORE. 100 CM. INSUL. @ 100 CM. 100 CM. CONCRETE CORE.</p>	6. THE WALLS OF CONSTRUCTION, NOT CONSIDERED AS PART OF THE STRUCTURE, SHALL BE CONSIDERED AS PART OF THE STRUCTURE. THE WALLS OF CONSTRUCTION SHALL BE CONSIDERED AS PART OF THE STRUCTURE.	 <p>WALL TAG</p>	 <p>WALL TAG</p>



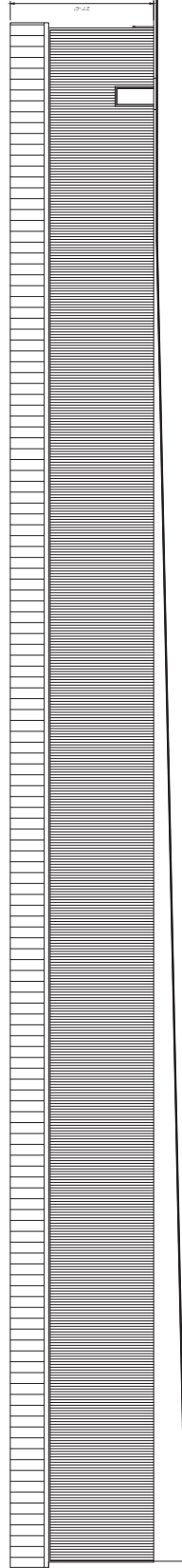
EAST ELEVATION



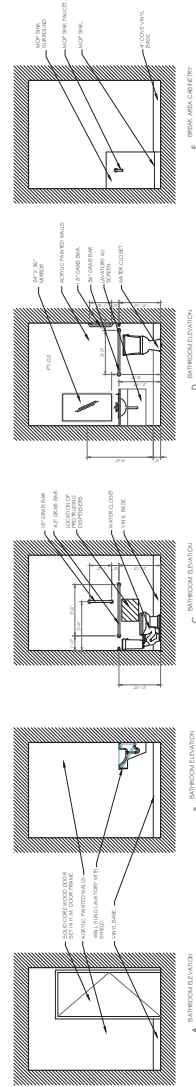
SOUTH ELEVATION



NORTH ELEVATION



WEST ELEVATION



INTERIOR ELEVATIONS



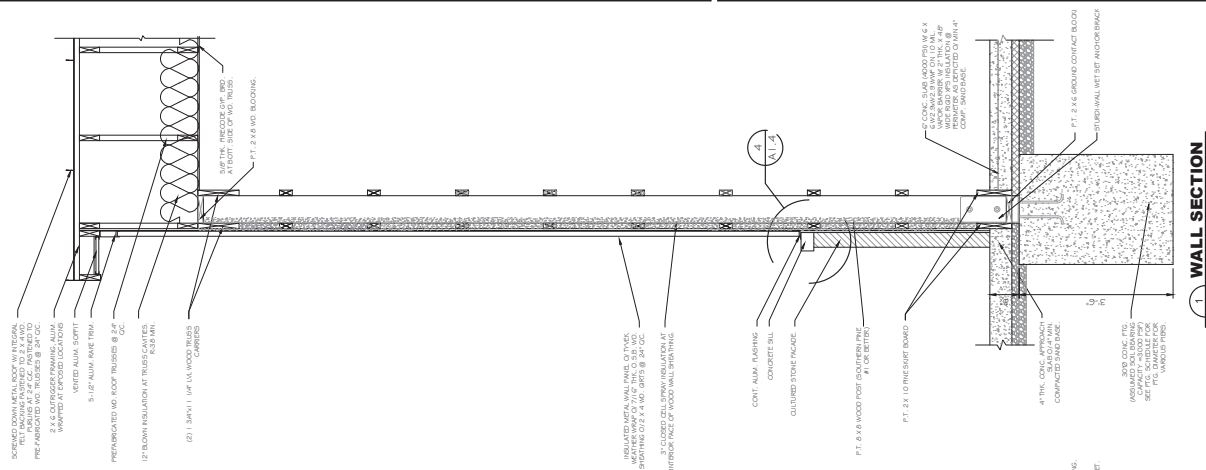
SHEET DATES / DESC.
2/25/23 PERMITS
4/30/23 PERMITS

TODD R. CALLAWAY & ASSOCIATES
ARCHITECTS - DESIGNERS

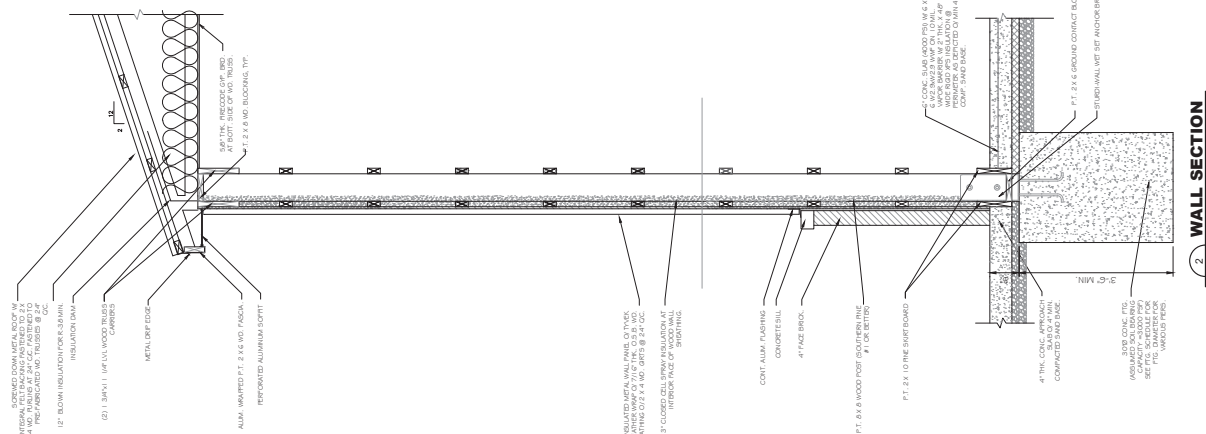
ARCHITECTS • DESIGNERS



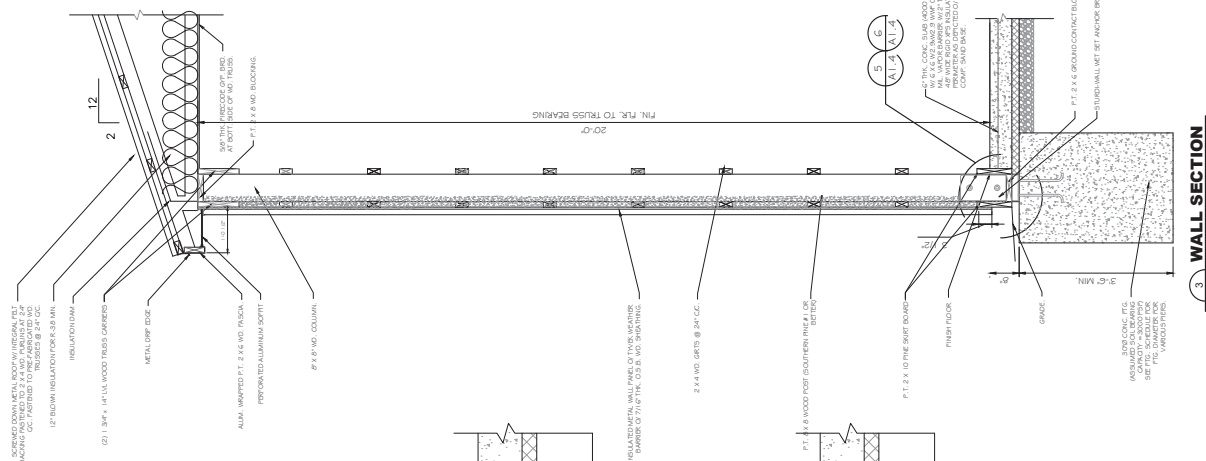
WALL SECTION



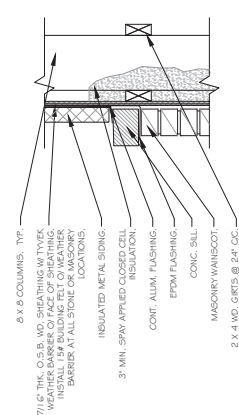
2 WALL SECTION



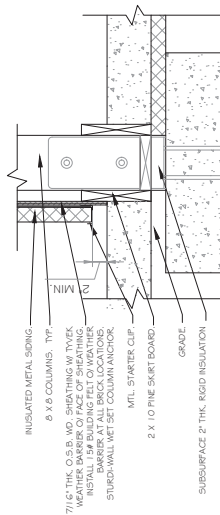
3 WALL SECTION



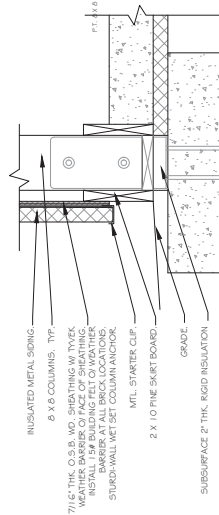
DETAIL



DETAIL

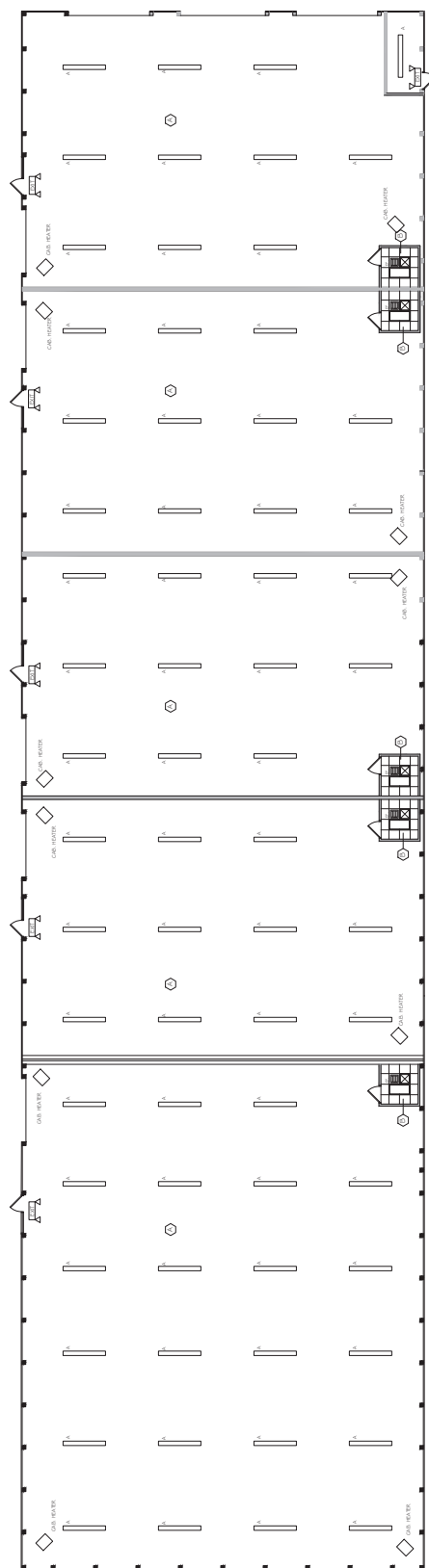


DETAIL



[illegible][illegible]

5/8" THK. HIRSCOW GFR. GRD. CEILING @ 20' OF A.F.T. - PAINTED.
LAYIN ACQUSTICA TILE CEILING SET IN 1/2" G METAL SUSPENDED
CEILING GRD W/ 2 X 4 NON-TOLERAR CEILING TILES. WHITE.



REFLECTED CEILING PLAN
SCALE: 3/32" = 1'-0"

ALL CONSTRUCTION TO COMPLY WITH THE FOLLOWING GENERAL NOTES AND / OR TO THE CURRENT MICHIGAN BUILDING CODE, AND / OR LOCAL GOVERNING CODES, SPECIFICATIONS OF A CONTRACTOR, THE LOCAL AGENCY OF REGULATION, AND / OR ANY

SECTION 6A - ROUGH CARPENTRY:

2. Maxilla:
 - a. Maxillary premolars, buccal and lingual, and upper canines of the "Open Association" OA. Recommended Specifications for the Application and Fitting of "Open Association" OA.
 - b. At work and comply with code requirements.
3. Mandibular:
 - a. All joints in fitted surfaces should be tapered and finished with joint cement. Reticules at corners.
 - b. Pre-molar and 1st of exposure edges and extremities cement.
 - c. Molar T and be tight to buccal surface, pulp level, and have to place securely attached to the buccal surface.
 - d. Central incisor root to crown needs to join pulp level.
 - e. All joints in fitted surfaces should be tapered and finished with joint cement.
 - f. All joints in fitted surfaces should be tapered and finished with joint cement.
 - g. All joints in fitted surfaces should be tapered and finished with joint cement.
 - h. All joints in fitted surfaces should be tapered and finished with joint cement.
 - i. All joints in fitted surfaces should be tapered and finished with joint cement.
 - j. All joints in fitted surfaces should be tapered and finished with joint cement.
 - k. All joints in fitted surfaces should be tapered and finished with joint cement.
 - l. All joints in fitted surfaces should be tapered and finished with joint cement.
 - m. All joints in fitted surfaces should be tapered and finished with joint cement.
 - n. All joints in fitted surfaces should be tapered and finished with joint cement.
 - o. All joints in fitted surfaces should be tapered and finished with joint cement.
 - p. All joints in fitted surfaces should be tapered and finished with joint cement.
 - q. All joints in fitted surfaces should be tapered and finished with joint cement.
 - r. All joints in fitted surfaces should be tapered and finished with joint cement.
 - s. All joints in fitted surfaces should be tapered and finished with joint cement.
 - t. All joints in fitted surfaces should be tapered and finished with joint cement.
 - u. All joints in fitted surfaces should be tapered and finished with joint cement.
 - v. All joints in fitted surfaces should be tapered and finished with joint cement.
 - w. All joints in fitted surfaces should be tapered and finished with joint cement.
 - x. All joints in fitted surfaces should be tapered and finished with joint cement.
 - y. All joints in fitted surfaces should be tapered and finished with joint cement.
 - z. All joints in fitted surfaces should be tapered and finished with joint cement.

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5. Materials:
- Crysum Wallboard and Ceiling Board: 1/2" thick throughout unless noted otherwise.
 - Active Resistant Wallboard and Ceiling Board: Use in wet areas as recommended by Crysum Board Manufacturer.
 - Metal corner bead, coating and trim: galvanized and nickel.
 - Unpainted trim of exposed edge typical.
 - 90° right angle corner bead at all internal corners.
 - Type and Compound: As recommended by Crysum Board Manufacturer for use specified.
 - Sealing: Per code requirements.
- A. As indicated by Client.

D. Hardware shall be marked or removed.

1. Necessary clean-up.
2. 1. Semi-gloss paint to be color of brown applied.
3. 2. Remove the bottom and dry in a suitable condition for their specified. Remove all grease, bond breaking agents, dirt, oil, scale and efflorescence.
4. 3. Crack, holes, and areas shall be filled, smoothed, and sealed. Wood surface, except for the wood, that is not fully painted, smooth. Sounding out to be completely removed.
5. 4. Materials:
6. A. 3,000 ft of material and materials for Client and Architect review.
7. B. All materials shall be delivered to the site in sealed original manufacturer's containers.
8. C. All materials shall be delivered to the site in sealed original manufacturer's containers.
9. D. Paint to be as selected by the Owner.
10. 5. Colors: To be selected by the Owner.
11. 6. Interior painting and staining:
12. A. Ceiling and walls:
13. B. Interior doors, windows, and trim: white paint in a

[2] All other rooms: One coat prim

- D. Metal surfaces: Prime and paint same as adjacent surfaces.
- E. All exposed interior beams: to be painted to match ceiling.
- F. All exposed fire sprinkler piping shall be painted OSHA Red.
- G. All exposed water supply, sanitary and storm water piping to be painted black.
- H. Other than those colors indicated, all colors shall be selected by the Owner.
- I. The number of coats noted above shall be considered minimum. Apply additional coats if required to provide full and even coverage throughout.

SHEET DATES / DESC.
2/25/23 PERMITS
4/30/23 PERMITS

NOTE: PRODUCTS USED ABOVE MAY BE SUBSTITUTED WITH "A SEQUAL" PRODUCTS WITH WRITTEN APPROVAL FROM OWNER.

NOTE: PRODUCT TO BE USED ABOVE SHALL BE INSTALLED IN CONFORMANCE WITH MANUFACTURER'S INSTRUCTIONS. SEE INSTRUCTIONS FOR PROPER INSTALLATION. SEE INSTRUCTIONS FOR PROPER INSTALLATION.

NOTE: A COMPLETELY NEW SPECIFICATION SHALL BE PROVIDED BY THE SUPPLIER FOR APPROVAL BY THE OWNER. ALL HARDWARE SHALL BE GRADE 304 STAINLESS STEEL. SHOP DRAWINGS SHALL INCLUDE SECTION SAWCUTS, PRODUCT DATA, AND A COMPLETE SCHEDULE FOR EACH DOOR. PROVIDE A KEY SCHEDULE FOR THE OWNER.

LANDSCAPE PLAN

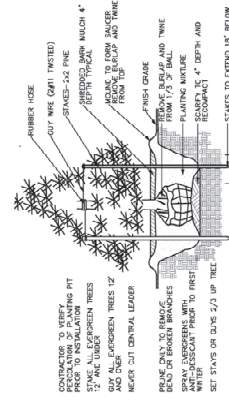
DATE	JANUARY 5, 2023
PROJECT NO.	17-007
DRAWN BY	CH
CHECKED BY	MM
DATE	

ZANDER FLEX SPACE
7749 E. M-36
WHITMORE LAKE, MICHIGAN 48116

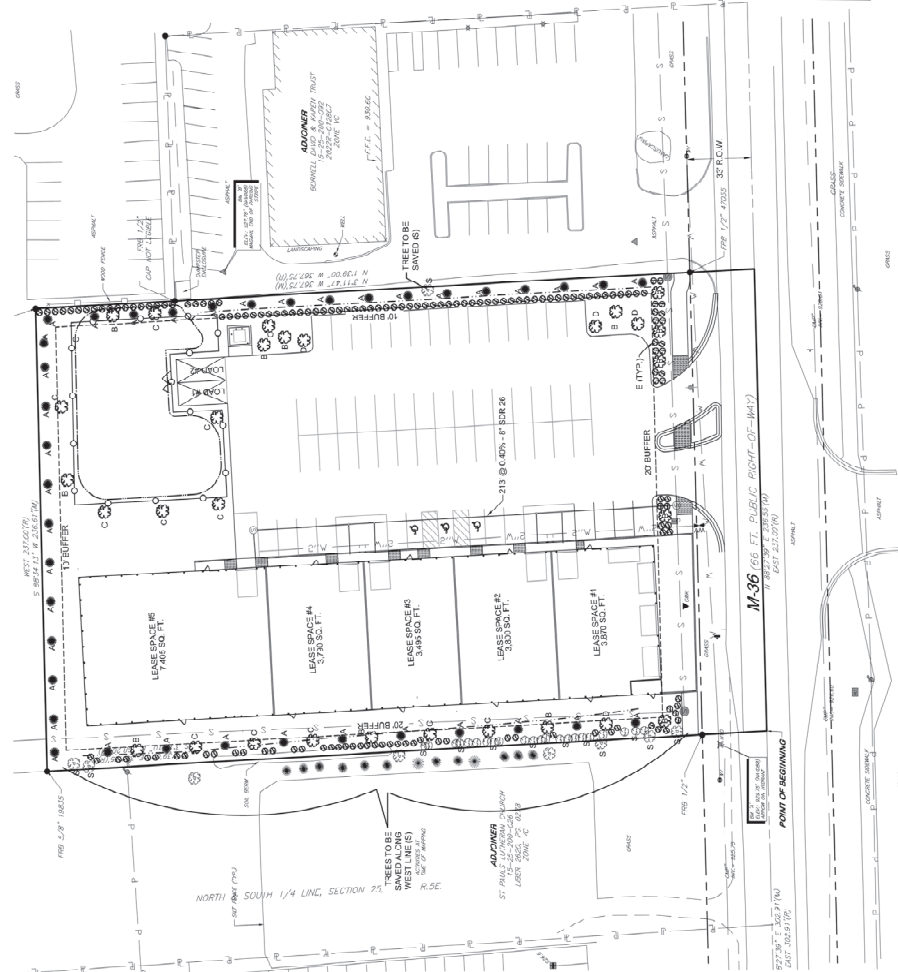
ZANDER COMPANIES
7879 WINANS LAKE RD
BRIGHTON, MI 48116

REVISION RECORD

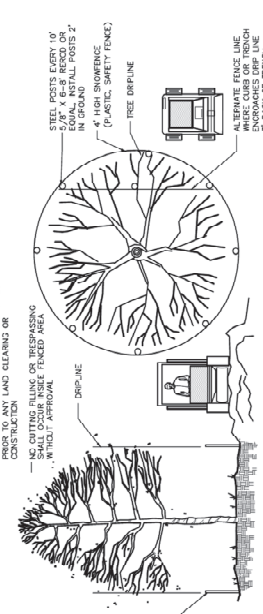
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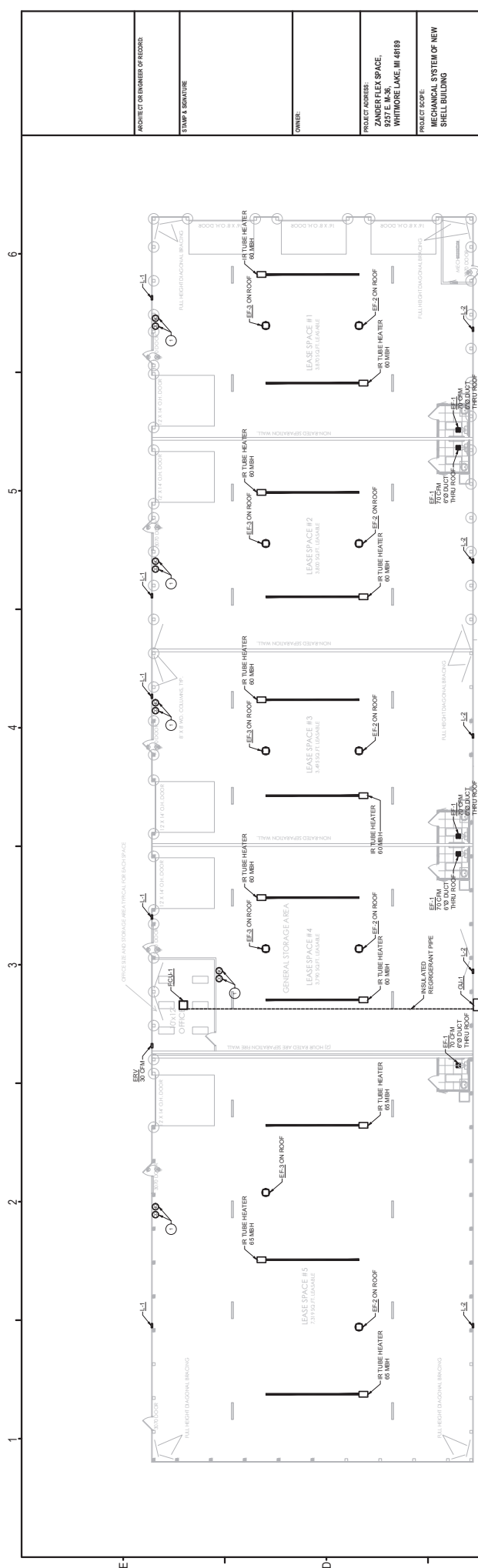
TYPICAL EVERGREEN TREE PLANTING



TYPICAL TREE/SHRUB/PERENNIAL PLANTING



TREE PROTECTION DETAIL



DRAWING NOTES

DUCTLESS-SPLIT SYSTEM SCHEDULE															
UNIT NO.	TYPE	COOLING CAPACITY		HEATING CAPACITY		INDOOR UNIT		OUTDOOR CONDENSING UNIT				WEIGHT (LBS)		MANUFACTURER & MODEL NO. INDOOR / OUTDOOR	
		BTU/H	BTU/H	BTU/H	BTU/H	CFM (MIN/MAJ)	W (MIN/MAJ)	W (MIN/MAJ)	SEER	HP/PHZ	MCA	MCA			
FCU-1	CASSETTE	12,700	39,700	2,700/475	0.54	30.6	H9-1	19,700	12,800	21	268/3160	14	24	137	MTS/SHIMADZU 44-388A/44-512

LOWER SCHEDULE										
UNIT NO.	SERVICES	SIZE [IN WT]	FREE AREA [SQ FT]	AREA [SQ FT]	VELOCITY [FPM]	AIRFLOW [CFM]	MATERIAL	FINISH	NOTES	MANUFACTURER & MODEL NO.
L-1	MAKE UP AIR [DRAINAGE PIPING]	20x11.75	0.90	0.06	599	460	ALUMINUM	BY OWNER	1-3	GREENGLASS, EGD-401-12026
L-2	MAKE UP AIR [DRAINAGE PIPING]	14x23.25	4.48	0.07	603	2550	ALUMINUM	BY OWNER	1-3	GREENGLASS, EGD-401-12044

FAN SCHEDULE						
AIRFLOW (CFM)	UNIT NO.	TYPE	FAN SP (RPM)	DRIVE	ELECTRICAL VOLTAGE	MANUFACTURER & MODEL NO.
70	1341	EXHAUST FAN	3375	DIRECT	120/1/0	1,2,3 PANASONIC FMS11V5SL2
1300	0,2	EXHAUST FAN	2800	DIRECT	200/1/0	GREENHECK, G-006
2650	1795	EXHAUST FAN	0,22	DIRECT	1795	200/1/00 3 GREENHECK, G-10A
40	4500	ENERGY RECOVERY VENTILATOR	-	-	120/1/0	VENTUS-10, 10A159-2

1. BACKDRAFT DAMPER
2. PROVIDE MOTOR RATED SWITCH OR EXHAUST FAN
3. ROOF MOUNTED
4. PROVIDE 1" MIN. RATED INSULATING ON FLOWING SIDE

DIVISION 26 ELECTRICAL
26-0000 - GENERAL REQUIREMENTS
SCOPE & DRAWINGS

3. THE DRAWINGS ARE DIAGNOSTIC IN NATURE AND INDICATE THE GENERAL LOCATION OF THE DEFECTS. THE DRAWINGS ARE NOT TO BE USED FOR THE DESIGN OF THE REPAIRS. THE DRAWINGS ARE NOT TO BE USED FOR THE DESIGN OF THE REPAIRS. THE DRAWINGS ARE NOT TO BE USED FOR THE DESIGN OF THE REPAIRS.

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ALL WORK SHALL BE DONE ACCORDANCE WITH THE REQUIREMENTS OF THE OWNERS

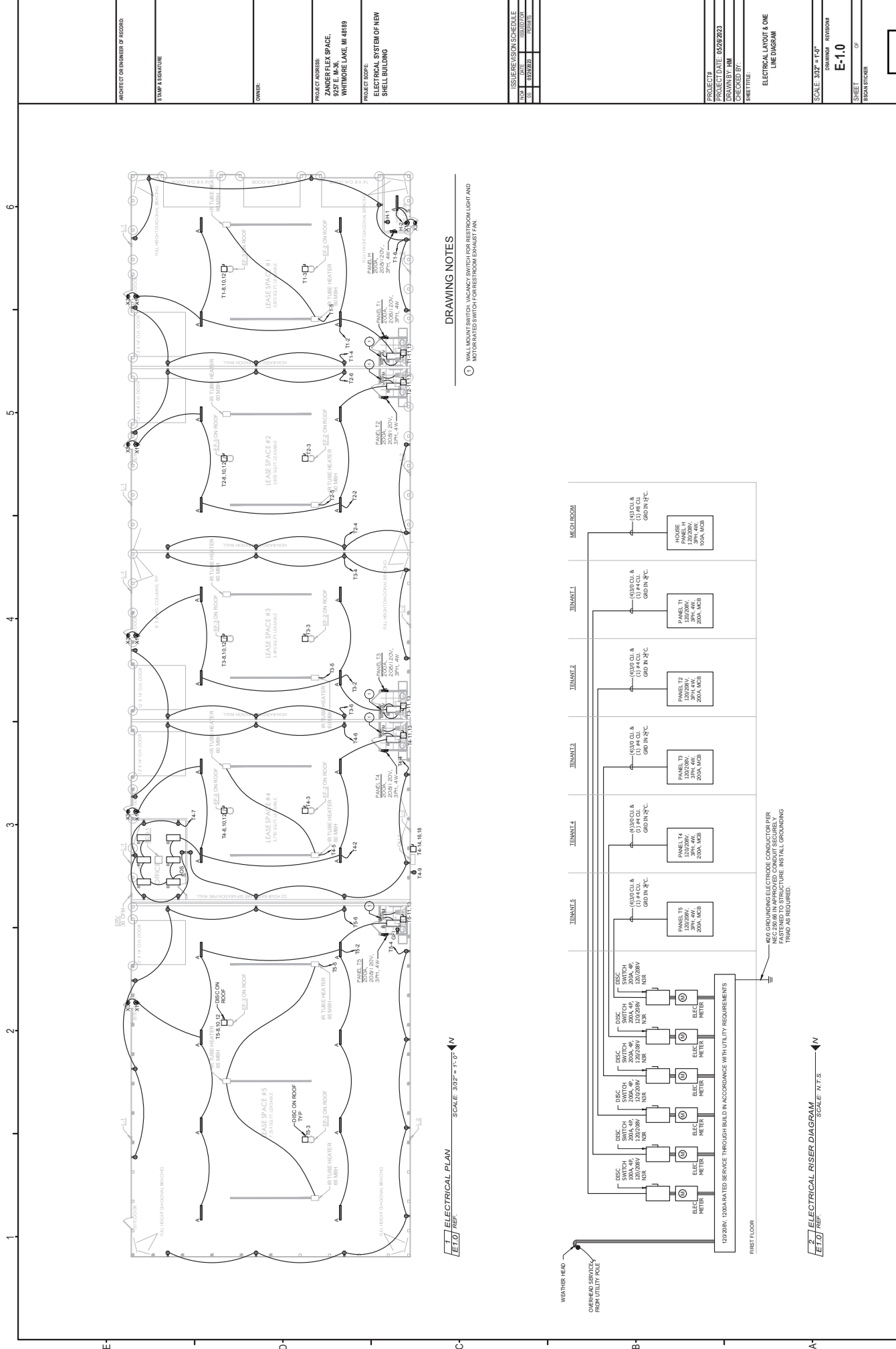
GENERAL

1. CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, SEQUENCING AND SCHEDULING.

1. ALL CUTTING AND REPAIRING WORK SHALL BE TO THE EXTENT OF THIS WORK SHALL BE DONE AND REPAIRED BY CONTRACTOR. ALL OPENINGS IN FINE WETTED ENCLOSURES SHALL BE FILL STOPPED. ALL OPENINGS SHALL BE FINISHED WITH HEAT TREAT FLANGE, PATCH AND FINISH AREAS DAMAGED AS A RESULT OF OPENINGS TO MATCH ADJACENT AREAS.
2. ALL OPENINGS MUST BE NEATLY SAW CUT, CORE BORED, SLEWED, GROUDED, SEALED AND ALL MATERIAL MUST BE PROPERLY

4. WHEN THE WORKER REQUIRES LOCATION OF EXISTING EQUIPMENT, PERFORMANCE LOGS AND MAKE THE NECESSARY CHANGES TO EXISTING WORK AS MAY BE REQUIRED TO LEAVE COMPLETED WORK IN A FINISHED AND WORKMANLIKE CONDITION. WHERE EXISTING INSULATION IS DISCOVERED IN PLACE INSULATION THAT REMOVED OR DAMAGED
5. EMPLOYER HAS NOT FUNCTIONALLY TESTED EXISTING EQUIPMENT, WHILE EXISTING EQUIPMENT IS TO BE USED, CONTRACTOR SHALL ALLOW FOR REASONABLE CHECKING, ADJUSTMENT AND MINOR REPAIR TO RESTORE FULL FUNCTION. WORK WHICH IS REQUIRED AND WHICH IS FOUND TO BE DESCRIBED ABOVE OR ON THE DRAWING SHALL BE

THE WORK AREA, ALL MATERIALS THAT CAN BE DAMAGED BY TOXIC RELEASE OR AIR CONTAMINATION, AND ALL EQUIPMENT TO BE USED IN THE WORK AREA, MUST BE PROTECTED FROM THE WORK AREA. ALL MATERIALS THAT CAN BE DAMAGED BY TOXIC RELEASE OR AIR CONTAMINATION, AND ALL EQUIPMENT TO BE USED IN THE WORK AREA, MUST BE PROTECTED FROM THE WORK AREA. ALL MATERIALS THAT CAN BE DAMAGED BY TOXIC RELEASE OR AIR CONTAMINATION, AND ALL EQUIPMENT TO BE USED IN THE WORK AREA, MUST BE PROTECTED FROM THE WORK AREA.



DRAWING NOTES

- 1 WALL MOUNT SWITCH, VACUANCY SWITCH FOR RESTROOM LIGHT AND MOTOR RATED SWITCH FOR RESTROOM EXHAUST FAN.

1 ELECTRICAL PLAN
SCALE: 3/32" = 1'-0"

2 ELECTRICAL RISER DIAGRAM
SCALE: N.T.S.

Item 2.

PANEL-T2

BUS: 200A MCR: MCB		LOCATION: TENANT SPACE 2 RISK WAREHOUSE SUPPLIED FROM: RISK WAREHOUSE ENCLOSURE: NEMA 1 MOUNTING: RECESSED				VOL: 208/120 PHASE: 3 WIRE: 4-1 GRD		
C	K	BRK POLE (AMP)	LOAD KVA	EQUIPMENT SERVED	LOAD (KVA)	BRK TRIP (AMP)	POLE T	C
1	1	20	0.2	SPACE	0.1	20	1	1
2	1	20	0.2	SPACE	0.1	20	1	2
3	1	20	0.2	SPACE	0.1	20	1	3
4	1	20	0.2	SPACE	0.1	20	1	4
5	1	20	0.6	IR TUBE HEATER	1.1	20	1	5
6	1	20	0.6	IR TUBE HEATER	1.3	20	1	6
7	1	20	0.6	IR TUBE HEATER	0.6	20	1	7
8	1	20	0.6	IR TUBE HEATER	0.6	20	1	8
9	1	20	0.6	IR TUBE HEATER	0.6	20	1	9
10	1	20	0.6	IR TUBE HEATER	0.6	20	1	10
11	2	20	1.6	WATER HEATER	2.1	20	2	11
12	2	20	1.6	WATER HEATER	1.6	20	2	12
13	2	20	1.6	WATER HEATER	1.6	20	2	13
14	2	20	1.6	WATER HEATER	0.0	20	2	14
15	2	20	1.6	WATER HEATER	0.0	20	2	15
16	2	20	1.6	WATER HEATER	0.0	20	2	16
17	2	20	1.6	WATER HEATER	0.0	20	2	17
18	2	20	1.6	WATER HEATER	0.0	20	2	18
19	2	20	1.6	WATER HEATER	0.0	20	2	19
20	2	20	1.6	WATER HEATER	0.0	20	2	20
21	2	20	1.6	WATER HEATER	0.0	20	2	21
22	2	20	1.6	WATER HEATER	0.0	20	2	22
23	2	20	1.6	WATER HEATER	0.0	20	2	23
24	2	20	1.6	WATER HEATER	0.0	20	2	24
25	2	20	1.6	WATER HEATER	0.0	20	2	25
26	2	20	1.6	WATER HEATER	0.0	20	2	26
27	2	20	1.6	WATER HEATER	0.0	20	2	27
28	2	20	1.6	WATER HEATER	0.0	20	2	28
29	2	20	1.6	WATER HEATER	0.0	20	2	29
30	2	20	1.6	WATER HEATER	0.0	20	2	30
31	2	20	1.6	WATER HEATER	0.0	20	2	31
32	2	20	1.6	WATER HEATER	0.0	20	2	32
33	2	20	1.6	WATER HEATER	0.0	20	2	33
34	2	20	1.6	WATER HEATER	0.0	20	2	34
35	2	20	1.6	WATER HEATER	0.0	20	2	35
36	2	20	1.6	WATER HEATER	0.0	20	2	36
37	2	20	1.6	WATER HEATER	0.0	20	2	37
38	2	20	1.6	WATER HEATER	0.0	20	2	38
39	2	20	1.6	WATER HEATER	0.0	20	2	39
40	2	20	1.6	WATER HEATER	0.0	20	2	40
41	2	20	1.6	WATER HEATER	0.0	20	2	41
42	2	20	1.6	WATER HEATER	0.0	20	2	42
TOTAL				2.3	1.7	3.4		
TOTALS:				2.3 KVA	18.9 AMPS			
PHASE A				2.3 KVA	18.9 AMPS			
PHASE B				1.7 KVA	14.0 AMPS			
PHASE C				1.5 KVA	12.5 AMPS			
TOTAL CONNECTED LOAD				5.5 KVA	45.4 AMPS			

PANEL-T1

BUS: 200A MCR: MCB		LOCATION: TENANT SPACE 1 SUPPLIED FROM: BLDG WAREHOUSE ENCLOSURE: NEMA 1 MOUNTING: RECESSED				VOL: 208/120 PHASE: 3 WIRE: 4-1 GND		
C	K	BRK POLE (AMP)	LOAD KVA	EQUIPMENT SERVED	LOAD (KVA)	BRK TRIP (AMP)	POLE T	C
1	1	20	0.2	SPACE	Ph A Ph B Ph C	0.2	20	1
2	1	20	0.2	SPACE		0.2	20	1
3	1	20	0.2	SPACE		0.2	20	1
4	1	20	0.2	SPACE		0.2	20	1
5	1	20	0.6	IR TUBE HEATER		1.6	20	1
6	1	20	0.6	IR TUBE HEATER		1.6	20	1
7	1	20	0.6	SPACE		0.6	30	3
8	1	20	0.6	SPACE		0.6	30	3
9	1	20	0.6	SPACE		0.6	30	3
10	1	20	0.6	SPACE		0.6	30	3
11	2	20	1.6	WATER HEATER		1.6	20	12
12	2	20	1.6	WATER HEATER		1.6	20	12
13	2	20	1.6	SPACE		1.6	20	14
14	2	20	1.6	SPACE		1.6	20	14
15	2	20	1.6	SPACE		1.6	20	18
16	2	20	1.6	SPACE		1.6	20	18
17	2	20	1.6	SPACE		1.6	20	18
18	2	20	1.6	SPACE		1.6	20	18
19	2	20	1.6	SPACE		1.6	20	22
20	2	20	1.6	SPACE		1.6	20	22
21	2	20	1.6	SPACE		1.6	20	22
22	2	20	1.6	SPACE		1.6	20	22
23	2	20	1.6	SPACE		1.6	20	24
24	2	20	1.6	SPACE		1.6	20	24
25	2	20	1.6	SPACE		1.6	20	24
26	2	20	1.6	SPACE		1.6	20	28
27	2	20	1.6	SPACE		1.6	20	28
28	2	20	1.6	SPACE		1.6	20	28
29	2	20	1.6	SPACE		1.6	20	30
30	2	20	1.6	SPACE		1.6	20	30
31	2	20	1.6	SPACE		1.6	20	32
32	2	20	1.6	SPACE		1.6	20	32
33	2	20	1.6	SPACE		1.6	20	32
34	2	20	1.6	SPACE		1.6	20	36
35	2	20	1.6	SPACE		1.6	20	36
36	2	20	1.6	SPACE		1.6	20	36
37	2	20	1.6	SPACE		1.6	20	38
38	2	20	1.6	SPACE		1.6	20	38
39	2	20	1.6	SPACE		1.6	20	38
40	2	20	1.6	SPACE		1.6	20	40
41	2	20	1.6	SPACE		1.6	20	40
42	2	20	1.6	SPACE		1.6	20	42
TOTAL					2.3	1.5		
TOTALS:					2.3 KVA	19.3 AMPS		
PHASE A					2.3 KVA	19.3 AMPS		
PHASE B					1.5 KVA	12.5 AMPS		
PHASE C					1.5 KVA	12.5 AMPS		
TOTAL CONNECTED LOAD					5.3 KVA	44.3 AMPS		

PANEL-H

BUS: 100A MCR: MCB		LOCATION: MECHANICAL ROOM RISK WAREHOUSE SUPPLIED FROM: RISK WAREHOUSE ENCLOSURE: NEMA 1 MOUNTING: RECESSED				VOL: 208/120 PHASE WIRE: 4-1 GRD		
C	K	BRK POLE (AMP)	LOAD KVA	EQUIPMENT SERVED	LOAD KVA	BRK TRIP (AMP)	POLE T	C
1	1	20	0.2	SPACE	0.0	20	1	1
2	1	20	0.2	SPACE	0.0	20	1	2
3	1	20	0.2	SPACE	0.0	20	1	3
4	1	20	0.2	SPACE	0.0	20	1	4
5	1	20	0.6	IR TUBE HEATER	0.7	20	1	5
6	1	20	0.6	IR TUBE HEATER	0.7	20	1	6
7	1	20	0.6	IR TUBE HEATER	0.7	20	1	7
8	1	20	0.6	IR TUBE HEATER	0.7	20	1	8
9	1	20	0.6	IR TUBE HEATER	0.7	20	1	9
10	1	20	0.6	IR TUBE HEATER	0.7	20	1	10
11	2	20	1.6	WATER HEATER	1.6	20	2	11
12	2	20	1.6	WATER HEATER	1.6	20	2	12
13	2	20	1.6	WATER HEATER	1.6	20	2	13
14	2	20	1.6	WATER HEATER	1.6	20	2	14
15	2	20	1.6	WATER HEATER	1.6	20	2	15
16	2	20	1.6	WATER HEATER	1.6	20	2	16
17	2	20	1.6	WATER HEATER	1.6	20	2	17
18	2	20	1.6	WATER HEATER	1.6	20	2	18
19	2	20	1.6	WATER HEATER	1.6	20	2	19
20	2	20	1.6	WATER HEATER	1.6	20	2	20
21	2	20	1.6	WATER HEATER	1.6	20	2	21
22	2	20	1.6	WATER HEATER	1.6	20	2	22
23	2	20	1.6	WATER HEATER	1.6	20	2	23
24	2	20	1.6	WATER HEATER	1.6	20	2	24
25	2	20	1.6	WATER HEATER	1.6	20	2	25
26	2	20	1.6	WATER HEATER	1.6	20	2	26
27	2	20	1.6	WATER HEATER	1.6	20	2	27
28	2	20	1.6	WATER HEATER	1.6	20	2	28
29	2	20	1.6	WATER HEATER	1.6	20	2	29
30	2	20	1.6	WATER HEATER	1.6	20	2	30
31	2	20	1.6	WATER HEATER	1.6	20	2	31
32	2	20	1.6	WATER HEATER	1.6	20	2	32
33	2	20	1.6	WATER HEATER	1.6	20	2	33
34	2	20	1.6	WATER HEATER	1.6	20	2	34
35	2	20	1.6	WATER HEATER	1.6	20	2	35
36	2	20	1.6	WATER HEATER	1.6	20	2	36
37	2	20	1.6	WATER HEATER	1.6	20	2	37
38	2	20	1.6	WATER HEATER	1.6	20	2	38
39	2	20	1.6	WATER HEATER	1.6	20	2	39
40	2	20	1.6	WATER HEATER	1.6	20	2	40
41	2	20	1.6	WATER HEATER	1.6	20	2	41
42	2	20	1.6	WATER HEATER	1.6	20	2	42
TOTAL				0.2	0.0			
TOTALS:				0.2 KVA	1.7 AMPS			
PHASE A				0.2 KVA	1.7 AMPS			
PHASE B				0.0 KVA	0.0 AMPS			
PHASE C				0.0 KVA	0.0 AMPS			
TOTAL CONNECTED LOAD				0.2 KVA	0.0 AMPS			

PROJECT ADDRESS:
ZANDER FLEX SPACE,
9257 E. W. 36,
WHITMORE LAKE, WI 48189

PROJECT NO: 8020-E
ELECTRICAL SYSTEM OF NEW
SHELL BUILDING

PROJECT DATE: 05/09/2023
DRAWN BY: RHM
CHECKED BY:
DATE:

PROJECT: ELECTRICAL PANEL SCHEDULE

SCALE: 3/32" = 1'-0"

SHEET: E-20

OF: 20

DATE: 05/09/2023

PROJECT: ELECTRICAL PANEL SCHEDULE

SCALE: 3/32" = 1'-0"

SHEET: E-20

OF: 20

DATE: 05/09/2023

PROJECT: ELECTRICAL PANEL SCHEDULE

SCALE: 3/32" = 1'-0"

SHEET: E-20

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SCALE: 3/32" = 1'-0"

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OF: 20

DATE: 05/09/2023

PROJECT: ELECTRICAL PANEL SCHEDULE

SCALE: 3/32" = 1'-0"

SHEET: E-20

OF: 20

DATE: 05/09/2023

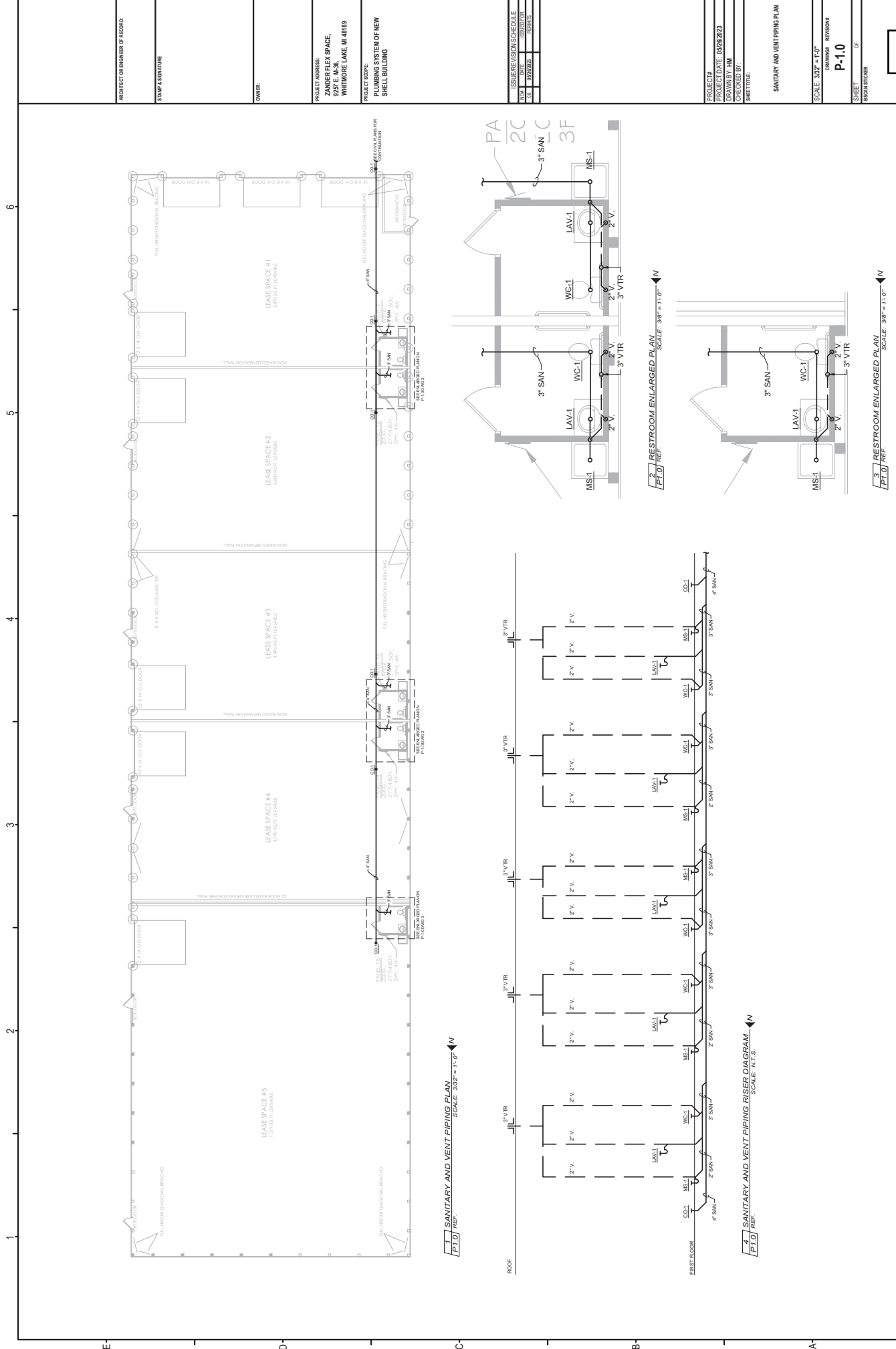
PROJECT: ELECTRICAL PANEL SCHEDULE

SCALE: 3/32" = 1'-0"

SHEET: E-20

OF: 20

DATE: 05/09/2023



1 SANITARY AND VENT PIPING PLAN
SCALE: 3/32" = 1'-0" N

4 SANITARY AND VENT PIPING RISER DIAGRAM
SCALE: N.T.S. N

2 RESTROOM ENLARGED PLAN
SCALE: 3/8" = 1'-0" N

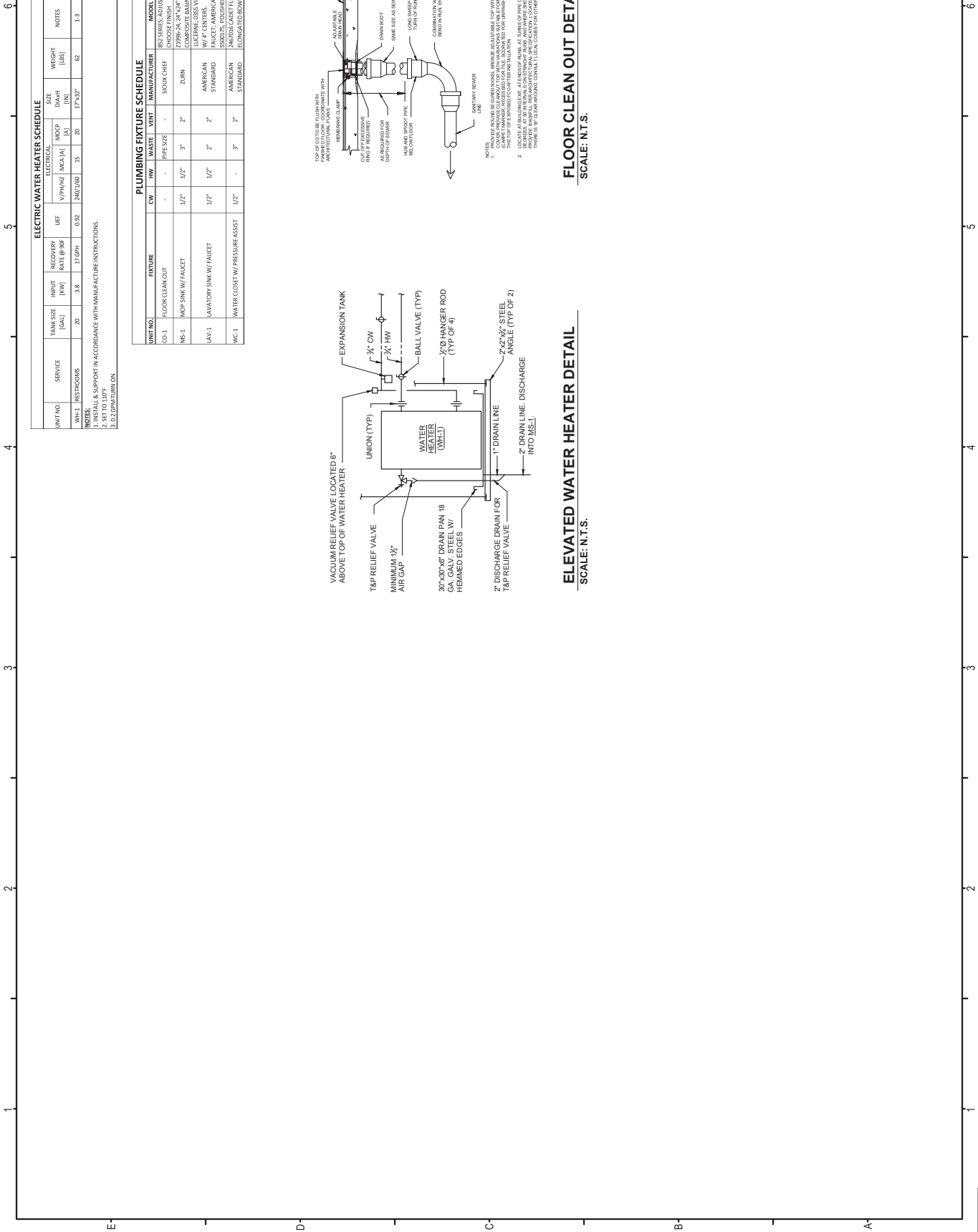
3 RESTROOM ENLARGED PLAN
SCALE: 3/8" = 1'-0" N

PROJECT OR NUMBER OF RECORD	
STAMP & SIGNATURE	
OWNER	
PROJECT ADDRESS: ZANDER FLEX SPACE, 9257 E. W-36, WHITMORE LAKE, WI 48189	
PROJECT SCOPE: PLUMBING SYSTEM OF NEW SHELL BUILDING	
USE/REVISION SCHEDULE NO. DATE REVISION 101 03/29/2023 INITIALS	
PROJECT: PROJECT DATE: 02/09/2023 DRAWN BY: RHM CHECKED BY: DATE: 02/09/2023	
SANTARY AND VENT PIPING PLAN	
SCALE: 3/32" = 1'-0" DRAWING: RHM/DM	
P-1.0	
SHEET 1 OF 1	
SHEET DESCRIPTION	

Item 2.

68

[illegible]



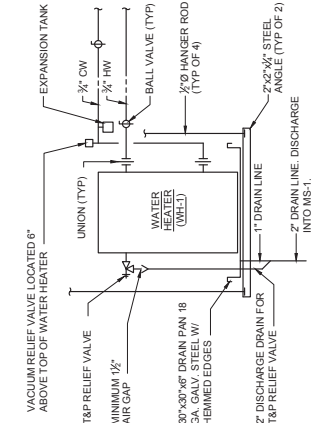
ELECTRIC WATER HEATER SCHEDULE

UNIT NO.	SERVICE	TANK SIZE [GAL.]	INPUT [KW]	RECOVERY RATE @ 95°F	UEF	ELECTRICAL		WEIGHT [LBS]	NOTES	MANUFACTURER & MODEL NO.
						V/PH/Hz	MCA [A]			
WH-1	RESTROOMS	20	3.8	17 GPH	0.92	240V/100	15	20	17 X 26"	48" DIA. X 20" DEEP

NOTES:
1. INSTALL & SUPPORT IN ACCORDANCE WITH MANUFACTURE INSTRUCTIONS.
2. SET TO 100°F.
3. 0.2 GPM/LITER/HR.

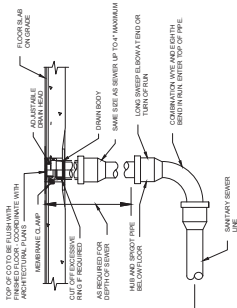
PLUMBING FIXTURE SCHEDULE

UNIT NO.	FIXTURE	CW	HW	WASTE	VENT	MANUFACTURER	MODEL NO. & SPECIFICATIONS	
							802-SERIES ADJUSTABLE OWNERS/ARCHITECT TO CHOOSE FROM	802-SERIES ADJUSTABLE OWNERS/ARCHITECT TO CHOOSE FROM
CO-1	FLOOR CLEAN OUT	-	-	PPIPE SIZE	-	SOLID CHIEF	2096-24 24" X 24" POLISHED HIGH DENSITY COMPOSITE BASIN WITH PVC DRAIN BODY.	2096-24 24" X 24" POLISHED HIGH DENSITY COMPOSITE BASIN WITH PVC DRAIN BODY.
MS-1	MOP SINK W/ FAUCET	1/2"	1/2"	3"	2"	ZURN	LUCERNE 6855 VITREOUS CHINA WALL HUNG SINK W/ 4" CENTER.	LUCERNE 6855 VITREOUS CHINA WALL HUNG SINK W/ 4" CENTER.
LAV-1	LAVATORY SINK W/ FAUCET	1/2"	1/2"	2"	2"	AMERICAN STANDARD	5800275 POLISHED CHROME ADA COMPLIANT	5800275 POLISHED CHROME ADA COMPLIANT
WC-1	WATER CLOSET W/ PRESSURE ASSIST	1/2"	-	3"	2"	AMERICAN STANDARD	2467036 CARET FLOWPUSH PRESSURE ASSIST. ELONGATED BOWL WHITE VITREOUS CHINA.	2467036 CARET FLOWPUSH PRESSURE ASSIST. ELONGATED BOWL WHITE VITREOUS CHINA.



ELEVATED WATER HEATER DETAIL

SCALE: N.T.S.



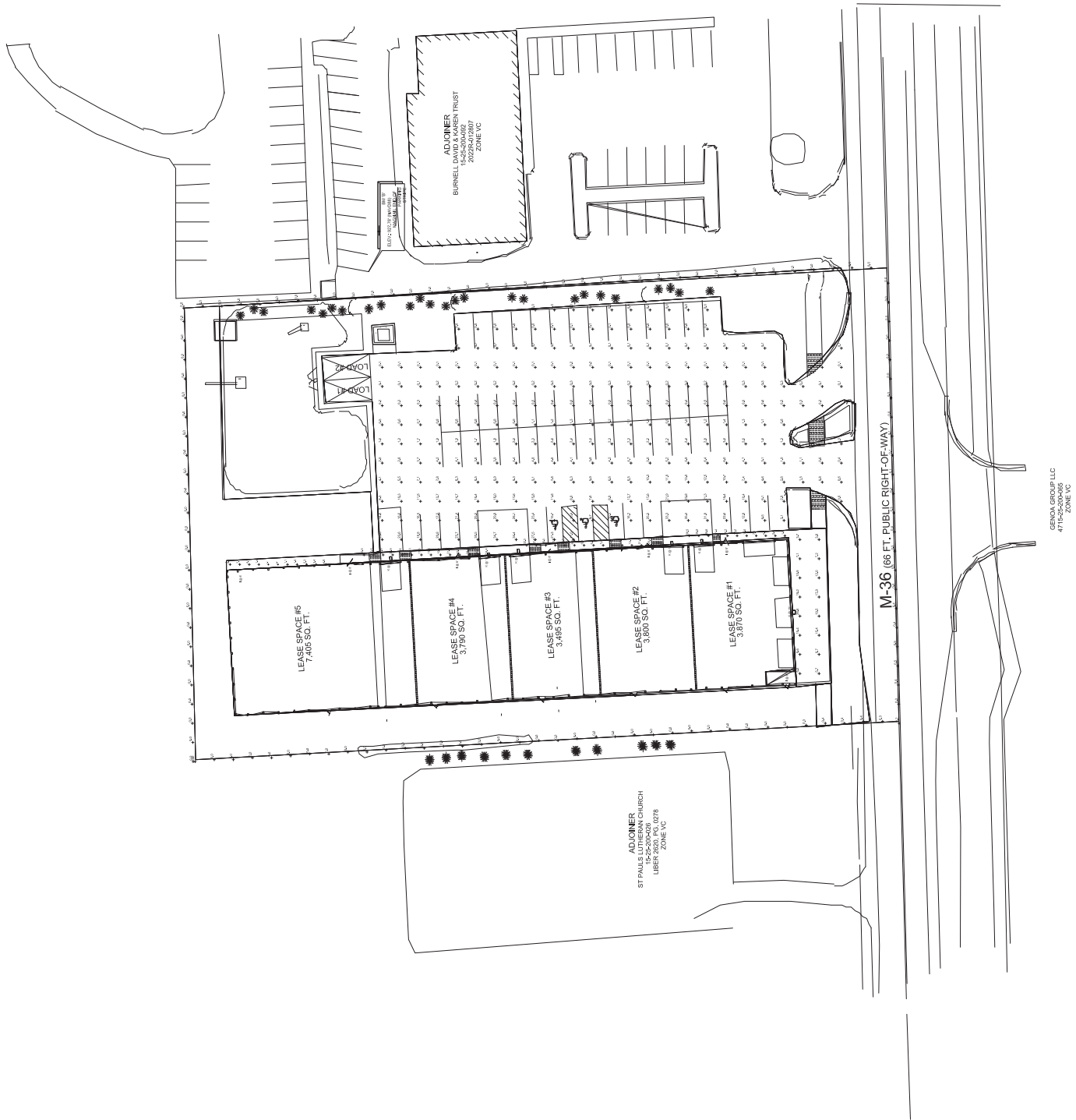
FLOOR CLEAN OUT DETAIL

SCALE: N.T.S.

NOTES:
1. FOR THE FLOOR CLEAN OUT, THE ADJUSTABLE DRAIN BODY SHALL BE INSTALLED AT THE TOP OF THE CLEAN OUT PIPE. THE ADJUSTABLE DRAIN BODY SHALL BE INSTALLED AT THE TOP OF THE CLEAN OUT PIPE. THE ADJUSTABLE DRAIN BODY SHALL BE INSTALLED AT THE TOP OF THE CLEAN OUT PIPE.
2. LOCATE AN BALANCE PIPE AT THE TOP OF THE CLEAN OUT PIPE. THE BALANCE PIPE SHALL BE INSTALLED AT THE TOP OF THE CLEAN OUT PIPE. THE BALANCE PIPE SHALL BE INSTALLED AT THE TOP OF THE CLEAN OUT PIPE.



Item 2.



Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lumens Per Lamp	Light Loss Factor	Voltage
	I	7	Lithonia Lighting	WIDGET LED P1 40K 80CAN 1W	WIDGET LED WITH P1 - PERFORMANCE COMFORT WIDE OPTIC	1229	0.9	10,0002
	K	6	Lithonia Lighting	DSX2 LED P8 40K 14W MVOLT	DSX2 LED P8 40K 14W MVOLT	49144	0.9	431

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Driveway Photometric Calculation	+	11.8 fc	28.6 fc	3.7 fc	7.2:1	3.2:1
East Property Line Photometric Calculation	+	0.0 fc	0.0 fc	0.0 fc	N/A	N/A
North Property Line Photometric Calculation	+	0.0 fc	0.0 fc	0.0 fc	N/A	N/A
Parking Lot Area Photometric Calculation	+	5.1 fc	35.4 fc	0.0 fc	N/A	N/A
Shed Photometric Calculation	+	16.2 fc	39.9 fc	0.7 fc	57.0:1	23.1:1
West Property Line Photometric Calculation	+	0.2 fc	0.6 fc	0.0 fc	N/A	N/A
West Property Line Photometric Calculation	+	0.0 fc	0.4 fc	0.0 fc	N/A	N/A



June 2, 2023

Hamburg Fire Division
Hamburg Charter Township
10405 Merrill Road
P.O. Box 157
Hamburg, Michigan 48189

Re: Zander Flex Space, Responses to Comments from Preliminary & Final Site Plan Review

Dear Mr. Zernick,
Below are the responses to the comments recieved.

1. Building shall be required to have a 3200 series. Each tenant space shall be equipped with its own 3200 series Knox Box.
Concur.
2. Intended use of each tenant space shall be provided for the purpose of building plan review. Proper fire protection requirements cannot be determined without knowing the intended use of the space.
Concur. Although no tenants have been secured, future tenants and uses will be submitted for review.
3. Fire Hydrant to be placed at the North end of the parking lot due to the lack of access to the northern portion of the building because of the detention pond. Fire hydrant shall meet the stands set forth by the Livingston Community Water Authority (LCWA).
Please review the attached exhibit which shows that we meet the 400' radius rule per the 2018 IFC that would exclude the addition of another hydrant. Also, the building was updated to a straight rectangular shape that allows for easy access.
4. If Fire Alarm or suppression is deemed to be required, plans shall be submitted directly to the Hamburg Township Fire Department for review.
Fire suppression is not required. See fire rated walls detail on T1.1.
5. It is requested that each individual tenant space to individually addressed.
Concur. Although no tenants have been secured, future tenants and uses will be submitted for review.
6. Any alterations to these submitted plans shall require the submittal of As Built plans. Plans shall be submitted directly to the Hamburg Township Fire Department prior to the issuance of Certificate of Occupancy.
Concur.
7. All tenant spaces shall be addressed with the standards established by the 2018 edition of the International Fire Code.
Concur. Although no tenants have been secured, future tenants shall meet the stated code.

8. Architectural Building plans shall be submitted for review by the Fire Department.

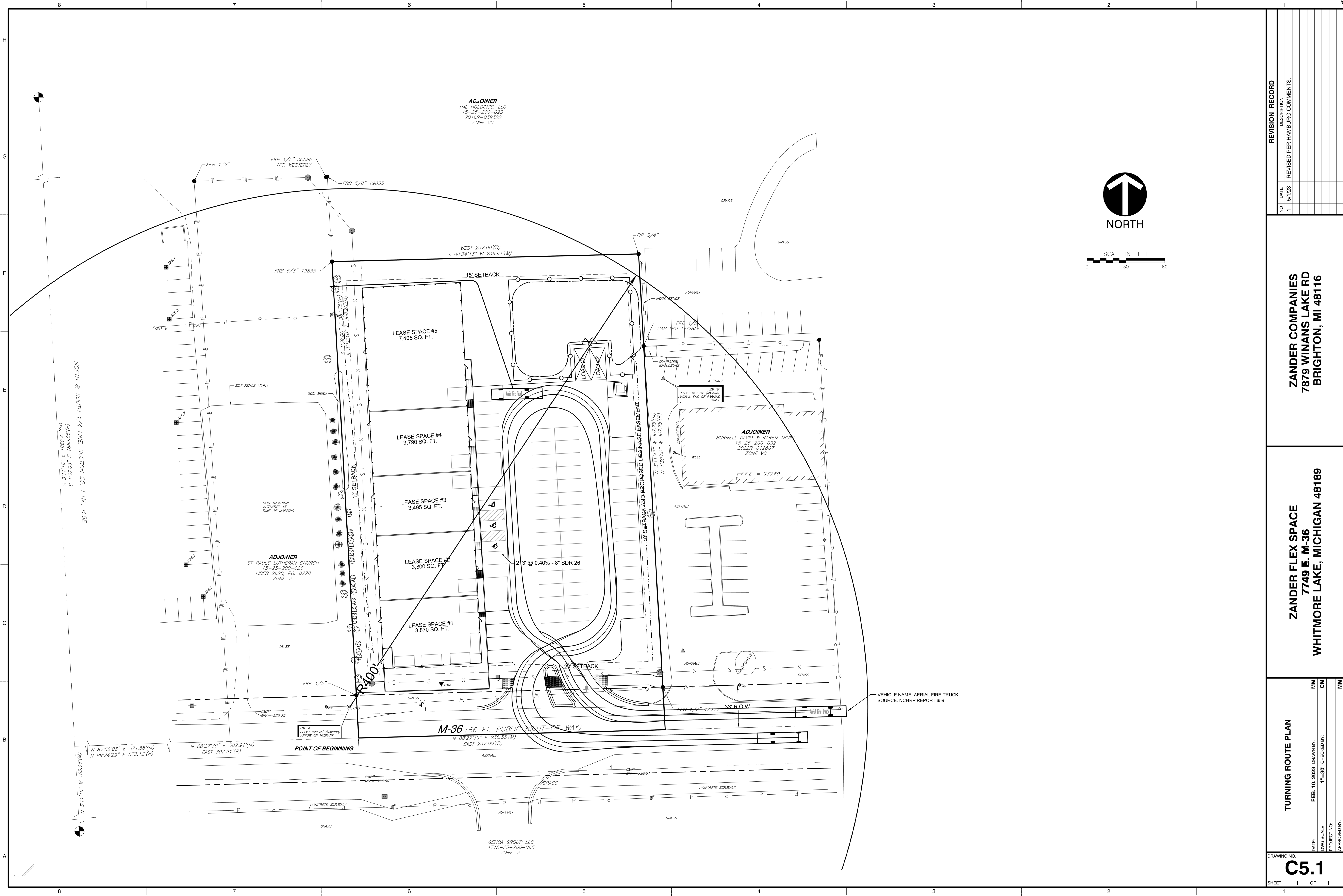
Concur. The architectural plans are attached.

We respectfully request that Hamburg Fire Division approves the subject site plans sends the corresponding letter of approval. If any additional information is required, please contact us for further assistance.

Sincerely,



Marc McIntire, PE
Open Door Consultants, LLC
Engineering & Design
PO Box 532
Madison, MS 39130

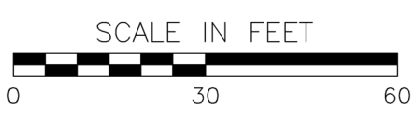
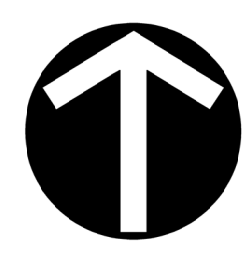


REVISION RECORD		
NO.	DATE	DESCRIPTION
1	5/1/23	REVISED PER HAMBURG COMMENTS.

ZANDER COMPANIES
7879 WINANS LAKE RD
BRIGHTON, MI 48116

ZANDER FLEX SPACE
7749 E. M-36
WHITMORE LAKE, MICHIGAN 48189

TURNING ROUTE PLAN		
DATE:	FEB 10, 2023	DRAWN BY: MM
DWG SCALE:	1"=30'	CHECKED BY: CM
PROJECT NO:		
APPROVED BY:		MM



VEHICLE NAME: AERIAL FIRE TRUCK
SOURCE: NCHRP REPORT 659

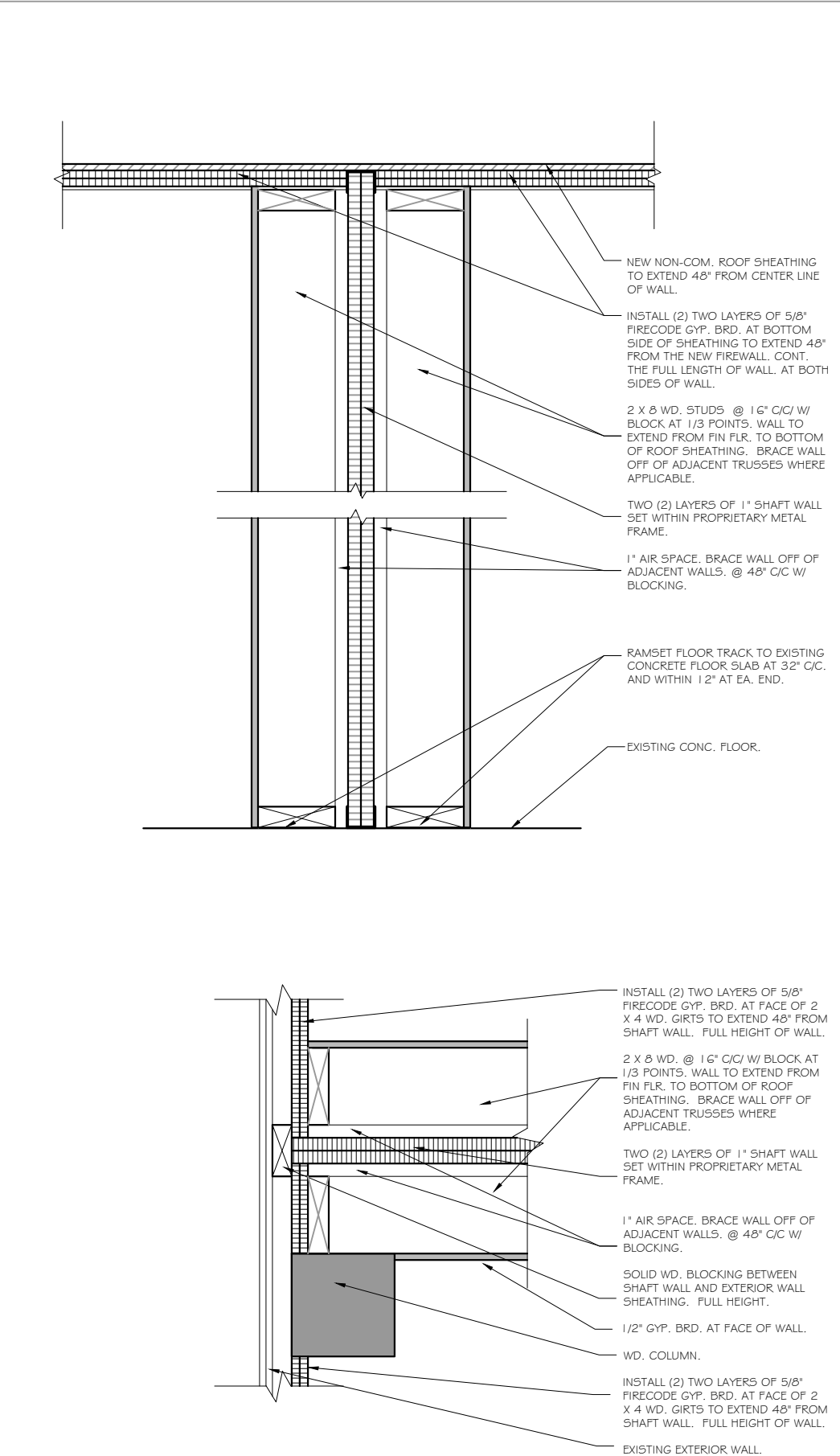
ABBREVIATIONS AND SYMBOLS

ABOVE FINISHED FLOOR	A.F.F.	OFFICE	OFF.
ACCESS DOOR	A.D.	ON CENTER	O.C.
ACCESS PANEL	A.P.	OPENING	OPNG
ACOUSTIC, ACOUSTICAL	ACOUS.	OPPOSITE	OPP.
ACOUSTIC CEILING TILE	A.C.T.	OPPOSITE HAND	O.H.
ADDITION	ADDN.	OUTSIDE DIAMETER	O.D.
ADJUSTABLE	ADJ.	OVER HEAD	O.H.
ALTERNATE	ALT.		
ALUMINUM	ALUM.	PAINTED	PTD
ANCHOR, ANCHORABLE	ANCH.	PAIR	PR
ANCHOR BOLT	A.B.	PAPER TOWEL DISPENSER	P.T.D.
AND	&	PAPER TOWEL RECEPTACLE	P.T.R.
ANGLE	ANG.	PARTITION	PARTN
APPROVED	APPR.	PAVEMENT	PMT
APPROXIMATE	APPROX.	PAVING	PVG
ARCHITECT, ARCHITECTURAL	ARCH.	PENT HOUSE	P.H.
AUTOMATIC	AUTO.	PERFORATED	PERF.
ASPHALT	ASPH.	PERIMETER	PERM.
ASSEMBLY	ASSY.	PHYSICALLY HANDICAPPED	P.H.
ASSISTANT	ASST.	PIECES	PCS
AT	@	PLASTER	PLAS.
AUXILIARY	AUX.	PLASTIC LAMINATE	PLAM.
		PLATE	PLT
BARRIER FREE	B.F.	PLYWOOD	PLYWD
BASE PLATE	B.PL.	POINT	PT
BASMENT	BSMT.	POINTS	PTS
BEAM	B.	POLISH/POLISHED	POL
BEARING	BR'G.	POLYVINYL CHLORIDE	PVC
BENCH MARK	B.M.K.	POUNDS	LBS.
BETWEEN	BET.	POUNDS PER SQUARE FOOT	P.S.F.
BITUMINOUS	BITUM.	POWER	PWR
BLOCKING	BLCK.	PRECAST	PRCAF.
BOARD	BOAR.	PREFABRICATED	PREFAB.
BOTTOM	BOTT.	PRESSURE TREATED	P.T.
BUILD-UP	BUILD-UP	PROJECT PROJECTION	PROJ.
BUILD-UP ROOFING	BUILD-UP	PROPERTY	PROP.
CABINET	CAB.	QUARRY TILE	Q.T.
CABINET	CAB.		
CAST IN PLACE	C.I.P.	RAIN CONDUCTOR	R.C.
CATCH BASIN	C.B.	RADIUS	RAD.
CEILING	CLG.	REFERENCE	REF.
CENTER LINE	C/L	REFLECTED/REFLECTIVE	REFL.
CENTER TO CENTER	C/C	REFINISH	REFIN.
CERAMIC	CER.	REINFORCE	REINF.
CERAMIC TILE	CER. TILE	REQUIRED	REQD
CHALK BOARD	CHALK BD.	RESILIENT	RESIL.
CHECKED PLATE	CHKD PL.	REVISION	REV.
CLOSET	CLO.	RIGHT HAND	R.H.
COLD WATER	C.W.	RIGHT HAND REVERSE	R.H.R.
COLUMN	COL.	RIGHT OF WAY	R.O.W.
COMPACTED	COMP.	RISER	R.
CONCRETE	CONC.	ROOF SUMP	R.S.
CONCRETE MASONRY UNIT	C.M.U.	ROOFING	RTG
CONFERENCE	CONF.	ROOM	RM.
CONNECT, CONNECTION	CONN.	ROUGH OPENING	R.O.
CONSTRUCTION	CONSTR.	ROUND	RND.
CONTROL, OR CONST. JOINT	CT.	RUBBER TILE	R.T.
CONTINUOUS	CONT.	SANITARY	SAN.
CONTRACTOR	CONTR.	SAN. NAPKIN DISPENSER	S.N.D.
CORRIDOR, CORRUGATED	CORR.	SAN. NAPKIN DISPOSAL	S.N.DISP.
COUNTER	CTR.	SCHEDULE	SCHED.
		SECRETARY	SEC.
DAMP-PROOFING	D.P.	SECTION	SECT.
DEAD LOAD	D.L.	SERVICE SINK	S.S.
DEMOLITION	DEMO.	SHEET	SH
DEPARTMENT	DEPT.	SHEET METAL	SHETMETL.
DETAIL	DET.	SHOWER	SHLVG
DIAMETER	DIAM.	SIMILAR	SM.
DIMENSION	DIR.	SINK DISPENSER	S.DISP.
DIRECTORY	DIR.	SOUTH	S
DITTO	DO.	SPEAKER	SPKR
DOOR	DOOR	SPECIFICATIONS	SPEC.
DOOR OPENING	D.O.	SQUARE	SQ.
DOUBLE	DOUBL.	SQUARE FOOT (FEET)	S.F.
DOWN	DN.	STAINLESS STEEL	ST.STL.
DOWNSPOUTS	D.S.	STANDARD	STD
DOWELS	D.WLS	STEEL	STL.
DRAWING	DWG	STORAGE	STOR.
DRINKING FOUNTAIN	D.F.	STREET	STRT.
EACH	EA.	STRUCTURAL	STRUCT.
EACH FACE	E.F.	STRUCTURAL STEEL	ST.STL.
EACH WAY	E.W.	ST. STL. CONTRACTOR	S.S.C.
ELASTO WATER PROOFING	ELAST.W.P.	SURFACE	SURF.
ELECTRIC, ELECTRICAL	ELEC.	SUSPEND/SUSPENSION	SUSP.
ELECTRIC, ELECTRICAL	E.P.		
ELECTRIC WATER COOLER	EWC	TACK BOARD	TACK BD.
ELEVATION (HEIGHT LEVEL)	ELEV.	TELEPHONE	TEL.
ELEVATOR	ELEV.	TEMPERATURE	TEMP.
ELUMINATE	ELUM.	TEMPERED GLASS	TEMP.GL.
EMERGENCY	EMERG.	THRESHOLD	THRES.
ENAMEL	ENAM.	TOILET	T.L.T.
ENCLOSURE	ENCL.	TOILET PAPER DISPENSER	T.P.D.
ENVIRONMENT	ENVR.	TONGUE AND GROOVE	T&G
EQUAL	EQUAL	TOP & BOTTOM	T&B
EQUIPMENT	EQUIP.	TOP OF FOOTING	T.O.F.
EXISTING	EXIST.	TOP OF MASONRY	T.O.M.
EXISTING	EXIST.	TOP OF COVER ON CURB	T.O.C.
EXPANSION	EXP.	TOP OF STEEL	T.O.S.
EXPANSION BOLT	EXP.B.	TOP OF WALL	T.O.W.
EXPANSION JOINT	E.J.	TOTAL LOP	T.L.
EXT.	EXT.	TREAD	T.
		TYPICAL	TYP.
FABRIC	FAB.	UNDERWRITER'S LAB	U.L.
FEET, FOOT	FT.	UNLESS NOTED OTHERWISE	U.N.O.
FINISH, FINISHED	FIN.		
FINISH FLOOR	F.F.	VENT THRU ROOF	V.T.R.
FIRE ALARM	F.A.	VERTICAL, VERTICALLY	VERT.
FIRE EXTINGUISHER CABINET	F.E.C.	VESTIBULE	VEST.
FIRE HYDRANT	F.H.	VINYL COMPOSITION TILE	V.C.T.
FIRE ROSE CABINET	F.R.	VINYL TILE	V.T.
FIRE VALVE CABINET	F.V.C.	VINYL WALL COVERING	V.W.C.
FIRE PROOFING	F.P.	VOLT	V.
FIXTURE	FIXT.		
FLASHING	FLASH.	WATER RESISTANT	W.R.
FLOOR	FLOOR	WATER PROOFING	W.P.
FLOOR DRAIN	F.D.	WEIGHT	WT.
FOOTING	FTG.	WELDED WIRE FABRIC	W.W.F.
FOUNDATION	FDN	WIND	WN
FRAME	FR.	WINDOW CONTRACTOR	WN.CONTR.
FURNISH, FURNISHED	FURN.	WINDOW OPENING	W.O.
FURRED, FURRING	FURR.	WELDED WIRE MESH	W.W.M.
		WIRE MESH	W.M.
GAS	G.	WITH	W/O
GAUGE	GA.	WITHOUT	W/O
GALVANIZED	GALV.	WOMEN	WOM
GALVANIZED IRON	G.I.	WOOD	WD.
GEN.	GEN.	YARD	YD.
GENERAL CONTRACTOR	G.C.		
GLASS	GL.		
GRADE	GR.		
GYP.	GYP.		
HARDWARE	HWAR.		
H.C.	H.C.		
HEAT/VENT/AIR CONDITION	HVAC		
HIGH	HGT		
HIGH POINT	H.P.		
HIGH PRESSURE LAMINATE	H.P.L.		
HOLLOW METAL	H.M.		
HORIZONTAL/HORIZONTALLY	HORIZ.		
HOT WATER	H.W.		
HOT WATER HEATER	H.W.H.		
HYDRANT	HYD.		
INCH OR INCHES	IN. OR "		
INFORMATION	INFO.		
INSIDE DIAMETER	I.D.		
INSTALL, INSTALLATION	INSTAL.		
INSULATE, INSULATION	INSUL.		
INTERIOR	INT.		
INVERT ELEVATION	INT. ELEV.		
JOINT	JT		
KICK PLATE	K.P.		
KNOCK OUT PANEL	K.O.P.		
LAM.	LAM.		
LAMINATE/LAMINATED	L.H.		
LEFT HAND	L.H.R.		
LEFT HAND REVERSE	L.H.R.		
LIGHT	LIT.		
LIGHTING	LITG.		
LIGHTING PANEL	L.P.		
LIGHTWEIGHT	L.TWT		
LIVE LOAD	L.L.		
LONG LEG HORIZONTAL	L.L.H.		
LONG LEG VERTICAL	L.L.V.		
LOUVER OPENING	L.O.		
LOW POINT	L.P.		
MACHINE	MACH.		
MANHOLE	M.H.		
MARBLE THRESHOLD	M.T.		
MASONRY	MAS.		
MASONRY OPENING	M.O.		
MATERIAL	MATL.		
MAXIMUM	MAX.		
MECHANICAL	MECH.		
MEDIUM	MED.		
METAL OR METALLIC	MET.		
METAL EDGE STRIP	M.E.S.		
MEZZANINE	MEZZ.		
MINIMUM	MIN.		
MIRROR	MIR.		
MISCELLANEOUS	MISC.		
MISC. IRON CONTRACTOR	M.I.C.		
MOUNTED	MTD		
MULLION	MULL.		
NATURAL	NAT.		
NOMINAL	NOM.		
NORTH	N.		
NOT IN CONTRACT	N.I.C.		
NOT TO SCALE	N.T.S.		
NUMBER	NO. OR #		

PROJECT DATA

PROJECT NAME: LEMEN ROAD INDUSTRIAL PARK	CHAPTER 24 GLASS AND GLAZING
PROJECT ADDRESS:	2406.4 HAZARDOUS LOCATIONS. SAFETY GLAZING SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS:
SECTION 31, TOWN 1 NORTH, GREEN OAK TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN	1. GLAZING IN SWINGING DOORS
BUILDING OWNER:	2. GLAZING IN FIXED, SLIDING AND BIFOLD DOOR PANELS.
RIVER RUN, LLC	3. GLAZING IN STORM DOORS.
7869 WINANS LAKE ROAD	4. GLAZING IN UNFRAMED SWINGING DOORS.
BRIGHTON, MICHIGAN 48116	5. GLAZING IN DOORS AND ENCLOSURES FOR HOT TUBS, WHIRLPOOLS, SAUNAS, STEAM ROOMS, BATHTUBS, AND SHOWERS. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING THESE COMPARTMENTS WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES ABOVE A STANDING SURFACE.
BUILDING CODES:	6. GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL ADJACENT TO A DOOR WHERE THE NEAREST EXPOSED EDGE OF THE GLAZING IS WITHIN A 24" ARC OF EITHER THE VERTICAL EDGE OF THE DOOR IN A CLOSED POSITION AND WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60" ABOVE WALKING SURFACE.
2015 MICHIGAN BUILDING CODE	EXCEPTION #1 - PANELS WHERE THERE IS AN INTERVENING WALL OR OTHER PERMANENT BARRIER BETWEEN DOOR AND GLAZING.
2015 MICHIGAN PLUMBING CODE	EXCEPTION #2 - WHERE ACCESS THROUGH THE THE DOOR IS TO A CLOSET OR STORAGE AREA 3' OR LESS IN DEPTH.
2015 MICHIGAN MECHANICAL CODE	7. EXPOSED AREA OF AN INDIVIDUAL PANE GREATER THAN (9) SQ.FT.
2018 PLUMBING CODE	8. EXPOSED BOTTOM EDGE LESS THAN 18" ABOVE FINISH FLOOR.
2017 NATIONAL ELECTRICAL CODE	9. EXPOSED TOP EDGE GREATER THAN 36" ABOVE FIN. FLR.
BARRIER FREE CODES:	10. ONE OR MORE WALKING SURFACES WITHIN 36" HORIZ. OF THE PLANS OF THE GLAZING.
ANSI A117.1, 2009 M.B.C.	11. GLAZING IN GUARDS AND RAILS.
MICHIGAN BARRIER FREE	SEE THIS SECTION FOR ADDITIONAL LOCATIONS AND EXCEPTIONS THAT MAY APPLY.
PROJECT TYPE: NEW CONSTRUCTION	CHAPTER 33 SAFEGUARDS DURING CONSTRUCTION
BUILDING USE GROUP: B	THE GENERAL CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THIS SECTION OF THE BUILDING CODE AND SHALL CONFORM WITH THE SECTIONS WITHIN FOR THE SAFETY OF THE GENERAL PUBLIC AND THE WORKERS WITHIN.
BUILDING CONSTRUCTION TYPE: SB	
NUMBER OF FLOORS: 1	
BUILDING AREA:	
PROPOSED BUILDING AREA: 26,500 SQ.FT. BUILDING AREA.	
BUILDING AREA ALLOWED: 9,000 SQ.FT.	
AREA INCREASE: 9,000 X 1.75 = 15,750 SQ.FT.	
TABLE 603	
'B' USE GROUP = (2) STORIES AND 9,000 SQ.FT. PER FLOOR	
AUTOMATIC FIRE SUPPRESSION SYSTEM AREA INCREASE: NO.	
AUTOMATIC FIRE SUPPRESSION SYSTEM HEIGHT INCREASE: NO.	
TABLE 601 - FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS:	
STRUCTURAL FRAME - (0) HOUR	
BEARING WALLS - (0) HOUR	
EXTERIOR WALLS - (0) HOUR	
INTERIOR WALLS - (0) HOUR	
NONBEARING INTERIOR WALLS AND PARTITIONS - (0) HOUR	
NONBEARING EXTERIOR WALLS AND PARTITIONS - (0) HOUR	
FLOOR CONSTRUCTION - (0) HOUR	
ROOF CONSTRUCTION - (0) HOUR	
TABLE 803.9 INTERIOR WALL AND CEILING FINISH REQUIREMENTS	
INTERIOR EXIT PASSAGEWAYS, INTERIOR EXIT RAMPS AND EXIT PASSAGEWAYS: B	
CORRIDORS AND ENCLOSURES FOR EXIT ACCESS PASSAGEWAYS: C	
ROOMS AND ENCLOSED SPACES: C	
SECTION 903 AUTOMATIC SPRINKLER SYSTEMS	
THE BUILDING IS NOT EQUIPPED WITH AN AUTOMATIC FIRE SUPPRESSION	
SECTION 906 PORTABLE FIRE EXTINGUISHERS	
PORTABLE FIRE EXTINGUISHERS SHALL BE LOCATED IN THE FOLLOWING LOCATIONS:	
1. ON EACH FLOOR.	
2. MAXIMUM FLOOR AREA PER EXTINGUISHER = 11,250 SQ.FT.	
3. MAXIMUM TRAVEL DISTANCE TO AN EXTINGUISHER = 75 FEET	
4. EXTINGUISHER TYPE: 2-A	
5. WITHIN 30 FEET OF COOKING EQUIPMENT.	
SECTION 907.2.1 FIRE ALARM AND DETECTION SYSTEMS	
A FIRE ALARM SYSTEM IS REQUIRED FOR GROUP A OCCUPANCIES.	
TABLE 1004.1.2 OCCUPANT LOAD	
26,500 SQ.FT. X .85 = 22,525 SQ.FT. / 100 SQ.FT. PER PERSON = 225 PERSONS	
TABLE 1021.1 MINIMUM NUMBER OF EXITS FOR OCCUPANT LOAD	
ONE EXIT PER EACH USE GROUP.	
SECTION 1204 TEMPERATURE CONTROL	
INTERIOR SPACES INTENDED FOR HUMAN OCCUPANCY SHALL BE PROVIDED WITH ACTIVE OR PASSIVE SPACE HEATING SYSTEMS CAPABLE OF MAINTAINING A MINIMUM INDOOR TEMPERATURE OF 68 DEGREES AT A POINT 3' ABOVE THE FLOOR ON THE DESIGN HEATING DAY.	
SECTION 1205 LIGHTING	
1205.1 EVERY SPACE INTENDED FOR HUMAN OCCUPANCY SHALL BE PROVIDED WITH NATURAL LIGHT BY MEANS OF EXTERIOR GLAZED OPENINGS IN ACCORDANCE WITH SECTION 1205.2 OR SHALL BE PROVIDED WITH ARTIFICIAL LIGHT IN ACCORDANCE WITH SECTION 1205.3.	
1205.2 THE MINIMUM NET GLAZED AREA SHALL NOT BE LESS THAN 8% OF THE FLOOR AREA OF THE ROOM SERVED.	
1205.3 ARTIFICIAL LIGHT SHALL BE PROVIDED THAT IS ADEQUATE TO PROVIDE AN AVERAGE ILLUMINATION OF 10-FOOT CANDLES OVER THE AREA OF THE ROOM AT A HEIGHT OF 30 INCHES ABOVE THE FLOOR LEVEL.	

