

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: April 19, 2023

Project address and

Description:

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).

Freedom River Owner:

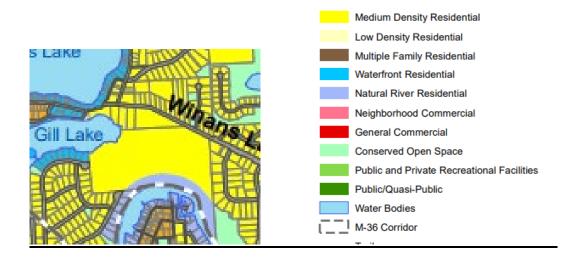


The subject sites (4715-14-400-008 and 4715-23-100-002) total 92 acres on the south side of Winans Lake Road and north of the Huron River. The subject property is scheduled for a zoning map amendment from WFR to PPRF, Public and Private Recreational Facilities District, on April 19, 2023 prior to the hearing for this special use permit application hearing; the portion of the site along Huron River will remain in the Natural Rivers (NR) district. The site is vacant of residential development but has been used historically for agricultural

purposes. In the 2020 Master Plan the subject site has a Future Land Use Designation of medium density residential but the Master Plan should be revised to reflect a zoning map amendment.

Table 1:	Current Zoning Classification	Current Use of Property	Future Land Use Designation
Subject	WFR/NR	Vacant residential /	
Site	April 19, 2023 ZMA to PPRF	agricultural	Medium density residential
North	RA—medium density residential	Single-family residential	Medium density residential
		Vacant / single-family	
South	NR—Natural Rivers	residential	Natural river residential
East	RA	Single-family residential	Medium density residential
	WFR—medium density		
West	residential	Single-family residential	Medium density residential

Future Land Use Map



PROJECT DESCRIPTION

The submitted plans, file-dated March 13, 2023, indicate that the proposed use of the site is a recreation facility for use by United States military veterans and their familiar for various recreational purposes.

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 hard surfaced access roads 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.

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 15 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.

Section 36-185(b), schedule of use regulations for PPRF district, would allow for the following special uses:

- (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.
 - c. No building shall be located within 100 feet of a property line.
 - d. All buildings shall be setback 100 feet from the edge of any wetland or the shoreline of any lake, pond, river or stream.
- (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.
 - b. All ingress and egress shall be along 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.
 - d. All buildings shall be setback 100 feet from the edge of any wetland or the shoreline of any lake, pond, river or stream.
 - e. Each campsite shall be at least 2,000 square feet in size.
 - 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.

DISCRETIONARY REVIEW STANDARDS:

Below are the Special Use Permit Standards from Section 36-36 of the Zoning Ordinance in **bold** followed by staff analysis.

Special Use Permit Review, Basis of Determinations (Section 36-36(C)):

The Township Planning Commission shall review the proposed special land use in terms of the standards stated within this Ordinance and shall establish that such use and the proposed location:

1. Compatibility with the Master Plan: Will be harmonious and in accordance with the general objectives or any specific objectives of the Hamburg Township Master Plan.

The following are excerpts from the 2020 Hamburg Township Master Plan that apply to this site and the proposed project followed by staff analysis.

Goal 2: Preserve the natural and historic character of Hamburg Township by accommodating a reasonable amount of development, but ensuring the development is in harmony with the natural features and the unique environmental requirements of the Township.

Objective A: Direct future development to areas most suited for that type of development.

Objective B: Consider the location of the natural features on a site during review of future development layouts.

Goal 7: Preserve the rural appearance of the Township as viewed from the roadways when appropriate.

Goal 8: Protect, preserve, and enhance whenever possible the unique and desirable natural amenities of Hamburg Township.

Objective A: Direct future development to areas most suited for that type of development.

Objective B: Consider the location of the natural features on a site during review of future development layouts.

Objective C: Encourage preservation of the existing landscaping, natural features, and rural/scenic quality of the Township.

Staff Analysis: The proposed veteran's camp will keep the site largely undisturbed and undeveloped. Additionally, the structures as shown on the site plan will be laid out so that they are not immediately visible along Winans Lake Road or adjacent residential development. A private recreation camp would support the township's goals and objectives of keeping larger tracts of land rural in both development and aesthetics. Private recreational use would not require the infrastructure demands of a residential development. The development has been designed to protect wetlands, Huron River, Gut Lake, and existing vegetation to the greatest extent possible.

- 2. Compatibility with Surrounding Area: Will be designed, constructed, operated, and maintained so as to be harmonious and appropriate in appearance with the existing or intended character of the general vicinity, will not change the essential character of the area, and will not be hazardous or disturbing to existing or future nearby uses. In determining whether a special land use will be compatible and not create a significant detrimental impact, as compared to the impacts of permitted uses, consideration shall be given to the degree of impact the special land use may have on adjacent property, as compared with the expected value to the community. The following types of impacts shall be considered:
 - 1. Use activities, processes, materials, equipment or conditions of operation;
 - 2. vehicular circulation and parking areas;
 - 3. outdoor activity, storage and work areas;
 - 4. hours of operation;
 - 5. production of traffic, noise, vibration, smoke, fumes, odors, dust, glare, and light;
 - 6. impacts on adjacent property values; and
 - 7. the relative ease by which the impacts above will be mitigated.

Staff analysis: The Zoning Ordinance specifies types of impacts that the Commission could consider in a special use permit application. The sports fields are located in the center of the parcel, thereby mitigating visual and auditory impacts to the adjacent single-family developments. Structures meet the Ordinance setback requirements, and with the relocation of the western most parking area and RV spot the camping area would comply with the setback requirements. Compared to the uses permitted in the PPRF district, this use is not likely to be more impactful to adjacent existing or planned land uses.

Because a proposed use receives special use approval does not meet that other provisions of the township ordinance do not apply. The outdoor uses and camp sites will need to comply with Chapter 22, Article II—Breach of Peace (attached) as it relates to sound generation, firework discharges, or motor vehicles.

No landscaping plan has been submitted, although it appears that the site will leave untouched some existing vegetation along the west and east property boundaries. While there are no landscaping requirements applicable to the PPRF district, staff suggests that a landscape greenbelt along Winans Lake Road be provided as below, as well as the buffer zone "B" requirements of the Ordinance along the northern 1400 feet of the east and the southern 500 feet of the west property boundaries.

If the strict requirements of the landscaping ordinance were applied 48 trees and 192 shrubs would be required along Winans Lake Road frontage; 17 each canopy and evergreen trees, and 67 shrubs along the west property boundary; and 47 each canopy and evergreen trees, and 188 shrubs.

Staff suggested condition: A landscaping buffer, which may include a berm, shall be provided along the north, east, and west property boundaries.

- B. Required Greenbelt along Street Frontage.
- 1. Within all multiple family residential, mobile home park, commercial and industrial districts, a twenty (20) foot wide greenbelt shall be planted along the public right-of-way including the equivalent of one (1) canopy tree and four (4) shrubs, rounded upward, for every forty (40) linear feet of frontage, planted within the greenbelt. The width of this greenbelt may be reduced by the Planning Commission in the Village Center zoning district.
- 2. The Planning Commission may require the provision of a planting berm at least three (3) feet in height in addition to the plant materials required along the public right-of-way parallel to a major arterial.
- 3. The Planning Commission may approve substitution of evergreen trees for up to fifty percent (50%) of the required trees.
- 4. The Planning Commission may require the preservation of existing trees and vegetation within the 20 foot wide greenbelt along any arterial street right-of-way.

Description of Required Buffer Zones			
Buffer Zone	Minimum Width	Minimum Wall/Berm	Minimum Plant Materials
A	50 feet	6-foot high continuous wall ¹ or required berm	1 canopy tree, 2 evergreen trees and 4 shrubs per each 20 linear feet along the property line, rounded upward.
В	20 feet	6-foot high continuous wall ¹ or required berm	1 canopy tree, 1 evergreen tree and 4 shrubs per each 30 linear feet along the property line, rounded upward.
С	10 feet	None required	1 canopy or evergreen tree or 4 shrubs per each 20 linear feet along the property line, rounded upward.

3. Improvement to the Immediate Vicinity: Will be an improvement in relation to property in the immediate vicinity and to the Township as a whole.

Staff analysis: The proposed use will preserve the site largely as undeveloped open space, which would not only support the Master Plan objectives but would likely benefit the immediate vicinity because the site has been historically undeveloped. Additionally, the investment in the site improvements will make the property more likely to remain as its intended use. Any change of use would require special use or site plan approval.

4. Impact of Traffic on the Street System: The location and design of the proposed special land use shall minimize the negative impact on the street system in consideration of items such as vehicle trip generation (i.e. volumes), types of traffic, access location and design, circulation and parking design, street and bridge capacity, traffic operations at proposed access points, and traffic operations at nearby intersections and access points. The Township may require submittal of a traffic impact study to ensure compliance with this standard. Such a traffic study shall be in accordance with standard practices and procedures, and prepared by a qualified traffic professional. The Township may require mitigation to maintain traffic operations at a level that is consistent with other types of permitted uses in the district. Route and operational restrictions (such as hours, cleaning of dust, or debris) may be established for construction traffic to minimize negative impacts.

Staff analysis: The site plan indicates one access point off of Winans Lake Road to the north for this site with a private driveway providing internal access throughout the site. The Livingston County Road Commission is reviewing a permit application for the curb cut.

Staff suggested condition: Prior to issuance of a land use permit the LCRC approval will be required.

5. Impact on the Overall Environment: The proposed special land use shall not have an unacceptable significant adverse effect on the quality of the natural environment in comparison to the impacts associated with typical permitted uses. The Planning Commission may require a quantitative comparison of the impacts of typical permitted uses and the special land use to assist in making this

determination (such as an overlay of conceptual development plans, on a natural features map, illustrating other site development options to demonstrate the impacts have been minimized to the extent practical). If the cumulative impact creates or contributes to a significant environmental problem, mitigation shall be provided to alleviate the impacts associated with the environmental problem, mitigations shall be provided to alleviate the impacts associated with the requested use.

Staff analysis: A natural features impact statement, file dated March 13, 2023, notes the natural drainage patterns, existing natural features (e.g. topography, groundwater, wetlands), and potential impact on the site of the proposed use. This use, compared to uses permitted in the PPRF district, is likely less impactful to the environment than would be a commercial farming operation, although a farming operation would be required to comply with all state and federal regulations regarding use of fertilizers, pesticides, and animal operations. The township engineer will review the site improvements, including stormwater management, via the site plan review process. Additionally, approvals from the Livingston County Health Department will be required for the water supply.

Staff suggested condition: LCHD approvals shall be required prior to issuance of a land use permit for site improvement work.

6. Public Services Impact: Will be served adequately by essential public services and facilities or that the persons responsible for the establishment of the proposed use will provide adequately any such service or facility, will not create excessive additional public costs and will not be detrimental to the economic welfare of the Township. Public facilities shall include, but not be limited to: streets, pedestrian or bicycle facilities, police and fire protection, drainage systems, water and sewage facilities, and schools.

Staff analysis: The township has adequate public services and facilities capacity to serve the proposed uses and staff does not find that the use would have an adverse impact on streets, public safety protection, utility systems, schools, or pedestrian or bicycle facilities.

7. Compliance with Zoning Ordinance Standards: Will be consistent with the intent and purposes of this Ordinance and be designed, constructed, operated, and maintained to meet the stated intent of the zoning district.

Staff analysis: The western most RV spot and associated parking should be relocated to the east to remove it from the 200-foot required setback for camp sites. Five boat slips are shown on the site plan. The Ordinance defines a marina as a facility which extends into or over waterways in the Township and provides docking for four or more boats or offers service to the general public or members of the marina for docking, storing and loading of boats. The number of boat slips needs to be reduced to three, as a marina is only permitted in the Neighborhood Services district. Additionally, Section 36-175(h) specifies the following for docks in the Huron River. The docks shown on the site plan should be reorientated to comply with the Ordinance.

- (h) Docks and launches.
 - (1) Docks. Docks may be constructed not to exceed six feet in width nor more than 20 feet in length paralleling the river with no more than four feet of the dock extending beyond the low water mark. Docks must be constructed in accordance with the rules of Public Act No. 346 of 172. Docks must be constructed of materials that are not detrimental to the river and must have natural/unobtrusive colors used for coverings. Docks cannot impede the waterway of normal water traffic.
 - (2) Launches. No public launches are allowed in residential areas into the river or its tributaries.

Section 36-185(b), schedule of use regulations for PPRF district additional regulations: The Zoning Ordinance specifies the following additional regulations for the proposes uses:

- (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.
 - 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.

The subject site is 92 acres and is adequately able to accommodate the proposed uses internally to the site, thereby mitigating the impact on adjacent properties. Staff has not received confirmation that national facility standards for a private veteran's camp are met.

- b. All ingress and egress shall be along a county road. Complies
- c. No building shall be located within 100 feet of a property line. Complies
- d. All buildings shall be setback 100 feet from the edge of any wetland or the shoreline of any lake, pond, river or stream. Complies
- (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. Complies
 - e. All ingress and egress shall be along a county road. Complies
 - f. 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. Awaiting revised plans moving RV site on west.
 - g. All buildings shall be setback 100 feet from the edge of any wetland or the shoreline of any lake, pond, river or stream. Complies
 - h. Each campsite shall be at least 2,000 square feet in size. Complies

i. Each camp site shall be provided with water and sanitary service approved by the health department or have convenient access to approved service buildings.

Awaiting confirmation

Staff suggested conditions:

The RV spot and parking shall be relocated out of the required 200-foot west property boundary setback.

The docks on the Huron River shall be reoriented, sized, and reduced in number to meet the Ordinance requirements.

No public use of the docks shall be permitted.

All required state permits shall be obtained prior to the installation of any docks in the Huron River.

RECOMMENDATIONS:

Staff recommend the Planning Commission open the public hearing, take testimony from the applicant and staff as appropriate, discuss, and make a determination on the Special Use Permit (SUP23-003) 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) (Zoning Ordinance Section 36-185).

Example Denial Motion:

The Planning Commission denies the Special Use Permit (SUP23-003) 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) (Zoning Ordinance Section 36-185).