FIRE WALL DETAILS (2) HOUR RATED



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PROJECT NUMBER:
CD_202210

PROJECT ARCHITECT: TODD R. CALLAWAY
LICENSE NO.

PROJECT MANAGER / DESIGNER:
TODD R. CALLAWAY

DRAWN BY:
TC

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NOTE:
ALL WORK ON THIS PROJECT SHALL BE COMPLETED IN ACCORDANCE WITH THE APPLICABLE FEDERAL, STATE, AND LOCAL CODES; THE LATEST EDITIONS ADOPTED BY THE BUILDING AUTHORITY.

LOCATION MAP

SITE LOCATION

M-36 HWY.

HALL ROAD

STATE OF MICHIGAN
TODD R. CALLAWAY
ARCHITECT
NO. 1301071969
LICENSED ARCHITECT

TODD R. CALLAWAY & ASSOCIATES
ARCHITECTS - DESIGNERS
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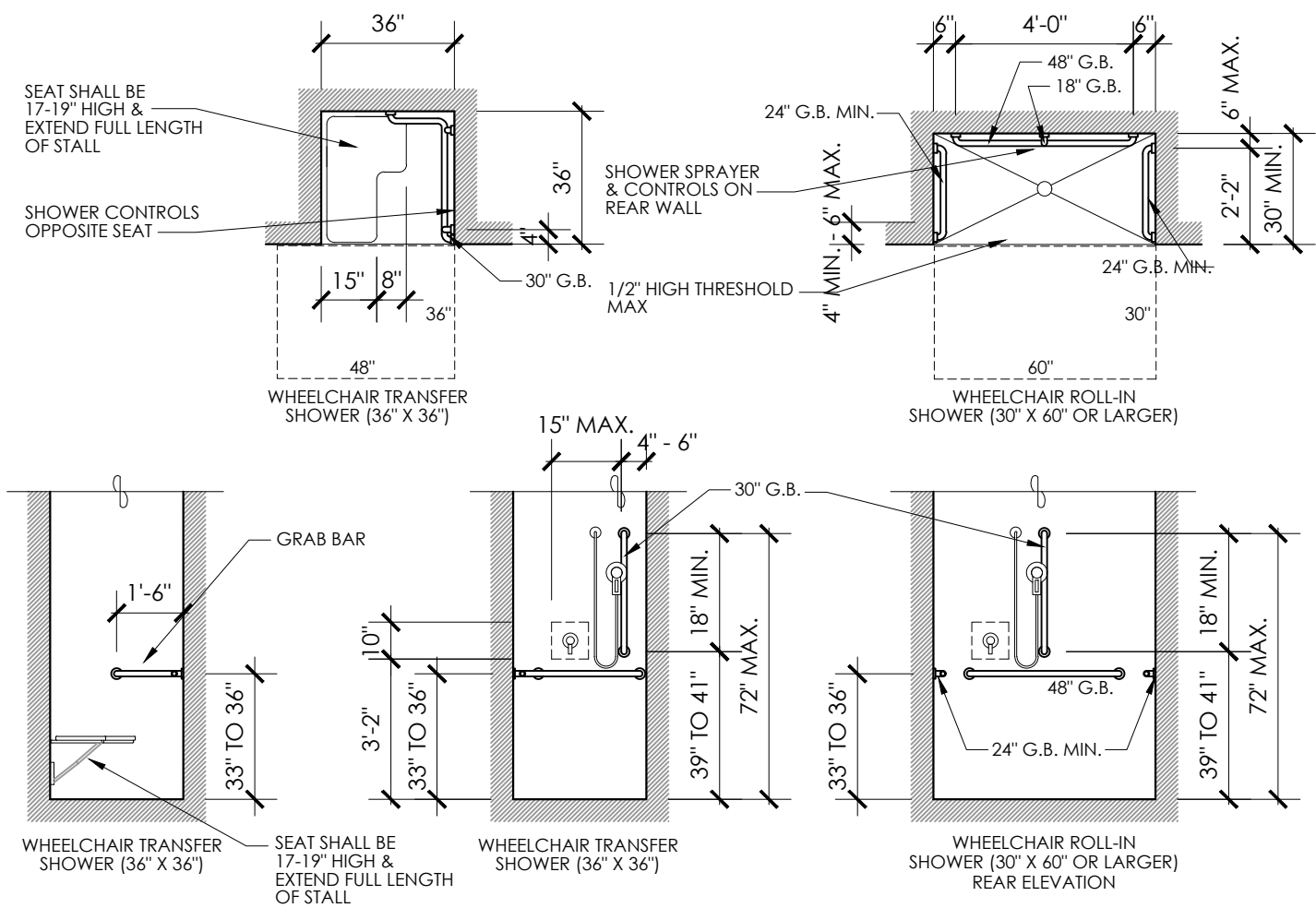
SHEET DATES / DESC.
2/25/23 PERMITS
4/30/23 PERMITS

NEW BUILDING
ZANDER FLEX SPACE
9257 E. M-36
WHITMORE LAKE, MICHIGAN

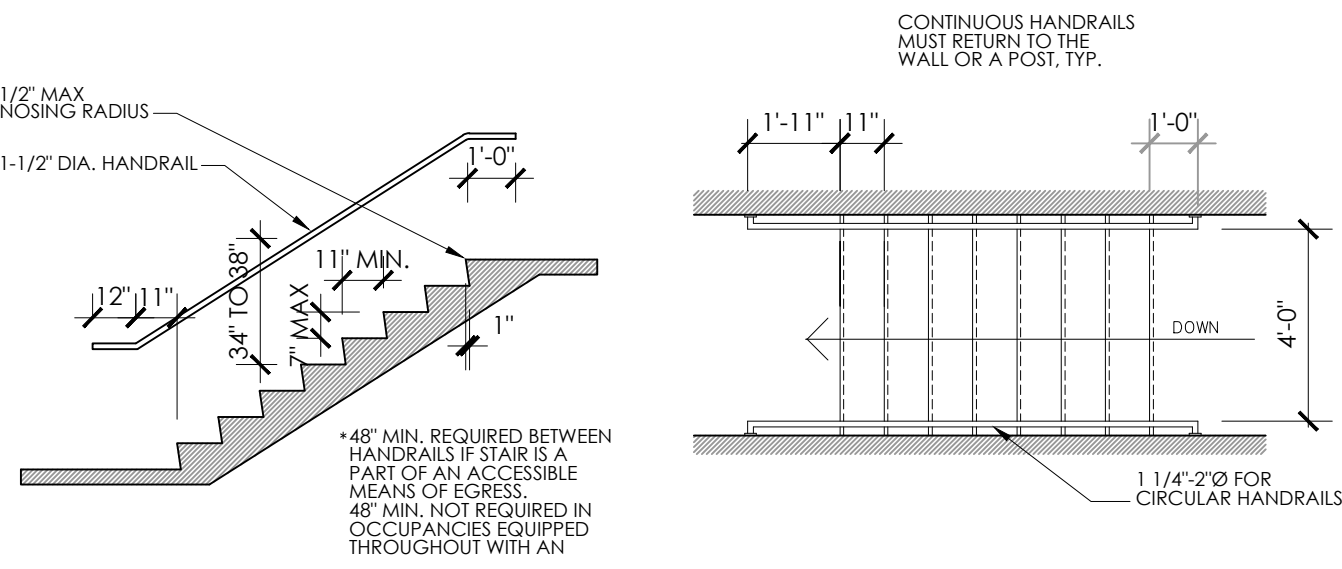
T1.1

TYPICAL BARRIER FREE STANDARDS

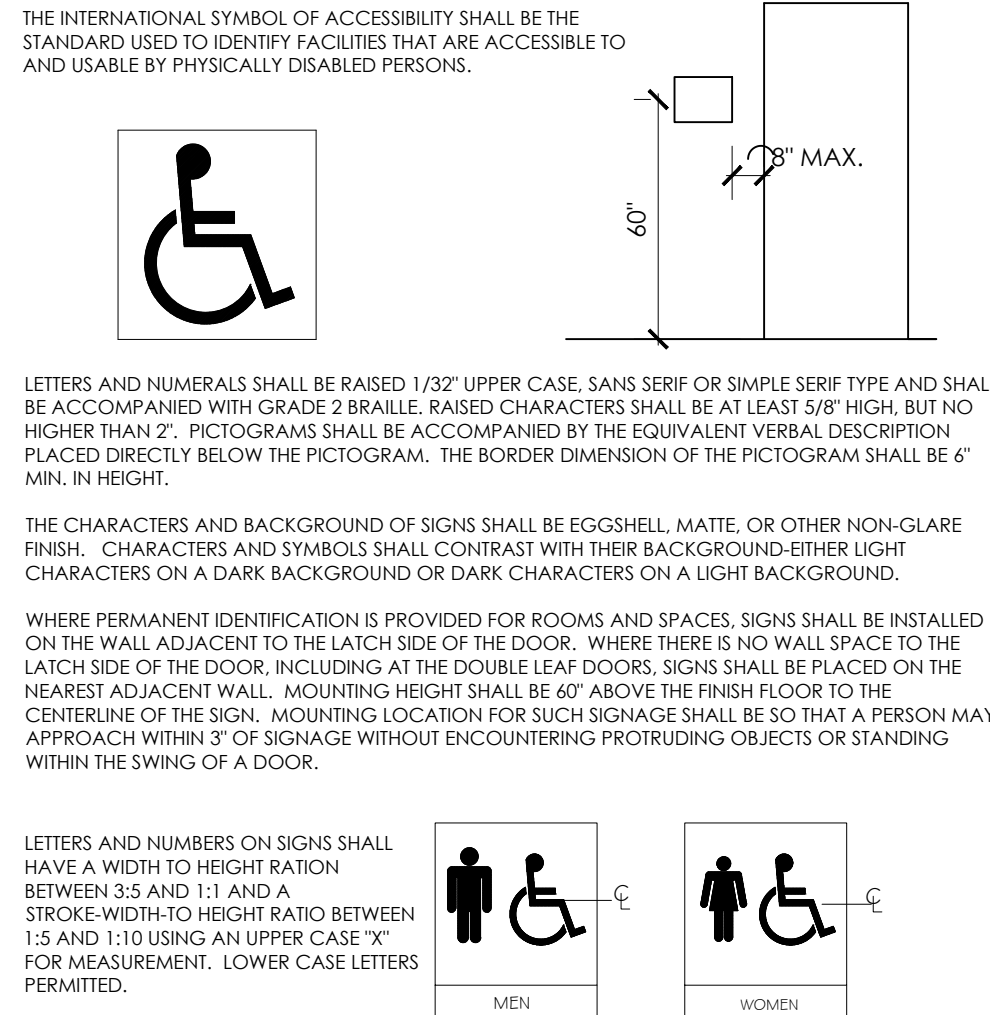
18 SHOWER DESIGN



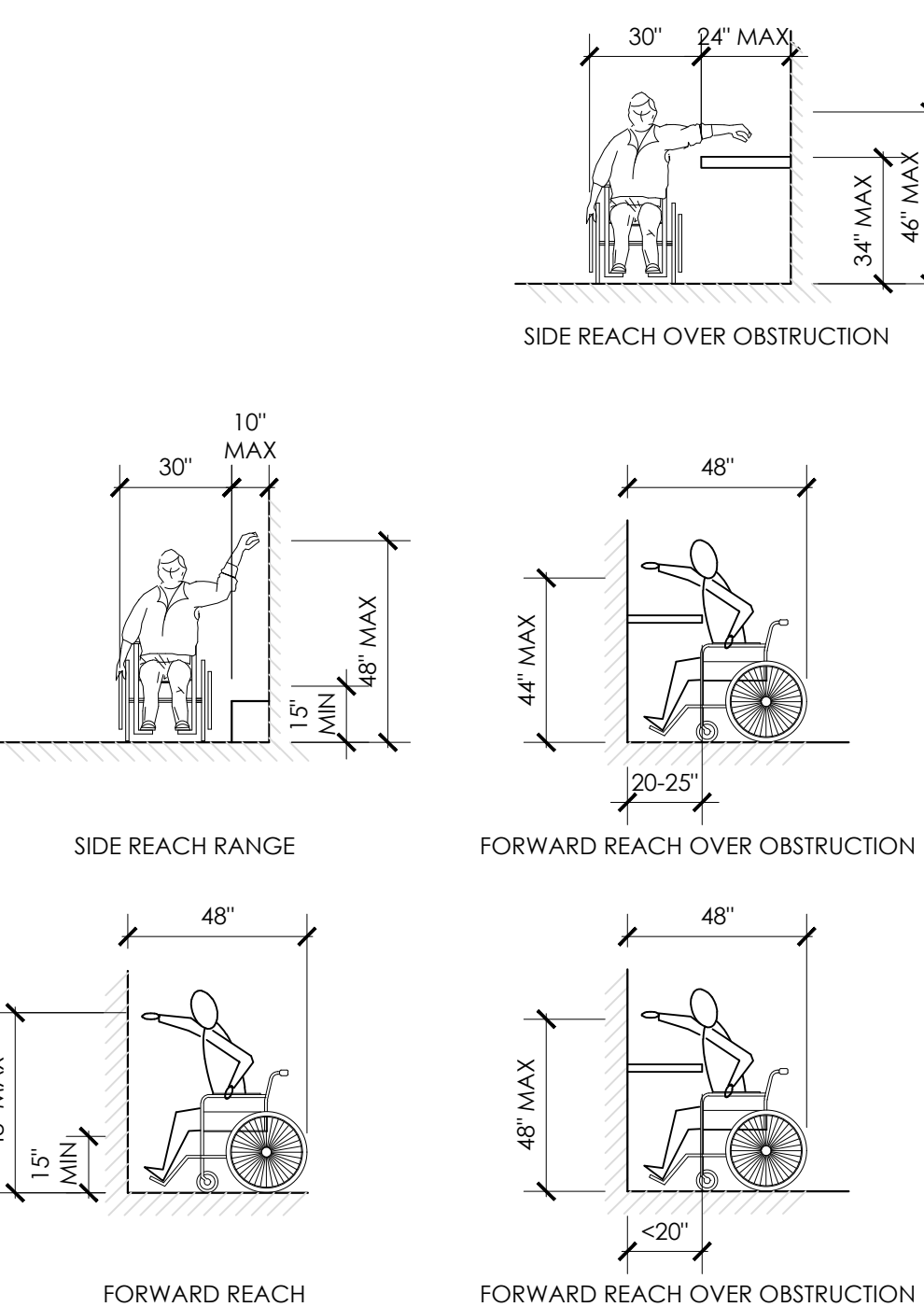
19 STAIR DETAILS



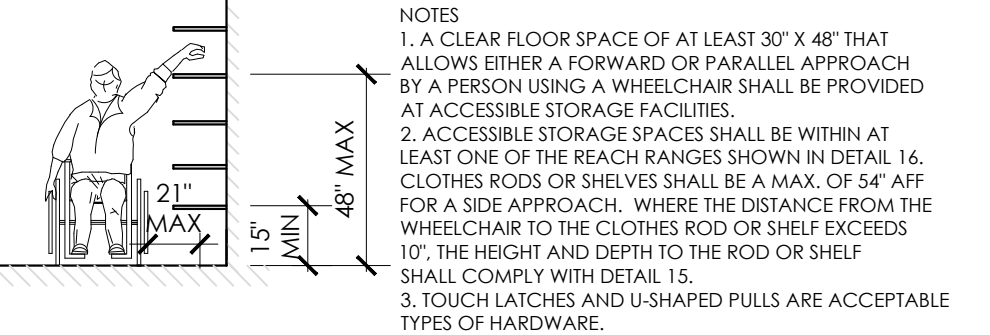
17 GENERAL SIGNAGE



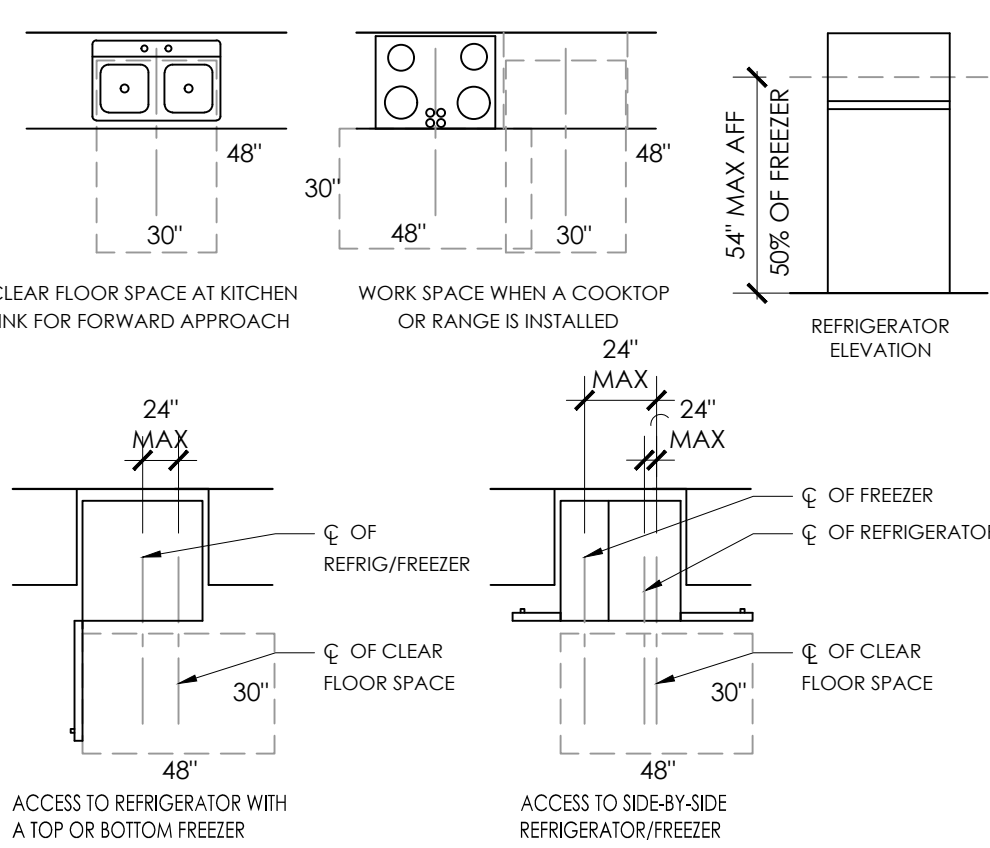
16 REACH RANGES



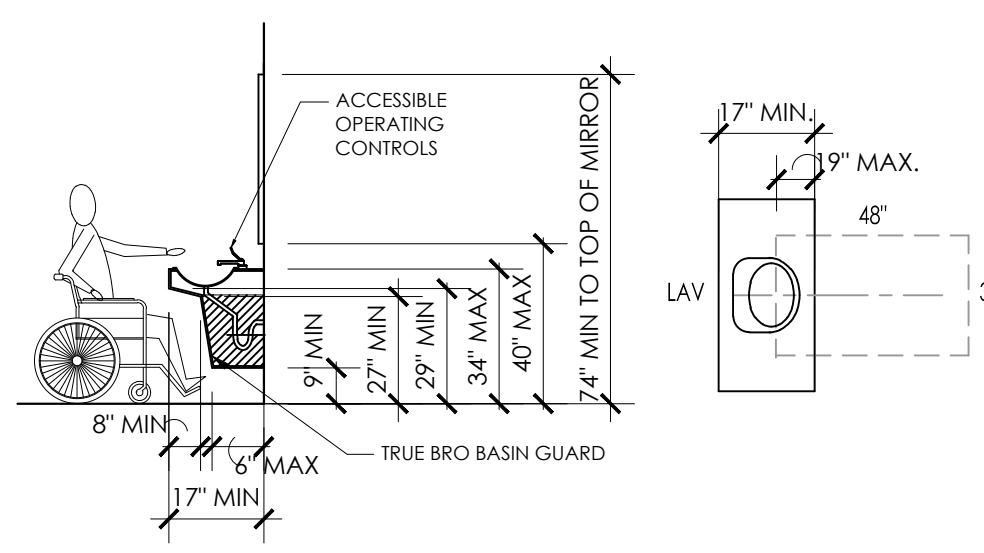
15 STORAGE



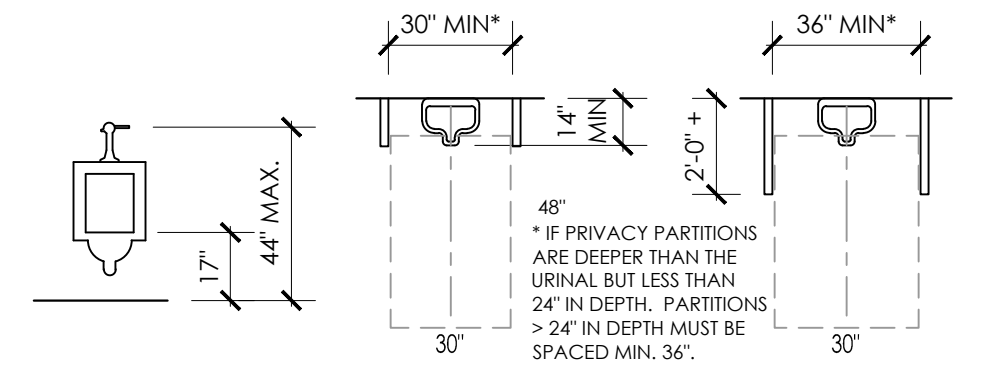
14 STORAGE



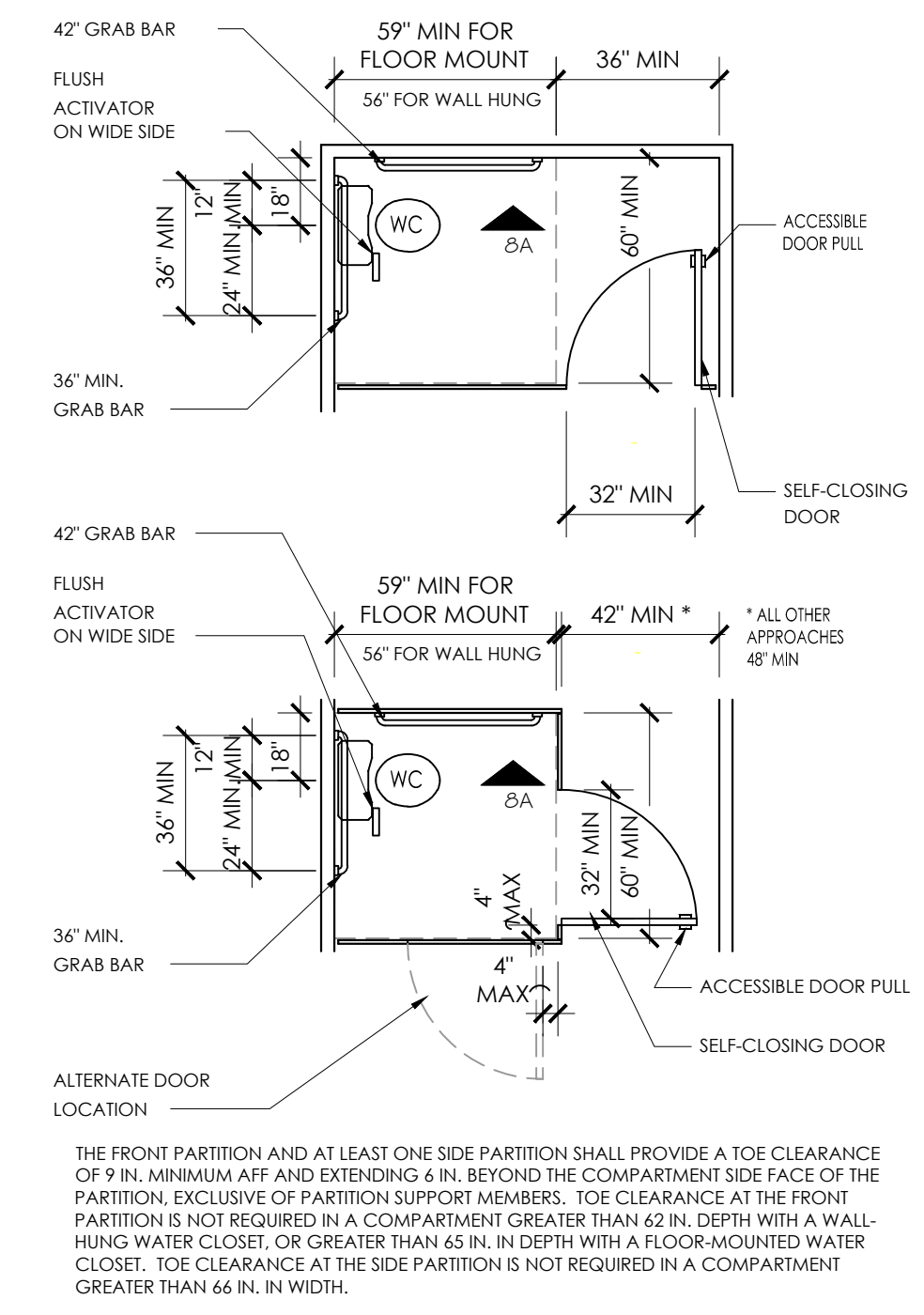
13 LAVATORIES AND MIRRORS



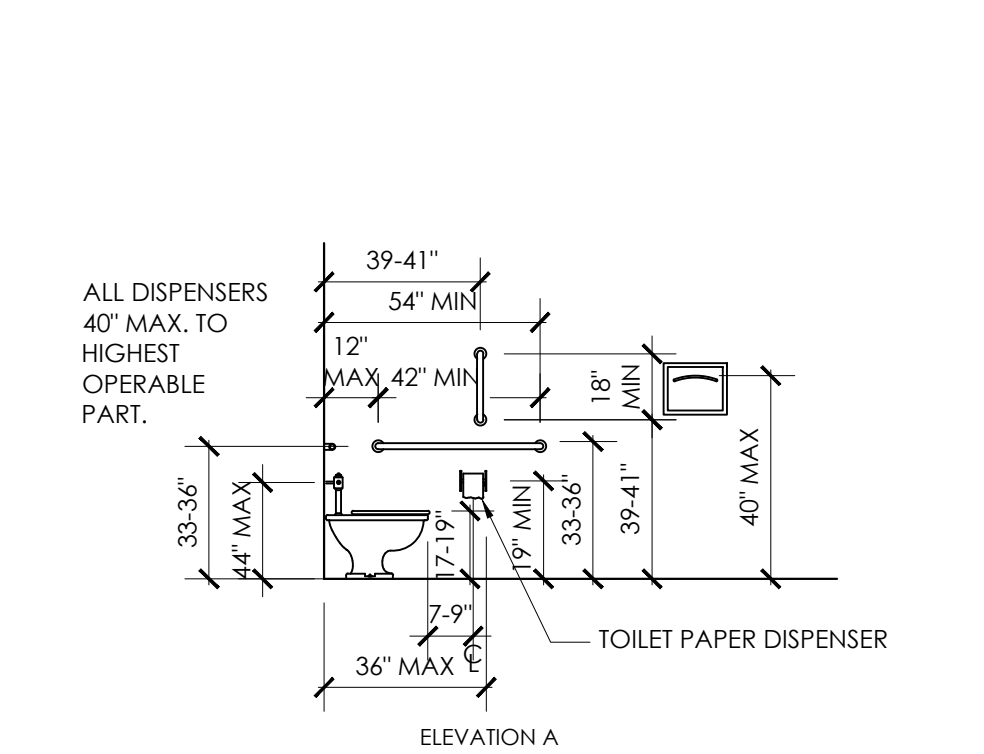
12 URINALS



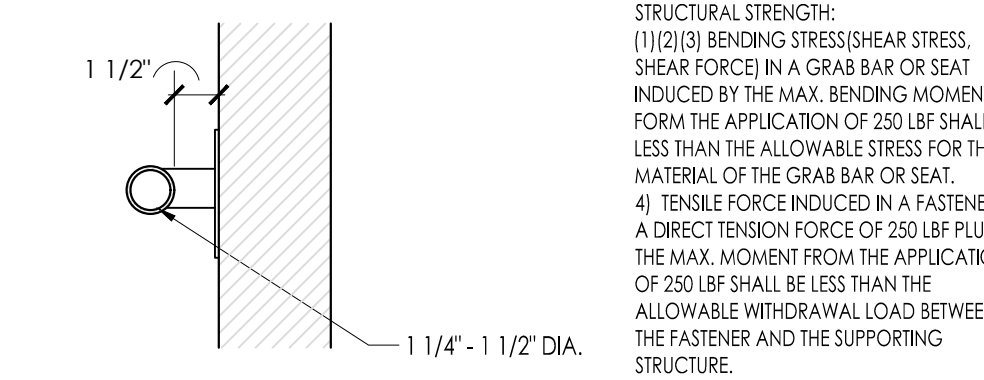
11 WATER CLOSETS



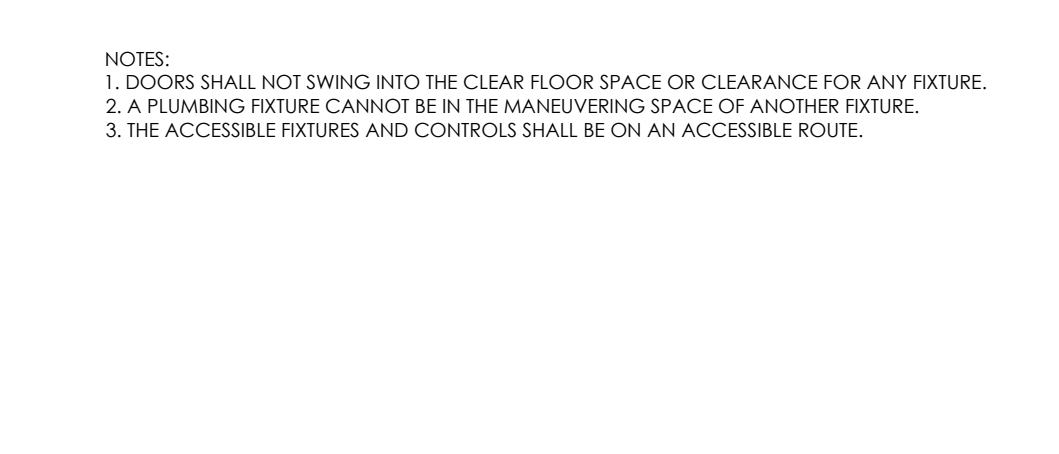
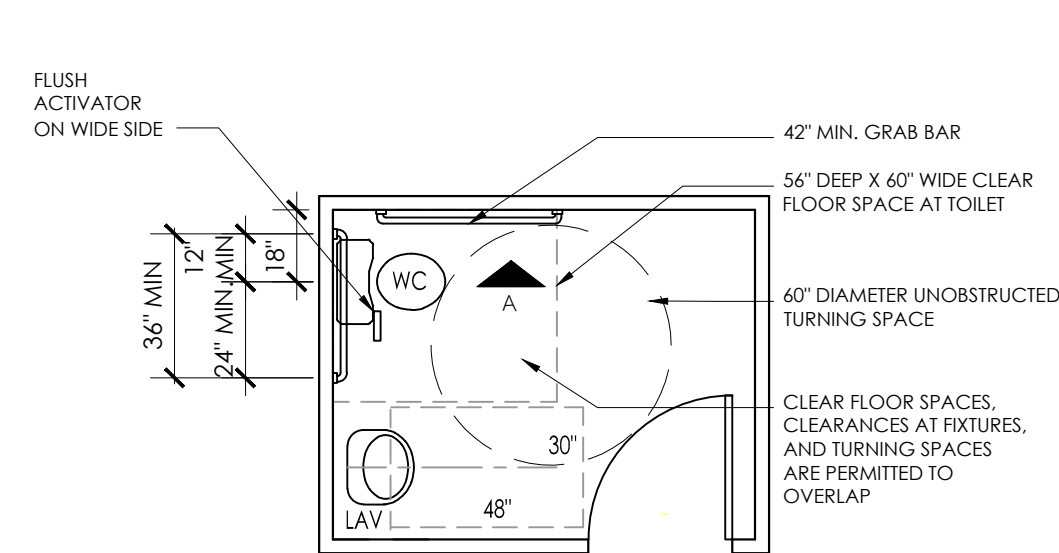
10 GRAB BARS AT WATER CLOSETS



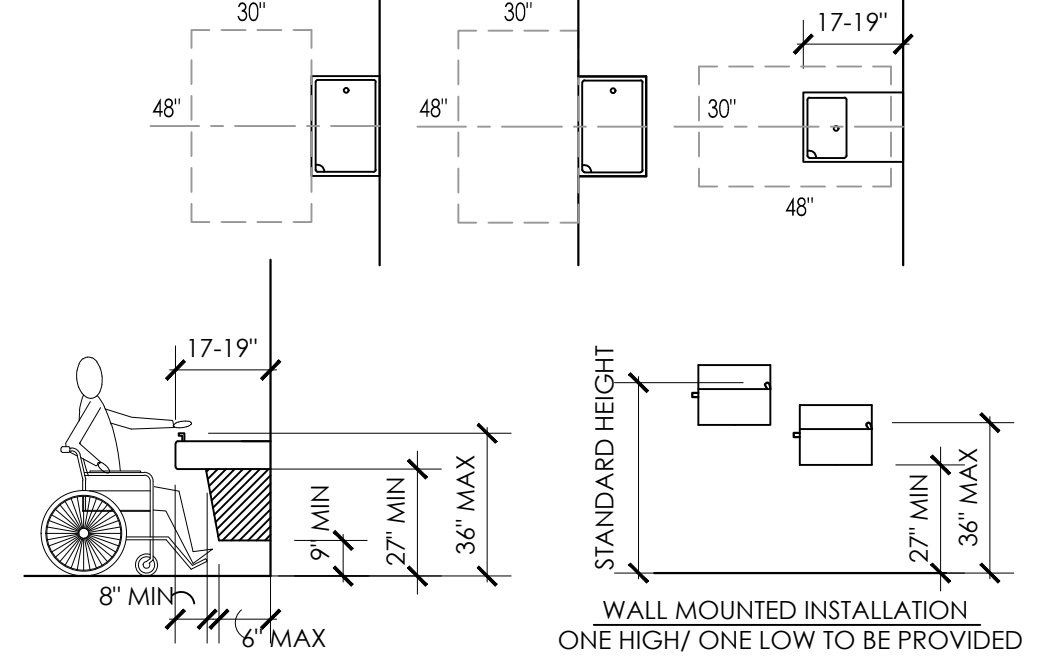
9 GRAB BARS



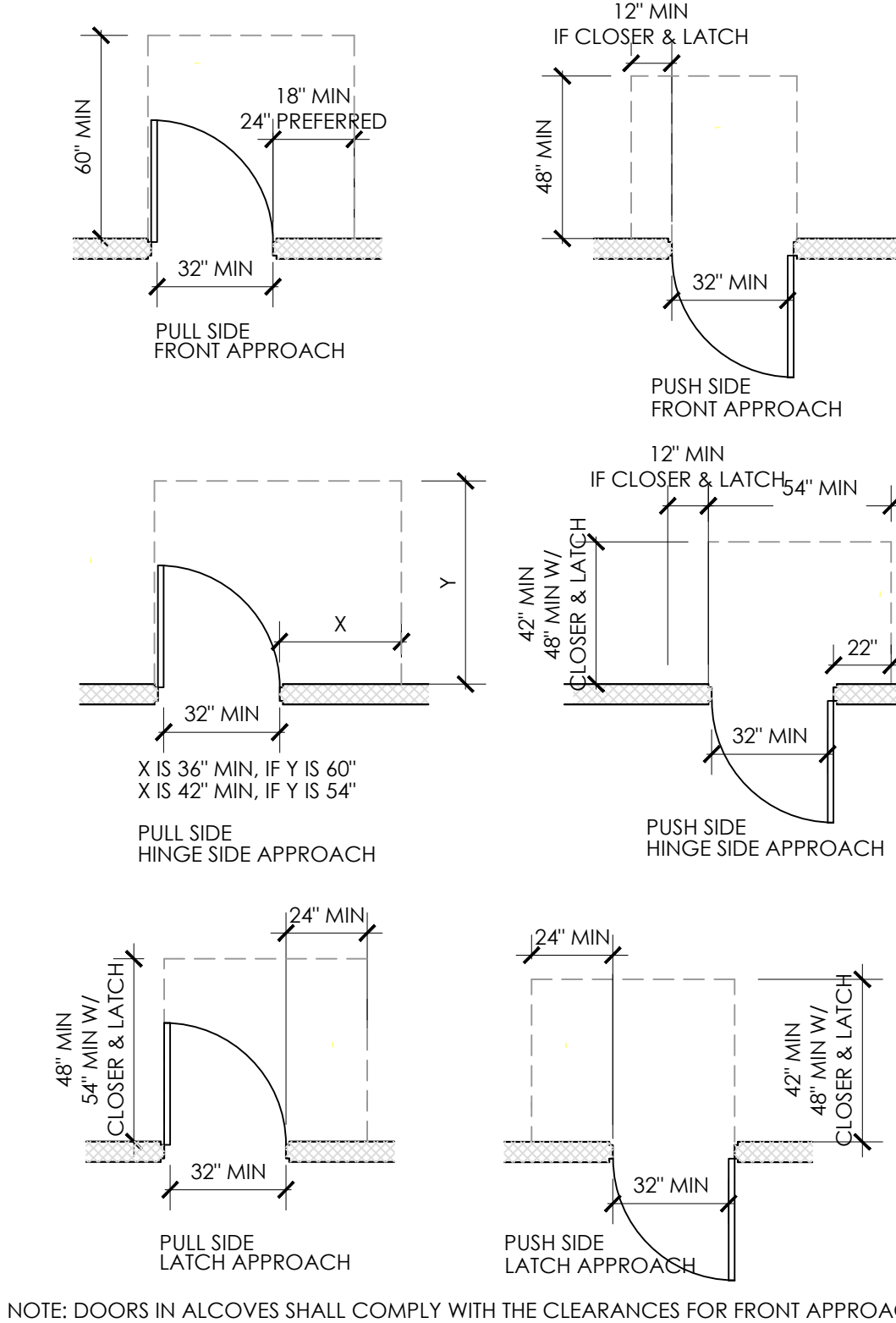
8 TOILET ROOMS AND WATER CLOSETS



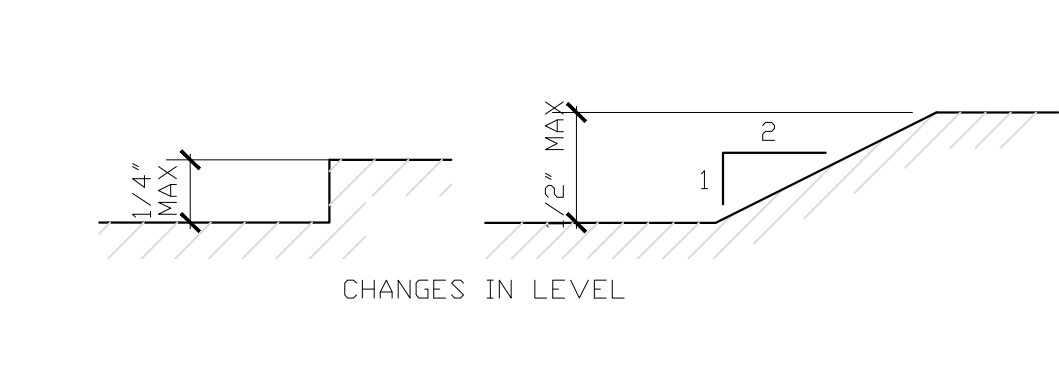
7 DRINKING FOUNTAINS



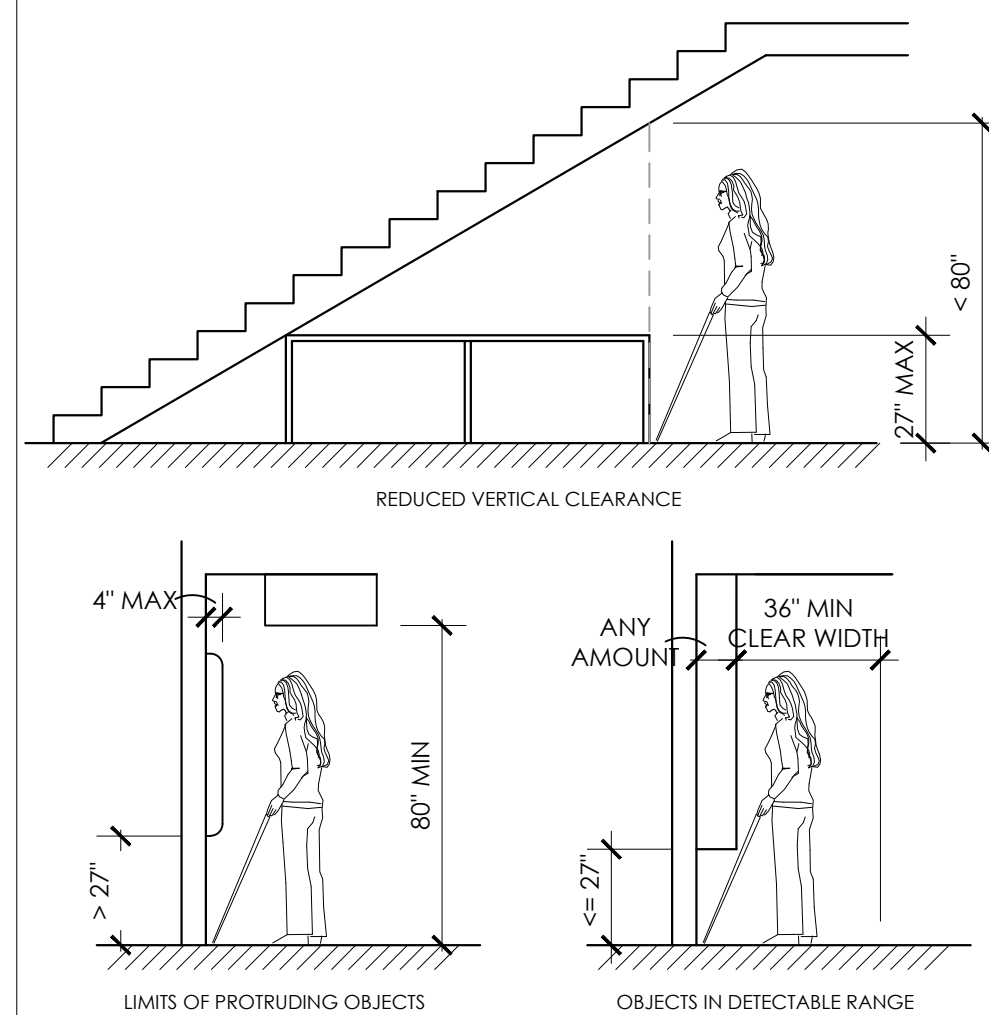
6 DOORS ON AN ACCESSIBLE ROUTE



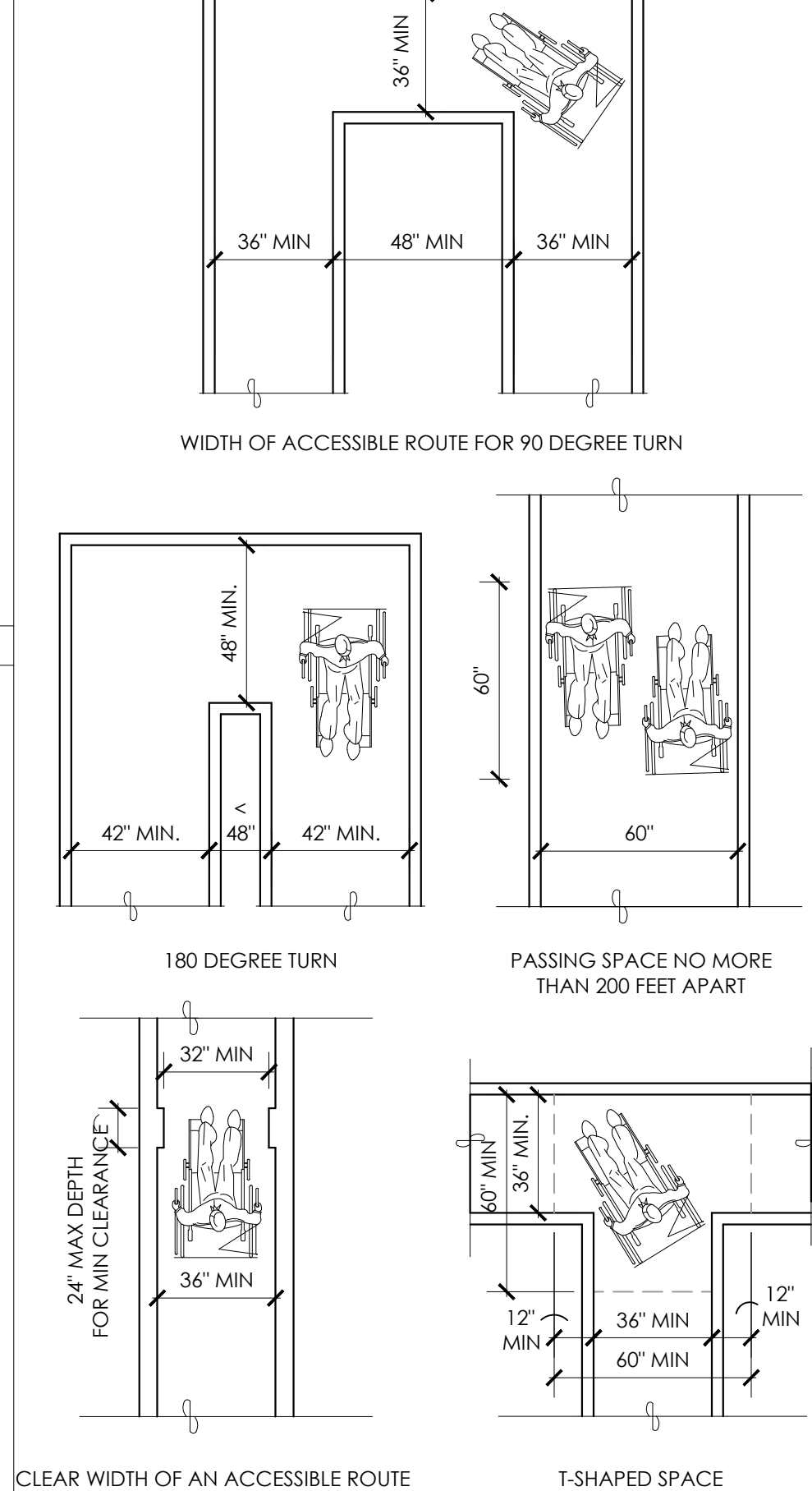
5 GROUND AND FLOOR SURFACES



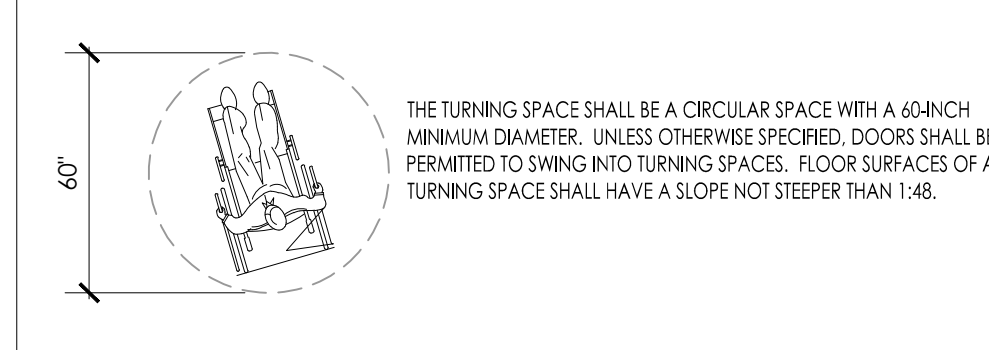
4 PROTRUDING OBJECTS



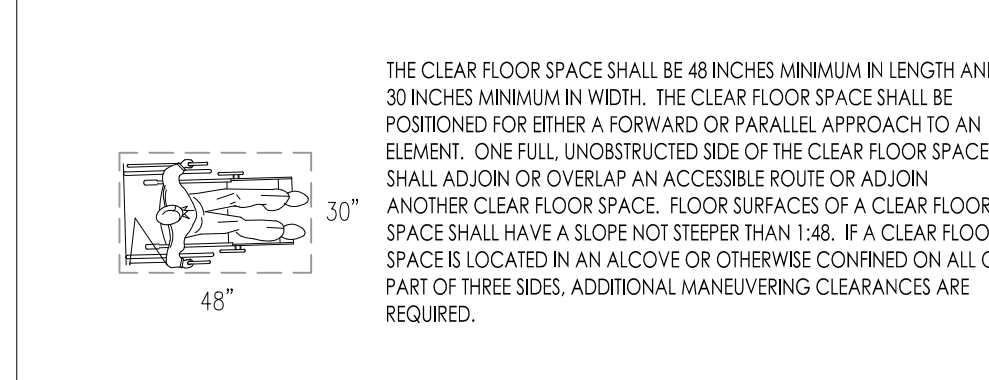
3 ACCESSIBLE ROUTE



2 TURNING SPACE



1 CLEAR FLOOR SPACE



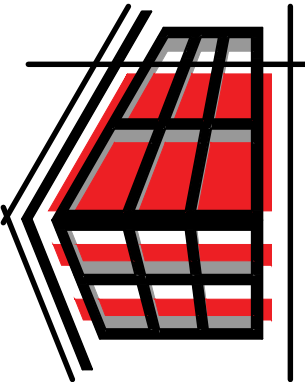
TODD R. CALLAWAY & ASSOCIATES
ARCHITECTS - DESIGNERS
4448 Freer Street, Rochester Hills, Michigan 48306
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SHEET DATES / DESC.
2/25/23 PERMITS
4/30/23 PERMITS

ZANDER FLEX SPACE
9257 E. M-36
WHITMORE LAKE, MICHIGAN

T1.2

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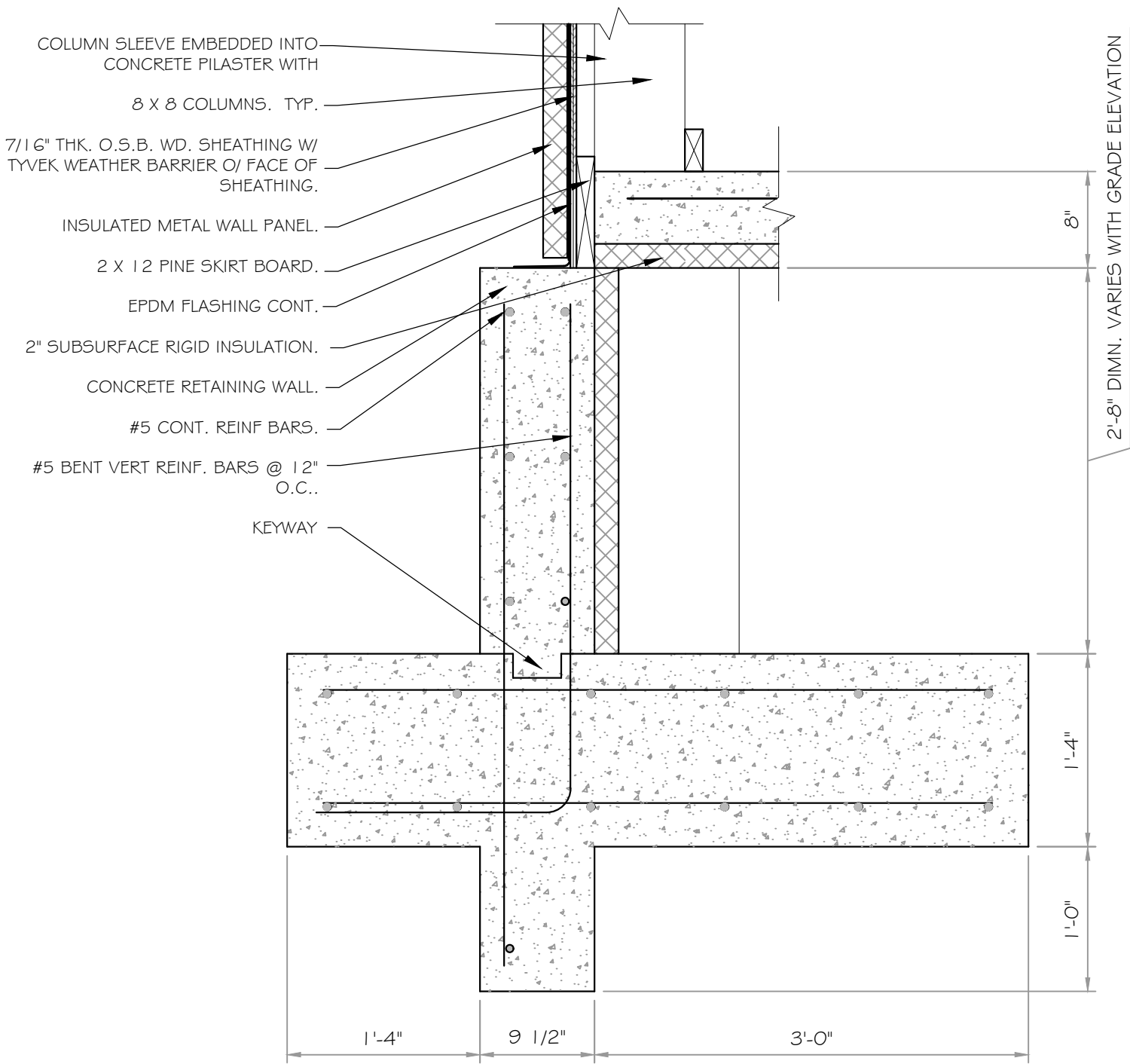


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2/25/23 PERMITS
4/30/23 PERMITS

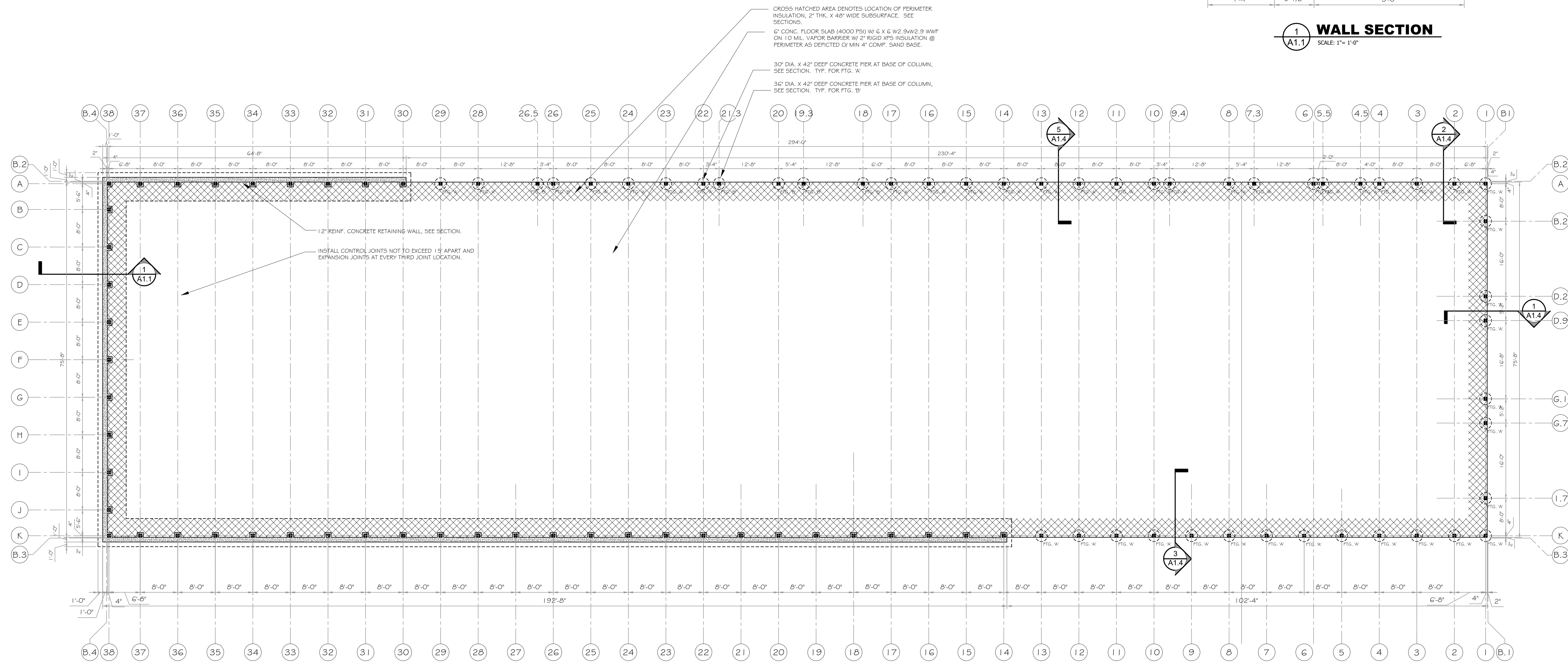


NEW BUILDING
ZANDER FLEX SPACE
9257 E. M-36
WHITMORE LAKE, MICHIGAN

A1.1



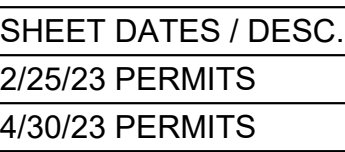
1 WALL SECTION
SCALE: 1"= 1'-0"



FOUNDATION PLAN
SCALE: 3/32" = 1'-0"
WOOD FRAMED BUILDING

TODD R. CALLAWAY & ASSOCIATES
ARCHITECTS - DESIGNERS

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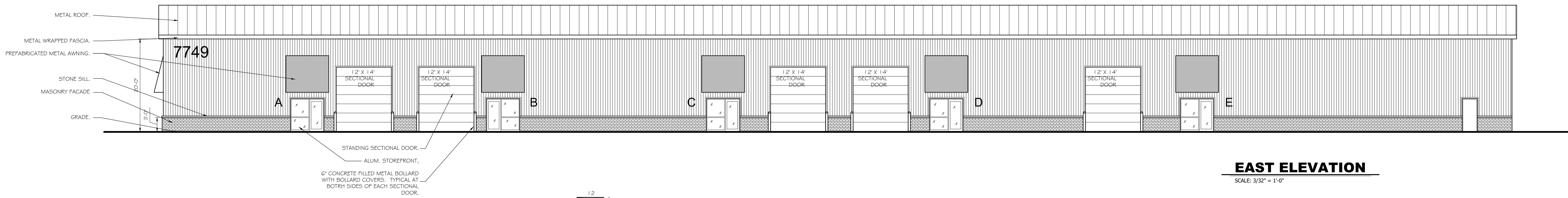


NEW BUILDING

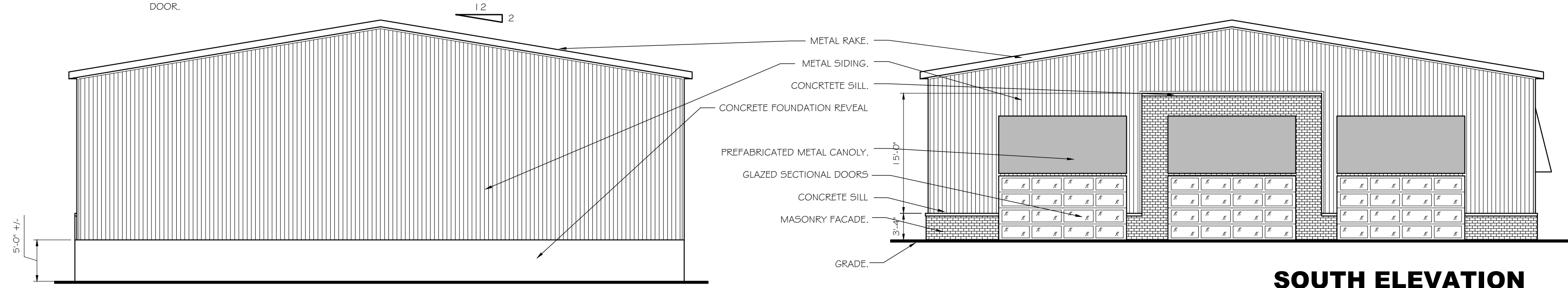
WHITMORE LAKE, MICHIGAN



SCALE: 3/32" = 1'-0"
22,360 SQ.FT. TOTAL GROSS AREA
WOOD FRAMED BUILDING

**EAST ELEVATION**

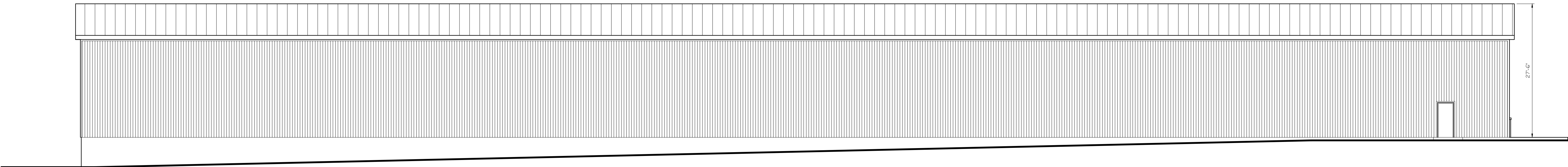
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**NORTH ELEVATION**

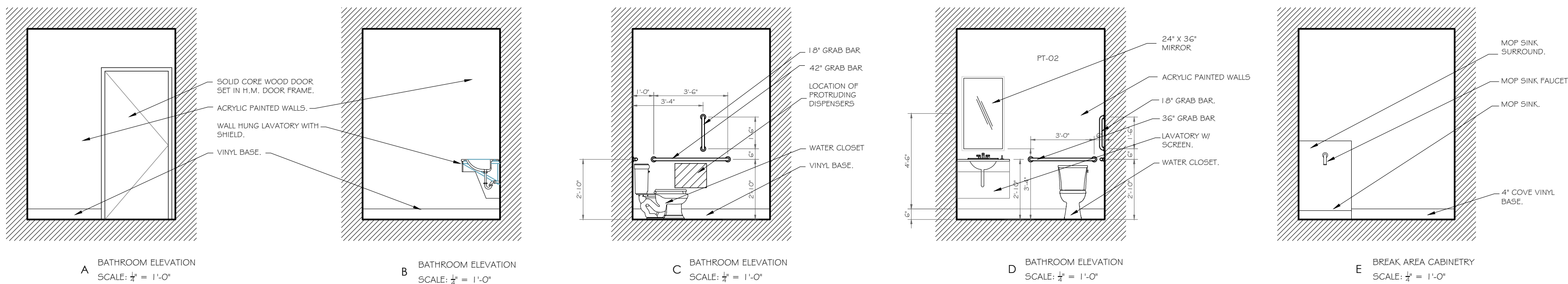
SCALE: 3/32" = 1'-0"

SOUTH ELEVATION

SCALE: 3/32" = 1'-0"

**WEST ELEVATION**

SCALE: 3/32" = 1'-0"

**INTERIOR ELEVATIONS**

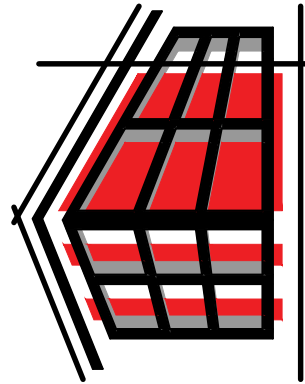
SCALE: 1/4" = 1'-0"

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SHEET DATES / DESC.

2/25/23 PERMITS

4/30/23 PERMITS

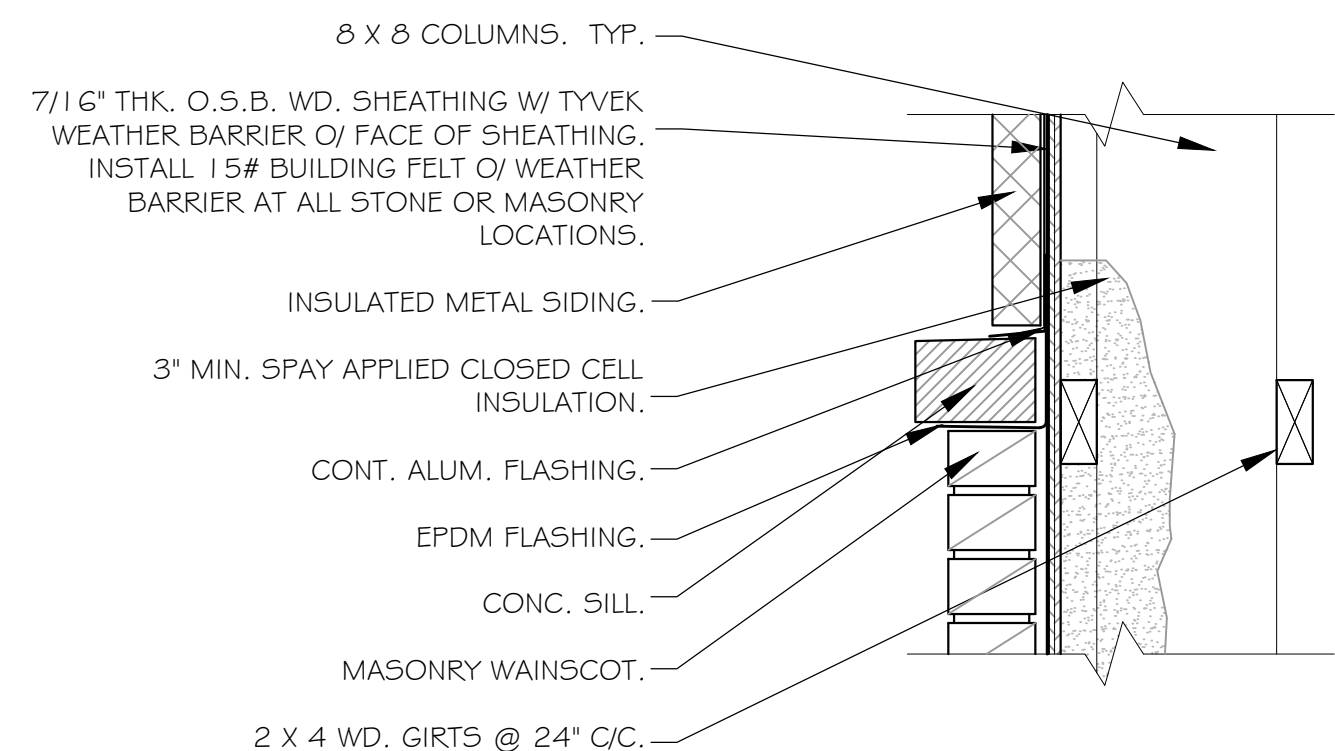


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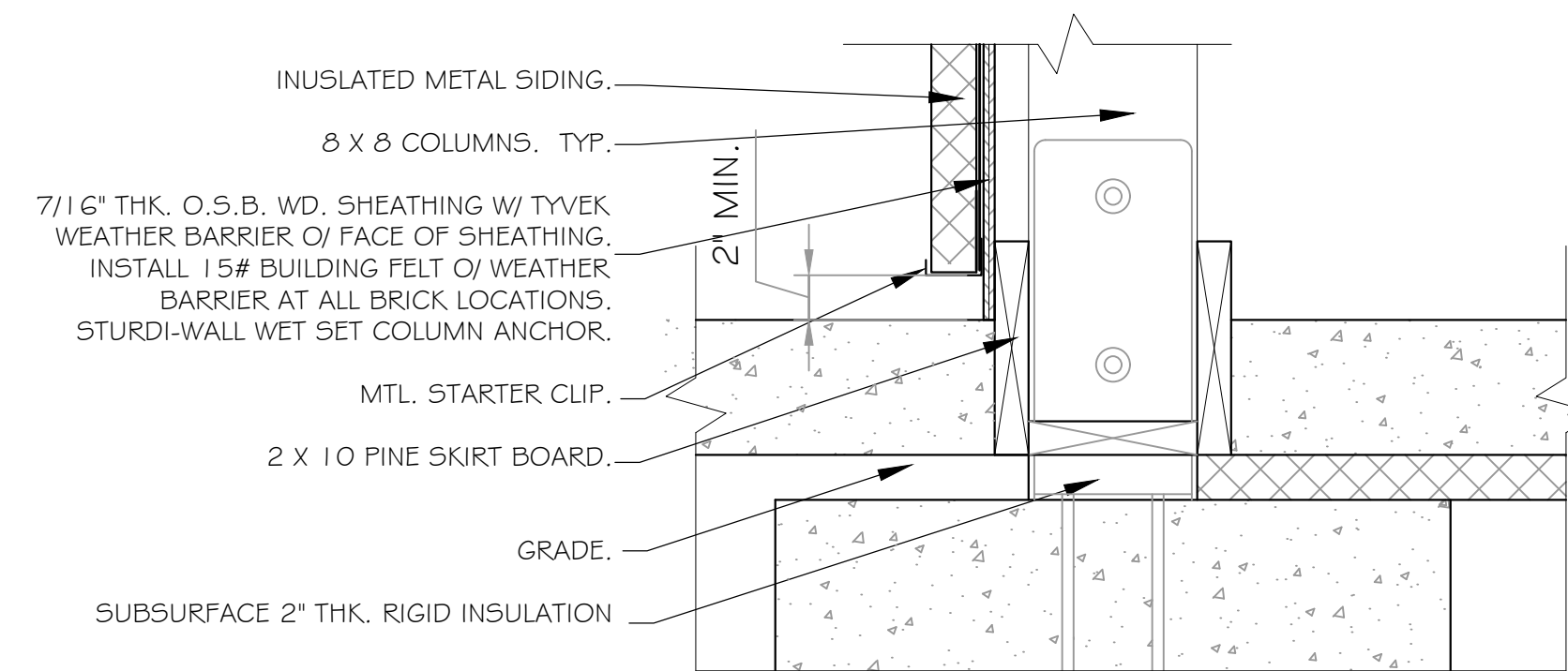
ZANDER FLEX SPACE
9257 E. M-36

WHITMORE LAKE, MICHIGAN

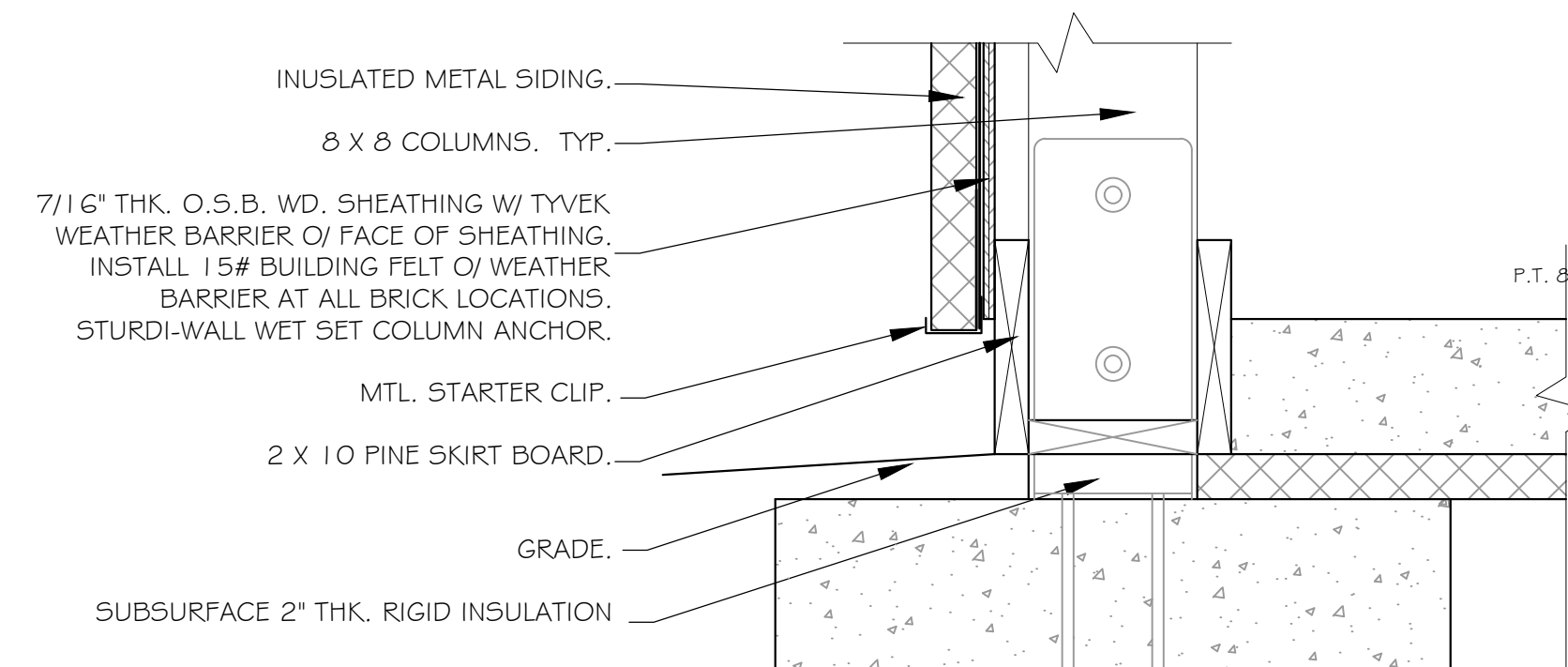
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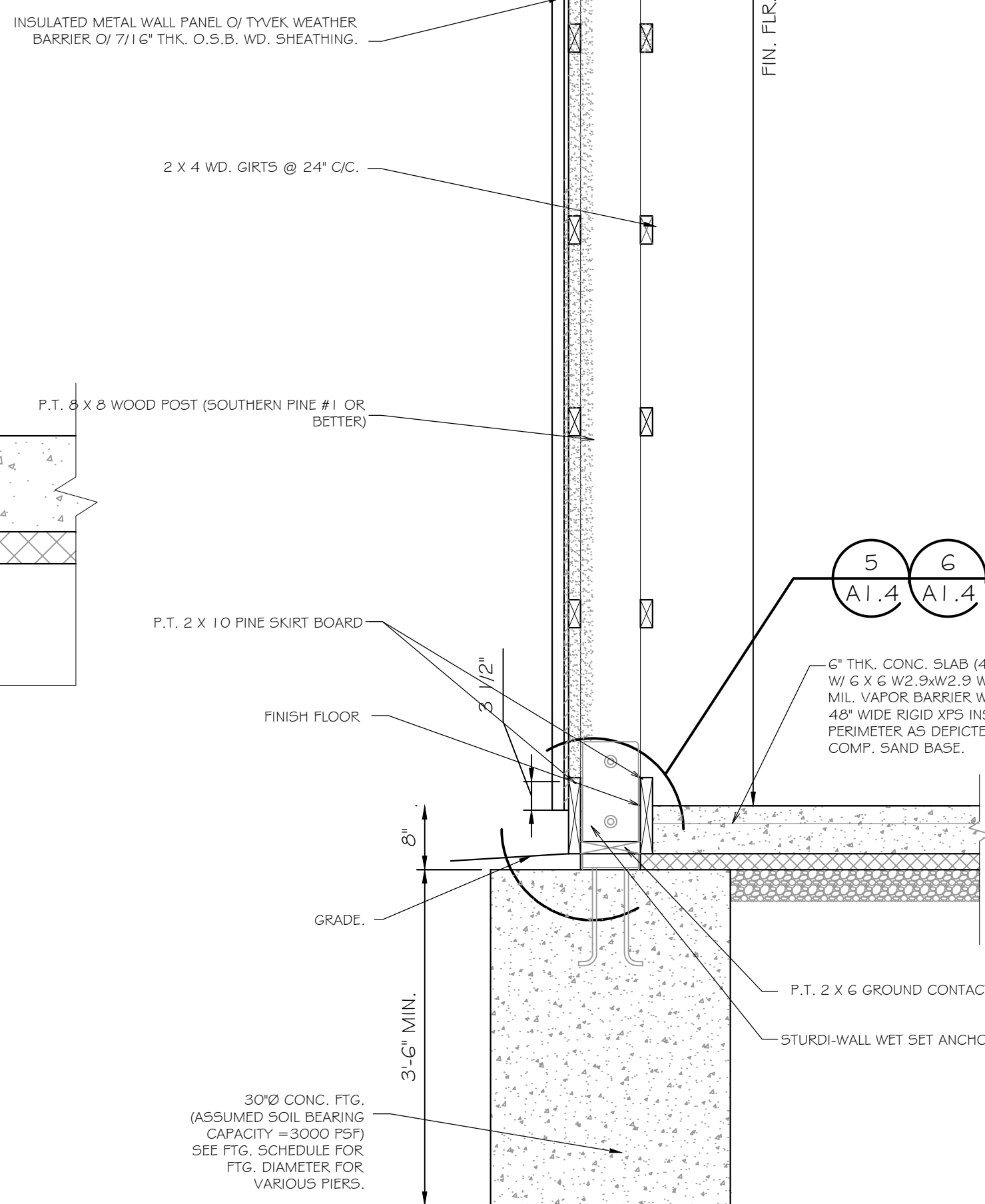
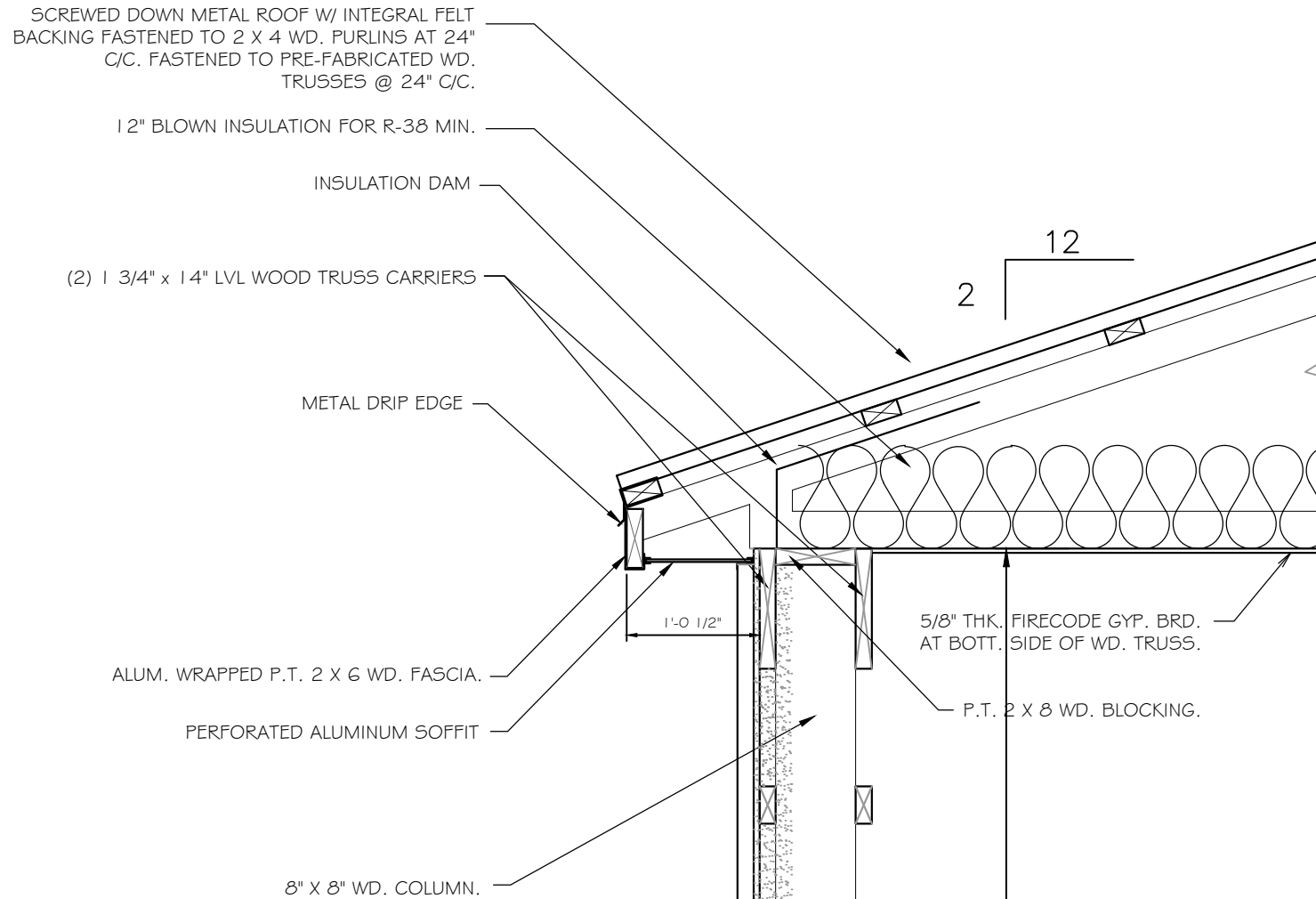
4 DETAIL
A1.4 SCALE: 1-1/2" = 1'-0"



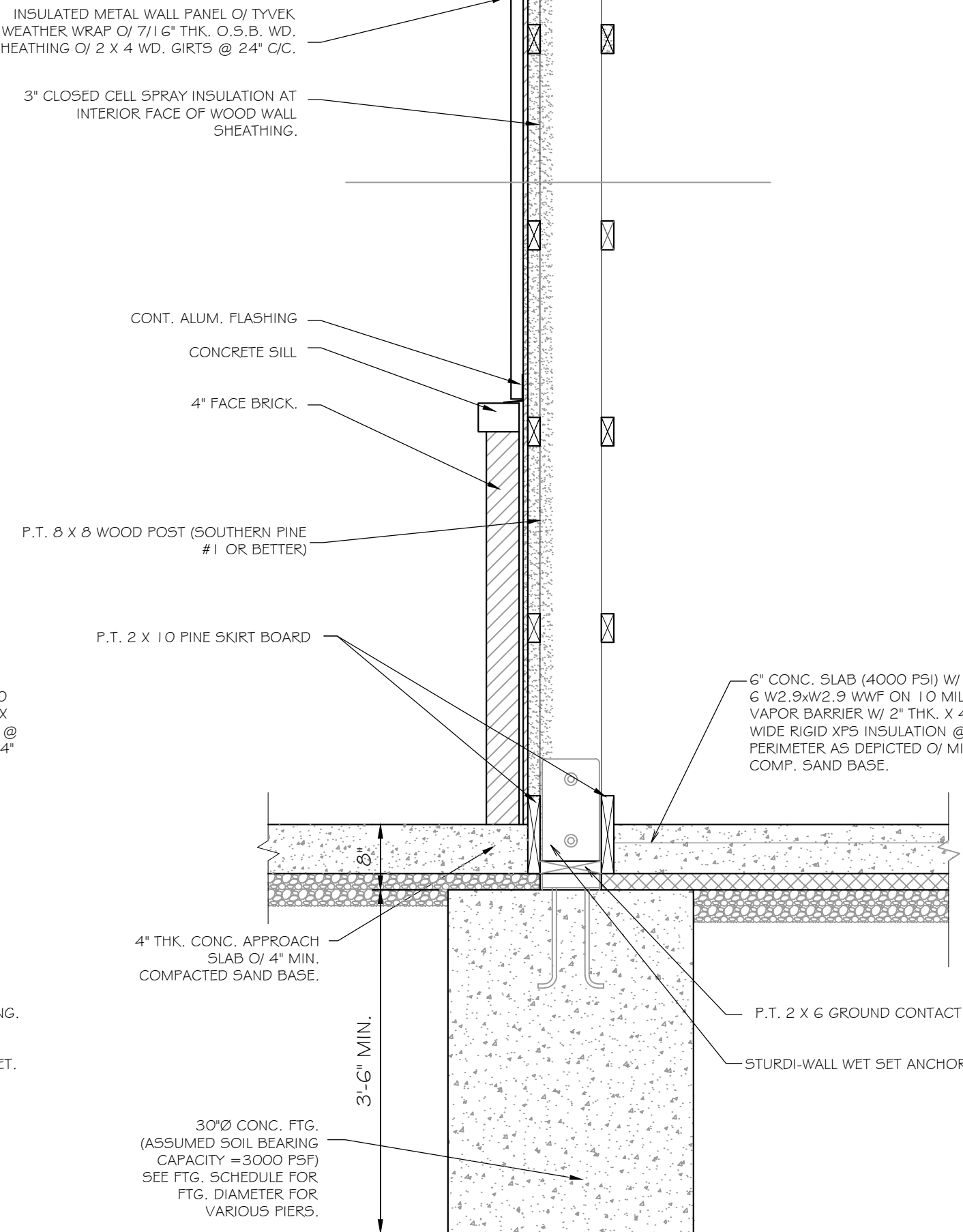
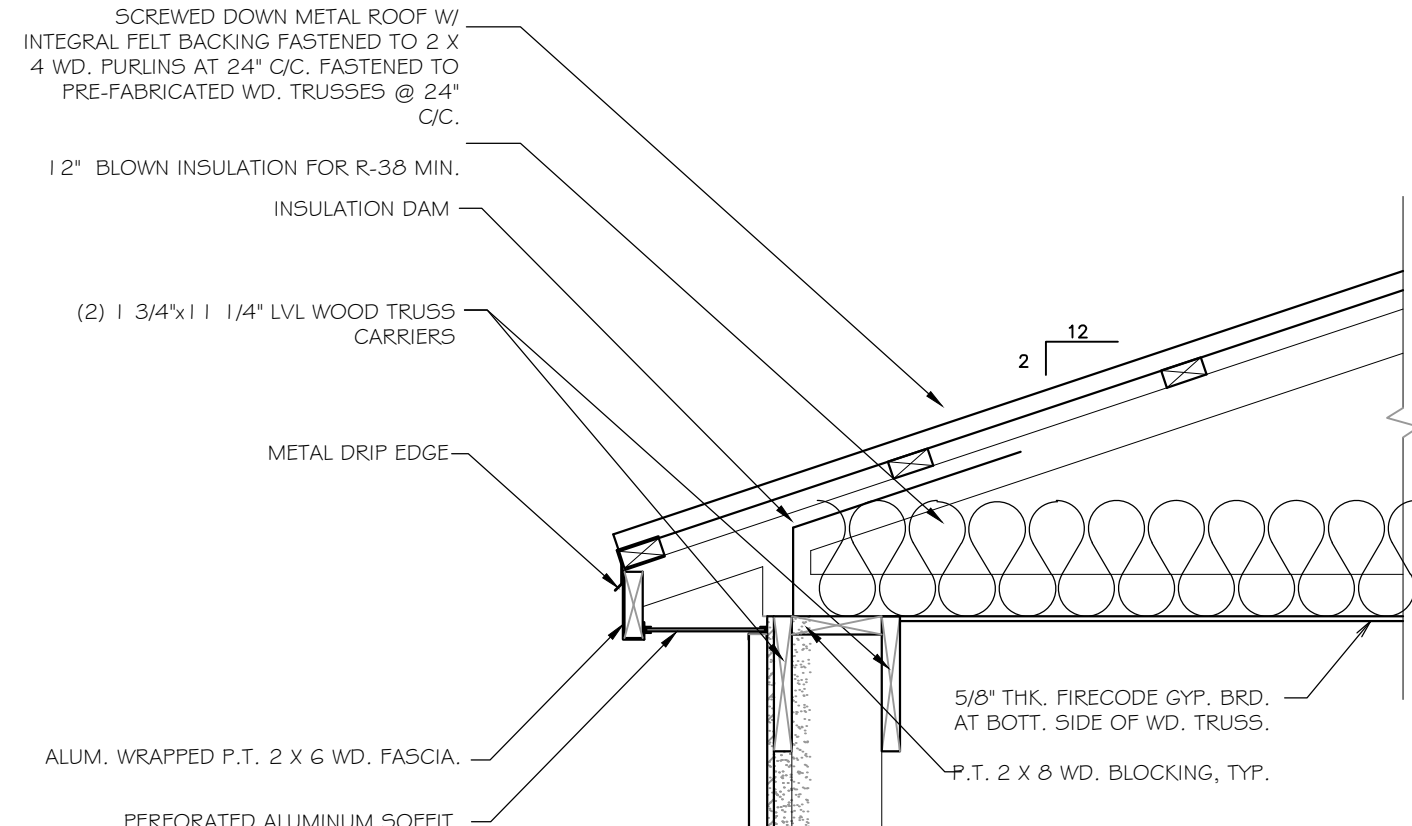
5 DETAIL
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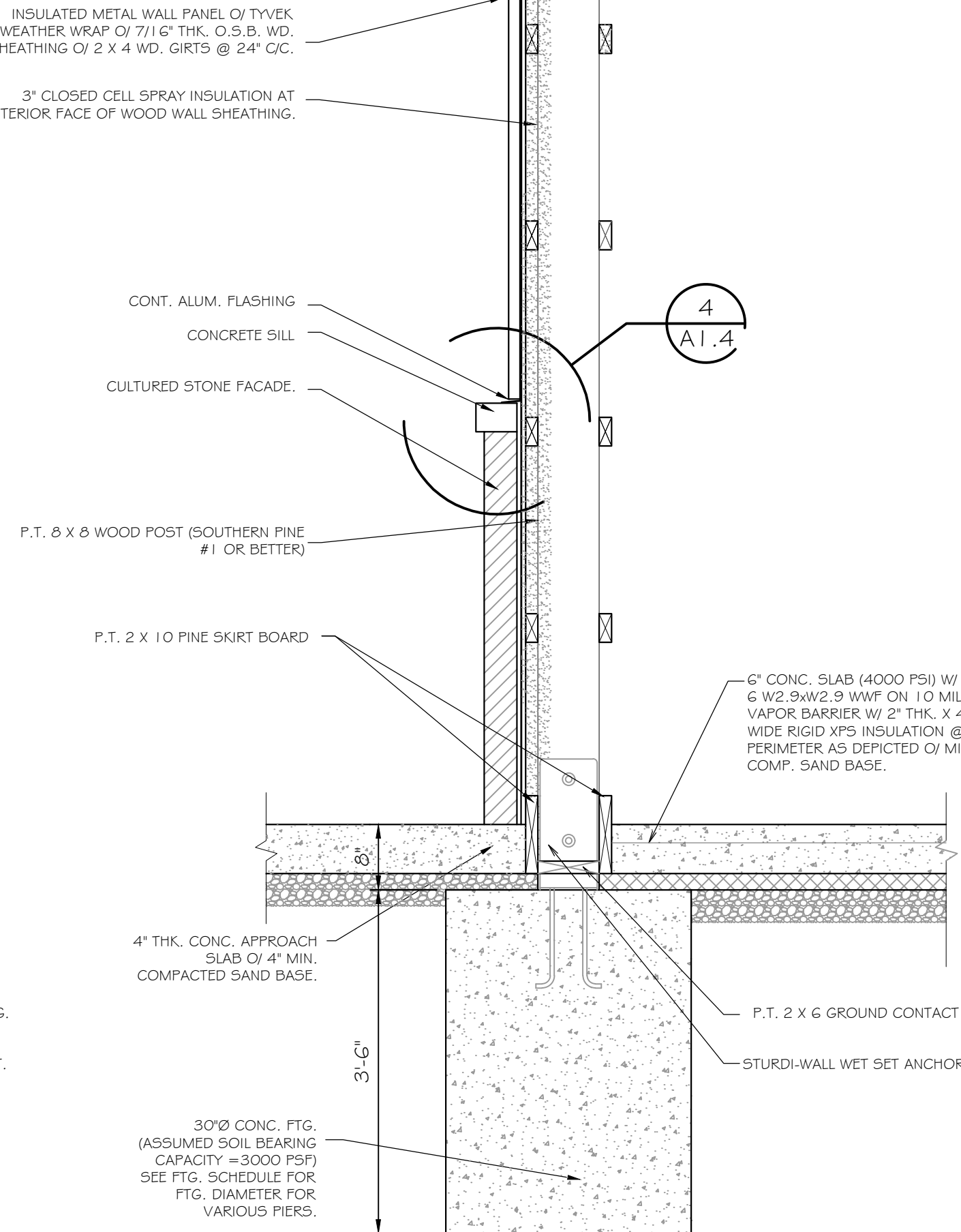
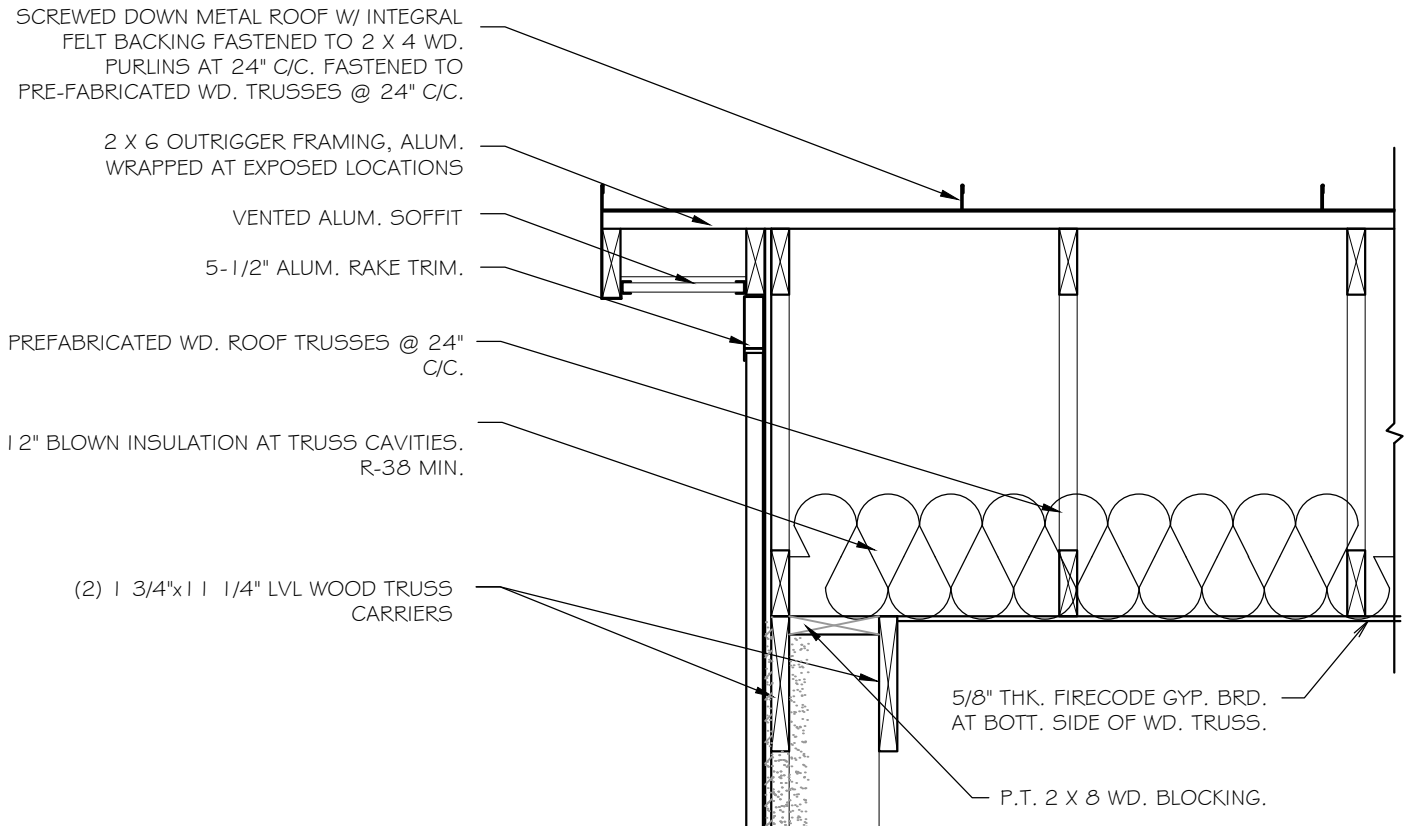
6 DETAIL
A1.4 SCALE: 1-1/2" = 1'-0"



3 WALL SECTION
A1.4 SCALE: 3/4" = 1'-0"

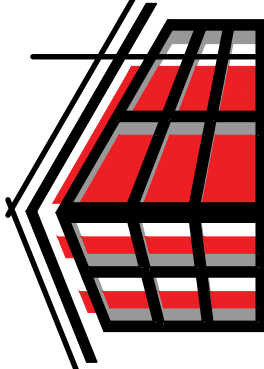


2 WALL SECTION
A1.4 SCALE: 3/4" = 1'-0"



1 WALL SECTION
A1.4 SCALE: 3/4" = 1'-0"

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SHEET DATES / DESC.
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NEW BUILDING
ZANDER FLEX SPACE
9257 E. M-36
WHITMORE LAKE, MICHIGAN

A1.4

REFLECTED CEILING AND ROOF PLAN NOTES

A

B

5/8" THK. FIRECODE GYP. BRD. CEILING @ 20'-0" A.F.F., PAINTED.

LAY-IN ACOUSTICAL TILE CEILING SET IN 15/16" METAL SUSPENDED CEILING GRID W/ 2 X 4 NON-REGULAR CEILING TILES. WHITE.

C

D

[illegible]

NEW

ALL CONSTRUCTION TO COMPLY WITH THE FOLLOWING GENERAL NOTES AND / OR TO THE CURRENT MICHIGAN BUILDING CODE, AND / OR LOCAL GOVERNING CODES. IN THE EVENT OF A CONFLICT, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.

SECTION 3A - INTERIOR CONCRETE FLAT WORK AND NON STRUCTURAL CONCRETE:

- Scope:
- A. Where new subsurface equipment, piper gas other items are to be installed within the new lease space furnish and install new concrete, vapor barrier, sand base, formwork and other items as required to patch existing concrete floor.
 - B. The Client's General Contractor shall coordinate and verify all concrete dimensions, slope, drains and recesses with all trades prior to the placement of concrete.
2. Standards:
- All work and materials shall meet the latest edition performance standards of the "American Concrete Institute" - ACI.
3. Workmanship
- A. Concrete shall be worked in all forms, into all corners and around reinforcement.
 - B. Concrete flat work shall slope to match surrounding slabs.
4. Finishing:
- A. All slabs shall be troweled smooth unless indicated differently within the drawings.
5. Design Mix:
- A. Compressive strength: 4,000 psi - minimum at 28 days for all interior concrete work.
6. Application: All new slabs shall be a minimum of 4" thick, and reinf. w/ 6 x 6 x 1/2 1.2 wmm unless indicated differently within the construction documents. All new interior slabs shall be placed over a 6 mil, vapor barrier of min. 4" compressed sand base. Premolded expansion joints shall be placed wherever new slabs abut a vertical surface. Sawcut control joints shall not exceed 20'-0" in any vertical or horiz. direction.

SECTION 6A - ROUGH CARPENTRY:

FOR ALL NON - STRUCTURAL CARPENTRY:

A. Laying out of work, rough trim, siding, etc.

B. Furnish and install all screws, nails, straps, studs, caulking, building paper and all other required items. Client's General Contractor shall be responsible for sequencing and protection of all materials.

C. Install oil wood blocking within stud walls as required to accommodate wall hung items.

2. Framing Materials:

A. All studs used throughout the project shall be as indicated within the construction documents. All studs with exterior walls shall be galvanized w/ galvanized fasteners.

B. All wood blocking used within the metal stud walls shall be of fire retardant wood.

3. Framing:

A. Blocking and Bridging: Blocking shall be located at parameters of opening at all door openings.

B. All framing shall conform with Aluminum Association standards and Aluminum Sheet Metal Association

SECTION 6B - FINISH CARPENTRY

Scope:

- A. Finish and install all finish carpentry complete, including trim, door frames, paneling and sheving if denoted as such within the construction documents.
- B. Installation of finish hardware, bath accessories, cabinet pulls, etc.

Workmanship:

- A. All joints shall be tight and true and securely fastened. Corners shall be neatly mitered, beveled or coped, with nails set and surfaces free of tool marks.
- B. Wood work shall be accurately scribed to fit adjoining surface.
- C. All work shall be machined or hand-sanded, sharp edges and splinters removed, and coats prepared for finished.
- D. Full length continuous boards shall be used wherever applicable or specifically noted.

Fitting and Hanging Doors:

- A. Clearance at the lock and hanging stiles and at the top shall not exceed 1/8". Clearance at the bottom shall be adjusted for finish floor covering scheduled, including carpeting.
- C. Door shall operate freely, but not loosely, without sticking or binding, without hinge bound conditions: and with all hardware properly adjusted and functioning.

Materials:

- A. Interior solid core wood doors.

Doors should be smooth grain and factory finished.

SECTION 6C - HARDWARE

1. Scope:

A. Door hardware shall be grade one. submit shop drawings with detailed door hardware schedule. Furnish and install all door hardware in conformance with all manufacturers recommendations and standards.

SECTION 8 -- DOORS

1. Scope:

Furnish and install all doors complete as indicated on plans. The Client's General Contractor shall coordinate door supplier and Framing Contractor for installation of all doors.

Standards and Installation:

Per manufacturer's installation recommendations. door assemblies shall meet or exceed the design wind pressure of the local conditions. all exterior doors shall comply with mandatory state infiltration standards.

2. Measurements: Verify all dimensions by taking field measurements prior to installation.

3. Type & Sizes: As indicated in drawings.

4. Interior Doors: 1-3/4" thick, solid core-flush panel wood doors.

SECTION 8 -- WEATHER-STRIPPING AND THRESHOLDS

1. Doors: All doors separating conditioned space from unconditioned space shall be fully weatherstripped.
2. Thresholds: Thresholds shall be cultured marble at the transition from concrete to tile. Metal thresholds shall be installed at all entrance doors to residential units.

SECTION 9A - GYPSUM WALLBOARD & CEILING BOARD

. Scope: Furnish and install all gypsum wallboard work complete

Standards:

A. All work and materials shall meet the latest edition performance standards of the "Gypsum Association" -GA, "Recommended Specifications for the Application and Finishing of Gypsum Wallboard."

B. All work shall comply with code requirements.

Workmanship:

A. All joints in finished surfaces shall be taped and finished with joint cement. Reinforce all corners.

B. Provide metal trim at all exposed edges and external corners.

C. Metal trim shall be tight to wallboard edges, plumb level, and true to plane, securely attached.

D. Conceal exposed nail or screw heads with joint compound.

E. Protect all exposed wood beams, post, railings etc.

F. All gypsum wallboard at tubs/shower enclosures to be installed in such a manner that there are no surfaces out of alignment with adjacent surfaces and the true plane of the wall is maintained

1. Finishes:

A. As selected by Client.

2. Materials:

A. Gypsum Wallboard and Ceiling Board: 1/2" thick throughout unless noted otherwise.

B. Moisture Resistant Wallboard and Ceiling Board: Use in wet areas as recommended by Gypsum Board Manufacturer.

C. Metal corner bead, casing and trim - galvanized and nailed.

(1) L-shaped trim at exposed edges typical.

(2) 90°, right angle corner bead at external corners.

D. Tape and Compound: As recommended by Gypsum Board Manufacturer for use specified.

E. Nailing: Per code requirements.

SECTION 9B - PAINTING AND FINISHING

1. Scope: Provide painting work as indicated and specified, complete including preparation of surfaces other than those that are factory.

Workmanship:

A. Each coat shall be uniformly applied, well brushed out and free of brush marks, runs, sags, etc.

B. Paint finished shall be cut sharply to line. Protect adjacent surfaces.

C. Mix and apply paint and stains in accordance with the manufacturer's instructions.

D. Hardware shall be masked or removed prior to painting or staining.

E. Subcontractor will be responsible for any damage resulting from over spray, and for all necessary clean-up.

F. Semi-gloss paint to be roller or brush applied.

2. Preparation of Surfaces:

A. Surfaces shall be clean and dry, and in suitable condition for finish specified. Remove all oil, grease, bond breaking agents, dust, mill scale and efflorescence.

B. Cracks, holes and knots shall be filled, sanded smooth, and sealed. Wood surfaces, except repaired wood, shall be sanded perfectly smooth. Sanding dust shall be completely removed.

3. Materials:

A. Submit list of materials and manufacturers for Client and Architects review.

B. All materials shall be delivered to the site in sealed original manufacturer's containers.

C. Stain shall be manufactured by "Olympic Stain" or a Client selected substitute.

D. Paint shall be as selected by Client.

5. Colors: To be selected by the Owner.

Interior Painting and Finishing:

A. Ceilings and Walls:

(1) Corridors, restrooms, mechanical rooms, satin paint u.o.a.

(2) All other rooms: One coat primer and one satin paint, unless noted otherwise.

B. Doors, frames, wood base, shelf cleats: One coat primer, one coat semi-gloss enamel.

C. Metal surfaces: Prime and paint same as adjacent surfaces.

D. All exposed interior beams to be painted to match ceiling.

E. All exposed fire sprinkler piping shall be painted OSHA Red.

F. All exposed water supply, sanitary and storm water piping to be painted black

G. Other than those colors indicated, all colors shall be selected by the Owner.

H. The number of coats noted above shall be considered minimum. Apply additional coats if required to provide full and even coverage throughout.

SECTION 10 – BUILDER SPECIALTIES

1. Scope: Furnish and install complete in working order the items indicated on the drawings and as specified herein. The Client's General Contractor to verify compatibility of all adjacent finish materials with all selected fixtures and appliances.

[illegible]

NOTE: PRODUCTS LISTED ABOVE MAY BE SUBSTITUTED WITH "AS EQUAL" PRODUCTS WITH WRITTEN APPROVAL FROM OWNER.

NOTE: PRODUCTS LISTED ABOVE SHALL BE INSTALLED IN CONFORMANCE WITH MANUFACTURERS RECOMMENDATIONS AND SPECIFICATIONS AND IN CONFORMANCE WITH THE 2015 MICHIGAN BUILDING CODE.

NOTE: A COMPLETE HARDWARE SPECIFICATION SHALL BE PROVIDED BY THE SUPPLIER FOR APPROVAL BY THE OWNER. ALL HARDWARE SHALL BE GRADE ONE SCHLAGE OR EQUAL. SHOP DRAWINGS SHALL INCLUDE SELECTION SAMPLES, PRODUCT DATA AND A COMPLETE SCHEDULE FOR EACH DOOR. PROVIDE A KEYING SCHEDULE FOR APPROVAL BY THE OWNER.



Hamburg Township Public Safety – Fire Division

Item 2.

10100 VETERANS MEMORIAL DRIVE
P.O. BOX 157 ♦ HAMBURG, MI 48139-0157
PHONE: 810-222-1100 ♦ FAX: 810-231-9401
E-MAIL: HTFD@HAMBURG.MI.US

DEPUTY FIRE CHIEF JORDAN ZERNICK **PLAN REVIEW RESULTS**

To: Hamburg Twp. Zoning
From: Deputy Chief, Jordan Zernick
CC: Deputy Director – Fire Division Jeffrey Newton
Subject: Preliminary Site Plan Review – 7749 E M36
Date: May 24, 2023

I have completed the plan review of the Preliminary Site Plan submittal for the proposed occupancy at 7749 E M36 in Hamburg Township. The review was based on applicable Fire Codes and Hamburg Township Ordinance Requirements.

The plans are approved as submitted with the following requirements, revisions and clarification:

1. Building shall be required to have a 3200 series. Each tenant space shall be equipped with its own 3200 series Knox Box.
2. Intended use of each tenant space shall be provided for the purpose of building plan review. Proper fire protection requirements can not be determined without knowing the intended use of the space.
3. ~~Fire Hydrant to be placed at the North end of the parking lot due to the lack of access to the northern portion of the building because of the detention pond. Fire hydrant shall meet the standards set forth by the Livingston Community Water Authority (LCWA).~~
4. If Fire Alarm or suppression is deemed to be required, plans shall be submitted directly to the Hamburg Township Fire Department for review.
5. It is requested that each individual tenant space to individually addressed.
6. Any alterations to these submitted plans shall require the submittal of As Built plans. Plans shall be submitted directly to the Hamburg Township Fire Department prior to the issuance of Certificate of Occupancy.
7. All tenant spaces shall be addressed with the standards established by the 2018 edition of the International Fire Code.
8. Architectural Building plans shall be submitted for review by the Fire Department.



Hamburg Township Public Safety – Fire Division

Item 2.

10100 VETERANS MEMORIAL DRIVE
P.O. BOX 157 ♦ HAMBURG, MI 48139-0157
PHONE: 810-222-1100 ♦ FAX: 810-231-9401
E-MAIL: HTFD@HAMBURG.MI.US

DEPUTY FIRE CHIEF JORDAN ZERNICK **PLAN REVIEW RESULTS**

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

A handwritten signature in blue ink, appearing to read "J Zernick".

Deputy Chief Jordan Zernick



INDIVIDUAL CONSTRUCTION PERMIT
For Operations within State Highway Right-of-Way

Issued To:
Zander Companies

7879 Winans Lake Road
Brighton MI 48116

Contact:
Marc McIntire
662-275-1959(O)
mmcintire151@gmail.com

Permit Number: 47041-093137-23-052623
Permit Type: Individual Application
Permit Fee: \$90.00
Effective Date: May 26, 2023 to May 25, 2024
Bond Numbers: EI8449
Liability Insurance Expiration Date: Jun 01, 2024

Contractor:
Zander Companies

7879 Winans Lake Rd
Brighton MI 48116

Contact:
Marc McIntire

mmcintire151@gmail.com

THIS PERMIT IS VALID ONLY FOR THE FOLLOWING PROPOSED OPERATIONS:

PURPOSE:

The plans include removing the existing driveway and shifting it east to accommodate the new layout. The proposed drive slopes away from M-36 into the site. Additionally, the drive is located approximately at the crest of M-36 and requires no culvert, and an existing drive and utilities hamper large taper distances. Anticipated vehicles would include mostly passenger car traffic with some box trucks (26' or less) but no large truck traffic.

STATE ROUTE: M-36 **TOWNSHIP OF:** Hamburg **COUNTY:** Livingston County

NEAREST INTERSECTION:	SIDE OF ROAD:	DISTANCE TO NEAREST INTERSECTION:	(in feet)	DIRECTION TO NEAREST INTERSECTION:
Hall Road	N S	200.00		East

CONTROL SECTION:	MILE POINT FROM:	MILE POINT TO:	LOCATION:			
			LEFT	MEDIAN	RIGHT	TRANSVERSE
47041	21.010	21.010	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REQUISITION NUMBER: **WORK ORDER NUMBER:** **MDOT JOB NUMBER:** **ORG JOB NUMBER:**

47041-093137-23-052623 Issued To:Zander Companies

This permit is incomplete without "General Conditions and Supplemental Specifications"

I certify that I accept the following:

1. I am the legal owner of this property or facility, the owner's authorized representative, or have statutory authority to work within state highway Right-of-Way.
2. Commencement of work set forth in the permit application constitutes acceptance of the permit as issued.
3. Failure to object, **within ten (10) days** to the permit as issued constitutes acceptance of the permit as issued.
4. If this permit is accepted by either of the above methods, I will comply with the provisions of the permit.
5. I agree that Advance Notice for Permitted Activities for shall be submitted **5 days prior** to the commencement of the proposed work.

I agree that Advance Notice for Permitted Utility Tree Trimming and Tree Removal Activities shall be submitted **15 days prior** to the commencement of the proposed work for an annual permit.

CAUTION

**Work shall NOT begin until the Advance Notice has been approved.
Failure to submit the advance notice may result in a Stop Work Order.**

Zander Companies

Pascal Bui
MDOT

May 25, 2023
Approved Date

TSC Contact Info

Brighton TSC

(810) 227-4681

THE STANDARD ATTACHMENTS, ATTACHMENTS AND SPECIAL CONDITIONS MARKED BELOW ARE A PART OF THIS PERMIT.

STANDARD ATTACHMENTS:

- 1 ENVIRONMENTAL REQUIREMENTS FOR ACTIVITIES WITHIN MDOT RIGHT-OF-WAY (2486)
- 2 General Conditions (General Conditions)

ADDITIONAL ATTACHMENTS:

- 1 Notice to Insurance or Surety Agent BTSC.docx
- 2 6651352 Copy of Executed Bond.pdf
- 3 Site Plan Zander Flex Space REV 4-11-23-attachements.pdf
- 4 ZANDER FLEX SPACE MDOT REVIEW 3-20-23-2.pdf
- 5 ZANDER FLEX SPACE PA-08.pdf
- 6 Site Plan Zander Flex Space REV 4-11-23.pdf

47041-093137-23-052623 Issued To:Zander Companies

AMENDMENT ATTACHMENTS:

SPECIAL CONDITIONS:

- 1 All disturbed areas within the right of way shall be top-soiled, seeded and mulched to match existing areas per current MDOT standards and specifications.

ENVIRONMENTAL REQUIREMENTS FOR ACTIVITIES WITHIN MDOT RIGHT-OF-WAY

Issuance of a permit by MDOT does not relieve the permit applicant from meeting any and all requirements of law, or of other public bodies or agencies, including but not limited to the following:

1. Goemare-Anderson Wetland Protection Act, Part 303, P.A. 451 of 1994

Any activity that involves excavation or fill, located within a regulated wetland, requires a Michigan Department of Environmental Quality (MDEQ) permit. Regulated wetlands are those systems that are contiguous to a lake or stream (within 500 feet) or greater than five (5) acres in size.

2. Inland Lakes and Streams Act, Part 301, P.A. 451 of 1994

Any activity located within the ordinary high-water mark of a regulated body of water, i.e., lake, stream, drain, pond, etc., shall require a permit. There are no exemptions to this requirement. Permit applications and questions can be submitted to the MDEQ's Land and Water Management Division.

3. Soil Erosion and Sedimentation Control Act, Part 91, P.A. 451 1994

Any land disturbance of one (1) acre or greater, or that is located within 500 feet of a lake or stream, requires a soil erosion permit. Municipalities who are classified as an Authorized Public Agency (APA) are exempt from permits, but must follow proper soil erosion practices as identified in their standard plan. Any construction activity located within MDOT Right-of-Way that is authorized by a MDOT permit is the responsibility of the permit applicant and is not covered under MDOT's APA authority.

Soil erosion and sedimentation controls are required on all projects, even if a soil erosion permit is not required. Individuals performing work shall prevent sediment from entering any body of water or leaving the Right-of-Way. Permits can be obtained from the county/municipal agencies. Minor earth changes are exempted in this Act and are classified as normal maintenance and emergency repairs.

4. Clean Water Act: National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge Requirements for Construction Activities

Any land disturbance of five (5) acres or greater requires an NPDES Storm Water Discharge Permit. This can include any filling, excavating, grading, clearing, etc. Municipally-owned utilities who service a population of less than 100,000 are exempt from permit provisions, but not from environmental protection requirements. Permit applications require the Part 31, P.A. 451 permit number, or a declaration of APA status and the effective date. Permit applications and questions can be submitted to the MDEQ's Surface Water Quality Division.

5. Environmental Site Closures

A procedure was developed by the MDEQ and MDOT which may allow a property owner, who is responsible for of these sites, to close an environmentally impacted site. Questions regarding this activity shall be addressed by contacting MDOT's Environmental Specialist at 517-335-2271.

6. The Land and Water Management Division of the MDEQ also administers the following environmental laws which may require review prior to construction:

- Sand Dune Protection Act, Part 353, P.A. 451 of 1994.
- Shore-lands Protection and Management, Part 323, P.A. 451 of 1994.
- Great Lakes Submerged Lands Act, Part 325, and P.A. 451 of 1994.

7. The Wildlife Division of the MDNR also administers the following environmental laws which may require review prior to construction:

- Endangered Species Act, Part 365, and P.A. 451 of 1994.

Questions regarding these permits may be addressed by contacting the nearest MDEQ district field office, or the MDEQ Land and Water Management Division at 517-373-1170.

GENERAL CONDITIONS

This permit is issued subject to the following General Conditions:

1. This permit grants to the permittee only those rights specifically stated and no other. Maintenance work within the trunkline right of way may require a separate permit unless authorized within the scope of the annual permit.
2. Issuance of this permit does not relieve permittee from meeting any and all requirements of law, or of other public bodies or agencies. The permittee shall be responsible for securing including but not limited to any other permissions including or required by law including but not limited to cities, villages, townships, corporations, or individuals for the activities hereby permitted.
3. The permittee agrees as a General Condition of this permit to:
 - a. Have in the permittee's or the permittee's representative's possession on the job site at all times the approved permit, advanced notice and any necessary plans or sketches.
 - b. Submit Advance Notice through the online Construction Permit System (CPS) at least five (5) working days prior to commencement of any operations covered by this permit. No work shall start until an approved Advance Notice is e-mailed to the permittee.
 - c. Perform no work except emergency work, unless authorized by the Department (Michigan Department of Transportation [MDOT]), on Saturdays, Sundays, or from 3:00 p.m. on the day proceeding until the normal starting time the day after the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.
 - d. Perform no work except emergency work during periods of inclement weather when reduced visibility or slippery conditions impair trunkline traffic.
 - e. Provide and maintain all necessary precautions to prevent injury or damage to persons and property from operations covered by this permit.
 - f. Furnish, install and maintain all necessary traffic controls and protection during permittee's operations in accordance with the Michigan Manual of Uniform Traffic Control Devices and any supplemental specifications set forth herein.
 - g. Once work is initiated that includes any lane restrictions, that work must be continued daily until completed. A lack of work activity for more than 3 days will require the removal of lane closures at no expense to the Department.
 - h. Notify the Department of completion of work authorized by this permit through CPS, so that final inspection may be made and surety deposit released (where applicable). Surety deposit will not be released until the work authorized by the permit has been completed and inspected, and all inspection charges billable to the permittee are paid.
4. Nothing in this permit shall be construed to grant any rights whatsoever to any public utilities, except as to the consent herein specifically given, nor to impair any existing rights granted in accordance with the constitution or laws of this state.
5. Any operations in the trunkline right of way not covered by permit and the appropriate Department specifications are in violation of the jurisdictional authority of the Department, with respect to the control of the trunkline right of way, unless approved by the Department. Any change or alteration in the permit activities requires prior approval of the Department and may require a new permit.
6. Performance of the requirements of this permit is the responsibility of the permittee. The permittee shall complete all operations for which this permit is issued in accordance with the General Conditions and conditions of this permit, by the specified completion date. The permittee shall meet all requirements of the current Department Standard Specifications for Construction, and the Supplemental Specifications set forth on/or incorporated as a part of this permit.
7. The construction, operation and maintenance of the facility covered by this permit shall be performed without cost to the Department unless specified herein. The permittee shall be responsible for the cost of restoration of the state trunkline and right of way determined by the Department to be damaged as a result of the activities of the permittee.
8. Facilities allowed on state trunkline right of way shall be placed and maintained in a manner which will not impair the state trunkline or interfere with the reasonable safe and free flow of traffic. Failure of the permittee to maintain the facilities located within the State trunkline right of way so as not to interfere with the operation, maintenance or use of the state trunkline by the traveling public may result in revocation of the permit.
9. The permittee is solely and fully responsible for all activities undertaken pursuant to the permit. Any and all actions by the Department and those governmental bodies performing permit activities for the Department pursuant to a maintenance contract, including but not limited to any approved reviews and inspections of any nature, permit issuing, and final acceptance or rejection of the work or activity authorized by the permit shall not be construed as a warranty or assumption of liability on the part of the Department or those governmental bodies. It is expressly understood and agreed that any such actions are for the sole and exclusive purposes of the Department and the governmental bodies acting in a governmental capacity. Any such actions by the Department and governmental bodies will not relieve the permittee of its obligations hereunder, nor are such actions by the Department and the governmental bodies to be construed as a warranty as to the propriety of the permittee's performance.

Note: The following General Condition does not apply to municipalities with executed resolutions on file with MDOT.

The permittee shall indemnify, defend, and save harmless the State of Michigan, Michigan Transportation Commission, the Department and all officers, agents and employees thereof, and those governmental bodies performing permit activities for the Department and all officers, agents and employees thereof, pursuant to a maintenance contract, against any and all claims for damages arising from operations covered by this permit except claims resulting from the sole negligence or willful acts or omissions of said indemnities, its agent, or employees. In addition, permittee upon request shall furnish proof of insurance coverage for the term of this permit in an amount pre-specified.
10. The permittee or representative must ensure that all insurance policies and binders include an endorsement by which the insurer

agrees to notify the Department in writing at least 30 days before there is a cancellation or material change in coverage. The permittee or representative must stop operations if any insurance is cancelled or reduced and must not resume operations until new insurance is in force. The State of Michigan, Michigan Transportation Commission, Department of Transportation, and governmental bodies performing permit activities under a maintenance contract, and all officers, agents, and employees of all the above, for claims arising out of, under, or by reason of operations covered by the permits issued to the permittee.

11. This permit is not assignable and not transferable unless specifically agreed to by the Department.
12. The permittee, upon request of the Department, shall immediately remove, cease operations, and surrender this permit, or alter or relocate, at the permittee's own expense, the facility for which this permit is granted. Upon failure to do so, the Department may take any necessary action to protect the trunkline interest and the permittee shall reimburse the Department for its costs in doing same. The permittee expressly waives any right to claim damages or compensation in the event this permit is revoked.
13. The permittee shall, upon request by the Department, furnish a performance surety deposit in the form of a bond, cash, certified check, or (when authorized by the Department) an irrevocable letter of credit in such amount as deemed necessary by the Department to guarantee restoration of the trunkline highway or performance under the General Conditions and conditions of the permit.
14. The permittee hereby acknowledges and agrees that the Department has the right to demand completion by the permittee, or the performance surety, or to complete any uncompleted activity authorized by this permit which adversely affects the operation and/or maintenance of the state trunkline highway, or which is not completed by the expiration date of the permit, including:
 - a. Completion of construction of driveway and/or approach (not authorized by annual permit).
 - b. Removal of materials.
 - c. Restoration of the trunkline facilities and right of way as necessary for the reasonably safe and efficient operations of the trunkline highway.

The permittee further agrees to immediately reimburse the Department in full for all such costs incurred by the Department upon receipt of billing, and that upon failure to pay, the Department may affect payment with the performance surety deposit. Should the surety deposit be insufficient to cover expenses incurred by the Department, the permittee shall pay such deficiency upon billing by the Department. If the surety deposit exceeds the expense incurred by the Department, any excess will be returned or released to the depositor upon completion of the work to the satisfaction of the Department.

15. The Department reserves the right during the time any or all of the work is being performed to assign an inspector to protect the trunkline interest, and to charge the permittee all such costs incurred. In addition, the permittee may be billed any engineering and review fees incurred by the Department or its agent in connection with the work covered by this permit.
16. Emergency Operations: In time of disaster or emergency, or when utility lines or facilities are so damaged as to constitute a danger to life and/or property of the public, access to the same may be had by the most expeditious route. Work is to be completed in a manner which will provide the traveling public with maximum possible safety and minimize traffic distribution. Notice of such situations shall be given to the nearest police authority and the department as soon as can reasonably be done under the

circumstances. During normal Department work hours, the facility owner shall advise the Department of any operations within right of way which affect traffic operations or the highway structure or facilities prior to performance of the work. After normal Department work hours, the permittee, at the beginning of the first working day after the emergency operation, shall advise the Department of any operations which affect traffic operations or the highway structures and facilities. If determined necessary by the Department, the permittee shall secure an individual permit for such work after notification.

17. Upon the Department's request, as built drawings of work performed will be furnished to the Department within 30 days after completion of the work.
18. The permittee shall give notice to public utilities in accordance with Act 174 of 2013, as amended, and comply with all applicable requirements of this act. The permittee shall also comply with requirements of Act 451, P.A. of 1994, as amended.
19. The permittee acknowledges that the Department is without liability for the presence of the permittee's facility which is located within the trunkline right of way. Acceptance by the Department of work performed, and/or notice of termination of performance obligations for the surety and/or the permittee do not relieve the permittee of full responsibility for the permittee's work or for the presence of the permittee's facility in the trunkline right of way.
20. Where the Department has accepted an Indemnification Commitment in lieu of bond and/or insurance policies, such commitment is incorporated into this permit by reference.
21. It is illegal to discharge substances other than storm water into the Department's storm sewer system unless permission has been obtained in writing for other discharges.
22. The permittee shall be responsible for obtaining information on permitted environmental site closures within MDOT right of way. MDOT has implemented a program that allows environmental contamination to remain within the right of way by use of a permit. Issued permit information can be obtained from the Region/TSC in which the permit is issued. If the permittee will encounter a site area identified as a site closure permit area, the permittee shall follow instructions and conditions set forth in Supplemental Specifications #3 and specifications found in form 2205-C, "Special Conditions for Underground Construction".
23. Other than for normal daily vehicle and equipment usage requirements, the permittee shall not use or store unattended equipment, or the following types of hazardous materials on, over, under, or immediately adjacent to Department or Local Agency owned buildings, bridges and structures, unless expressly approved by the Department in writing:

Explosive, flammable gas, non-flammable gas, inhalation hazard, oxygen, flammable liquids, fuel oil, combustible, gasoline, flammable solids, spontaneously combustible, dangerous-when-wet, oxidizer organic peroxide, toxic, poisonous, inhalation hazard, infectious, radioactive, corrosive, or any other potentially hazardous material.

Furthermore, the permittee shall not allow hazardous or unreasonably objectionable smoke, fumes, vapor, or odors to emit from any permitted operation. No junk, garbage, refuse or unused construction materials shall be stored or accumulated within the MDOT Right-of-Way.

24. It is the responsibility of the utility owner to provide the depth and location of their facilities within MDOT ROW upon the department's request.

SUPPLEMENTAL SPECIFICATIONS

1. Construction and Maintenance of Facilities – To construct and maintain utility crossings of limited access highways, access for the utility's service vehicles may be from county roads, service roads, and openings authorized in limited access right of way fences. The construction of utilities across limited access highways should be for the purpose of serving a general area rather than providing individual services, unless extenuating circumstances necessitate such crossings.

Equipment, vehicles or personnel will not operate within a distance of 30 feet from the edge of the pavement of roadways or ramps on limited access highways. At locations where utilities have been constructed in medians having a width greater than 80 feet or have otherwise been allowed to remain or to be constructed in limited access right of way, ingress and egress shall be by such routes as specified by the Department, which may also specify additional safety provisions.

2. Restoration- Restoration of the trunkline highway and right of way will be such that it will provide a condition equal to or better than the original condition, in accordance with Michigan Department of Transportation Standard Specifications.
3. Excavation and Disposal of Excavated Material – The permittee shall provide and place the necessary sheeting, shoring and bracing required to prevent caving, loss or settlement of foundation material supporting the pavement, or any other highway installation such as sewers, culverts, etc. The permittee shall assume the full responsibility for this protection and shall not proceed in these areas before approval of the methods by the Department.

Construction equipment and excavating material shall not be stocked in such locations that it creates a traffic hazard or interferes with the flow of traffic; and on limited access highways, shall be a minimum of 30 feet from the traveled way. Sod and topsoil shall be stacked separately from other excavated material. The permittee shall dispose of all surplus and unsuitable material outside of the limits of the highway, unless the permit provides for disposal at approved locations within right of way. In the latter case, the material shall be leveled and trimmed in an approved manner.

When the permittee is excavating within trunkline right of way and discovers existing contaminated soil and/or an abandoned underground storage tank, special permit specifications entitled "Special Conditions for Underground Construction" (Form 2205-C) shall apply.

4. Utility Cuts, Trenches and Pavement Replacement – Utility crossing by pavement cutting and removal are generally prohibited. If extenuating circumstances make tunneling, boring and jacking impractical pavement cutting may be used with approval of the Department. All utility cuts, trenching and pavement replacement shall comply with the requirements of the Standard Specifications and the Standard Plan "Utility Cuts, Trenches and Pavement Replacement". Unless otherwise specified, cuts in concrete residential and commercial drives shall be as above; except that the patch width shall be a minimum of 3 feet and the remaining slab from patch to existing joint shall be a minimum of 3 feet. Backfill shall be made with sand-gravel as specified in the Standard Specifications, unless otherwise directed. After the backfill has been placed and compacted by controlled density method, the pavement shall be replaced with new pavement of the original type and quality, unless at the season of the year when it is not feasible to replace

pavement in kind. In this case, a temporary surface of bituminous material shall be placed with Department approval and later replaced with pavement of the original type at the applicant's expense. Other pavement types may be allowed with prior approval of the Department.

5. Crossing Roadbed by Tunneling or Boring and Jacking – All crossing of roadbed operations involving tunneling, boring and jacking shall comply with the Department's special provisions for such work.
6. Backfilling and Compacting Backfill – Unless otherwise specified, all trenches, holes and pits shall be filled with sound earth or with sand-gravel if so provided, placed in successive layers not more than 9 inches in depth, loose measure, and each layer shall be thoroughly compacted by tamping. All backfill compaction will be subject to check by the controlled density method.
7. Depth of Cover Method- Unless otherwise authorized, pipes shall be placed to a depth that will provide not less than 6 feet of cover between the top of the roadway surface and the pipe, 3 feet cover below the ditch line. All bores across MDOT highways that are 12" or larger will require a geotechnical report that complies with the General Conditions and conditions of the permit.
8. Trees:
 - a. The permittee is responsible for obtaining permission from abutting owners when trimming or removing trees on easement right of way.
 - b. Tree removal or trimming may be undertaken only after submission of an "Advance Notice" through CPS, a field review by the Region Resource Specialist and an approved copy of the advanced notice is e-mailed to the permittee.
 - c. Limbs, logs, stumps and litter shall be disposed of in a manner acceptable to the Department.
 - d. Tree roots shall be bored a distance of one foot for each one inch of trunk diameter for underground utility installations
9. Aerial Wire Crossings – Vertical clearance of wires, conductors and cables over state trunkline shall not be less than required by Section 232 of the National Electrical Safety Code, except in no case shall the under-clearance below any wire, conductor, or cable, under any temperature or loading condition, be less than eighteen feet (18').



GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF TRANSPORTATION
LANSING

PAUL AJEGBA
DIRECTOR

**NOTICE TO SURETY/INSURANCE COMPANIES
FOR OBTAINING ACCESS TO THE
MDOT PERMIT PERFORMANCE BONDS AND
MDOT CERTIFICATE OF INSURANCE APPLICATION**

The Surety executing the bond/liability will have to register with the Department in order to obtain access to the Permit Performance Bond/Certificate of Insurance application system. Please have the individual executing the bond/insurance contact via email MDOT-ePerformanceBondCOI@michigan.gov to register. You will receive login information back via email. For additional assistance or help with password issues contact MDOT-MPG@michigan.gov or call 844-806-0002.

For bonding if applicable:

Electronic submittal is required however MDOT is currently requiring that an original signed paper copy of the bond also be mailed to the appropriate MDOT office. The Surety Company will be prompted to print out, obtain all signatures and mail the original signed and sealed bond to the MDOT Brighton TSC. MDOT has plans to initiate a paperless, completely electronic permit performance bond application in the near future. Please have the original signed and sealed bond mailed to Brighton TSC 10321 E. Grand River Suite 500 Brighton, Michigan 48116

Note: The applicant/contractor does not register for access to this application, Surety/Insurance agents only. MDOT does not accept accord liability documents.

Matthew Kenwell
MDOT Brighton TSC
Permit Agent
517-403-3252

**INDIVIDUAL PERMIT PERFORMANCE BOND
REQUIRED BY MICHIGAN DEPARTMENT OF
TRANSPORTATION FOR ISSUANCE OF PERMIT TO USE
STATE TRUNKLINE HIGHWAY RIGHT OF WAY**

DEPT. BOND NO.
E18449SURETY'S BOND NO.
6651352

Item 2.



WHEREAS, the Michigan Department of Transportation, hereinafter called the "DEPARTMENT", has issued a permit to **Zander Companies** (Applicant/Contractor name) **Brighton** (City) **MICHIGAN** (State) hereinafter called the "PRINCIPAL", to use and/or occupy the right of way of the state trunkline highway, which permit or permits is incorporated by reference in this bond. NOW THEREFORE BY THIS INSTRUMENT, We, the PRINCIPAL and **Western Surety Company** (Surety name), an organization authorized to do business in the State of Michigan, hereinafter called the "SURETY", for value received, are held and firmly bound to the DEPARTMENT in the sum of **\$50,000.00** dollars lawful money of the United States of America to be paid to the DEPARTMENT, to which payment, we bind ourselves, our heirs, administrators, executors, successors and assigns, jointly and severally, firmly and irrevocably by this bond to insure the completion of all work in accordance with the requirements and provisions of said permit including the restoration of the state trunkline highway and right of way, and appurtenances of the DEPARTMENT to the extent that they have been compromised as a result of the PRINCIPAL'S performance or failure to perform.

FURTHER, SURETY stipulates and agrees that:

1. Should the DEPARTMENT so demand, SURETY shall promptly perform or cause to be performed to the satisfaction of the DEPARTMENT all or any portion of the work specified in accordance with the terms, provisions and conditions of said permit to the extent of the value of this bond. In no event shall the SURETY incur or pay any costs or expenses associated with the completion of the work as ordered by the DEPARTMENT in excess of the penal sum of this bond.
2. No change, extension of time, alteration or addition to the terms of the permit, including any applicable specifications for the work to be performed there under, shall affect its obligations on this bond, and SURETY hereby waives notice of any such change, extension, alteration or addition.
3. Its obligations assumed hereby remain in full force and effect until notice of termination of such obligations is given to SURETY by the DEPARTMENT notwithstanding the assignment or divestiture by the PRINCIPAL of the private property relating to the permit.
4. The SURETY guarantees all construction and/or restoration work required by the permit against defective workmanship or materials for a period of one (1) calendar year from the date of acceptance of such work by the DEPARTMENT. All claims for defective workmanship or materials must be made against the PRINCIPAL and the SURETY no later than thirty (30) calendar days after the expiration of the one (1) calendar year maintenance period.

THE CONDITION OF THIS BOND is such that if the PRINCIPAL, to the satisfaction of the DEPARTMENT, performs the work in accordance with the terms, provisions and conditions of the permit then this obligation shall become void, except as provided in item 4 above, upon receipt by SURETY of a notice of termination of performance obligations from the DEPARTMENT; otherwise this bond remains in full force and effect. PROVIDED HOWEVER, that regardless of the number of years this bond shall continue in force and of the number of premiums that shall be payable or paid, the SURETY shall not be liable hereunder for a larger amount, in the aggregate than the penal amount of this bond which shall be the maximum liability of the SURETY for any and all losses, costs, expenses or damages that the DEPARTMENT may sustain.

SIGNED AND SEALED this **10** day of **May, 2023**.**FILL OUT COMPLETELY**

APPLICANT/CONTRACTOR NAME Zander Companies	ADDRESS 7879 Winans Lake Road, Brighton, MICHIGAN 48116	PHONE 6622751959
SURETY NAME Western Surety Company	ADDRESS 151 N. Franklin Street, Chicago, ILLINOIS 60606	PHONE 3128225000
APPLICANT/CONTRACTOR (Signature) 	SURETY/ATTORNEY-IN-FACT * (Signature) 	
APPLICANT/CONTRACTOR NAME & TITLE Zander Companies	ATTORNEY-IN-FACT Ian Thomas Foster	
* The individual signing as Attorney-In-Fact for the SURETY must attach a valid and current Certificate of Authority.		
SURETY CONTACT (in Event of Claim) Mourer Foster Inc	Address 615 North Capitol Avenue, Lansing, MICHIGAN 48933	Phone 5173712300

TO BE COMPLETED BY DEPARTMENT

NOTICE TO SURETY OF PERMIT ISSUANCE	NOTICE TO SURETY OF BONDS STATUS
PERMIT NO. INSURED BY BOND	<input type="checkbox"/> Permit operations covered by the above have been completed and performance obligations are hereby terminated effective _____ Obligations for defective workmanship and materials continue as specified above.
PERMITTEE	<input type="checkbox"/> Permit covered by above bond has been cancelled prior to performance. Liability under the bond therefore terminated effective _____
PERMIT ISSUE DATE	BY: _____ Region/TSC Utilities-Permits Engineer or Engineer of Utilities-Permits Section

Western Surety Company

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS:

That WESTERN SURETY COMPANY, a corporation organized and existing under the laws of the State of South Dakota, and authorized and licensed to do business in the States of Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming, and the United States of America, does hereby make, constitute and appoint

Ian Thomas Foster of Lansing,
State of Michigan, with limited authority, its true and lawful Attorney-in-Fact, will full power and authority hereby conferred to sign, execute, acknowledge and deliver for and on its behalf as Surety and as its act and deed, the following bond:

One Highway Permit Individual

bond with bond number 66651352

for Zander Industries

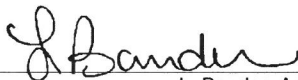
as Principal in the penalty amount not to exceed: \$50,000.00.

Western Surety Company further certifies that the following is a true and exact copy of Section 7 of the by-laws of Western Surety Company duly adopted and now in force, to-wit:

Section 7. All bonds, policies, undertakings, Powers of Attorney, or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, any Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys-in-Fact or agents who shall have authority to issue bonds, policies, or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile.

In Witness Whereof, the said WESTERN SURETY COMPANY has caused these presents to be executed by its
Vice President with the corporate seal affixed this 10th day of May,
2023.

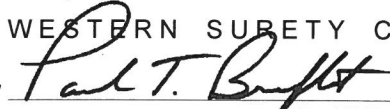
ATTEST



L. Bauder, Assistant Secretary

WESTERN SURETY COMPANY

By



Paul T. Bruflat, Vice President

STATE OF SOUTH DAKOTA }
COUNTY OF MINNEHAHA } ss

On this 10th day of May, 2023, before me, a Notary Public, personally appeared
Paul T. Bruflat and L. Bauder

who, being by me duly sworn, acknowledged that they signed the above Power of Attorney as Vice President and Assistant Secretary, respectively, of the said WESTERN SURETY COMPANY, and acknowledged said instrument to be the voluntary act and deed of said Corporation.



My Commission Expires March 2, 2026



Notary Public

To validate bond authenticity, go to www.cnasurety.com > Owner/Obligee Services > Validate Bond Coverage.

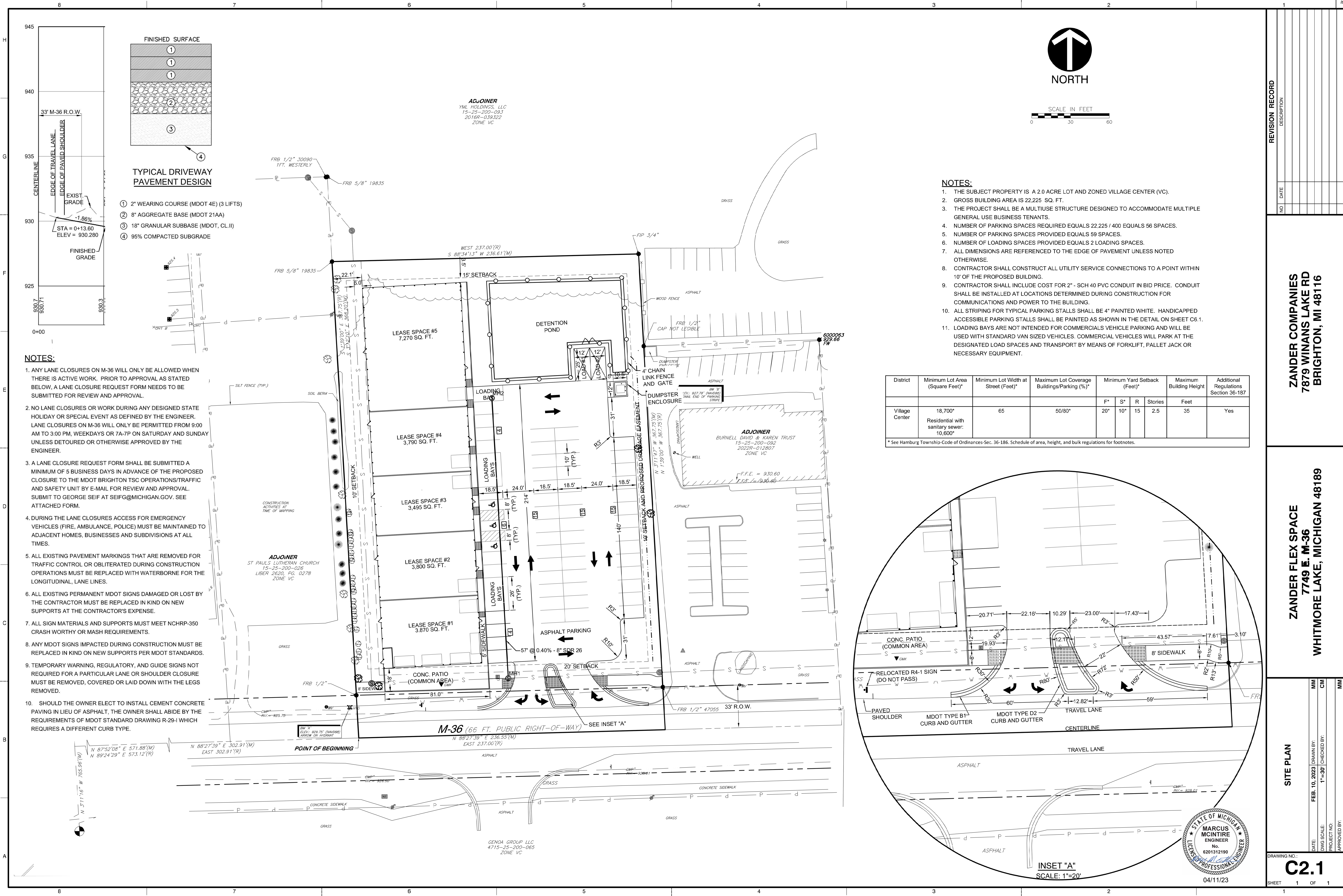
Mail Signed Bond To:

Pascal Bui
Brighton TSC
10321 E. Grand River, STE. 500

Brighton, MI 48116

Item 2.

Alternate Contact:

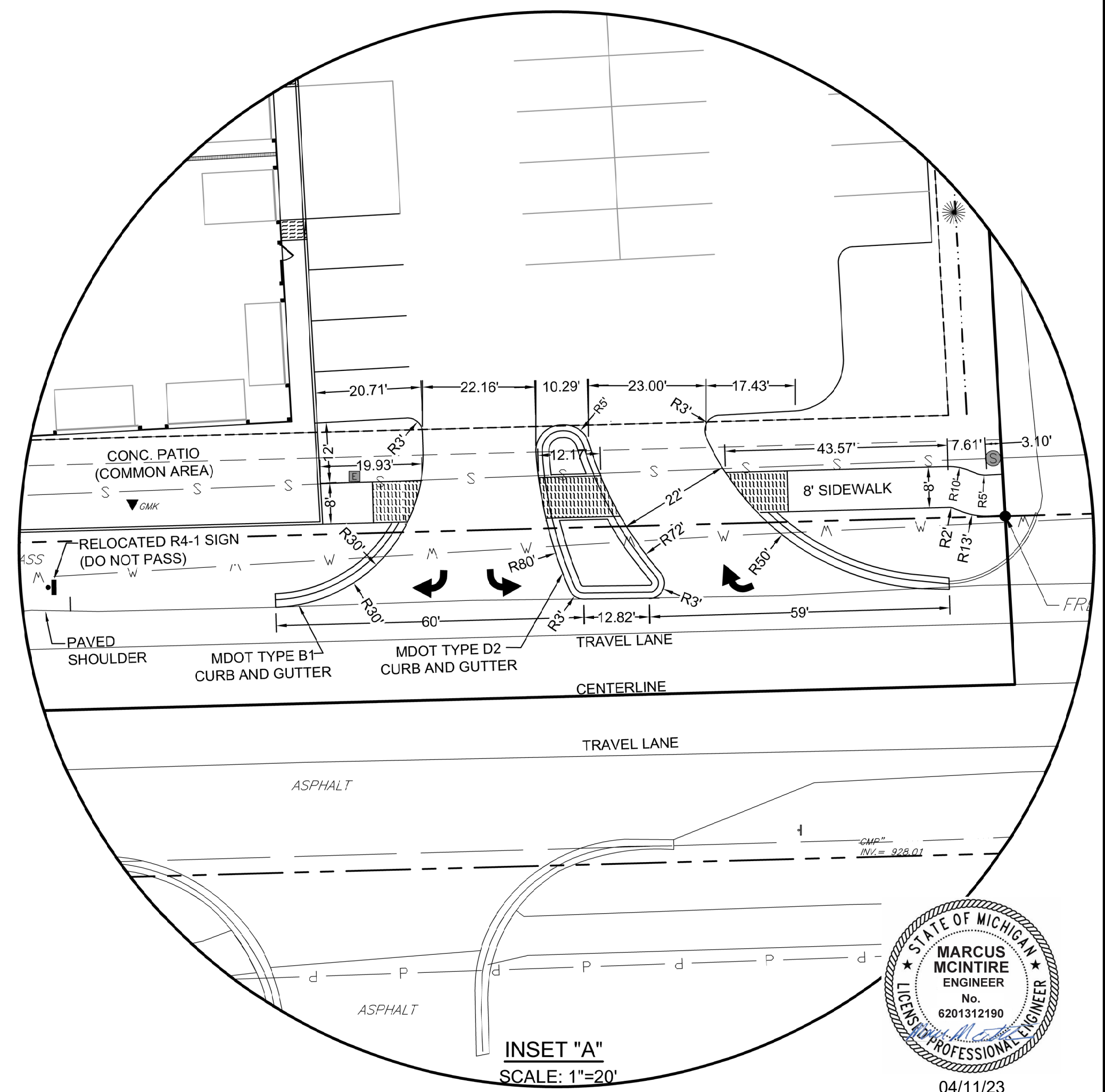


- NOTES:**
1. ANY LANE CLOSURES ON M-36 WILL ONLY BE ALLOWED WHEN THERE IS ACTIVE WORK. PRIOR TO APPROVAL AS STATED BELOW, A LANE CLOSURE REQUEST FORM NEEDS TO BE SUBMITTED FOR REVIEW AND APPROVAL.
 2. NO LANE CLOSURES OR WORK DURING ANY DESIGNED STATE HOLIDAY OR SPECIAL EVENT AS DEFINED BY THE ENGINEER. LANE CLOSURES ON M-36 WILL ONLY BE PERMITTED FROM 9:00 AM TO 3:00 PM, WEEKDAYS OR 7A-7P ON SATURDAY AND SUNDAY UNLESS DETOURED OR OTHERWISE APPROVED BY THE ENGINEER.
 3. A LANE CLOSURE REQUEST FORM SHALL BE SUBMITTED A MINIMUM OF 5 BUSINESS DAYS IN ADVANCE OF THE PROPOSED CLOSURE TO THE MDOT BRIGHTON TSC OPERATIONS/TRAFFIC AND SAFETY UNIT BY E-MAIL FOR REVIEW AND APPROVAL. SUBMIT TO GEORGE SEIF AT SEIFG@MICHIGAN.GOV. SEE ATTACHED FORM.
 4. DURING THE LANE CLOSURES ACCESS FOR EMERGENCY VEHICLES (FIRE, AMBULANCE, POLICE) MUST BE MAINTAINED TO ADJACENT HOMES, BUSINESSES AND SUBDIVISIONS AT ALL TIMES.
 5. ALL EXISTING PAVEMENT MARKINGS THAT ARE REMOVED FOR TRAFFIC CONTROL OR OBLITERATED DURING CONSTRUCTION OPERATIONS MUST BE REPLACED WITH WATERBORNE FOR THE LONGITUDINAL, LANE LINES.
 6. ALL EXISTING PERMANENT MDOT SIGNS DAMAGED OR LOST BY THE CONTRACTOR MUST BE REPLACED IN KIND ON NEW SUPPORTS AT THE CONTRACTOR'S EXPENSE.
 7. ALL SIGN MATERIALS AND SUPPORTS MUST MEET NCHRP-350 CRASH WORTHY OR MASH REQUIREMENTS.
 8. ANY MDOT SIGNS IMPACTED DURING CONSTRUCTION MUST BE REPLACED IN KIND ON NEW SUPPORTS PER MDOT STANDARDS.
 9. TEMPORARY WARNING, REGULATORY, AND GUIDE SIGNS NOT REQUIRED FOR A PARTICULAR LANE OR SHOULDER CLOSURE MUST BE REMOVED, COVERED OR LAID DOWN WITH THE LEGS REMOVED.
 10. SHOULD THE OWNER ELECT TO INSTALL CEMENT CONCRETE PAVING IN LIEU OF ASPHALT, THE OWNER SHALL ABIDE BY THE REQUIREMENTS OF MDOT STANDARD DRAWING R-29-I WHICH REQUIRES A DIFFERENT CURB TYPE.

- NOTES:**
1. THE SUBJECT PROPERTY IS A 2.0 ACRE LOT AND ZONED VILLAGE CENTER (VC).
 2. GROSS BUILDING AREA IS 22,225 SQ. FT.
 3. THE PROJECT SHALL BE A MULTIUSE STRUCTURE DESIGNED TO ACCOMMODATE MULTIPLE GENERAL USE BUSINESS TENANTS.
 4. NUMBER OF PARKING SPACES REQUIRED EQUALS 22,225 / 400 EQUALS 56 SPACES.
 5. NUMBER OF PARKING SPACES PROVIDED EQUALS 59 SPACES.
 6. NUMBER OF LOADING SPACES PROVIDED EQUALS 2 LOADING SPACES.
 7. ALL DIMENSIONS ARE REFERENCED TO THE EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
 8. CONTRACTOR SHALL CONSTRUCT ALL UTILITY SERVICE CONNECTIONS TO A POINT WITHIN 10' OF THE PROPOSED BUILDING.
 9. CONTRACTOR SHALL INCLUDE COST FOR 2" - SCH 40 PVC CONDUIT IN BID PRICE. CONDUIT SHALL BE INSTALLED AT LOCATIONS DETERMINED DURING CONSTRUCTION FOR COMMUNICATIONS AND POWER TO THE BUILDING.
 10. ALL STRIPING FOR TYPICAL PARKING STALLS SHALL BE 4" PAINTED WHITE. HANDICAPPED ACCESSIBLE PARKING STALLS SHALL BE PAINTED AS SHOWN IN THE DETAIL ON SHEET C6.1.
 11. LOADING BAYS ARE NOT INTENDED FOR COMMERCIALS VEHICLE PARKING AND WILL BE USED WITH STANDARD VAN SIZED VEHICLES. COMMERCIAL VEHICLES WILL PARK AT THE DESIGNATED LOAD SPACES AND TRANSPORT BY MEANS OF FORKLIFT, PALLET JACK OR NECESSARY EQUIPMENT.

District	Minimum Lot Area (Square Feet)*	Minimum Lot Width at Street (Feet)*	Maximum Lot Coverage Buildings/Parking (%)*	Minimum Yard Setback (Feet)*				Maximum Building Height	Additional Regulations Section 36-187
				F*	S*	R	Stories	Feet	
Village Center	18,700* Residential with sanitary sewer: 10,600*	65	50/80*	20*	10*	15	2.5	35	Yes

* See Hamburg Township-Code of Ordinances-Sec. 36-186. Schedule of area, height, and bulk regulations for footnotes.



REVISION RECORD

NO.	DATE	DESCRIPTION

ZANDER COMPANIES

7879 WINANS LAKE RD

BRIGHTON, MI 48116

ZANDER FLEX SPACE

7749 E. M-36

WHITMORE LAKE, MICHIGAN 48189

SITE PLAN

DRAWN BY: MM

DATE: FEB 10, 2023

CHECKED BY: CM

PROJECT NO: 6201312190

APPROVED BY: MM

DRAWING NO.:

C2.1

SHEET 1 OF 1



DISTANCE BETWEEN TRAFFIC SIGNS, "D"

Item 2.

"D" DISTANCES	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)										
	25	30	35	40	45	50	55	60	65	70	75
D (FEET)	250	300	350	400	450	500	550	600	650	700	750

GUIDELINES FOR LENGTH OF LONGITUDINAL BUFFER SPACE, "B"

"B" LENGTHS	SPEED*, MPH (PRIOR TO WORK AREA)											
	20	25	30	35	40	45	50	55	60	65	70	75
B (FEET)	33	50	83	132	181	230	279	329	411	476	542	625

* POSTED SPEED, OFF-PEAK 85TH PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED.

MINIMUM MERGING TAPER LENGTH, "L" (FEET)

OFFSET (FEET)	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)										
	25	30	35	40	45	50	55	60	65	70	75
1	11	15	21	27	45	50	55	60	65	70	75
2	21	30	41	54	90	100	110	120	130	140	150
3	32	45	62	80	135	150	165	180	195	210	225
4	42	60	82	107	180	200	220	240	260	280	300
5	53	75	103	134	225	250	275	300	325	350	375
6	63	90	123	160	270	300	330	360	390	420	450
7	73	105	143	187	315	350	385	420	455	490	525
8	84	120	164	214	360	400	440	480	520	560	600
9	94	135	184	240	405	450	495	540	585	630	675
10	105	150	205	267	450	500	550	600	650	700	750
11	115	165	225	294	495	550	605	660	715	770	825
12	125	180	245	320	540	600	660	720	780	840	900
13	136	195	266	347	585	650	715	780	845	910	975
14	146	210	286	374	630	700	770	840	910	980	1050
15	157	225	307	400	675	750	825	900	975	1050	1125

NOT TO SCALE

 Michigan Department of Transportation	NOT TO SCALE	MAINTAINING TRAFFIC TYPICAL		"B", "D" AND "L" TABLES CHANNELIZING DEVICE SPACING, SIGN BORDER KEY, AND ROLL-AHEAD SPACING	DATE: MAY 2021
		NO: 101-GEN- SPACING-CHARTS			SHEET: 1 OF 3
FILE: 101-GEN-SPACING-CHARTS.dgn					

FILE: 101-GEN-SPACING-CHARTS.dgn

THE FORMULAS FOR THE MINIMUM LENGTH OF A MERGING TAPER IN DERIVING THE "L" VALUES SHOWN IN THE ABOVE TABLES ARE AS FOLLOWS:

$$"L" = \frac{W \times S^2}{60} \quad \text{WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 40 MPH OR LESS}$$

$$"L" = W \times S \quad \text{WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 45 MPH OR GREATER}$$

L = MINIMUM LENGTH OF MERGING TAPER
S = POSTED SPEED LIMIT IN MPH PRIOR TO WORK AREA
W = WIDTH OF OFFSET

TYPES OF TAPERS

UPSTREAM TAPERS

MERGING TAPER
SHIFTING TAPER
SHOULDER TAPER
2 TO 1 LANE ROAD TAPER

TAPER LENGTH

L - MINIMUM
1/2 L - MINIMUM
1/3 L - MINIMUM
100' - MAXIMUM

DOWNSTREAM TAPERS

(USE IS RECOMMENDED)

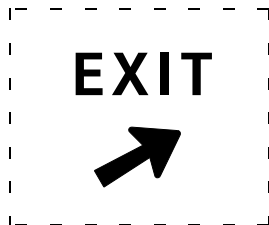
100' (PER LANE)

MAXIMUM SPACING FOR CHANNELIZING DEVICES

WORK ZONE SPEED LIMIT	DAYTIME 42" DEVICE SPACING (FT)		NIGHTTIME 42" DEVICE SPACING (FT)	
	TAPER	TANGENT	TAPER	TANGENT
< 45 MPH	1 x SPEED LIMIT	2 x SPEED LIMIT	25 FEET	50 FEET
≥ 45 MPH	50 FEET	100 FEET	25 FEET	50 FEET

SIGN OUTLINE KEY

DASHED OUTLINES INDICATE A SIGN THAT EXISTS ON SITE, AND NEEDS TO BE COVERED.



SOLID OUTLINES INDICATE A SIGN THAT IS TO BE PLACED ON THE PROJECT



NOT TO SCALE



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO: 101-GEN-
SPACING-CHARTS

FILE: 101-GEN-SPACING-CHARTS.dgn

"B", "D" AND "L" TABLES
CHANNELIZING DEVICE SPACING
SIGN BORDER KEY AND ROLL-AHEAD SPACING

DATE: MAY 2021

SHEET:

2 OF 3

GUIDELINES FOR ROLL-AHEAD DISTANCES FOR TMA VEHICLES – TEST LEVEL 2

WEIGHT OF TMA VEHICLE	PREVAILING SPEED (POSTED SPEED PRIOR TO WORK ZONE)	ROLL-AHEAD DISTANCE* (DISTANCE FROM FRONT OF TMA VEHICLE TO WORK AREA)
5.5 TONS (STATIONARY)	40 MPH OR LESS	25 FT

* ROLL-AHEAD DISTANCES ARE CALCULATED USING A 4,410 POUND IMPACT VEHICLE WEIGHT.

GUIDELINES FOR ROLL-AHEAD DISTANCES FOR TMA VEHICLES – TEST LEVEL 3

WEIGHT OF TMA VEHICLE	PREVAILING SPEED (POSTED SPEED PRIOR TO WORK ZONE)	ROLL-AHEAD DISTANCE* (DISTANCE FROM FRONT OF TMA VEHICLE TO WORK AREA)
5 TONS (MOBILE)	45 MPH	100 FT
	50-55 MPH	150 FT
	60-75 MPH	175 FT
12 TONS (STATIONARY)	45 MPH	25 FT
	50-55 MPH	25 FT
	60-75 MPH	50 FT

* ROLL-AHEAD DISTANCES ARE CALCULATED USING A 10,000 POUND IMPACT VEHICLE WEIGHT.

GENERAL NOTES

- G1: SEE GEN-SPACING-CHARTS FOR COMMON VALUES INCLUDING:
D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
L = MINIMUM LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER
ROLL AHEAD DISTANCE
- G2: DISTANCE BETWEEN SIGNS, "D", THE VALUES FOR WHICH ARE SHOWN IN TYPICAL GEN-KEY ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- G3: ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING MUST MEET NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM REPORT 350 (NCHRP 350) TEST LEVEL 3, OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) TL-3 AS WELL AS THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
- G4: DO NOT STORE EQUIPMENT, MATERIALS OR PERFORM WORK IN ESTABLISHED BUFFER AREAS.
- G5: ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR TRAFFIC PATTERNS FOR WORK LESS THAN THREE DAYS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.

SIGN NOTES

- S1: ALL NON-APPLICABLE SIGNING WITHIN THE CIA MUST BE MODIFIED TO FIT CONDITIONS, COVERED, OR REMOVED. FOR GUIDANCE SEE THE WORK ZONE SAFETY AND MOBILITY MANUAL, SECTIONS 6.01.09 AND 6.01.10.
- S2: R5-18b SIGNS ARE ONLY REQUIRED ON FREEWAY PROJECTS WITH A DURATION OF 15 DAYS OR LONGER OR NON-FREEWAY PROJECTS WITH A DURATION OF 90 DAYS OR LONGER. TO APPLY THIS TYPICAL WITHOUT R5-18b SIGNS, REMOVE THE SIGNS AND CONSOLIDATE THE SEQUENCE AS APPROPRIATE.
- S3: R5-18c IS ONLY REQUIRED IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. OMIT THIS SIGN IN SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE.
- S4: ADDITIONAL SIGNING AND/OR ELONGATED SIGNING SEQUENCES SHOULD BE USED WHEN TRAFFIC VOLUMES ARE SIGNIFICANT ENOUGH TO CREATE BACKUPS BEYOND THE W20-5 SIGNS.
- S5: PLACE ADDITIONAL SPEED LIMIT SIGNS REFLECTING THE WORK ZONE SPEED AFTER EACH MAJOR CROSSROAD THAT INTERSECTS THE WORK ZONE, OR AFTER EACH ENTRANCE RAMP THAT COMES ONTO THE FREEWAY WHERE THE REDUCED SPEED IS IN EFFECT. PLACE ADDITIONAL SPEED LIMIT SIGNS AT INTERVALS ALONG THE ROADWAY SUCH THAT NO SPEED LIMIT SIGNS ARE MORE THAN 2 MILES APART. WHEN REDUCED SPEED LIMITS ARE UTILIZED IN THE WORK AREA, PLACE ADDITIONAL SPEED LIMIT SIGNS RETURNING TRAFFIC TO ITS NORMAL SPEED BEYOND THE LIMITS OF THE WORK AREA AS INDICATED. IF PERMANENT SIGNS DISPLAYING THE CORRECT SPEED LIMIT ARE POSTED, OMIT ALL W3-5b AND R2-1 SIGNS AND REDUCE SPACING ACCORDINGLY.
- S6: FABRICATE SPECIAL SIGNS IN ACCORDANCE WITH CURRENT SIGNING DESIGN STANDARDS.
- S7: PLACE ADDITIONAL R8-3 SIGNS AT A MAXIMUM 500' SPACING THROUGHOUT THE WORK ZONE.
- S8: WHEN SPEED LIMIT SIGNS CANNOT BE PLACED SIDE BY SIDE AS SHOWN, PLACE THEM "D" DISTANCE APART.
- S9: STOP SIGNS NOT REQUIRED IF SIGNALS ARE ON 4-WAY FLASHING RED. STOP AHEAD SIGNS ARE NOT REQUIRED IF THERE IS ADEQUATE VISIBILITY OF THE STOP SIGN OR IF SIGNALS ARE BEING USED TO CONTROL TRAFFIC.
- S10: PLACE REDUCED SPEED ZONE AHEAD SIGN (W3-5b) HERE WHEN USING A SPEED REDUCTION IN THIS DIRECTION.
- S11: THE NUMBER OF W1-6 SHIFT SIGNS TO PLACE FOR A SHIFT IS AS FOLLOWS:
SHIFTS 4FT OR LESS, PLACE ONE W1-6(R)(L)
SHIFTS 5FT TO 12FT, PLACE TWO W1-6(R)(L)
SHIFTS MORE THAN 12FT, PLACE THREE OR MORE W1-6(R)(L) SIGNS DEPENDING UPON LENGTH OF SHIFT AND AS PER THE ENGINEER.
- S12: PLACE R2-1 SIGNS AS DETAILED IN NOTE S5 WHEN THERE IS A SPEED REDUCTION IN THIS DIRECTION

TRAFFIC REGULATOR NOTES

- TR1: TRAFFIC REGULATORS MUST FOLLOW ALL THE REQUIREMENTS IN THE STANDARD SPECIFICATIONS, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS, THE CURRENT VERSIONS OF THE TRAFFIC REGULATOR'S INSTRUCTION MANUAL AND THE VIDEO "HOW TO SAFELY REGULATE TRAFFIC IN MICHIGAN". THE MAXIMUM DISTANCE BETWEEN THE TRAFFIC REGULATORS IS DETERMINED BY THE ROADWAY ADT, GEOMETRICS, AND AS DIRECTED BY THE ENGINEER.
- TR2: PROVIDE APPROPRIATE BALLOON LIGHTING TO SUFFICIENTLY ILLUMINATE TRAFFIC REGULATOR'S STATIONS WHEN TRAFFIC REGULATING IS ALLOWED DURING THE HOURS OF DARKNESS.

TEMPORARY TRAFFIC CONTROL DEVICE NOTES

- TC1: THE MAXIMUM DISTANCE IN FEET BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD NOT EXCEED 1.0 TIMES THE WORK ZONE SPEED LIMIT IN MPH FOR ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT LESS THAN 45 MPH AND SHOULD NOT EXCEED 50 FEET ON ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT OF 45 MPH OR GREATER. THE SPACING FOR 42 INCH CHANNELIZING DEVICE TAPERS ARE NOT TO EXCEED 25 FEET AT NIGHT.
- TC2: THE MAXIMUM DISTANCE IN FEET BETWEEN CHANNELIZING DEVICES IN A TANGENT SHOULD NOT EXCEED TWICE THE WORK ZONE SPEED LIMIT IN MPH FOR ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT LESS THAN 45 MPH AND SHOULD NOT EXCEED 100 FEET ON ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT OF 45 MPH OR GREATER. THE SPACING FOR 42 INCH CHANNELIZING DEVICE TANGENTS ARE NOT TO EXCEED 50 FEET AT NIGHT.
- TC3: TYPE III BARRICADES MUST BE LIGHTED FOR OVERNIGHT CLOSURES.
- TC4: WHEN THE HAUL ROAD IS NOT IN USE, PLACE LIGHTED TYPE III BARRICADES WITH "ROAD CLOSED" EXTENDING COMPLETELY ACROSS THE HAUL ROAD.
- TC5: USE VERTICAL PANELS IN LIEU OF THE TYPE B HIGH INTENSITY LIGHT SHOWN IN THE STANDARD PLAN FOR TEMPORARY CONCRETE BARRIER (R-53, AND R-126) WHEN USED WITH A TEMPORARY SIGNAL SYSTEM.
- TC6: PLACE LIGHTED ARROW PANELS AS CLOSE TO THE BEGINNING OF TAPERS AS PRACTICAL, BUT NOT IN A MANNER THAT WILL OBSCURE OR CONFUSE APPROACHING MOTORISTS WHEN PHYSICAL LIMITATIONS RESTRICT PLACEMENT. IN CURBED SECTIONS, IF ARROW BOARD CANNOT BE PLACED BEHIND CURB, PLACE ARROW BOARD IN THE CLOSED LANE AS CLOSE TO THE BEGINNING OF TAPER AS POSSIBLE.
- TC7: ADDITIONAL TYPE III BARRICADES MAY BE REQUIRED TO COMPLETELY CLOSE OFF ROAD FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT.
- TC8: WHERE THE SHIFTED SECTION IS SHORTER THAN 600 FEET, A DOUBLE REVERSE CURVE SIGN (W24-1) CAN BE USED INSTEAD OF THE FIRST REVERSE CURVE SIGN, AND THE SECOND REVERSE CURVE SIGN CAN BE OMITTED.
- TC9: RUMBLE STRIPS ARE TO BE PLACED AS SPECIFIED IN THE CONTRACT. IF NOT SPECIFIED IN THE CONTRACT, PLACE RUMBLE STRIPS AS SHOWN, AND IN ACCORDANCE WITH THE RUMBLE STRIP MANUFACTURER'S RECOMMENDATIONS. AN ARRAY OF RUMBLE STRIPS CONTAINS THREE RUMBLE STRIPS. PLACE THE RUMBLE STRIPS IN THE ARRAY AT A CONSISTENT DISTANCE, BETWEEN 10' AND 20' APART.
- TC10: SEE THE WORK ZONE SAFETY AND MOBILITY MANUAL, PORTABLE CHANGEABLE MESSAGE SIGN GUIDELINES FOR RECOMMENDED AND CORRECT PCMS MESSAGING. STAGGER PCMS THAT ARE ON OPPOSING SIDES OF THE ROAD 1000 FEET FROM EACH OTHER.

RAMP NOTES

- RMP1: WHEN CONDITIONS ALLOW, E5-1 SIGNS MUST BE REMOVED OR COVERED AND CHANNELIZING DEVICES MUST BE POSITIONED TO ENABLE RAMP TRAFFIC TO DIVERGE IN A FREE MANNER
- RMP2: STOP AND YIELD CONDITIONS SHOULD BE AVOIDED WHENEVER PRACTICAL. WHEN CONDITIONS WARRANT, R1-1 SIGNS MAY BE USED IN PLACE OF R1-2 SIGNS. WHEN R-1 SIGNS ARE USED, W3-1 SIGNS MUST BE USED IN PLACE OF W3-2 SIGNS. CONSIDERATION SHOULD BE GIVEN TO CLOSING THE RAMP TO COMPLETE WORK TO ALLOW AN ADEQUATE MERGE DISTANCE. WORK SHOULD BE EXPEDITED TO AVOID THE STOP AND/OR YIELD CONDITIONS.



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:

102-GEN-NOTES

TRAFFIC TYPICALS
NOTE SHEETDATE:
MAY 2021

SHEET:

1 OF 2

FILE: 102-GEN-NOTES.dgn

SIGNAL NOTES

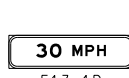
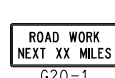
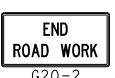
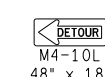
- SIG1: EXISTING SIGNAL MUST BE EITHER 4-WAY FLASHING RED, BAGGED, OR TURNED OFF.
- SIG2: SIGNAL IS IN OPERATION.
- SIG3: DELINEATE THE WORK ZONE AREA WITH 28 INCH CONES FOR DAYTIME WORK, OR 42 INCH CHANNELIZING DEVICES FOR NIGHTTIME WORK.
- SIG4: THE CONTRACTOR MUST HAVE A DESIGNATED SPOTTER IF THE AERIAL BUCKET TRUCK IS LOCATED OVER ACTIVE TRAVEL LANES.
- SIG5: THE LOWEST POINT OF THE BUCKET MAY NOT TRAVEL BELOW 14 FOOT VERTICAL CLEARANCE. THE CONTRACTOR MUST UTILIZE AN ALTERNATE SET UP, OR PLACE THE INTERSECTION IN A 4 WAY STOP IF THE 14 FOOT VERTICAL CLEARANCE IS COMPROMIZED. USE TRAFFIC REGULATORS TO CONTROL TRAFFIC THROUGH THE INTERSECTION WHEN TRAFFIC IS PLACED IN A 4 WAY STOP.
- SIG6: DELINEATE THE TRUCK WITH CHANNELIZING DEVICES. THE POSITION OF THE TRUCK MAY BE MOVED TO FACILITATE WORK.

MAINTENANCE AND SURVEYING NOTES

- MS1: WHENEVER STOPPING SIGHT DISTANCE EXISTS TO THE REAR, THE SHADOW VEHICLES SHOULD MAINTAIN THE RECOMMENDED DISTANCE FROM THE WORK AREA AND PROCEED AT THE SAME SPEED. THE SHADOW VEHICLE SHOULD SLOW DOWN AND TRAVEL AT A FARTHER DISTANCE TO PROVIDE ADEQUATE SIGHT DISTANCE IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES.
- MS2: WORKERS OUTSIDE OF VEHICLES SHOULD WORK WITHIN 150' OF WORK VEHICLES WITH AN ACTIVATED BEACON, BETWEEN THE "BEGIN WORK CONVOY" SIGN AND THE "END WORK CONVOY" SIGN, OR BETWEEN THE "WORK ZONE BEGINS" AND "END ROAD WORK" SIGN.
- MS3: WORK OR SHADOW VEHICLES WITH OR WITHOUT A TMA MAY BE USED TO SEPARATE THE WORK SPACE FROM TRAFFIC. IF USED, THE VEHICLES SHOULD BE PARKED ACCORDING TO THE ROLL AHEAD DISTANCE TABLES.
- MS4: WORK AND SHADOW VEHICLES SHALL BE APPROPRIATELY EQUIPPED WITH AN ACTIVATED AMBER BEACON.
- MS5: WHEN WORKERS ARE OUTSIDE THEIR VEHICLES IN AN EXISTING LANE WHILE A MOBILE OPERATION IS OCCURRING DURING THE NIGHTTIME HOURS, CHANNELIZING DEVICES TO DELINEATE OPEN OR CLOSED LANES AT 50 FT SPACING MUST BE USED. AN EXAMPLE OF AN OPERATION (BUT NOT LIMITED TO) IS THE LAYOUT OF CONCRETE PATCHES.
- MS6: W21-6 AND W20-1 SIGNS MAY BE SUBSTITUTED AS DETERMINED BY THE TYPE OF WORK TAKING PLACE AS PER THE ENGINEER.

SIGN NUMBER KEY

Item 2.