The proposed project would not meet the Special Land Use standards in section 36-36 (c) (please indicate the standards that are not met) as discussed at tonight's meeting and as presented in the Staff Report.

Example Approval Motions:

The Planning Commission approves the Special Use Permit (SUP23-003) 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) (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 RV spot and parking shall be relocated out of the required 200-foot west property boundary setback.

Condition 6: The docks on the Huron River shall be reoriented, sized, and reduced in number to meet the Ordinance requirements.

Condition 7: No public use of the docks shall be permitted.

Condition 8: All required state permits shall be obtained prior to the installation of any docks in the Huron River.

Condition 9: 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.

EXHIBITS:

Application
Site plan
Architecture boards
Floor plans
Natural features impact statement
Left-turn warrant memo
Breach of Peace ordinance



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

Phone: (734) 947-9700

Signature:

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

Date: 3/17/23

Special Use Permit Application

(FEE \$750+\$1,500 Escrow Review)

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 Special Use Permit Application. The undersigned hereby makes application for a Special Use Permit for: Proposed Use: Campground and lodges with outdoor recreational facilities To be located at: 6716 Winans Lake Road, Brighton, MI 48116 Tax Parcel ID Number: 15-4715-23-100-002 and 15-4715-14-400-008 By signing this Special Use Application, I/we hereby certify and agree that all use for which this application is made will conform to the date and information submitted with this application and all ordinances affecting Hamburg Township, Livingston County, Michigan. I/we further agree that any deviation from the date submitted or the breach of any additional safeguards, conditions or requirements the Hamburg Township Planning Commission may impose in granting this permit shall constitute a violation of the Ordinance and invalidate the permit granted. Freedom River, Inc. Owner: 9305 Huron Rapids Drive, Whitmore Lake, MI 48189 Phone: (734) 231-2792 Signature: 25251 Northline Road, Taylor, MI 48180

Basis for Determination

Please supply any supporting evidence and/or details as may be appropriate when answering each question. Use extra sheets if necessary. 1. Will the special use be harmonious with and in accordance with the general or any specific objectives of the Hamburg Township Master Plan? [x] Yes [] No If no detail variations from the Master Plan: 2. Will the special use be designed, constructed, operated and maintained so as to be harmonious and appropriate in appearance with the existing or intended character of the general vicinity? [x] Yes [] No If no please detail your answer: Will this special use change this character of the area? [] Yes [x] No If yes state how the area's character would be changed: 3. Will the special use be hazardous or disturbing to existing or future nearby uses? [] Yes [X] No If yes state how this special use would be hazardous or disturbing: 4. Will the special use be an improvement in relation to property in the immediate vicinity and to the community as a whole? (Please give details supporting your answer.) [X] Yes [] No The project proposes to convert a vacant property into a public recreational facility while maintaining the existing surrounding natural features. 5. Will the special use be served adequately by essential public facilities and services? [X] Yes [] No If no what persons or agencies responsible for the establishment of the proposed use will provide adequately any such services or facility? (Give responsible party and service to be provided by each party.)

Special Use Permit Application

Planning Commission Chairman

SITE PLANS

FREEDOM RIVER CAMPGROUND **6716 WINANS LAKE ROAD**

SECTIONS 14 AND 23, T1N, R5E LIVINGSTON COUNTY, CITY OF BRIGHTON, MI 48116





ET INDEX

TABLE	4715-23-1 4715-14	WFR 4	PPRF (NR W	CAMPGF RECREATIONA	1,742,4 (40 M	3,678.6		101	8	201	01	
SITE DATA TABLE	TAX PARCEL #	EXISTING ZONING	PROPOSED ZONING	PROPOSED USE	MINIMUM LOT AREA	TOTAL LOT AREA	MINIMUM BUILDING SETBACKS	FRONT	Bibe	REAR	WETLANDS/BODY OF WATER	ACTUAL SETBACKS
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JANNA YEAKEY
MADE TRIM
25251 NORTHINE ROAD.
TAYLOR, MI 48180
734.447.9700
GREG SPIESS. PE
GSPIESS@WADETRIM.COM

CIVIL ENGINEER

CONTACTS

OWNER/DEVELOPER

DTE ENERGY 1095 LAWSON, HOWELL, MI 48843 734,332.8145

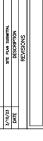
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CONSUMERS ENERGY ONE ENERGY PLAZA, JACKSON, MI 49201 517.788.7194

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<u>z</u> -	PROPOSED ZONING	PPRF (NR WILL REMAIN)	EXISTING CONDITIONS PLA
~			SESC PLAN - A
	PROPOSED USE	CAMPGROUND, DECREATIONAL FACILITIES	SESC PLAN - B
_		PEONEMINING PARIETIES	SESC PLAN - C
_	MINIMUM LOT AREA	(40 ACRES)	SESC PLAN - D
<			SESC DETAILS
	TOTAL LOT AREA	3,678,694 SF	1
			DEMOLITION PLAN - B
	MINIMUM BUILDING SETBACKS		DEMOLITION PLAN - C
	FRONT	100,*	DEMOLITION PLAN - D
			OVERALL SITE PLAN
	SIDE	•.09	SITE PLAN - A
	BFAB	100,	SITE PLAN - B
		. 201	SITE PLAN - C
	WETLANDS/BODY OF WATER	100,	SITE PLAN - D
	ACTUAL SETBACKS		SITE DETAILS
			OVERALL GRADING PLAN
	FRONT (NORTH)	100.1	OVERALL UTILITY PLAN
	SIDE (EAST)	284	UTILITY DETAILS
	SIDE (WEST)	190.1	
	REAR (SOUTH)	160.5	
	MAXIMUM BUILDING HEIGHT	35 Ft	
	PROPOSED BUILDING HEIGHT		
	MAXIMUM LOT COVERAGE	104	
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	PROP. PARKING SPACE SIZE	10'x20'	
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AJP STTE PLA	3/10/23	
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VICINITY MAP

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LIVINGSTON COUNTY DRAIN COMMISSION 2300 E GRAND RIVER, HOWELL, MI 48843 517.546.0040

SOIL EROSION CONTROL

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IMNGSTON COUNTY DRAIN COMMISSION 2300 E GRAND RIVER, HOWELL, MI 48843 517.546.0040

STORM WATER

WINGSTON COUNTY ROAD COMMISSION 3535 GRAND OAKS DRIVE, HOWELL, M 48843 577.546.4250

ROADS

HAMBURG TOWNSHIP 10405 MERRILL ROAD, HAMBURG, MI 48139 810.231.1000

WATER & SEWER

HAMBURG TOWNSHIP 10405 MERRILL ROAD, HAMBURG, MI 48139 810.231.1000

ANNING & ZONII

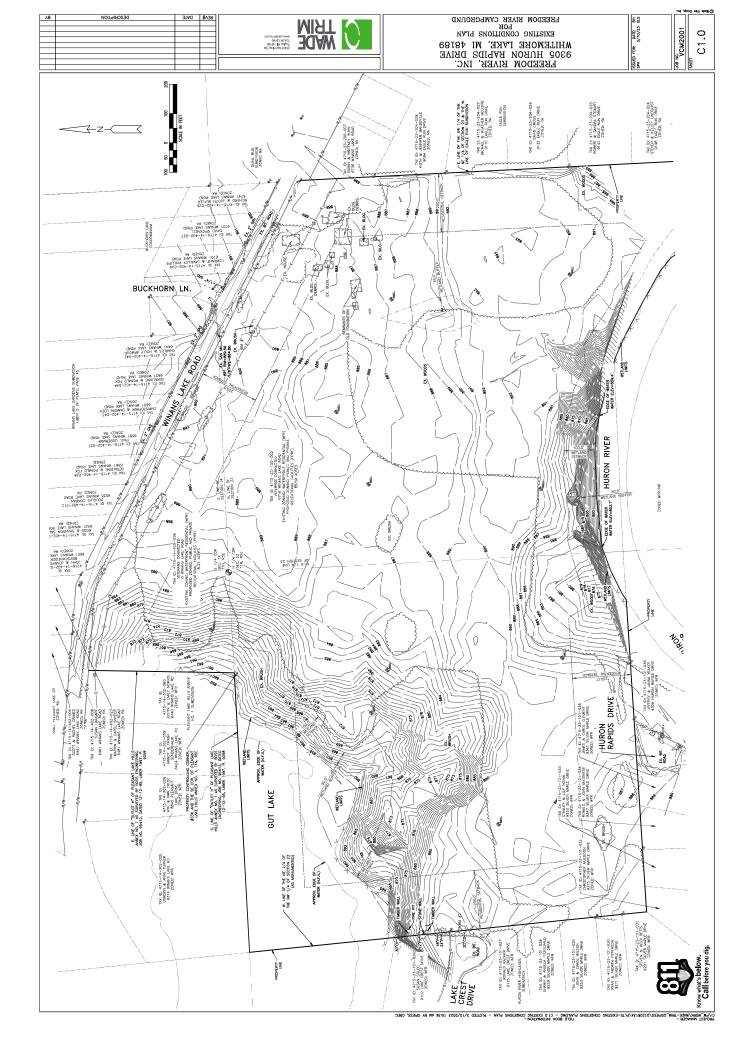
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DEMOLITION NOTES	The Department Connection South Cotton A Education From most connection services and the Department of the Departme	CONTINUE AND AND PRESENCE OF A LEGISLA DE CONTINUE AND	The findown, "It is considered by such in Louis at Liberth 2004 and the considered by such in Louis at Liberth 2004 and the considered by such considered by the considered by	13. THE CONTRACTOR SHALL CORPUNKTE THE REJUCIAL OF SCAIS WITH THE EXISTING PROPERTY OWIER.		SILE FALM NOTION SET OF THE ALL COUNT REDUCTORS AND COSTS AND CASES, FRINCANCES CONTROCTORS AND CASES AND CASES ALL DRESIDENCE AND CASES AND CASES AND CASES ALL DRESIDENCE AND CASES AND CASES AND CASES CONTROCTORS AND CASES AND CASES AND CASES AND CASES CONTROCTORS AND CASES AND CASES AND CASES AND CASES CONTROCTORS AND CASES AND CASES AND CASES AND CASES CONTROCTORS AND CASES AND CASES AND CASES AND CASES CONTROCTORS AND CASES AND CASES AND CASES AND CASES CASES AND CASES AND CASES AND CASES AND CASES AND CASES CASES AND CA	WINDOWS AND STORES COMES, CONTROLL AND SHALL BE WINDOWS AND SHALL BE WIN

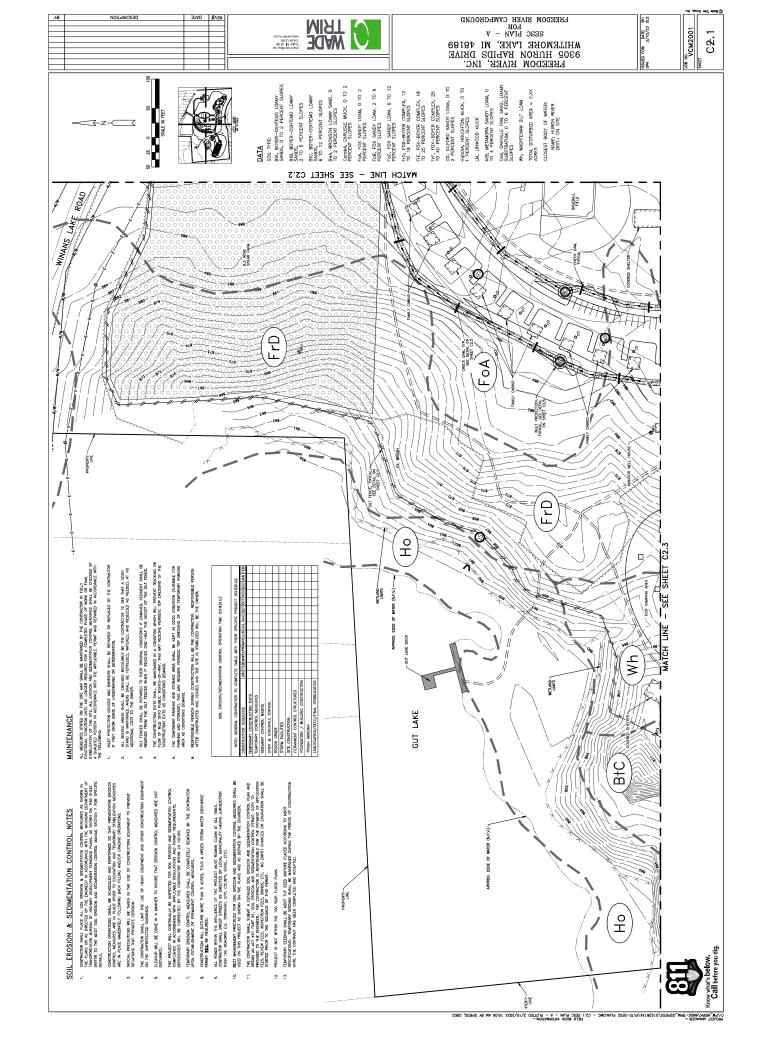


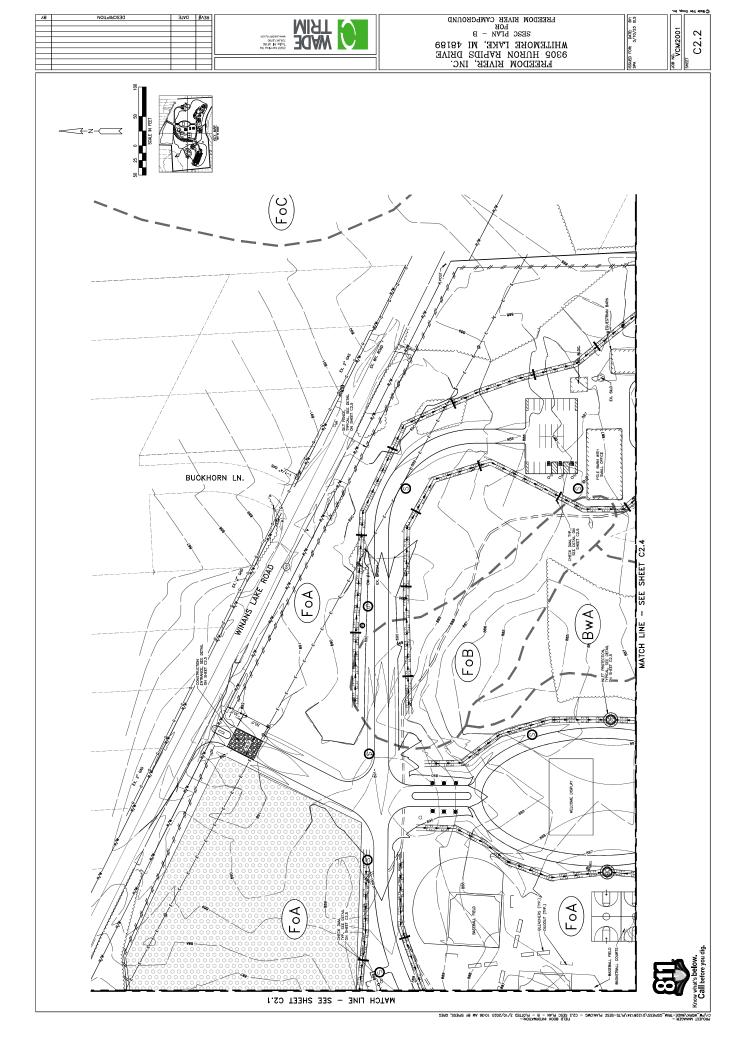
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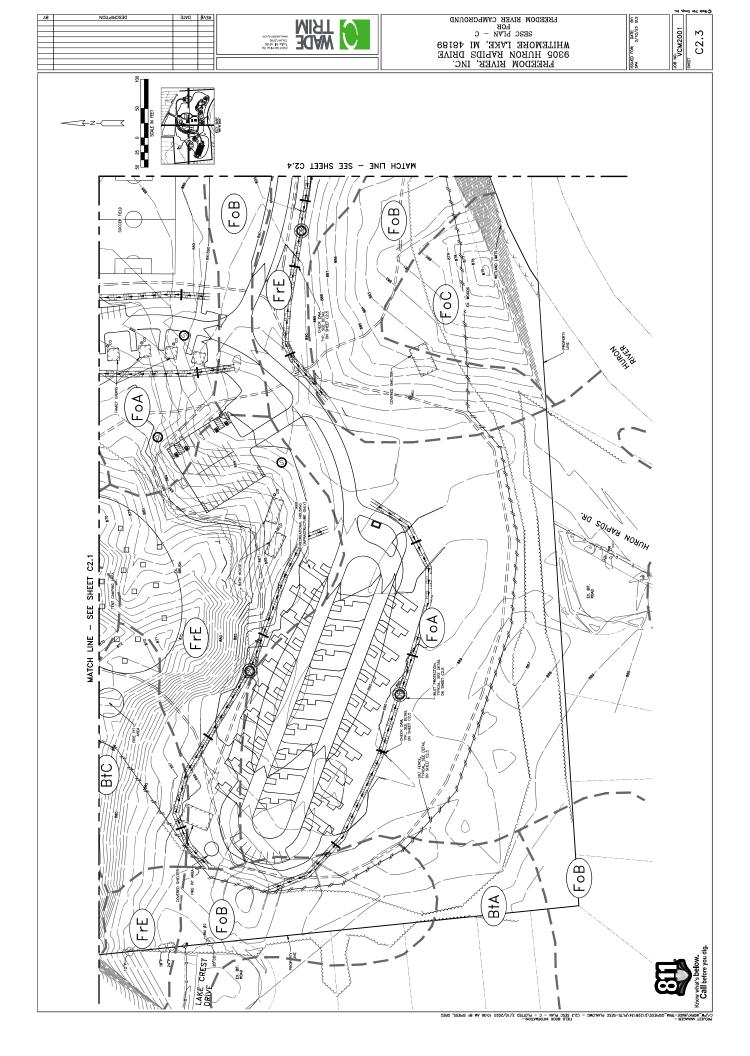
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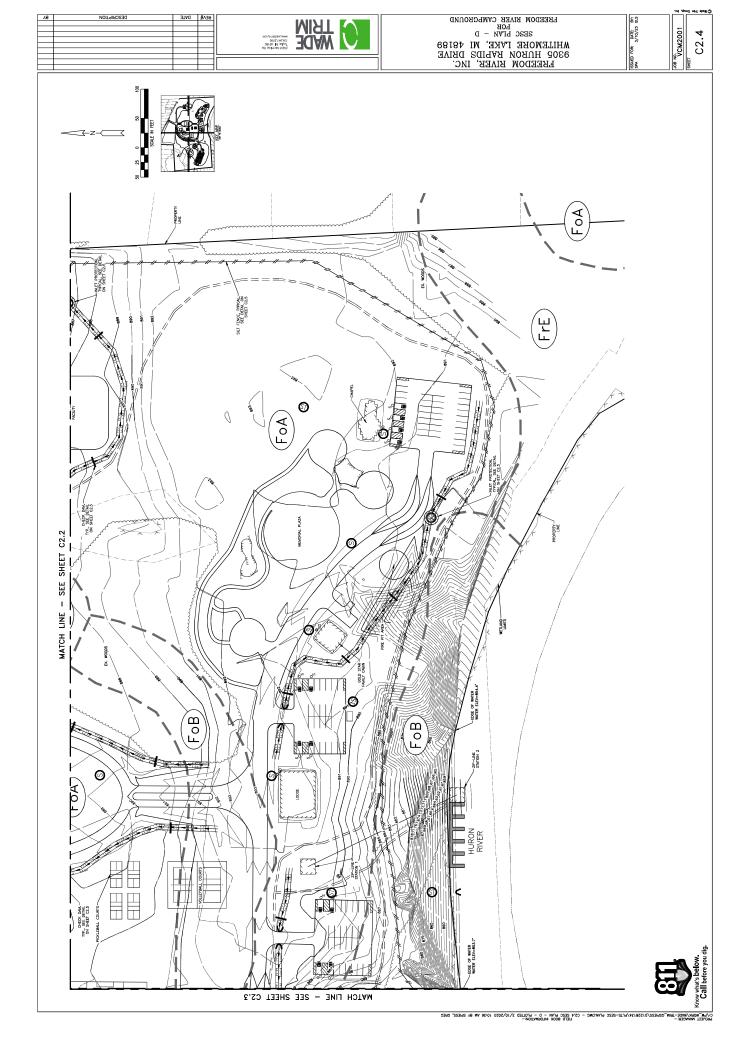
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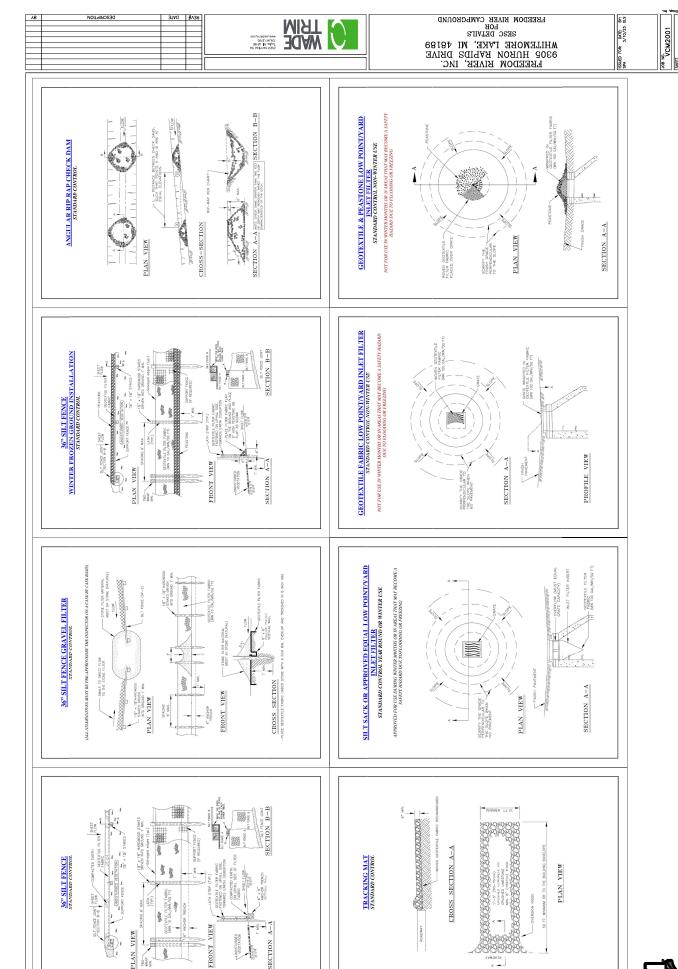