E5-1f
48" x 48"
60" x 48"E5-2
48" x 36"E5-2a
48" x 36"E5-3
48" x 36"E13-1P
VAR x 24"E13-1aP
36" x 24"G20-1
60" x 24"G20-2
48" x 24"G20-4
36" x 18"I-6a
18" x 18"
24" x 24"
30" x 30"M1-1
18" x 18"
24" x 24"
36" x 36"
48" x 48"M1-1
22.5" x 18"
30" x 24"
45" x 36"
60" x 48"M1-2
18" x 18"
24" x 24"
36" x 36"
48" x 48"M1-2
22.5" x 18"
30" x 24"
45" x 36"
60" x 48"M1-3
18" x 18"
24" x 24"
36" x 36"
48" x 48"M1-3
22.5" x 18"
30" x 24"
45" x 36"
60" x 48"M1-4
18" x 18"
24" x 24"
36" x 36"
48" x 48"M1-4
22.5" x 18"
30" x 24"
45" x 36"
60" x 48"M1-5
18" x 18"
24" x 24"
30" x 30"
36" x 36"M1-5a
18" x 18"
24" x 24"M1-6
18" x 18"
24" x 24"
36" x 36"M1-6
22.5" x 18"
30" x 24"
45" x 36"M3-1
12" x 6"
18" x 9"
24" x 12"
30" x 15"
36" x 18"M3-2
12" x 6"
18" x 9"
24" x 12"
30" x 15"
36" x 18"M3-3
12" x 6"
18" x 9"
24" x 12"
30" x 15"
36" x 18"M3-4
12" x 6"
18" x 9"
24" x 12"
30" x 15"
36" x 18"M4-1
12" x 6"
18" x 9"
24" x 12"
30" x 15"
36" x 18"M4-1a
12" x 6"
18" x 9"
24" x 12"
30" x 15"
36" x 18"M4-2
12" x 6"
18" x 9"
24" x 12"
30" x 15"
36" x 18"M4-3
12" x 6"
18" x 9"
24" x 12"
30" x 15"
36" x 18"M4-4
18" x 9"
24" x 12"
30" x 15"
36" x 18"M4-5
12" x 6"
18" x 9"
24" x 12"
30" x 15"
36" x 18"M4-6
12" x 6"
18" x 9"
24" x 12"
30" x 15"
36" x 18"M4-7
12" x 6"
18" x 9"
24" x 12"
30" x 15"
36" x 18"M4-7a
12" x 6"
18" x 9"
24" x 12"
30" x 15"
36" x 18"M4-8
12" x 6"
18" x 9"
24" x 12"
30" x 15"M4-8a
24" x 18"M4-8b
24" x 12"M4-9L
30" x 24"
48" x 36"
60" x 48"M4-9R
30" x 24"
48" x 36"
60" x 48"M4-9j
30" x 24"
48" x 36"
60" x 48"M4-9kL
30" x 30"
48" x 42"
60" x 54"M4-9kR
30" x 30"
48" x 42"
60" x 54"M4-9mL
30" x 30"
48" x 42"
60" x 54"M4-9mR
30" x 30"
48" x 42"
60" x 54"M4-9dL
12" x 18"M4-9dR
12" x 18"M4-9e
12" x 18"M4-9f
12" x 18"M4-9gL
12" x 18"M4-9gR
12" x 18"M4-9h
12" x 24"M4-9i
12" x 18"M4-10L
48" x 18"M4-10R
48" x 18"M4-11a
12" x 6"
18" x 9"
24" x 12"
30" x 15"
36" x 18"M5-1L
12" x 9"
21" x 15"
30" x 21"M5-1R
12" x 9"
21" x 15"
30" x 21"M5-2L
12" x 9"
21" x 15"
30" x 21"M5-2R
12" x 9"
21" x 15"
30" x 21"M5-3
12" x 9"
21" x 15"
30" x 21"M6-1L
12" x 9"
18" x 12"
21" x 15"
30" x 21"M6-1R
12" x 9"
18" x 12"
21" x 15"
30" x 21"M6-2L
12" x 9"
18" x 12"
21" x 15"
30" x 21"M6-2R
12" x 9"
18" x 12"
21" x 15"
30" x 21"M6-3
12" x 9"
18" x 12"
21" x 15"
30" x 21"M6-4
12" x 9"
18" x 12"
21" x 15"
30" x 21"M6-5
12" x 9"
18" x 12"
21" x 15"
30" x 21"M6-6L
12" x 9"
18" x 12"
21" x 15"
30" x 21"M6-6R
12" x 9"
18" x 12"
21" x 15"
30" x 21"M6-7L
12" x 9"
18" x 12"
21" x 15"
30" x 21"M6-7R
12" x 9"
18" x 12"
21" x 15"
30" x 21"

SEE MDOT SHS 13-WORK ZONE FOR SIGN DETAILS



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:

103-GEN-SIGN

TRAFFIC TYPICAL
SIGN SHEETDATE:
JUNE 2021

SHEET:

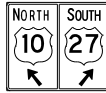
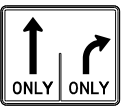
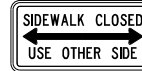
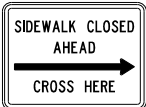
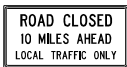
1 OF 5

103

FILE: 103-GEN-SIGN.dgn

SIGN NUMBER KEY

Item 2.

M8-1gL
36" x 66"M8-1gR
36" x 66"M8-2d
60" x 48"OM-3L
12" x 36"
24" x 48"
36" x 72"OM-3R
12" x 36"
24" x 48"
36" x 72"R1-1
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"FRONT
R1-1a
18" x 18"
24" x 24"BACK
R1-1a
18" x 18"
24" x 24"R1-2
18"
24"
30"
36"
48"
60"R1-2aP
24" x 18"
36" x 30"
48" x 36"R2-1
18" x 24"
24" x 30"
30" x 36"
36" x 48"
48" x 60"R2-1a
48" x 60"R3-1
24" x 24"
30" x 30"
36" x 36"
48" x 48"R3-2
24" x 24"
30" x 30"
36" x 36"
48" x 48"R3-3
24" x 24"
36" x 36"
48" x 48"R3-4
24" x 24"
30" x 30"
36" x 36"
48" x 48"R3-5L
30" x 36"
36" x 48"R3-5R
30" x 36"
36" x 48"R3-5a
30" x 36"
36" x 48"R3-6L
30" x 36"
42" x 48"R3-6R
30" x 36"
42" x 48"R3-7L
30" x 30"
36" x 36"R3-7R
30" x 30"
36" x 36"R3-8c
36" x 30"R3-8d
36" x 30"R4-1
12" x 18"
18" x 24"
24" x 30"
36" x 48"
48" x 60"R4-2
12" x 18"
18" x 24"
24" x 30"
36" x 48"
48" x 60"R4-7
12" x 18"
18" x 24"
24" x 30"
36" x 48"
48" x 60"R4-8
18" x 24"
24" x 30"
36" x 48"
48" x 60"R4-9
18" x 24"
24" x 30"
36" x 48"
48" x 60"R5-1
30" x 30"
36" x 36"
48" x 48"R5-1a
30" x 18"
36" x 24"
42" x 30"R5-18b
48" x 60"R5-18c
48" x 48"R5-18d
78" x 12"R5-18e
72" x 12"R5-18f
48" x 60"R5-18g
30" x 42"R5-18h
48" x 60"R6-1L
36" x 12"
54" x 18"R6-1R
36" x 12"
54" x 18"R6-2L
12" x 16"
18" x 24"
24" x 30"
36" x 48"
48" x 60"R6-2R
12" x 16"
18" x 24"
24" x 30"
36" x 48"
48" x 60"R8-3
12" x 12"
18" x 18"
24" x 24"
36" x 36"
48" x 48"R9-8
36" x 18"R9-9
24" x 12"
30" x 18"R9-10
24" x 12"
48" x 24"R9-11L
24" x 12"
48" x 36"R9-11R
24" x 12"
48" x 36"R9-11aL
24" x 12"
48" x 24"R9-11aR
24" x 12"
48" x 24"R10-6b
36" x 54"R11-2
48" x 30"R11-2a
48" x 30"R11-2b
48" x 30"R11-2c
60" x 30"R11-3a
60" x 30"R11-3b
60" x 30"R11-4
60" x 30"

SEE MDOT SHS 13-WORK ZONE FOR SIGN DETAILS



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:

103-GEN-SIGN

TRAFFIC TYPICAL
SIGN SHEETDATE:
JUNE 2021

SHEET:

2 OF 5

SIGN NUMBER KEY

Item 2.



W1-1L
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W1-1R
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W1-2L
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W1-2R
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W1-2bL
36" x 36"
48" x 48"



W1-2bR
36" x 36"
48" x 48"



W1-3L
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W1-3R
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W1-4L
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W1-4R
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W1-4bL
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W1-4bR
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W1-4cL
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W1-4cR
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W24-1L
30" x 30"
36" x 36"
48" x 48"



W24-1cP
24" x 18"
30" x 24"



W24-1R
30" x 30"
36" x 36"
48" x 48"



W24-1aL
30" x 30"
36" x 36"
48" x 48"



W24-1aR
30" x 30"
36" x 36"
48" x 48"



W24-1bL
30" x 30"
36" x 36"
48" x 48"



W24-1bR
30" x 30"
36" x 36"
48" x 48"



W1-6L
24" x 12"
36" x 18"
48" x 24"
60" x 30"
96" x 48"



W1-6R
24" x 12"
36" x 18"
48" x 24"
60" x 30"
96" x 48"



W1-8L
12" x 18"
18" x 24"
24" x 30"
30" x 36"
36" x 48"



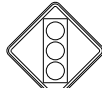
W1-8R
12" x 18"
18" x 24"
24" x 30"
30" x 36"
36" x 48"



W3-1
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W3-2
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W3-3
18" x 18"
30" x 30"
36" x 36"
48" x 48"



W3-4
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W3-4b
30" x 30"
36" x 36"
48" x 48"



W3-5
36" x 36"
48" x 48"



W3-5a
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W3-5b
30" x 30"
36" x 36"
48" x 48"



W4-1L
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W4-1R
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W4-2L
30" x 30"
36" x 36"
48" x 48"



W4-2R
30" x 30"
36" x 36"
48" x 48"



W4-3L
30" x 30"
36" x 36"
48" x 48"



W4-3R
30" x 30"
36" x 36"
48" x 48"



W4-5L
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W4-5R
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W4-5P
18" x 24"
24" x 30"



W4-6L
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W4-6R
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W4-7L
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W4-7R
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W5-1
30" x 30"
36" x 36"
48" x 48"



W5-2
18" x 18"
30" x 30"
36" x 36"
48" x 48"



W5-3
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W5-4
30" x 30"
36" x 36"
48" x 48"



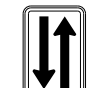
W6-1
30" x 30"
36" x 36"
48" x 48"



W6-2
30" x 30"
36" x 36"
48" x 48"



W6-3
30" x 30"
36" x 36"
48" x 48"



W6-4
12" x 18"



W7-1
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W7-1a
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-1
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"

SEE MDOT SHS 13-WORK ZONE FOR SIGN DETAILS



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:

103-GEN-SIGN

TRAFFIC TYPICAL
SIGN SHEETDATE:
JUNE 2021

SHEET:

3 OF 5

SIGN NUMBER KEY

Item 2.



W8-2
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-3
18" x 18"
30" x 30"
36" x 36"
48" x 48"



W8-4
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-5
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-5P
24" x 18"
30" x 24"
36" x 30"



W8-7
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-8
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-9
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-11
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-12
30" x 30"
36" x 36"
48" x 48"



W8-14
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-15
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-15P
24" x 18"
30" x 24"
36" x 30"



W8-17L
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-17R
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-17P
24" x 18"
30" x 24"
36" x 30"



W8-18
24" x 24"
36" x 36"
48" x 48"



W8-23
24" x 24"
36" x 36"
48" x 48"



W8-24
30" x 30"
36" x 36"
48" x 48"



W8-25
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W8-26
36" x 36"
48" x 48"



W9-1L
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W9-1R
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W9-2L
30" x 30"
36" x 36"
48" x 48"



W9-2R
30" x 30"
36" x 36"
48" x 48"



W9-3C
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W9-3L
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W9-3R
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W9-3a
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W9-3b
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W11-10
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W11-10a
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W11-24
36" x 36"
48" x 48"



W12-1
24" x 24"
30" x 30"
36" x 36"
48" x 48"



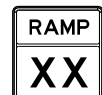
W12-2
18" x 18"
24" x 24"
30" x 30"
36" x 36"
48" x 48"



W13-1P
18" x 18"
24" x 24"
30" x 30"



W13-2
24" x 30"
36" x 48"
48" x 60"



W13-3
24" x 30"
36" x 48"
48" x 60"



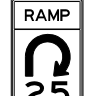
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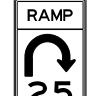
W13-6
24" x 42"
36" x 60"
48" x 84"



W13-6a
24" x 42"
36" x 60"
48" x 84"



W13-7
24" x 42"
36" x 60"
48" x 84"



W13-7a
24" x 42"
36" x 60"
48" x 84"



W14-3
36" x 24"
40" x 30"
48" x 36"
64" x 48"



W16-2P
18" x 12"
24" x 18"
30" x 24"



W16-4aP
18" x 12"
24" x 18"
30" x 24"
36" x 30"



W16-12P
24" x 18"



W16-13P
24" x 18"
30" x 24"



W20-1
24" x 24"
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W20-1a
24" x 24"
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W20-1b
24" x 24"
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W20-1c
24" x 24"
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W20-1d
24" x 24"
30" x 30"
36" x 36"
48" x 48"
60" x 60"



W20-2
30" x 30"
36" x 36"
48" x 48"



W20-3
30" x 30"
36" x 36"
48" x 48"



W20-3a
30" x 30"
36" x 36"
48" x 48"

SEE MDOT SHS 13-WORK ZONE FOR SIGN DETAILS



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:

103-GEN-SIGN

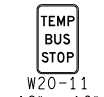
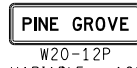
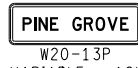
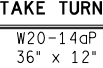
TRAFFIC TYPICAL
SIGN SHEETDATE:
JUNE 2021

SHEET:

4 OF 5

SIGN NUMBER KEY

Item 2.

W20-3b
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36" x 36"
48" x 48"W20-4
30" x 30"
36" x 36"
48" x 48"W20-4c
36" x 36"
48" x 48"W20-5C
30" x 30"
36" x 36"
48" x 48"W20-5L
30" x 30"
36" x 36"
48" x 48"W20-5L1
30" x 30"
36" x 36"
48" x 48"W20-5L2
30" x 30"
36" x 36"
48" x 48"W20-5R
30" x 30"
36" x 36"
48" x 48"W20-5R1
30" x 30"
36" x 36"
48" x 48"W20-5R2
30" x 30"
36" x 36"
48" x 48"W20-5aL2
30" x 30"
36" x 36"
48" x 48"W20-5aL3
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36" x 36"
48" x 48"W20-5aR2
30" x 30"
36" x 36"
48" x 48"W20-5aR3
30" x 30"
36" x 36"
48" x 48"W20-7a
30" x 30"
36" x 36"
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24" x 18"W20-9
54" x 48"W20-10
48" x 24"
66" x 30"W20-11
12" x 18"W20-12P
VARIABLE x 12"W20-13P
VARIABLE x 12"W20-14L
36" x 36"
48" x 48"W20-14R
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48" x 48"W20-14dP
36" x 12"
48" x 12"W20-14bP
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48" x 12"W20-15
36" x 36"
48" x 48"W20-15a
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48" x 54"W20-15d
48" x 54"W20-16
36" x 36"
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24" x 24"
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48" x 48"W21-2
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48" x 48"W21-2
24" x 24"
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24" x 24"
30" x 30"
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36" x 18"W21-5
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30" x 30"
36" x 36"
48" x 48"W21-5aL
30" x 30"
36" x 36"
48" x 48"
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36" x 36"
48" x 48"
60" x 60"W21-5bL
30" x 30"
36" x 36"
48" x 48"
60" x 60"W21-5bR
30" x 30"
36" x 36"
48" x 48"
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24" x 24"
30" x 30"
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36" x 36"
48" x 48"W21-8
30" x 30"
36" x 36"
48" x 48"W22-1
30" x 30"
36" x 36"
48" x 48"W22-2
42" x 36"W22-3
36" x 30"
42" x 36"W23-1
48" x 24"W23-2
36" x 36"
48" x 48"

SEE MDOT SHS 13-WORK ZONE FOR SIGN DETAILS



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO:

103-GEN-SIGN

TRAFFIC TYPICAL
SIGN SHEETDATE:
JUNE 2021

SHEET:

5 OF 5

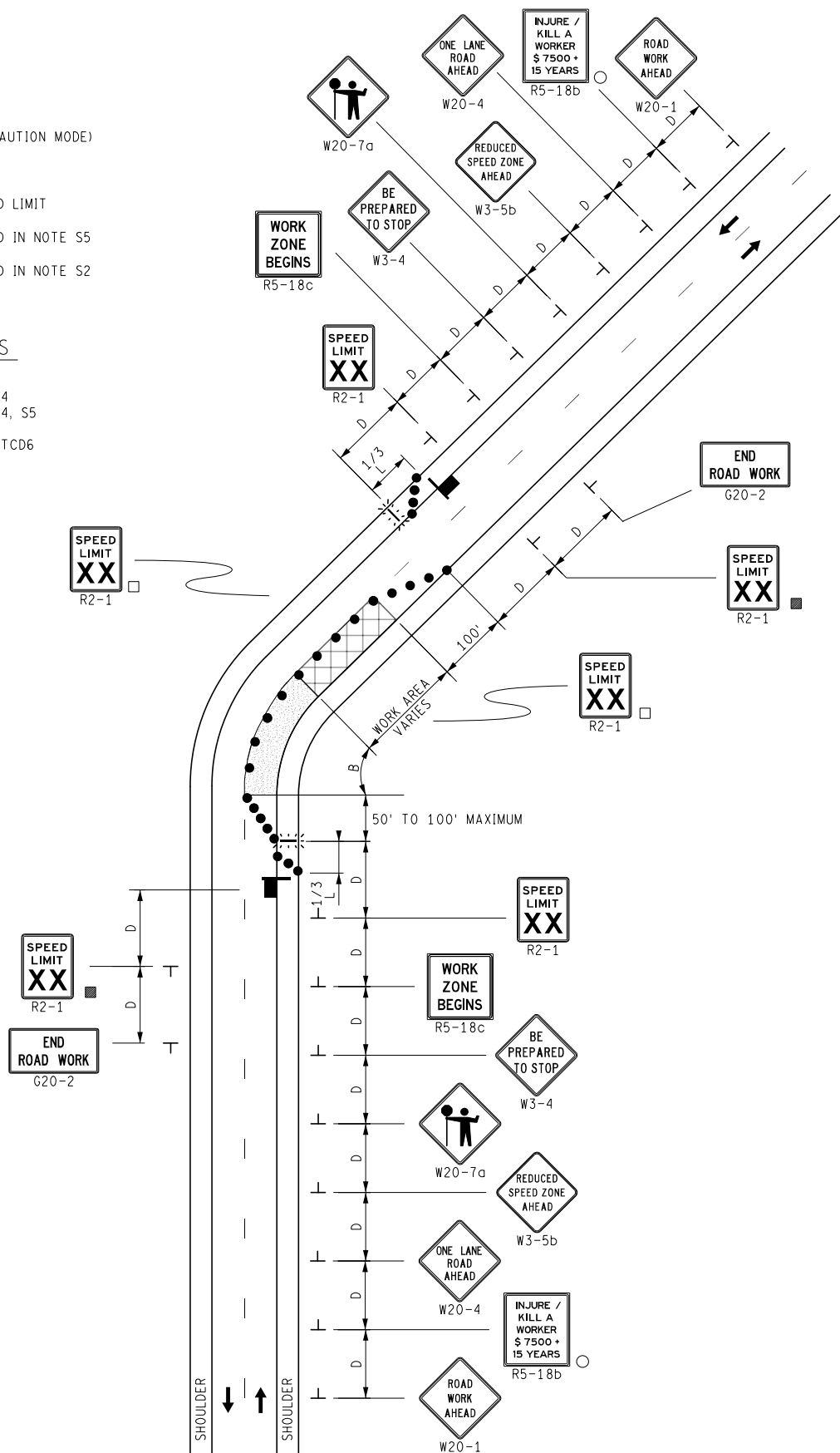
KEY

- TRAFFIC REGULATOR
- CHANNELIZING DEVICES
- LIGHTED ARROW PANEL (CAUTION MODE)
- TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT
- PLACE SIGN AS INDICATED IN NOTE S5
- PLACE SIGN AS INDICATED IN NOTE S2

STANDARD NOTES

(SEE GEN-NOTES)

GENERAL: G1, G2, G3, G4
SIGNING: S1, S2, S3, S4, S5
TRAF REG: TR1, TR2
DEVICES: TCD1, TCD2, TCD6



KEY

- ... CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL (CAUTION MODE)
- ← TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT
- PLACE SIGN AS INDICATED IN NOTE S2

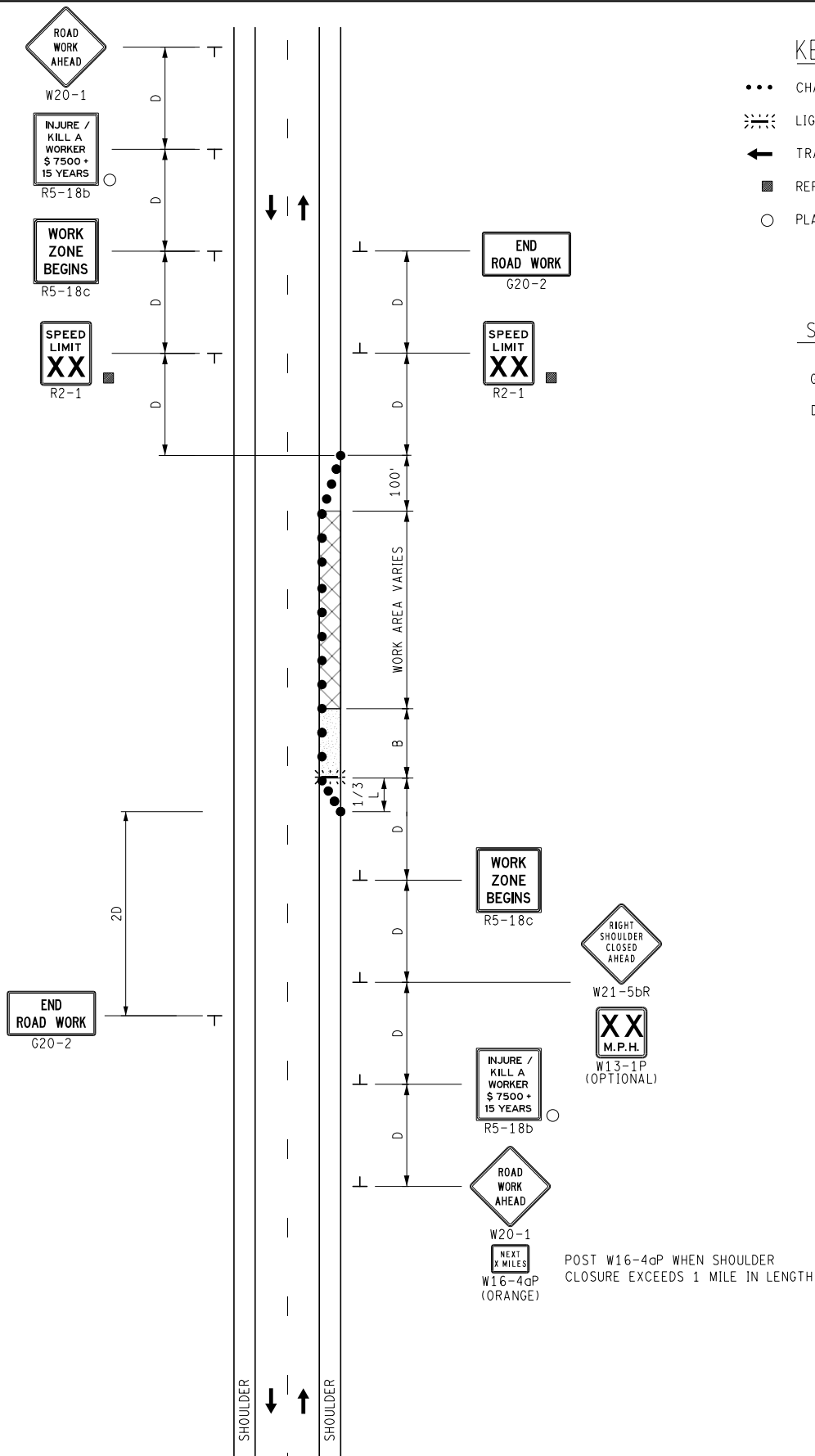
STANDARD NOTES

(SEE 102-GEN-NOTES)

GENERAL: G1, G2, G3, G4

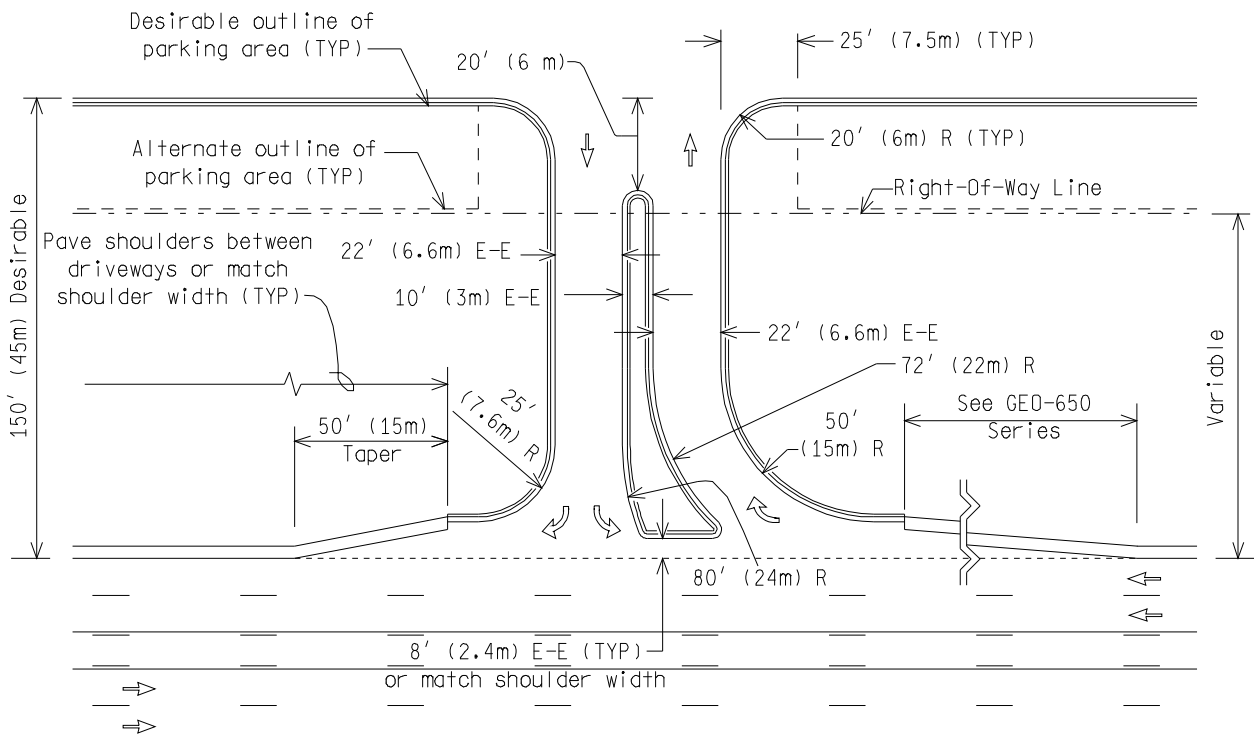
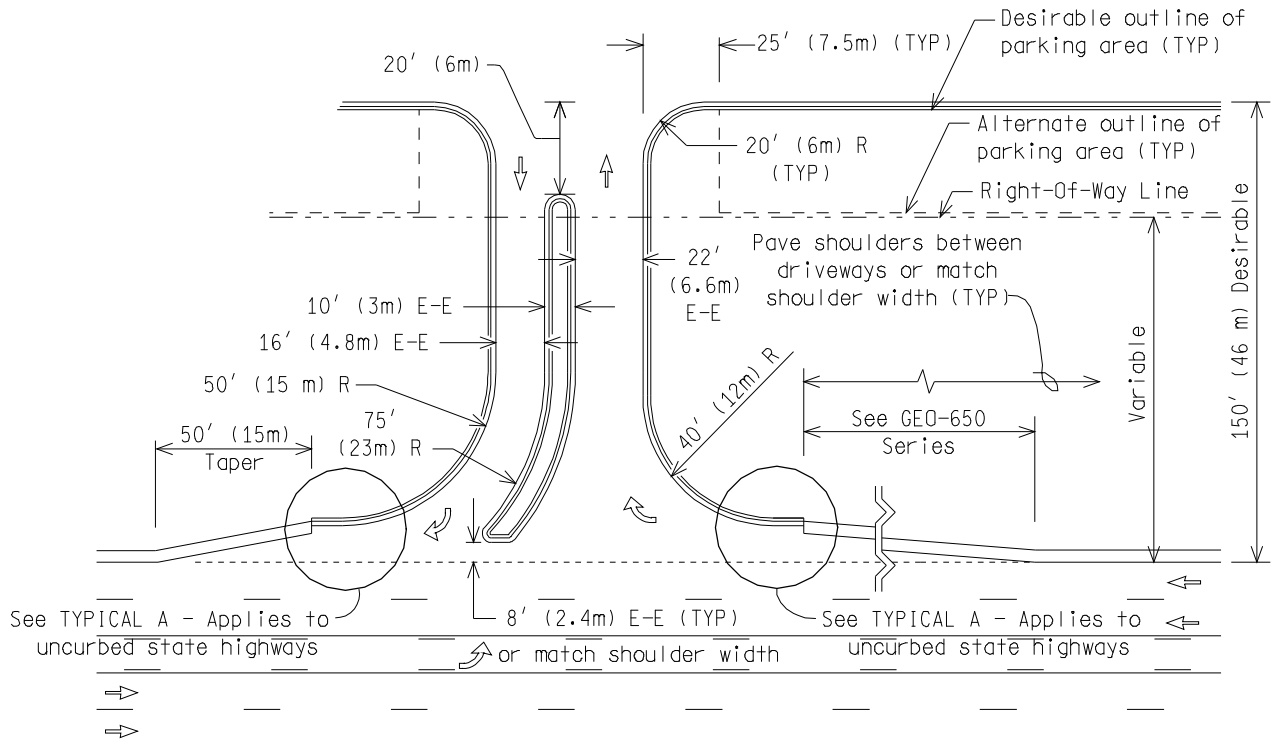
SIGNING: S1, S2, S3, S5

DEVICES: TCD1, TCD2, TCD6, TCD7



DIRECTIONAL DRIVEWAYS AT HIGHWAYS WITHOUT CURB

Item 2.



NOT TO SCALE



BY:

ENGINEER OF DELIVERY

BY:

ENGINEER OF DEVELOPMENT

GEOMETRIC DESIGN GUIDE FOR
COMMERCIAL DRIVEWAYS

DRAWN BY:
CHECKED BY: IG/JAT

FILE:PW RD TS Geo/mdot traf GEO-680-B.dgn

REV. 01/20/2010

06/03/2010
PLAN DATE:

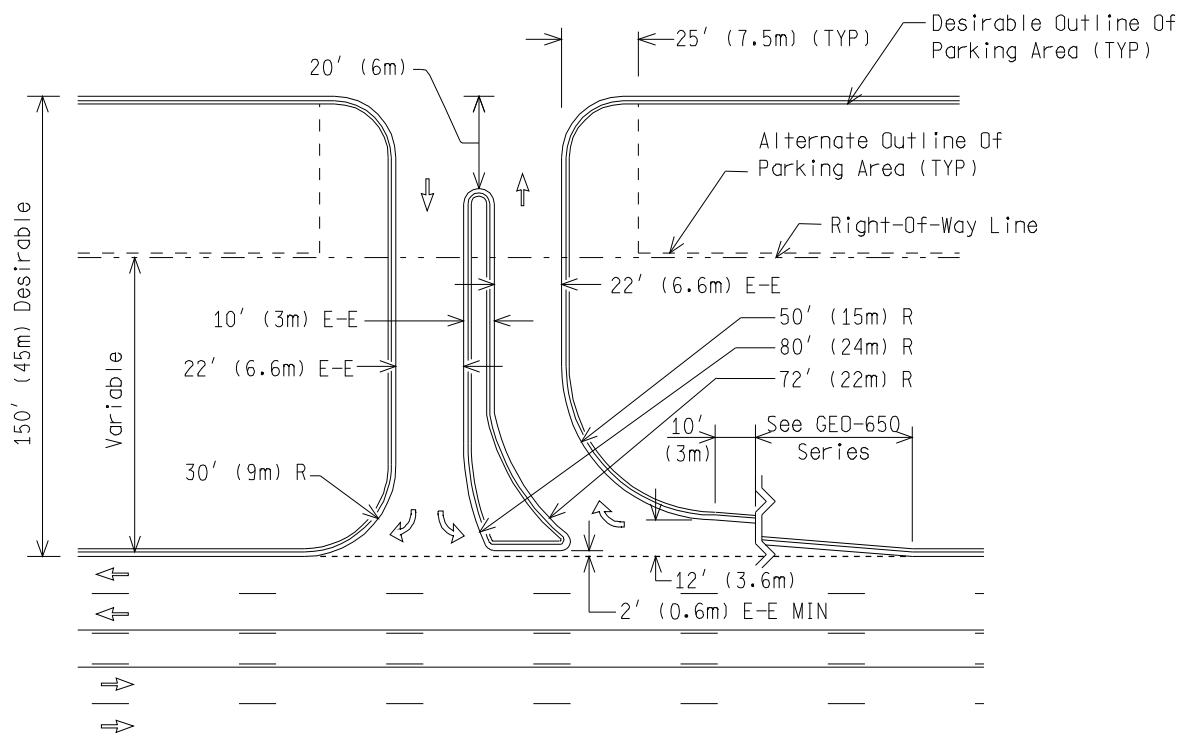
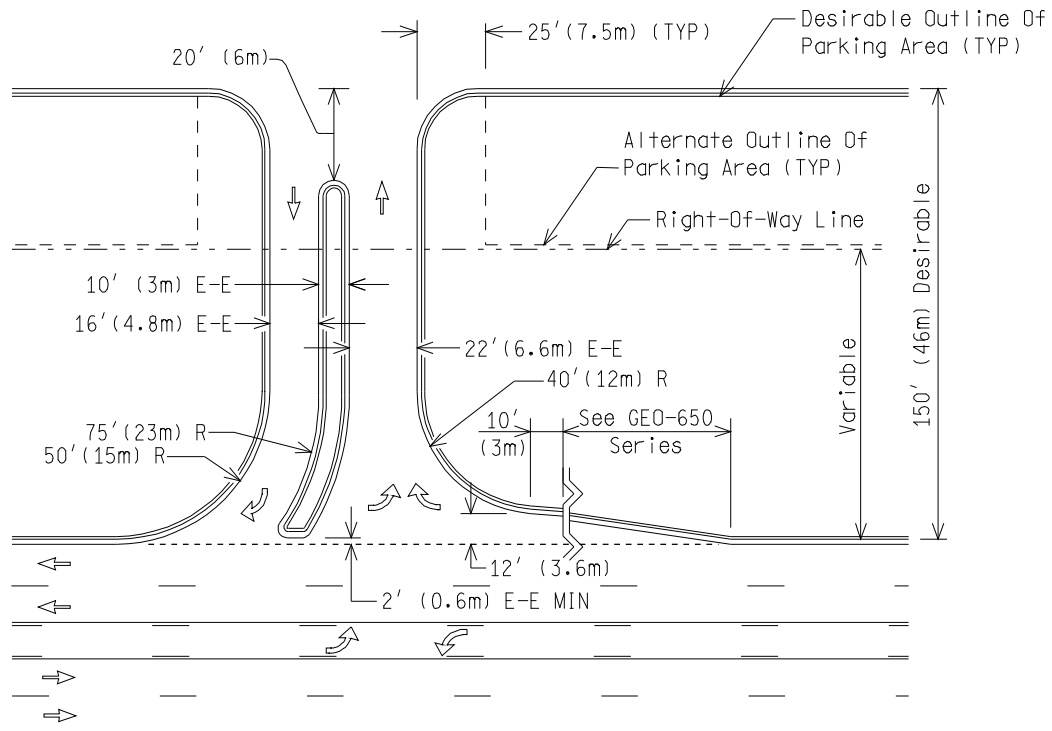
GEO-680-B

111

SHEET
1 OF 6

DIRECTIONAL DRIVEWAYS AT HIGHWAYS WITH CURB

Item 2.



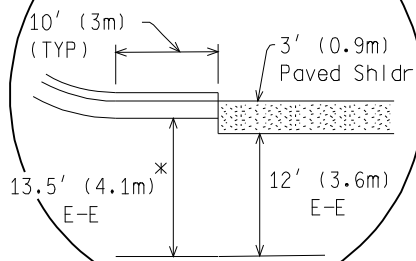
NOT TO SCALE

CURB RETURN OFFSET DETAILS

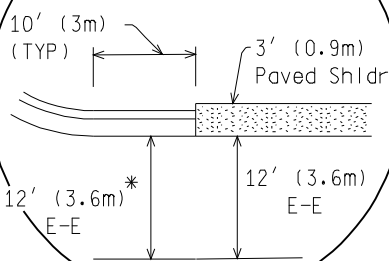
APPLIES TO UNCURBED STATE HIGHWAYS

Item 2.

TYPICAL A

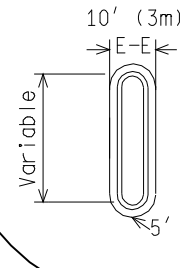


ALTERNATE
TYPICAL A

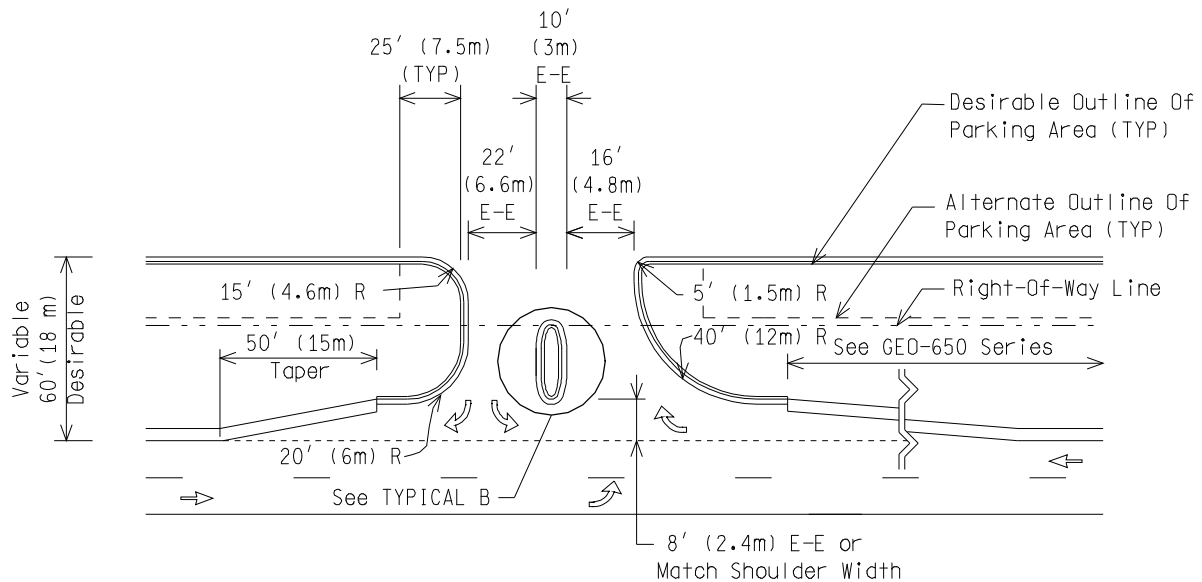


*See Note #9 on Sht #6

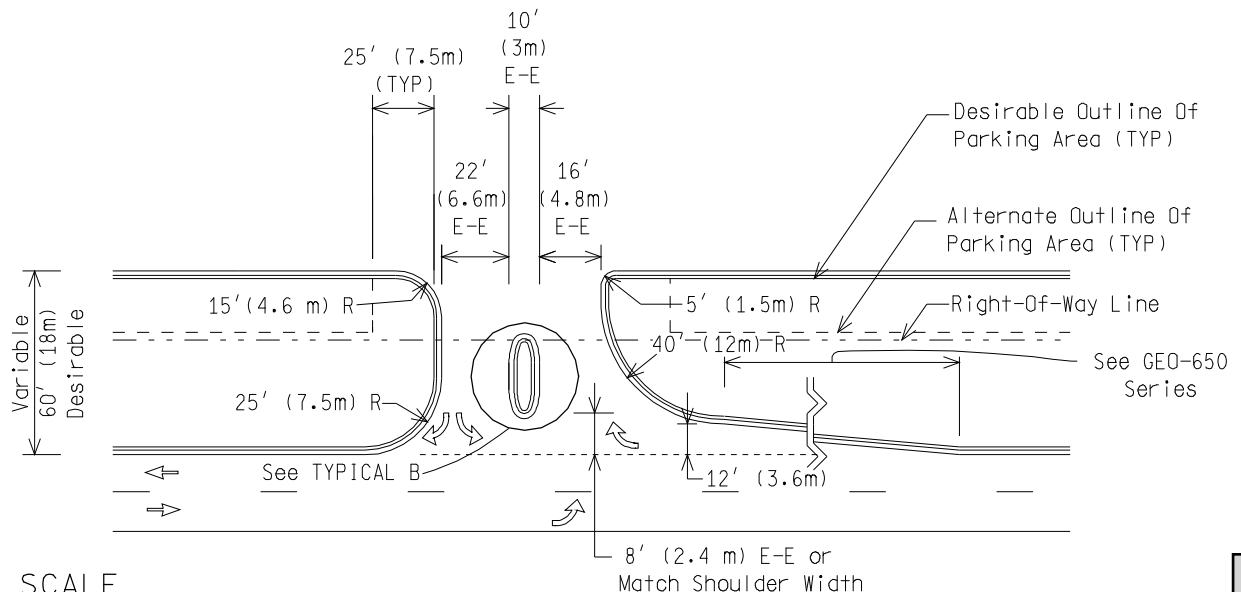
TYPICAL B



DIVIDED DRIVEWAYS ON HIGHWAY WITHOUT CURB

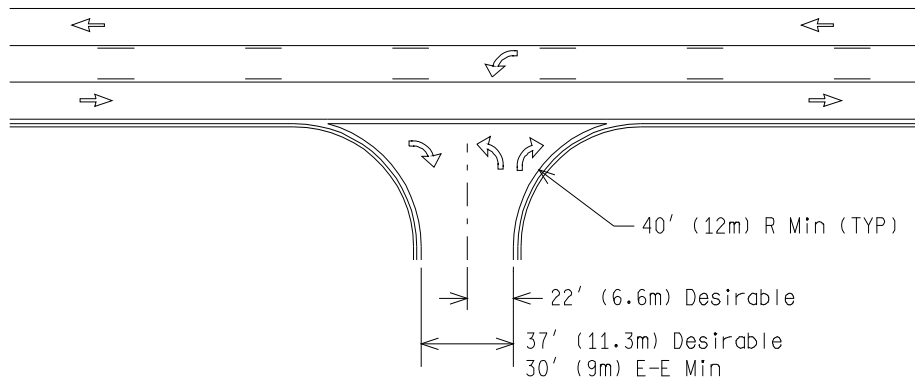


DIVIDED DRIVEWAYS ON HIGHWAY WITH CURB

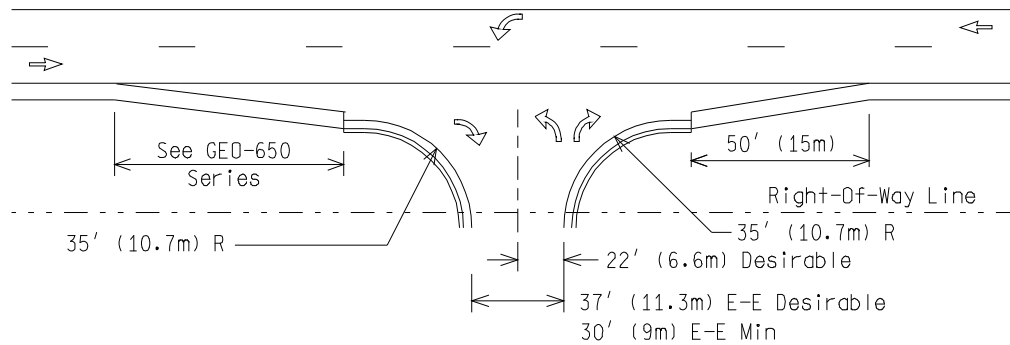


NOT TO SCALE

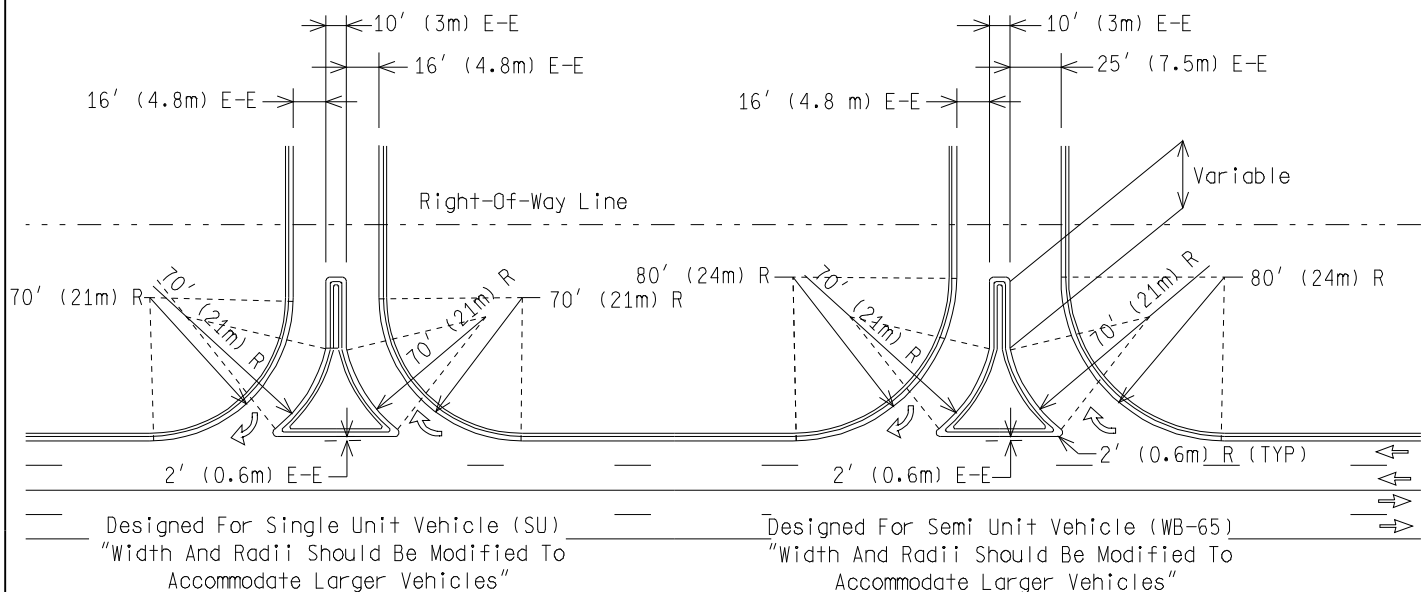
113



TWO-WAY DRIVEWAYS ON HIGHWAYS WITH CURB

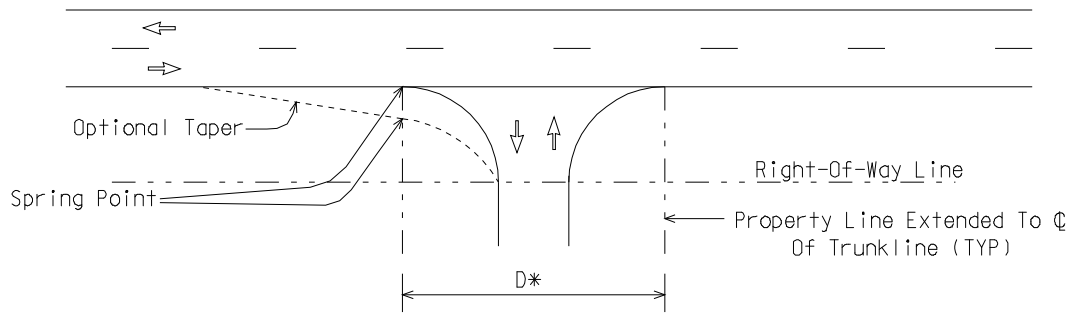


TWO-WAY DRIVEWAYS ON HIGHWAYS WITHOUT CURB



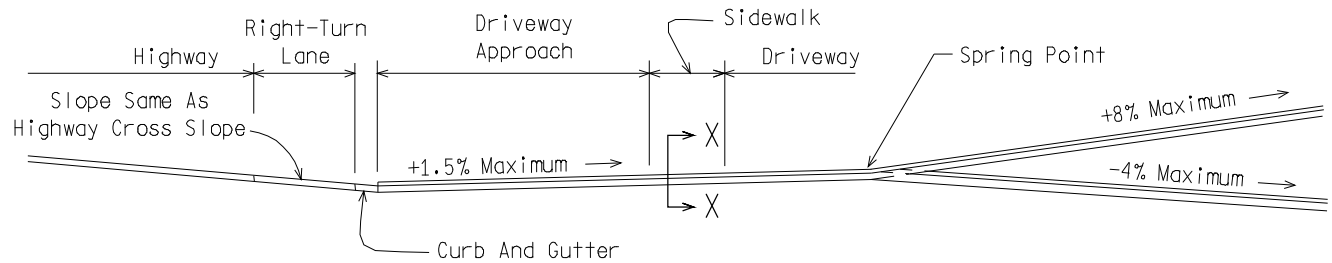
RIGHT-IN RIGHT-OUT DRIVEWAYS WITH CURB

NOT TO SCALE



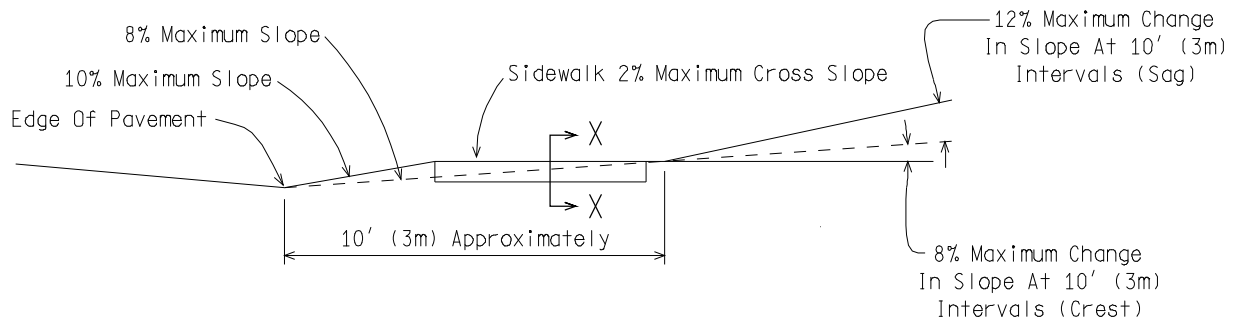
* Driveways For Each Property Including Radii, Must Be Located Within These Limits Unless Written Permission Of The Adjacent Property Owner Is Obtained

HIGHWAY FRONTAGE



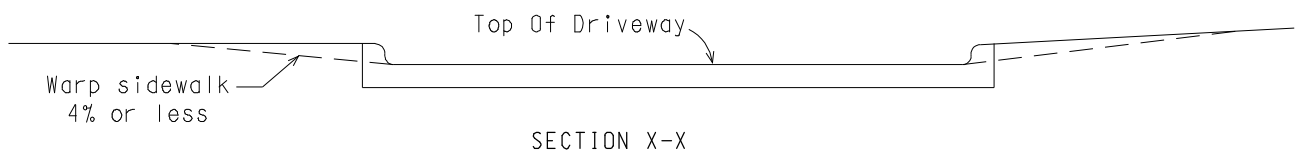
COMMERCIAL DRIVEWAY PROFILE FOR MAJOR TRAFFIC GENERATORS

Over (100) Peak Hour Directional Trips



When transverse slope is less than 1.5%, longitudinal drainage must be provided.
See also R-29-Series.

LOW VOLUME COMMERCIAL OR RESIDENTIAL DRIVEWAY SLOPES



SECTION X-X

In urban areas the sidewalk shall be lowered at the edge of the driveway or lowered as shown in Section X-X whenever the maximum grades shown will be exceeded.

See also R-28-Series when sidewalk ramps are required.

SIDEWALK LOWERING DETAIL

NOT TO SCALE

NOTES:

Item 2.

1. The Region or TSC Traffic Engineer shall determine the necessary signing and pavement marking requirements to ensure that the driveway will operate safely and efficiently. The property owner shall erect and maintain all required signing and pavement markings as a condition of the driveway permit.
2. Consult the Region or TSC Traffic Engineer whenever:
 - A. There is a question as to which type of driveway a commercial establishment should use.
 - B. Operational conflicts with existing or anticipated future driveways across the highway may occur.
3. Suitable median crossovers may be required on divided highways as per Geometric Design Guide GEO-670-Series.
4. For dimensions not shown on this guide, refer to the document "Administrative Rules Regulating Driveways, Banners, and Parades On And Over Highways".
5. One-way driveways should be complemented with a well designed angle parking area to encourage one-way operation.
6. Driveway widths and radii shall be designed for the proper design vehicle. Where proper radii can not be provided, increase the drive throat width.
7. In urban areas a partial arc radius should be used when the distance from the edge of pavement to the sidewalks is between 5' (1.5m) and 20' (6m). When this distance is less than 5' (1.5m), consult the Region or TSC Traffic and Safety Engineer to determine the width and radii of the driveway.
8. See MDOT Construction Permit Manual.
9. Alternate Typical A may be used when construction and maintenance issues make the 13.5' (4.1m) curb setback undesirable.
10. For divided driveways, the desirable area of separating islands is 75ft² (7m²), preferably 100ft² (9m²). The island width shall not be less than 4' (1.2m).
11. To eliminate left turns locking up from the cross street or driveways at unsignalized divided drives, the left turning vehicles should be headed up across from each other.
12. Current AASHTO "A Policy on Geometric Design of Highways and Streets" and MDOT Guidelines should be used for sight distance requirements.
13. These design concepts are for new construction. Where modifications may be needed for retrofitting to existing road features, consult the Geometric Review and Congestion Analysis Unit, Division of Operations.

NOT TO SCALE

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ARCHITECTS. ENGINEERS. PLANNERS.

June 2, 2023

Mr. Mark St. Charles, Chairperson
Livingston Community Water Authority (LCWA)
Green Oak Township Hall
10001 Silver Lake Road
Brighton, MI 48116

Re: 7749 M-36, Zander Flex Space
Plan Review for Site Plan Approval
OHM # 0019-23-0040

Dear Mr. St Charles:

A proposed development of approximately 27,000 square feet is being proposed at 7749 E M-36 (previously Roadies Restaurant) in Hamburg Township. The applicant has requested an approval by LCWA to obtain Site Plan approval from Hamburg Township. The applicant proposes water service to 5 individual metered units via a 2" water service connected to the 16" LCWA water main along the front of the property.

OHM provided preliminary comments on April 17, 2023, and reviewed updated plans dated 5/01/23 provided by Zander Companies. While we cannot approve the plans for a detailed engineering review at this time, the LCWA water main has the capacity and is adequate to provide water service needed for this site. We have no objection to a Site Plan approval which is granted by Hamburg Township not LCWA provided the following comments are addressed during detailed engineering:

1. The applicant will be responsible for obtaining the proper number of residential equivalent units(REU's) and applicable fees from Hamburg Township based on approved building use.
2. The Hamburg Township Fire Department has requested a fire hydrant to be added to service the northern limits of the building. The hydrant location will require LCWA and the Fire Department approval. If placed on private property the hydrant and associated water main piping will require a 25' wide LCWA easement and subject to a Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 399 Water Main Supply Permit. Details on the proposed connection to the LCWA water main (i.e.. tapping sleeve and valve or water shut down) must be submitted to LCWA for review.
3. Access to valves and hydrants must always be maintained. Trees and landscaping that would hinder access to the water main system are not permitted within 10 feet of the water main unless approved by LCWA.
4. The engineer shall provide copies of other agency permits or approvals including the Township and Livingston County.
5. It is understood that LCWA will not be funding any portion of the proposed water main work.
6. Additional construction requirements and inspection fees will be provided upon detailed engineering approval of the plans.
7. The LCWA Engineering Standards are attached.

Please note, additional comments may be provided during the detailed engineering phase. We are willing to meet with you and the applicant to review the above comments and LCWA requirements. If you have any questions, feel free to contact me at 734-466-4492.

Sincerely,
OHM Advisors



Richard R. Hobgood, P.E.

Att: LCWA Engineering Standards
cc: Anthony Dowson, Highland Treatment (via email)
Vicki Putala, P.E., OHM (via email)
Chris Donajkowski, OHM (via email)
Patrick Hohl, Township Supervisor (via email)
Ted L. Erickson, IME Group (via email)
Marc McIntire, Open Door Consultants (via email)
Nicholas Zander II, Zander Companies (via email)
File



May 16, 2023

Ms. Amy Steffens
Planning and Zoning Director
Hamburg Township
P.O. Box 157
Hamburg, MI 48139

Re: Zander Flex Space
Site Plan Review

Dear Ms. Steffens

We have reviewed the plans for the reference project dated May 1, 2023 as prepared by Open Door Consultants along with supplemental drainage information provided May 15, 2023. We offer the following comments for your consideration.

1. There is a small typo in the Legal Description on Page 3. We assume the last line should read "South 01°39'00" East 237 Feet to the Point of Beginning". The petitioner should verify and correct.
2. The petitioner should apply for a commercial sewer connection through the Township's Utility Department. A sanitary system review will be conducted after the application.
3. The proposed pavement section is appropriate for the use.
4. The stormwater water management plan is in general conformance with the Livingston County Drain Commissioner standards.
5. We understand preliminary approval from MDOT for the driveway has been received. The petitioner should provide the final approval when received.

In summary, we have no objection to the approval of the site plan contingent on the above items.

If you have any questions, please contact me at (734) 657.4925.

Sincerely,

Ted L. Erickson, P.E.
Principal

\\\\files\\Active\\Projects\\2023\\23001935.00\\Design\\Civil\\SitePlanReview

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Catenary (/architectural-site-lighting/all-pedestrian-site-and-roadway-lighting/catenary/)

Light Columns (/architectural-site-lighting/all-pedestrian-site-and-roadway-lighting/light-columns/)

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☐ LED COB (3)

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☐ BUG Rating U0 or U1 (24)

☐ Dark Sky Friendly (26)

☐ Dimmable (239)

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☐ Pendant (65)

☐ Pole (205)

☐ Post Arm (236)

☐ Wall Mount (235)

☐ Catenary (1)

Fixture Orientation

☐ Pendant Mount (64)

☐ Post Mount (205)

☐ Side Mount (2)

Fits Pole Size

- ☐ 5" pole (1)
- ☐ 6" pole (1)

Lighting Applications

- ☐ Exterior (245)
- ☐ Area / Site (231)
- ☐ Pedestrian (197)
- ☐ Roadway (35)

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lighting/all-



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and-
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(catalog/bva2001)



BVA 02
20", 24", 30" (catalog/bva2002)

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and-
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(/architectural-
site-
lighting/
pedestrian-
site-
and-
roadway
lighting

(catalog/bva2009)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)



BVB 01
16", 20", 24", 30" (catalog/bvb2001)

(catalog/bvb2001)



BVB 02
20", 24", 30" (catalog/bvb2002)

(catalog/bvb2002)



BVB 04
20", 24", 30" (catalog/bvb2004)

(catalog/bvb2004)



BVB 06
20", 24", 30" (catalog/bvb2006)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



(catalog/bvb2006)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



(catalog/bvb2007)

(/architectura
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/bvb2009)



BVF 01
16", 20", 24", 30" (catalog/bvf2001)

(/architectural-
site-
lightir
pedes
site-
and-
roadw
lightir



(catalog/bvf2001)

(/architectural-
site-
lighti
pede
site-
and-
roadw
lighti



(catalog/bvf2002)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/bvf2004)



BVF 06
20", 24", 30" (catalog/bvf2006)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



(catalog/bvf2006)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



(catalog/bvf2007)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/bvf2009)



EQ101
12" (catalog/eq101)

(/architectural-
site-
light
pede
site-
and-
road
light



(catalog/eq101)

(/architectural-
site-
light
pede
site-
and-
road
light



(catalog/eq113)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/eq123)



LA002 | LA003 | LA004
12", 15", 18" (catalog/la004)

(/architectural-
site-
lightir
pedes
site-
and-
roadw
lightir



(catalog/la004)

(/architectural-
site-
lighti
pede
site-
and-
road
lighti



(catalog/la062)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la073)



LA076
17" (catalog/la076)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



(catalog/la076)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



(catalog/la094)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la102)

LA094
18" (catalog/la094)

LA100 | LA101 | LA102
12", 15", 18" (catalog/la102)

LA111 | LA112 | LA113
11", 16", 19" (catalog/la113)(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightinLA122 | LA123 | LA124
12", 15", 17" (catalog/la124)(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightinLA130 | LA131 | LA132
14", 17", 19" (catalog/la132)(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la113)

(catalog/la124)

(catalog/la132)

LA133
19" (catalog/la133)(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightinLA138 | LA140 | LA142
13", 15", 18" (catalog/la142)(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightinLA160 / LA161
28", 20" (catalog/la160)(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la133)

(catalog/la142)

(catalog/la160)

LA162 | LA163 | LA164
24", 29", 33" (catalog/la164)(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightinLA167 | LA168 | LA169
24", 29", 33" (catalog/la169)(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightinLA192
25" (catalog/la192)(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la164)

(catalog/la169)

(catalog/la192)

LA193
16" (catalog/la193)(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightinLA194
30" (catalog/la194)(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightinLA195
30" (catalog/la195)(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la193)

(catalog/la194)

(catalog/la195)

LA196
25" (catalog/la196)(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightinLA197 | LA198
17", 15" (catalog/la197)(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightinLA199
18" (catalog/la199)(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la196)

(catalog/la197)

(catalog/la199)

LA200
22" (catalog/la200)(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightinLA210 Collection
19", 23", 28", 32" (catalog/la213)(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightinLA220 Collection
10", 14", 18", 21" (catalog/la223)(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la200)

(catalog/la213)

(catalog/la223)



LA225
33" (catalog/la225)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



(catalog/la225)

LA230 Collection
10", 14", 18", 21" (catalog/la233)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



(catalog/la233)

LA260 | LA262
13", 20" (catalog/la262)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la262)



LA2662 (catalog/la2662)

(/architectural-
site-
lighting
pedestr
site-
and-
roadwa
lighting



(catalog/la2662)

LA312 | LA313
12", 15" (catalog/la313)

(/architectural-
site-
lighting
pedestr
site-
and-
roadwa
lighting



(catalog/la313)

LA333
15" (catalog/la333)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la333)



LA383
20" (catalog/la383)

(/architectural-
site-
lighti
pede
site-
and-
road
lighti



(catalog/la383)

LA390
12" (catalog/la390)

(/architectural-
site-
lighti
pede
site-
and-
road
lighti



(catalog/la390)

LA391
17" (catalog/la391)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la391)



LA401
20" (catalog/la401)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



(catalog/la401)

LA402
20" (catalog/la402)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



(catalog/la402)

LA403
12" (catalog/la403)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la403)



LA404
20" (catalog/la404)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



(catalog/la404)

LA405
20" (catalog/la405)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



(catalog/la405)

LA433
18" (catalog/la433)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la433)



LA440 thru LA443
11", 14", 16", 18" (catalog/la443)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



(catalog/la443)

LA503
17" (catalog/la503)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



(catalog/la503)

LA513
21" (catalog/la513)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la513)



LA533
17" (catalog/la533)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



LA553
20" (catalog/la553)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



LA563
25" (catalog/la563)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la563)



LA601
15" (catalog/la601)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



LA603
28" (catalog/la603)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



LA604
23" (catalog/la604)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la604)



LA613
24" (catalog/la613)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



LA621 | LA622 | LA623
17", 20", 22" (catalog/la623)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



LA631 | LA632 | LA633
12", 15", 17" (catalog/la633)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la633)



LA652
20" (catalog/la652)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



LA663
15" (catalog/la663)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



LA664 | LA665
15", 18" (catalog/la664)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la664)



LA762
14" (catalog/la762)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



LA772 | LA773 | LA774
12", 17", 18" (catalog/la774)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



LA780 Collection
11", 15", 18", 20" (catalog/la783)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la783)



LA790 Collection
11", 15", 18", 20" (catalog/la793)

(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



LA810 | LA811 | LA812
11", 15", 19" (catalog/la812)



















(/architectural-
site-
lightin
pedes
site-
and-
roadw
lightin



LA830 | LA831 | LA832
12", 15", 18" (catalog/la832)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/la832)

	(/architectural-site-lighting/pedestrian-site-and-roadway-lighting)		(/architectural-site-lighting/pedestrian-site-and-roadway-lighting)		(/architectural-site-lighting/all-pedestrian-site-and-roadway-lighting/#)
LA841 13" (catalog/la841)	(catalog/la841)	LA844 21" (catalog/la844)	(catalog/la844)	LA902 LA903 LA904 12", 15", 17" (catalog/la904)	(catalog/la904)
	(/architectural-site-lighting/pedestrian-site-and-roadway-lighting)		(/architectural-site-lighting/pedestrian-site-and-roadway-lighting)		(/architectural-site-lighting/all-pedestrian-site-and-roadway-lighting/#)
LA912 13" (catalog/la912)	(catalog/la912)	LA922 13" (catalog/la922)	(catalog/la922)	LA923 13" (catalog/la923)	(catalog/la923)
	(/architectural-site-lighting/pedestrian-site-and-roadway-lighting)		(/architectural-site-lighting/pedestrian-site-and-roadway-lighting)		(/architectural-site-lighting/all-pedestrian-site-and-roadway-lighting/#)
LA950 18" (catalog/la950)	(catalog/la950)	LA960 18" (catalog/la960)	(catalog/la960)	LA961 18" (catalog/la961)	(catalog/la961)
	(/architectural-site-lighting/pedestrian-site-and-roadway-lighting)		(/architectural-site-lighting/pedestrian-site-and-roadway-lighting)		(/architectural-site-lighting/all-pedestrian-site-and-roadway-lighting/#)
LA962 18" (catalog/la962)	(catalog/la962)	LA980 11" (catalog/la980)	(catalog/la980)	LA983 16" (catalog/la983)	(catalog/la983)
	(/architectural-site-lighting/pedestrian-site-and-roadway-lighting)		(/architectural-site-lighting/pedestrian-site-and-roadway-lighting)		(/architectural-site-lighting/all-pedestrian-site-and-roadway-lighting/#)
LC0121 6" Smooth Column (catalog/lc0121)	(catalog/lc0121)	LC0122 6"-4" Reverse Tapered Column (catalog/lc0122)	(catalog/lc0122)	LC0123 6"-4" Transition Column (catalog/lc0123)	(catalog/lc0123)
	(/architectural-site-lighting/all-pedestrian-site-and-roadway-lighting/#)		(/architectural-site-lighting/all-pedestrian-site-and-roadway-lighting/#)		(/architectural-site-lighting/all-pedestrian-site-and-roadway-lighting/#)
LF0118 LF0120 18", 20" (catalog/lf0120)	(catalog/lf0120)	LF0130 LF0135 14", 16" (catalog/lf0135)	(catalog/lf0135)	LF0136 (catalog/lf0136)	(catalog/lf0136)



LF0140 | LF0143
13", 15" (catalog/lf0143)

(/architectural-
site-
lightin
pedes-
site-
and-
roadw
lightin



LF0141 | LF0144
13", 15" (catalog/lf0144)

(/architectural-
site-
lightin
pedes-
site-
and-
roadw
lightin

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)



LF0153 (catalog/lf0153)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)



LF0155 (catalog/lf0155)

(catalog/lf0143)



LF0162 (catalog/lf0162)

(catalog/lf0155)

(/architectural-
site-
lightin
pedes-
site-
and-
roadw
lightin



LF0182 (catalog/lf0182)

(catalog/lf0144)

(catalog/lf0162)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/lf0153)

(catalog/lf0182)



LF0318 | LF0320
18", 20" (catalog/lf0320)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)



LF0330 | LF0335
14", 16" (catalog/lf0335)

(catalog/lf0320)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)



LF0336 (catalog/lf0336)

(catalog/lf0335)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/lf0336)



LF0340 | LF0343
13", 15" (catalog/lf0343)

(/architectural-
site-
lightin
pedes-
site-
and-
roadw
lightin



LF0341 | LF0344
13", 15" (catalog/lf0344)

(catalog/lf0343)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)



LF0353 (catalog/lf0353)

(catalog/lf0344)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/lf0353)



LF0355 (catalog/lf0355)

(/architectural-
site-
lightin
pedes-
site-
and-
roadw
lightin



LF0362 (catalog/lf0362)

(catalog/lf0355)

(/architectural-
site-
lightin
pedes-
site-
and-
roadw
lightin



LF0382 (catalog/lf0382)

(catalog/lf0362)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/lf0382)



LF0518 | LF0520
18", 20" (catalog/lf0520)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)



LF0530 | LF0535
14", 16" (catalog/lf0535)

(catalog/lf0520)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)



LF0536 (catalog/lf0536)

(catalog/lf0535)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/lf0536)



LF0540 | LF0543
13", 15" (catalog/lf0543)

(catalog/lf0543)

(/architectural-
site-
lightin
pedes'
site-
and-
roadw
lightin



LF0541 | LF0544
13", 15" (catalog/lf0544)

(/architectural-
site-
lightin
pedes'
site-
and-
roadw
lightin

(catalog/lf0555)



LF0555 (catalog/lf0555)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)



LF0553 (catalog/lf0553)

(catalog/lf0544)

(/architectural-
site-
lightin
pedes'
site-
and-
roadw
lightin

(catalog/lf0562)



LF0582 (catalog/lf0582)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/lf0553)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/lf0582)



LF0918 | LF0920
18", 20" (catalog/lf0920)

(catalog/lf0920)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)



LF0930 | LF0935
14", 16" (catalog/lf0935)

(/architectural-
site-
lightin
pedes'
site-
and-
roadw
lightin

(catalog/lf0943)



LF0940 | LF0943
13", 15" (catalog/lf0943)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)



LF0936 (catalog/lf0936)

(catalog/lf0935)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/lf0936)



LF0955 (catalog/lf0955)

(catalog/lf0955)

(/architectural-
site-
lightin
pedes'
site-
and-
roadw
lightin



LF0962 (catalog/lf0962)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/lf1020)



LF1018 | LF1020
18", 20" (catalog/lf1020)

(/architectural-
site-
lightin
pedes'
site-
and-
roadw
lightin



LF0982 (catalog/lf0982)

(catalog/lf0962)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/lf1035)



LF1036 (catalog/lf1036)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/lf0953)

(catalog/lf0982)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/lf1036)



LF1040 | LF1043
13", 15" (catalog/lf1043)

(/architectural-
site-
lightin
pedes-
site-
and-
roadw
lightin



LF1041 | LF1044
13", 15" (catalog/lf1044)

(catalog/lf1043)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)



LF1053 (catalog/lf1053)

(catalog/lf1044)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/lf1053)



LF1055 (catalog/lf1055)

(/architectural-
site-
lightin
pedes-
site-
and-
roadw
lightin



LF1062 (catalog/lf1062)

(catalog/lf1055)

(/architectural-
site-
lightin
pedes-
site-
and-
roadw
lightin



LF1082 (catalog/lf1082)

(catalog/lf1062)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/lf1082)



LF1318 | LF1320
18", 20" (catalog/lf1320)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)



LF1330 | LF1335
14", 16" (catalog/lf1335)

(catalog/lf1320)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)



LF1336 (catalog/lf1336)

(catalog/lf1335)

(/architectural-
site-
lighting/all-
pedestrian-
site-
and-
roadway-
lighting/#)

(catalog/lf1336)



LF1340 | LF1343
13", 15" (catalog/lf1343)

(/architectural-
site-
lightin
pedes-
site-
and-
roadw
lightin



LF1341 | LF1344
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LF2036 (catalog/lf2036)

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WG012 thru WG022
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Item 2.



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WG212 thru WG222
12", 16", 18", 20", 22" (catalog/wg222)

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FAX: 810-231-4295



P.O. Box 157
10405 Merrill Road
Hamburg, Michigan 48139-0157

To: Planning Commissioners

From: Amy Steffens, AICP
Planning and Zoning Director

Date: June 21, 2023

Project address and Description: **Site Plan Review (SPA 23-0001)** for a private campground dedicated to use by United States military veterans and their families to include sports fields, tent camping area, cabins, recreational vehicle parking area, walking trail, service dog training facility, welcome center, memorial plaza, chapel, accessory structures, and docks on Gull Lake and Huron River at 6716 Winans Lake Road (TID 4715-14-400-008 and 4715-23-100-002).

Owner: Freedom River

Applicant: Freedom River

Agent: Wade Trim



PROJECT HISTORY

At the April 19, 2023 Planning Commission meeting, the Commission recommended approval of a zoning map amendment for the portion of the site zoned Waterfront Residential to the Public and Private Recreational Facilities (PPRF) zoning district; the map amendment will take effect on June 19, 2023. The portion of the site along Huron River remains in the Natural Rivers (NR) district.

Additionally, at the April 19 meeting, the Commission approved the special use permit (SUP 23-003) to permit a private campground and lodge with associated private outdoor recreational areas and indoor recreational buildings for military veterans and their families dedicated and designed for veterans and their families for relaxation and reflection with the following conditions:

Condition 1: The Special Use Permit for the private camp use is only valid with approval of a final site plan from Hamburg Township.

Condition 2: Prior to issuance of a land use permit a driveway permit from the Livingston County Road Commission will be required.

Condition 3: Prior to issuance of a land use permit all approvals from the Livingston County Health Department will be required.

Condition 4: A landscaping buffer, which may include a berm, shall be provided along the north, east, and west property boundaries.

Condition 5: The docks on the Huron River shall be reoriented, sized, and reduced in number to meet the Ordinance requirements.

Condition 6: No public use of the docks shall be permitted.

Condition 7: All required state permits shall be obtained prior to the installation of any docks in the Huron River.

Condition 8: The special land use permit for the private camp use shall be null and void unless a land use permit for the private camp use on the site is granted within one year from the date of this approval.

Condition 9: No lighting or amplification will be permitted on this site.

Condition 10: Special event usage to be coordinated with Township public safety committee.

PROJECT DESCRIPTION

Site plan review application to allow for a private campground dedicated to use by United States military veterans and their families to include sports fields, tent camping area, cabins, recreational vehicle parking area, walking trail, service dog training facility, welcome center, memorial plaza, chapel, accessory structures, and docks on Gull Lake and Huron River. The site improvements would be phased as discussed below.

The subject sites (4715-14-400-008 and 4715-23-100-002) total 92 acres on the south side of Winans Lake Road and north of the Huron River. The site is vacant of residential development but has been used historically for agricultural purposes.

Table 1:	Current Zoning Classification	Current Use of Property	Future Land Use Designation
Subject Site	PPRF/NR	Vacant residential / agricultural	Medium density residential
North	RA—medium density residential	Single-family residential	Medium density residential
South	NR—Natural Rivers	Vacant / single-family residential	Natural river residential
East	RA	Single-family residential	Medium density residential
West	WFR—medium density residential	Single-family residential	Medium density residential

Phase 1 of the project includes demolition of existing structures and foundations in the northeast corner of the site and construction of sanitary utilities and access drives throughout entire site. Additional amenities planned for Phase 1 include: 29 RV spots, two bathhouses, two volleyball courts, one soccer field, two baseball fields, four pickleball courts, two basketball courts, various 1,500-square foot shelters around the site, 7,200-square foot pole barn, and multiple parking areas throughout the site that will provide 118 parking spots. The applicant is proposing to maintain the access roads throughout the site as gravel; Section 36-330, Off-street parking, of the Ordinance would require the parking areas to be hard-surfaced unless granted a waiver by the Planning Commission. The Planning Commission could also require the access drives to be hard-surfaced.

Phase 2 of the project would include a tent camping area adjacent to Gut Lake, additional covered shelters, and fire pits. Phase 3 would include construction of 26 family cabins, a 4,800-square foot lodge with additional parking. Finally, Phase 4 would include a 1,613-square foot Gold Star Family cabin, fire pit, parking area, and a 1,643-square foot chapel. Future plans include a potential memorial plaza, equestrian bar, and service dog training area.

The project plans, building elevations, floorplans and sign plans are attached to this report for the Planning Commissions review.

Table 1
Development Review Compliance Table

Criteria/Regulation	Required by Regulations	Proposed Project	Status
SETBACKS:			
PPRF			
Front Yard	100 feet	100 feet	Conforms
Rear Yard	100 feet	160 feet	Conforms
Minimum Side	50 feet	190/284 feet	Conforms
Natural River			
Ordinary High Water Mark	125 feet	130 feet	Conforms

Criteria/Regulation	Required by Regulations	Proposed Project	Status
Private Campground (36-185)	200 feet from residential district	200 feet	Conforms
	100 feet from wetland	100 feet	Conforms
NUMBER OF STORIES/ HEIGHT	2.5 story/ 35 feet	2 story/ 26 feet	Conforms
LOT SIZE:	40 acres	Approximately 92 acres	Conforms

Criteria/Regulation	Required by Regulations	Proposed Project	Status
<p>SUGGESTED LANDSCAPING:</p> <p>North greenbelt: A 20 foot-wide greenbelt along the Winans Lake right-of-way planted with equivalent of one canopy tree and four shrubs, rounded upwards, for every 40 linear feet of frontage planted with the greenbelt.</p> <p>West, east, and south buffer: A 20-foot wide buffer zone to include a six-foot high continuous wall or required berm and 1 canopy tree, 1 evergreen tree, and 4 shrubs per each 30 linear feet along the property line.</p> <p>Parking lot landscaping: In all commercial and multiple family districts, one canopy tree shall be required for each 2,000 square feet of paved driveway and parking lot surface, provided that in no case less than two trees provided.</p>	<p>46 canopy trees; 184 shrubs</p> <p>West: 45 canopy, 45 evergreen, 180 shrubs East: 44 canopy, 44 evergreen, 174 shrubs South: 44 canopy, 44 evergreen, 174 shrubs</p> <p>The applicant should provide a hard-surfaced parking area calculation and number of trees that would meet this requirement.</p>	<p>No landscaping plan submitted.</p> <p>A berm is proposed along the west property boundary but no details have been provided.</p>	
<p>Sec. 36-280. Existing plant material.</p> <p>(a) <i>Consideration of existing elements in the landscape design.</i> In instances where healthy plant material exists on a site prior to its development, the planning commission may permit substitution of such plant material in place of the requirements set forth in this section.</p>			

Criteria/Regulation	Required by Regulations	Proposed Project	Status
<p>Staff Analysis:</p> <p>No landscaping plan was submitted. Because of the existing single-family dwellings to the west and east, staff would suggest that the Planning Commission require a berm with landscaping along the west and east property boundaries. The applicant could show what existing vegetative material is being preserved along the west and east.</p> <p>A landscaped greenbelt along Winans Lake Road should be provided per the landscaping standards as shown in the above table. The greenbelt would provide screening from the use to the residential district to the north and from Winans Lake Road.</p> <p>Additionally, parking lot landscaping should be considered to help break up the visual appearance of the parking areas, although those parking areas are likely to be visible only from internal to the site.</p>			
LIGHTING:			

Section 36-295:

1. **Exterior lighting shall be fully shielded and directed downward toward the Earth's surface, away from residential uses, roads, glass, water or other reflective materials which would create excessive off-site glare or incident rays.**

No lighting plan was submitted. It is staff's understanding that the sports fields will not be lit but that low-level lighting will be installed in the camping areas.

Staff Suggestion Condition: A photometric plan shall be submitted for final site plan approval that conforms to the township lighting requirements.

2. **The Zoning Administrator and/or Planning Commission may approve decorative light fixtures as an alternative to shielded fixtures when it can be proven that there will be no off-site glare and the proposed fixtures will improve the appearance of the site.**

No lighting details have been submitted.

3. **Lights on poles shall not be taller than the building whose area they illuminate nor taller than fifteen (15) feet whichever is shorter. Lights on poles may exceed fifteen (15) feet up to twenty (20) feet if the fixtures are located a minimum of seventy-five (75) feet from any planned, zoned or used residential areas.**

No lighting details have been submitted.

4. **Lighting shall not be of a flashing, moving or intermittent type.**

No lighting details have been submitted.

5. **Except where used for security purposes, all outdoor lighting fixtures, existing or hereafter installed and maintained shall be turned off between 11:00 p.m. and sunrise, except when used for commercial and industrial uses, such as in sales, assembly and repair areas, where such use is open for business after 11:00 p.m. but only for so long as such use open for business. Businesses with light fixtures used for security purposes are encouraged to use a motion**

Criteria/Regulation	Required by Regulations	Proposed Project	Status										
<p>detection device which is directed to detect motion within the property.</p> <p>Staff Suggested Condition: All lighting shall be turned off between 11:00 PM and Sunrise except when used for commercial and industrial uses, such as in sales, assembly and repair areas, where such use is open for business after 11:00 p.m. but only for so long as such use open for business. Lighting used for security between 11:00 pm and sunrise shall be controlled by a motion sensor.</p> <p>6. Any light fixture must be placed in such a manner that no light emitting surface is visible from any residential area or public/private roadway, walkway, trail or other public way when viewed at ground level. See above.</p> <p>7. The intensity of light within a site shall not exceed ten (10) footcandles or one (1) footcandle at any property line, except where it abuts a residentially used or zoned site whereby a maximum of 0.5 footcandles is permitted. The only exception is with gas station canopy and automobile dealership lighting, where a maximum of twenty (20) footcandles is permitted within the site but the above standards shall apply to intensity at the property line. See standard number one.</p>													
<p>PARKING: Per EGLE Public Health Code Act 368 of 1978 vehicles parking equal to a minimum of 1.5 times the number of sites in a campground:</p> <table><tr><td>RV sites</td><td>27 x 1.5 = 41</td><td rowspan="4">201 regular spaces provided; 19 barrier free spaces provided 220 spaces total provides</td><td rowspan="4">Conforms</td></tr><tr><td>Cabins</td><td>27 x 1.5 = 41</td></tr><tr><td>Tents</td><td>20 x 1.5 = 30</td></tr><tr><td>Total</td><td>112</td></tr></table>	RV sites	27 x 1.5 = 41	201 regular spaces provided; 19 barrier free spaces provided 220 spaces total provides	Conforms	Cabins	27 x 1.5 = 41	Tents	20 x 1.5 = 30	Total	112			
RV sites	27 x 1.5 = 41	201 regular spaces provided; 19 barrier free spaces provided 220 spaces total provides			Conforms								
Cabins	27 x 1.5 = 41												
Tents	20 x 1.5 = 30												
Total	112												
<p>Staff analysis: The Zoning Ordinance does not have parking requirements specific to the proposed use. However, the applicant has provided the above parking standards per the Public Health Code Act 368 of 1978. The 220 provided parking spaces exceeds the standards set forth by the Public Health Code and appears to be more than adequate for the array of proposed uses.</p>													
<p>Sec. 36-330 Off-street Parking</p> <p>(a) Off-street parking for residential uses shall be located on the same lot or parcel as the residence they are intended to serve.</p> <p>(b) Off-street parking for nonresidential uses shall be located on the same lot or</p>			N/A										

Criteria/Regulation	Required by Regulations	Proposed Project	Status
parcel or within 300 feet of the building it is intended to serve provided the provisions of section 36-331 are met.			Conforms
(c) A minimum area of 200 square feet shall be provided for each vehicle parking space and each space shall be designated and reserved for parking.			Conforms
(d) A suitable means of ingress and egress shall be provided and located to minimize traffic congestion and interference with pedestrian movement. The location of all entrances and exits and directional signs, shall be approved by the planning commission, and where required by the county road commission and the Michigan Department of Transportation.			Conforms
(e) Parking areas with a capacity of four or more vehicles shall be hard-surfaced (either concrete, bituminous asphalt or other stabilized engineered surface) prior to occupancy and shall provide adequate drainage facilities to dispose of all collected surface water. The requirement for paving may be waived by the planning commission through subsection (h) of this section.			See paragraph h below.
(f) Except for single-family residential lots, lighting shall be provided for use when a parking area is in operation. The installation of such lighting shall be hooded or shielded as to reflect the light away from abutting or neighboring property.			No lighting proposed
(g) When required off-street parking in a nonresidential district abuts a residential district, there shall be located a landscaped buffer strip 15 feet wide and parallel to the mutual boundary. The buffer strip shall be composed of trees and/or foliage. In lieu of a buffer strip, the planning commission may permit or require a solid fence or wall between six and eight feet in height shall be located along the mutual boundary.			See landscaping discussion
(h) Federal and state requirements regarding handicapped parking and access shall apply. Where the planning commission determines that a gravel off-street parking lot or loading area would be preferable to hard surface paving for environmental and drainage reasons, a gravel parking lot and/or loading area may be permitted. This determination will be based upon the following criteria:			ADA requirements will be reviewed by LCBD. It is staff's understanding that ADA accessible parking spaces must be hard surfaced.
(1) The types of uses to be conducted in the storage area;			
(2) The types and amounts of hazardous materials to be used at the site;			
(3) The extent of natural vegetation to filter dust generated by a gravel parking or loading area;			
(4) The existence of adjacent uses which may be impacted by dust generated by a gravel parking or loading area;			
(5) Existing hydrologic and ecologic features such as adjacent wetland complexes which may be better protected by the reduced runoff resulting from			

Criteria/Regulation	Required by Regulations	Proposed Project	Status
gravel parking or loading area; (6) Existing soil permeability sufficient to provide desired infiltration; (7) The potential for, or ability to minimize, erosion and sedimentation from a gravel parking or loading area.			
<p>Staff analysis: The Commission may grant a waiver to the hard-surfaced parking area per the standards of paragraph h. The township engineer reviewed the site plan with the understanding that the internal access drives would be hard-surfaced, but verbally indicated to staff that gravel access drives would not change the review and would make stormwater management easier due to less hard-surfaced area. The Commission should review the parking area surface waiver in terms of the overall site plan and expected impact to the natural features of the site and the adjacent residential uses.</p>			
<p>SIGNS The following Zoning Ordinance requirements would apply to signs for this property.</p> <p>Sec. 36-473. - Exempt signs. (a.) A sign is exempt from the provisions of this article if it is not visible from a street, other public place, or an adjacent property. Exempt signs include, but are not limited to, signs placed inside a structure or building that are not visible or legible through windows or building openings.</p> <p>Sec. 36-476. Signs permitted in residential districts (CE, RAA, RA, RB, RC, WFR, NR, MHP, OH, PPRF, and VR) (b). Nonresidential sign. One freestanding monument and one wall-sign are allowed on lots with nonresidential uses other than home occupations. The freestanding sign shall not exceed 20 square feet in area. The wall sign shall not exceed one square foot for every two linear feet of building frontage, or 100 square feet, whichever is less. (d.) A sign or similar notice is allowed for every 150 feet along the property line of a lot, provided that each sign is no more than two square feet in area, is posted no higher than four feet above grade and is located entirely upon private property. These signs shall not be within 150 feet of another sign and are allowed on vacant sites. (e.) Permanent signs in the residential zoning districts may be illuminated if they are located along one of the following roads: Bishop Lake Road, Chilson Road, Hamburg Road, M-36, McGregor Road, Pettysville Road, Strawberry Lake Road, Whitewood Road, and Winans Lake Road. (f.) Permanent signs in residential zoning districts may be electronic display signs with approval of a special use permit under section 36-36, along one of the following roads: Bishop Lake Road, Chilson Road, Hamburg Road, M-36, McGregor Road, Pettysville Road, Strawberry Lake Road, Whitewood Road, and Winans Lake Road.</p> <p>Sec. 36-472 General conditions and design criteria. (t.) Sign illumination. In this article where signs are allowed to be illuminated the following is required:</p>			

Criteria/Regulation	Required by Regulations	Proposed Project	Status
<p>(1) Timer controls. Illuminated signs shall be equipped with a functional timer control. Signs shall not be illuminated after 10:00 p.m. or one-half hour after the use of the site ends for the day, whichever is later, nor before 6:00 a.m. or one-half hour before the beginning of the use of the site for the day, whichever is earlier.</p> <p>(2) Backlighting. Signs with internal illumination shall have the lettering and graphics in a lighter color than the background to the maximum extent practical.</p> <p>(3) Frequency. On signs with messages that change, they may change no faster than once every ten seconds.</p> <p>(4) Flashing and animation. Flashing or animated affects are not allowed, including, but not limited to, scrolling, fading in, video clips, moving characters or lettering.</p> <p>(5) Illumination used to attract business is only permitted as allowed above. All other illumination to attract business is not allowed except through section 36-479. (Examples: spot or search lights, lights strips around windows and doors, etc.)</p>			
<p>Staff Analysis: A freestanding monument sign, not more than six feet tall on a 24-inch base, with a maximum area of 20 square feet per sign face would be permitted. Permanent signs shall not be located within ten feet of the front property boundary, per Section 36-472. It appears that the sign would be located approximately five feet from the property boundary. No sign elevations or lighting details have been provided.</p> <p>Staff Suggested Conditions: All signage shall conform to Article XIII, Signs, and land use permits shall be issued prior to installation of signage.</p> <p>No electronic display sign shall be permitted.</p>			

SITE PLAN REVIEW STANDARDS

In the review of all site plans, the Zoning Administrator and the Planning Commission shall endeavor to assure the following:

A. The proposed development conforms to all provisions of the Zoning Ordinances.

Please see the development review compliance tables for analysis on the project compliance and consistency with the intent and purpose of the Township's Zoning Ordinance.