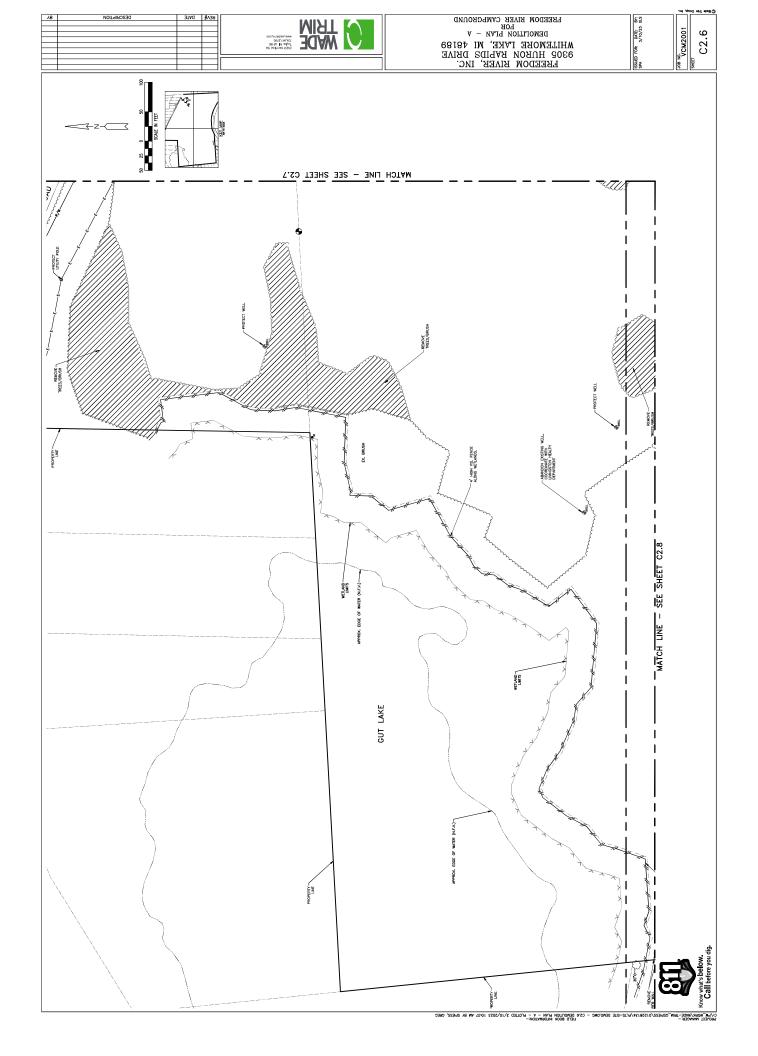


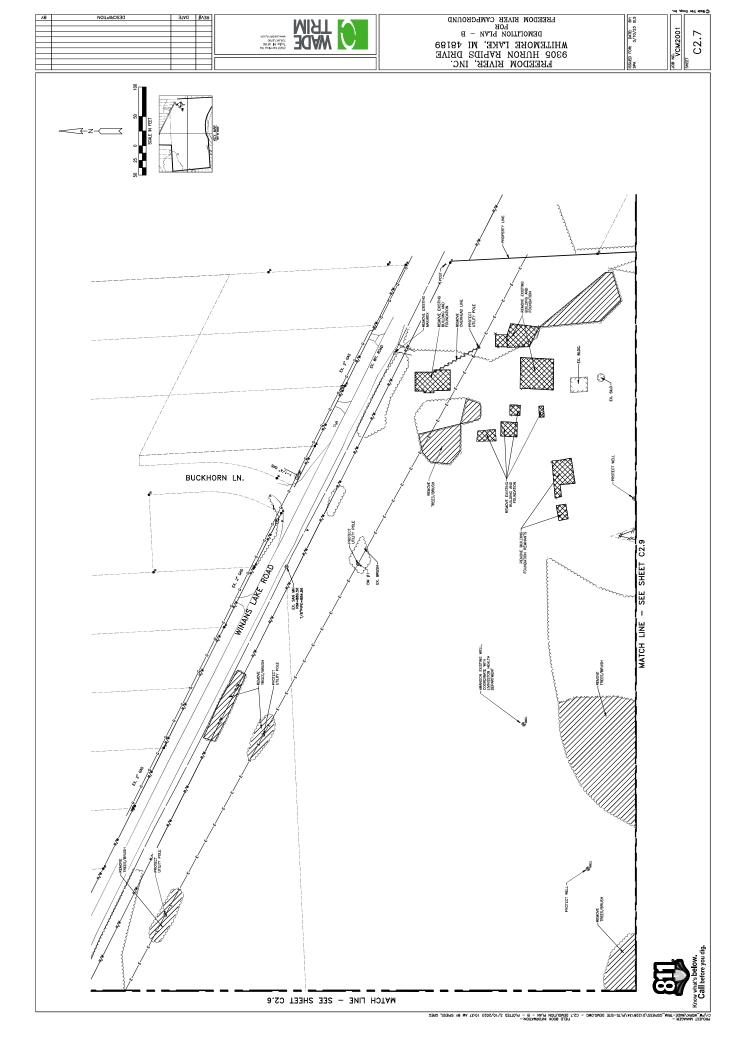


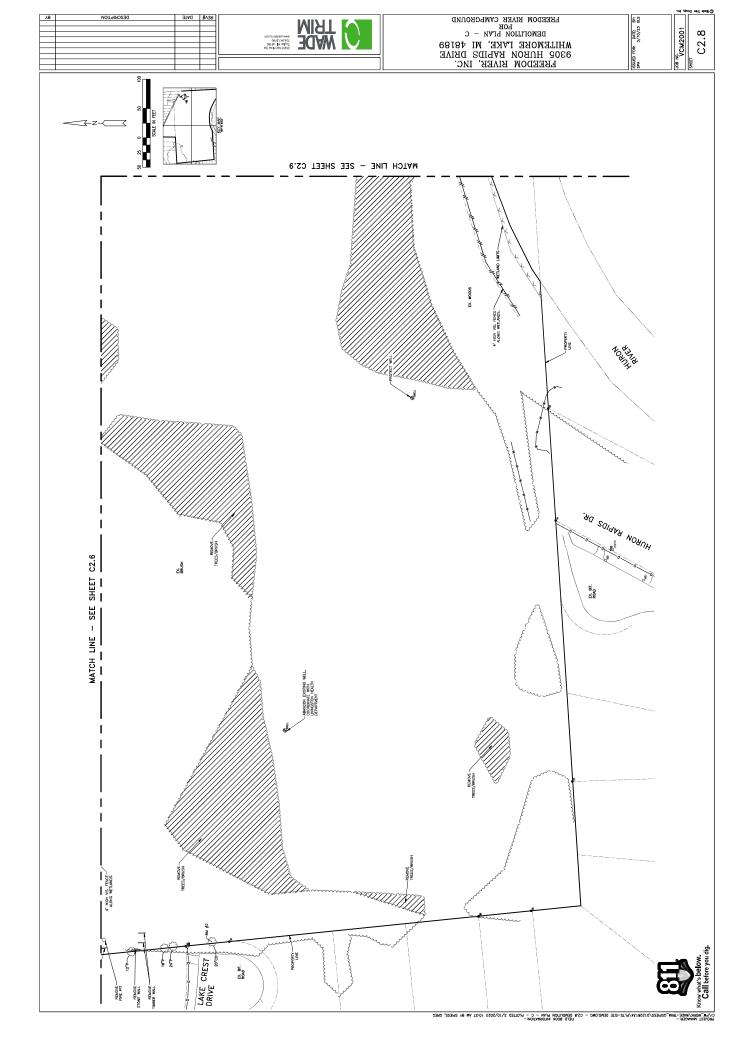


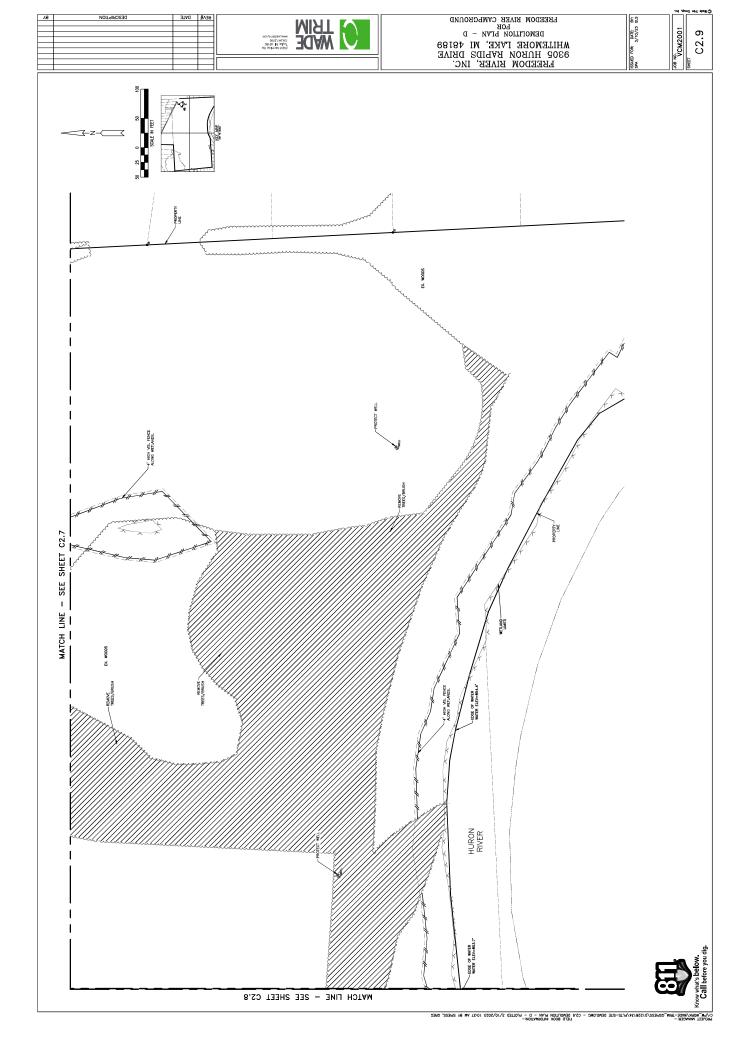


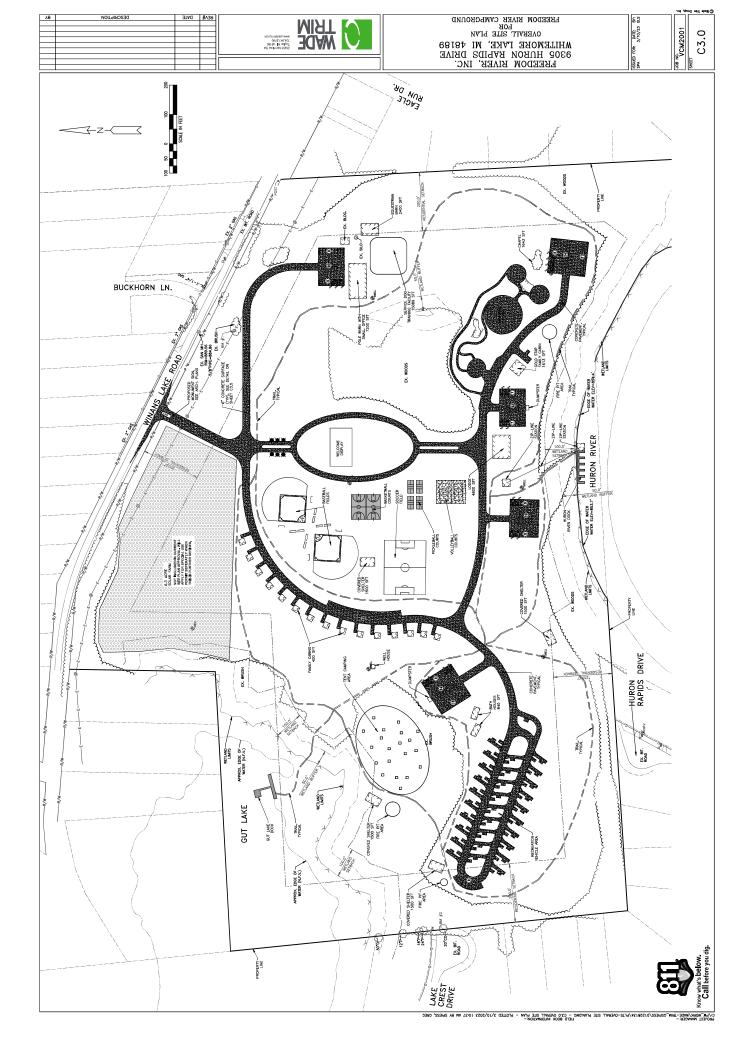
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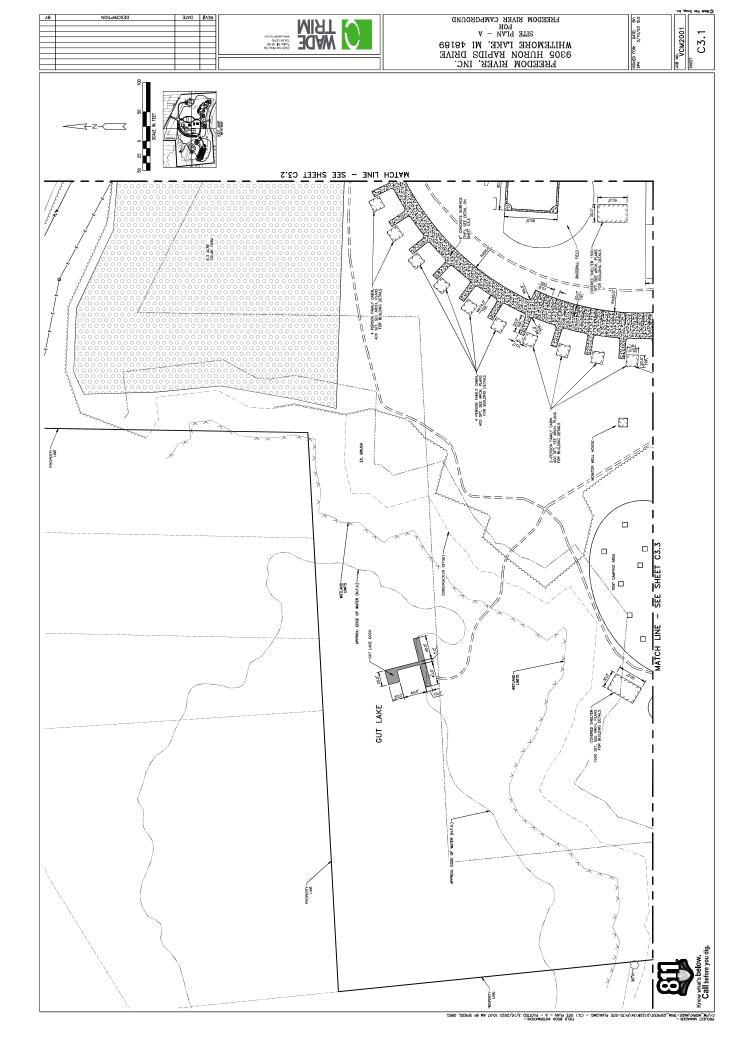


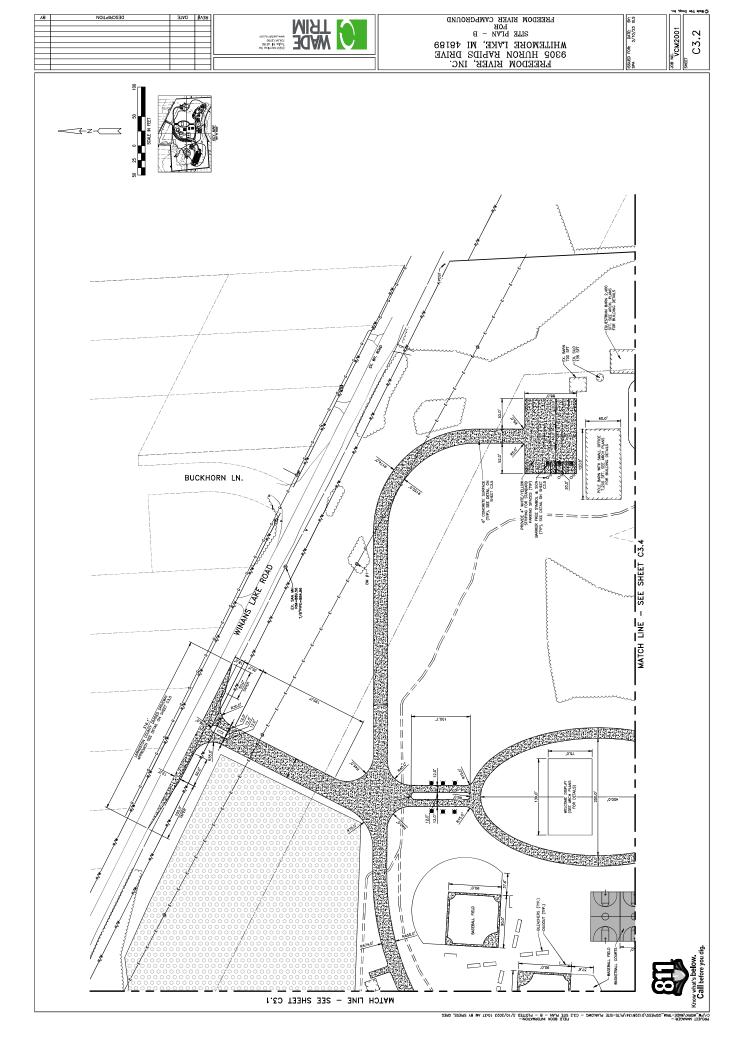


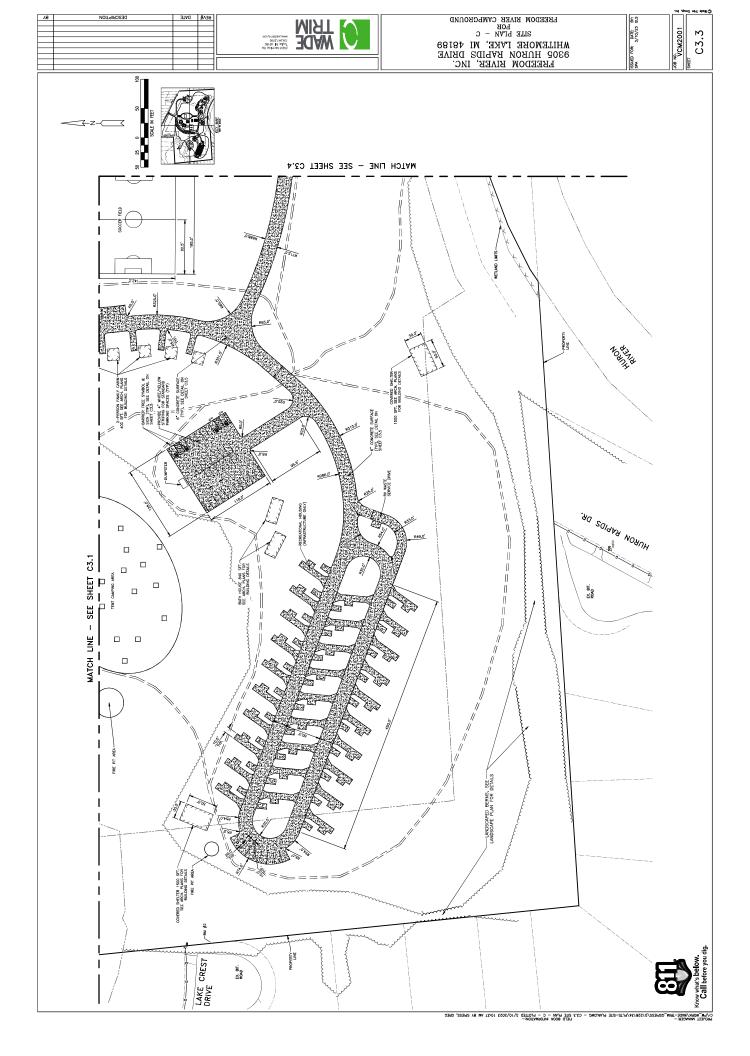


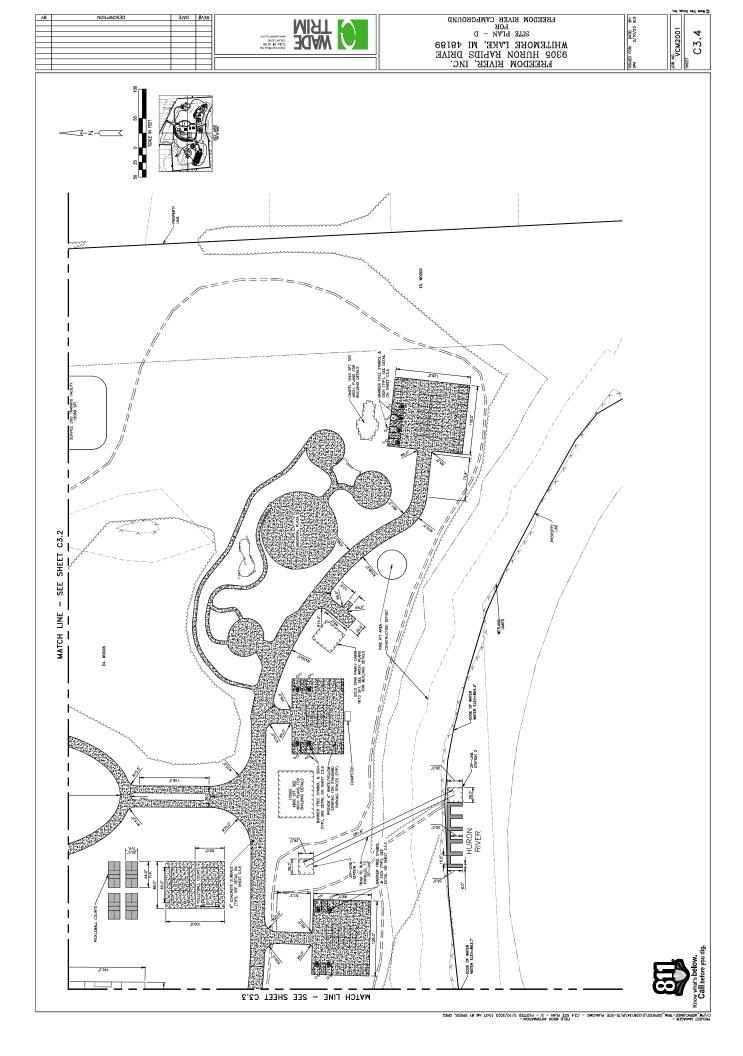




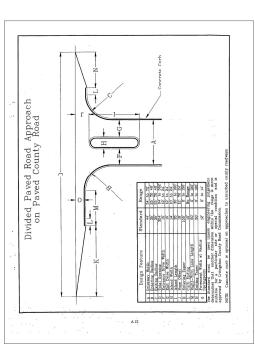


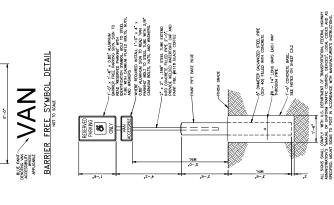


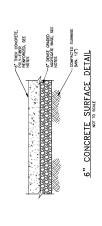




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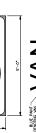


BARRIER FREE SIGN DETAIL



1. ALL CONCRITE SHALL RE 400 PS CONCRITT WIN A 100 RND OF 1.5 LIS OF CONCRITT SHALL MAKE A 100 RND OF 1.5 LIS OF CONCRITT. SHALL MAKE A 100 RND OF 1.5 LIS OF CONCRITT. SHALL MAKE A 100 RND OF 1.5 LIS OF CONCRITT. SHALL MAKE A 100 RND OF 1.5 LIS OF CONCRITT. DIVINITIES A 2 RND NO RND OF 1.5 LIS OF CONCRITT. DIVINITIES A 2 RND NO RND OF 1.5 LIS OF CONCRITT. DIVINITIES A 1.5 LIS O





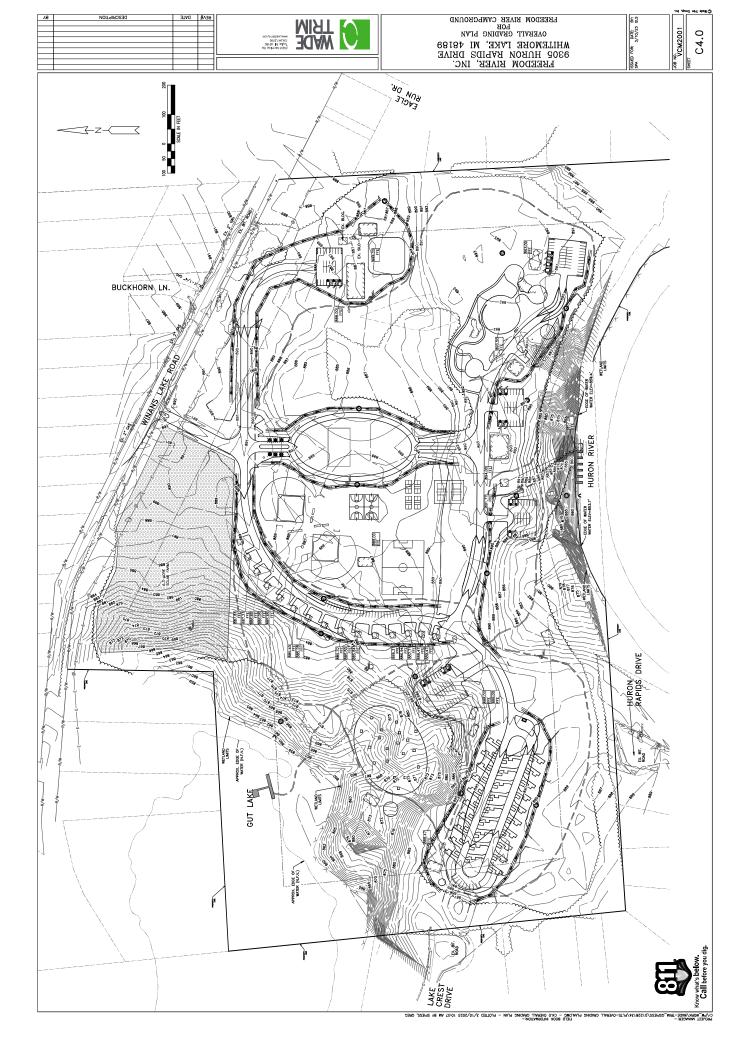
Control of the Contro . CATCH BASIN AND MANHOLE CASTINGS REQUIRE A BOXOUT OR ISOLATION TO ALLOW FOR VERTICAL AND HORIZONTAL SLAB MOVEMENT.

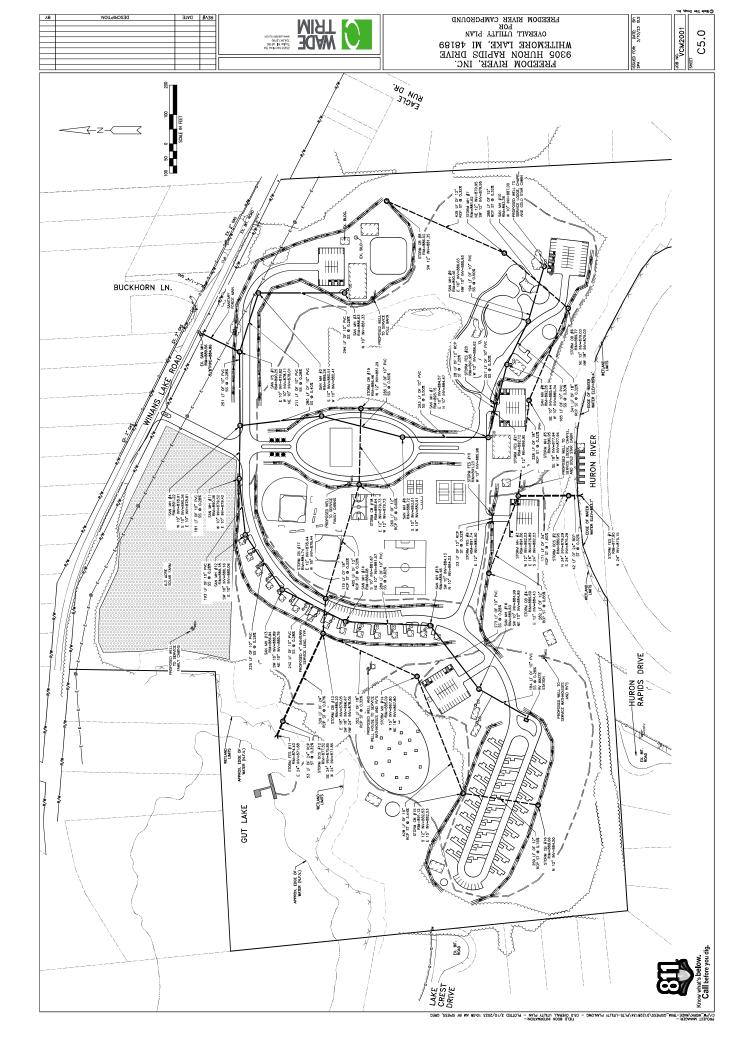
ASPHALI

THE LEVELING COURSE SHALL BE MDOT 4E1 OR APPROVED EQUAL (13A LVSP).

2. THE WEARNG COURSE SHALL BE MOOT SE OR APPROVED EQUAL (36A).

3. THE ASPHALT BINDER SHALL BE PO 58-28.
MATERIALS





V8	DESCRIPTION	DATE	₩∧∃\		EKEEDOW BIAER CYMBGROUND	: S
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	SANITARY	٨RY	SEWER		RUC.	STRUCTURE TAI	
	STR. #	SIZE	RIN	INVERTS	2	NORTHING	
ω.	DY, SAN MH #1	-84	889.56	SW 10" 8	884.50	354483.28	
	SAN MH #2	.84	889.26	\$ 10 W	880.51	354279.90	
	SAN MH #3	*8	886.63	N 10° 8	881.33	353986.27	
	SAN MH #4	48.	891.22	₩ 10 S 10	878.91 878.81 880.26	354342,55	
	SAN MH #5	48	887.74	0 N	881.48 881.38	354064.63	
	SAN MH #6	,e	888.72	0 N	883.01	353788.83	-
	SAN MH #7	.84	893.15	3 N	884.57	353496.20	
	SAN MH #8	48	892.05	SE 10" 8 w 10" 8	885.44	353432.61	
	SAN MH #9	48"	890.46	E 10 8	886.03	353360.12	
.	SAN MH #10	48	892.36	W 10" 8	887.00	353305.70	
	SAN MH #11	2	890.36	¥ 10°8	879.52 879.42	354345,36	
	SAN MH #12	.6	889.18	SW 10" 8	880.16	354324.64	
	SAN MH #13	.0	886.94	SW 10" 8	880.89 880.79	354199.01	
	SAN MH #14	48	886.08	S 10" B	881.67 881.57	353982.94	
	SAN MH #15	48.	889.46	SW 10 8	884,13 884.03	353694.32	
	SAN MH #16	*8*	889.63	SW 10" 8	884.99	353528.08	
	SAN PS	.8	890.25	m ≽ ∰ 0 0 0	879.62 878.11 878.01	354344.48	

3271326.66 3271135.22 270948.12 270839.12

271863.65

3271507.52 3271540.14 3271468.28 3271715.74

PLACE FRAME AND COVER, REFER TO UTILITY ALMS/ANDTS OR APPROVING RECNOT FOR CASTING INFORMATION.	MONTH BED OVERTIC ALL MONTH BED OVERTIC ALL MONTH BED OVERTIC ALL MONTH BED OVERTIC ALL MONTH BED OVERTIC AND MONTH BED OVERTICAND TO MAKE AND MONTH MON	MORTAR NON-SHRINK GROUF AROUND FULL CROUMFRENCE OF PIPE, (INSIDE AND OUTSDE)	LEAD PER PAN, MAY 12" DA. MAY 12" DA. MAY 12" DA.	6" CONCRETE NTEGRAL BASE
	WOXING S	PROJECTION	MIN PZ	
			SH SH S	Ţ
FINISH GRADE		CONCRETE	MATERIAL L AROUND RE NOTES	P Cade
ē	/	PRECAST	DOX GRANULAR MATERAL BACKFIL ALL ARCUND STRUCTURE, SEE NOTES	- George Services

PLACE FRAME AND COORE, REFER TO MISS OF A PERSONNEL MISS OF A CASTING INFORMATION -THINS HOURD C-PANG GASCIS (OLISSIE OF PANGARIA AND TRAFFIC AREAS)ECCENTRIC COME. SECTION.	SEE NOTES SECTIONS, SEE NOTES SECTIONS, SEE NOTES 1/2" DA. GALANZED STEEL 1/2" DA. GALANZED STEEL	FLUSH WITH OUTSIDE WALL & STEPLONG STEP	COMPACTED DENSE CARDED AGREGATE OR GRANDLANGE MATERAL CUSHON UNDER PRECAST ON INTERPAL BASE SEE NOTES —UNDISTURBED GROUND
N N N N N N N N N N N N N N N N N N N	1 1 1 1 1 1 1 1 1 1		1
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STANDARD SANITARY MANHOLE

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THE TOTAL THE TO	12" COMPACIED SUBBASE	36" DIA. CATCH BASIN DETAIL
THE GOOD IN THE CONTROL OF THE CONTR	8" THICK OPEN GRADED AGOREGATE BASE. SEE NOTES	36" DIA.