A dock on Huron River may not exceed six feet in width or 20 feet in length. The dock on the river appears to be longer than 20 feet and should be reduced in size; there is no prohibition to having more than one dock so long as no more than three boats are moored. A facility that moors four or more boats is considered by both the Zoning Ordinance and the State of Michigan as a marina.

With staff's suggested conditions, staff believes the proposed development will conform to all the provisions of the Zoning Ordinance.

B. All required information has been provided.

The information submitted appears to be adequate to allow the Planning Commission to review the preliminary site plan for the subject site.

C. The movement of vehicular and pedestrian traffic within the site and in relation to access streets and sidewalks will be safe and convenient.

Kim Hiller from the Livingston County Road Commission indicated that *Mike and I have reviewed the left-turn lane analysis submitted yesterday and find it acceptable. When a commercial approach permit is issued, a condition of the permit will be that if the site is more successful than predicted or if it opens to the public in the future, a review of the traffic impacts and improvements to Winans Lake Road may be required.*

There are no sidewalks along this portion of Winans Lake Road and it is not expected, due to its intended use as a private campground for veterans, that pedestrian traffic will be coming from off-site. The layout of the internal access drives appears to provide safe and orderly movement through the site and is designed as a typical private campground use.

D. The proposed development will be harmonious with existing and future uses in the immediate area and the community.

The proposed development will provide for a private campground dedicated to military veterans and their families. The more impactful uses in terms of noise, those being the sports fields, are all located internally to the site and are not likely to be a nuisance to adjoining properties. The campground uses are all located outside of the required 200-foot setback required by Section 36-185. The Master Plan calls for residential uses to the north, south, east, and west, and staff finds that the proposed site design is compatible with residential uses.

E. The proposed development provides the necessary infrastructure improvements, such as roads, drainage, pedestrian facilities and utilities, to serve the site, and be adequately coordinated with the current and future use of adjacent properties.

This site, zoned PPRF, is likely to remain as a stand-alone development (i.e. not tied into an adjacent residential development) and thus the site infrastructure has been designed to accommodate the proposed campground use. Any use other than what was approved via the special use permit would require additional Planning Commission review and approval. Stormwater will be managed on-site, access is

from existing Winans Lake Road, and sanitary requirements will be addressed by the Livingston County Health Department and Hamburg Township. There is no proposed extension of water service from the south and existing sanitary sewer lines along Winans Lake Road will be utilized.

F. The applicable requirements of Township, County and State agencies are met regarding grading and surface drainage and for the design and construction of storm sewers, storm water holding facilities, water mains, and sanitary sewers.

As of this writing, the site plan is under review by the Fire Marshal, Utilities Department, Livingston County Road Commission, and the Livingston County Health Department. Prior to issuance of a building permit the applicant will need approvals from all the required local, state, and federal agencies.

G. Natural resources will be preserved to the maximum extent possible in the site design by developing in a manner which will not detrimentally affect or destroy natural features such as lakes, ponds, streams, wetlands, steep slopes, and woodlands.

According to the natural features impact statement, there are wetlands areas around Gut Lake and adjacent to Huron River, as well as a pocket of wetlands in the central portion of the subject site. The grading plan indicates that no grading of the wetlands will be necessary. *Any earth work that has a direct impact to the wetlands may be subject to a Part 303 EGLE permit.*

A permanent dock in either Gut Lake or the Huron River would require a State of Michigan permit.

H. The proposed development shall respect the natural topography to the maximum extent possible by minimizing the amount of cutting, filling, and grading required.

The site plan does indicate that a stand of trees in the central portion of the site will be removed. See paragraph G above.

I. The proposed development will not cause soil erosion or sedimentation.

The LCDC will review and issue a soil erosion or sedimentation control permit prior to issuance of a building permit.

J. Landscaping, including trees, shrubs and other vegetative material is provided to maintain, improve and/or restore the aesthetic quality of the site.

While there is an existing heavy vegetative screen along the west property boundary, it appears to be scrub material. The applicants are proposing a berm along the west and southwest boundaries but no additional landscaping is proposed along the north and east boundaries.

Staff suggested conditions:

A vegetative berm shall be provided along the length of the west and southwest property boundaries that abut a single-family residential dwelling.

A buffer zone, which may include a buffer, along Winans Lake Road shall be installed.

A vegetative screen, which may include a berm, shall be installed along the northern 1,200 linear feet of the east property boundary.

K. Conformance to the adopted Hamburg Township Engineering and Design Standards.

The engineer has reviewed the plans for compliance with the Engineering and Design Standard and provided comment attached to this report.

L. All proposed commercial, office, industrial, institutional and multiple family development shall utilize quality architecture to ensure that buildings are compatible with surrounding uses, protect the investment of adjacent landowners, blend harmoniously into the streetscape and meet the objectives the Township Master Plan. New buildings, additions and renovations shall be designed to preserve or complement the design character of existing development provide visual harmony between old and new buildings, and create a positive image for the Township's various commercial shopping nodes. Commercial, office, industrial, institutional and multiple family architecture shall be reviewed by the Planning Commission under the following criteria:

- 1. Buildings shall front towards and relate to the public street. Buildings shall be located to create a define streetscape through uniform setbacks and proper relationship to adjacent structures. Proper relationship to existing structures in the area shall be maintained through building mass, proportion, scale, roof line shapes and rhythm. Buildings within the area designated on the M-36 Corridor Plan/Master Plan as the "Hamburg Village" shall be compatible with the historic character of the unincorporated place commonly referred to as the "Old Hamburg Village."**
- 2. Building materials and colors shall relate well and be harmonious with the surrounding area. Roof shape and materials shall be architecturally compatible with adjacent buildings and enhance the predominant streetscape. For any side of a principal building facing a public or private street, at least fifty percent (50%) of the facade shall be constructed of, or covered with, the following materials:**
 - a. Brick;**
 - b. Fluted or scored concrete block;**
 - c. Cut stone;**
 - d. Vinyl siding;**
 - e. Wood siding;**
 - f. Glass; or,**
 - g. Other materials similar to the above as determined by the Planning Commission.**

3. Buildings shall possess architectural variety, but enhance the overall cohesive community character. Buildings shall provide architectural features, details and ornaments such as archways, colonnades, towers, cornices or peaked roof lines.
4. Building walls over 100 feet in length shall be broken up with a combination of the following: varying building lines, windows, architectural accents and trees.
5. Building entrances shall utilize windows, canopies and awnings; provide unity of scale, texture, and color; and provide a sense of place.
6. Where the rear facade of a building will be visible from a residential zoning district, or the rear of the site will be used for public access or parking, such rear facade shall be constructed to a finished quality comparable to the front facade.
7. Signs, landscaping, lighting and other site elements shall be coordinated and compatible with the building design, as well as harmonious with other nearby developments. Developments shall provide site features such as decorative entry signs, ornamental lighting, pedestrian plazas and/or pedestrian furniture.

Staff Analysis:

The proposed elevations are attached to the staff report for the Commission's review. Staff believes that the proposed materials, sizes, scale, colors, and height are fitting for both a private campground and to the surrounding residential districts. No elevations of the shelters or bath houses were submitted; the applicant's engineer indicated that the shelters would be open-sided shelters typically used in public parks and the bath houses would be split-faced block or similar.

Sec. 36-185. Schedule of use regulations—PPRF Public and Private Recreational Facilities District.

The following standards apply to the special uses of private outdoor recreational and indoor recreational buildings and private campgrounds. Staff comment is in red.

(1) Private outdoor recreational areas and indoor recreational buildings, such as: recreational fields, rinks or courts, including football, baseball, batting cages, soccer, tennis, basketball, ice skating, swimming pools, animal racing and similar activities, and uses accessory to the above uses, such as refreshment stands, maintenance buildings, office for management functions, spectator seating, restrooms, and service areas. Such uses shall be subject to the following:

- a. *The site size shall be adequate to accommodate the intended uses, parking, and extensive buffer areas without significant impact on nearby properties in terms of noise, traffic, lighting glare, views, odors, trespassing, dust blowing debris, as determined by the planning commission. The applicant shall provide documentation the site size is adequate using national facility standards.*
- b. *All ingress and egress shall be along a county road.* **Conforms**
- c. *No building shall be located within 100 feet of a property line.* **Conforms. Closest building is**

d. All buildings shall be setback 100 feet from the edge of any wetland or the shoreline of any lake, pond, river or stream. Conforms

(2) Public or private campgrounds and lodges, including campgrounds for travel trailers, tent-campers, motor homes, tents, and cabins, subject to the following conditions:

a. Minimum lot size shall be 40 acres. Conforms. Lot size is 92 acres.

b. All ingress and egress shall be along a county road. Conforms. Winans Lake Road is a county road.

c. Development features including the principal and accessory buildings and structures shall be located and related to minimize adverse effects on adjacent properties. Minimum setbacks for any buildings, structures or use areas shall be 200 feet from any property line abutting a residential district. Conforms

d. All buildings shall be setback 100 feet from the edge of any wetland or the shoreline of any lake, pond, river or stream. Conforms

e. Each campsite shall be at least 2,000 square feet in size. Conforms.

f. Each camp site shall be provided with water and sanitary service approved by the health department or have convenient access to approved service buildings. Livingston County Health Department and Hamburg Township must approve sanitary services prior to issuance of permits.

RECOMMENDATIONS:

Staff recommend the Planning Commission review, discuss and make a recommendation to the Township Board to either approval or denial of the preliminary Site Plan Application (PSPA23-0001) or table the application and request any additional information deemed necessary for review.

Site Plan Review 23-0001 Draft Approval Motion:

The Planning Commission recommends approval of the preliminary **Site Plan Review (SPA 23-0001)** for a private campground dedicated to use by United States military veterans and their families to include sports fields, tent camping area, cabins, recreational vehicle parking area, walking trail, service dog training facility, welcome center, memorial plaza, chapel, accessory structures, and docks on Gull Lake and Huron River at 6716 Winans Lake Road (TID 4715-14-400-008 and 4715-23-100-002).

The Planning Commission approves the parking surface waiver for (please state the specific parking areas for which a waiver is granted) because it meets the standards set forth in Section 36-330 (h).

Conditions:

1. Prior to issuance of a land use permit the applicant shall submit a photometric plan that shows that the intensity of light within a site does not exceed ten (10) footcandles or one (1) footcandle at any property line, except where it abuts a residentially used or zoned site

whereby a maximum of 0.5 footcandles is permitted.

2. All lighting shall be turned off between 11:00 PM and Sunrise except when used for commercial and industrial uses, such as in sales, assembly and repair areas, where such use is open for business after 11:00 p.m. but only for so long as such use open for business. Lighting used for security between 11:00 pm and sunrise shall be controlled by a motion sensor.
3. Prior to issuance of a land use permit the applicant shall receive approval from all required agencies including, but not limited to, Hamburg Township Fire, Engineering and Public Works Departments, Livingston County Drain Commissioner, Livingston County Road Commission, and Health Department.
4. All signage shall conform to Article XIII, Signs, and land use permits shall be issued prior to installation of signage.
5. No electronic display sign shall be permitted.
6. Any earth work that has a direct impact to the wetlands may be subject to a Part 303 EGLE permit and such permit shall be obtained prior to site work.
7. A vegetative berm shall be provided along the length of the west and southwest property boundaries that abut a single-family residential dwelling.
8. A buffer zone, which may include a buffer, along Winans Lake Road shall be installed.
9. A vegetative screen, which may include a berm, shall be installed along the northern 1,200 linear feet of the east property boundary.
10. The docks on the Huron River shall be sized to meet the Ordinance requirements.
11. No public use of the docks shall be permitted.
12. All required state permits shall be obtained prior to the installation of any docks in the Huron River or Gut Lake.
13. Upon final approval of the site plan, construction or expansion of any permitted or special use shall conform to the site plan. The approval by the planning commission and Township Board of a site plan shall expire within one year after the date of such approval, unless a land use permit has been issued and construction has commenced.
14. No sound amplification will be permitted on this site.
15. Special event usage to be coordinated with Township public safety committee.

EXHIBITS:

Site plan review application
 Site plans file-dated June 1, 2023
 Stormwater plans file-dated June 1, 2023
 Floor plans
 Architecture boards
 Township engineer review
 Natural features impact statement
 Livingston County Road Commission communication
 Livingston County Health Department communication
 April 19, 2023 Planning Commission meeting minutes

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MAR 13 2023

Hamburg Township
Planning and Zoning Department
FAX 810-231-4295
PHONE 810-231-1000



\$2000 PSRA 23-0003
Hamburg Township
a great place to grow

\$750 PSUP
23-0001
P.O. Box 157
10405 Merrill Road
Hamburg, Michigan 48139

Item 3.

SITE PLAN APPROVAL APPLICATION

Please note: All required information, copies, fees, and other materials as appropriate must be submitted and complete before the Township Planning Commission will set a public hearing date on the Site Plan Approval Application.

Application fees and review fees are required at the time of application.

In the case of separate applications for Preliminary and Final reviews, separate application and review fees shall be collected. Review fees shall be placed into a non-interest bearing escrow account. Upon final review, review fee balances shall be returned upon receipt of final billing. The applicant shall be responsible for all costs incurred.

Note: Acreage calculations based upon the acreage being developed or utilized for the project (parking, buildings, walks, storm water retention etc.)

The undersigned hereby makes application for a Site Plan Approval for: (Check all that apply)

1. **TYPE OF PROJECT:** ☒ Open Space ☐ Echo ☐ Residential ☐ Condominium
☐ Apartments ☐ Commercial ☐ Industrial ☐ PUD ☐ Hardship PUD
2. **TYPE OF APPLICATION:** ☐ Preliminary Site Plan ☐ Optional Conceptual Site Plan Review by Planning Commission
☒ Final Site Plan ☐ Combined - Preliminary/Final Site Plan
☐ Minor Site Plan ☐ Site Plan Amendment (less than 25% area of site being changed) ☐ Site Plan Amendment (26% or more or site being changed)

3. **PROJECT NAME:** Freedom River Campground Submittal Date: 3/13/2023

4. **PROJECT ADDRESS:** 6716 Winans Lake Road Brighton, MI 48116

Tax Code Numbers: 15 - 14-400-008 15 - 23-100-022 15 - _____

15 - _____ 15 - _____ 15 - _____

☐ Metes & Bounds Parcel ☐ Subdivision _____ Lot Numbers: _____

Zoning District Classification: Residential Waterfront Floodplain Classification: Class 8

Number of Lots Proposed: _____ Acreage of Project: 93.92

5. **PROJECT DESCRIPTION:** _____

Recreational facility dedicated and designed for veterans and their families as a place of relaxation and reflections. Campground to include RV camping, rent camping, and short stay cabins to accommodate varying stay durations.

PRELIMINARY & FINAL SITE PLAN CHECKLIST

Each preliminary & Final Site Plan submitted for review shall provide the following information at the time of application.

_____ **A. General Information**

- ☐ 1. Name and address of the proprietor and proof of ownership, developer, and registered engineer, registered surveyor, registered architect, registered landscape architect, or registered community planner who prepared the site plan.
- ☐ 2. Date of plan preparation, north arrow, and scale of plan, which shall not be greater than one inch equals twenty feet (1" = 20') nor less than one inch equals two hundred feet (1" = 200').
- ☐ 3. Full legal description of parcel and dimensions of all lot and property lines showing the relationship to abutting properties, and in which district the subject property and abutting properties are located.
- ☐ 4. Area map showing the relationship of the parcel to the surrounding area within one-half mile.
- ☐ 5. The location and description of all existing structures within one hundred feet (100') of the parcel.

_____ **B. Physical Information**

- ☐ 1. Proposed plans for site grading, surface drainage, water supply and sewage disposal.
- ☐ 2. The location of existing and proposed landscaping, buffer areas, fences, or walls on the parcel.
- ☐ 3. Existing and proposed structure information including the following:
 - a. Footprint location, dimensions and setbacks.
 - b. Finished floor and grade line elevations.
 - c. Elevations drawings that illustrate building design, size, height, windows and doors, and describe construction materials. Elevations shall be provided for all sides visible from an existing or proposed public street or a residential zoning district.
 - d. The Planning Commission may require a color rendering of the building elevation required in paragraph c.
 - e. Proposed materials and colors shall be specified on the site plan. Color chips or samples shall also be submitted at or prior to the Planning Commission meeting to review the site plan. These elevations, colors and materials shall be considered part of the approved site plan.
- ☐ 4. The location and dimensions of all existing and proposed streets, driveways, sidewalks, service lanes and other vehicular and pedestrian circulation features within and adjacent to the parcel.
- ☐ 5. The location, dimensions, and numbers of off-street parking and loading spaces.

- ☐ 6. Location of existing and proposed service facilities above and below ground, including:
- a. Well sites.
 - b. Septic systems and other wastewater treatment systems. The location of the septic tank and drain field (soil absorption system) should be clearly distinguished.
 - c. Chemical and fuel storage tanks and containers.
 - d. Storage, loading, and disposal areas for chemicals, hazardous substances, salt and fuels.
 - e. Water mains, hydrants, pump houses, standpipes, and building services and sizes.
 - f. Sanitary sewers and pumping stations.
 - g. Stormwater control facilities and structures including storm sewers, swales, retention and detention basins, drainage ways and other facilities, including calculations for sizes.
 - h. Location of all easements.

- ☐ 7. Any other pertinent physical features.

—— C. **Natural Features**

- ☐ 1. Map of existing topography at two-foot (2') contour intervals with existing surface drainage indicated.
- ☐ 2. Soil characteristics of the parcel to at least the detail provided by the U.S. Soil Conservation Service "Soil Survey of Livingston County, Michigan."
- ☐ 3. On parcels of more than one acre, existing topography with a maximum contour interval of two feet indicated. Topography on the site and beyond the site for a distance of 100 feet in all directions should be indicated. Grading plan, showing finished contours at a maximum interval of two feet, correlated with existing contours so as to clearly indicate required cutting, filling and grading.
- ☐ 4. Location of existing drainage courses, including lakes, ponds, rivers and streams, and all elevations.
- ☐ 5. Location of existing wetlands, delineated under the requirements of section 3.6, Wetland Determination. A Michigan Department of Natural Resources (MDNR) permit shall be required for activities in a regulated wetland or an inland lake or stream. A copy of any correspondence with and applications to the MDNR shall be submitted with the site plan application. The Planning Commission shall not grant final site plan approval until all necessary permits have been obtained.
- ☐ 6. Location of natural resource features, including woodlands and areas with slopes greater than 10 percent (one foot of vertical elevation for every 10 feet of horizontal distance).
- ☐ 7. Location of the required 50 foot natural features setback.
- ☐ 8. Storm water management systems and facilities will preserve the natural drainage characteristics and enhance the aesthetics of the site to the maximum extent feasible, with the development not substantially reducing the natural retention of storage capacity of any wetland, water body, or water course, or cause alterations which could increase flooding or water pollution on or off site.

- ☐ 9. Wastewater treatment systems, including on-site septic systems will be located to minimize any potential degradation of surface water or groundwater quality.
- ☐ 10. Sites which include storage of hazardous materials or waste, fuels, salt, or chemicals will be designed to prevent spills and discharges or polluting materials to the surface of the ground, groundwater, or nearby water bodies.

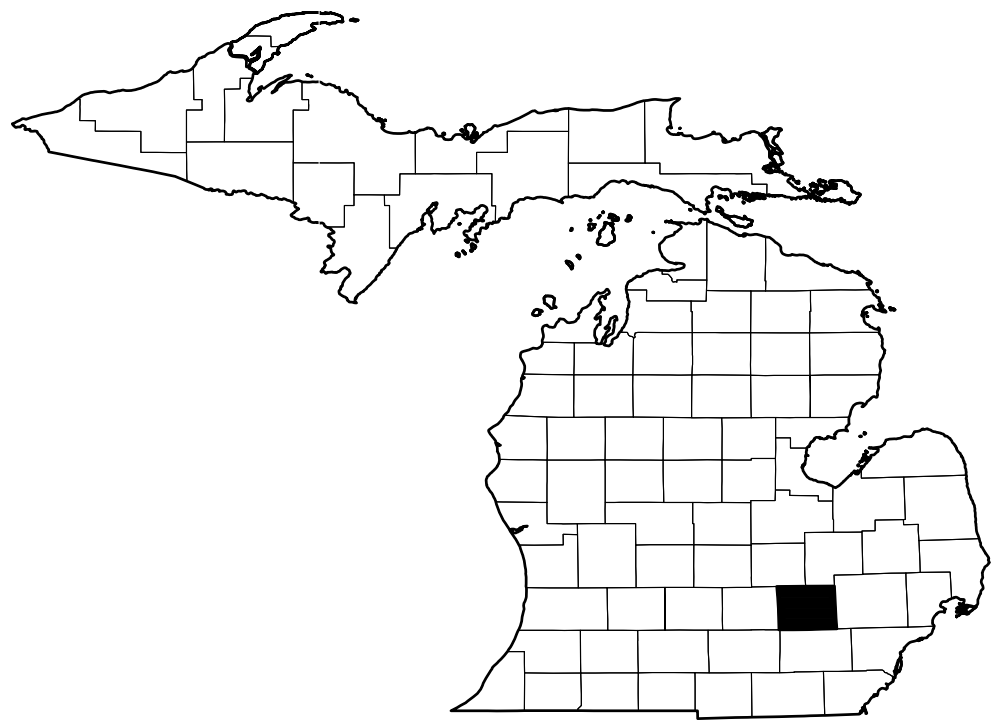
_____ D. **Natural Features Impact Statement.** The purpose of a Natural Features Impact Statement (NFIS) is to provide the Township with information regarding the impact of a proposed project on the physical, natural, social, and economic environment of the community. A complete report shall be required with all site plan applications. The Zoning Administrator (ZA) has the discretion to modify this requirement based on the specific application. When required the report will be reviewed by the ZA and Hamburg Environmental Review Board (HERB). The HERB may issue an Advisory Report to the Zoning Administrator for review by the Planning Commission. Contained in the Advisory Report will be a summary of the NFIS and appropriate comments and recommendations. The Advisory Report and the required site walk will be used to assist Zoning Ordinance Hamburg Township, Livingston County, Michigan, the Township Board and Planning Commission. The written NFIS will include the following information:

- ☐ 1. Name (s) and address (es) of person(s) responsible for preparation of the impact assessment and a brief statement of any relevant qualifications. The HERB may recommend a qualified individual to prepare the NFIS if deemed appropriate.
- ☐ 2. An impact assessment checklist on a form provided by the Township shall be completed and placed at the beginning of the document.
- ☐ 3. Map (s) and a written description/analysis of the project site including all existing structures, manmade facilities, and natural features. The analysis shall also include information for areas within 50 feet of the property. An aerial photograph or drawing may be used to delineate these areas.
- ☐ 4. Description of existing natural features: A description of the environmental characteristics of the site prior to development shall be provide in the form of written documentation and a site inventory map identifying the location of natural features consistent with subparagraph C of this section. In addition, dominant tree species shall be listed and all species greater than 16 inches caliper or greater. As defined in Article 2.00, natural features include but are not limited to: topography, soils, geology, ground water, wetlands, watercourses, plants and animals (including aquatic species), habitat, and scenery.
- ☐ 5. Impact on natural features: A written description of the impact on the identified existing natural features shall be provided. The report shall also provide a natural features protection plan, which identifies on a map the natural features potentially affected. Where disturbance of natural features both during and after construction is proposed, a written analysis of alternative plans, which were considered, shall be provided to justify the proposed plan. The HERB may recommend a mitigation plan be required which will describe how disturbed natural features were relocated or replace. (See Article 2.00 for complete definition of terms)
- ☐ 6. Impact on storm water management: Description of natural drainage patterns and soil infiltration and unsaturated soil capacity. A description of changes to site drainage and storm water

management facilities to be installed in compliance with the Township Storm Water Ordinance. Description of measures to control soil erosion and sedimentation during grading and construction operations and until a permanent ground cover is established. Recommendations for such measures may be obtained from the County Soil Conservation Service.

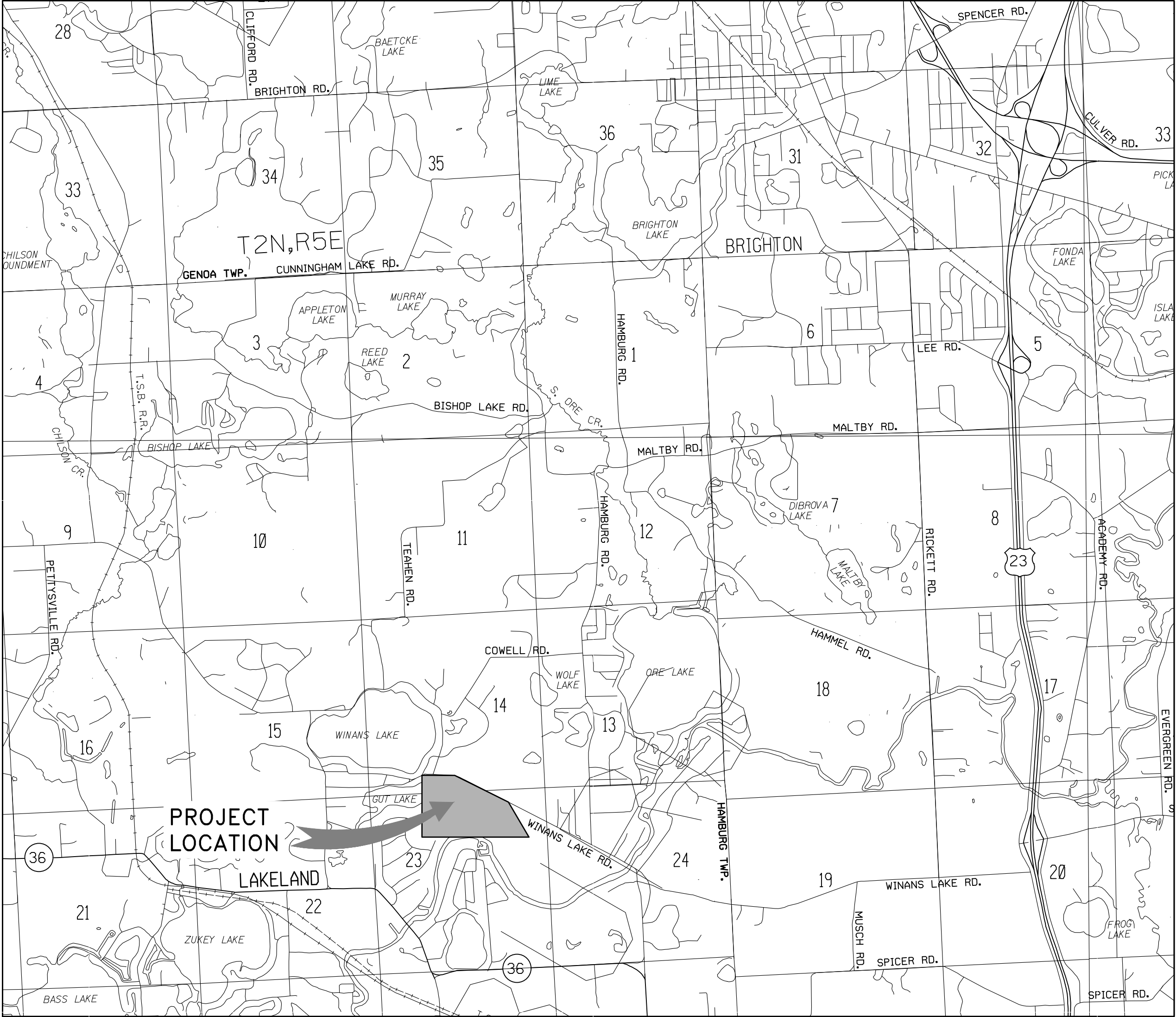
- ☐ 7. Special Provisions: Provide a general description of any existing deed restrictions, protective covenants, master deed or association bylaws as they relate to the protection of natural features. Zoning Ordinance Hamburg Township, Livingston County, Michigan
- ☐ 8. Information Sources: A list of all sources of information contained in the NFIS, if any shall be provided.
- ☐ 9. Previous Submittals: Any impact assessment previously submitted relative to the site and proposed development, which fulfills the above requirements (and contains accurate information of the site) may be submitted as the required Impact Assessment.

SITE PLANS
FOR
FREEDOM RIVER CAMPGROUND
6716 WINANS LAKE ROAD
SECTIONS 14 AND 23, T1N, R5E
LIVINGSTON COUNTY, HAMBURG TOWNSHIP, MI 48116



KEY MAP
NOT TO SCALE

CONTACTS	
OWNER/DEVELOPER	FREEDOM RIVER, INC. 9305 HURON RAPIDS DRIVE, WHITMORE LAKE, MI 48189 734.231.2792 JANNA YEAKEY
CIVIL ENGINEER	WADE TRIM 25251 NORTHLINE ROAD, TAYLOR, MI 48180 734.947.9700 GREG SPIESS, PE GSPIESS@WADETRIM.COM
ELECTRIC	DTE ENERGY 1095 LAWSON, HOWELL, MI 48843 734.332.8145
GAS	CONSUMERS ENERGY ONE ENERGY PLAZA, JACKSON, MI 49201 517.788.7194
WATER & SEWER	HAMBURG TOWNSHIP 10405 MERRILL ROAD, HAMBURG, MI 48139 810.231.1000
PLANNING & ZONING	HAMBURG TOWNSHIP 10405 MERRILL ROAD, HAMBURG, MI 48139 810.231.1000
ROADS	LIVINGSTON COUNTY ROAD COMMISSION 3535 GRAND OAKS DRIVE, HOWELL, MI 48843 517.546.4250
STORM WATER	LIVINGSTON COUNTY DRAIN COMMISSION 2300 E GRAND RIVER, HOWELL, MI 48843 517.546.0040
SOIL EROSION CONTROL	LIVINGSTON COUNTY DRAIN COMMISSION 2300 E GRAND RIVER, HOWELL, MI 48843 517.546.0040



VICINITY MAP
NOT TO SCALE

SITE DATA TABLE	
TAX PARCEL #	4715-23-100-002 & 4715-14-400-008
EXISTING ZONING	WFR & NR
PROPOSED ZONING	PPRF (NR WILL REMAIN)
PROPOSED USE	CAMPGROUND, RECREATIONAL FACILITIES
MINIMUM LOT AREA	1,742,400 SF (40 ACRES)
TOTAL LOT AREA	3,678,694 SF
MINIMUM BUILDING SETBACKS	
FRONT	100'
SIDE	50'
REAR	100'
WETLANDS/BODY OF WATER	100'
ACTUAL SETBACKS	
FRONT (NORTH)	100.1'
SIDE (EAST)	284'
SIDE (WEST)	190.1'
REAR (SOUTH)	160.5'
REQUIRED PARKING SPACE SIZE	10'x20'
PROP. PARKING SPACE SIZE	10'x20'

*PER SECTION 36-185.(b)(2)c - BUILDINGS, STRUCTURES, OR USE AREAS SHALL BE 200 FEET FROM ANY PROPERTY LINE WHEN ABUTTING A RESIDENTIAL DISTRICT.

PARKING REQUIREMENTS	
TYPE	NO. OF SPACES
REQUIRED	
PER EGLE PUBLIC HEALTH CODE ACT 368 OF 1978 SECTION 1558.2 "ROADS AND VEHICLES": A CAMPGROUND OWNER SHALL PROVIDE SPACE FOR VEHICLE PARKING EQUAL TO A MINIMUM OF 1.5 THE NUMBER OF SITES IN A CAMPGROUND RV SITES: 27 x 1.5 = 41 SPACES CABINS: 27 x 1.5 = 41 SPACES TENTS: 20 x 1.5 = 30 SPACES	
PARKING REQUIRED	112
REGULAR SPACES	107
BARRIER FREE SPACES	5 (1 VAN)
PARKING PROVIDED	220
REGULAR SPACES	201
BARRIER FREE SPACES	19

SHEET INDEX	
GENERAL SHEETS	SHEET NO.
COVER SHEET	C0.0
GENERAL NOTES AND LEGENDS	C0.1
EXISTING CONDITIONS PLAN	C1.0
SESC PLAN - A	C2.1
SESC PLAN - B	C2.2
SESC PLAN - C	C2.3
SESC PLAN - D	C2.4
SESC DETAILS	C2.5
DEMOLITION PLAN - A	C2.6
DEMOLITION PLAN - B	C2.7
DEMOLITION PLAN - C	C2.8
DEMOLITION PLAN - D	C2.9
OVERALL SITE PLAN	C3.0
SITE PLAN - A	C3.1
SITE PLAN - B	C3.2
SITE PLAN - C	C3.3
SITE PLAN - D	C3.4
SITE DETAILS	C3.5
DRAINAGE AREA PLAN	C4.0
STORMWATER CALCULATIONS	C4.1
OVERALL UTILITY PLAN - SANITARY	C5.0
OVERALL STM SWR PLAN - STORM	C5.1
UTILITY DETAILS	C5.2
SANITARY PROFILES - A	C5.3
SANITARY PROFILES - B	C5.4
SANITARY PROFILES - C	C5.5

6/1/23	SITE PLAN SUBMITTAL	GLS
DATE	DESCRIPTION	BY

REVISIONS	
JOB NO.	SHEET
VCM2001	C0.0



PREPARED UNDER THE SUPERVISION OF:



Gregory L. Spiess
ENGINEER
No. 69058

GREGORY L. SPIESS, PE
STATE OF MICHIGAN NO. 69058



Know what's below.
Call before you dig.



Know what's **below**.
Call before you dig.

DEMOLITION NOTES

- THE DEMOLITION CONTRACTOR SHALL OBTAIN A DEMOLITION PERMIT FROM THE APPROPRIATE GOVERNING AGENCY(’S) PRIOR TO COMMENCING WITH DEMOLITION.
- THE DEMOLITION CONTRACTOR SHALL BE RESPONSIBLE FOR BACKFILLING THE BUILDING EXCAVATION AREAS WITH M.D.O.T. CLASS II MATERIAL. ALL FILL MATERIAL SHALL BE BACKFILLED WITH MAX. 12" LIFTS & COMPACTED TO 95% MAX. DENSITY PER ASTM D1557 (MODIFIED PROCTOR).
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF THE CONCRETE BASES & APPURTENANCES FOR ALL FLAG POLES, LIGHT POLES, FENCE POLES, PIPE BOLLARDS AND SIGNS THAT ARE TO BE REMOVED, INCLUDING ANY NOT IDENTIFIED ON THIS PLAN.
- ALL ASPHALT & CONCRETE TO BE REMOVED SHALL BE SAW CUT WHERE REQUIRED ALONG PROPOSED LIMITS OF DEMOLITION.
- THE LOCATION OF THE EXISTING WATER SERVICE LINES ARE SHOWN PER MAPS OBTAINED FROM THE TOWNSHIP. THE CONTRACTOR SHALL FIELD LOCATE THE EXISTING WATER SERVICE SERVICE LINES. THE EXISTING WATER SERVICE SHALL BE REMOVED PLUGGED AND ABANDONED. ALL PLUGS SHALL BE WATER TIGHT.
- THE EXACT LOCATION OF ALL SANITARY SEWER SERVICE LEADS ARE UNKNOWN. THE CONTRACTOR SHALL FIELD LOCATE ALL EXISTING SANITARY SEWER SERVICE LEADS AND FORCE MAINS. THE EXISTING SANITARY SEWER SYSTEM SHALL BE REMOVED FROM THE SITE.
- THE EXACT LOCATION OF ALL EXISTING ON-SITE STORM SEWER PIPES ARE UNKNOWN. THE CONTRACTOR SHALL FIELD LOCATE ALL EXISTING STORM SEWER SERVICE PIPES AND REMOVE TO EXISTING STRUCTURE. THE CONTRACTOR SHALL INSTALL A WATER TIGHT BULKHEAD WHERE APPLICABLE.
- THE DEMOLITION CONTRACTOR SHALL COORDINATE ALL UTILITY REMOVAL/RELOCATION WITH THE APPROPRIATE UTILITY COMPANY.
- BUILDING REMOVAL TO INCLUDE ALL FOOTINGS, SLABS AND BELOW GRADE PORTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF ALL MATERIALS OFF-SITE.
- CONTRACTOR SHALL COORDINATE ALL RETAINING WALL AND FENCE REMOVAL, REPLACEMENT, OR RELOCATION, ALONG PROPERTY LINES, WITH ADJACENT PROPERTY OWNER.
- ALL CONCRETE CURB AND GUTTER ON-SITE SHALL BE REMOVED AND PROPERLY DISPOSED OF, INCLUDING ANY NOT SHOWN ON THIS PLAN.
- ALL EXISTING ON-SITE VEGETATION TO BE REMOVED WITHIN THE WALGREENS PROPERTY LIMITS.
- THE CONTRACTOR SHALL COORDINATE THE REMOVAL OF SIGNS WITH THE EXISTING PROPERTY OWNER.

SITE PLAN NOTES

1. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL COUNTY REGULATIONS AND CODES AND O.S.H.A. STANDARDS.
2. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR DETAILS AND EXACT LOCATIONS, VESTIBULES, PRECISE BUILDING DIMENSIONS AND EXACT REQUIRED UTILITY ELEVATIONS.
3. ALL DIMENSIONS AND RADII ARE TO THE FACE OF CURB OR FACE OF THICKENED EDGE SIDEWALK UNLESS OTHERWISE NOTED ON THE PLANS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, (UNLESS OTHERWISE NOTED ON PLANS) INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. CONTRACTOR SHALL BE IN COMPLIANCE WITH GOVERNING AUTHORITY'S REQUIREMENTS AND PROJECT SITE WORK SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COST SHALL BE INCLUDED IN THE BASE BID.
5. THE SITE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE BUILDING CONTRACTOR.
6. PROVIDE ISOLATION JOINTS WHERE CONCRETE ABUTS PROPOSED BUILDING.
7. ALL PARKING LOT STRIPING SHALL BE IN ACCORDANCE WITH THE "MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES". ALL STRIPING SHALL BE WATERBORNE PER MDOT SPECIFICATIONS AND ALL STRIPING SHALL BE 4" YELLOW UNLESS OTHERWISE NOTED. PARKING SPACE STRIPING SHALL BE YELLOW OR BLUE AT 2 FT ON CENTER, ON A 45° ANGLE UNLESS OTHERWISE NOTED. CONTRACTOR SHALL APPLY 2 COATS OF PAVEMENT MARKINGS, 1 MONTH APART.
8. ALL BARRIER FREE PARKING, SIGNAGE & STRIPING SHALL BE IN ACCORDANCE WITH MICHIGAN BARRIER FREE STANDARDS. DETECTABLE WARNING SURFACE SHALL BE INSTALLED AS REQ'D BY MICHIGAN BARRIER FREE STANDARDS AT ALL RAMP AND OTHER LOCATIONS AS PROVIDED IN MICHIGAN BARRIER FREE STANDARDS. STRIPING SHALL BE WATERBORNE PAVEMENT MARKING PER MDOT SPECIFICATIONS, COLOR BLUE UNLESS OTHERWISE SPECIFIED.
9. PLACEMENT OF SLEEVES FOR ANY ELECTRIC OR IRRIGATION SYSTEM SHALL BE COORDINATED WITH OWNER/ARCHITECT PRIOR TO BEGINNING CONSTRUCTION.
10. CONTRACTOR IS RESPONSIBLE FOR PROPER TRAFFIC CONTROL DURING CONSTRUCTION IN ACCORDANCE WITH THE "MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES".
11. SITE CONTRACTOR SHALL REFER TO LIGHTING PLANS FOR LIGHTING LOCATIONS AND FOUNDATIONS. SITE CONTRACTOR SHALL COORDINATE LOCATIONS OF ALL LIGHTING AND CIRCUITRY PRIOR TO PLACING UTILITIES AND INSTALLING PAVEMENTS.

BENCHMARKS

BM#1: SPIKE IN NORTH FACE OF UTILITY POLE 130'
SOUTHWEST OF THE INTERSECTION OF WINANS
LAKE RD. AND BUCKHORN LN.
ELEV=892.31 (NAVD 88)

BM#2: SPIKE IN SOUTH SIDE OF 20" COTTONWOOD
LOCATED 20' EAST OF LAKE CREST DR.
ELEV=891.71 (NAVD 88)

LINE WORK

BOUNDARY	
RIGHT OF WAY	
BUILDING/WETLAND SETBACK	
BUILDING	
CURB & GUTTER	
CHAIN LINK FENCE	
SHORE OR EDGE OF WATER	
WETLAND	
WETLAND BUFFER	
EDGE OF WOODS	
EDGE OF BRUSH	
MAJOR CONTOUR	
MINOR CONTOUR	
SANITARY SEWER MAIN	
OVERHEAD ELECTRIC	
GAS MAIN OR SERVICE	

SESC LEGEND

TEMPORARY SILT FENCE	
MAJOR CONTOUR	
MINOR CONTOUR	
DRAINAGE SWALE	
DRAINAGE FLOW ARROW	
FILTER BERM OR CHECK DAM	
LIMITS OF DISTURBANCE/ PROJECT LIMITS	
SOIL TYPE	
CONSTRUCTION ENTRANCE	
STAGING/STOCK PILE AREA	

DEMOLITION LEGEND









SAWCUT FULL DPTH

BUILDING REMOVAL





WOODED AREA REMOVAL

EXISTING LEGEND

TOPOGRAPHIC FEATURES




















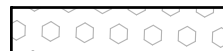
FOUND IRON ROD	
GOVERNMENT CORNER	
BENCHMARK	
MAIL BOX	
MONITORING WELL	
ROUND POST OR BOLLARD	
SIGN POST	
DECIDUOUS TREE OR BUSH	

UTILITIES SYMBOLS

SANITARY SEWER MANHOLE	
UTILITY POLE	
GAS METER	
TELEPHONE PEDISTAL	

PROPOSED LEGEND

SITE LEGEND

FIRE HYDRANT	
WATER VALVE IN BOX	
WATER MAIN	
SANITARY SEWER MANHOLE	
SANITARY SEWER CLEAN OUT	
SANITARY PUMP STATION	
SANITARY SEWER MAIN	
STORM CATCH BASIN	
STORM MANHOLE	
STORM SEWER END SECTION	
STORM SEWER LINE	
DRAINAGE SWALE	
TOP OF BANK	
BUILDING LINE	
BUILDING SETBACK	
PARKING COUNT	
SIGN AND SIGN POST	
ACCESSIBLE SYMBOL	
CONCRETE SURFACE	
SEE DETAIL ON SHEET C3.5	
SOLAR FARM	

NOTE: FOR EXISTING FEATURES SEE TOPOGRAPHIC SURVEY OR EXISTING CONDITIONS PLAN.

GRADING LEGEND

CURB ELEVATION
WHERE: T = TOP OF CURB
G = GUTTER OR PVMT.

THICKENED EDGE WALK ELEV.
WHERE: T = TOP OF WALK
P = PAVEMENT

SPOT ELEV.

WHERE XXX IS ONE OF THE FOLLOWING:

TOP OF CONCRETE ELEV.	TOC
FINISH GRADE ELEV.	FG
DOOR ELEV.	DOOR
RIM ELEV.	RIM
BACK OF CURB ELEV.	BOC
GUTTER ELEV.	GUT
MATCH EXISTING ELEV.	MATCH
TOP OF PAVEMENT ELEV.	T/P
TOP OF WALL ELEV.	TOW
BOTTOM OF WALL ELEV.	BOW
TOP OF BANK ELEV.	TOB
TOE OF SLOPE ELEV.	TOE
FINISH FLOOR ELEV.	FFE
ADJUST RIM ELEV.	ADJUST

DRAINAGE FLOW

DRAINAGE SLOPE

FINISH GRADE SLOPE

MAJOR CONTOUR

MINOR CONTOUR

[illegible]

25251 Northline Rd.
Taylor, MI 48180
734.947.9700
www.wadetrim.com



**FREEDOM RIVER, INC.
05 HURON RAPIDS DRIVE
WHITEMORE LAKE, MI 48189**

ISSUED FOR:	DATE:	BY:
SPA	6/1/23	GLS

JOB NO. VCM2001

SHEET

C0.1

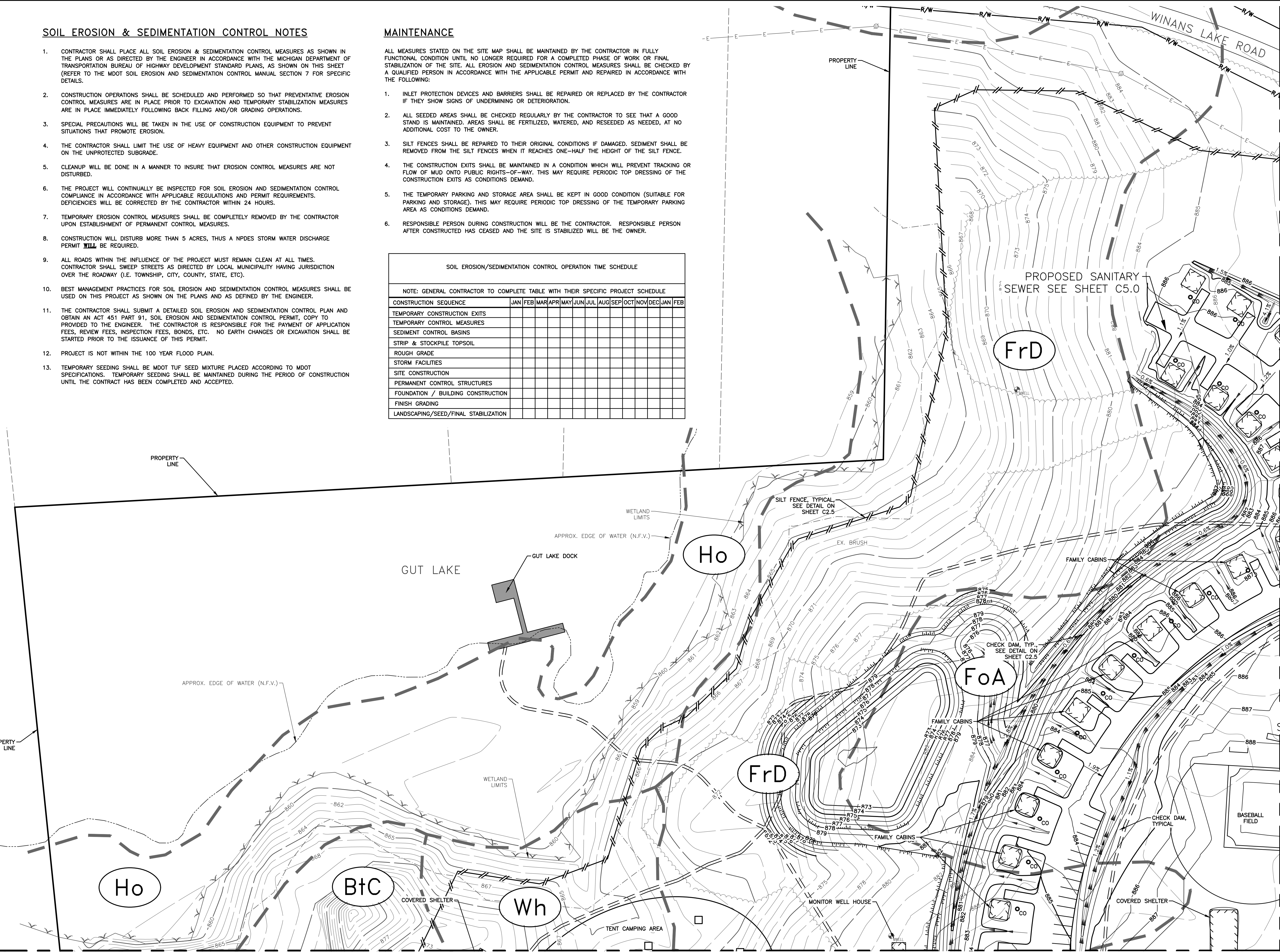
SOIL EROSION & SEDIMENTATION CONTROL NOTES

- CONTRACTOR SHALL PLACE ALL SOIL EROSION & SEDIMENTATION CONTROL MEASURES AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLANS, AS SHOWN ON THIS SHEET (REFER TO THE MDOT SOIL EROSION AND SEDIMENTATION CONTROL MANUAL SECTION 7 FOR SPECIFIC DETAILS).
- CONSTRUCTION OPERATIONS SHALL BE SCHEDULED AND PERFORMED SO THAT PREVENTATIVE EROSION CONTROL MEASURES ARE IN PLACE PRIOR TO EXCAVATION AND TEMPORARY STABILIZATION MEASURES ARE IN PLACE IMMEDIATELY FOLLOWING BACK FILLING AND/OR GRADING OPERATIONS.
- SPECIAL PRECAUTIONS WILL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT SITUATIONS THAT PROMOTE EROSION.
- THE CONTRACTOR SHALL LIMIT THE USE OF HEAVY EQUIPMENT AND OTHER CONSTRUCTION EQUIPMENT ON THE UNPROTECTED SUBGRADE.
- CLEANUP WILL BE DONE IN A MANNER TO INSURE THAT EROSION CONTROL MEASURES ARE NOT DISTURBED.
- THE PROJECT WILL CONTINUALLY BE INSPECTED FOR SOIL EROSION AND SEDIMENTATION CONTROL COMPLIANCE IN ACCORDANCE WITH APPLICABLE REGULATIONS AND PERMIT REQUIREMENTS. DEFICIENCIES WILL BE CORRECTED BY THE CONTRACTOR WITHIN 24 HOURS.
- TEMPORARY EROSION CONTROL MEASURES SHALL BE COMPLETELY REMOVED BY THE CONTRACTOR UPON ESTABLISHMENT OF PERMANENT CONTROL MEASURES.
- CONSTRUCTION WILL DISTURB MORE THAN 5 ACRES, THUS A NPDES STORM WATER DISCHARGE PERMIT **WILL** BE REQUIRED.
- ALL ROADS WITHIN THE INFLUENCE OF THE PROJECT MUST REMAIN CLEAN AT ALL TIMES. CONTRACTOR SHALL SWEEP STREETS AS DIRECTED BY LOCAL MUNICIPALITY HAVING JURISDICTION OVER THE ROADWAY (I.E. TOWNSHIP, CITY, COUNTY, STATE, ETC.).
- BEST MANAGEMENT PRACTICES FOR SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE USED ON THIS PROJECT AS SHOWN ON THE PLANS AND AS DEFINED BY THE ENGINEER.
- THE CONTRACTOR SHALL SUBMIT A DETAILED SOIL EROSION AND SEDIMENTATION CONTROL PLAN AND OBTAIN AN ACT 451 PART 91, SOIL EROSION AND SEDIMENTATION CONTROL PERMIT, COPY TO PROVIDED TO THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR THE PAYMENT OF APPLICATION FEES, REVIEW FEES, INSPECTION FEES, BONDS, ETC. NO EARTH CHANGES OR EXCAVATION SHALL BE STARTED PRIOR TO THE ISSUANCE OF THIS PERMIT.
- PROJECT IS NOT WITHIN THE 100 YEAR FLOOD PLAIN.
- TEMPORARY SEEDING SHALL BE MDOT TUF SEED MIXTURE PLACED ACCORDING TO MDOT SPECIFICATIONS. TEMPORARY SEEDING SHALL BE MAINTAINED DURING THE PERIOD OF CONSTRUCTION UNTIL THE CONTRACT HAS BEEN COMPLETED AND ACCEPTED.

MAINTENANCE

- INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.
- ALL SEEDED AREAS SHALL BE CHECKED REGULARLY BY THE CONTRACTOR TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED, AT NO ADDITIONAL COST TO THE OWNER.
- SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
- THE CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION EXITS AS CONDITIONS DEMAND.
- THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AREA AS CONDITIONS DEMAND.
- RESPONSIBLE PERSON DURING CONSTRUCTION WILL BE THE CONTRACTOR. RESPONSIBLE PERSON AFTER CONSTRUCTED HAS CEASED AND THE SITE IS STABILIZED WILL BE THE OWNER.

SOIL EROSION/SEDIMENTATION CONTROL OPERATION TIME SCHEDULE												
NOTE: GENERAL CONTRACTOR TO COMPLETE TABLE WITH THEIR SPECIFIC PROJECT SCHEDULE												
CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TEMPORARY CONSTRUCTION EXITS												
TEMPORARY CONTROL MEASURES												
SEDIMENT CONTROL BASINS												
STRIP & STOCKPILE TOPSOIL												
ROUGH GRADE												
STORM FACILITIES												
SITE CONSTRUCTION												
PERMANENT CONTROL STRUCTURES												
FOUNDATION / BUILDING CONSTRUCTION												
FINISH GRADING												
LANDSCAPING/SEED/FINAL STABILIZATION												



DATA

- SOIL TYPE:
- BtA, BOYER-OSHTEMO LOAMY SANDS, 0 TO 2 PERCENT SLOPES
 - BtB, BOYER-OSHTEMO LOAMY SANDS, 2 TO 6 PERCENT SLOPES
 - BtC, BOYER-OSHTEMO LOAMY SANDS, 6 TO 12 PERCENT SLOPES
 - BwA, BRONSON LOAMY SAND, 0 TO 2 PERCENT SLOPES
 - CarabA, CARLISLE MUCK, 0 TO 2 PERCENT SLOPES
 - FoA, FOX SANDY LOAM, 0 TO 2 PERCENT SLOPES
 - FoB, FOX SANDY LOAM, 2 TO 6 PERCENT SLOPES
 - FoC, FOX SANDY LOAM, 6 TO 12 PERCENT SLOPES
 - FrD, FOX-BOYER COMPLEX, 12 TO 18 PERCENT SLOPES
 - FrE, FOX-BOYER COMPLEX, 18 TO 25 PERCENT SLOPES
 - FrF, FOX-BOYER COMPLEX, 25 TO 40 PERCENT SLOPES
 - GD, GILFORD SANDY LOAM, 0 TO 2 PERCENT SLOPES
 - HgtahA, HOUGHTON MUCK, 0 TO 1 PERCENT SLOPES
 - LM, LINWOOD MUCK
 - MIB, METAMORA SANDY LOAM, 0 TO 4 PERCENT SLOPES
 - OkbA, OAKVILLE FINE SAND, LOAMY SUBSTRATUM, 0 TO 6 PERCENT SLOPES
 - Wh, WASHTENAW SILT LOAM
- TOTAL DISTURBED AREA = X.XX ACRES
- CLOSEST BODY OF WATER:
NAME: HURON RIVER
DIST.: ON SITE

MATCH LINE - SEE SHEET C2.2

MATCH LINE - SEE SHEET C2.3



Know what's below.
Call before you dig.

PROJECT MANAGER: C:\PW_WORK\WADE-TRIM_GSPRESS\01228134\PLTS-SESC-PLAN.DWG - C2.1 SESC PLAN - A - PLOTTED 6/1/2023 4:33 PM BY: SPIESS, GREG

Item 3.		DESCRIPTION	DATE	REV#
NO.	BY			

25501 Northline Rd.
Whittemore Lake, MI 48189
734.847.9700
www.wadetrim.com

**WADE
TRIM**

FREEDOM RIVER, INC.
9305 HURON RAPIDS DRIVE
WHITEMORE LAKE, MI 48189

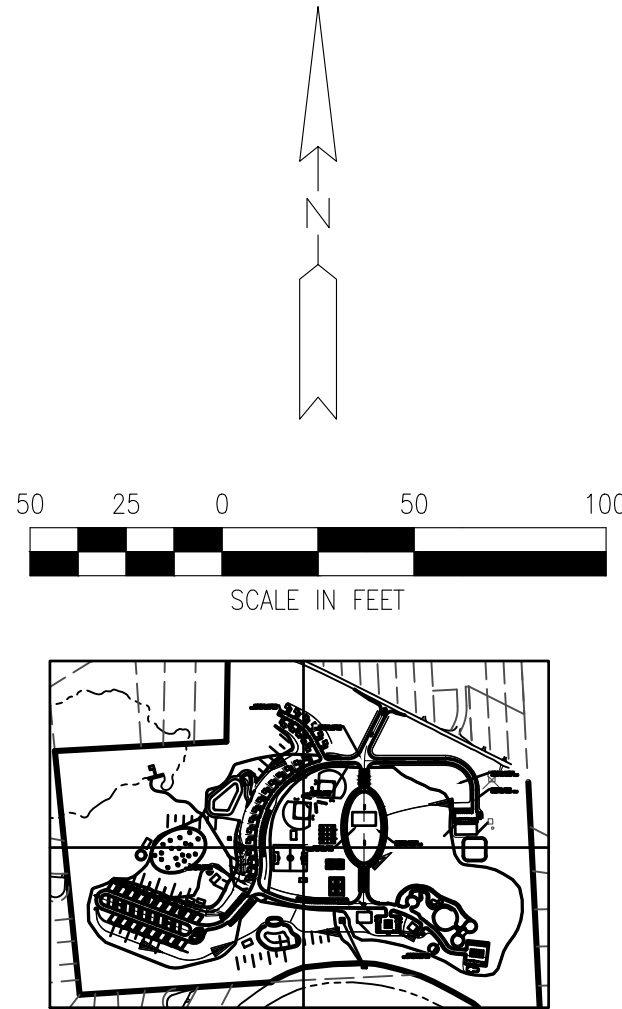
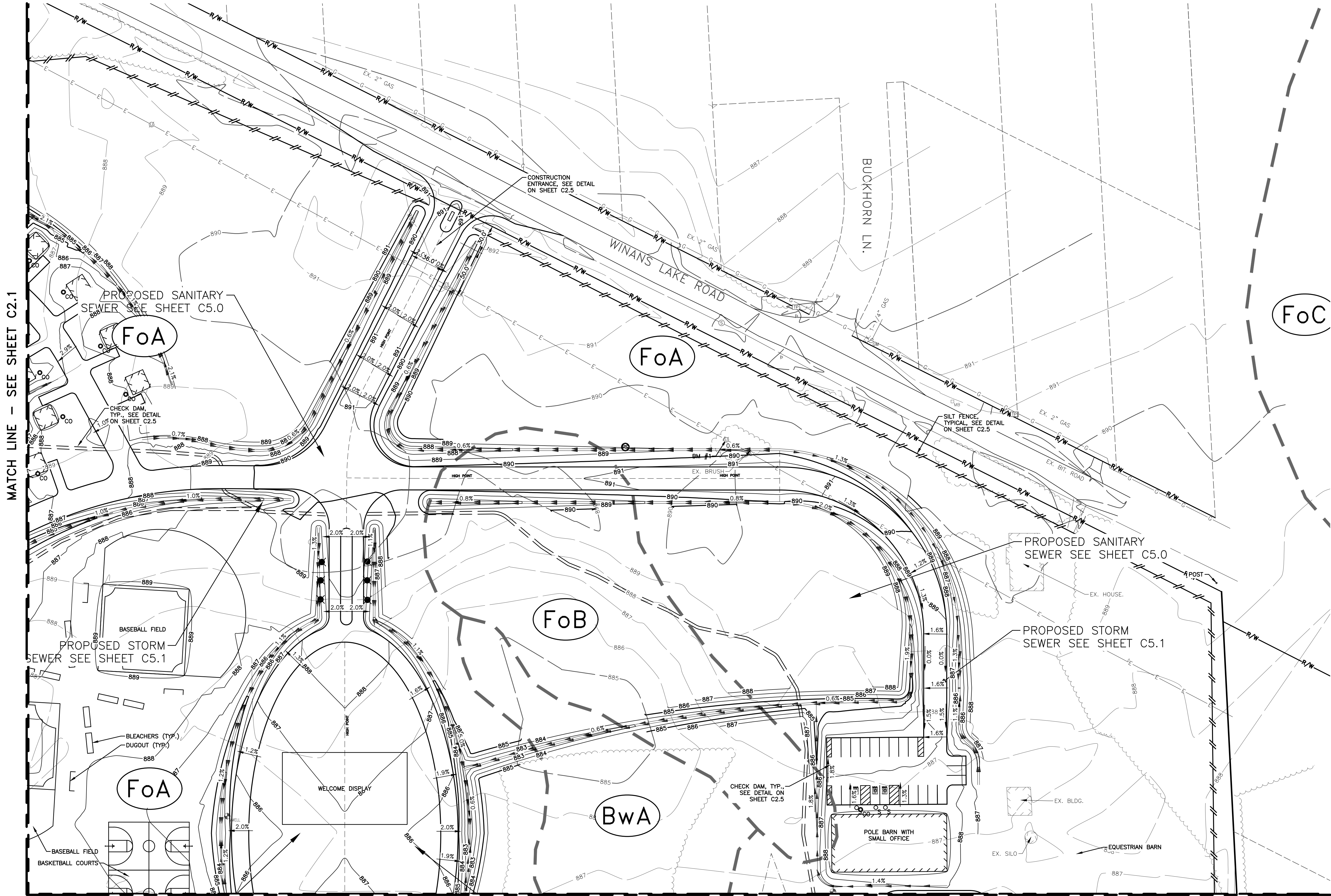
SESC PLAN - A
FOR
FREEDOM RIVER CAMPGROUND

ISSUED FOR: SPA	DATE: 6/1/23	BY: GLS
JOB NO. VCM2001	SHEET	
C2.1		161

PROJECT MANAGER: C:\PW\WORK\WADE-TRIM_GSPRESS\1228134\PLTS-SESC PLAN.DWG — C2.2 SESC PLAN — B — PLOTTED 6/1/2023 4:33 PM BY: SPIESS, GREG



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FREEDOM RIVER, INC.
9305 HURON RAPIDS DRIVE
WHITEMORE LAKE, MI 48189
SESC PLAN — B
FOR
FREEDOM RIVER CAMPGROUND

ISSUED FOR: SPA
DATE: 6/1/23
BY: GLS

JOB NO.
VCM2001

SHEET
C2.2

REV#	DATE	DESCRIPTION

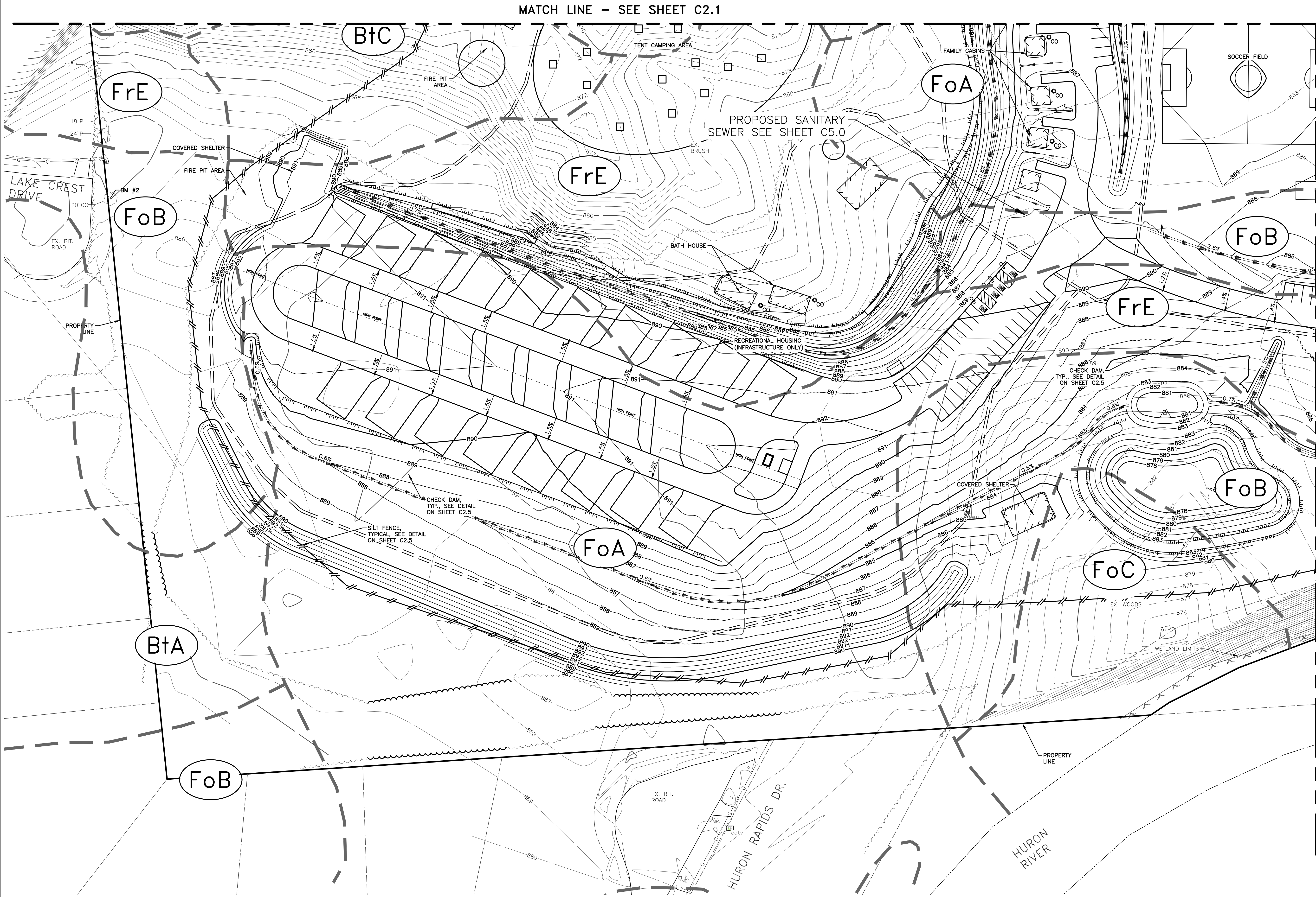


25501 Northline Rd.
Whitemore Lake, MI 48189
734.947.9700
www.wadetrim.com

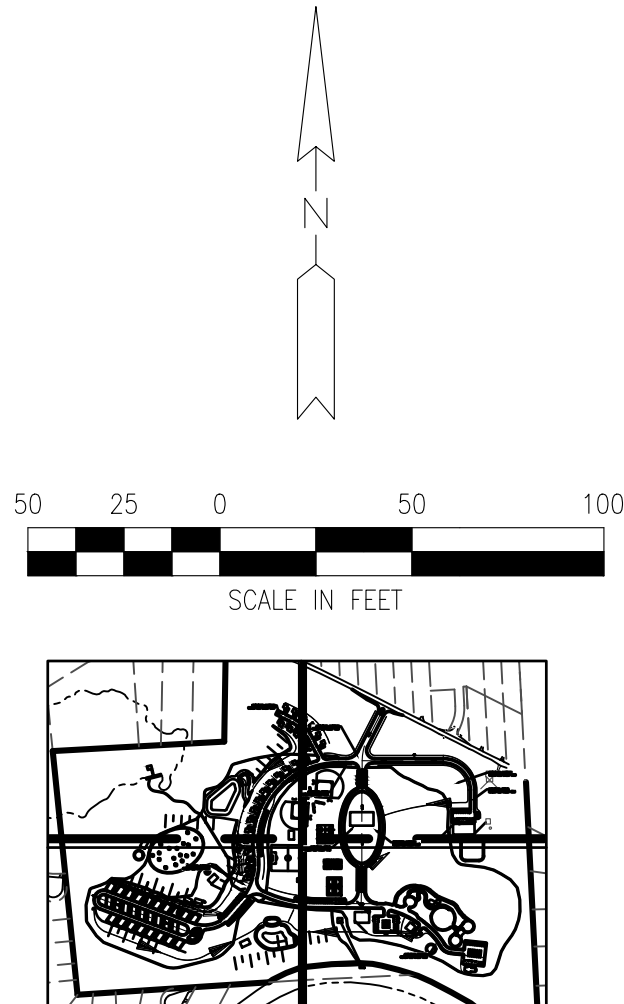
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FREEDOM RIVER, INC.
9305 HURON RAPIDS DRIVE
WHITEMORE LAKE, MI 48189
SESC PLAN - C
FOR
FREEDOM RIVER CAMPGROUND

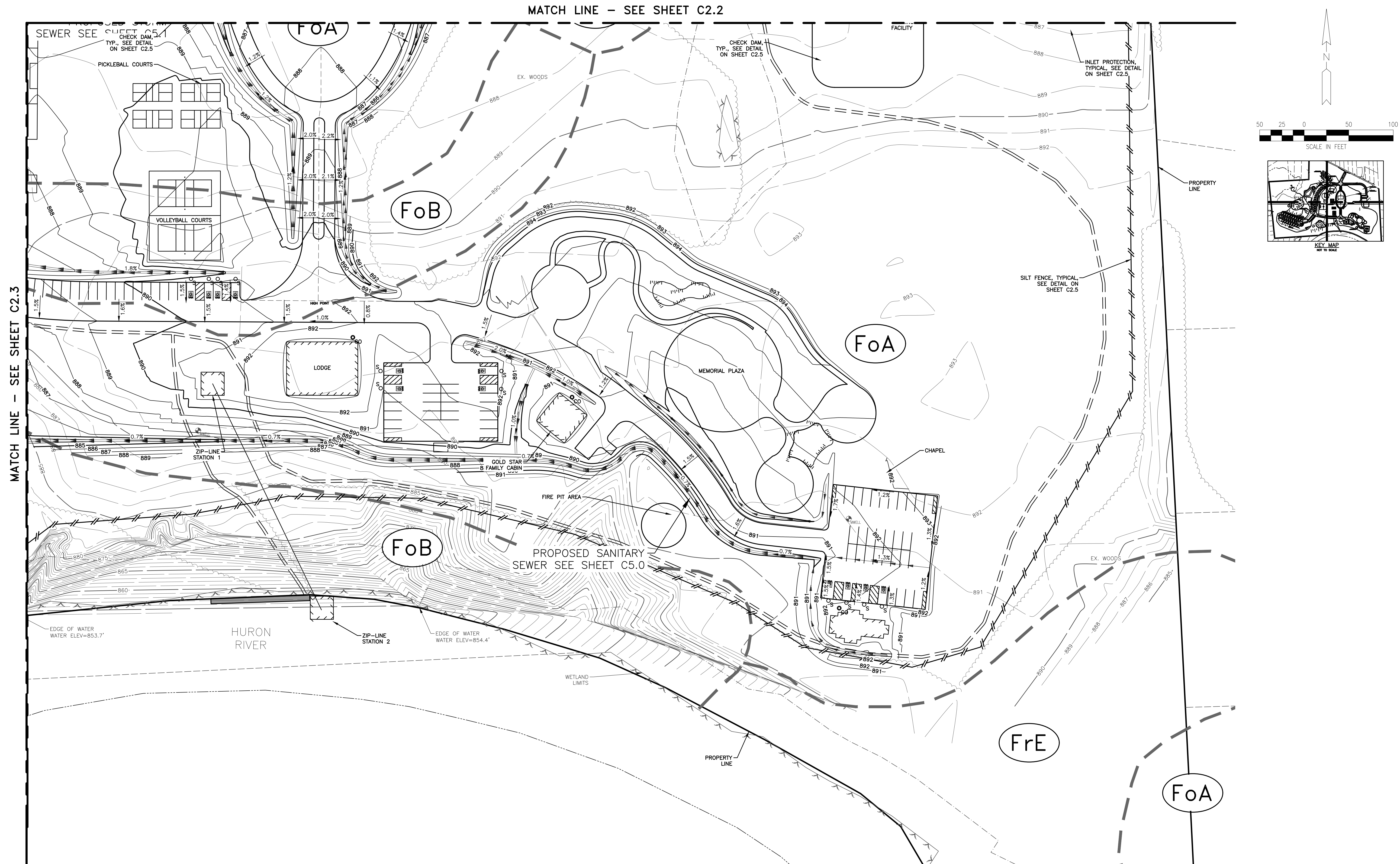
ISSUED FOR: SPA DATE: 6/1/23 BY: GLS

JOB NO. VCM2001

SHEET C2.3

REV#	DATE	DESCRIPTION

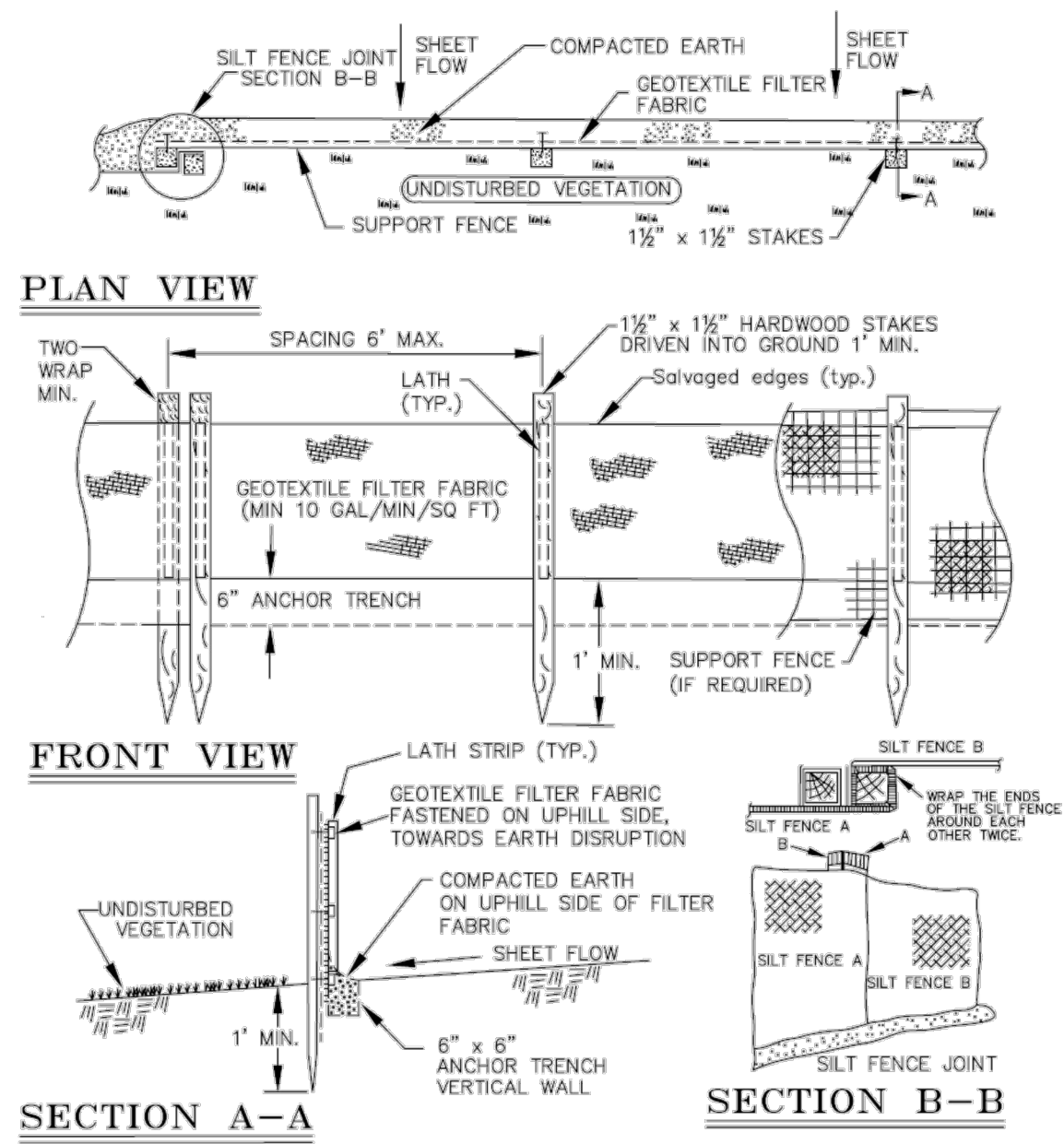




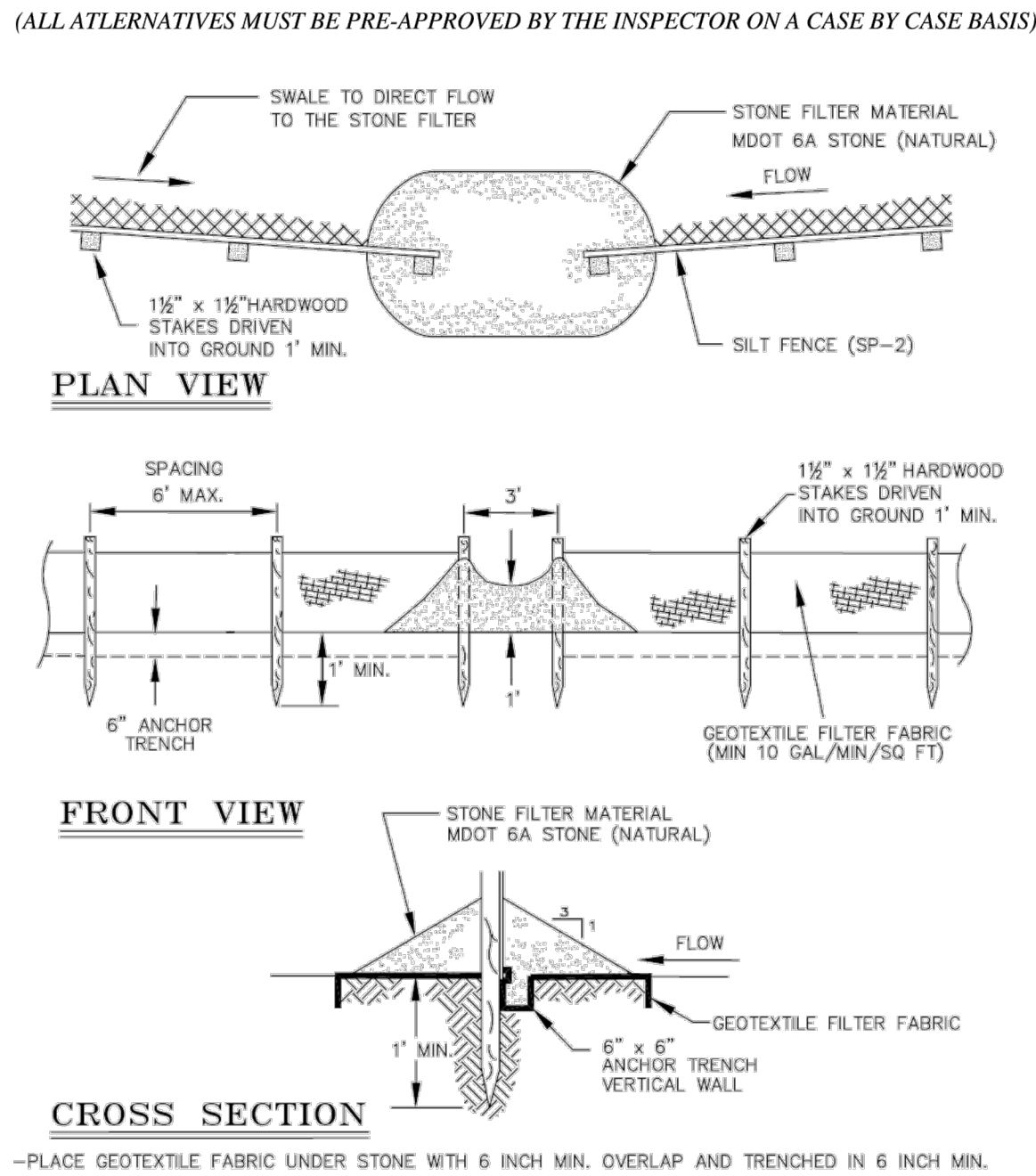


Know what's below.
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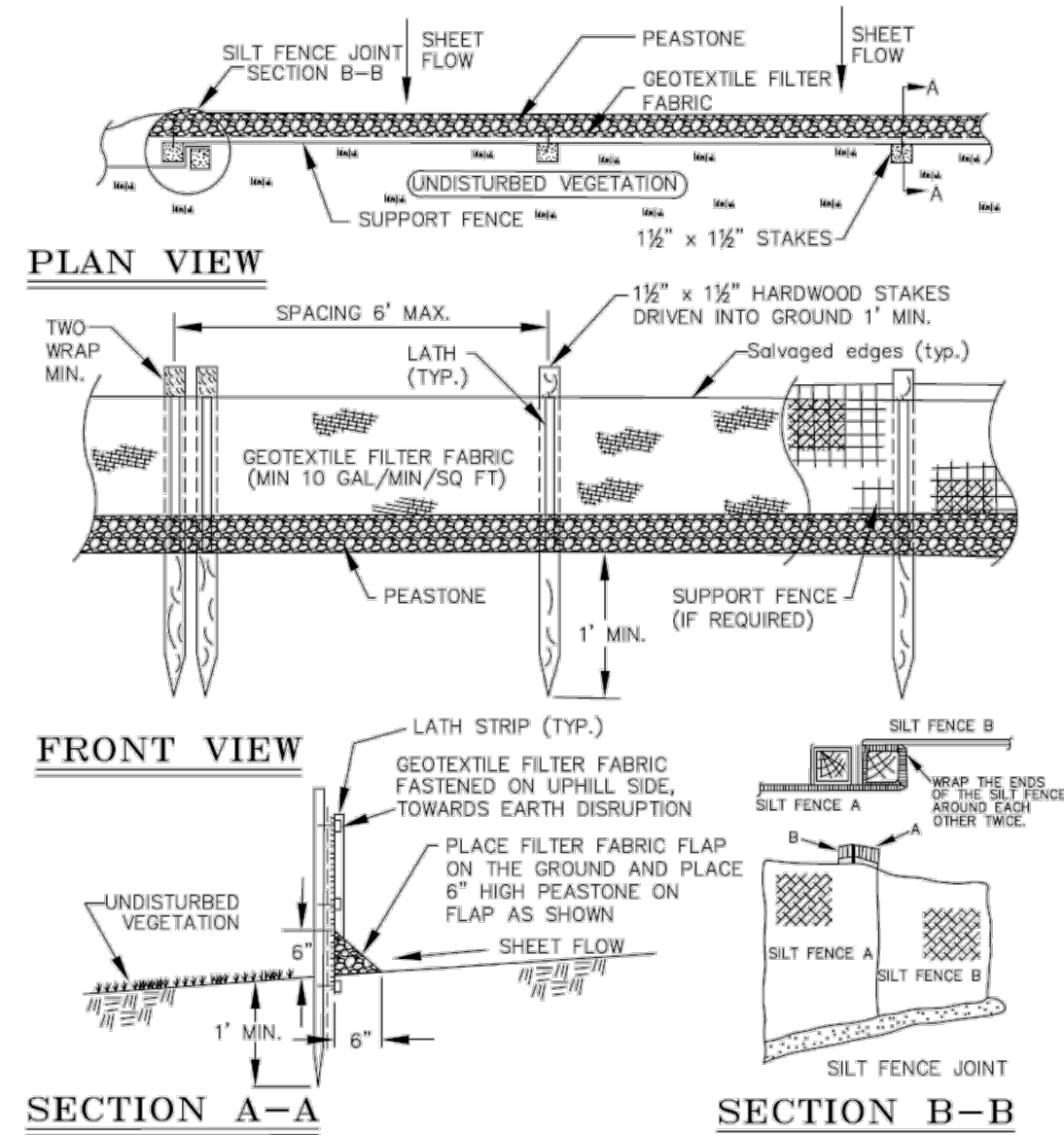
36" SILT FENCE STANDARD CONTROL



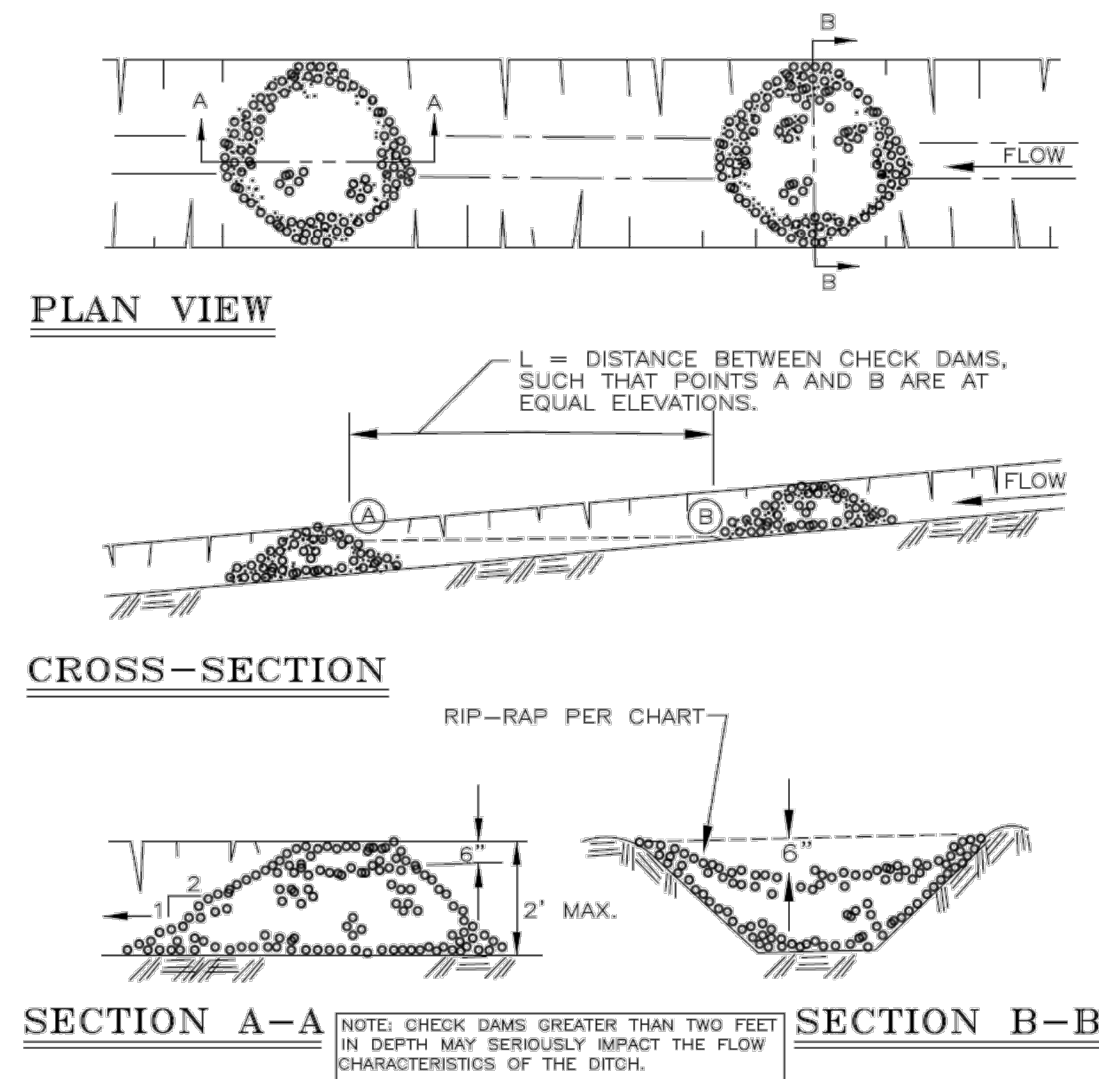
36" SILT FENCE GRAVEL FILTER STANDARD CONTROL