12.3. ALL DORGANIES DESTRUCTED ROSANG / MORESMANE (PRO SALL MET THE REQUIREMENT OF JASEN LACES (OF POLITIVALES THAN A MUDICINE MAY BE AN A GEOTOFIC WAY. ALL CORNOLATION OF A GROWN WAS A MUSICAL SALL ORGANIES OF CONTROL WAS A DOLYWON. CHOREC SOLD WALL PER (PV.) SHALL IN SIZES SALL BE SAR SALL BE.

14. CLEANDUTS SHALL BE INSTALLED AT ALL PIPE BEND LOCATIONS ON A SERVICE LEAD. LICCATED ON THE UPSTROAK SEE OF THE SERVICE LEAD. THE LAW. SPACING FOR ALL CLEAN OUTS IS 100 HORZONTAL FET.

13. ALL TRENCHES SHALL CONFORM TO THE DETALS INCLUDED WITH THESE PLANS AND PIPE MANUFACTURES REQUIREMENTS.

I. COMPAGNOR SHALL EXPORTE THE DISTING SAWARF SERVER AND RISTURDIESS TO WHICH THE INEW WORK IS TO BE CONNECTED AND MOTIVE DANIERS OF ANY CHANGES TO THE HERACHOLD, MISCHARTCH WILL REPROFITE REPORTED AND MOTIVE CONTINUED THE DANIER SYSTEM, MAS DANAL INFORM THE DANIER SYSTEM, MAS DANAL INFORM THE DANIER SYSTEM AND SALL INFORM SWATHAN SYSTEM, BY REQUIRED.

16. ALL CONCRETE USED FOR INSTALLATION OF FL*OW* CHANNELS AND BACKFILL SHALL BE 3500 PSI.

17. COMECTIONS TO EXISTING PIPES SHALLBE IMOE WITH ENGINEER APPROVED UNETHODS, STAILLESS STEEL SHEAR MINE FERNOS SHALL RE USED IF FERNOS COMMECTIONS ARE ALLOWED IT AGENCY HAVING UNESDITION.

12 WCS OR TESS SAUL BE OT THE SHARK MATERIAL & THE MANNER PIEE. THEY SHALL BE A MODEID WITE ON THE TITTING PER ASTAL DOGGEN, WITH OSSETTED JOINTS ON EACH BOS STITINGE FOR DIRECTLY INSERTING IN THE WANLINE PIPE, SACIOLE ONESTINGS ARE NOT ALLOWED.

11 BELOWN LEADS SHALL FOR EACH DIMER WAS SHALL BE BUT ON A MADERNAL SIGNER SET HOLD ON A MADERNAL SIGNER SET HOLD SHALL BE INSALLED ON THE PASK WITH A MAN SIGNE OF 150° BELOWN FROM THE PROMITE PROMITE PROMITE PROMITE PROMITE PROMITE PROMITE PROMITE PROMITE PROMITED THAT A MAN WOOD POST.

12.2. ALL HIGH DENSITY POLYETHYLENE PRE (HIDPE) SHALL BE SWOOTH LUND CORRUCATED FOLYETHYLENE PIPE MEETING ARSHTO M256, TYPE S. FOR SI 4" TO 10" DIAMETER AND ANSHTO M284, TYPE S FOR 12" TO 48" DIAMETER:

12. ALL DRAINAGE PPE SHALL BE AS NOTED ON PLANS. 12.1. ALL REINFORNED, COMPRIE PPE (RCP) SHALL CONFORM TO ASTM C76 CLASS IV, CIRCULAR REINFORCES.

9. ALL STORM SEMEN PIPE SHALL HAVE BEDDING PER THE DETAL ON THIS SHEET UNLESS OTHERMISE NOTED ON THE PLANE.
C.-AT-RECAST PRODUCTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM
C.-AT-RECAST PRODUCTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM 11. ALL JOINTS FOR PRECIST CONCRETE MANHOLE SECTIONS SHALL BE THE SAME A ROP PIPE.

10.2. JOHTS FOR POLYMPIT, CHORNDE PPE (PVC) SHALL BE ASTN DXZ1.2, PUSH—ON TYPE. A JOHN IN WHICH AN ELASTONERIC RING DASKET IS COMPRESSED IN THE ANNULAR SPACE BETWEDN A BELL END OR SOCKET AND A SPIGOT END OF PPE,

10.3. IN THE EVENT OTHER PIPE MATERIAL IS USED OTHER THAT THAT LISTED, CONTACT THE ENGINEER FOR AN APPROVED JOINT STYLE.

10.1. JOHTS FOR POLYMYN, CHLORDE (PWC) PIPE SHALL BE ELASTOMERIC GASKE CONFORMING TO ASTA D3212, PUSH ON TYPE JOINT.

PLACE CRANAPA MITEMAN BACKETT WITHIN THEE FEET OF ALL STRUCTURES ALL BEACK FILL SAML BE COMPACTED IN MAY, 12: LETS COMPACTED TO A MINIMUM SEX OF THE MAXIMUM DRY DESCRIP DETERMINED BY MODIFIED PROCT

7. DIFFERENTIAL OF EXCAVATION AROUND EXISTING MANHOLES SHALL NOT EXCEED SIX FEET.

6.3. ALL MANHOLE/CATCH BASIN CONNECTIONS SHALL BE PER THE DETAILS INCLUDED IN THIS SET. **LOCAL APPROVING AGENCIES CASTINGS SHALL SUPERSEDE THE LIST PROVIDED HERE.

6.4. ALL MANHOLES WITH 36" DIAMETER PIPE CONNECTIONS SHALL HAVE CONCRETE FLOW CHANNEL

13. ALL PPE CONTS SHALL BE: FOREIGN SOFTILE SHOULD HAVE TO RESPOND AND THE SHALL SHALL BE SHA

14. THE CONTRACTOR SHALL EDODGE THE EXISTING STORN SPRIES AND STRUCTURES OF INFORM THE WARNER OF DIS CONNECTED AND VISITION THE EXISTING THE SHALL STRUCT, AND PARTICULAR CONTROL OF THE EDISING STRILL HE SHALL HEAVE SHALL STRUCTURED STRUCTURED THE SHALL HEAVE STRUCTURED STRUCTURED AND THE WAS STRUCTURED. ALL CATCH BASIN STRUCTURES, SEE DETAIL THIS SHEET.
 THE CONTRACTOR SHALL BE RESPONSIBLE TO CONNECT ALL BUILDING FOOTING PLANS. TO THE NEMEST DRAINGE STRUCTURE, COORDINATE WITH ARCHITECTURAL PLANS.

13.4. PVC: JOINTS SHALL BE ASTA D2212, PUSH-ON TIPE. A JOINT IN WHICH AN ESTORAGE RING DASPET. S'OMPRESSED IN THE ANNUAR SPACE BETHERS A BELL BUD ON SOCKET AND A SYGOT BOD OF PIPE.

11.3. One—work for constraints, and could be the Market of the Section of the Sec

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.

13.2. HDPE: JOHN'S SHALL BE BELL & SPIGOT TYPE WITH RUBBER GASKETS ON BOTH SEDES OF THE GUING COOKNORMIN TO AND ASTA F477, SPLIT COLLAR COUNTERS ARE NOT ALLOND. JOHN'S SHALL BE WATERTIGHT METTING THE PERFORMANCE REQUIREMENTS OF ASTA DOZI'L.

ALL PRE THAT RUNG LUNGER PANGLADIT, GAMED OR CHANGETT SHEALER AND SHEARER OF RECEIVED TOWN COMMITTEEN CERTAINTS CONNECTED TO A MARKING MARK OF THE MANAULU BRY DESIGN DETERMINED BY LODINED PROCESSOR TEST.

17.2. ALL PIPE THAT RUNS OUTSDE THE PAKED, GRAVEL OR CONCRETE SURFACE SHALL BE BACKFILED IN MAX 12" LIFTS WITH SUTABLE MATNE TOWNED TO THE MAXIMUM DRY DENSITY DEFENUED BY AUDIED PROCIEGY TEST.

18.1. GRANULAR WATERIUL — MDOT CLASS II SAND 18.2. OPEN GRADED AGREGATE — MDOT GA OR AASHTO #57 18.3. DENSE GRADED AGGREGATE — MOOT 22AA GRUSHED UMESTONE

24" DIA. CATCH BASIN DETAIL

TABLE	EASTING	13271004.15	13271907.28	13272273.26	13270798.92	13270254.03	13270213.86	13270917.76	13271306.15	13271565.59	13271268.92	13271179.82	13271202.68	13270450.83	13271582.09	13271554.88	13271267.98	13271593.75	13272095.71	13270652.46	13271268.92	13270499.56
	NORTHING	353494.30	353224.04	353842.89	354059,65	353582.40	353326.66	354050.79	353936,53	353930.56	353181.14	353483.35	353482.44	354216.50	353474.15	353478.97	353394,05	353357.39	353441.62	353739.22	353222.79	354196.45
STRUCTURE	INVERTS	E 12 884.43	NE 12 879.03 NW 16 879.03	SW 12" 881.35	E 18 878.05 NW 24 878.05 SW 18 866.67	S 12" 882.53 E 15" 882.53	N 12 884.50	E 12" 878.44 W 18" 878.44	E 12" 879.73 W 12" 879.73	W 12 881.29	N 24" 875.15	E 12 885.90	W 12" 885.98	E 24" 871.68	W 12" 886.62	E 12 886.95	W 12" 882.03 S 24" 882.03 E 18" 876.89	SE 18" 877.94 W 18" 877.94	NE 12 879.95 SW 12 879.95	W 15" 867.80 NE 18" 867.80	N 24* 879.29 S 24* 875.29	SE 24 875.85 W 24 871.85
SEWER	RIN	689.59	72.689	886.52	885.20	891.12	99.688	884.74	886.64	886.46	877.90	891.14	891.23	874.43	891.98	892.12	891.06	890.95	881.62	885.09	880.95	877.52
	SIZE	.8	-84	*8	.8	.87	,8	-84	-8+	-84	*8*	.8	*8*	.8	48.	.00	48.	-94	.9	.84	.ê	*8
STORM	STR. #	DRM CB #4	DRM CB #6	DRM CB #8	RM CB ∯13	RM CB ∯15	RM CB∦16	RM C8 #17	RM CB ∯18	RM CB ∯19	DRM FES ∯1	HAN FES #9	RM FES #10	RM FES #11	RM FES #20	RM FES #21	ови мн ∦з	DRM MH #5	ови мн ≰7	RN NH #14	RM ocs #2	RM OCS #12

STORM		SEWER	STRUCTURE		TABLE
STR. #	SIZE	RIN	INVERTS	NORTHING	EASTIN
STORM CB #4	-84	689.59	E 12" 884.43	353494.30	1327100
STORM OB #6	-84	77.688	NE 12 879.03 NW 18 879.03	353224.04	1327190
STORM CB #8	.8	886.52	SW 12" 881,35	353842.89	1327227
STORM CB ∯13	.87	885.20	E 18" 878.05 NW 24" 878.05 SW 18" 866.67	354059,65	1327079
STORM CB ∯15	-8*	891.12	S 12" 882,53 E 15" 882,53	353582.40	1327025
SТОРМ СВ ∦16	-84	99.666	N 12 884.50	353326.66	1327021
STORM CB #17	-84	884.74	E 12" 878.44 W 18" 878.44	354050.79	1327091
STORM CB ∯18	48.	886.64	E 12 879.73 W 12 879.73	353936.53	1327130
STORM CB ∯19	-84	886.46	W 12" 881.29	353930.56	1327156
STORM FES #1	.8*	877.90	N 24" 875.15	353181.14	1327126
STORM FES #9	*8*	891.14	E 12 885.90	353483.35	13271179
STORM FES #10	*8*	891.23	W 12" 885.98	353482.44	1327120
STORM FES #11	-84	874.43	E 24 871.68	354216.50	1327045
STORM FES #20	*8*	891.98	W 12" 886.62	353474.15	1327158
STORM FES #21	48*	892.12	E 12" 886.95	353478.97	1327155
SТОВМ МН ∯3	Pg	891.06	W 12 882.03 S 24 882.03 E 18 876.89	353394.05	1327126
зтоям мн ∦5	48.	890.95	SE 18" 877.94 W 18" 877.94	353357,39	1327159.
SТОВМ МН ∯7	48*	881.62	NE 12 879.95 SW 12 879.95	353441.62	1327209
STORM MH #14	-8	885.09	W 15" 867.80 NE 18" 867.80	353739.22	1327065
STORM OCS #2	-8	880.95	N 24 879.29 S 24 875.29	353222.79	1327126
STORM OCS #12	*8*	877.52	SE 24 875.85 W 24 871.85	354196.45	1327049
	l	١			١

CURB: 18" STANDARD CURB: EJ #7045Z W/ 7040 MI GRATE & EJ #7050 T-f BACK OR APPROVED EQUAL

24" STANDARD CURBE EU F70462 W/ 7046 MI GRAIT EU F7050
FOLL CURB: EL F77085 W/ MI GRAIT OR APPROVED EQUAL

EJ #7250 OR APPROVED EQUAL

MOUNTABLE CURB:

WEDGE CURB & GUTTER: EJ #7300 W/ M GRATE OR DRIVEWAY GUTTER: EJ #7065 W/ 7045 M GRATE OR APPROVED EGUAL.

EJ# #4410 OR APPROVED EQUAL

WALLEY GUTTER:

8.1. POLYNWYL, CHLORDE (PVC), TRUSS PPE SWLL BE ASTN D2880, THE PPE SWLL BE OF A DOLBER WILL DOSTRUCTIVE ADDED WITH A STRUST THE STRUCTIVE UNITHED A STRUCT SWITH ALL S FORBER IN 1 EXTREMOR, THE TRUSS WORS ARE FILLED WITH CHAMBER OF ORNCREE TO PROVIDE ADDITIONAL COMPRESSES STREAMS HAD BROADED.

8.2. MANHOLE COMERS 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: 9.2. PVC SOLID WALL PIPE IN SIZES 6-INCH THROUGH 15-INCH SHALL BE ASTM FD3034, SDR 355, AND IN SIZES 18-INCH THROUGH 27-INCH SHALL BE ASTM FD9 SIRKSI, PVC. 9.3. OTHER MATERIALS MAY BE ACCEPTABLE, HOWEVER ALL PIPE MATERIALS SHALL APPROVED BY THE LOCAL APPROVING AGENCY.

LAWN AREA: EJ \$1040 WITH A TIPE N OVAL GRATE (OR APPROVED EQUAL).
PANEMEN (GRAND): EJ \$1040 WITH A TIPE MI GRATE "DUAW NO WASTE"
(OR APPROVED EQUAL).
PANEMENT (SQUARE): EJ \$5724 FRAME AND GRATE (OR APPROVED EQUAL).

72. STEL REHTDRGD FASTIC MANNOE STEPS SHALL RE OF SUTNRELY APPROVED TO CAPARRY TO PURPHY THE CAPARRIE TO STEPS THOU. THE CAPARAGE STANDARD TO STEP STANDARD TO STEP STANDARD TO STEP STANDARD TO STEP AND TO STEP STANDARD TO STEP STANDARD TO STEP STANDARD TO STEP STANDARD TO S

MANOLE FRANES AND COVERS SHALL CONFORM TO ASTA A48, CLASS 30, GRAY ROSA, CASTINGS SHALL BE HEATY MADE AND FREE FROM CRACKS, COLD SPEETS, PROCES NO CONTING SHALL BE CIRCUMD TO ASSURE PROPER IT AND TO PREVEIT ROCKHIS. 8.1. FOR MANHOLES, USE A BOLIED WATERPROOF FRAME WITH A PRESSURE TIGHT COVER BOLIED DOWN FRAME AND COVER SHALL BE INSTALLED AS INDICATED OF THE PLANS.

7.1. CAST RON MANHOLE STEPS SHALL CONFORM TO ASTM A48, CLASS 30, ORNY IRON WITH A MINIMUM, CROSS, SECTION DIMENSION OF 1-INCH 1N ANY DIRECTION

MANHOLE STEPS TO BE INSTALLED AT THE PLANT BY MFR. OF PRECAST MANHOLE SECTION WITH 11-6 SPACKOR AND SET FOR © OF MAN SEMEN WITH THE BOTTON STEP TO BE 24" MAX. ABOVE BOTTOM, MANHOLE STEPS CAN BE:

6.1. MANHOLES: EJ ∯1040 WITH A SOLID CONER (OR APPROVED EQUAL). 6.2. CATCH BASINS:

5.1. CAST FICH CONFORMING TO ASTU A48, CLASS 30 GRAY IFON WITH A MIN. CROSS SECTION DIMENSION OF 1-INCH IN ANY DIFFECTION.

CONCRETE GRADE RINGS SHALL HAVE SMOOTH FINISHED TOP AND BOTTOM SURFACES GRADE RINGS SHALL BE PROVIDED WITH "O" RING GASKETS.

ALL PPE CONNECTIONS SHALL HAVE MECHANICALLY COUPRESSED FLEXIBLE JOINT, STYLE TO BE RES-SEAL, KOR-N-SEAL OR APPROVED EQUAL.

5.2. STEEL STEEL STEEL ASTALLAND FOOTAGES AND TO A TOOL PRO344833534202 WITH TALLICH MIN. DIAMETER DEFORMED REINFORCING BAR CONFORMING TO ASTA ASTS, GRADE 60. 6. WANHOLE AND CATCH BASINS FRAME AND COVER/GRATE SHALL BE CONFORM ASTM A48, CLASS 30, GRAY IRON AND BE AS FOLLOWS (**):

ALL STORM SEWER CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND GENERAL SPECIFICATION OF THE RADIC'S OR AMERICES HAWNE JURISDICTION OF THE STORM SEWER AND CONSTRUCTION ARE.

PREOAST CONCRETE MANHOLE, FLAT TOP SLABS, RISERS, CONE, TRANSITION SECTIONS SHALL CONFORM TO ASTAL C478, AND SHALL BE CRECULAR WITH CIRCULAR REINFORDEMENT.

6-INCH THROUGH 24-INCH CONNECTIONS TO MANHOLES SHALL USE A MECHANICALLY COMPRESSIBLE FLEXIBLE JOINT, AS INDICATED ON THE PLANS.

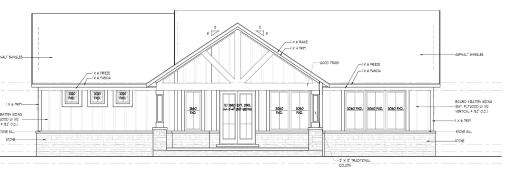
RSER AND COME SECTIONS OF A MANHOLE SHALL HAVE MODIFED GROOPED TONGLO JOHNS WITH "SHIP GASSES (GUTSING PROMEMER OF MOTHER DANS) OR A TONGLIE AND GROOPE, JOHN WITH A BUTH, RUBBER BASID GASKET I'VE SELAME MEETING THE REQUIREDIENTS OF ANSHTO M. 198 AND HAVING A HOMMAL SIZE OF "HACH." ECCENTRIC COME SECTIONS OF A MANHOLE SHALL HAVE MODIFIED GROOVED TONGUL JOHNS WITH "O"S RISK GASSETS AND BE REPOVIDED WITH 4 STUDI INSERTS CAST IN THE TOP, THE TOP SHALL HAVE A SMOOTH PRISHED SURFACE.

DETMIS ARE FOR STRUCTURES WITH NO MORE THAN TWO PIPES, 160° APART. LANGER DAWLETS STRUCTURES MAY BE REQUIRED FOR DIFFERENT CONFIDENTIANS ALL STRUCTURES STRUCTIONS OF WALL RETERVE PRO-PERSON LARGE STRUCTIONS OF WERE RECOMED HIRE PRE-DETERMON, THE STRUCTURES OF WERE RECOMED HIRE PRE-ALL COSTING BASE SHALL BE SET TO GAMES OF AS SHOWN ON THE PLANS. MANNING, STRUCTURE AT LOCATIONS SHOWN ON THE PLANS. AND SHALL BES. SHALL BE NETALLED AT LOCATIONS SHOWN ON THE PLANS.

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REEDOM RIVER

ELCOME LODGE





HARDIE PANEL & HARDIE TRIM



HARDIE TRIM





SW 3522

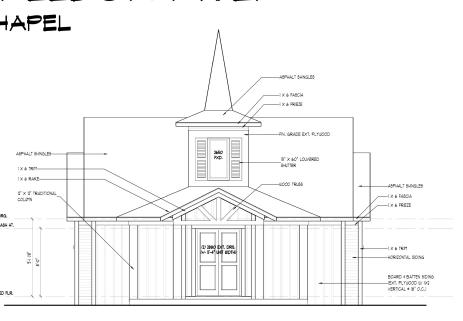
Banyan Brown

Exterior Stain

SW 6431
Leapfrog
Interior / Exterior
Location Number: 155-C5



REEDOM RIVER









HARDIE PANEL & HARDIE TRIM







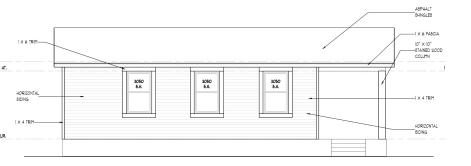






REEDOM RIVER

AMILY CABIN BY SKYLINE HOMES







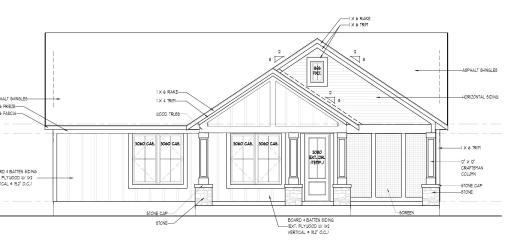






REEDOM RIVER

OLDSTAR CABIN





HARDIE PLANK

HARDIE PANEL & HARDIE TRIM

HARDIE TRIM M. LEDGE ASHEN









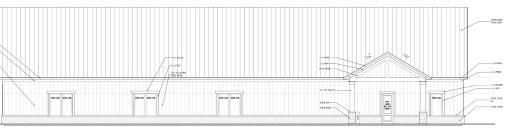






REEDOM RIVER







STEEL SIDING



HARDIE TRIM



M. LEDGE ASHEN



SW 3522
Banyan Brown
Exterior Stain

SW 7749

Laurel Woods
Interior / Exterior
Location Number: 237-C7



FREEDOM RIVER

VETERANS CAMPGROUND

















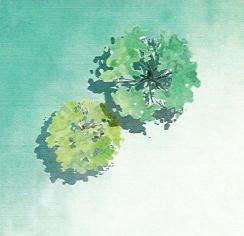
FREEDOM RIVER

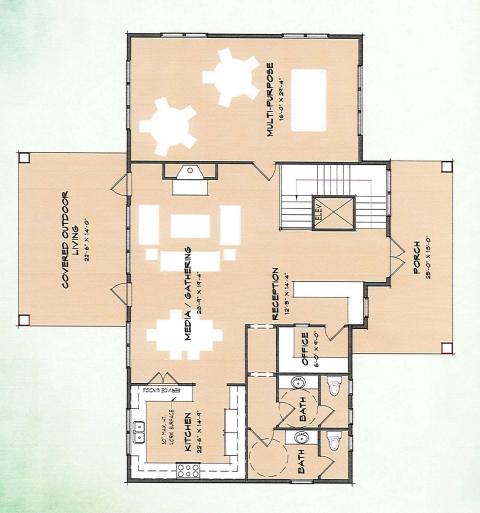
PROPOSED PLAN DESIGNS 2-28-2023 PHASE 1 VERSION I



RECEIVED A

Hamburg Township Planning and Zoning Department

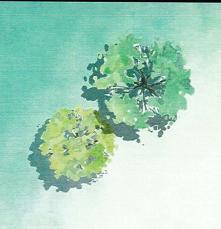


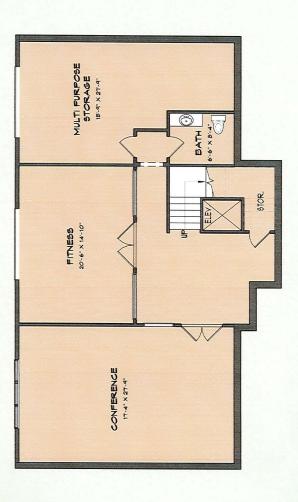


FIRST FLOOR PLAN

10'-1 1/8" CLG. HT. 2 X 6 EXTERIOR WALLS 1801 SQ. FT.

MELCOME LODGE





FINISHED LOWER LEVEL

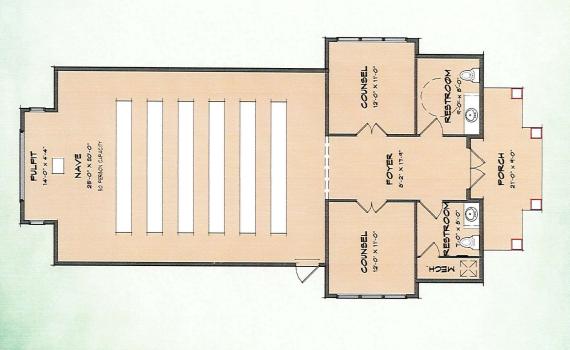
MELCOME LODGE





GOLDSTAR CABIN

FIRST FLOOR PLAN 9-1 1/8" CLG. HT. 2 X 6 EXTERIOR WALLS 1278 SQ. FT.



CHAPEL

FIRST FLOOR PLAN

9'-1 1/8" CLG. HT. 2 X 6 EXTERIOR WALLS 1604 SQ. FT.



OPTION COVERED PORCH 8'

KITCHEN 13:-11"

Front Living Room

4100CT/2914 2BEDROOM

BEDROOM 10'-4"

PORCH 8' 4151/2914 1BEDROOM

A.D.A. Compliant



Front & Rear Bedrooms

1604CT/37-1"12 2BEDROOM - CATHEDRAL THRU-OUT

FLOOR PLANS FAMILY CABINS BY SKYLINE HOMES





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

- 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 outbuildings 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 ether 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.

<u>Soils</u> – 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.

<u>Geology</u> – 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.

<u>Groundwater</u> – 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.

<u>Wetlands</u> – 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.

<u>Watercourses</u> – 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.

<u>Habitats</u> – 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.

<u>Scenery</u> – 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

Date: 3/13/2023

BRANDON K. GNASS, *EP*Senior Environmental Consultant



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-pace, 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) - Vwq = 3630*C*A									
Vwq (cuft)	31260.77126								
Channel Protection \	/olume Control (CPVC) -	/cp = 4719*C*A							
Vcp (cuft)	40639.00264								
Channel Protection I	Rate Control (CPRC) - Vec	= 6897*C*A							
Ved (cuft)	59395.4654								
Extended Detention	Volume Discharge Rate -	Ved discharged	over 48-hours						
Qed (cfs)	0.343723758								
404 (0.0)	0.515725750			1					

Minimum Volume Requirements - Huron River									
Water Quality Con	Water Quality Control (WQ) - Vwq = 3630*C*A								
Vwq (cuft)	18426.00475								
Channel Protection	Volume Contro	(CPVC) - Vcp =	4719*C*A						
Vcp (cuft)	23953.80618								
Channel Protection	Rate Control (C	PRC) - Ved = 689	7*C*A						
Ved (cuft)	35009.40903								
Extended Detention Volume Discharge Rate - Ved discharged over 48-hours									
Qed (cfs)	0.202600747								



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.



FREEDOW RIVER PROJECT SITE PLAN | BRIGHTON, MI | FEBRUARY, 2023

Figure 1. Freedom River Campground Site Plan.