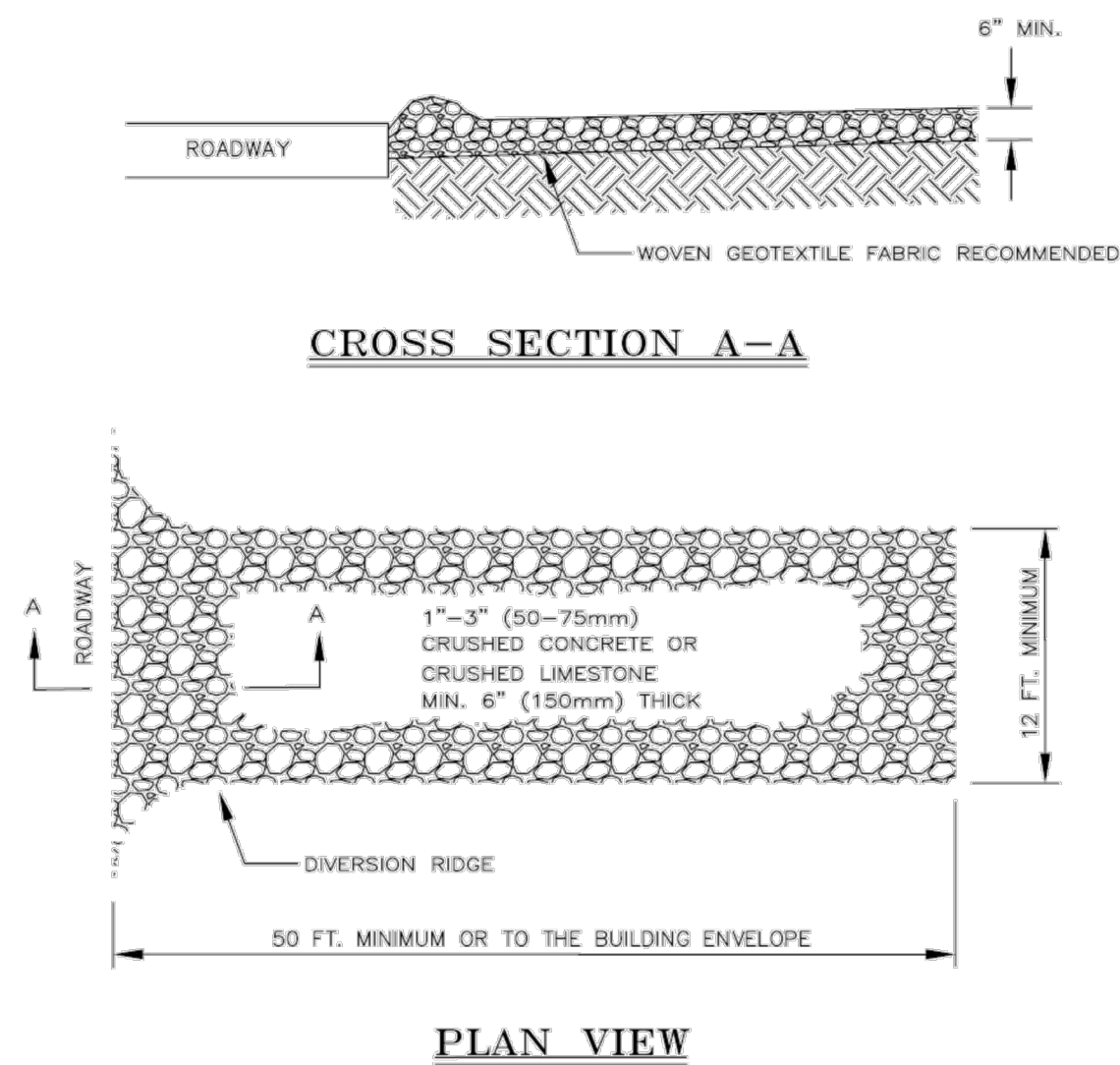
36" SILT FENCE WINTER FROZEN GROUND INSTALLATION STANDARD CONTROL



ANGULAR RIP RAP CHECK DAM STANDARD CONTROL

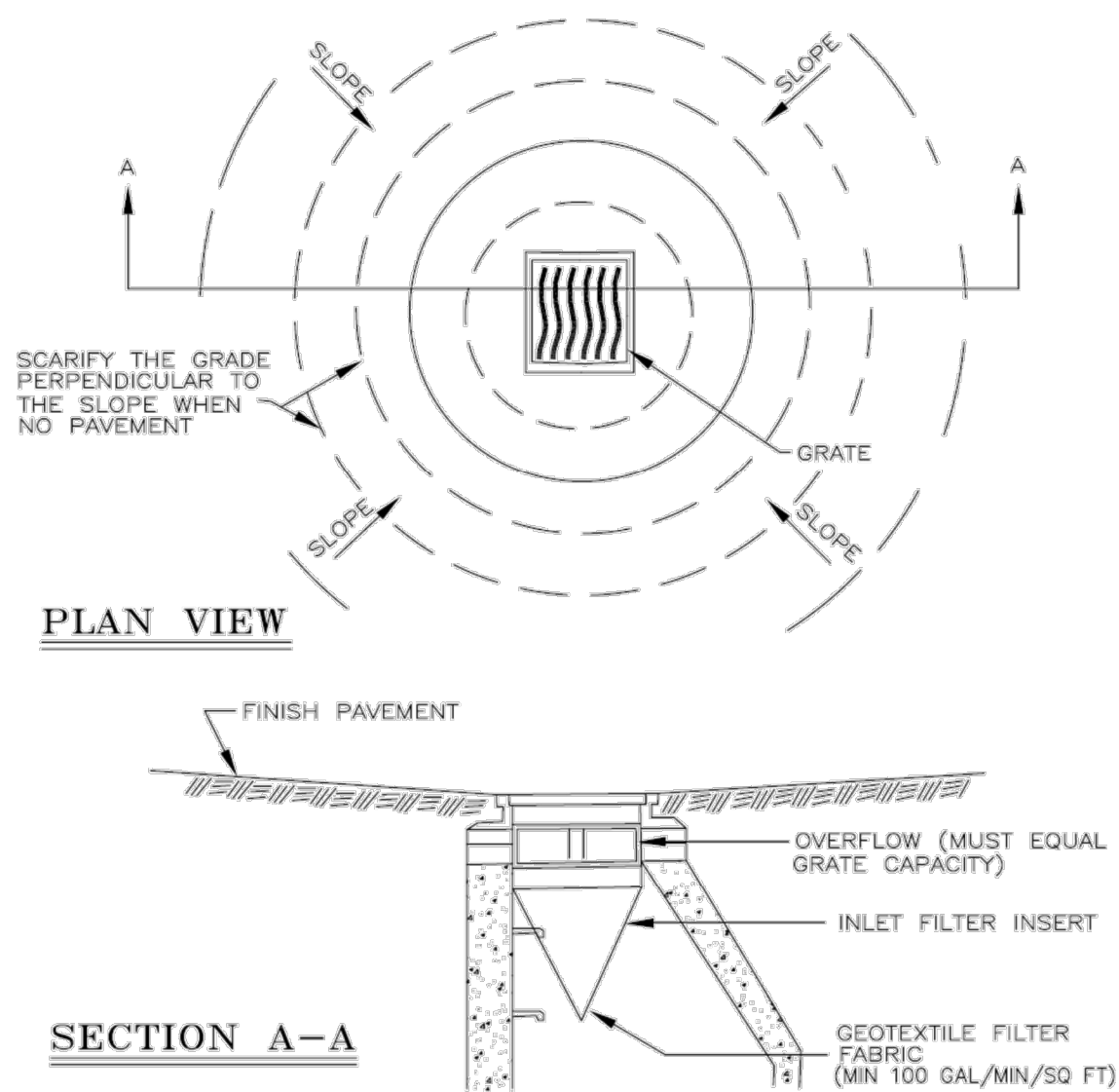


TRACKING MAT STANDARD CONTROL



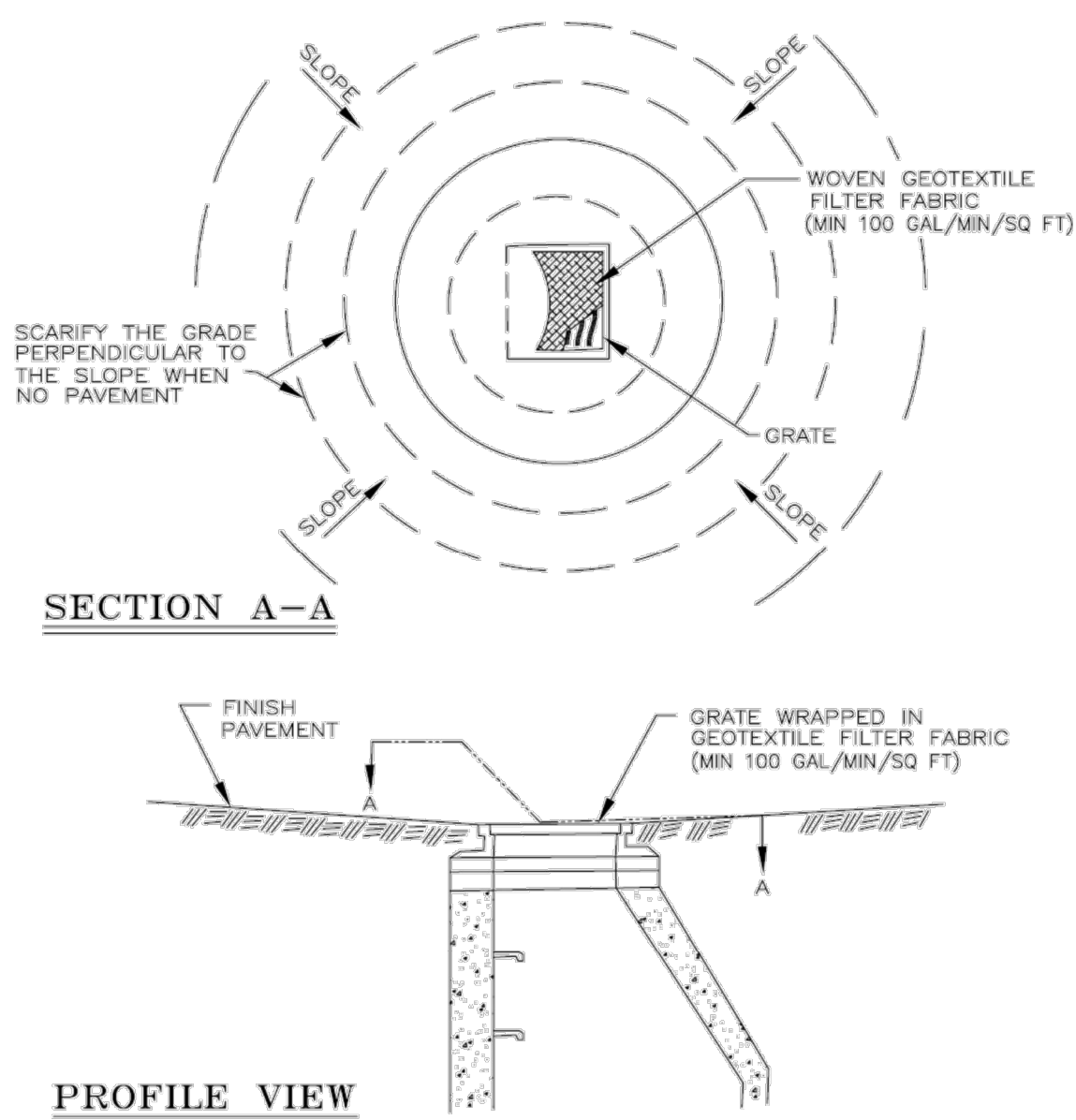
SILT SACK OR APPROVED EQUAL LOW POINT/YARD INLET FILTER STANDARD CONTROL YEAR ROUND OR WINTER USE

APPROVED FOR USE DURING WINTER MONTHS OR IN AREAS THAT MAY BECOME A SAFETY HAZARD DUE TO FLOODING OR FREEZING



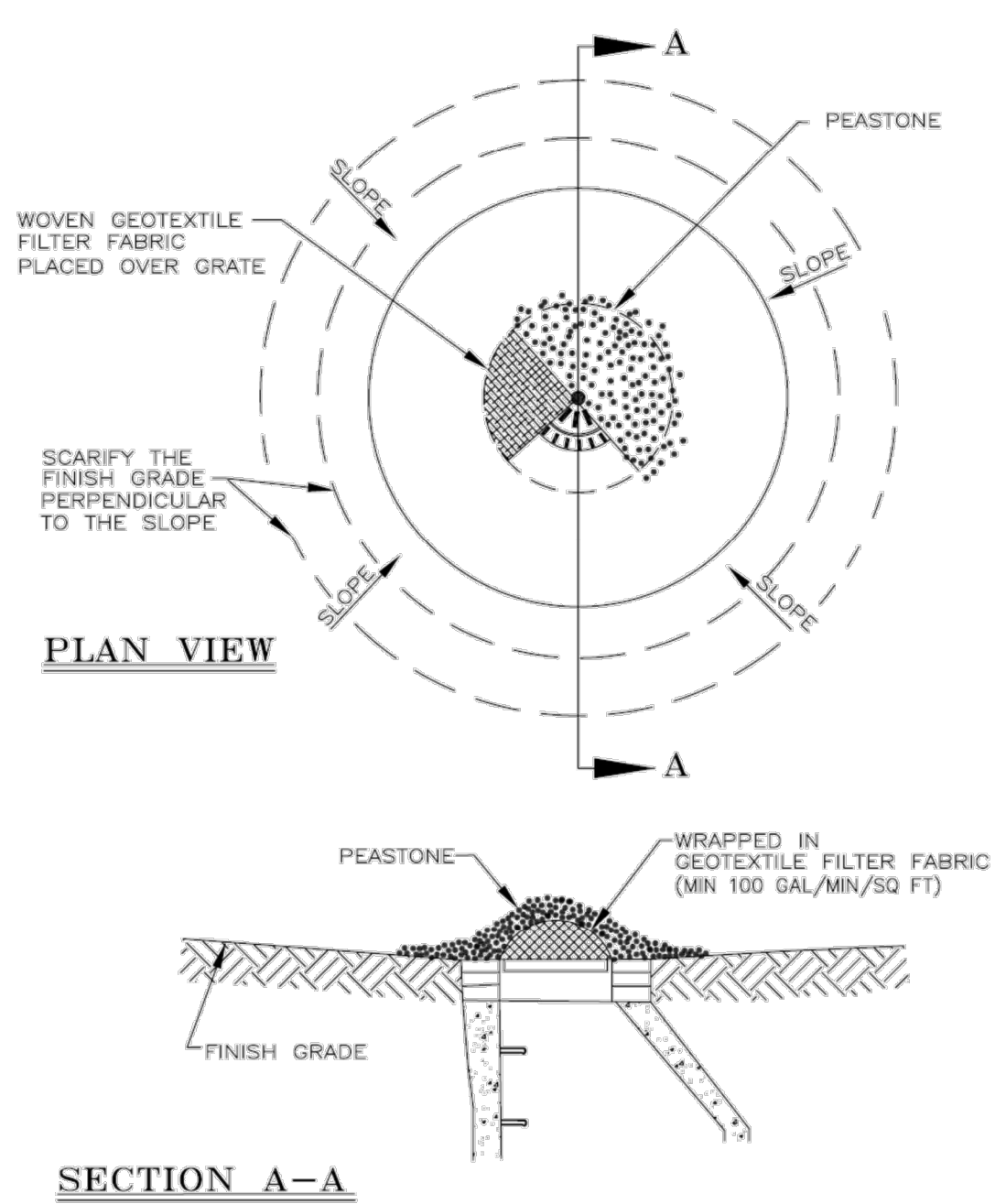
GEOTEXTILE FABRIC LOW POINT/YARD INLET FILTER STANDARD CONTROL NON-WINTER USE

NOT FOR USE IN WINTER MONTHS OR IN AREAS THAT MAY BECOME A SAFETY HAZARD DUE TO FLOODING OR FREEZING



GEOTEXTILE & PEASTONE LOW POINT/YARD INLET FILTER STANDARD CONTROL NON-WINTER USE

NOT FOR USE IN WINTER MONTHS OR IN AREAS THAT MAY BECOME A SAFETY HAZARD DUE TO FLOODING OR FREEZING



FREEDOM RIVER, INC.
9305 HURON RAPIDS DRIVE
WHITEMORE LAKE, MI 48189
SESC DETAILS
FOR
FREEDOM RIVER CAMPGROUND

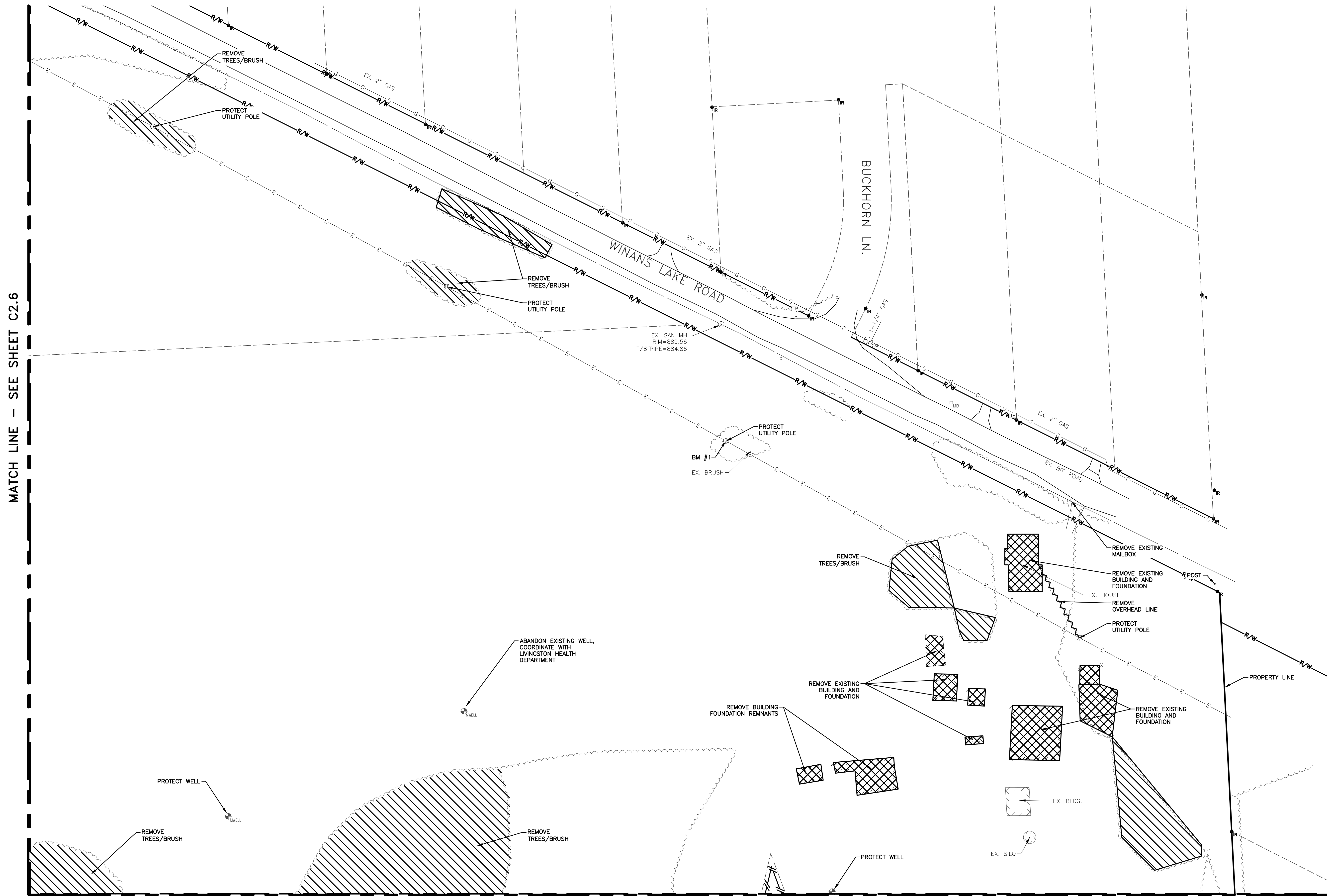
ISSUED FOR: SPA DATE: 6/1/23 BY: GLS

JOB NO. VCM2001

SHEET

C2.5



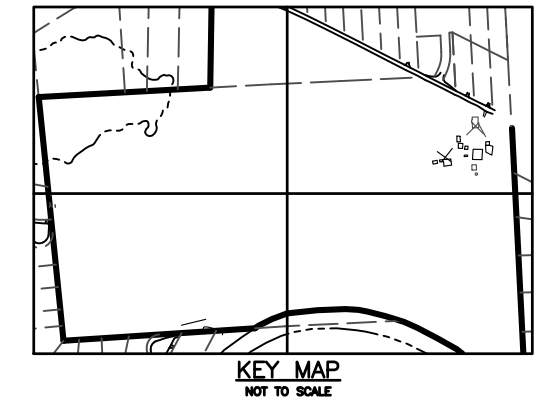


MATCH LINE - SEE SHEET C2.9





MATCH LINE - SEE SHEET C2.9



ISSUED FOR:	DATE:	BY:
SPA	6/1/23	GLS

JOB NO. VCM2001

SHEET

C2.8



**WADE
TRIM**

Wade Trim Group, Inc.

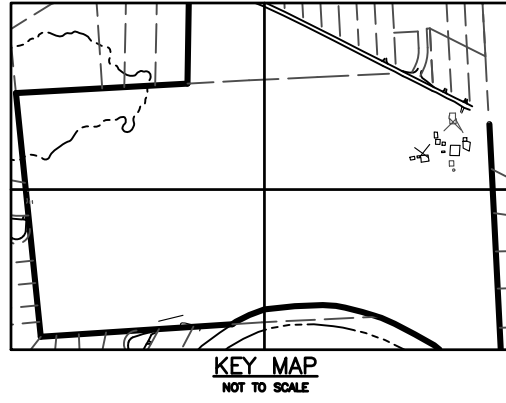
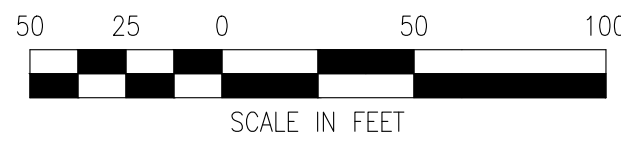
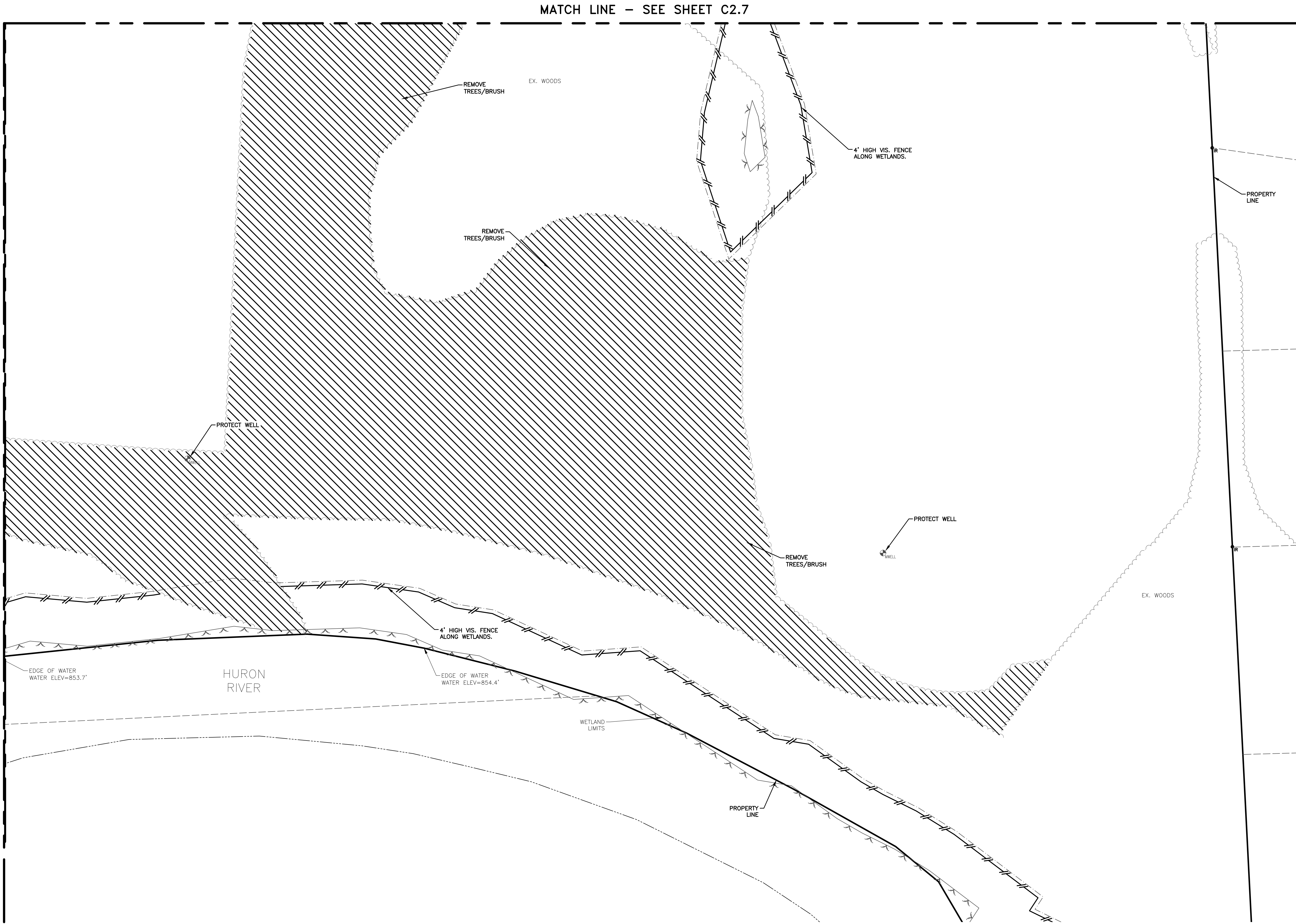
Item 3.

PROJECT MANAGER: - C:\PW_WORK\WADE-TRIM_GSPIESS\1228134\PLTS-SITE_DEMO.DWG - C2.9 DEMOLITION PLAN - D - PLOTTED 6/1/2023 4:34 PM BY SPIESS, GREG



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FREEDOM RIVER, INC.
9305 HURON RAPIDS DRIVE
WHITEMORE LAKE, MI 48189
DEMOLITION PLAN - D
FOR
FREEDOM RIVER CAMPGROUND

ISSUED FOR: SPA DATE: 6/1/23 BY: GLS

JOB NO.
VCM2001

SHEET
C2.9

25251 Northline Rd.
P.O. Box 160
724.847.7970
www.wadetrim.com



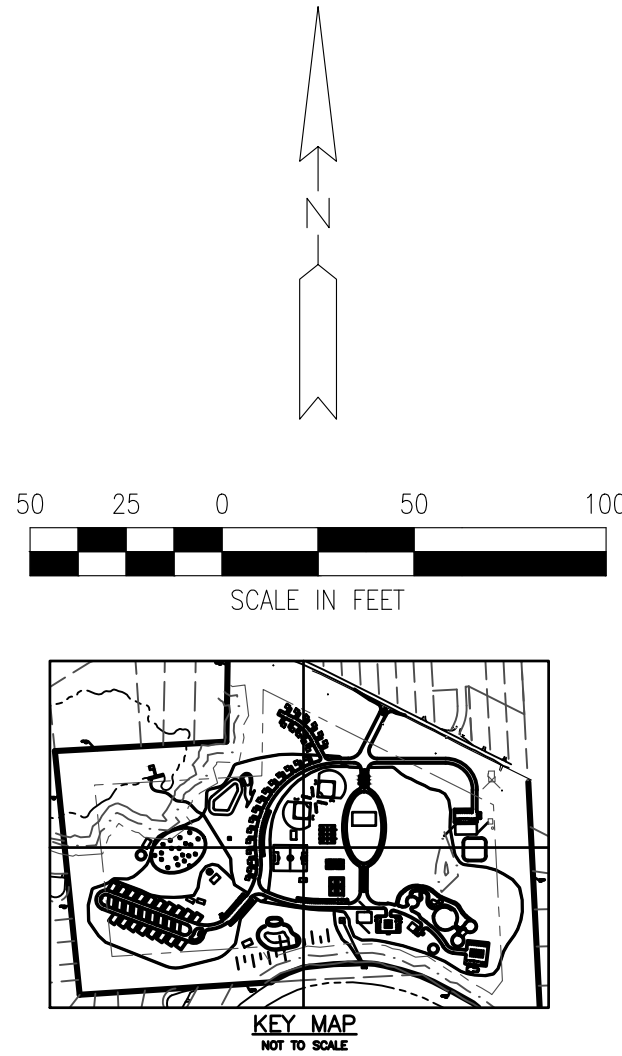
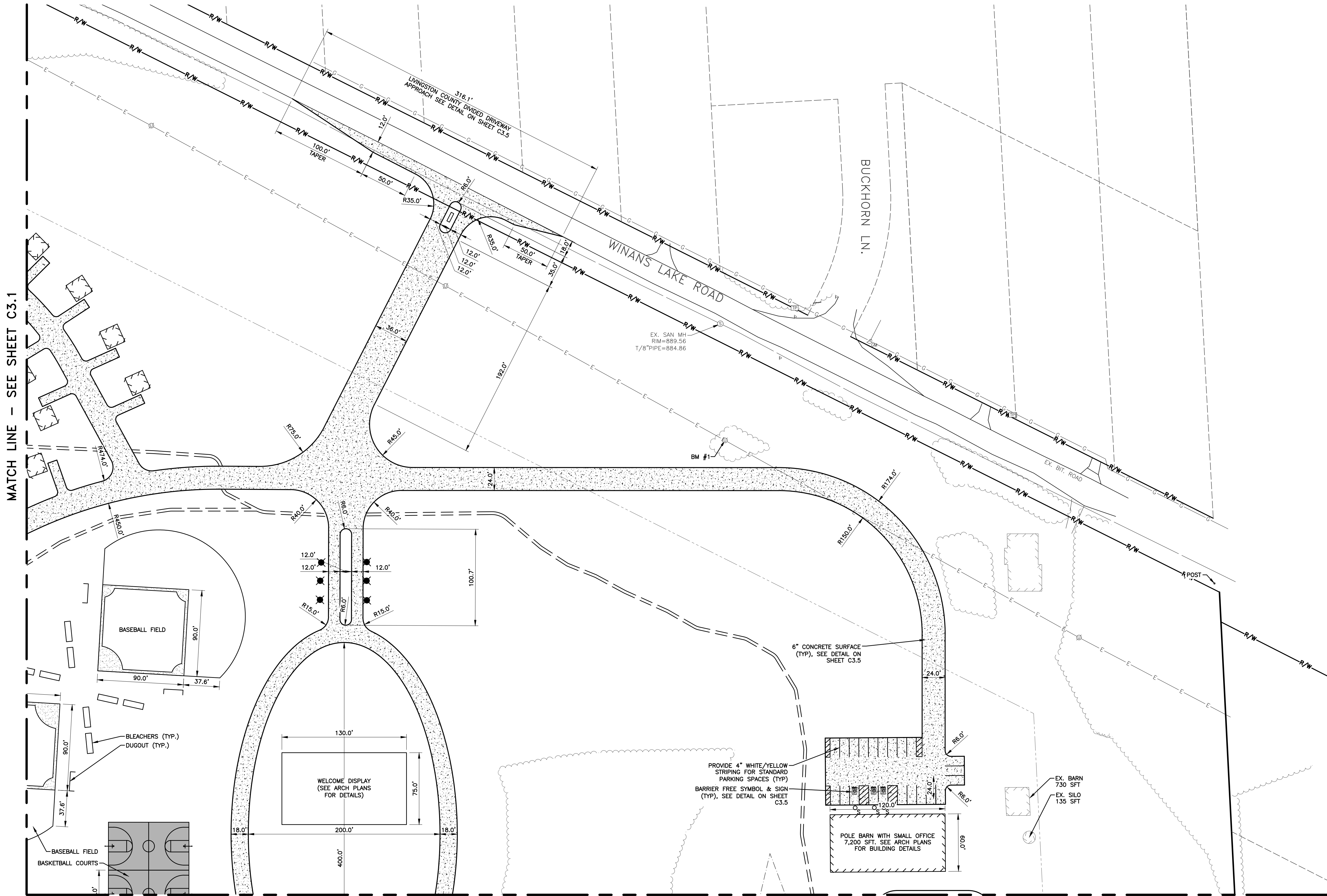
WADE TRIM GROUP, INC.



PROJECT MANAGER: - C:\PW_WORK\WADE-TRIM_GSPRESS\12128134\PLTS-SITE_PLAN.DWG - C3.2 SITE PLAN - B - PLOTTED 6/7/2023 4:34 PM BY SPRESS, GREG



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9305 HURON RAPIDS DRIVE
WHITEMORE LAKE, MI 48189
SITE PLAN - B
FOR
FREEDOM RIVER CAMPGROUND

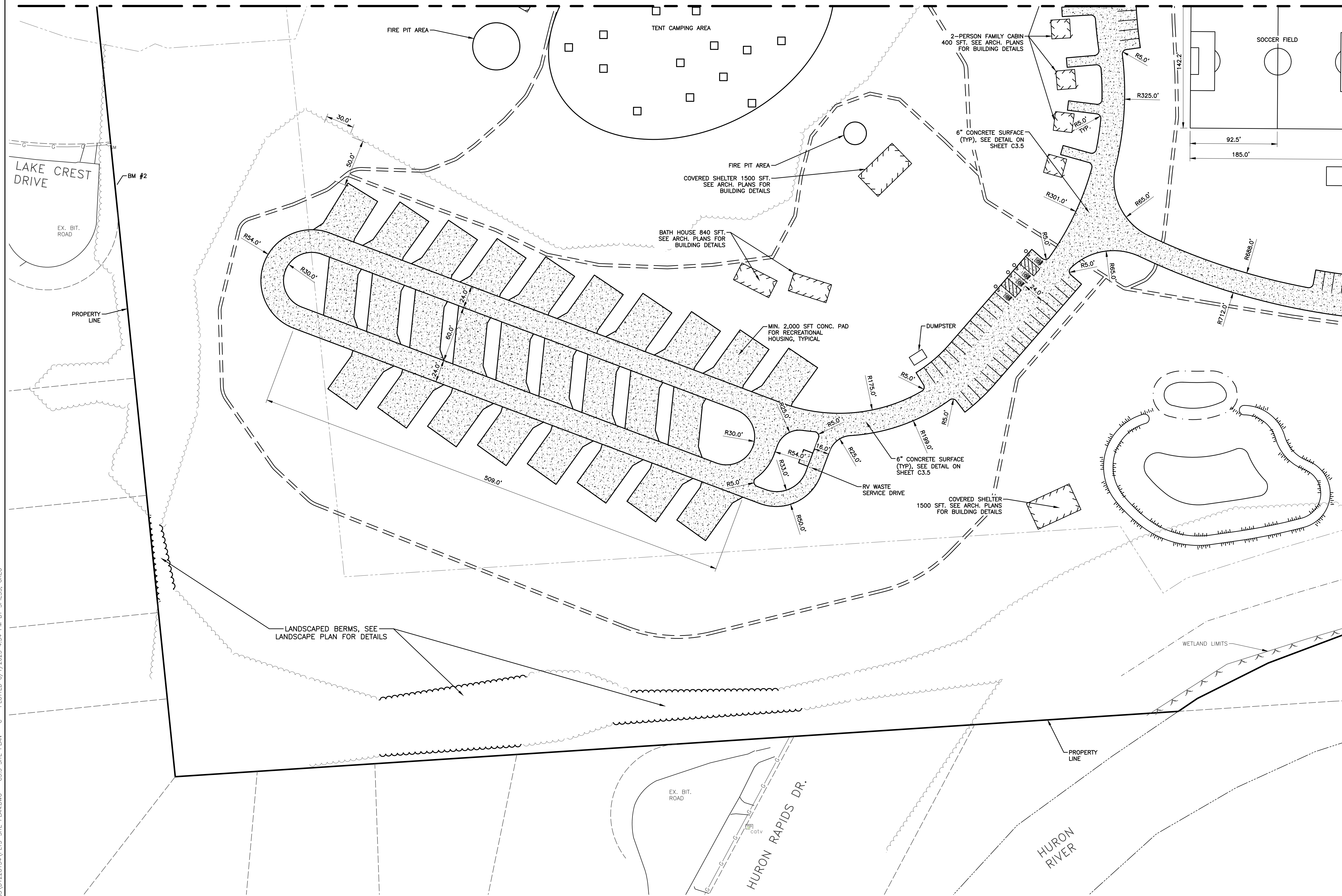
ISSUED FOR: SPA DATE: 6/1/23 BY: GLS

JOB NO.
VCM2001

SHEET
C3.2

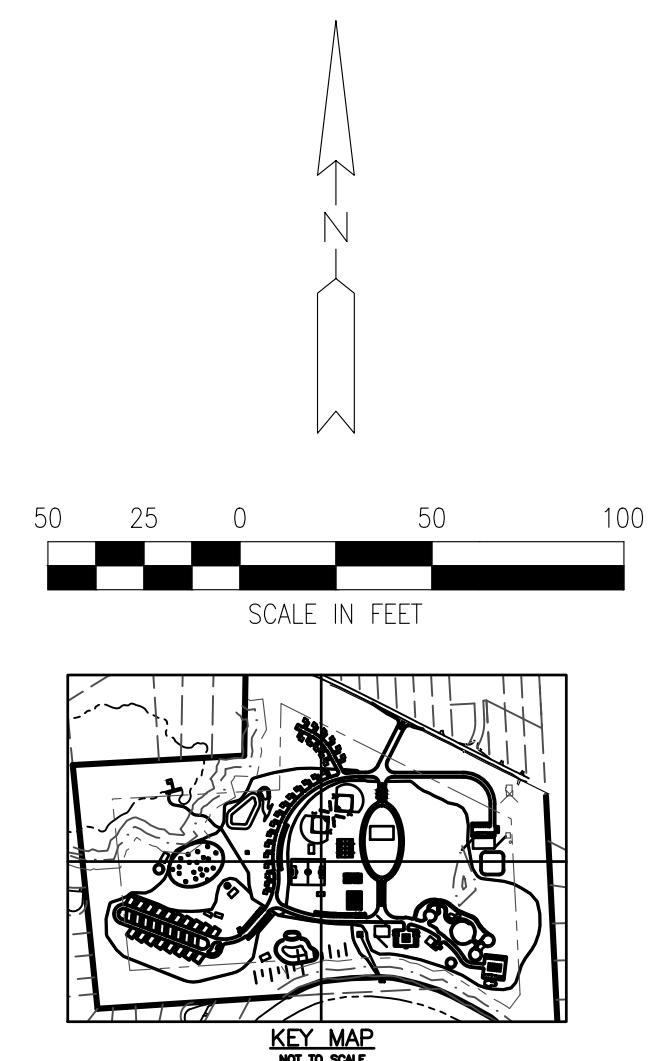
25251 Northline Rd.
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www.wadetrtrim.com





MATCH LINE - SEE SHEET C3.1

MATCH LINE - SEE SHEET C3.4



FREEDOM RIVER, INC.
9305 HURON RAPIDS DRIVE
WHITEMORE LAKE, MI 48189
SITE PLAN - C
FOR
FREEDOM RIVER CAMPGROUND

ISSUED FOR:	DATE:	BY:
SPA	6/1/23	GLS

JOB NO.
VCM2001

C3.3

[illegible]

**WADE
TRIM**



25251 Northline Rd.
Troy, MI 48060
734.947.0900
www.wadetrim.com



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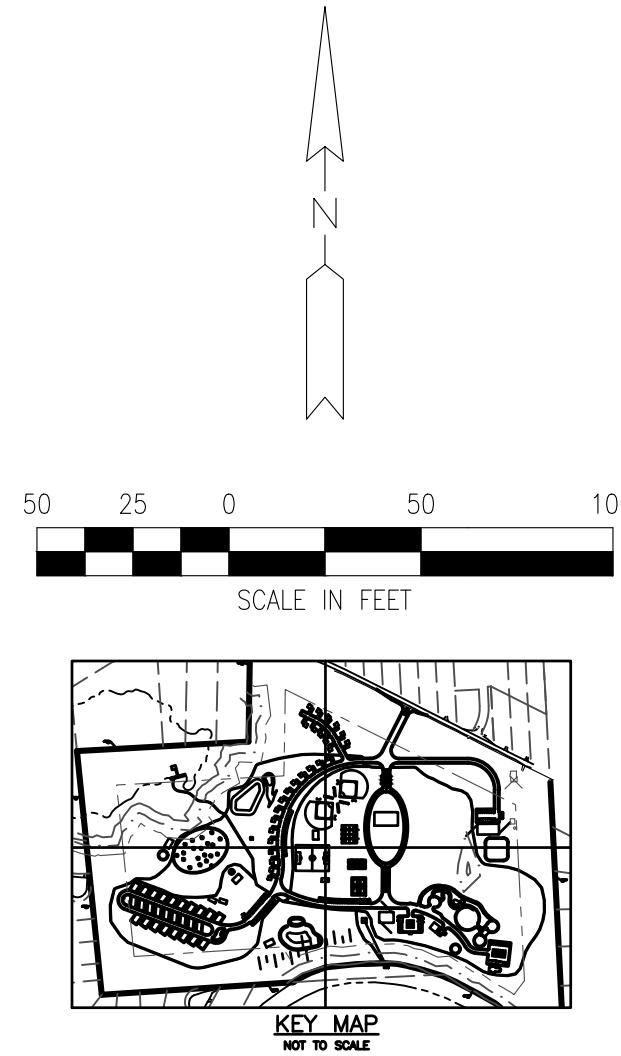
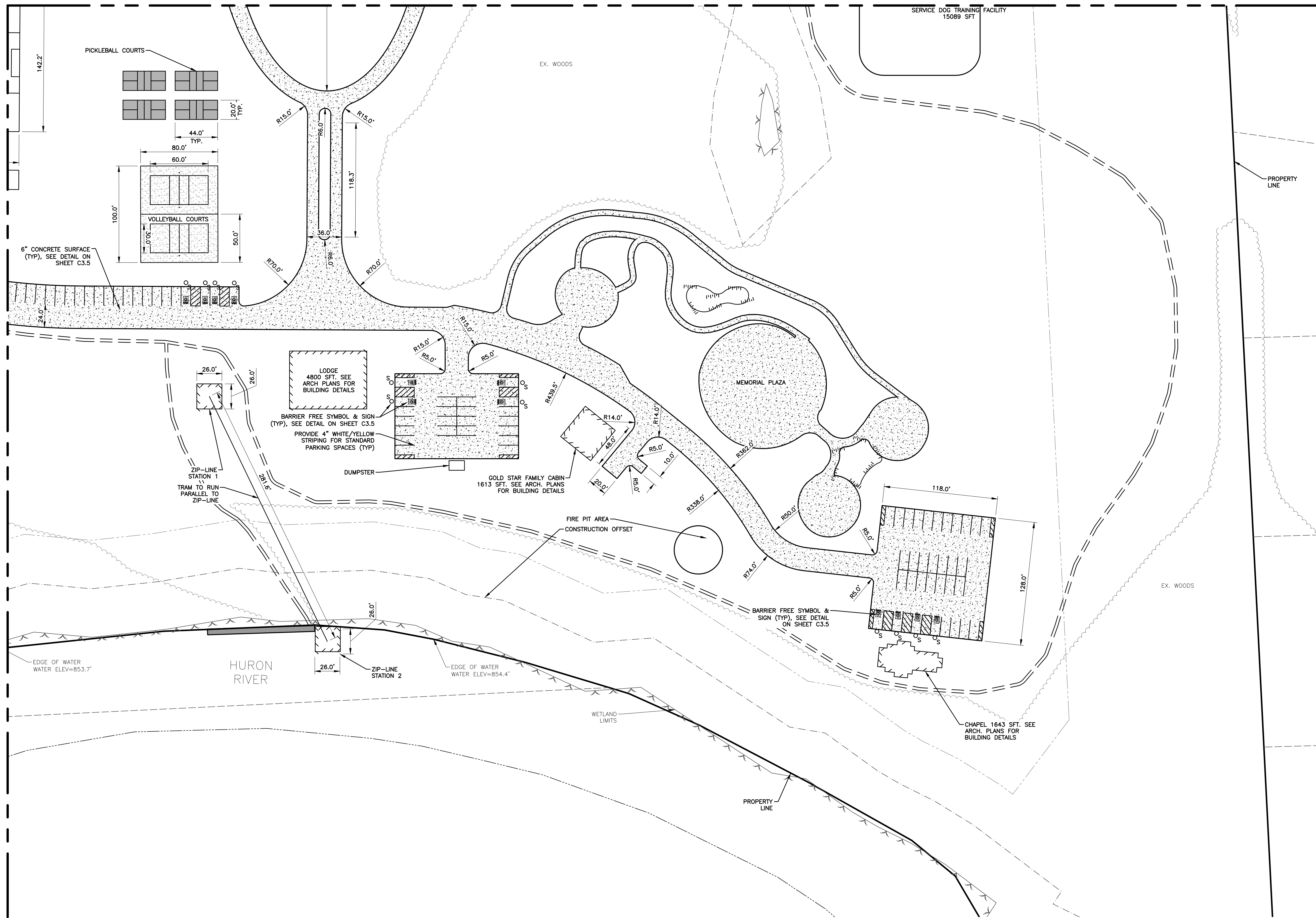
PROJECT MANAGER: - C:\PW_WORK\WADE-TRIM_GSPRESS\1228134\PLTS-SITE_PLAN.DWG - C3.4 SITE PLAN - D - PLOTTED 6/7/2023 4:34 PM BY SPRESS, GREG



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MATCH LINE - SEE SHEET C3.3

MATCH LINE - SEE SHEET C3.2



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9305 HURON RAPIDS DRIVE
WHITEMORE LAKE, MI 48189
SITE PLAN - D
FOR
FREEDOM RIVER CAMPGROUND

ISSUED FOR: SPA DATE: 6/1/23 BY: GLS

JOB NO. VCM2001

SHEET C3.4

25521 Northline Rd.
Whitemore Lake, MI 48189
734.947.7970
www.wadetrtrim.com



WADE TRIM GROUP, INC.

CONCRETE NOTES

- ### CONCRETE JOINTS

- #### 4. JOINT SPACING

- 4.2.1. 4" SLAB: 6 FEET
4.2.2. 6" SLAB: 10 FEET
4.2.3. 8" SLAB: 14 FEET
4.2.4. 9" SLAB: 15 FEET

6. SAWCUT JOINTS SHALL BE CONTINUOUS ACROSS THE SLAB AND SHALL MATCH LOCATION OF JOINTS ON ABUTTING CONCRETE SLABS.
7. CONTRACTOR SHALL PROVIDE ISOLATION/EXPANSION JOINTS BETWEEN SLABS OR AT STRUCTURES

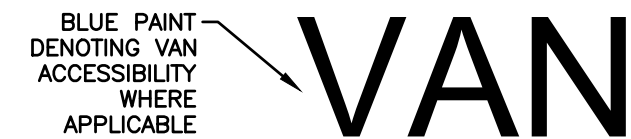
9. THE CONTRACTOR SHALL PROVIDE CONTRACTION JOINTS (SAW CUTS OR TOOLED) EQUALLY SPACED AS IDENTIFIED IN NOTE 4 THIS SHEET.

1. THE LEVELING COURSE SHALL BE MDOT 4E1 OR APPROVED EQUAL (13A LVSP).

- ## MATERIALS

2. OPEN GRADED AGGREGATE - MDOT 6A OR AASHTO #57

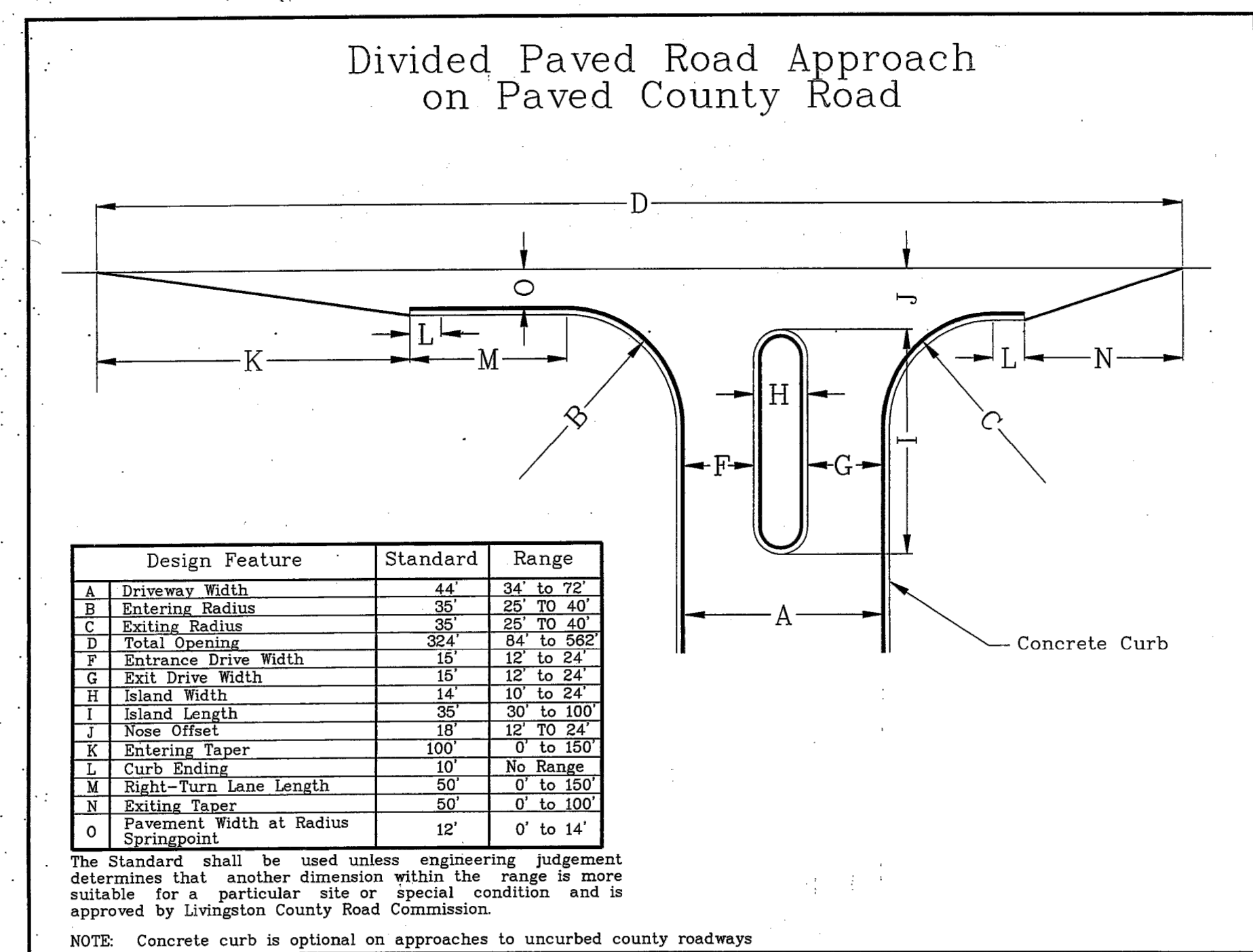
3. DENSE GRADED AGGREGATE - MDOT 21AA CRUSHED LIMESTONE
3.1. CONTRACTOR CAN USE CRUSHED CONCRETE/ASPHALT MEETING MDOT 21AA SPECIFICATIONS AS AGGREGATE BASE MATERIAL. CONTRACTOR SHALL INCREASE BASE THICKNESS BY 25%.



NOT TO SCALE

NOTES:

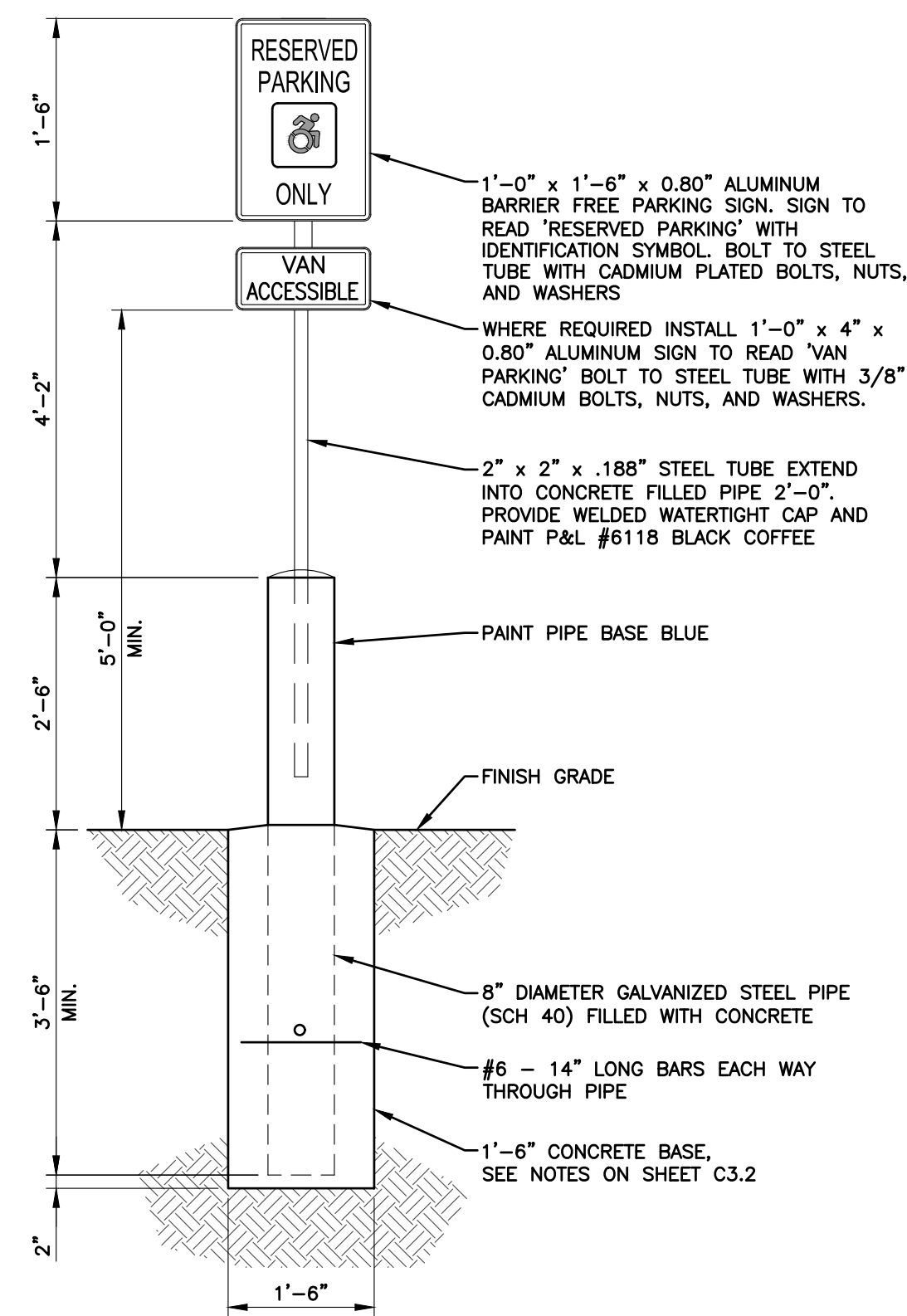
1. SYMBOL SHALL DEPICT A DYNAMIC CHARACTER LEANING FORWARD WITH A SENSE OF MOVEMENT.
2. PROVIDE CONTRASTING BACKGROUND WITH EITHER A WHITE SYMBOL ON BLUE BACKGROUND OR A BLUE SYMBOL ON A WHITE BACKGROUND.
3. SYMBOL SHALL BE SUBSTANTIALLY EQUIVALENT TO THE INTERNATIONAL SYMBOL OF ACCESS.
4. SYMBOL SHALL BE SIMPLE AND AVOID ANY SECONDARY MEANING.



	Design Feature	Standard	Range
A	Driveaway Width	44'	34' to 72'
B	Entering Radius	35'	25' To 40'
C	Exiting Radius	35'	25' to 40'
D	Total Opening	524'	54' to 562'
E	Entrance Drive Width	1'	12' to 24'
G	Exit Drive Width	15'	12' to 24'
H	Island Width	14'	10' to 24'
I	Island Length	30'	10' to 100'
J	Nose Offset	18'	12' To 24'
K	Entering Taper	100'	0' to 150'
L	Turning Ending	10'	No Range
M	Right-Turn Lane Length	50'	0' to 150'
N	Exiting Taper	50'	0' to 150'
O	Pavement Width at Radius		
	Springpoint	12'	0' to 14'

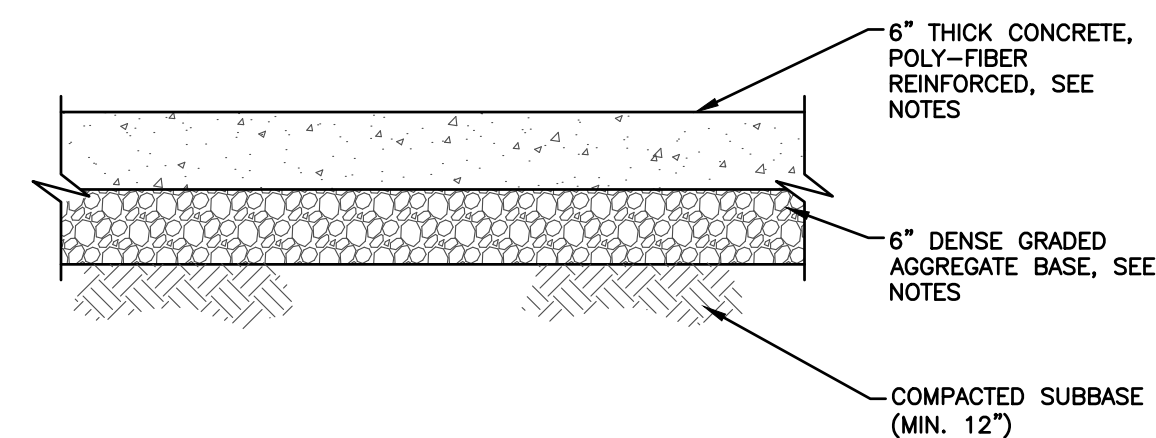
The Standard shall be used unless engineering judgement determines that another dimension within the range is more suitable for a particular site or special condition and is approved by Livingston County Road Commission.

NOTE: Concrete curb is optional on approaches to uncurbed county roadways



ALL SIGNS SHALL COMPLY WITH U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES", LOCAL CODES AND AS SPECIFIED. MOUNT SIGNS TO POST IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

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PROJECT MANAGER: - C:\PW\WORK\WADE-TRIM\GSPRESS\1228134\PLTS-DRAINAGE AREA PLAN.DWG - C4.0 DRAINAGE AREA PLAN - PLOTTED 6/1/2023 4:35 PM BY SPIESS, GREG



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PROPOSED LEGEND

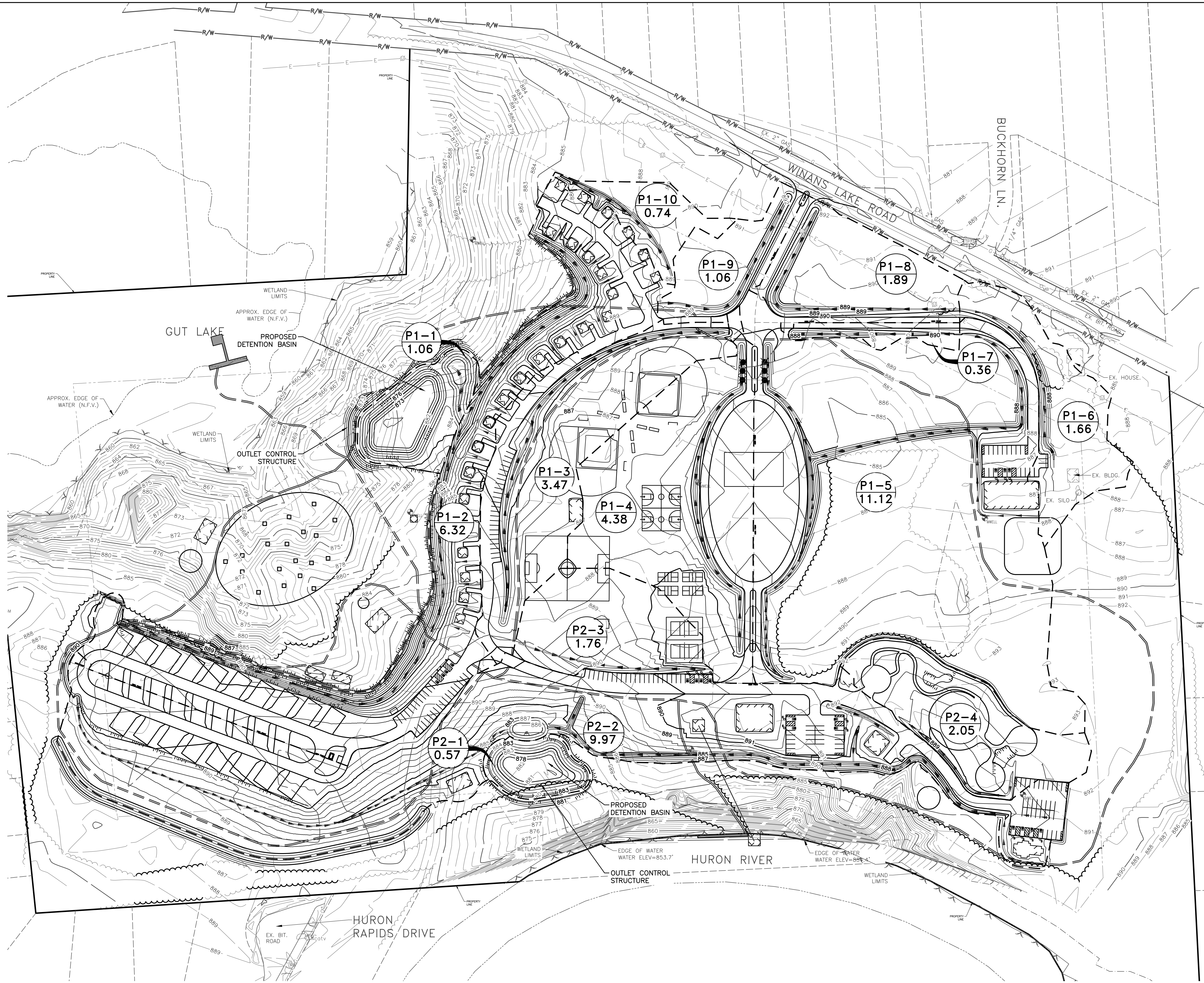
DRAINAGE AREA DESIGNATION
DRAINAGE AREA IN ACRES

A-1
0.04

MAJOR CONTOUR
MINOR CONTOUR
100 YEAR WATER ELEVATION
FREEBOARD ELEVATION
DRAINAGE AREAS

100
101
- - - - -
- - - - -
- - - - -

100 50 0 100 200
SCALE IN FEET



FREEDOM RIVER, INC.
9305 HURON RAPIDS DRIVE
WHITEMORE LAKE, MI 48189
OVERALL DRAINAGE PLAN
FOR
FREEDOM RIVER CAMPGROUND

ISSUED FOR: SPA DATE: 6/1/23 BY: GLS

JOB NO. VCM2001

SHEET

C4.0

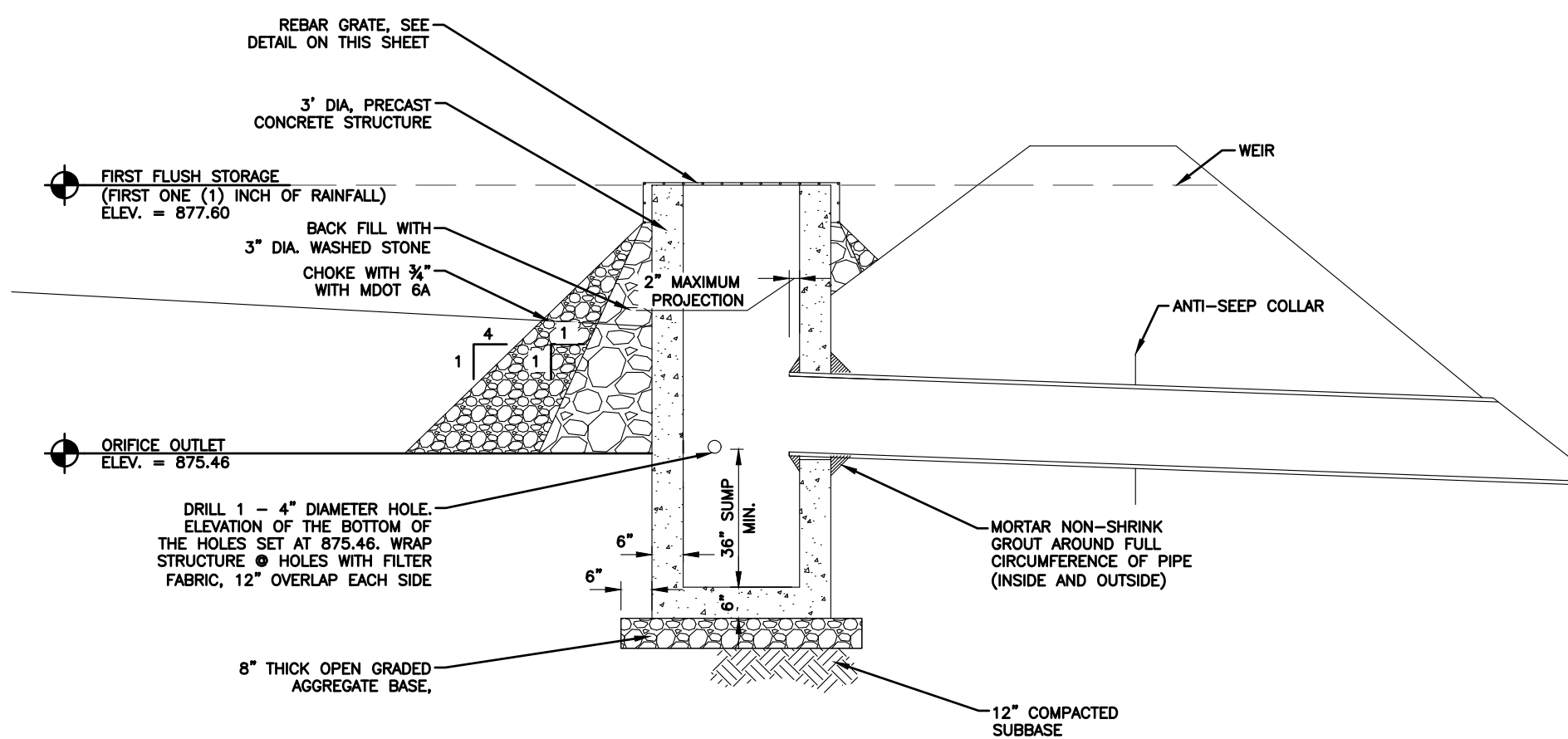
25251 Northline Rd.
Whitemore Lake, MI 48189
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www.wadetrim.com



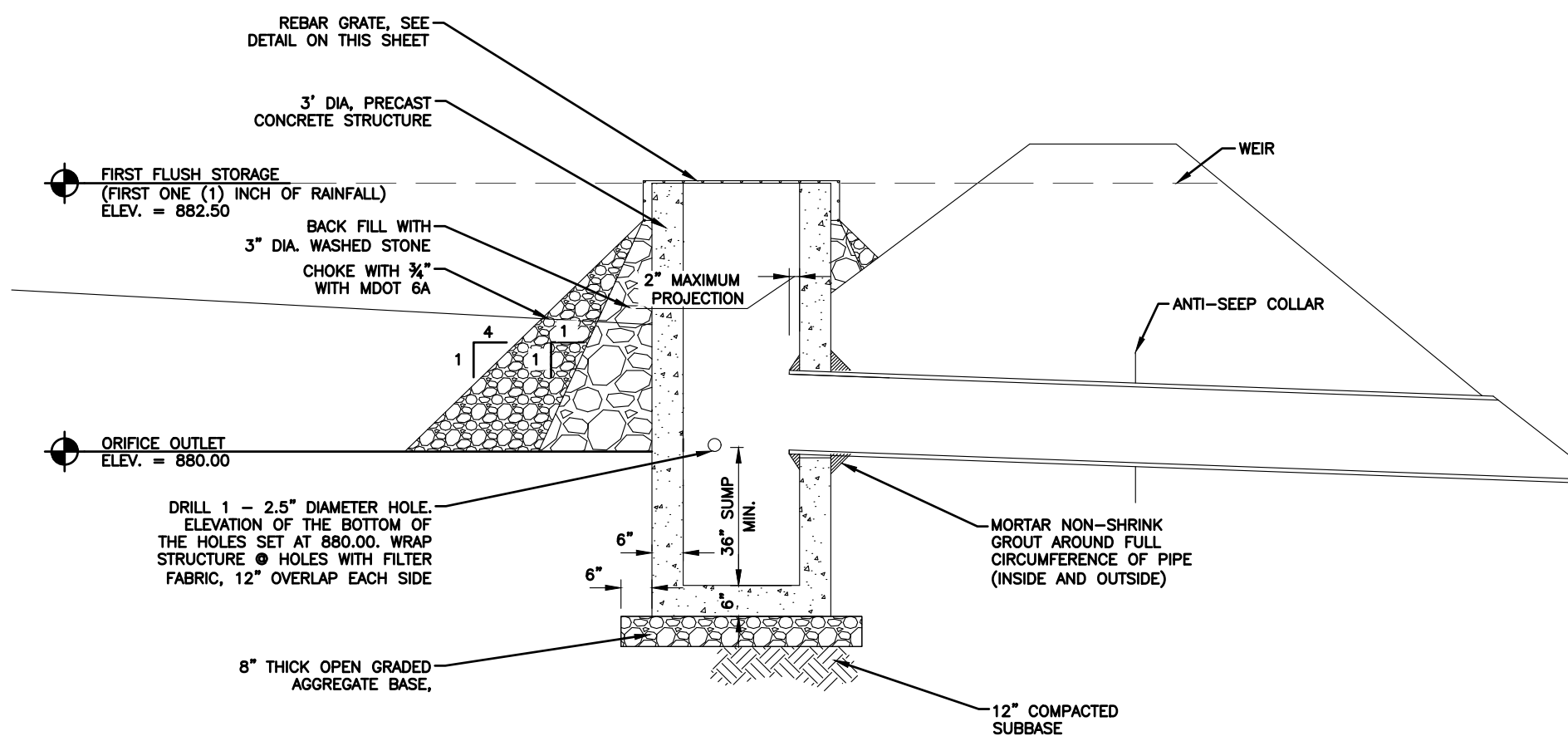
REV#	DATE	DESCRIPTION



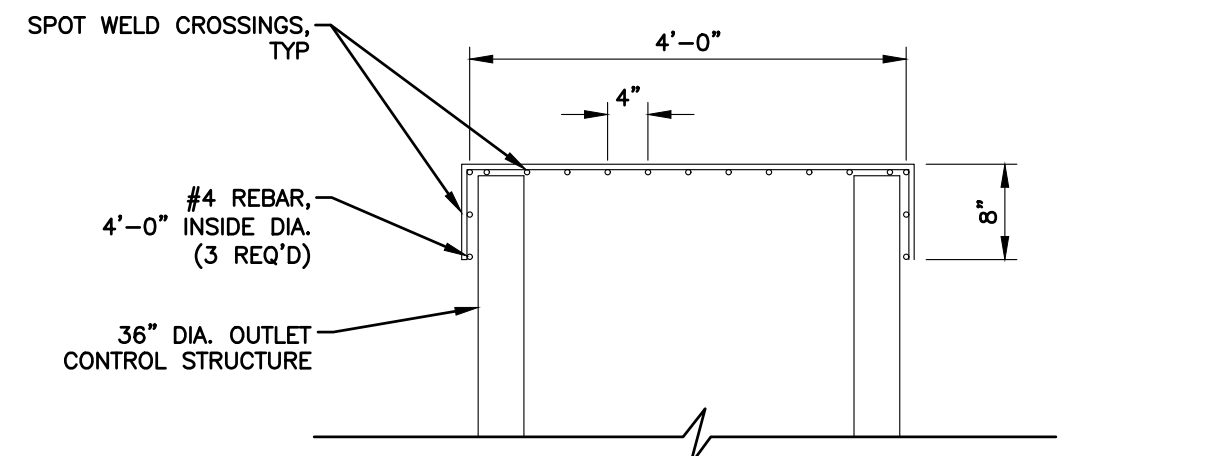
Know what's below.
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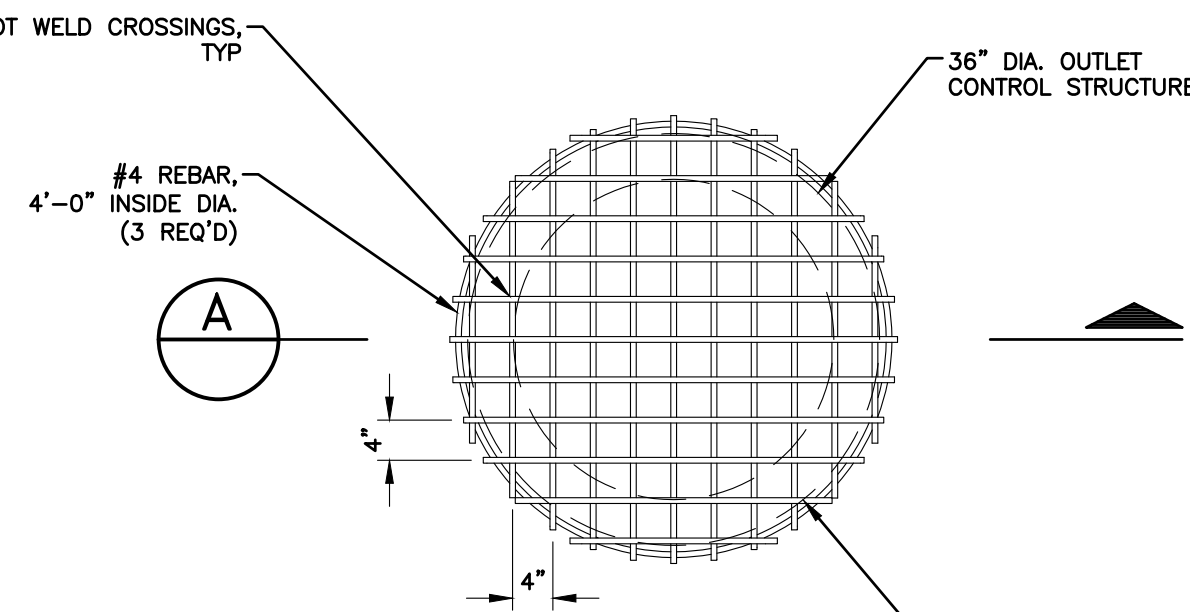
OCS #P1-2 DETAIL
NOT TO SCALE



OCS #P2-2 DETAIL
NOT TO SCALE

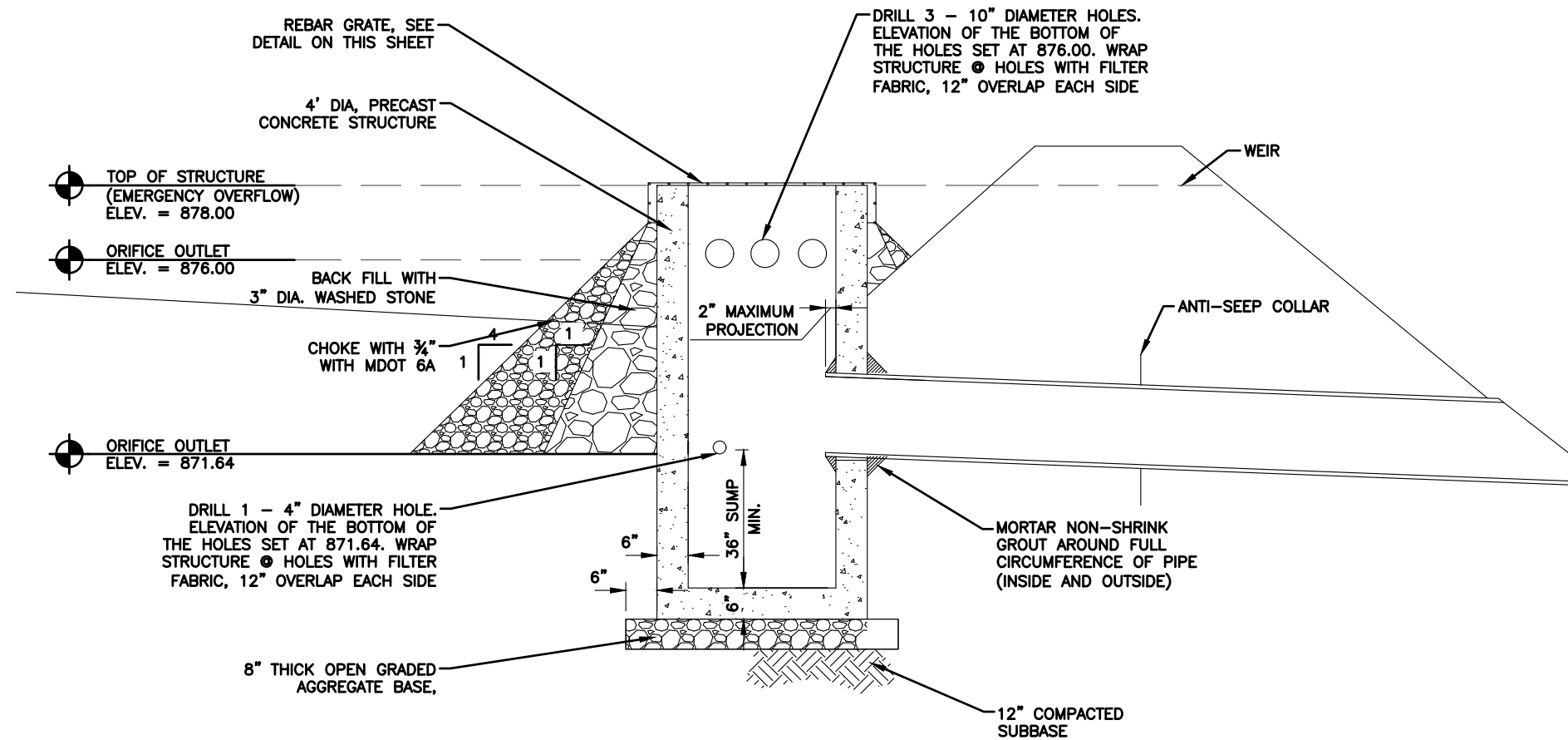


SECTION A

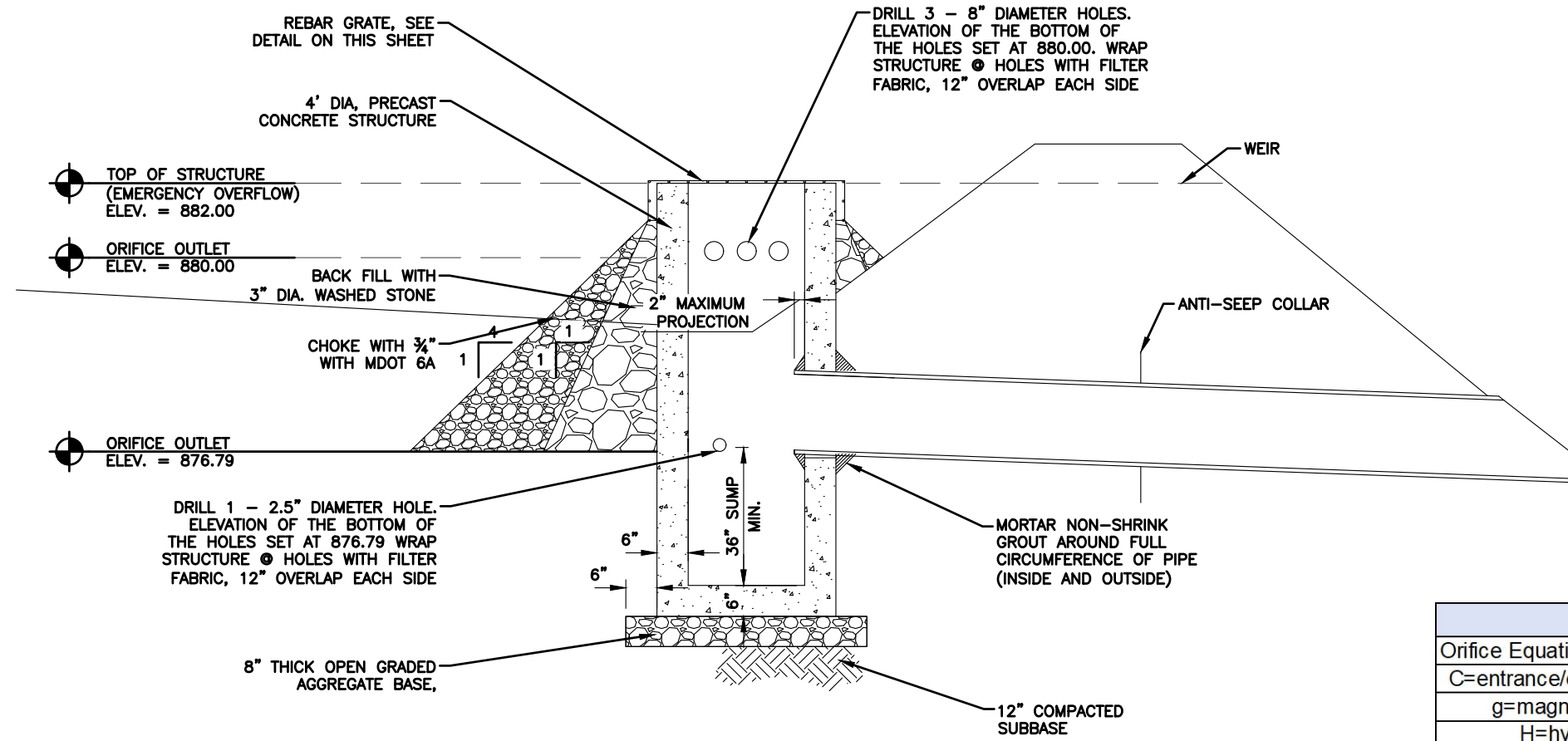


PLAN

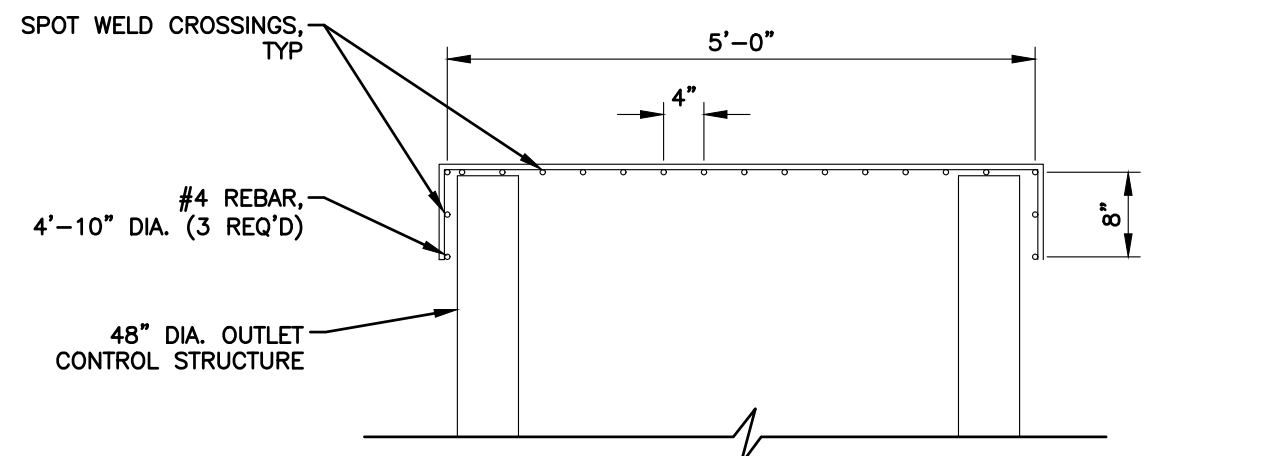
60" - REBAR GRATE DETAIL
NOT TO SCALE



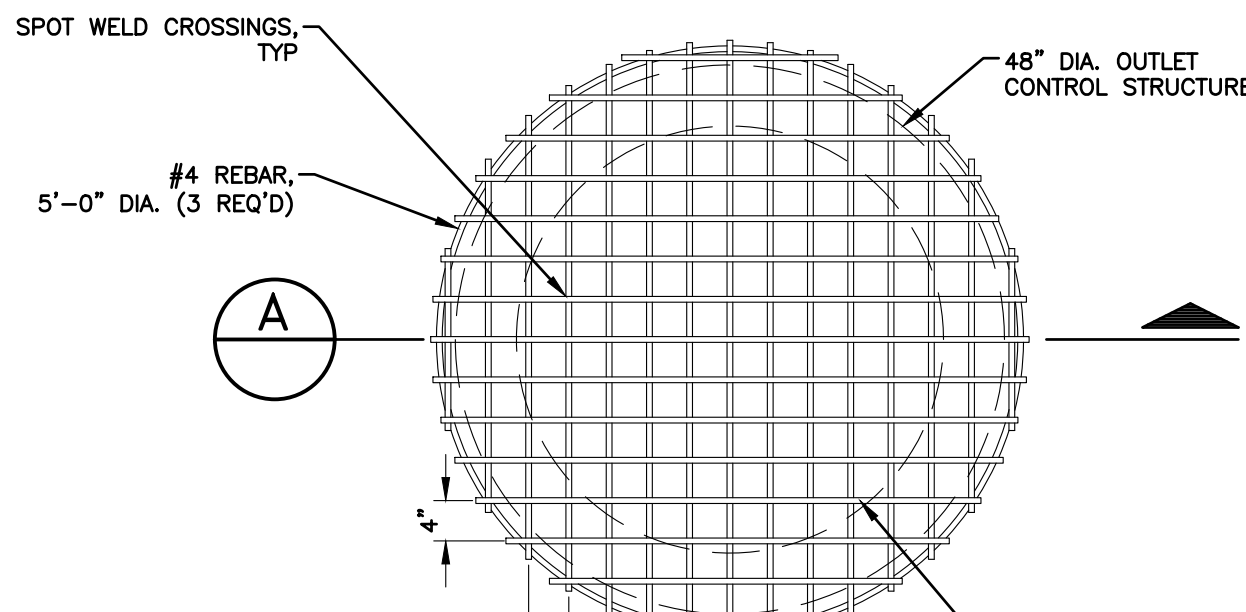
OCS #P1-1 DETAIL
NOT TO SCALE



OCS #P2-1 DETAIL
NOT TO SCALE



SECTION A



PLAN

60" - REBAR GRATE DETAIL
NOT TO SCALE

Proposed Detention Basin - Gut Lake			
Elevation	Area (SF)	Vol (CFT)	Total Vol (CFT)
871.64	0	0	0
873	11131	5046	5046
874	13435	12265	17311
875	15896	14648	31959
876	18514	17188	49148
877	21289	19885	69033
878	24222	22740	91773
879	26456	25331	117104

Proposed Forebay - Gut Lake			
Elevation	Area (SF)	Vol (CFT)	Total Vol (CFT)
875.46	0	0	0
876	1989	358	358
877	4193	3023	3381
877.6	5420	2876	6257

Proposed Detention Basin - Huron River			
Elevation	Area (SF)	Vol (CFT)	Total Vol (CFT)
876.79	0	0	0
878	5618	2266	2266
879	7824	6691	8957
880	10340	9053	18009
881	13160	11722	29731
882	16107	14609	44340
883	19281	17670	62010
883.5	21326	10147	72157

Proposed Forebay - Huron River			
Elevation	Area (SF)	Vol (CFT)	Total Vol (CFT)
880	0	0	0
881	1534	511	511
882	2597	2042	2554
882.5	3215	1450	4004

Orifice Equation - Extended Detention - Gut Lake			
Orifice Equation: $Q = C_a \sqrt{2gh}$			
C=entrance/exit loss coefficient =	0.62		
g=magnitude of gravity =	32.2	ft/second ²	
H=hydraulic head=	1.07	ft	
Q _{EP} =	0.439	cfs	

Calculated A=			
0.08530 ft ²			
Diameter of Orifice Inches	Radius of Orifice Inches	Area of Orifice Square Inches	Area of Orifice Square Feet
4.00	2	12.56	0.087222
		Total Orifices	Total sft of opening
		1	0.087222

Orifice Equation - 100 Year Detention - Gut Lake			
Q _{max} =			
12.54 cfs			
Q of 4" orifice			
0.726 cfs			
Q _{allow} = Q _{max} - Q 2"			
11.814 cfs			
Orifice Equation: $Q = C_a \sqrt{2gh}$			
C=entrance/exit loss coefficient =	0.62		
g=magnitude of gravity =	32.2	ft/second ²	
H=hydraulic head=	2	ft	
Q _{EP} =	0.439	cfs	

Calculated A=			
1.67896 ft ²			
Diameter of Orifice Inches	Radius of Orifice Inches	Area of Orifice Square Inches	Area of Orifice Square Feet
10	5	78.500	0.5451
		Total Orifices	Total sft of opening
		3	1.635417

Orifice Equation - Extended Detention - Huron River			
Orifice Equation: $Q = C_a \sqrt{2gh}$			
C=entrance/exit loss coefficient =	0.62		
g=magnitude of gravity =	32.2	ft/second ²	
H=hydraulic head=	1.25	ft	
Q _{EP} =	0.214	cfs	

Calculated A=			
0.03847 ft ²			
Diameter of Orifice Inches	Radius of Orifice Inches	Area of Orifice Square Inches	Area of Orifice Square Feet
2.50	1.25	4.90625	0.034071
		Total Orifices	Total sft of opening
		1	0.034071

Orifice Equation - 100 Year Detention - Huron River			
Q _{max} =			
7.93 cfs			
Q of 2.5" orifice			
0.284 cfs			
Q _{allow} = Q _{max} - Q 2"			
7.646 cfs			
Orifice Equation: $Q = C_a \sqrt{2gh}$			
C=entrance/exit loss coefficient =	0.62		
g=magnitude of gravity =	32.2	ft/second ²	
H=hydraulic head=	2	ft	
Q _{EP} =	0.214	cfs	

Calculated A=			
1.08669 ft ²			
Diameter of Orifice Inches	Radius of Orifice Inches	Area of Orifice Square Inches	Area of Orifice Square Feet
8	4	50.240	0.3489
		Total Orifices	Total sft of opening
		3	1.046667

	Total (ac)	Impervious (ac)	Pervious (ac)	C
Gut Lake	32.07	6.55	25.52	0.343
Huron River	14.17	3.61	10.56	0.378

Minimum Volume Requirements - Gut Lake			
Water Quality Control (WQ) - Vwq = 3630*C*A			
Vwq (cuft)	39926		
Forebay Storage Volume - Vf = 3630*C*A*0.15			
Vwq (cuft)	5989		
Channel Protection Volume Control (CPVC) - Vcp = 4719*C*A			
Vcp (cuft)	51904		
Channel Protection Rate Control (CPRC) - Ved = 6897*C*A			
Ved (cuft)	75860		
Extended Detention Volume Discharge Rate - Ved discharged over 48-hours			
Qed (cfs)	0.439		
Variable Release Rate - Qvrr = 1.1055 - 0.206 ln(A)			
Qvrr (cfs/ac)	0.391		
Allowable 100-Year Discharge Rate - Q100p = Qvrr*A			
Q100p	12.543		
100-Year Peak Runoff Volume - V100R = 18985*C*A			
V100R (cuft)	208816		
100-Year Peak Inflow Rate - Q100IN = C*100*A			
Q100IN (cfs)	69.43		
Storage Curve Factor - R = 0.206 - 0.15 ln(Q100p/Q100IN)			
R	0.46		
100-Year Detention Volume - V100D = (V100R*R) - VCP-P			
V100D	96613.80		
V100D ≥ VED			
Required Storage (cuft)	96614		

Minimum Volume Requirements - Huron River			
Water Quality Control (WQ) - Vwq = 3630*C*A			
Vwq (cuft)	19460		
Forebay Storage Volume - Vf = 3630*C*A*0.15			
Vwq (cuft)	2919		
Channel Protection Volume Control (CPVC) - Vcp = 4719*C*A			
Vcp (cuft)	25299		
Channel Protection Rate Control (CPRC) - Ved = 6897*C*A			
Ved (cuft)	36975		
Extended Detention Volume Discharge Rate - Ved discharged over 48-hours			
Qed (cfs)	0.214		
Variable Release Rate - Qvrr = 1.1055 - 0.206 ln(A)			
Qvrr (cfs/ac)	0.559		
Allowable 100-Year Discharge Rate - Q100p = Qvrr*A			
Q100p	7.926		
100-Year Peak Runoff Volume - V100R = 18985*C*A			
V100R (cuft)	101779		
100-Year Peak Inflow Rate - Q100IN = C*100*A			
Q100IN (cfs)	33.84		
Storage Curve Factor - R = 0.206 - 0.15 ln(Q100p/Q100IN)			
R	0.42		
100-Year Detention Volume - V100D = (V100R*R) - VCP-P			
V100D	43125.81		
V100D ≥ VED			
Required Storage (cuft)	43126		

TRIBUTARY TO POND 1 (GUT LAKE)					
Drainage Area	Impervious (Acres)	Gravel (Acres)	Lawn (Acres)	Total	Cw-Value
P1-1	0.00	0.00	1.06	1.06	0.20
P1-2	2.27	0.00	4.04	6.32	0.45
P1-3	0.61	0.00	2.86	3.47	0.32
P1-4	2.08	0.00	2.30	4.38	0.53
P1-5	1.04	0.00	10.08	11.12	0.27
P1-6	0.07	0.00	1.60	1.66	0.23
P1-7	0.10	0.00	0.26	0.36	0.39
P1-8	0.23	0.00	1.66	1.89	0.28
P1-9	0.15	0.00	0.92	1.06	0.30
P1-10	0.00	0.00	0.74	0.74	0.20
Total	6.55	0.00	25.52	32.07	0.34

TRIBUTARY TO POND 2 (HURON RIVER)					
Drainage Area	Impervious (Acres)	Gravel (Acres)	Lawn (Acres)	Total	Cw-Value
P2-1	0.00	0.00	0.57	0.57	0.20
P2-2	2.71	0.00	7.08	9.79	0.39
P2-3	0.19	0.00	1.58	1.76	0.27
P2-4	0.71	0.00	1.33	2.05	0.44
Total	3.61	0.00	10.56	14.17	0.38

FREEDOM RIVER, INC.
9305 HURON RAPIDS DRIVE
WHITEMORE LAKE, MI 48189

OVERALL DRAINAGE PLAN
FOR
FREEDOM RIVER CAMPGROUND

ISSUED FOR: SPA DATE: 6/1/23 BY: GLS

JOB NO. VCM2001

SHEET

C4.1



25251 Northline Rd.
Taylor, MI 48180
734.947.9700
www.wadetrim.com



FREEDOM RIVER, INC.
9305 HURON RAPIDS DRIVE
WHITEMORE LAKE, MI 48189
OVERALL STM SWR PLAN - STORM
FOR
FREEDOM RIVER CAMPGROUND

ISSUED FOR:	DATE:	BY:
CPA	6/1/23	GLS

OB NO. VCM2001

C5.1

179



Know what's **below**.
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SANITARY SEWER NOTES

1. PRECAST CONCRETE MANHOLE, FLAT TOP SLABS, RISERS, CONE, TRANSITION SECTIONS AND BOTTOM SECTIONS SHALL CONFORM TO ASTM C478, AND SHALL BE CIRCULAR WITH CIRCULAR REINFORCEMENT.
2. 6-INCH THROUGH 24-INCH CONNECTIONS TO MANHOLES SHALL USE A MECHANICALLY COMPRESSIBLE FLEXIBLE JOINT, AS INDICATED ON THE PLANS.
3. RISER AND CONE SECTIONS OF A MANHOLE SHALL HAVE MODIFIED GROOVED TONGUE JOINTS WITH "O" RING GASKETS (OUTSIDE OF PAVEMENT OR TRAFFIC AREAS) OR A TONGUE AND GROOVE JOINT WITH A BUTYL RUBBER BASED GASKET TYPE SEALANT MEETING THE REQUIREMENTS OF AASHTO M 198 AND HAVING A NOMINAL SIZE OF 1-INCH.
4. ECCENTRIC CONE SECTIONS OF A MANHOLE SHALL HAVE MODIFIED GROOVED TONGUE JOINTS WITH "O" RING GASKETS AND BE PROVIDED WITH A STUD INSERTS CAST IN THE TOP. THE TOP SHALL HAVE A SMOOTH FINISHED SURFACE.
5. CONCRETE GRADE RINGS SHALL HAVE SMOOTH FINISHED TOP AND BOTTOM SURFACES. GRADE RINGS SHALL BE PROVIDED WITH "O" RING GASKETS.
6. ALL PIPE CONNECTIONS SHALL HAVE MECHANICALLY COMPRESSED FLEXIBLE JOINT. STYLE TO BE RES-SEAL, KOR-N-SEAL OR APPROVED EQUAL.
7. MANHOLE STEPS TO BE INSTALLED AT THE PLANT BY MFR. OF PRECAST MANHOLE SECTION WITH 16" SPACING AND SET 45° TO ½ OF MAIN SEWER WITH THE BOTTOM STEP TO BE 24" MAX. ABOVE BOTTOM. MANHOLE STEPS CAN BE:
- 7.1. CAST IRON MANHOLE STEPS SHALL CONFORM TO ASTM A48, CLASS 30, GRAY IRON WITH A MINIMUM CROSS SECTION DIMENSION OF 1-INCH IN ANY DIRECTION.
- 7.2. STEEL REINFORCED PLASTIC MANHOLE STEPS SHALL BE OF SUITABLY APPROVED CO-POLYMER POLYPROPYLENE CONFORMING TO ASTM D4101, PP0344B33534Z02 WITH 1/2 INCH MINIMUM DIAMETER DEFORMED REINFORCING BAR CONFORMING TO ASTM A615, GRADE 60 AND SHALL BE IN ACCORDANCE WITH ASTM C478.
8. MANHOLE FRAMES AND COVERS SHALL CONFORM TO ASTM A48, CLASS 30, GRAY IRON. CASTINGS SHALL BE NEATLY MADE AND FREE FROM CRACKS, COLD SHEETS, HOLES AND OTHER DEFECTS. SURFACES OF CASTING SHALL BE GROUND TO ASSURE PROPER FIT AND TO PREVENT ROCKING.
- 8.1. FOR MANHOLES, USE A BOLTED WATERPROOF FRAME WITH A PRESSURE TIGHT COVER. BOLTED DOWN FRAME AND COVER SHALL BE INSTALLED AS INDICATED ON THE PLANS.
- 8.2. MANHOLE COVERS STYLE SHALL BE APPROVED BY LOCAL APPROVING AGENCY PRIOR TO INSTALLATION.
9. PIPE MATERIAL SHALL BE AS NOTED ON PLAN OR AS APPROVED BY THE LOCAL APPROVING AGENCY THE FOLLOWING ARE A LIST OF PIPES:
- 9.1. POLYVINYL CHLORIDE (PVC) TRUSS PIPE SHALL BE ASTM D2680. THE PIPE SHALL BE OF A DOUBLE WALL CONSTRUCTION, BRACED WITH A TRUSS-TYPE STRUCTURE WITH ALL 3 FORMED IN 1 EXTRUSION. THE TRUSS VOIDS ARE FILLED WITH LIGHTWEIGHT CONCRETE TO PROVIDE ADDITIONAL COMPRESSIVE STRENGTH AND BRACING.
- 9.2. PVC SOLID WALL PIPE IN SIZES 6-INCH THROUGH 15-INCH SHALL BE ASTM D3034, SDR 35, AND IN SIZES 18-INCH THROUGH 27-INCH SHALL BE ASTM F679 SDR35, PVC.
- 9.3. OTHER MATERIALS MAY BE ACCEPTABLE, HOWEVER ALL PIPE MATERIALS SHALL BE APPROVED BY THE LOCAL APPROVING AGENCY.
10. PIPE JOINTS SHALL BE:
- 10.1. JOINTS FOR POLYVINYL CHLORIDE (PVC) PIPE SHALL BE ELASTOMERIC GASKETED CONFORMING TO ASTM D3212, PUSH ON TYPE JOINT.
- 10.2. JOINTS FOR POLYVINYL CHLORIDE PIPE (PVC) SHALL BE ASTM D3212, PUSH-ON TYPE. A JOINT IN WHICH AN ELASTOMERIC RING GASKET IS COMPRESSED IN THE ANNULAR SPACE BETWEEN A BELL END OR SOCKET AND A SPIGOT END OF PIPE.
- 10.3. IN THE EVENT OTHER PIPE MATERIAL IS USED OTHER THAT THAT LISTED, CONTACT THE ENGINEER FOR AN APPROVED JOINT STYLE.
11. BUILDING LEADS SHALL BE 6-INCH DIAMETER AND SHALL BE LAID ON A UNIFORM SLOPE AS INDICATED ON THE PLANS WITH A MIN. SLOPE OF 1.0%. BUILDING LEADS SHALL BE INSTALLED TO WITH IN 1.0 FOOT OF THE PROPERTY LINE OR 5 FEET FROM THE PROPOSED BUILDING. THE CONTRACTOR SHALL INSTALL A WATER TIGHT PLUG FOR FUTURE CONNECTION BY THE PLUMBING CONTRACTOR AND MARKED WITH A 4X4 WOOD POST.
12. WYES OR TEES SHALL BE OF THE SAME MATERIAL AS THE MAINLINE PIPE. THEY SHALL BE A MOLDED WYE OR TEE FITTING PER ASTM D2680, WITH GASKETED JOINTS ON EACH END SUITABLE FOR DIRECTLY INSERTING IN THE MAINLINE PIPE. SADDLE CONNECTIONS ARE NOT ALLOWED.
13. ALL TRENCHES SHALL CONFORM TO THE DETAILS INCLUDED WITH THESE PLANS AND PIPE MANUFACTURES REQUIREMENTS.
14. CLEANOUTS SHALL BE INSTALLED AT ALL PIPE BEND LOCATIONS ON A SERVICE LEAD, LOCATED ON THE UPSTREAM SIDE OF THE SERVICE LEAD. THE MAX. SPACING FOR ALL CLEAN OUTS IS 100 HORIZONTAL FEET.
15. CONTRACTOR SHALL EXPOSE THE EXISTING SANITARY SEWER AND STRUCTURES TO WHICH THE NEW WORK IS TO BE CONNECTED AND NOTIFY ENGINEER OF ANY CHANGES IN THE HORIZONTAL OR VERTICAL LOCATION. CONTRACTOR WILL VERIFY THE VERTICAL AND HORIZONTAL LOCATIONS OF THE EXISTING SYSTEM AND SHALL INFORM THE ENGINEER AS TO THE NECESSARY ADJUSTMENTS REQUIRED TO ALIGN THE NEW SANITARY SEWER WORK WITH THE EXISTING SYSTEM IF REQUIRED.
16. ALL CONCRETE USED FOR INSTALLATION OF FLOW CHANNELS AND BACKFILL SHALL BE 3500 PSI.
17. CONNECTIONS TO EXISTING PIPES SHALL BE MADE WITH ENGINEER APPROVED METHODS. STAINLESS STEEL SHEAR RING FERNOCOS SHALL BE USED IF FERNCO CONNECTIONS ARE ALLOWED BY AGENCY HAVING JURISDICTION.
18. IN ACCORDANCE WITH 10-STATE STANDARDS IF AN UPSTREAM SANITARY SEWER PIPE CONNECTION IS GREATER THAN 24" ABOVE THE DOWNSTREAM PIPE A DROP CONNECTIONS IS REQUIRED.

STORM SEWER NOTES

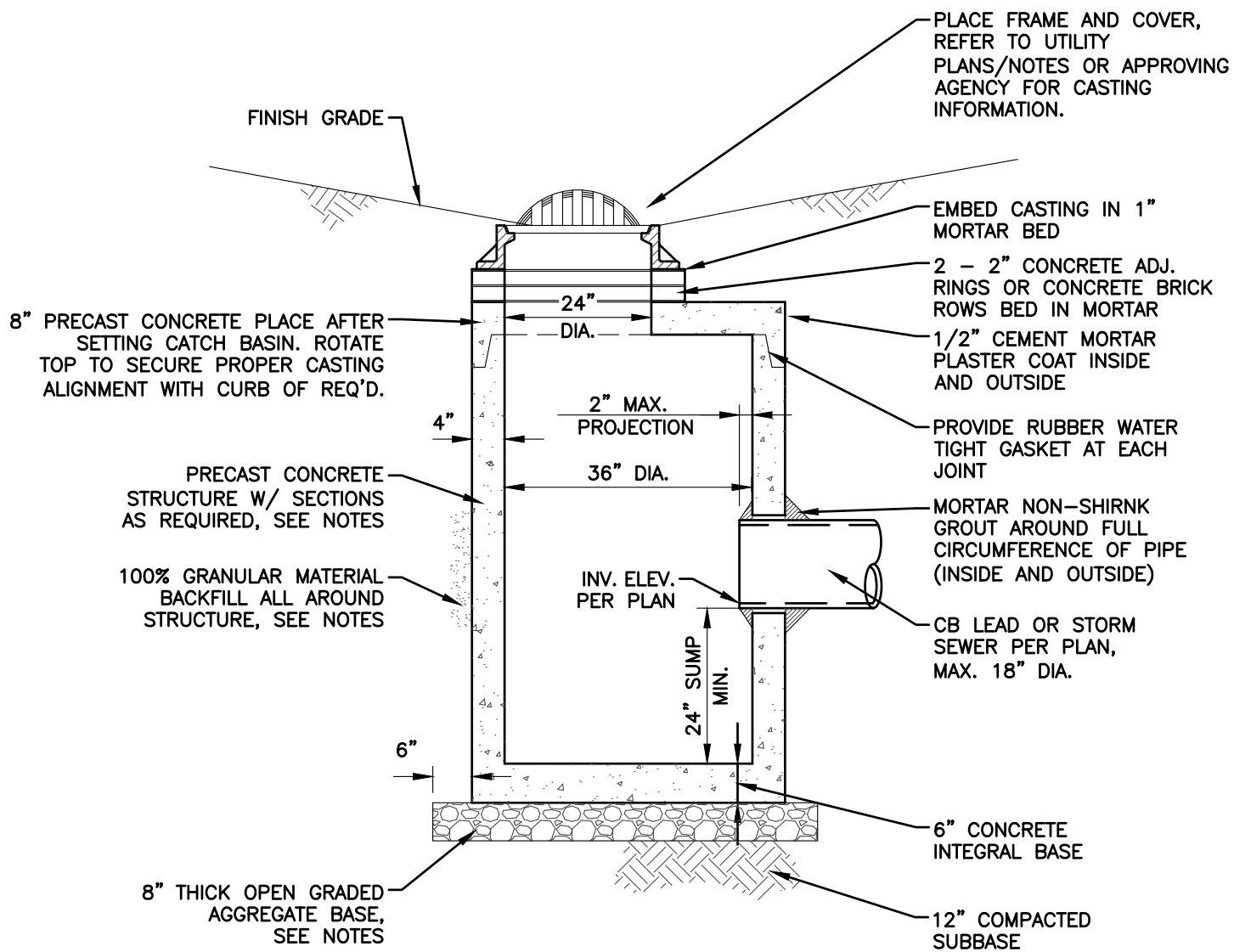
1. ALL STORM SEWER CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND GENERAL SPECIFICATION OF THE AGENCY OR AGENCIES HAVING JURISDICTION OF THE STORM SEWER AND CONSTRUCTION AREA.
2. DETAILS ARE FOR STRUCTURES WITH NO MORE THAN TWO PIPES, 180° APART. LARGER DIAMETER STRUCTURES MAY BE REQUIRED FOR DIFFERENT CONFIGURATIONS.
3. ALL STRUCTURES REQUIRE A MINIMUM OF 8-INCHES OF WALL BETWEEN PIPE OPENINGS. LARGER DIAMETER STRUCTURES MAY BE REQUIRED WHERE PIPE ENTERING THE STRUCTURE ARE LESS THAN 90° APART IN ANY DIRECTION.
4. ALL CASTING RIMS SHALL BE SET TO GRADE OR AS SHOWN ON THE PLANS.
5. MANHOLE STEPS SHALL BE INSTALLED AT LOCATIONS SHOWN ON THE DETAILS AND SHALL BE:
- 5.1. CAST IRON CONFORMING TO ASTM A48, CLASS 30 GRAY IRON WITH A MIN. CROSS SECTION DIMENSION OF 1-INCH IN ANY DIRECTION.
- 5.2. STEEL REINFORCED POLYPROPYLENE ASTM 4101, PP0344B33534Z02 WITH 1/2-INCH MIN. DIAMETER DEFORMED REINFORCING BAR CONFORMING TO ASTM A615, GRADE 60.
6. MANHOLE AND CATCH BASINS FRAME AND COVER/GRADE SHALL BE CONFORM TO ASTM A48, CLASS 30, GRAY IRON AND BE AS FOLLOWS (**):
- 6.1. MANHOLES: EJ #1040 WITH A SOLID COVER (OR APPROVED EQUAL).
- 6.2. CATCH BASINS:
- LAWN AREA: EJ #1040 WITH A TYPE N OVAL GRATE (OR APPROVED EQUAL).
- PAVEMENT (ROUND): EJ #1040 WITH A TYPE M1 GRATE "DUMP NO WASTE" (OR APPROVED EQUAL).
- PAVEMENT (SQUARE): EJ #5724 FRAME AND GRATE (OR APPROVED EQUAL).
- CURB:
- 18" STANDARD CURB: EJ #7045Z W/ 7040 M1 GRATE & EJ #7050 T-1 BACK OR APPROVED EQUAL
- 24" STANDARD CURB: EJ #7045Z W/ 7045 M1 GRATE EJ #7050 T-1 BACK OR APPROVED EQUAL
- ROLL CURB: EJ #7085 W/ M1 GRATE OR APPROVED EQUAL
- MOUNTABLE CURB: EJ #7250 OR APPROVED EQUAL
- WEDGE CURB & GUTTER: EJ #7300 W/ M GRATE OR APPROVED EQUAL
- DRIVEWAY GUTTER: EJ #7065 W/ 7045 M1 GRATE OR APPROVED EQUAL
- VALLEY GUTTER: EJ #4410 OR APPROVED EQUAL
- **LOCAL APPROVING AGENCIES CASTINGS SHALL SUPERSEDE THE LIST PROVIDED HERE.
7. DIFFERENTIAL OF EXCAVATION AROUND EXISTING MANHOLES SHALL NOT EXCEED SIX FEET.
8. PLACE GRANULAR MATERIAL BACKFILL WITHIN THREE FEET OF ALL STRUCTURES ALL BACK FILL SHALL BE COMPACTED IN MAX. 12" LIFTS COMPACTED TO A MINIMUM 95% OF THE MAXIMUM DRY DENSITY DETERMINED BY MODIFIED PROCTOR TEST.
9. ALL STORM SEWER PIPE SHALL HAVE BEDDING PER THE DETAIL ON THIS SHEET UNLESS OTHERWISE NOTED ON THE PLANS.
10. ALL PRECAST PRODUCTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478.
11. ALL JOINTS FOR PRECAST CONCRETE MANHOLE SECTIONS SHALL BE THE SAME AS RCP PIPE.
12. ALL DRAINAGE PIPE SHALL BE AS NOTED ON PLANS.
- 12.1. ALL REINFORCED CONCRETE PIPE (RCP) SHALL CONFORM TO ASTM C76 CLASS IV, CIRCULAR REINFORCED.
- 12.2. ALL HIGH DENSITY POLYETHYLENE PIPE (HDPE) SHALL BE SMOOTH LINED CORRUGATED POLYETHYLENE PIPE MEETING AASHTO M252, TYPE S FOR SIZES 4" TO 10" DIAMETER AND AASHTO M294, TYPE S FOR 12" TO 48" DIAMETER.
- 12.3. ALL CORRUGATED PLASTIC EDGE DRAINS / UNDERDRAINS (CPP) SHALL MEET THE REQUIREMENTS OF AASHTO M252 FOR POLYETHYLENE TUBING. ALL UNDERDRAINS SHALL BE WRAPPED IN A GEOTEXTILE WRAP. ALL CORRUGATED METAL PIPE (CMP) SHALL CONFORM TO AASHTO M36.
- 12.4. ALL POLYVINYL CHLORIDE SOLID WALL PIPE (PVC) SHALL IN SIZES SHALL BE SDR 35
13. ALL PIPE JOINTS SHALL BE:
- 13.1. RCP: ALL JOINTS SHALL BE PREMIUM JOINTS. PREMIUM JOINTS FOR CIRCULAR PIPES SHALL CONFORM TO ASTM C443 LIMITED AS FOLLOWS: SECTION 5.1 OF C443, "PHYSICAL REQUIREMENTS FOR GASKETS", SHALL BE REPLACED WITH SECTION 6.9 OF C361, "RUBBER GASKETS." ALSO, SECTION 5 OF C443 SHALL BE LIMITED TO A MODIFIED GROOVED TONGUE TO RECEIVE A RUBBER GASKET.
- 13.2. HDPE: JOINTS SHALL BE BELL & SPIGOT TYPE WITH RUBBER GASKETS ON BOTH SIDES OF THE JOINT CONFORMING TO AND ASTM F477. SPLIT COLLAR COUPLERS ARE NOT ALLOWED. JOINTS SHALL BE WATERTIGHT MEETING THE PERFORMANCE REQUIREMENTS OF ASTM D3212.
- 13.3. CMP: JOINTS FOR CORRUGATED METAL PIPE SHALL BE MADE BY USE OF COUPLING BANDS. COUPLING BANDS SHALL BE OF THE SAME MATERIAL AS SPECIFIED FOR THE PIPE AND SHALL PREVENT INFILTRATION OF THE SIDE FILL MATERIAL. COUPLING BANDS SHALL BE CORRUGATED TO MATCH THE CORRUGATIONS OF THE PIPE TO BE JOINED, AND SHALL INCLUDE TWO (2) "O" RING NEOPRENE GASKETS FOR EACH JOINT. DIMPLE BANDS SHALL NOT BE USED. JOINTS SHALL BE WRAPPED WITH A 3 FOOT (1 M) WIDE GEOTEXTILE FILTER FABRIC CENTERED ON THE JOINT.
- 13.4. PVC: JOINTS SHALL BE ASTM D3212, PUSH-ON TYPE. A JOINT IN WHICH AN ELASTOMERIC RING GASKET IS COMPRESSED IN THE ANNULAR SPACE BETWEEN A BELL END OR SOCKET AND A SPIGOT END OF PIPE.
14. THE CONTRACTOR SHALL EXPOSE THE EXISTING STORM SEWER AND STRUCTURES TO WHICH THE NEW WORK IS TO BE CONNECTED AND VERIFY THE EXACT VERTICAL AND HORIZONTAL LOCATIONS OF THE EXISTING SYSTEM. HE SHALL INFORM ENGINEER AS TO THE NECESSARY ADJUSTMENTS REQUIRED TO ALIGN THE NEW STORM SEWER WORK WITH THE EXISTING SYSTEM IF REQUIRED.
15. ALL CATCH BASIN STRUCTURES, SEE DETAIL THIS SHEET.
16. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONNECT ALL BUILDING FOOTING DRAINS TO THE NEAREST DRAINAGE STRUCTURE, COORDINATE WITH ARCHITECTURAL PLANS.
17. TRENCH BACKFILL:
- 17.1. ALL PIPE THAT RUNS UNDER PAVEMENT, GRAVEL OR CONCRETE SURFACE AND WITHIN A 1 ON 1 INFLUENCE OF THE PAVEMENT, GRAVEL OR CONCRETE SURFACE TO RECEIVE 100% GRANULAR MATERIAL (SEE NOTE) COMPACTED TO A MINIMUM 95% OF THE MAXIMUM DRY DENSITY DETERMINED BY MODIFIED PROCTOR TEST.
- 17.2. ALL PIPE THAT RUNS OUTSIDE THE PAVED, GRAVEL OR CONCRETE SURFACE SHALL BE BACKFILLED IN MAX 12" LIFTS WITH SUITABLE NATIVE MATERIAL COMPACTED TO A MINIMUM 95% OF THE MAXIMUM DRY DENSITY DETERMINED BY MODIFIED PROCTOR TEST.
18. MATERIALS:
- 18.1. GRANULAR MATERIAL – MDOT CLASS II SAND
- 18.2. OPEN GRADED AGGREGATE – MDOT 6A OR AASHTO #57
- 18.3. DENSE GRADED AGGREGATE – MDOT 22AA CRUSHED LIMESTONE

STORM SEWER STRUCTURE TABLE

STR. #	SIZE	RIM	INVERTS	NORTHING	EASTING
STORM CB #P1-1	48"	881.23	E 24" 876.89 NW 24" 876.89	354046.12	13270926.82
STORM CB #P1-2	48"	883.22	E 21" 878.45 W 24" 878.45	353951.56	13271304.97
STORM FES #P1-1	48"	874.58	SE 24" 869.40	354165.52	13270525.76
STORM FES #P1-2		875.71	NE 18" 873.50	354195.12	13270725.07
STORM FES #P1-5		878.54	SE 24" 876.33	354101.70	13270800.08
STORM FES #P1-6		883.17	W 21" 881.50	353951.60	13271563.79
STORM FES #P1-7		886.46	E 12" 884.79	354102.85	13272025.01
STORM FES #P1-8		886.67	W 12" 885.00	354102.85	13272073.01
STORM FES #P1-9		888.47	N 12" 886.80	354300.40	13271345.69
STORM FES #P1-10		888.73	S 12" 887.06	354349.40	13271345.99
STORM FES #P1-11		888.67	NE 12" 887.00	354269.21	13271465.01
STORM FES #P1-12		888.91	W 12" 887.25	354296.23	13271522.87
STORM FES #P1-13		889.05	S 12" 887.38	354350.27	13271505.56
STORM FES #P1-14		883.02	N 12" 881.35	354452.93	13271039.93
STORM FES #P1-15		884.20	S 12" 882.53	354577.97	13271087.35
STORM FES #P2-1	???"	878.08	NW 24" 875.33	353205.74	13271062.36
STORM FES #P2-2	???"	880.71	N 18" 878.50	353364.54	13270936.78
STORM FES #P2-3		885.63	N 12" 883.96	353494.34	13271055.40
STORM FES #P2-4		887.05	S 12" 885.38	353571.96	13271066.98
STORM FES #P2-5		890.07	NE 12" 888.40	353359.67	13271807.08
STORM FES #P2-6		890.23	SW 12" 888.57	353385.75	13271838.14
STORM MH #P1-1	4R"	890.23	N 12" 887.19 E 12" 887.19 SW 12" 887.19	354297.27	13271505.55
STORM OCS #P1-1	48"	878.00	NW 24" 870.00	354106.99	13270821.80
STORM OCS #P1-2	36"	877.60	SW 18" 874.00	354224.11	13270764.48
STORM OCS #P2-1	48"	882.00	SE 24" 876.00	353326.75	13270998.00

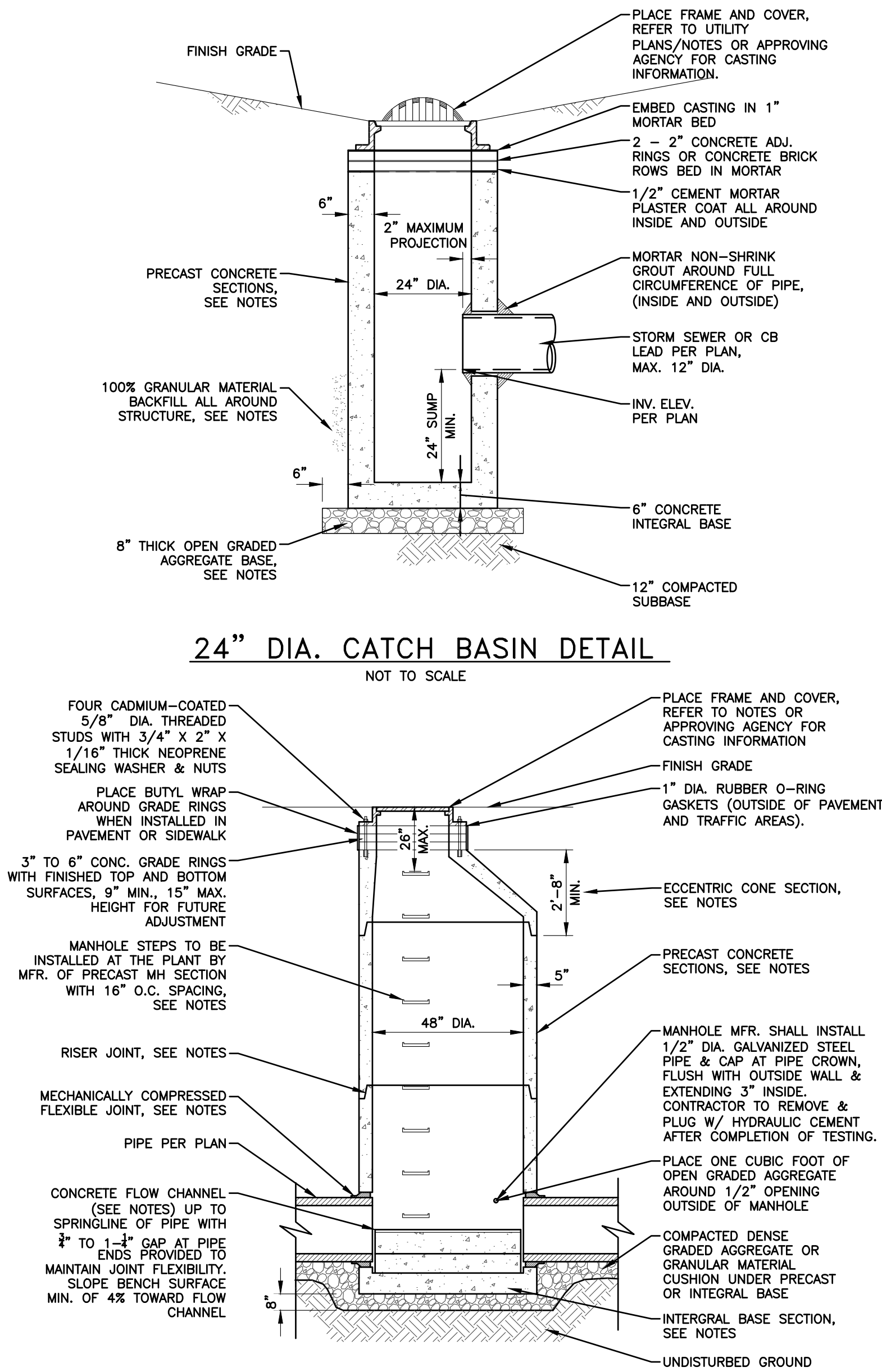
SANITARY SEWER STRUCTURE TABLE

STR. #	SIZE	RIM	INVERTS	NORTHING	EASTING
EX. SAN MH #1	48"	889.56	SW 2" 884.50	354483.28	13271826.53
SAN MH #2	48"	889.10	S 8" 880.76 W 8" 880.66	354279.90	13271959.73
SAN MH #3	48"	888.42	N 8" 881.93	353986.27	13271959.79
SAN MH #4	48"	888.63	W 8" 878.07 E 8" 877.97 S 8" 879.17	354342.63	13271517.52
SAN MH #5	48"	885.50	S 8" 880.39 N 8" 880.29	354064.63	13271540.14
SAN MH #6	48"	887.88	S 8" 881.63 N 8" 881.53	353788.83	13271468.28
SAN MH #7	48"	892.23	E 8" 882.90 N 8" 882.80	353496.20	13271467.19
SAN MH #8	48"	890.81	SE 8" 883.96 W 8" 883.86	353434.96	13271700.11
SAN MH #9	48"	890.21	SE 8" 884.63 NW 8" 884.53	353344.43	13271810.19
SAN MH #10	48"	891.74	NW 8" 885.56 E 8" 885.80	353179.98	13271973.33
SAN MH #11	48"	888.01	W 8" 878.93 E 8" 878.83	354345.36	13271326.66
SAN MH #12	48"	887.29	SW 8" 879.59 E 8" 879.49 NW 8" 880.01	354330.41	13271188.54
SAN MH #13	48"	885.13	SW 8" 880.73 NE 8" 880.63	354201.75	13270961.50
SAN MH #14	48"	884.95	S 8" 881.83 NE 8" 881.73	353982.94	13270839.12
SAN MH #15	48"	887.46	SW 8" 883.08 N 8" 882.98	353695.01	13270828.79
SAN MH #16	48"	889.77	SW 8" 884.18 NE 8" 884.08	353494.37	13270681.68
SAN MH #17	48"	886.20	NW 8" 880.61 SE 8" 880.51	354475.47	13271108.26
SAN MH #18	48"	885.76	SE 8" 881.08	354561.84	13270978.91
SAN PS #1	48"	889.64	E 8" 879.82 W 8" 877.00 NE 2" 883.33	354344.48	13271758.91



36" DIA. CATCH BASIN DETAIL

NOT TO SCALE



STANDARD SANITARY MANHOLE

NOT TO SCALE



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Item 3

DESCRIPTION

DATE

REV#

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WADE TRIM

FREEDOM RIVER, INC.
9305 HURON RAPIDS DRIVE
WHITEMORE LAKE, MI 48189
UTILITY DETAILS
FOR
FREEDOM RIVER CAMPGROUND

ISSUED FOR: SPA
DATE: 6/1/23
BY: GLS

JOB NO.
VCM2001

SHEET

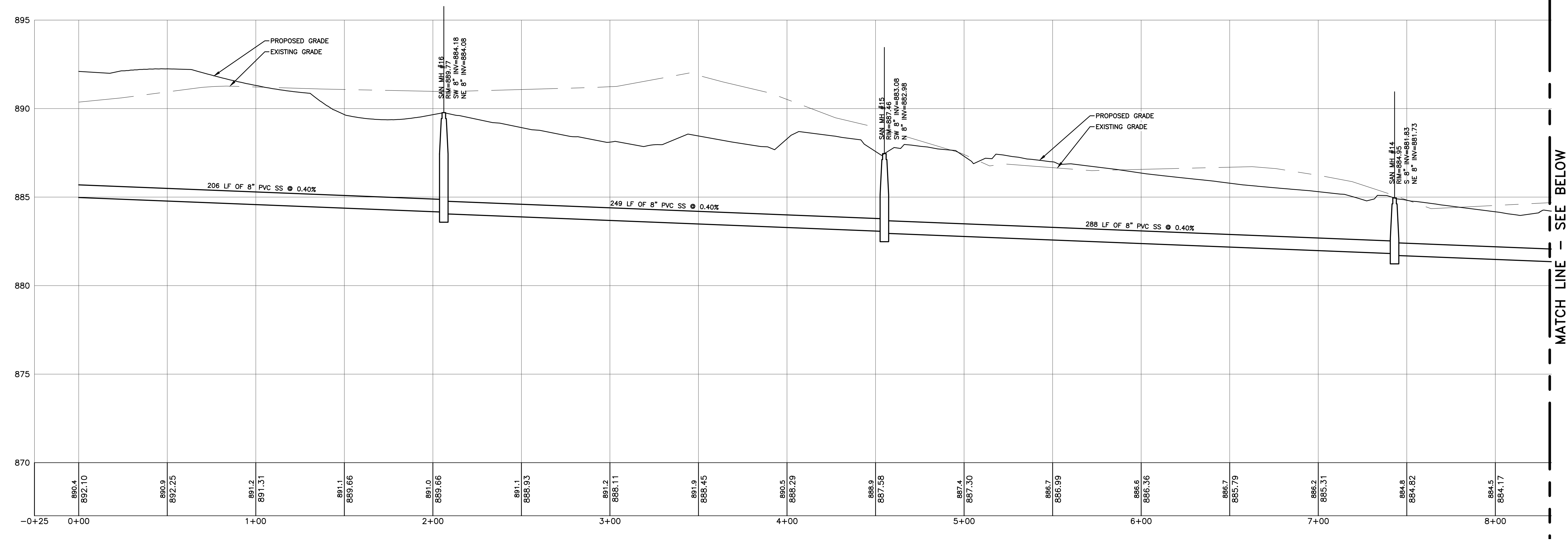
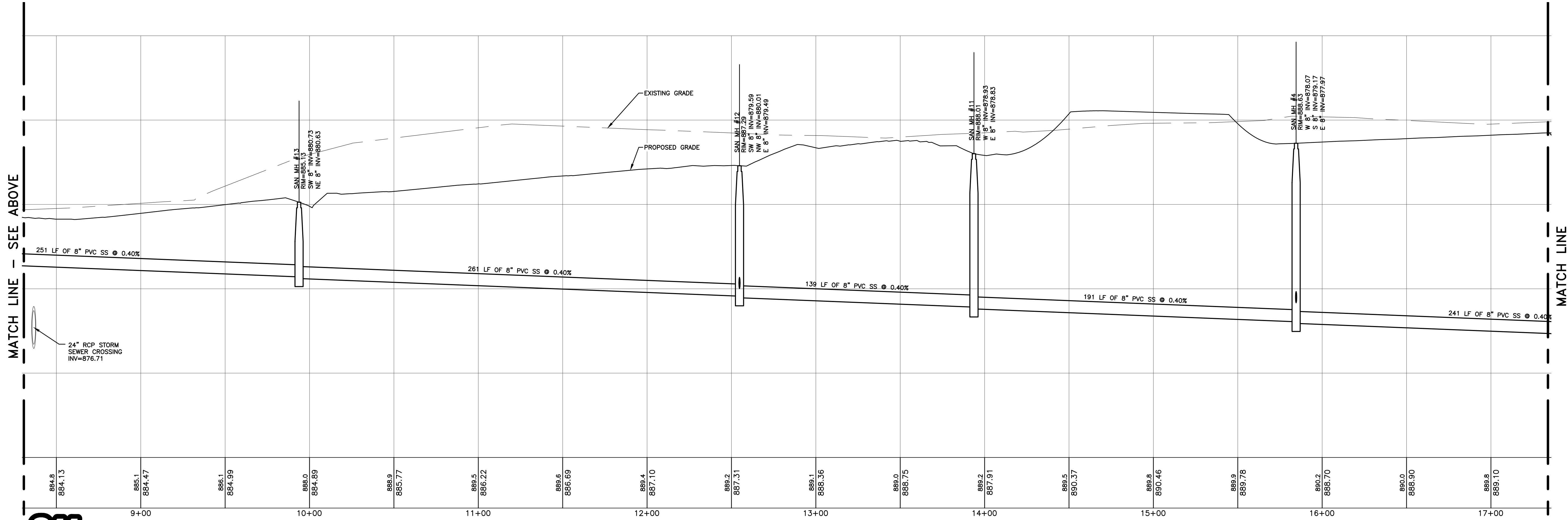
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PROJECT MANAGER: - C:\PW_WORK\WADE-TRIM_GSP\SS10128134\PLTS-SANITARY PROFILES.DWG - A - PLOTTED 6/1/2023 4:35 PM BY: SPIESS, GREG



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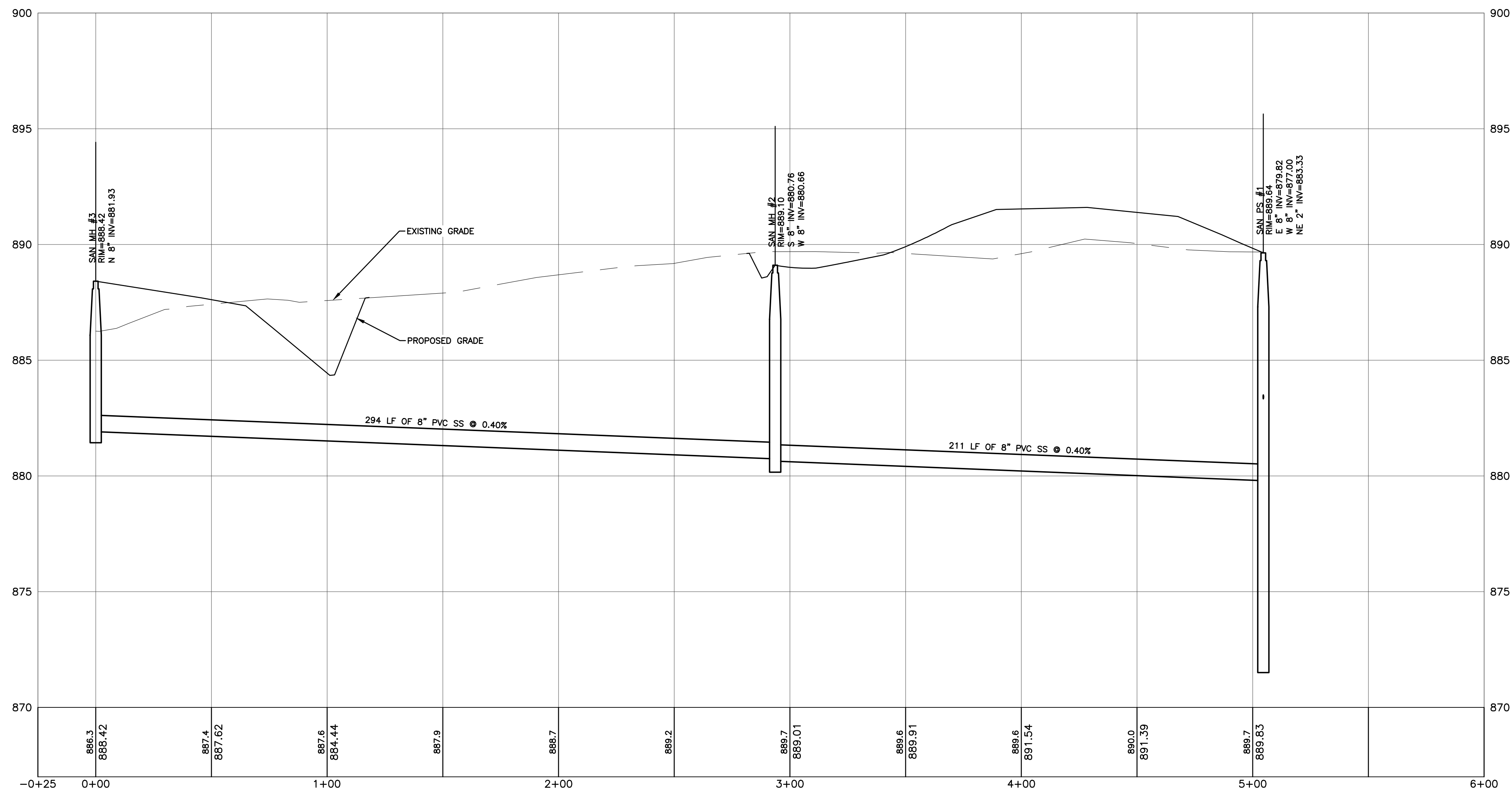
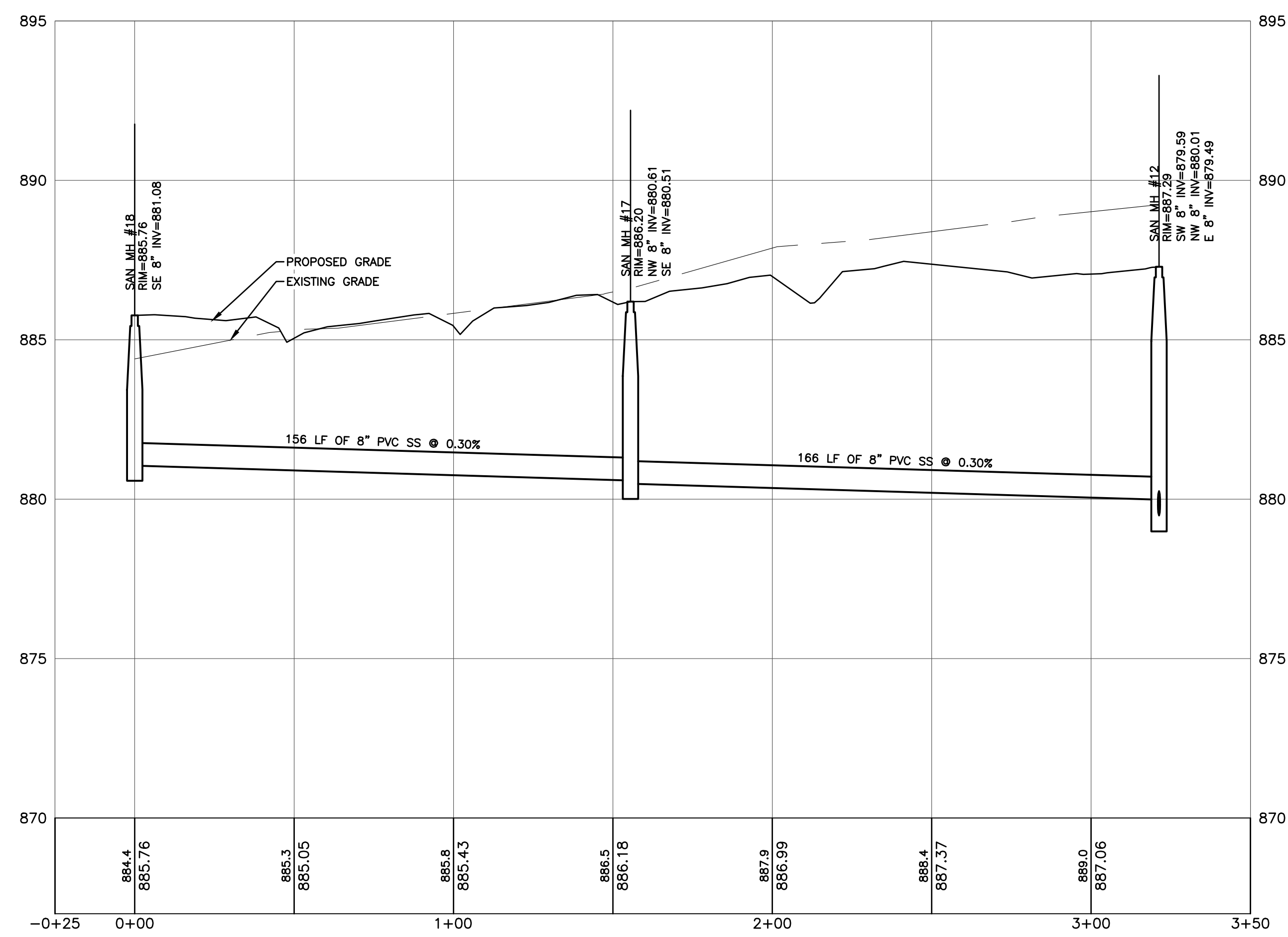
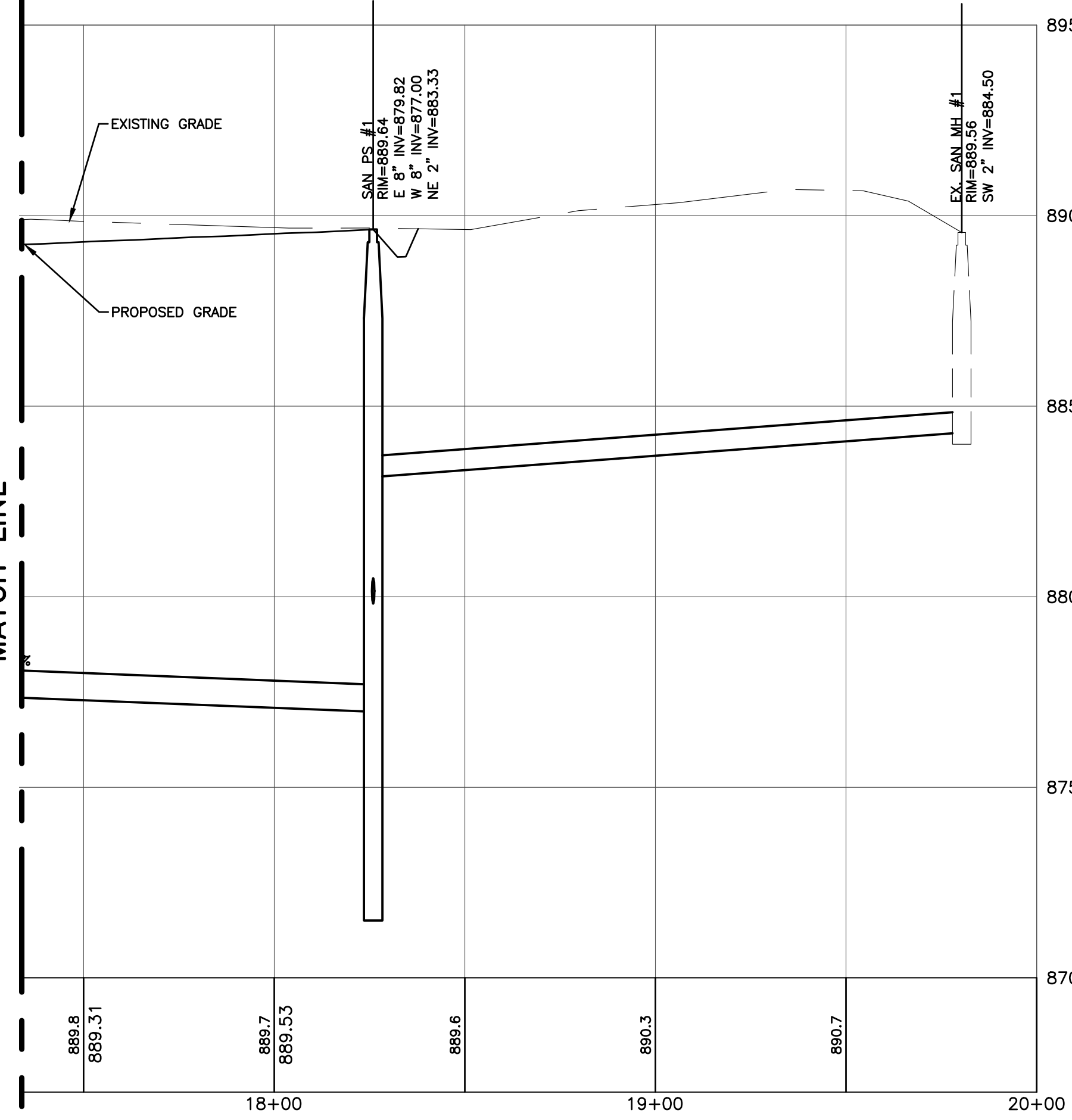


FREEDOM RIVER, INC.
9305 HURON RAPIDS DRIVE
WHITEMORE LAKE, MI 48189
SANTARY PROFILES - A
FOR
FREEDOM RIVER CAMPGROUND

ISSUED FOR: SPA DATE: 6/1/23 BY: GLS
JOB NO. VCM2001
SHEET C5.3

25251 Northline Rd.
Whitemore Lake, MI 48189
734.847.9700
www.wadetrtrim.com

REV#		DATE	DESCRIPTION



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PROJECT MANAGER: -
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FREEDOM RIVER, INC.
9305 HURON RAPIDS DRIVE
WHITEMORE LAKE, MI 48189
SANITARY PROFILES - B
FOR
FREEDOM RIVER CAMPGROUND

ISSUED FOR:	DATE:	BY:
SPA	6/1/23	GLS

JOB NO. VCM2001

SHEET
C5.4

WADE
25251 Northline Rd.
Taylor, MI 48180
734.947.9700
www.wadetrim.com

25251 Northline Rd.
Taylor, MI 48180
734.947.9700
www.wadetrim.com

Wade Trim Group, Inc.

Wade Trim Group, Inc.

Item 3.

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DATE	DESCRIPTION
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DATE	DESCRIPTION
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DATE	DESCRIPTION
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This profile view illustrates the vertical alignment of a sewer line. The horizontal axis represents stationing from -0+25 to 8+00. The vertical axis shows elevations from 875 to 900 feet. The diagram includes the following elements:

- Existing Grade:** Represented by a dashed line.
- Proposed Grade:** Represented by a solid line.
- Manholes (M.H.):** Four manholes are shown as vertical structures with their respective elevations:
 - M.H. #10: RIM=891.74, E 8" INV=885.80, NW 8" INV=885.56
 - M.H. #9: RIM=890.21, E 8" INV=884.63, NW 8" INV=884.53
 - M.H. #8: RIM=890.31, E 8" INV=883.96, NW 8" INV=883.86
 - M.H. #7: RIM=892.23, E 8" INV=882.98, NW 8" INV=882.80
- Pipe Segments:** Four segments of 8" PVC SS pipe are shown with a 0.40% slope:
 - 232 LF OF 8" PVC SS @ 0.40%
 - 143 LF OF 8" PVC SS @ 0.40%
 - 241 LF OF 8" PVC SS @ 0.40%
 - 293 LF OF 8" PVC SS @ 0.40%
- Elevation Data:** A series of elevations are provided along the bottom of the profile, corresponding to specific stations.



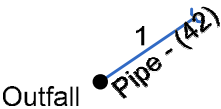
SHEET

C5.5

[illegible]

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan

Item 3.



Storm Sewer Inventory Report

Item 3.

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	40.551	-40.020	Hdwl	0.00	2.05	0.53	25.0	888.40	0.42	888.57	12	Cir	0.013	1.00	890.23	Pipe - (42)
Project File: Freedom River Storm.stm									Number of lines: 1						Date: 6/1/2023		185

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	STORM FES #P2-6	OpenHeadwall	890.23	n/a	n/a	n/a	12	Cir	888.57			
Project File: Freedom River Storm.stm							Number of Structures: 1			Run Date: 6/1/2023		

Storm Sewer Summary Report

Item 3.

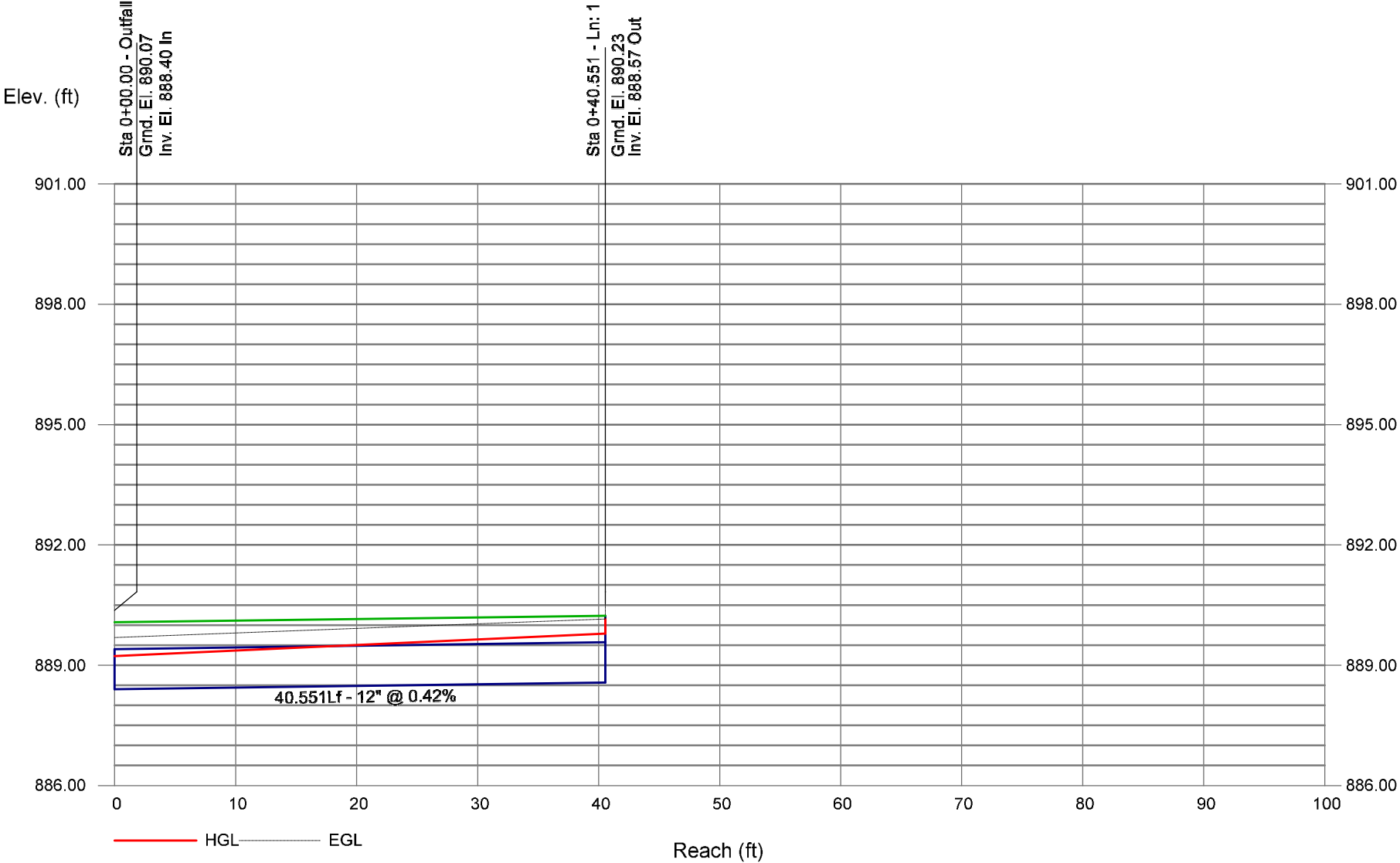
Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Ju Type
1	Pipe - (42)	3.80	12	Cir	40.551	888.40	888.57	0.419	889.23*	889.79*	0.36	890.15	End	OpenHeadwall

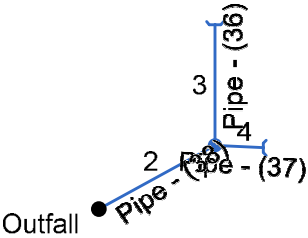
Project File: Freedom River Storm.stm	Number of lines: 1	Run Date: 6/1/2023
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NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown).	187
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Storm Sewer Profile

Item 3.





Storm Sewer Inventory Report

Item 3.

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
4	2	17.356	38.132	Hdwl	0.00	0.36	0.48	20.0	887.19	0.35	887.25	12	Cir	0.013	1.00	888.91	Pipe - (37)
3	2	53.000	-55.292	Hdwl	0.00	1.89	0.38	25.0	887.19	0.36	887.38	12	Cir	0.013	1.00	889.05	Pipe - (36)
2	End	49.297	-34.692	MH	0.00	0.00	0.00	0.0	887.00	0.39	887.19	12	Cir	0.013	0.85	890.23	Pipe - (38)
<div> <div>Project File: Freedom River Storm.stm</div> <div>Number of lines: 3</div> <div>Date: 6/1/2023</div> <div>190</div> </div>																	

Structure Report

Item 3.

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
4	STORM FES #P1-12	OpenHeadwall	888.91	n/a	n/a	n/a	12	Cir	887.25			
3	STORM FES #P1-13	OpenHeadwall	889.05	n/a	n/a	n/a	12	Cir	887.38			
2	STORM MH #P1-1	Manhole	890.23	Cir	4.00	4.00	12	Cir	887.19	12 12	Cir Cir	887.19 887.19
Project File: Freedom River Storm.stm				Number of Structures: 3						Run Date: 6/1/2023		

Storm Sewer Summary Report

Item 3.

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Ju Type
4	Pipe - (37)	0.67	12	Cir	17.356	887.19	887.25	0.346	888.50*	888.50*	0.01	888.51	2	OpenHeadwall
3	Pipe - (36)	2.51	12	Cir	53.000	887.19	887.38	0.358	888.50*	888.76*	0.16	888.92	2	OpenHeadwall
2	Pipe - (38)	3.10	12	Cir	49.297	887.00	887.19	0.385	887.75*	888.29*	0.21	888.50	End	Manhole

Project File: Freedom River Storm.stm

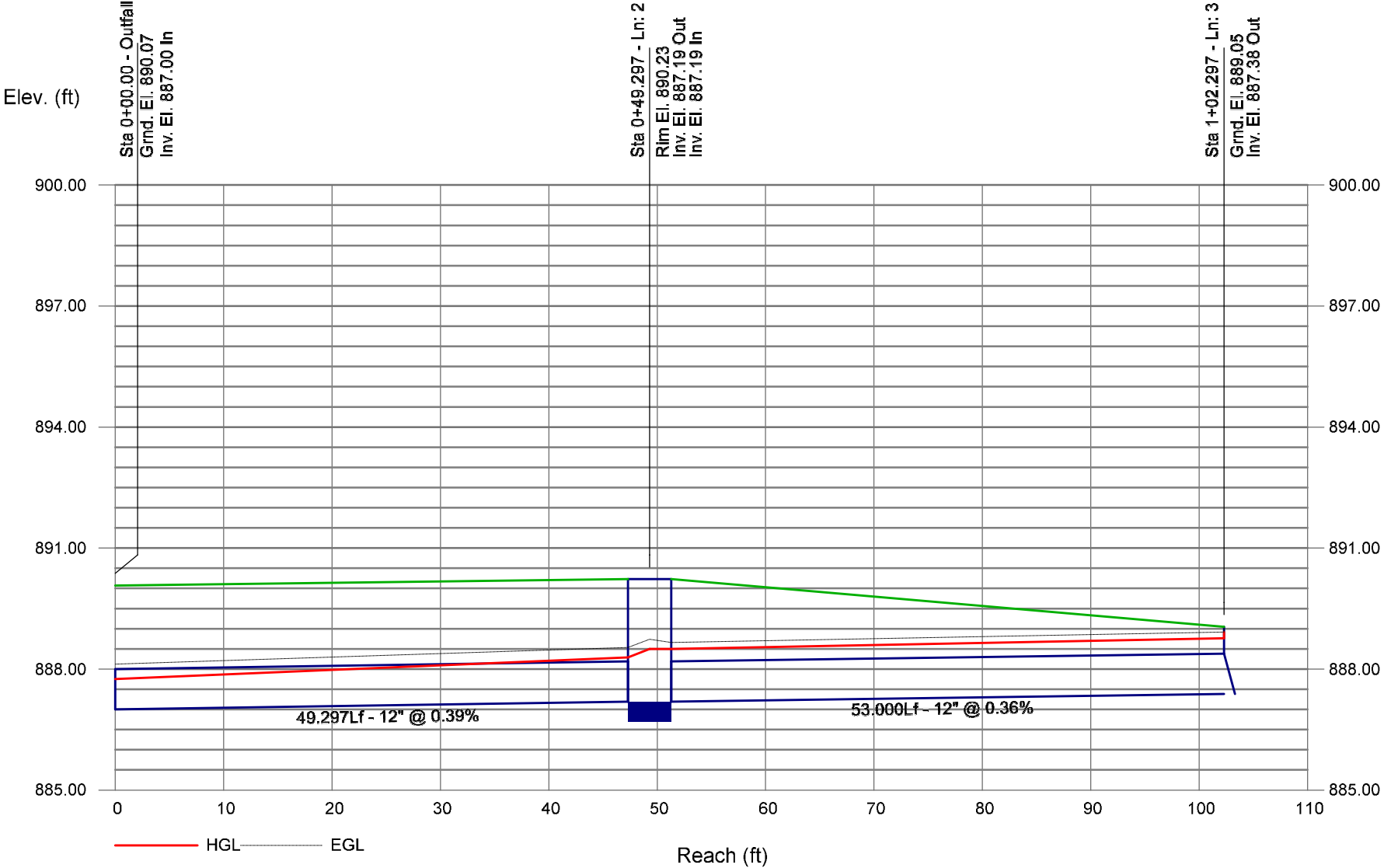
Number of lines: 3

Run Date: 6/1/2023

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown).

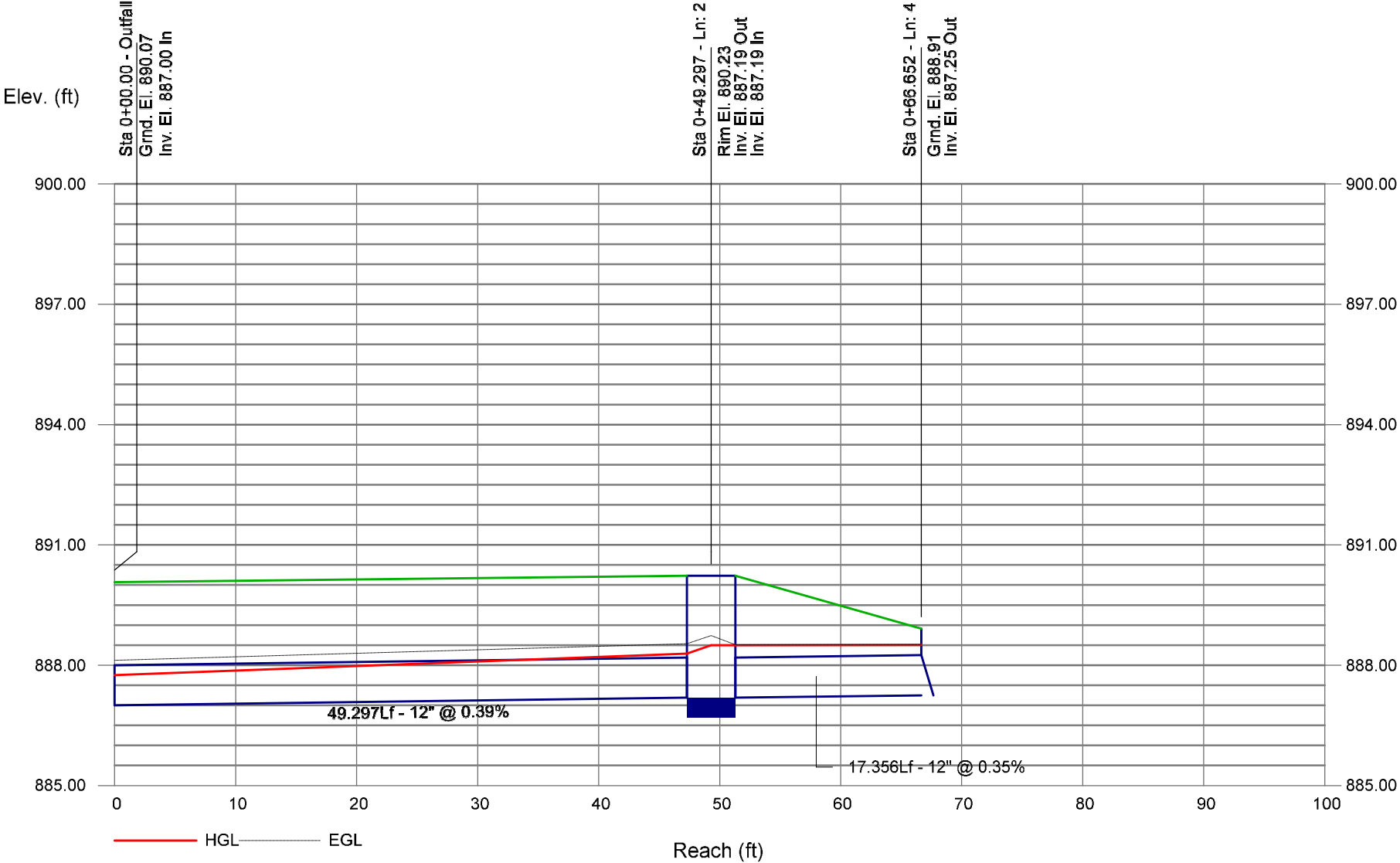
Storm Sewer Profile

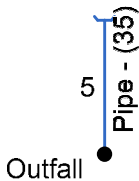
Item 3.



Storm Sewer Profile

Item 3.





Storm Sewer Inventory Report

Item 3.

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
5	End	49.000	-89.658	Hdwl	0.00	1.06	0.39	20.0	886.80	0.53	887.06	12	Cir	0.013	1.00	888.73	Pipe - (35)
<div>Project File: Freedom River Storm.stm</div> <div>Number of lines: 1</div> <div>Date: 6/1/2023</div>																	

Structure Report

Item 3.

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
5	STORM FES #P1-10	OpenHeadwall	888.73	n/a	n/a	n/a	12	Cir	887.06			
Project File: Freedom River Storm.stm							Number of Structures: 1			Run Date: 6/1/2023		

Storm Sewer Summary Report

Item 3.

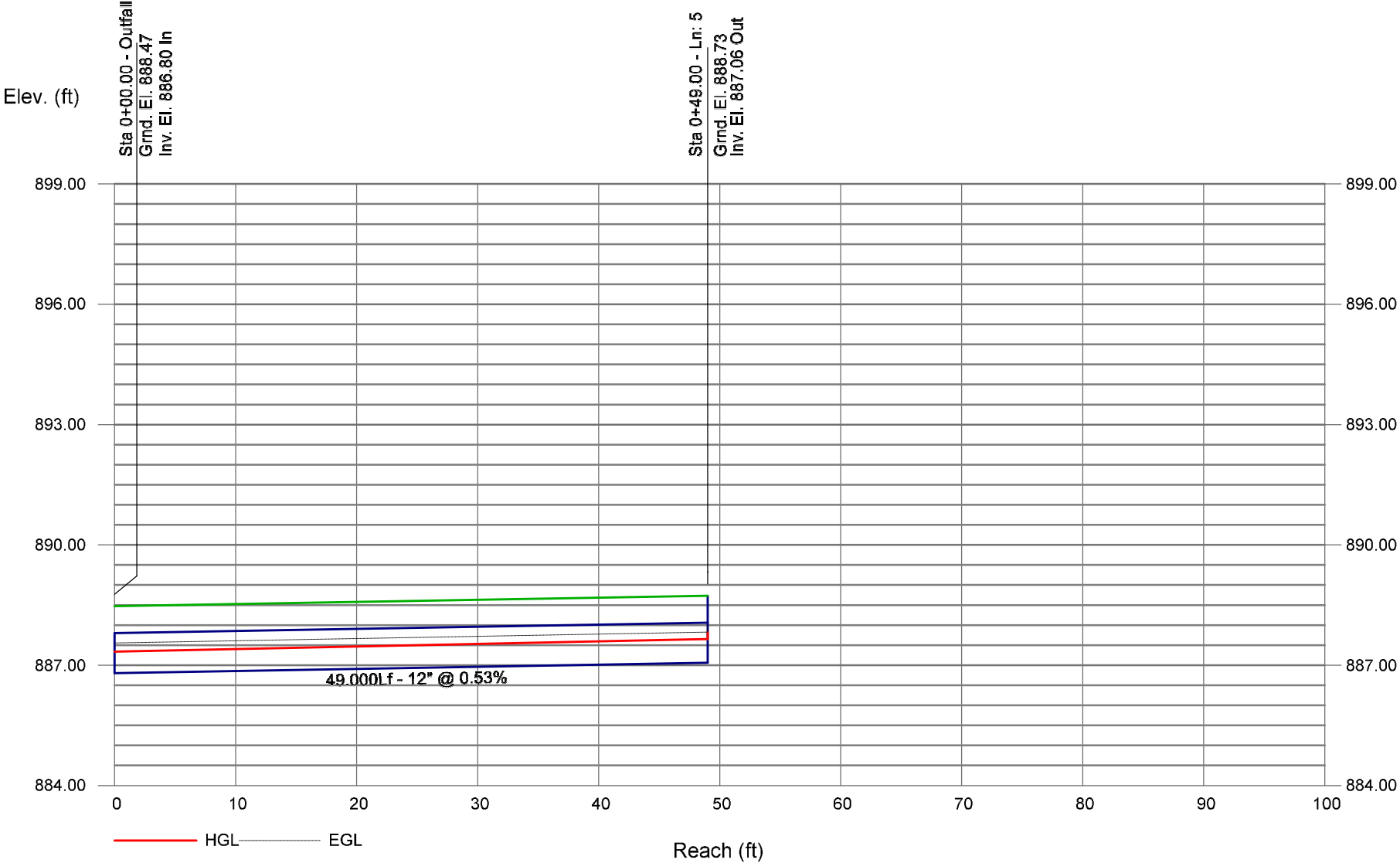
Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
5	Pipe - (35)	1.61	12	Cir	49.000	886.80	887.06	0.531	887.34	887.65	0.17	887.82	End	OpenHeadwall

Project File: Freedom River Storm.stm	Number of lines: 1	Run Date: 6/1/2023
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NOTES: Return period = 10 Yrs.	198
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Storm Sewer Profile

Item 3.



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan

Item 3.

6
Outfall Pipe - (26)

Storm Sewer Inventory Report

Item 3.

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
6	End	48.000	0.000	MH	0.00	1.66	0.33	20.0	884.79	0.44	885.00	12	Cir	0.013	1.00	886.67	Pipe - (26)
Project File: Freedom River Storm.stm									Number of lines: 1						Date: 6/1/2023		201

Structure Report

Item 3.

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
6	STORM FES #P1-8	Manhole	886.67	Cir	0.00	0.00	12	Cir	885.00			

Storm Sewer Summary Report

Item 3.

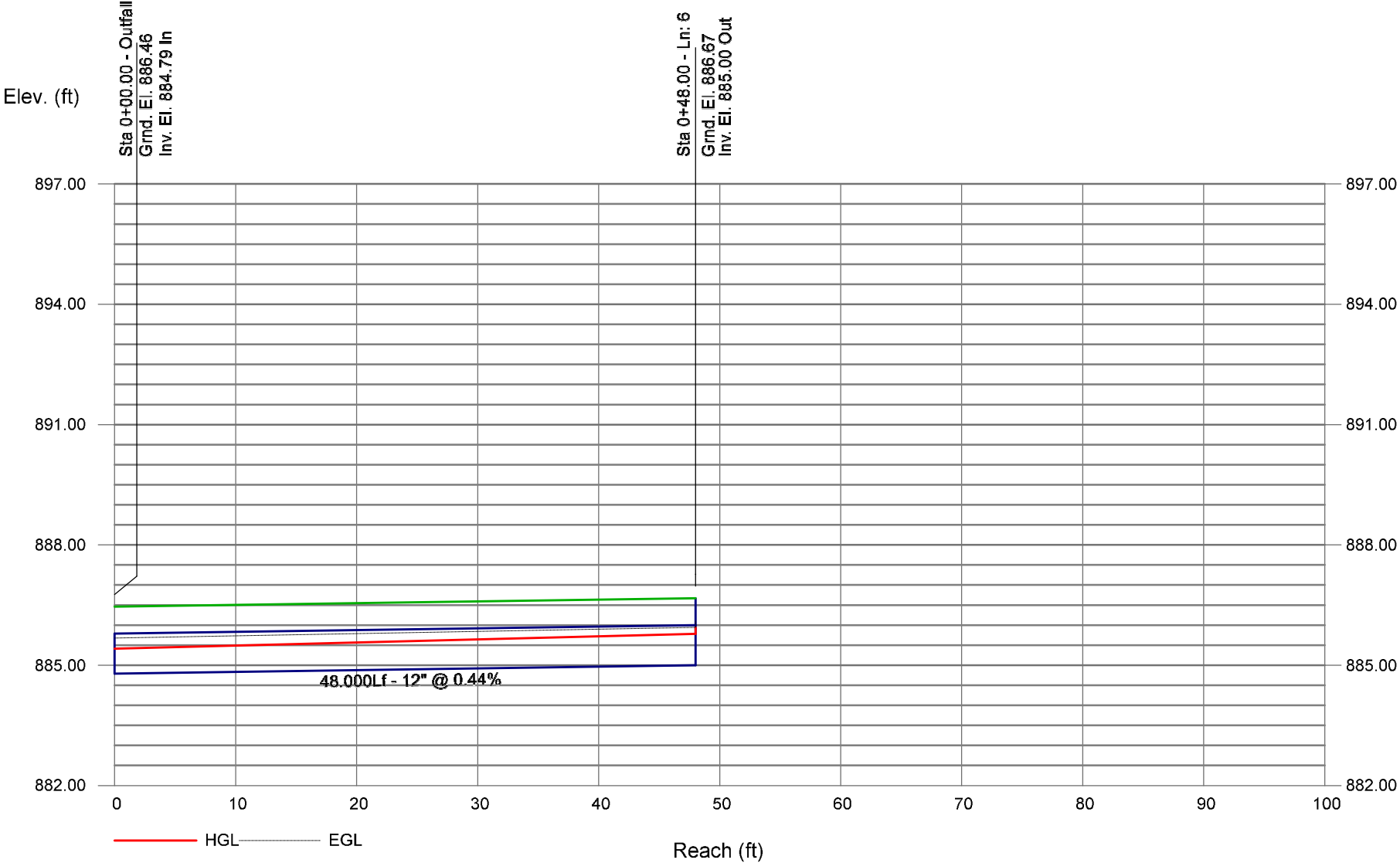
Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Ju Type
6	Pipe - (26)	2.13	12	Cir	48.000	884.79	885.00	0.438	885.41	885.78	0.16	885.94	End	Manhole

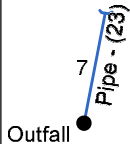
Project File: Freedom River Storm.stm	Number of lines: 1	Run Date: 6/1/2023
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NOTES: Return period = 10 Yrs.	203
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Storm Sewer Profile

Item 3.





Storm Sewer Inventory Report

Item 3.

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
7	End	78.476	-81.515	Hdwl	0.00	1.76	0.37	20.0	883.96	1.81	885.38	12	Cir	0.013	1.00	887.05	Pipe - (23)
<div>Project File: Freedom River Storm.stm</div> <div>Number of lines: 1</div> <div>Date: 6/1/2023</div>																	

Structure Report

Item 3.

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
7	STORM FES #P2-4	OpenHeadwall	887.05	n/a	n/a	n/a	12	Cir	885.38			
Project File: Freedom River Storm.stm							Number of Structures: 1			Run Date: 6/1/2023		

Storm Sewer Summary Report

Item 3.

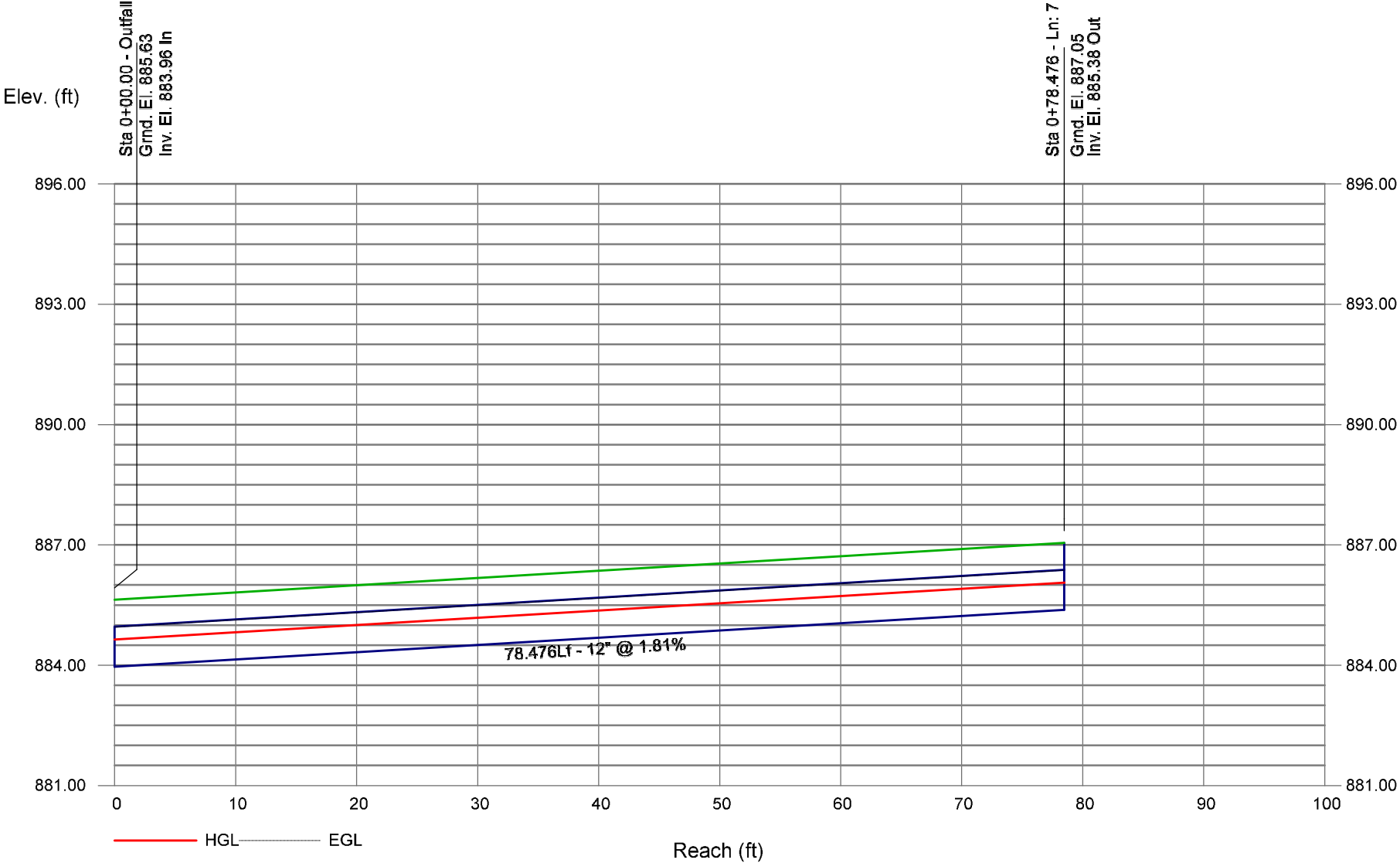
Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Ju Type
7	Pipe - (23)	2.53	12	Cir	78.476	883.96	885.38	1.809	884.64	886.06	n/a	886.06	End	OpenHeadwall

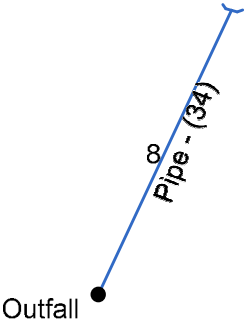
Project File: Freedom River Storm.stm	Number of lines: 1	Run Date: 6/1/2023
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NOTES: Return period = 10 Yrs.	208
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Storm Sewer Profile

Item 3.





Storm Sewer Inventory Report

Item 3.

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
8	End	133.734	-69.231	Hdwl	0.00	0.74	0.30	20.0	881.35	0.88	882.53	12	Cir	0.013	1.00	884.20	Pipe - (34)
Project File: Freedom River Storm.stm									Number of lines: 1						Date: 6/1/2023		211

Structure Report

Item 3.

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
8	STORM FES #P1-15	OpenHeadwall	884.20	n/a	n/a	n/a	12	Cir	882.53			
Project File: Freedom River Storm.stm							Number of Structures: 1			Run Date: 6/1/2023		

Storm Sewer Summary Report

Item 3.

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Ju Type
8	Pipe - (34)	0.86	12	Cir	133.734	881.35	882.53	0.882	881.74	882.92	n/a	882.92 j	End	OpenHeadwall

Project File: Freedom River Storm.stm

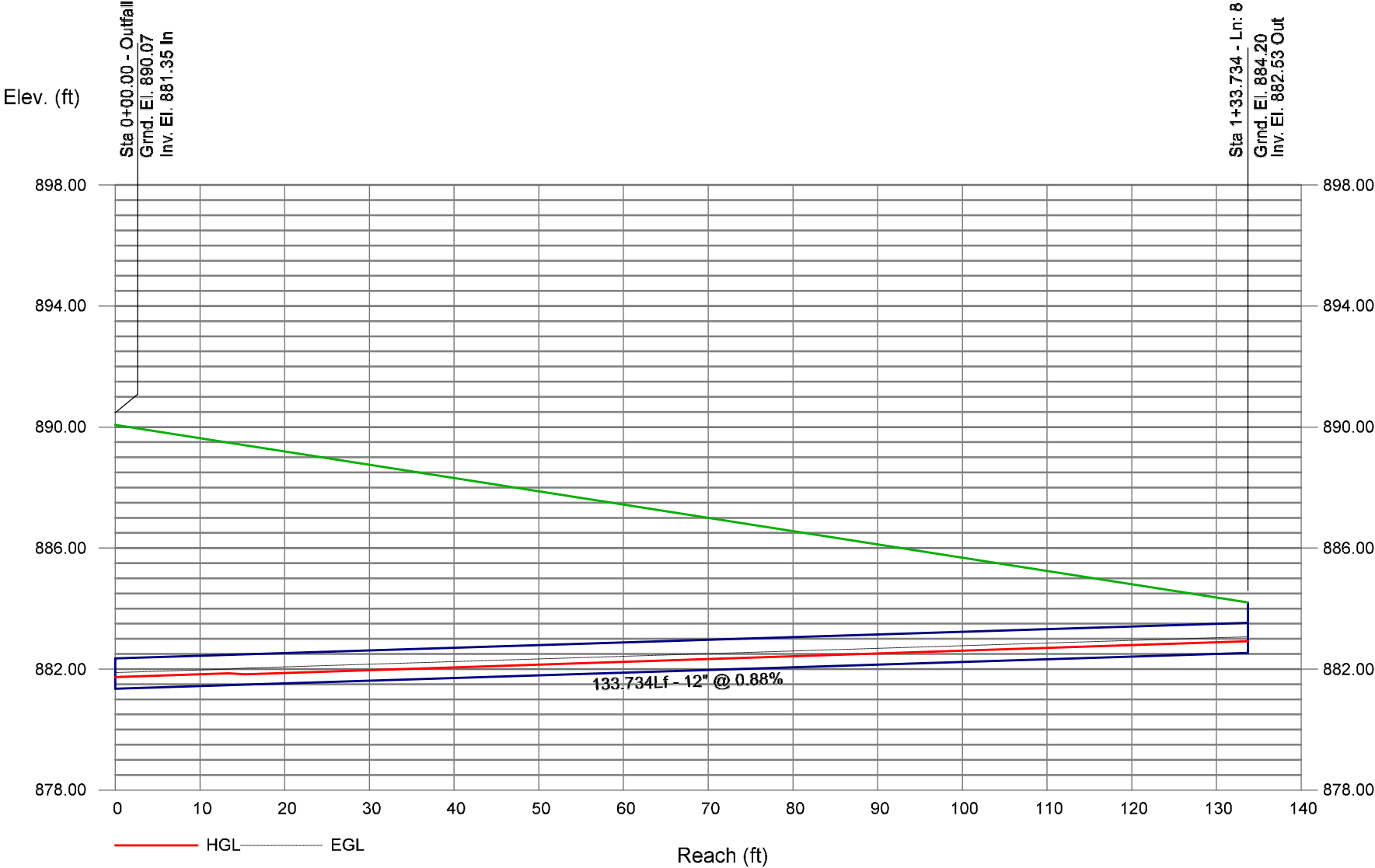
Number of lines: 1

Run Date: 6/1/2023

NOTES: Return period = 10 Yrs. ; j - Line contains hyd. jump.

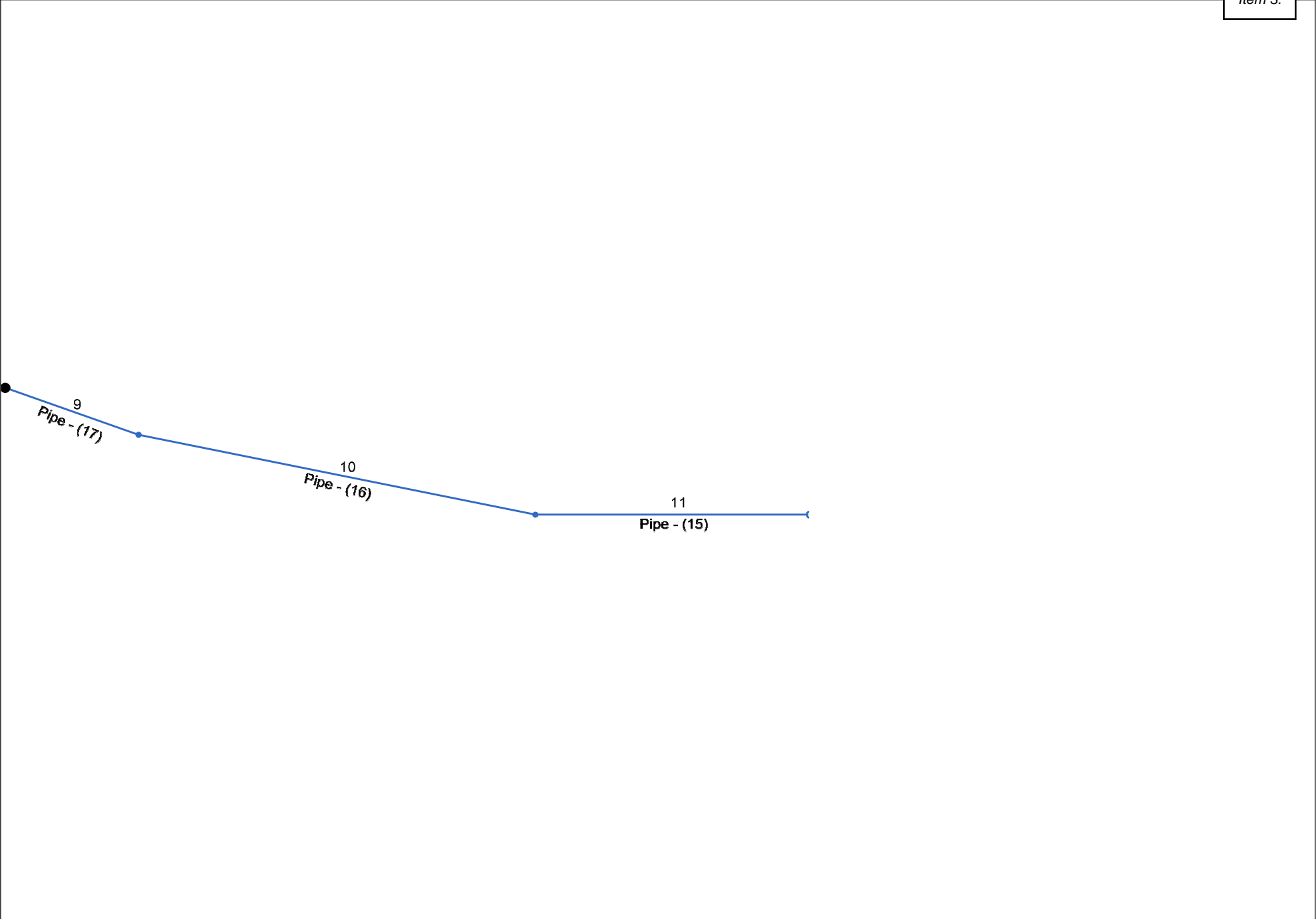
Storm Sewer Profile

Item 3.



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan

Item 3.



Storm Sewer Inventory Report

Item 3.

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
11	10	258.827	-14.049	Hdwl	0.00	11.12	0.27	30.0	878.45	1.18	881.50	21	Cir	0.013	1.00	883.17	Pipe - (15)
10	9	389.796	-9.639	MH	0.00	4.38	0.53	20.0	876.89	0.40	878.45	24	Cir	0.013	0.29	883.22	Pipe - (16)
9	End	138.386	23.678	MH	0.00	3.47	0.32	20.0	876.33	0.40	876.89	24	Cir	0.013	0.20	881.23	Pipe - (17)
<div> <div>Project File: Freedom River Storm.stm</div> <div>Number of lines: 3</div> <div>Date: 6/1/2023</div> <div>216</div> </div>																	

Structure Report

Item 3.

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
11	STORM FES #P1-6	OpenHeadwall	883.17	n/a	n/a	n/a	21	Cir	881.50			
10	STORM CB #P1-2	Manhole	883.22	Cir	4.00	4.00	24	Cir	878.45	21	Cir	878.45
9	STORM CB #P1-1	Manhole	881.23	Cir	4.00	4.00	24	Cir	876.89	24	Cir	876.89
Project File: Freedom River Storm.stm							Number of Structures: 3			Run Date: 6/1/2023		

Storm Sewer Summary Report

Item 3.

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
11	Pipe - (15)	9.55	21	Cir	258.827	878.45	881.50	1.178	881.93	882.83	0.37	883.20	10	OpenHeadwall
10	Pipe - (16)	16.60	24	Cir	389.796	876.89	878.45	0.400	879.70*	881.80*	0.13	881.93	9	Manhole
9	Pipe - (17)	19.63	24	Cir	138.386	876.33	876.89	0.405	878.54*	879.58*	0.12	879.70	End	Manhole

Project File: Freedom River Storm.stm

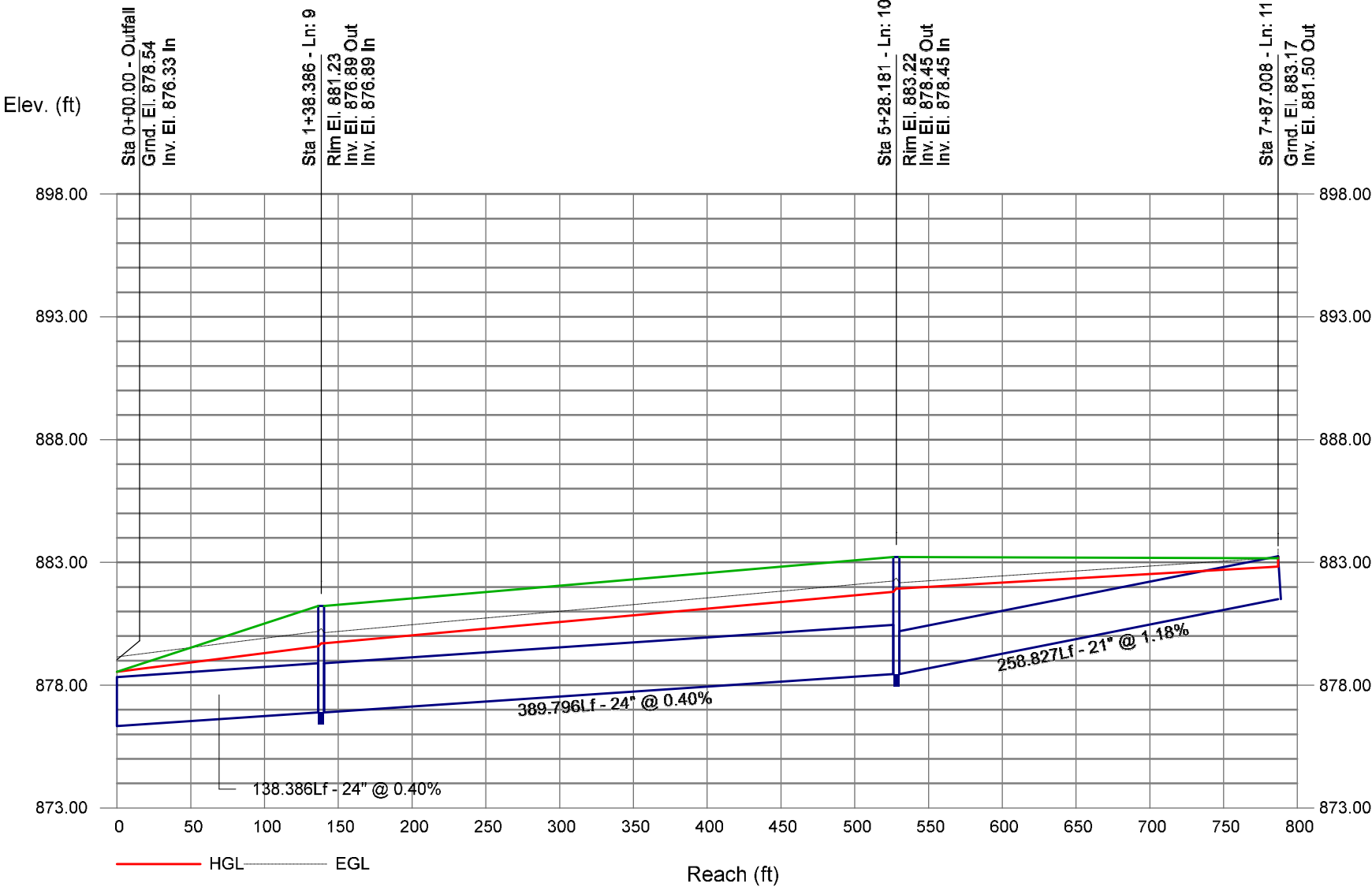
Number of lines: 3

Run Date: 6/1/2023

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown).

Storm Sewer Profile

Item 3.



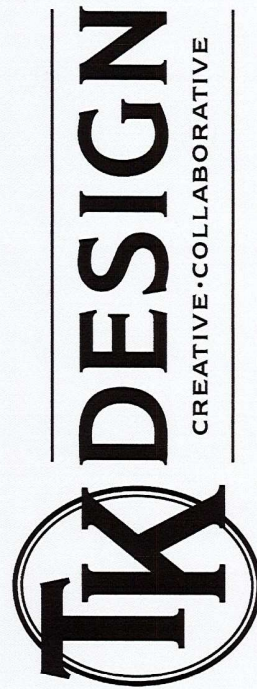
FREEDOM RIVER

PROPOSED PLAN DESIGNS

2-28-2023

PHASE 1

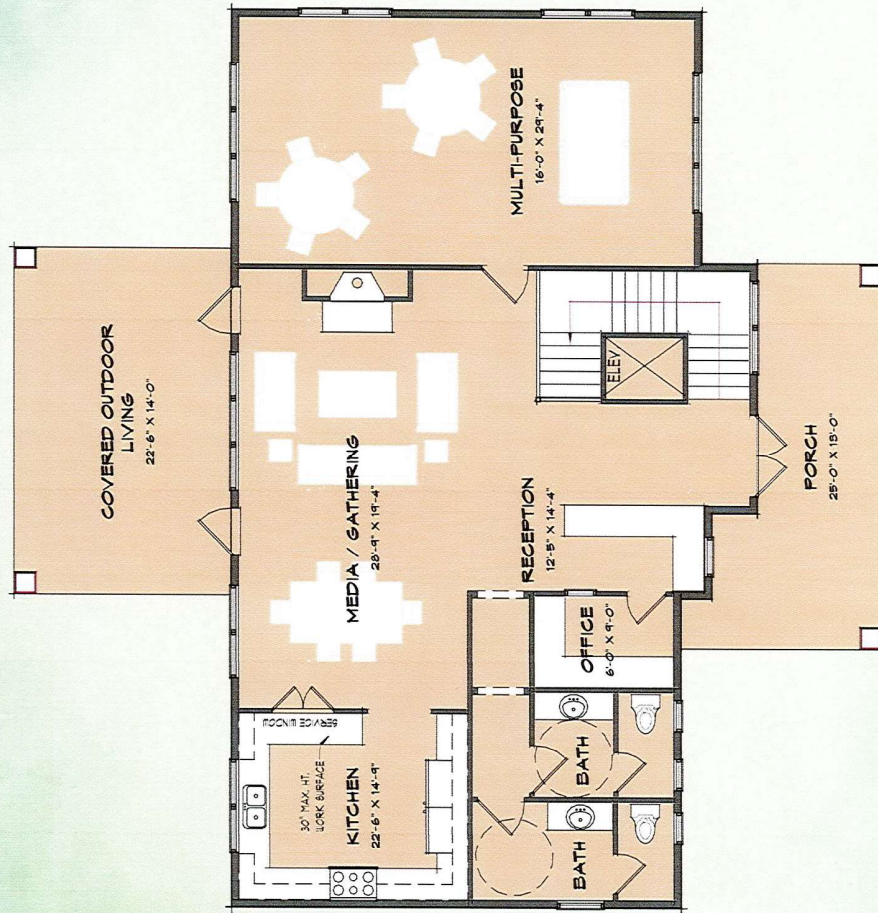
VERSION I



RECEIVED

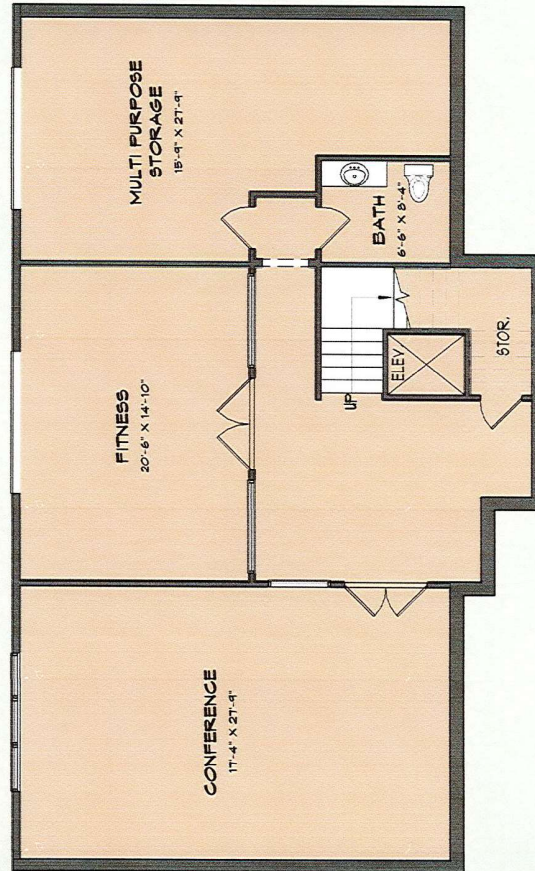
MAR 13 2023

Hamburg Township
Planning and Zoning Department



FIRST FLOOR PLAN
10'-1 1/8" CLG. HT.
2 X 6 EXTERIOR WALLS
1801 SQ. FT.

WELCOME LODGE



WELCOME LODGE

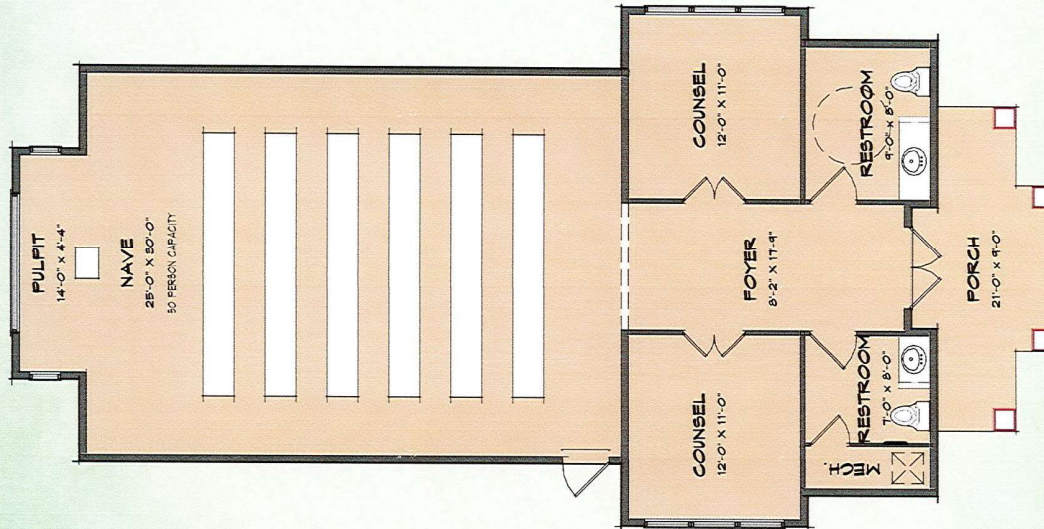
FINISHED LOWER LEVEL

1,617 SF



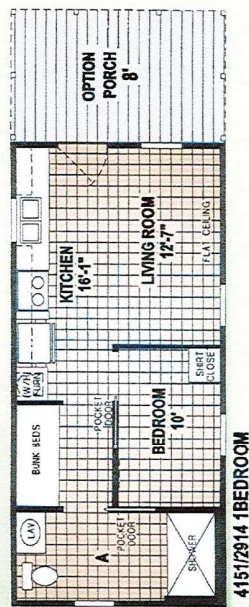
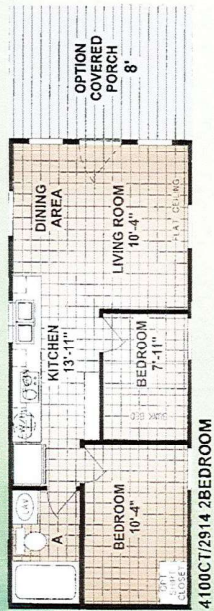
FIRST FLOOR PLAN
9'-1 1/8" CLG. HT.
2 X 6 EXTERIOR WALLS
1278 SQ. FT.

GOLDSTAR CABIN

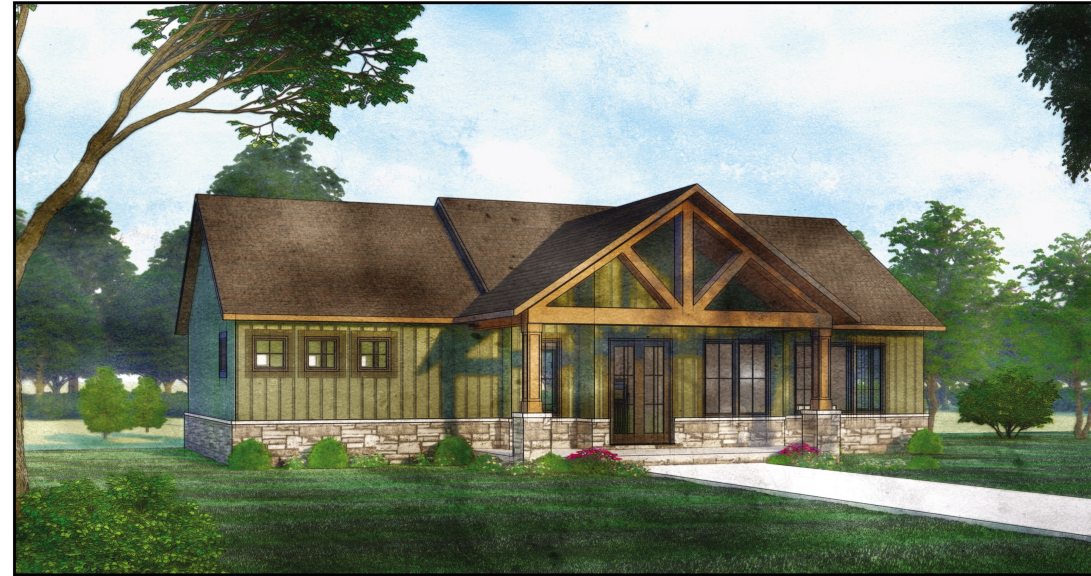


FIRST FLOOR PLAN
9'-1 1/8" CLG. HT.
2 X 6 EXTERIOR WALLS
1604 SQ. FT.

CHAPEL



FLOOR PLANS FAMILY CABINS BY SKYLINE HOMES



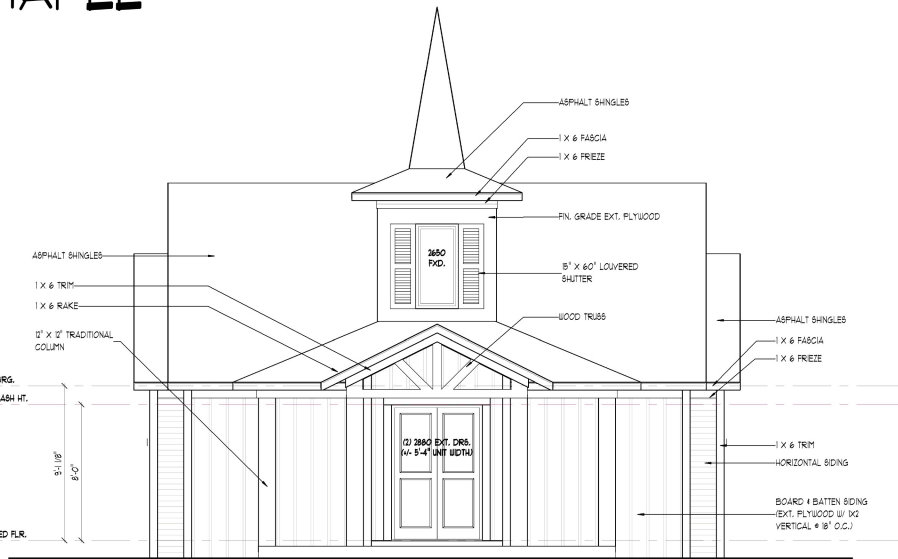
W. LEDGE
ASHEN



226



FREEDOM RIVER CHAPEL



HARDIE PLANK

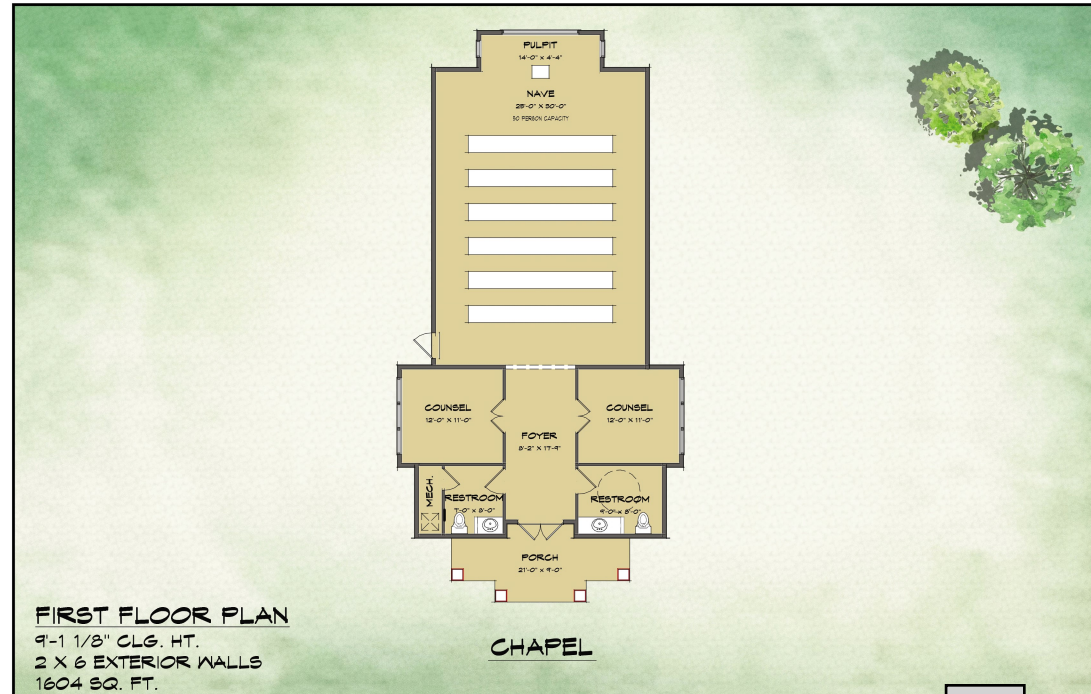
HARDIE TRIM

HARDIE PANEL &
HARDIE TRIM



SW 3522
Banyan Brown
Exterior Stain

SW 6431
Leapfrog
Interior / Exterior
Location Number: 155-C5



FREEDOM RIVER

FAMILY CABIN BY SKYLINE HOMES



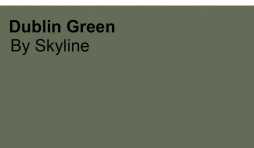
VINYL
HORIZONTAL



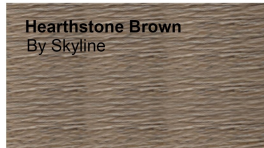
EXT. TRIM



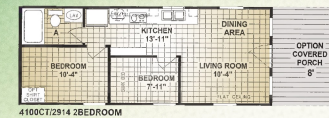
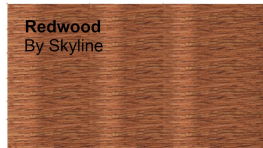
Dublin Green
By Skyline



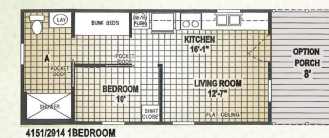
Hearthstone Brown
By Skyline



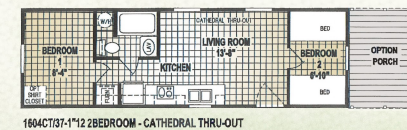
Redwood
By Skyline



Front
Living Room



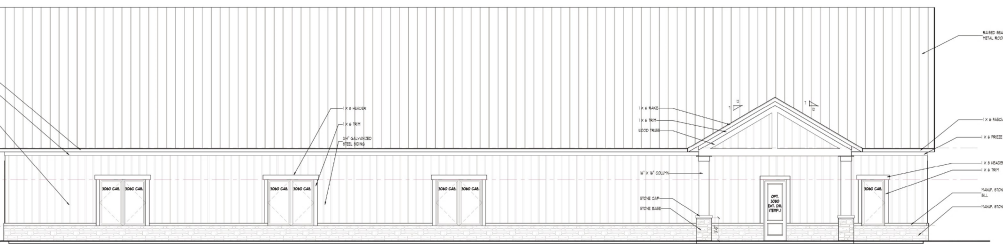
A.D.A. Compliant



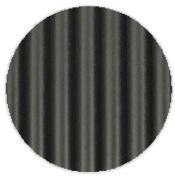
Front & Rear
Bedrooms



FREEDOM RIVER POLE BARN



STEEL
SIDING



HARDIE
TRIM

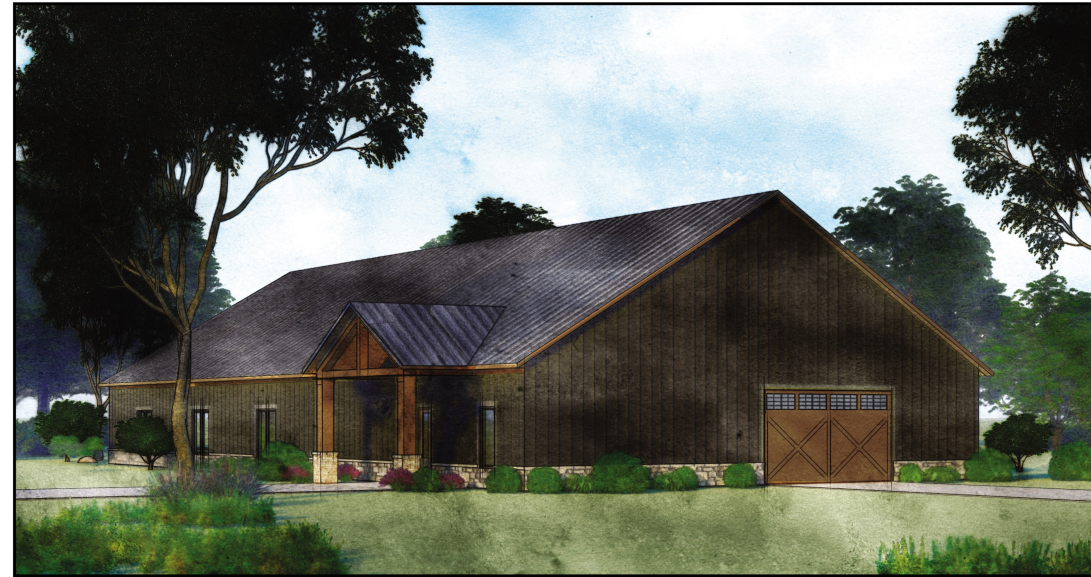


W. LEDGE
ASHEN



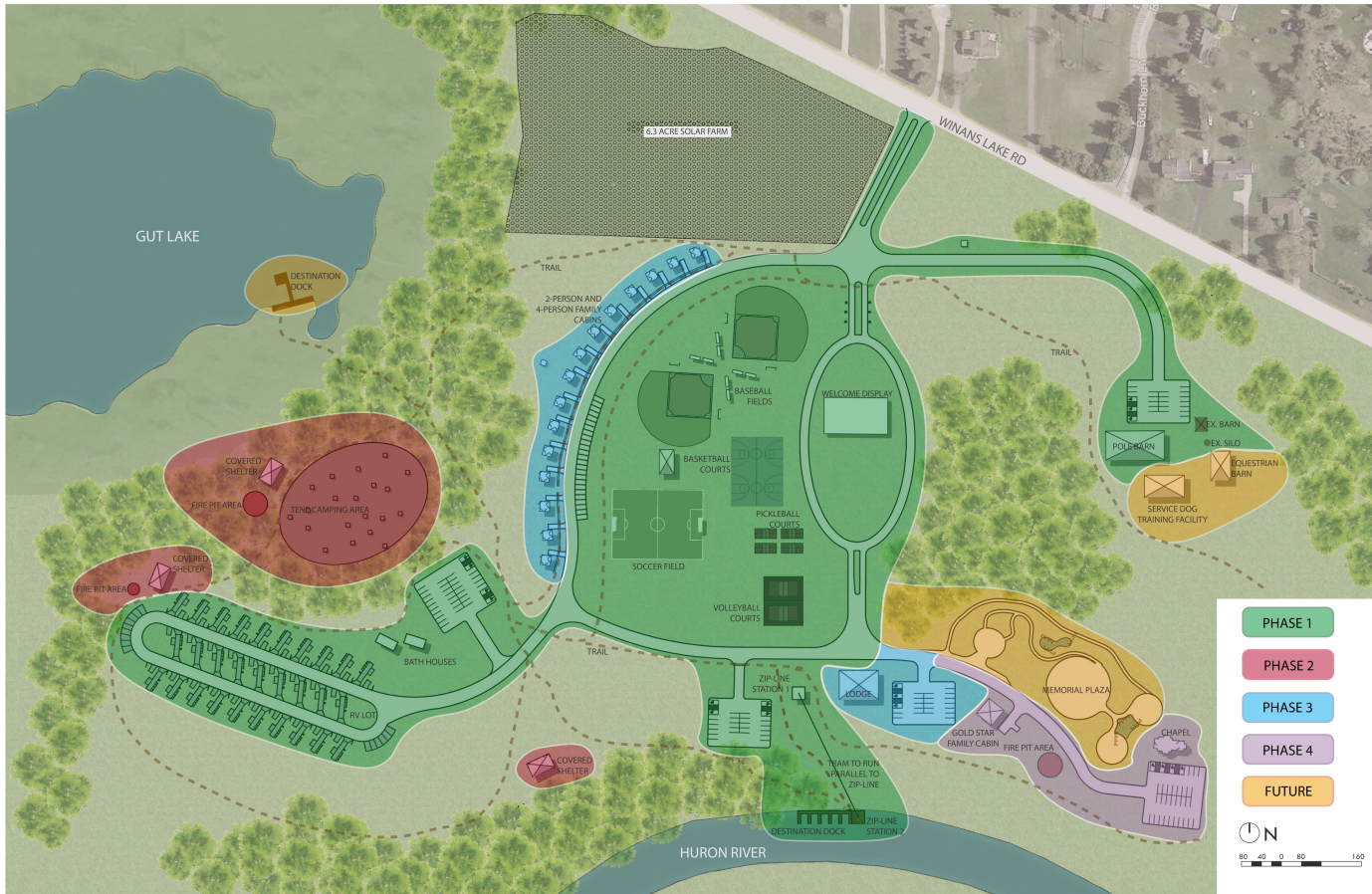
SW 3522
Banyan Brown
Exterior Stain

SW 7749
Laurel Woods
Interior / Exterior
Location Number: 237-C7



FREEDOM RIVER

VETERANS CAMPGROUND



FREEDOM RIVER PROJECT SITE PLAN | BRIGHTON, MI | MARCH, 2023

SW 6431
Leapfrog
Interior / Exterior
Location Number: 155-C5

SW 7749
Laurel Woods
Interior / Exterior
Location Number: 237-C7

SW 3522
Banyan Brown
Exterior Stain





June 15, 2023

Ms. Amy Steffens
Planning and Zoning Director
Hamburg Township
P.O. Box 157
Hamburg, Michigan 48139

Re: Freedom River Campground
Site Plan Review

Dear Ms. Steffens,

We have reviewed the plans for the above referenced project dated June 1, 2023, as prepared by Wade Trim Inc. We offer the following comments for your consideration:

1. In general, the stormwater management system generally conforms to the Livingston County Drain Commissioner standards. However, we have the following comments:
 - a. A storm water narrative should be included.
 - b. The petitioner provided conveyance calculations as part of a "Hydraflow Storm Sewers Extension for Autodesk Civil 3D Plan". The report includes profiles of the proposed storm sewers, however, these profiles should be included on the construction drawings.
2. The petitioner should apply for a commercial sewer connection through the Township's Utility Department. A complete sanitary system review will be conducted after the application. We have the following preliminary comments:
 - a. The petitioner is proposing a gravity sewer system and pump station to connect into the existing 8" FM along Winans Lake Road. A basis of design detailing proposed flows is required.
 - b. All sewers should be placed at minimum grade per Ten States Standards.
3. The proposed concrete paving sections included on the plans is acceptable for the use. We understand the petitioner may propose to use gravel drives vs the currently proposed concrete. If so, they should provide a proposed cross section. The change of drive surface would not negatively impact the stormwater management.

Hamburg Township
June 15, 2023

IMEG #23000378.00
Page 2 of 2

Item 3.

In summary, we have no objection to the site plan approval contingent upon the above items.

If you have any questions, please contact me at (734) 657.4925.

Sincerely,

IMEG CONSULTING CORP.

Ted L. Erickson, P.E.
Principal

\\files\Active\Projects\2023\23000378.00\Design\Civil



MEMORANDUM

To: Hamburg Township Planning and Zoning

Owner: Freedom River, Inc.

From: Michael Kaminski, Wade Trim

Date: 3/13/2023

Subject: Natural Features Impact Statement

Natural features impact statement for proposed Freedom River Campground located at Winans Lake Road Brighton, Michigan 48116 tax parcels 15-14-400-008 and 15-23-100-022.

Please refer to attached resume for professional qualifications of environmental consultant Brandon Gnass, EP of Certus Environmental Group. Certus Environmental Group is located at 1201 E. M-36, Suite C Pinckney, Michigan 48169.

Impact Assessment Checklist

1. Description and analysis of the project site (including existing structures and manmade facilities).
2. Description of existing natural features (i.e. topography, soils, geology, ground water, wetlands, watercourses, plants and animals, habitat and scenery).
3. Impact on existing natural features.
4. Impact on storm water management and soil erosion control measures.
5. Special Provisions
6. Previous Submittals
7. Information Sources

1. Description and analysis of the project site (including existing structures and manmade facilities).

Refer to the existing conditions plan for a survey of the existing site. The majority of the property consists of what used to be an agricultural field and some wooded areas. On the northwestern edge of the site sits Gut Lake with a wooded wetland and on the southern edge is the Huron River similarly with a wooded wetland. The only structures on site are an old farmhouse and the remnants of other old farming structures that remain at the northeast corner of the site. The two-story farmhouse is estimated to have been constructed in 1858 and is roughly 1,240 square feet. The other out-buildings were constructed prior to 1949 and include a silo, a pump house, a livestock barn, and a laundry house. There are eleven abandoned wells scattered across the property. One pit well was constructed in 1991 with the rest being drilled in 2018. Electric utility poles are running the length of the site along the south side of Winans Lake Road at. Surrounding the property are single family residential parcels on all sides other than where Gut Lake and Huron River are located.

2. Description of existing natural features (i.e. topography, soils, geology, ground water, wetlands, watercourses, plants and animals, habitat and scenery).

Refer to the existing conditions plan for a survey of the existing site including wetland delineation and tree/brush limits. Please see the SESC sheets for soil type boundaries.

Topography – The site consists of three (3) general areas as it pertains to topography, Gut Lake, Huron River, and the old agricultural fields. The old agricultural fields are relatively flat ranging from 5 to 8 feet in elevation change. This area consists of where the old fields were as well as the old farmhouse and the wooded area between them. It drains to either Gut Lake or the Huron River. The Gut Lake area is the wooded portion of the site to the northwest that drains to the lake. The change in elevation here ranges from 25 to 30 feet of drop from the old fields above down to Gut Lake. On the southern portion of the site is the Huron River area. This is a wooded area that slopes down from the old fields to the river. On the west side of this there is a gradual elevation drop of about 10 to 12 feet and then a steeper drop an additional 20 feet to the waters edge. As you move east along the river that gradual grade change reduces and the elevation change becomes more sudden for the full 30 feet to the water's edge.

Soils – The soils in the old agricultural fields and along the southern portion of the site are mostly Fox sandy loam. This is a well-drained sandy loam. In the wooded areas closer to Gut Lake the soils are a Fox Boyer Complex, a well-drained soil. Further down by Gut Lake the soils change to a Washtenaw silt loam and right at the edge of the lake is Linwood much and Houghton muck. These are poorly draining soils.

Geology – Previous boring performed on site revealed that the site consists of gravelly sand for the most part. A separate geotechnical investigation is being coordinated to reconfirm the previous findings.

Groundwater – The groundwater flow direction is estimated to be in a westerly to southwesterly directions. In coordination with the Livingston Health Department, in particular John Wilson, it has been determined that the underlying aquifers are a viable source of community water for the development. The water is known to have arsenic contamination and will require treatment through chlorination, filters, and softeners.

Wetlands – Marx Wetlands LLC performed a wetland delineation in June of 2022. It was determined that there are two main wetland areas, one around Gut Lake and the other around the Huron River, and an additional small one central to the site. The Gut Lake wetland adjoins Gut Lake in the northwest corner of the site and extends off site. This is primarily an emergent wetland system with the dominant vegetation being cattails, common reed, late goldenrod, sedges, sensitive fern, common buckthorn, silky dogwood, green ash silver maple, box-elder, and American elm. The Huron River wetland is a forested wetland fringe along Huron River that expands out into a larger emergent and forested wetland system extending off-site to the east, south, and west. The dominant vegetation here is sensitive fern, greater bladder sedge, green ash, cottonwood, silver maple, American elm, and riverbank grape. There is one additional small, forested wetland identified along a forested area edge in the east-central portion of the site.

Watercourses – The Huron River, at the southern limit of the property, has an associated floodplain with it. The floodplain does not extend beyond the steep shoreline up to the old agricultural fields but instead extends east and west with the river off site.

Habitats – Most of the site is undeveloped land consisting of upland fallow/old fields. The upland habitat includes smooth brome, Queen Anne's lace, bluegrasses, thistles, dandelions, ox-eye daisy, bladder campion, orchard grass and tall goldenrod. The upland shrub/forest contains red-cedar, cottonwood, white mulberry, black cherry, common buckthorn, box-elder, black walnut, oaks, and hickories. Beyond the upland habitat is the wetland habitats describe above.

Scenery – The Huron River and Gut Lake are natural features that allow for scenic views within the site. Utilizing the natural contours of the property creates view points over and onto these waterways for scenic moments for the observer.

3. Impact on existing natural features.

By coordinating with the Livingston County Drain Commission discharge rates there will be no proposed impacts to the Huron River and Gut Lake. The stormwater is controlled through onsite swales and is to be discharged through an outlet control structure to maintain the county standards.

The site is laid out in a way to create a minimal amount of impact on the existing natural site. Effort have been made to preserve as much of this wooded area, as well as the wooded area surrounding Gut Lake, as feasibility possible with the proposed developments. The intention of the campground is to interact with the natural environment instead of replacing it. Trails and paths will be laid throughout the property for better engagement with the site as a whole but specifically in attempt to create moments with Gut Lake and the Huron River.

Impacts to existing trees at the north, within the Winans Lake Road corridor, are limited to the clearing for the site entrance and any storm drainage swale grading efforts. Existing trees along the eastern, southern and western portions of the site will be maintained to create a natural buffer to the neighboring single family residential lots.

Natural Features Protection Plan – See the SESC plan sheets provided. In these plans it can be seen that during construction areas downslope from the proposed disturbed areas are to be protected from soil erosion measures with the installation of silt fence. The silt fence will prevent disturbed earth from washing into the natural waterways of Gut Lake and the Huron River. When catch basins are installed these will be installed with inlet protection.

4. Impact on storm water management and soil erosion control measures.

The existing site drains predominantly to Gut Lake, roughly 45% of the site or around 40 acres. Another 25 acres drain to the Huron River or 27% of the site. The portion of the site running adjacent to Winans Lake Road drains into the existing drainage ditches along the road. This encompasses roughly 2% of the site. The remained of the site (about 26% of the property) doesn't drain to any of these three drainage locations and instead drains to low points throughout the site without a dedicated stormwater outlet. It has been observed that these locations aren't creating any ponding on the surface and using what we know about the soils it appears these locations are draining through infiltration into the subsoils. See the existing site survey plan sheet for the existing contours. Two areas to note under this condition are at the southwest corner of the site and another north of the wooded area central to the site.

A geotechnical investigation is being coordinated to reconfirm the findings and validate the soil drainage capacity.

The proposed grading plan will divide the larger existing drainage boundaries into smaller drainage areas. The proposed grading limits extend as needed to support site plan construction while minimizing encroachment of the natural features on site. This will result in approximately 65% of that area (24 acres) draining to Gut Lake, and approximately 35% of the area (13 acres) draining to the Huron River. The post-development percentage of impervious surfaces is approximately 25% for both drainage boundaries. Runoff generated by the proposed impervious surfaces will be conveyed into the proposed storm water management system, treated, stored, and discharged according to the County requirements. The preliminary acreage and runoff volumes for these drainage areas is highlighted in the attached Stormwater Calculations.

The storm water management facilities will include a combination of drainage swales/ditches, check dams, bio-retention/sump basins, and enclosed drainage conveyance systems to capture additional runoff from the site. With the large percentage of pervious areas post-development, the existing soil can be utilized as natural infiltration and retention to offset the amount of runoff and treatment volumes contributing to the proposed storm water management system. A series of drainage ditches, and bio-swales will help treat and detain runoff as it is conveyed to the enclosed drainage system. There will be one outlet discharging to Gut Lake and one outlet discharging to the Huron River. These outlets will be restricted/controlled so the discharge rates match pre-development flows and do not negatively impact the water courses' capacity.

As mentioned above, a geotechnical investigation will need to reconfirm the validity of existing soil drainage characteristics if they are to be utilized as part of the storm water management system. Due to the larger volume of runoff contributing to Gut Lake, additional storm water facilities including a detention basin may need to be installed to meet County drainage requirements. This is being coordinated with the Livingston County Drain Commission.

5. Special Provisions

There are no known existing deed restrictions, protective covenants, master deed or association bylaws related to the protection of natural features on this site.

6. Previous Submittals

No relevant previous submittals apply to this site.

7. Information Sources – Can be provided upon request.

- Phase 1 Environmental Site Assessment
- Wetland Evaluation Report: 6716 Winans Lake Road
- Stormwater Calcs
- Freedom River Site Plans

Submitted



By:

Date: 3/13/2023

Michael Kaminski
VCM2001.01t

pw://WTPWINT16.wadetrin.com:projectwise/Documents/D{fafaed02-60b2-4581-86a7-fdf5b42705e2}

Experience

Brandon has over 20 years of diverse experience as an environmental professional with environmental assessments, investigations, and remediation; Baseline Environmental Assessments; Due Care, wetland assessments; project permitting; release response management; expert witness testimony; and various other environmental investigation and compliance projects. He has performed investigative and/or remedial work in Michigan, Ohio, Indiana, Illinois, Kansas, Minnesota, and Florida. Additionally, Brandon meets the definition of an “Environmental Professional” (EP) under the ASTM standard (E 1527-21) for Phase I Environmental Site Assessments. Examples of project responsibilities include:

- Project management for investigation/remediation projects at residential, agricultural, commercial, and industrial sites for an array of clients including private individuals, large corporations, attorneys, lending institutions, schools, and municipalities. Client needs have often required coordination and negotiation with regulators, and conducting multiple projects concurrently while meeting strict deadlines.
 - Phase I and Phase II Environmental Site Assessments (ESAs)
 - Various Phase I ESAs to comply with All Appropriate Inquiries (AAI), Michigan State Housing Development Authority (MSHDA), Small Business Administration (SBA), and U.S. Housing and Urban Development (HUD) requirements
 - Vapor Intrusion (VI) assessments
 - Baseline Environmental Assessments (BEAs) and/or Section 7a Compliance Analysis (Due Care)
 - Part 201 investigations [bulk petroleum storage terminals, manufactured gas plant (MGP) sites, manufacturing facilities, chemical facilities, pipeline releases, dump sites].
 - Underground storage tank (UST) and leaking UST (LUST) [Part 211 and 213, respectively] removal/investigations/closure.
- Negotiating regulatory requirements with municipal representatives and local/state/federal regulators; and obtaining permits for various construction, environmental, and ecological projects.
- Coordinating and conducting fieldwork including soil and groundwater sampling in accordance with Michigan Department of Environment, Great Lakes, and Energy (EGLE) [formerly known as Michigan Department of Environmental Quality (MDEQ)] Operational Memoranda requirements and statistical sampling procedures/verification guidance. Also, participation/supervision during on-site activities including contractor oversight during soil boring completion, monitoring-well installation, and remedial excavations.

Project examples include:

- Devising and managing site investigation activities for multiple projects funded by the U.S. Environmental Protection Agency (EPA) Brownfields Program. Prepared work plans and quality assurance project plans (QAPPs) and obtained EPA approval; implemented the work plans; provided administrative project/budget updates; adhered to EPA and client scheduling deadlines; and achieved site objectives.
- Managing multiple Clean Michigan Initiative (CMI) projects funded by the State of Michigan. Management efforts included project coordination and meetings with project managers, site assessment, drafting work plans, LUST removal and Part 213 reporting, providing CMI-required project updates to MDEQ, securing off-site work access, devising and conducting soil boring/monitoring well investigations including bedrock drilling, and conducting groundwater sampling/modeling.

- Managing investigative/remedial activities at a bulk petroleum storage terminal for a former owner/operator to assist them in achieving a form of closure for their historical releases. Challenges encountered included current owner/operator and third party petroleum pipeline easement holders operating similar to historic operations. Investigative/remedial activities were concluded and acknowledgement of completion was requested from state regulators.
- Managing release response projects for a large pipeline client. The client experienced a release at one of their petroleum bulk storage facilities, and encountered aggressive state and federal agency involvement. Effective communications and negotiations with the regulators streamlined their response management demands, and ultimately “no further action” was achieved for the client in a timely and cost efficient manner with minimal disruption to site operations.
- Providing onsite project management as we were designated the lead consultant during emergency response, directed under Unified Command (UC) lead by the EPA, for a petroleum pipeline release that affected greater than 40 miles of creek and river resources. Responsibilities required organization, resource allocation, and quick decision-making in a fast-paced, chaotic environment assuring staff safety; team coordination for our staff, the client, other consultants, and regulators; and conducting research and generating documents to comply with UC demands.
- Assisting in the design and implementation of unique sampling and inspection protocols for petroleum pipeline maintenance dig sites that occurred across greater than 200 miles of pipeline. The protocols were devised to comply with Department of Transportation (DOT), client-specified, and local and state government requirements. The sampling and inspection protocols were ultimately implemented in different states along additional sections of pipeline.
- Assisting an out-of-state consultant through the MDEQ regulatory framework after a routine UST removal clean-closure scenario (no confirmed release) was unintentionally upgraded to a confirmed release. Site closure was achieved with less than \$3,000 effort vs. greater than \$50,000 as originally requested by MDEQ.
- Participating as an expert witness related to a former dry-cleaning operation after performing investigation and remedial excavation activities. Testimony was provided on behalf of the property owner pursuing compensation due to a breach of contract by the defendant, which operated for nearly 20 years. Also participated as an expert witness related to a proposed residential development due to the local unit of government opposing and attempting to prevent development, partially based on site ecological factors. Testimony was provided on behalf of the developer and property owner supporting the wetland findings reported.
- Preparing and obtaining MDEQ confirmation of a Category S BEA (a former BEA category) and Section 7a Compliance Analysis for a former gas station property with proposed use as an oil change facility. This BEA relied on engineering controls and isolation zones as methods of distinguishing a potential future release from existing contamination.

Education

B.S., Resource Development, Michigan State University, 1998
Associate Degree, Lansing Community College, 1995

Certification

Environmental Professional
Certified Hazardous Materials Manager (CHMM)
40-hour OSHA HAZWOPER training with 8-hour annual refresher courses
HAZWOPER Manager/Supervisor certification
ASTM Risk-Based Corrective-Action training
ASTM Phase I ESA and Vapor Intrusion trainings
Wetland delineation certification (Wetland Training Institute)
EGLE-certified Industrial Storm Water Operator

Gut Lake Drainage Boundaries								
Boundary ID	Size (sqft)	Size (ac)	Impervious (sqft)	Impervious (ac)	% Impervious	Pervious (sqft)	Pervious (ac)	% Pervious
DB-1	31742.75687	0.728713427	6818.74101	0.156536754	21.4812502	24924.01586	0.572176673	78.51874984
DB-2	32911.60206	0.75554642	6560.28523	0.150603426	19.9330474	26351.31683	0.604942994	80.06695263
DB-3	196474.3869	4.510431288	45188.52856	1.037385871	22.9997046	151285.8584	3.473045417	77.00029542
DB-4	214165.0192	4.916552324	26251.54721	0.602652599	12.2576261	187913.472	4.313899725	87.74237394
DB-5	208737.719	4.791958655	44467.78461	1.020839867	21.303186	164269.9344	3.771118788	78.69681396
DB-6	104996.225	2.410381656	22621.95687	0.51932867	21.5454955	82374.26808	1.891052986	78.45450455
DB-9	130337.9872	2.992148467	50947.66898	1.169597543	39.0888873	79390.31827	1.822550924	60.91111267
DB-10	122660.0125	2.815886422	49191.58676	1.129283442	40.1040125	73468.42579	1.686602979	59.89598751
Totals	1042025.709	23.92161866	252048.0992	5.786228173	24.1882803	789977.6096	18.13539049	75.8117197
Cumulative Runoff Coefficient		0.36						

Huron River Drainage Boundaries								
Boundary ID	Size (sqft)	Size (ac)	Impervious (sqft)	Impervious (ac)	% Impervious	Pervious (sqft)	Pervious (ac)	% Pervious
DB-7	111951.9885	2.570064015	21096.30295	0.484304475	18.8440627	90855.68556	2.08575954	81.15593726
DB-8	126611.0516	2.906589799	16140.021	0.370523898	12.7477189	110471.0306	2.536065901	87.25228107
DB-11	103684.2332	2.380262469	24487.02263	0.562144688	23.6169202	79197.21052	1.818117781	76.38307977
DB-12	99489.25918	2.283959118	36361.49389	0.834745039	36.5481603	63127.76529	1.449214079	63.45183974
DB-13	140137.3019	3.217109777	51301.48232	1.17771998	36.6080134	88835.81957	2.039389797	63.39198655
Totals	581873.8344	13.35798518	149386.3228	3.429438081	25.6733185	432487.5116	9.928547098	74.3266815
Cumulative Runoff Coefficient		0.38						

Minimum Volume Requirements - Gut Lake				
Water Quality Control (WQ) - $V_{wq} = 3630 \cdot C \cdot A$				
Vwq (cuft)	31260.77126			
Channel Protection Volume Control (CPVC) - $V_{cp} = 4719 \cdot C \cdot A$				
Vcp (cuft)	40639.00264			
Channel Protection Rate Control (CPRC) - $V_{ed} = 6897 \cdot C \cdot A$				
Ved (cuft)	59395.4654			
Extended Detention Volume Discharge Rate - Ved discharged over 48-hours				
Qed (cfs)	0.343723758			

Minimum Volume Requirements - Huron River				
Water Quality Control (WQ) - $V_{wq} = 3630 \cdot C \cdot A$				
Vwq (cuft)	18426.00475			
Channel Protection Volume Control (CPVC) - $V_{cp} = 4719 \cdot C \cdot A$				
Vcp (cuft)	23953.80618			
Channel Protection Rate Control (CPRC) - $V_{ed} = 6897 \cdot C \cdot A$				
Ved (cuft)	35009.40903			
Extended Detention Volume Discharge Rate - Ved discharged over 48-hours				
Qed (cfs)	0.202600747			

From: [Kaminski, Michael](#)
To: [Amy Steffens](#)
Subject: FW: Freedom River - Left Turn Warrant
Date: Thursday, June 15, 2023 8:08:01 AM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)

FYI here's the feedback from the road commission.

From: Kim Hiller <khiller@livingstonroads.org>
Sent: Thursday, June 15, 2023 7:27 AM
To: Spiess, Greg <gspiess@wadetrim.com>
Cc: Kaminski, Michael <mkaminski@wadetrim.com>; Mike Goryl <mgoryl@livingstonroads.org>
Subject: RE: Freedom River - Left Turn Warrant

This message originated from outside of Wade Trim

Good morning Greg,

Mike and I have reviewed the left-turn lane analysis submitted yesterday and find it acceptable. When a commercial approach permit is issued, a condition of the permit will be that if the site is more successful than predicted or if it opens to the public in the future, a review of the traffic impacts and improvements to Winans Lake Road may be required.

Please let me know if you have any questions.

Thank you,

Kim Hiller, P.E.

Utilities and Permits Engineer
 Livingston County Road Commission
 3535 Grand Oaks Drive
 Howell, MI 48843
 Ph. (517) 546-4250
khiller@livingstonroads.org
 Office Hours: M-F 7:00 AM – 3:30 PM

From: Spiess, Greg <gspiess@wadetrim.com>
Sent: Wednesday, June 14, 2023 10:30 AM
To: Kim Hiller <khiller@livingstonroads.org>
Cc: Kaminski, Michael <mkaminski@wadetrim.com>; Cathy Tallman <ctallman@livingstonroads.org>
Subject: Freedom River - Left Turn Warrant

Kim,

We sent out the attached memo a few weeks ago reviewing a possible left-turn lane for the Freedom River Campground project. The project is on the Planning Commission agenda next Wednesday the 21st. I just wanted to check back in to see if you have any questions or comments for us?

Thanks,



Greg Spiess, PE, Engineer
25251 Northline Road, Taylor, MI 48180
734.947.9700 office
734.368.3937 cell



TECHNICAL MEMORANDUM

TO: Ms. Kim Hiller, PE, and Mr. Michael Goryl, PE

FROM: Bridget Bienkowski, PE, PTOE/WadeTrim

DATE: March 1, 2023

RE: Freedom River Campground Drive – Westbound Left Turn Lane Evaluation
Brighton, Michigan

INTRODUCTION

Freedom River Campground is a new campground being designed between Winans Lake Road and the Huron River in Brighton, Michigan. The site plan for the campground development is shown in Figure 1. The campground is designed for use by veterans and is expected to include a tent camping area, cabins, 29 R/V spaces, athletic fields for baseball, basketball, soccer, pickleball, and volleyball courts, an equestrian area, a memorial plaza, a chapel, and a lodge.

There will be only one driveway to the campground from Winans Lake Road. Winans Lake Road is a two-lane, two-way road with a posted speed limit of 35 mph. At the proposed driveway location, the horizontal alignment of Winans Lake Road is tangent and the vertical alignment is flat. This alignment implies that a left-turn lane could be added to the campground driveway if it is warranted.

Due to the potential impacts of the lodge and chapel traffic, Wade Trim was asked to conduct a review to determine if a left turn lane would be warranted on Winans Lake Road at the campground driveway based on traffic volume.



Michigan Department of Transportation Left-Turn Guidelines

Vo (Opposing Eastbound Volume) = 191
Va (Advancing Westbound Volume) = 302
% left turns in Va = $0/302 = 0\%$

WINANS LAKE ROAD AND FREEDOM RIVER CAMPGROUND INTERSECTION – WESTBOUND LEFT-TURN LANE

- A campground with 65 units including cabins, R/V spaces, and tent camping spots
For a campground with 65 spots, the ITE trip generation data estimates 27 trips during the peak period of the generator, with 17 of those trips being entering vehicles.
- Chapel with 33 parking spaces
For a conservative estimate, it was assumed that all 33 parking spaces were occupied and therefore, 33 entering trips during the afternoon peak period.
- Lodge with 22 parking spaces
For a conservative estimate, it was assumed that all 22 parking spaces were occupied and therefore, 22 entering trips during the afternoon peak period.

Therefore, a total trip estimate of 72 trips entering during the peak hour was used. Using the existing traffic distribution mentioned above on Winans Lake Road, 44 of the trips would be on the westbound approach and 28 of the trips would be on the eastbound approach. For the MDOT left-turn lane warrant, the traffic volumes would be:

$$V_o \text{ (Opposing Eastbound Volume)} = 191 + 28 = 219$$

$$V_a \text{ (Advancing Westbound Volume)} = 302 + 45 = 346$$

$$\% \text{ left turns in } V_a = 45/346 = 12.7\%$$

These volumes were examined with the warrant for a two-lane road with a posted speed limit of 35 mph found in the Michigan Department of Transportation (MDOT) *Traffic Volume Guidelines for Left-Turn Lanes and Passing Flares* as noted on pages 15 and 16 in the **Michigan Geometric Design Guidelines**, published in September 2017. The warrant is shown in Figure 2. Based on the intersection of the two red lines in Figure 2, during the highest peak hour volumes, the volumes do not warrant a left-turn lane at this driveway.

It would be extremely unusual to expect arrivals for the parking areas and the peak hour of the entirely occupied campground to occur simultaneously. This estimate indicates a worst-case scenario where the entire parking area for the lodge and the chapel and, along with the peak time usage of all camping spots during a weekday.

Although no weekend counts are available, weekend vehicles traffic on the roadway is expected to be less than the weekday, resulting in even less peak hour traffic during the weekend, when the majority of events would be expected to be held.

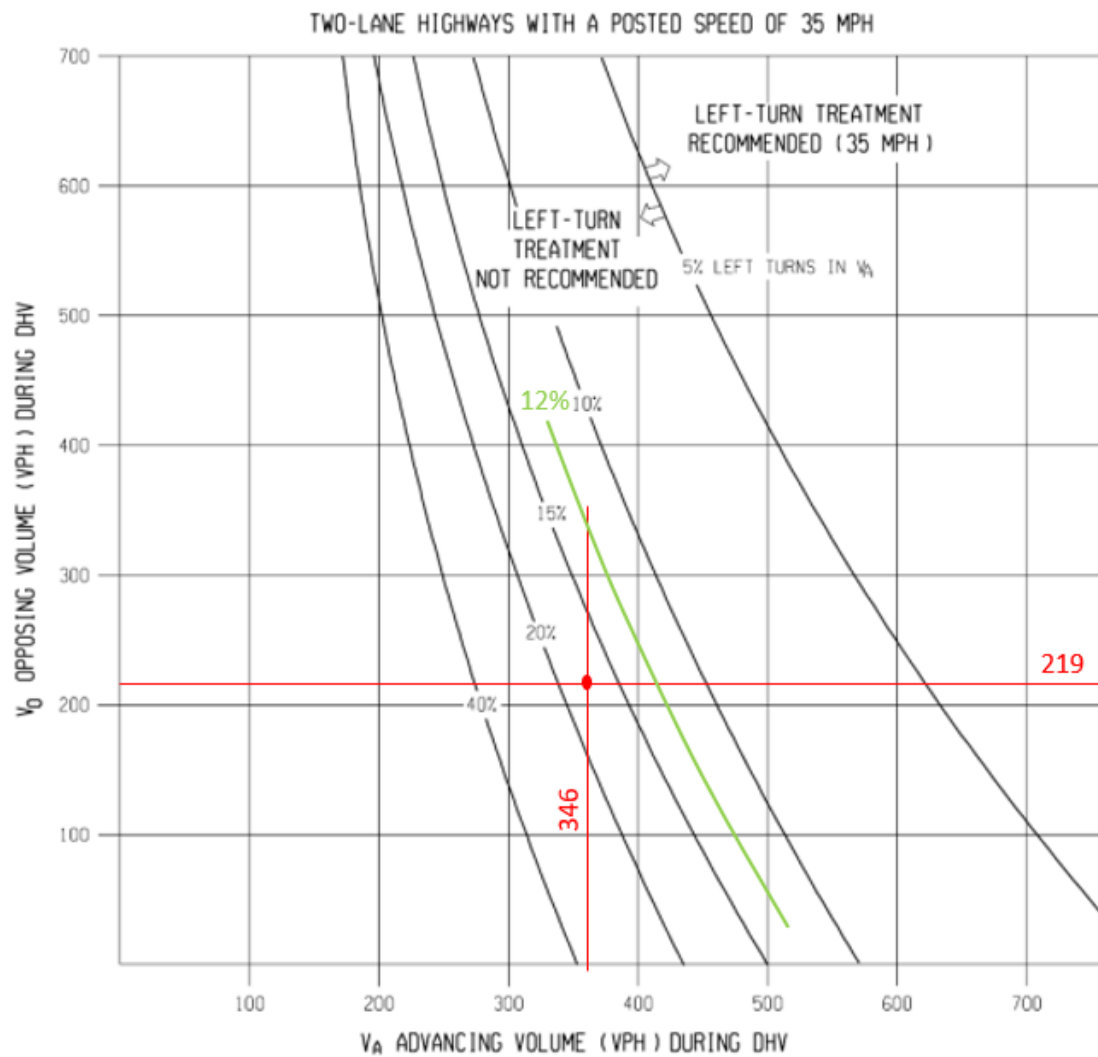


Figure 2. Left Turn Lane Warrant for the campground driveway with lodge and chapel.

CONCLUSION

Based on MDOT guidelines for a left-turn lane on a two-lane road with a posted speed limit of 35 mph, an exclusive left-turn lane is not warranted based on the estimated volume of Winans Lake Road at the proposed campground driveway.

ATTACHMENT A

TRAFFIC COUNT ON WINANS LAKE ROAD

Location Info		Count Data Info	
Location ID	47-5219	Start Date	8/30/2022
County ID	47	End Date	8/31/2022
Station ID	5219	Start Time	12:00 PM
Type	I-SECTION	End Time	12:00 PM
Functional Class	5	Direction	2-WAY
Located On	Winans Lake Rd	Notes	
BETWEEN	Pleasant Lake Dr AND Hamburg Rd	Count Source	XC39458 6396
Direction	2-WAY	File Name	
Community	Hamburg Twp - Livingston	Weather	
MPO_ID	2781	Study	
HPMS ID	1_2_93_2156	Owner	andersont31
Agency	Michigan Department of Transportation	QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	1st	2nd	3rd	4th	
0:00-1:00	2	6	1	1	10
1:00-2:00	1	2	4	0	7
2:00-3:00	0	0	0	0	0
3:00-4:00	4	2	3	4	13
4:00-5:00	5	4	6	6	21
5:00-6:00	12	20	20	19	71
6:00-7:00	31	35	43	71	180
7:00-8:00	56	68	78	83	285
8:00-9:00	90	81	79	69	319
9:00-10:00	70	80	78	81	309
10:00-11:00	76	76	70	82	304
11:00-12:00	76	79	105	74	334
12:00-13:00	66	70	87	79	302
13:00-14:00	81	73	76	68	298
14:00-15:00	87	65	87	92	331
15:00-16:00	77	68	107	93	345
16:00-17:00	90	89	107	98	384
17:00-18:00	100	115	137	141	493
18:00-19:00	112	113	129	118	472
19:00-20:00	110	103	84	97	394
20:00-21:00	83	49	62	60	254
21:00-22:00	44	33	35	34	146
22:00-23:00	20	17	19	13	69
23:00-24:00	9	4	7	3	23
TOTAL					5364

NW Advancing					
Time	15-min Interval				Hourly Count
	1st	2nd	3rd	4th	
0:00-1:00	1	3	1	1	6
1:00-2:00	0	0	4	0	4
2:00-3:00	0	0	0	0	0
3:00-4:00	1	1	0	0	2
4:00-5:00	1	0	4	3	8
5:00-6:00	5	0	5	3	13
6:00-7:00	12	9	12	29	62
7:00-8:00	28	26	19	27	100
8:00-9:00	40	40	33	23	136
9:00-10:00	32	43	45	33	153
10:00-11:00	27	39	32	42	140
11:00-12:00	37	45	62	36	180
12:00-13:00	36	38	42	41	157
13:00-14:00	38	44	39	29	150
14:00-15:00	44	36	48	53	181
15:00-16:00	54	40	55	62	211
16:00-17:00	59	58	58	59	234
17:00-18:00	62	74	80	86	302
18:00-19:00	72	62	89	75	298
19:00-20:00	68	49	45	58	220
20:00-21:00	50	31	37	34	152
21:00-22:00	23	23	21	27	94
22:00-23:00	12	11	14	8	45
23:00-24:00	3	3	2	1	9
Total					2,857
AM Peak	10:45-11:45 186				
PM Peak	17:15-18:15 312				

SE Opposing					
Time	15-min Interval				Hourly Count
	1st	2nd	3rd	4th	
0:00-1:00	1	3	0	0	4
1:00-2:00	1	2	0	0	3
2:00-3:00	0	0	0	0	0
3:00-4:00	3	1	3	4	11
4:00-5:00	4	4	2	3	13
5:00-6:00	7	20	15	16	58
6:00-7:00	19	26	31	42	118
7:00-8:00	28	42	59	56	185
8:00-9:00	50	41	46	46	183
9:00-10:00	38	37	33	48	156
10:00-11:00	49	37	38	40	164
11:00-12:00	39	34	43	38	154
12:00-13:00	30	32	45	38	145
13:00-14:00	43	29	37	39	148
14:00-15:00	43	29	39	39	150
15:00-16:00	23	28	52	31	134
16:00-17:00	31	31	49	39	150
17:00-18:00	38	41	57	55	191
18:00-19:00	40	51	40	43	174
19:00-20:00	42	54	39	39	174
20:00-21:00	33	18	25	26	102
21:00-22:00	21	10	14	7	52
22:00-23:00	8	6	5	5	24
23:00-24:00	6	1	5	2	14
Total					2,507
AM Peak	07:15-08:15 207				
PM Peak	17:30-18:30 203				

From: [Kaminski, Michael](#)
To: [John Wilson](#); [Amy Steffens](#)
Cc: [Smith, Erich](#); apiccinini@walbridge.com
Subject: Freedom River Site Plan Coordination with Livingston Health Department
Date: Wednesday, June 14, 2023 11:41:38 AM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)

John –

As we discussed this morning Amy asked that we get something in writing from you describing our ongoing efforts for the Freedom River Campground site in relation to the wells and water supply. You request I write up the efforts for you to comment on here and this would act as that documentation. A summary of ongoing efforts is described below.

Wade Trim is working with Livingston Health Department to validate the peak water demands using a combination of the Fixture Method, Fixture Count Method, and Residential Unit Method. The site is to be split into four quadrants with each being supplied by its own independent well. We have gone through 2 or 3 iterations for the peak demands in each quadrant to date. These are near final just looking for some final validation with John.

With these rough number we have now moved into identifying wells to be used for each location. At this time we believe existing wells suffice for the Pole barn Area (NE), the lodge area (SE), and the family cabin area (NW). We are coordinating with a certified well driller to validate the family cabin area and the RV area. The family cabin area is simply a back check but the RV area is more discovery. Its understood the well there created drawdown with the past proposed development so we are working on confirming a well location that can provide our needed capacity while not adversely impacting the surrounding community. This will, of course, be resolved and confirmed with John and the Livingston Health Department before taking any next steps but it's in process.

John please ID anything I may have missed or provide any comments.



Michael Kaminski, Engineer
 25251 Northline Rd, Taylor, MI 48180
 734.947.9700 office • 734.945.1395 cell





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Hamburg, MI 48139
(810) 231-1000
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Item 3.

Supervisor Pat Hohl **Clerk** Mike Dolan **Treasurer** Jason Negri **Trustees** Bill Hahn, Patricia Hughes, Chuck Menzies, Cindy Michniewicz

PLANNING COMMISSION MEETING

Wednesday, April 19 at 7:00 PM
Hamburg Township Hall Board Room

MINUTES

CALL TO ORDER

Commissioner Muck called the meeting to order at 7:00 pm.

PLEDGE TO THE FLAG

ROLL CALL OF THE BOARD:

1) **PRESENT:**

John Hamlin
Patricia Hughes
Deborah Mariani
Ron Muir
Jeff Muck, Chair
Joyce Priebe

2) **ABSENT:**

Victor Leabu Jr

APPROVAL OF MEETING AGENDA for tonight.

Motion made by Commissioner Mariani, seconded by Commissioner Hamlin to approve the agenda as presented.

VOTE: MOTION CARRIED UNANIMOUSLY

APPROVAL OF THE MEETING MINUTES

Motion made by Commissioner Hamlin, seconded by Commissioner Muir to approve the March 15, 2023, Planning Commission Meeting Minutes, with corrections.

VOTE: MOTION CARRIED UNANIMOUSLY

CALL TO THE PUBLIC (For old business)

None

OLD BUSINESS

- I. **Final Site Plan Review (SPA 22-0006}** for a second-story addition over an existing commercial building to accommodate two residential units at 9704 Kress Road (TID 15-21- 405-016).

Chair Commissioner Muck opened the public meeting to Amy Steffens. On December 15, 2022, the applicant submitted a Special Use Permit (SUP) Application to consider the construction of two residential units as a second story addition to an existing commercial building on the corner of Kress Rd and Sha Gri La. On January 18, 2023, the Planning Commission held a hearing for this SUP application, and a motion to approve this SUP failed on a 3 to 1 vote, thereby tabling the SUP hearing and the site plan review. At the March 15, 2023, PC meeting, the PC approved the SUP permit and reviewed the site plan review application. The PC required the applicant to pave the parking area and to work with staff to create a landscaping plan for consideration at the final site plan approval. The PC approved the preliminary site plan with 6 conditions. The application was then forwarded on April 4, 2023, to the Hamburg Township Board as conditioned by the PC. The staff and applicant's landscape plan presented here will provide some of the landscape that was stipulated by the PC at the March 15 meeting.

Chair Commissioner Muck opened the meeting to the commissioners for comments and questions. Commissioner Muir asked about the photometric plan. Amy said the applicant can submit that with the land use permit later. He asked about the delineation of the four guest parking spots. Amy said he can submit that at the time of his site improvement permit. Some discussion about what shrubbery could be used on the front, that would survive cold winters and road salt. Boxwood shrubs were mentioned.

Commissioner Hamlin asked for clarification regarding the fencing on the property. Amy said those conditions had already been approved.

Approval motion by Commissioner Hamlin, seconded by Commissioner Priebe, that the Planning Commission recommends approval of the final site plan SPA 22-002 to the Township Board with the following conditions; because as conditioned the project meets the site plan review standards A-Lin Section 36-73 (7) and the additional approval standards of the Neighborhood Service District under Section 36-187 as discussed at tonight's meeting and as presented in the staff report.

Condition 1: Prior to issuance of a land use permit that applicant shall submit a photometric plan that shows that the intensity of light within a site does not exceed ten (10) footcandles or one (1) footcandle at any property line, except where it abuts a residential used or zoned site whereby a maximum of 0.5 footcandles is permitted.

Condition 2: All lighting shall be turned off between 11:00PM and Sunrise except when used for commercial and industrial uses, such as in sales, assembly, and repair areas, where such use is open for business after 11 p.m. but only for so long as such use open for business. Lighting used for security between 11:00 p.m. and sunrise shall be controlled by a motion sensor.

Condition 3: Four parking spaces shall be delineated on the site plan and on-site using permanent signage as dedicated to the residents of the second-story dwelling units.

Condition 4: Prior to issuance of a land use permit for either site improvements or construction of the residential units the applicant shall receive approval from all required agencies including but not limited

to, Hamburg Township Fire, Engineering and Public Work Departments, Livingston County Drain Commissioner, Livingston County Road Commission, and Health Department.

Condition 5: All signage shall conform to Article XIII, Signs, and land use permits shall be issued prior to installation of signage.

Roll Call Vote: **Ayes:6** **Nays: 0**

VOTE: MOTION CARRIED UNANIMOUSLY

CURRENT BUSINESS

1. **ZMA #23-001 -Zoning Map Amendment** to change the zoning of the parcel commonly known as 6716 Winans Lake Rd (TID#4715-14-400-008 and 4715-23-100-002) from Water Front Residential (WFR) to Public and Private Recreation Facilities (PPRF) in (Zoning Ordinance Section 36-185).

Chair Commissioner Muck opened the public hearing to Amy Steffens to present her staff report. Applicant submitted a request to change the zoning district on this site from WFR to PPRF district on March 13, 2023. The portion along the Huron River that is in the Natural Rivers District (NR) will remain as NR zoning. The 2020 Master Plan identifies this parcel as medium density residential for future use plan. Each zoning district has a list of permitted uses that are permitted by right, that only requires a land use permit without Planning Commission Approval. Also, each zoning district has a list of special uses that are permitted, subject to PC approval and companion site plan review and approval. The Zoning Ordinance does not provide standards by which a map amendment needs to be considered. Staff offer the following for consideration by the PC.

- (1) The Zoning map amendment should be compatible with the goals, policies, and future land use map of the Master Plan. The 2020 master plan envisions this area as medium-density residential and natural river to the south by the Huron River. This rezoning would support goals 2, 7, and 8 of the Master Plan. The change in zoning district would allow for the permitted uses in the PPRF district and allow for the special use application for the special uses listed for this district. Section 36-71 specifies that the PC would have site plan review responsibility over permitted uses except for general and specialized farming activities.
- (2) Compatibility of the site's physical, hydrological, and other environmental features all uses permitted in the proposed zoning district compared to uses permitted under current zoning. The uses permitted in the PPRF district would be less impactful than single-family residential uses permitted in the WFR district. Single-family residential would require greater infrastructure whereas PPRF would keep a larger portion of this site undeveloped.
- (3) If the request is for a specific use, rezoning the land is considered to be more appropriate than amending the list of permitted or special land uses in the current zoning district to allow the use. The applicant has indicated that the zoning map amendment is in support of a proposed "recreational facility dedicated and designed for veterans and their families as a place of relaxation and reflection." Approval of the zoning map amendment does not imply that every special use in the PPRF district would be appropriate at this site, as the

Commission would have discretion to approve or disapprove a special use that does not comply with Section 36-36 of the Ordinance.

- (4) The parcel can meet the requirements of the proposed zoning district since it is 92-acres and adequately sized to accommodate site improvements, structures and utility installation that is in compliance with our Zoning Ordinance setback requirements.

Chair Commission Muck opened the public hearing to the applicant. Adorno Piccinini, the project director of Freedom River Retreat and Recover Campground spoke to the commission. This private campground is for veterans to relax, recover and rejuvenate in a natural setting. By-laws for Freedom River stipulate that it will always be under the control of a veteran-related organization if Freedom River ceases to exist. This property will not become a public campground. The boat launches will be permitted and meet the requirements of EGLE and MDNR divisions and will be in full compliance of rules and regulations. There will be no equestrian facility as proposed, but that area has been replaced with a service dog facility. The solar farm field is not a part of the current project scope.

Jeff and Janna Yeakey, residents of Hamburg Township as well as neighbors to this project, 9305 Huron Rapids Dr. Jeff is a U.S. Army veteran and serves as President & Director of Operations for Freedom River's Board. Janna is the Executive Director for Freedom River. Beverly Conatser is the Vice Chair Women of Freedom River. Beverly is an Army veteran and retired chief of Voluntary & Chaplin Services at the V.A. in Ann Arbor. Erich Smith is with Wade Trim Associates, the project civil engineer. Todd Hallett is a resident of Hamburg Township and owns TK Designs, the project architect. Mike Halloran, not present, is Chairman of the Board of Freedom River and will be the contractor of Freedom River.

Chair Commissioner Muck opened the Public Comment to the audience.

- Charles Armour -6641 Winas Lake Rd is a 24-year retired veteran in support of the project.
- Michelle Ormanian- 9497 Huron Rapids Dr has been a Hamburg Township resident for 24 years; spoke in opposition to the project.
- Joshua Muns- is a Marine veteran and is a Hamburg resident. He works as a social worker that stated that 660 veterans die by suicide each month. He is in support of this project.
- Laszlo Szalay- 7867 Kilkenny Dr is a disabled Marine veteran who did 18 ½ deployments in 18 years and served in the CIA. He is in support of this project.
- Kevin Guthrie- 9421 Huron Rapids Dr is against this project due to the RV park.
- Kirt Lanam- is a 34-year Air Force veteran, 22 years of active combat and 38 deployments. He supports this project.
- Terran Frye- Howell resident, Marine veteran with 2 deployments to Iraq. This is a temporary campground not a permanent trailer park. He is in support of the project.
- Rick Beaudin- 9676 Zukey Lake Dr is a local Hamburg resident and a real estate agent. He is a member of the Putnam Pinckney Chamber of Commerce. He spoke about property values and sense of identity. He is supportive of this project.
- Carol Ann Wilson- 9253 Huron Rapids Drive, 45-year resident of Hamburg Township. Her husband who is a Vietnam veteran. She is not opposed to project but wonders if there is a better way to spend resources on helping veterans.

- Michael Bitondo -2020 Darwin Rd has lived in Hamburg Township since 1983 and has been served on government boards and a township Trustee off and on since 1986. He is in support of this project.
- Shawn Fitzgerald -9239 Silver Maple Rd is Carol Ann's neighbor. He is in support of this project. Is asking to relocate the RV park to the others side away from the neighborhood due to diesel fuel smells.
- Dale Brewer- 11548 East Shore Dr, Whitmore Lake is a Green Oaks resident but serves disabled American veterans every day. He is in support of this project.
- Candi Kutey- 7769 Athlone Dr is a caregiver for a veteran. She has witnessed other veteran parks and how the communities support the veterans. She is supportive of this project.
- Joanna Hardesty- 4277 E. M-36 has been a Hamburg resident since 1992. She served as Hamburg Township Clerk for 12 years. She has had many generations of veterans in her family, even two sons who served. She is serving as a director of Freedom River, and everyone working on this project are volunteers and the funding was gained through donations. She is in support of this project.
- Mark Kovach- a resident of Pinckney and serves as the command of the Livingston and Oakland County V.A. He is in support of this project.
- Christa Braun- 9489 Huron Rapids Dr is a concerned local resident. She is concerned by the sheer number of veterans that might show up on a given day. She is concerned by how close the park is to their neighborhood and there might be too many people on the land at one time.
- Anja Mackey- 8760 Tamarack Drive. She understands the concerns about the campground. She does not believe that Freedom River will have events that are loud and out of control. She is in support of this project.
- Ralph Pachinzki- Lake Kress Dr is a neighbor to this project. He raised concerns about setback violations, on-site stormwater, and use mature trees as a natural sound buffer rather than clearcutting them for more development. He is supportive of this project but wants it done tastefully.
- Commission received six letters from four people not in support of the project. Letters were placed in the file.

Chair Commissioner Muck closed the public meeting and opened it to the Commissioners. Commissioner Priebe thanked all the veterans for their service.

Commissioner Muir reminded the applicant that all site plan approvals need to go through the Planning Commission for review of campsites, stormwater, and engineering. We need to first approve the zoning map amendment to allow Freedom River to proceed.

Commissioner Hamlin felt that this project was much better than a subdivision with 78 homes. He indicated this is a straight rezoning request.

Approval motion by Commissioner Priebe, seconded by Commissioner Hamlin, that the Planning Commission recommend approval of the Zoning Map Amendment 23-001 to change the zoning of the parcel commonly known as 6716 Winans Lake Rd (TID#4715-14-400-008 and 4715-23-100-002) from Water Front Residential (WFR) to Public and Private Recreation Facilities (PPRF) in (Zoning Ordinance

Section 36-185) and directs staff to forward the request to the Livingston County Planning Commission for review and to draft an amendment to the Master Plan.

Roll Call Vote: **Ayes:6** **Nays: 0**

VOTE: MOTION CARRIED UNANIMOUSLY

2. **Special Use Permit (SUP 23-001)** to permit a public or private campground and lodge with associated private outdoor recreational areas and indoor recreational buildings for military veterans and their families at parcel commonly known as 6716 Winans Lake Road (TID#4715-14-400-008 and 4715-23-100-002).

Chair Commissioner Muck opened the public hearing to Amy Steffens to present her staff report. She addressed the Discretionary Review Standards 1-7 for the Special Use Permit (Section 36-36 (C)). The preliminary engineering review is not back yet. Approval from Livingston County Health Department is needed. Amy spoke with John Wilson of the LCHD on April 18, 2023. John believes that the existing wells will be adequate to serve these uses. There is a sewer line on Winas Lake Road. The site plan shows 5 slips on the Huron River. The Township Ordinance stipulates 4 or more docks is defined as a marina and would not be allowed in this district. Staff have requested this number of docks be reduced in number. Staff has also asked that these docks be reoriented to meet the ordinance for the Natural Rivers District (NR). She also addresses the PPRF district additional regulations from Section 36-185 (b). Staff report notes where zoning requirements are met and not met.

Chair Commission Muck opened the Public Meeting to the audience.

- Kevin Guthrie- 9421Huron Rapids Dr is against this project due to the RV park.
- Terran Frye - Howell; Marine veteran with two deployments to Iraq. This is a temporary campground not a permanent trailer park.
- Laszlo Szalay- 7867 Kilkenny Dr is a disabled, Marine veteran who did 18 ½ deployments in 18 years and served in the CIA. He is in support of this project.
- Nancy Hubble- 6039 Winas Lake Rd have family and friends that are veterans of Vietnam. Residents that live nearby have concerns with this project, especially traffic and safety. Concerned with the type of boating allowed on Gut Lake. She is supportive of this project.
- Joshua Muns- is a Marine veteran and is a Hamburg resident. He works as a social worker that stated that 660 veterans die by suicide each month. He is in support of this project.
- Joanna Hardesty- 4277 E. M-36. She was on the township Board when the lake was made a no-wake lake; no motors permitted.

Chair Commission Muck closed the public comment and opened the meeting to the Commissioners. Commissioner Muir asked the applicant if the RV spots will have electricity. The applicant said they will have electric hook-up. Muir asked how the RV spots will be rented out through organizational standards. Renters will need a reservation to rent an RV for overnight, and facility users will be vetted prior to arriving.

Commissioner Hamlin asked the applicant who owns the property. The applicant said it was Freedom River. Hamlin asked which veterans will be eligible to use this park. Will it be Livingston County veterans only or all veterans? Target is toward Livingston County veterans, but available to any veteran. Hamlin asked if manager will be onsite and Janna said there will be someone there all the time to supervise. This is a 501 c 3 organization. It has been funded by private donations. Hamlin stated that the special land use permit should reflect the ideals of this is a recreational facility that is dedicated and designed for the veterans and their families as a place of relaxation and reflection, and the approval goes with the land.

Glad to hear there is no light and amplifications onsite and would like to keep this in the conditions for approval.

Commissioner Mariani asked about the solar farm. Janna indicated that DTE approached Freedom River about installing solar farm. The solar farm would require special use and is not a part of this application. The applicant said that the RV renters will have to fill up at the well, because each site will not have water hookup. The capacity of the site for campers, once built out, would be approximately 212.

Commissioner Hamlin mentioned that there are 169 parking spaces and asked if there would be a curfew for visitors to leave by if they were not staying overnight. Phase one is sun-up to sun-down since there is no lighting on the sports fields.

Chair Commissioner Muck asked Amy what process Freedom River would be required to follow to have large events on their site. Amy said she will have to review the Zoning Ordinance to see what that process would require. We would make it a condition of the site plan, to be reviewed for public safety and Livingston Road Commission. Muck said we need to include this requirement in the conditions of the Site Plan Review.

Approval motion by Commissioner Priebe, seconded by Commissioner Muir to approve Special Use permit (SUP23-003) to permit a private campground and lodge with associated private outdoor recreational areas and indoor recreational buildings for military veterans and their families dedicated and designed for veterans and their families for relaxation and reflection at parcel commonly known as 6716 Winans Lake Road (TID 4715-14-400-008 and 4715-23-100-002) (Zoning Ordinance Section 36-185) because as conditioned the project would comply with the standards of Sections 36-36 and 36-187 as presented at the April 19, 2023 hearing and in the staff report.

Condition 1: The Special Use Permit for the private camp use is only valid with approval of a final site plan from Hamburg Township.

Condition 2: Prior to issuance of a land use permit a driveway permit from the Livingston County Road Commission will be required.

Condition 3: Prior to issuance of a land use permit all approvals from the Livingston County Health Department will be required.

Condition 4: A landscaping buffer, which may include a berm, shall be provided along the north, east, and west property boundaries.

Condition 5: The docks on the Huron River shall be reoriented, sized, and reduced in number to meet the Ordinance requirements.

Condition 6: No public use of the docks shall be permitted.

Condition 7: All required state permits shall be obtained prior to the installation of any docks in the Huron River.

Condition 8: The special land use permit for the private camp use shall be null and void unless a land use permit for the private camp use on the site is granted within one year from the date of this approval.

Condition 9: No lighting or amplification will be permitted on this site.

Condition 10: Special event usage to be coordinated with Township public safety committee.

Roll Call Vote: **Ayes:6** **Nays:0**

VOTE: MOTION CARRIED UNANIMOUSLY

Zoning Administrator's Report

The Zoning Map Amendment will be forwarded to Livingston County Planning for consideration at their May 17, 2023 meeting, which is the same night as the next township Commission meeting. Staff will change the Township Commission meeting. Map amendment will go to Township Board of Trustees for consideration at their June 6, 2023 meeting.

ADJOURNMENT

Motion by Hamlin, support by Hughes to adjourn.

VOTE: MOTION CARRIED UNANIMOUSLY

Respectfully submitted,

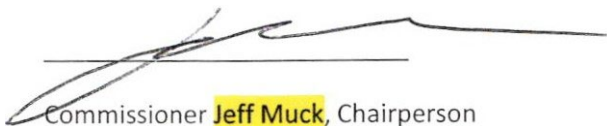
Lisa Perschke

Planning/Zoning Coordinator & Recording Secretary

Amy Steffens

Planning & Zoning Director

The minutes were approved as presented/corrected: **CORRECTED**


Commissioner **Jeff Muck**, Chairperson