Michigan Department of Transportation Left-Turn Guidelines

No traffic counts were conducted as part of this review. Weekday directional hourly counts from 2022 were taken from MDOT's Transportation Data Management System. These volumes are provided in Attachment A. Using these counts, the peak hour for a weekday occurs from 5:00 pm to 6:00 pm. There was a total of 493 vehicles in this location during the peak hour with 302 westbound vehicles (61.3%) and 191 (38.7%) eastbound vehicles. The current volume on Winans Lake Road at the driveway location is:

Vo (Opposing Eastbound Volume) = 191 Va (Advancing Westbound Volume) = 302 % left turns in Va = 0/302 = 0%

As there is no current development at this location, the following information was used to estimate trips for the driveway:

- 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:

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Vo (Opposing Eastbound Volume) = 191 + 28 = 219
Va (Advancing Westbound Volume) = 302 + 45 = 346
% left turns in Va = 45/346 = 12.7%
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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.

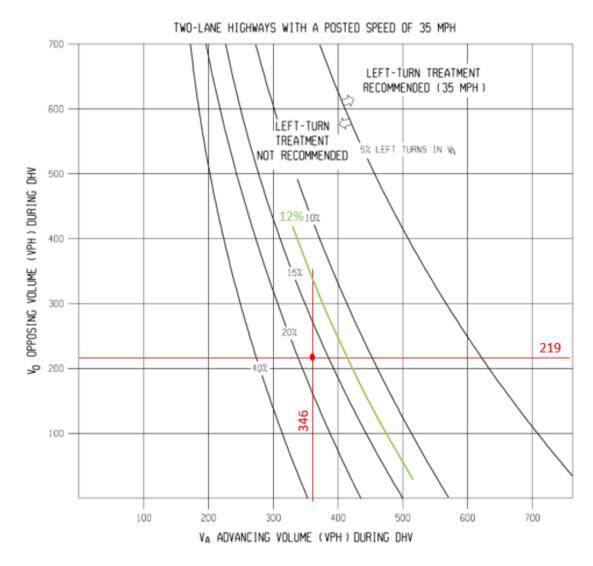


Figure 2. Left Turn Lane Warrant for the campground driveway with lodge and chapel.

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					
Location ID	47-5219				
County ID	47				
Station ID	5219				
Туре	I-SECTION				
Functional Class		5			
Located On	Winans Lake Rd				
BETWEEN	Pleasant Lake Dr AND Hamburg Rd				
Direction	2-WAY				
Community	Hamburg Twp - Livingston				
MPO_ID		2781			
HPMS ID	1_2_93_2156				
Agency	Michigan Department of Transportation				

Count Data Info							
Start Date	8/30/2022						
End Date	8/31/2022						
Start Time	12:00 PM						
End Time	12:00 PM						
Direction	2-WAY						
Notes							
Count Source	XC39458 6396						
File Name							
Weather							
Study							
Owner	andersont31						
QC Status	Accepted						

Interval: 15 mins							
Time		15 I	Vin	Harriby Count			
Time	1st	2nd	3rd	4th	Hourly Count		
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			
	15-min Interval					
Time	1st	2nd	3rd	4th	Count	
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		1	10:45-11:45 186			
		1	17:15-18:15			
PM Peak						

	SE Opposing								
		15-min	Interval		Hourly				
Time	1st	2nd	3rd	4th	Count				
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				
1:00-12:00	39	34	43	38	154				
2:00-13:00	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								
			17:30-18:30						
PM Peak			203						

ARTICLE II. - BREACH OF PEACE

Footnotes:

--- (2) ---

Editor's note— Ord. No. 94-C, adopted March 1, 2022, repealed and reenacted article II to read as set out herein. Former article II, §§ 22-19—22-25 pertained to similar subject matter and derived from Ord. No. 94-A, adopted Aug. 6, 2018 and Ord. No. 94-B, adopted Nov. 17, 2020.

Sec. 22-19. - Title.

This article shall be known and cited as the Hamburg Township Breach of Peach Ordinance.

(Ord. No. 94-C, § 1.0, 3-1-2022)

Sec. 22-20. - Purpose.

The purpose of this article is to promote the public health, safety, comfort and general welfare of the community through the proper regulation of noise and conduct which unreasonably interferes with another person's use and enjoyment of private real property, interferes with another person's use or enjoyment of public facilities or disturbs the peace, tranquility and good order of the Township of Hamburg.

(Ord. No. 94-C, § 2.0, 3-1-2022)

Sec. 22-21. - Definition.

APA standard 87-1 means 2001 APA standard 87-1, standard for construction and approval for transportation of fireworks, novelties, and theatrical pyrotechnics, published by the American Pyrotechnics Association of Bethesda, Maryland.

Cemetery means any property owned, operated, or maintained by Hamburg Township used for the burial or internment of deceased persons.

Consumer firework means fireworks devices that are designed to produce visible effects by combustion, that are required to comply with the construction, chemical composition, and labeling regulations promulgated by the United States consumer product safety commission under 16 CFR parts 1500 and 1507, and that are listed in APA standard 87-1, 3.1.2, 3.1.3, or 3.5. Consumer fireworks do not include low-impact fireworks.

Low-impact firework means ground and handheld sparkling devices as that phrase is defined under APA standard 87-1, 3.1, 3.1.1.1 to 3.1.1.8, and 3.5.

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Plainly audible means any sound that can be clearly detected by a person using his or her unaided hearing faculties.

Property line means either (a) the boundary line that separates one parcel of real property from another; (b) the boundary line that separates one parcel of real property from a body of water; or (c) the vertical and horizontal boundaries of a dwelling unit that is part of a multi-dwelling unit building;

Public facilities mean public parks, cemeteries and Township buildings as defined herein.

Public park means any property owned, leased or operated by Hamburg Township or the State of Michigan which is used by the public for recreational purposes.

Residential disturbance means a gathering of more than one person at a residential property between the hours of 10:00 p.m. and 7:00 a.m., at which noise associated with the gathering, including human voices, is frequent, repetitive or continuous for a period of 15 minutes or more and is plainly audible at a distance of 100 feet or more beyond the property line or plainly audible within another person's residential dwelling.

Residential dwelling means any building or structure or part of a structure used by one or more persons for habitation and includes, but not limited to, houses, condominiums, apartments, boarding rooms, and mobile homes.

Residential street means any street or roadway, whether public or private, which is located within any of the Hamburg Township Zoning Districts, as established by the Hamburg Township Zoning Ordinance, where the property adjoining the street or roadway is authorized to be used for dwelling purposes.

Sports official means any person authorized to act in a sporting or other competitive event as a judge, referee or umpire of such event.

Township means Hamburg Township, Livingston County, Michigan.

Township building means any building, structure or other facility owned or operated by Hamburg Township and used for a public purpose.

Township employee means any full-time employee, part-time employee, temporary employee, seasonal employee or on-call employee of Hamburg Township. It also shall mean any unpaid volunteer or intern performing work for Hamburg Township as authorized by the Township Board.

(<u>Ord. No. 94-C</u>, § 3.0, 3-1-2022)

Sec. 22-22. - General prohibition.

Any person who shall create or assist in creating or maintaining any unnecessary or unreasonable noise, disturbance, trouble or improper diversion which unreasonably interferes with another person's use and enjoyment of private real property, interferes with another person's use or enjoyment of public facilities,

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causing a reasonable person to feel intimidated, threatened or harassed in a place open to the general public by means of yelling, screaming or using voice amplification devices, or disturbs the peace, tranquility and good order of the Township of Hamburg shall be in violation of this article.

(Ord. No. 94-C, § 4.0, 3-1-2022)

Sec. 22-23. - Specific prohibitions.

The following specific acts and noises are hereby declared to be an unnecessary or unreasonable interference with the peace and good order of the Township of Hamburg and/or its residents and are hereby deemed a breach of the peace in violation of this article:

- (1) No person shall operate any power lawn equipment including, but not limited to, lawn mowers, leaf blowers, power edgers, power sheers/trimmers or power saws within 500 feet of a residential dwelling between the hours of 10:00 p.m. and 7:00 a.m.
- (2) No person shall engage in any type of construction, repair, remodeling, drilling, woodcutting or excavating within 500 feet of a residential dwelling between the hours of 10:00 p.m. and 7:00 a.m.
- (3) No person shall use or operate or permit to be used or operated any radio, television, phonograph, musical instrument, speaker, amplifier or other machine or device for the producing, reproducing or amplification of sound with louder volume than is necessary for convenient hearing for the person or persons who are voluntary listeners thereto. It shall be prima facie evidence of a violation of this article if sound emanating from such machine or device is:
 - a. Plainly audible beyond the property line of the location where the machine or device is being used between the hours of 10:00 p.m. and 7:00 a.m.
 - b. Plainly audible at a distance of 100 feet beyond the property line of where the machine or device is being used or is plainly audible within a residential dwelling between the hours of 7:00 a.m. and 10:00 p.m.
 - c. Plainly Audible at a distance of 100 feet from such machine or device if operated from a motor vehicle on a public street or parking lot open to the public.
 - d. Plainly Audible at a distance of 100 feet from such machine or device when operated in a public park or other place open to the public.
- (4) Pursuant to Public Act 256 of 2011, as amended, (specifically, MCL 28.457), a.k.a the Michigan Fireworks Safety Act, no person shall ignite, discharge, or use any consumer fireworks anywhere in the Township:
 - a. Before 11:00 a.m. or after 11:45 p.m. June 29th through July 5th, inclusive, excepting July 5th, if that date is a Friday or Saturday, until 11:45 p.m.;

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- b. Before 11:00 a.m. or after 11:45 p.m. on the Saturday and Sunday immediately preceding Labor Day and Memorial Day;
- c. Before 11:00 a.m. on December 31st or after 1:00 a.m. on January 1st;
- d. Before 11:00 a.m. or after 10:00 p.m. on any other day of the year not specifically cited in this article.
- (5) No person shall yell, shout, whistle, sing or otherwise communicate in a manner or at a volume:
 - a. Where such communication is plainly audible at a distance of 100 feet from the person on a residential street between the hours of 10:00 p.m. and 7:00 a.m.
 - b. In a Township building if it interferes with the public's use of said building or interferes with the ability of a Township employee to effectively carry out the business of the Township.
 - c. In a public facility if would cause a reasonable person to feel intimidated, threatened or harassed.
 - d. In or near any commercial, retail or other place of business open to the general public if it interferes with or disrupts the operation of said business.
 - e. In or near any commercial, retail or other place of business open to the general public if it would cause an employee or patron of such business to reasonably feel intimidated, threatened or harassed.
- (6) No person shall engage or participate in a residential disturbance, as that term is defined herein. The person exercising dominion or control over the residential property where said disturbance is occurring shall be held responsible for violation of this section.
- (7) A person shall not operate a motor vehicle with unnecessary noise and shall not start, move or turn a motor vehicle or apply the brakes or the power on a motor vehicle or in any manner operate the vehicle so as to cause the tires to squeal or the tires or vehicle to make any noise not usually connected with the operation of the motor vehicle, except in case of an emergency.
- (8) No person shall sound any horn or signaling device on any vehicle, motorcycle or vessel anywhere in the Township, except as a danger warning or in compliance with state law.
- (9) No person shall unnecessarily jostle, shove, push or crowd another person in a place open to the general public.
- (10) No person shall be in a state of intoxication, either by the consumption of alcohol, drugs or combination of both, in a public place and either:
 - a. Endanger the safety of another person or of property; or

b.

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Act in a manner that causes a public disturbance or alarm. The summoning of the police by a member of the public due to the actions of the intoxicated person is deemed prima facie evidence that a public disturbance or alarm was created by the intoxicated person.

- (11) No person shall engage in any fight or other physical altercation with any other person in a place open to the public. A law enforcement officer having jurisdiction to enforce this article may initiate prosecution under this article whether or not any person involved in the fight or physical altercation pursues a criminal complaint against the other person(s) involved.
- (12) No person shall engage in any conduct which shall interfere with or interrupt an organized athletic or recreational event being held at any Township athletic field or park which has been authorized by the Township Board; nor shall any person act in a manner which would cause a participant, coach, sports official or spectator of such event to reasonably feel intimidated, threatened or harassed.
- (13) Nothing in this section shall be construed as to prevent a law enforcement officer from taking enforcement action against any person engaged in conduct not specifically prohibited by this section if such conduct is in violation of section 22-22 of this article.

(Ord. No. 94-C, § 5.0, 3-1-2022)

Sec. 22-24. - Exemptions.

The following activities are exempted from the prohibitions and limitations of this article:

- (1) Emergency work necessary to restore property to a safe condition following a fire, accident or natural disaster.
- (2) Emergency work necessary to restore public utilities or to protect persons or property from imminent danger.
- (3) Sound made to alert persons to the existence of an emergency, danger or attempted crime.
- (4) Activities of police, fire or emergency medical service personnel engaged in the lawful performance of their duties.
- (5) Activities or operations of Township personnel or of other governmental units or agencies engaged in official government business.
- (6) Parades, concerts, festivals or other similar activities approved by the Township Board, subject to any limitations on sound or conduct contained in the Township Board's approval.
- (7) The use of speakers, amplifiers or other machines or devices for the producing, reproducing or amplification of sound in connection with any otherwise lawful religious or political activity held in any public place within the Township between the hours of 7:00 a.m. and 10:00 p.m.

(8)

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The use of sound producing instruments or equipment, musical instruments, speakers, amplifiers or other machines or devices for the producing, reproducing or amplification of sound in connection with an organized athletic or recreational event on any Township athletic field or park which has been authorized by the Township Board.

(Ord. No. 94-C, § 6.0, 3-1-2022)

Sec. 22-25. - Enforcement.

- (a) A law enforcement officer having jurisdiction to enforce this article is hereby authorized to the extent permitted by state and federal law to stop, detain, pursue and obtain identification from any person for which the officer has probable cause is in violation of this article.
- (b) Any person notified, warned or cited for a violation of this article by a law enforcement officer having jurisdiction to enforce this article shall immediately cease the noise or conduct which resulted in the warning or citation.
- (c) Any person who fails to immediate cease the noise or conduct in violation of this article upon receiving a warning, order or citation from a law enforcement officer shall be subject to custodial arrest in accordance with appropriate state statutes.

(Ord. No. 94-C, § 7.0, 3-1-2022)

Sec. 22-26. - Penalties.

- (a) Any person who shall violate any of the provisions of this article shall be responsible for a municipal civil infraction. The fines and penalties as set forth in section 6.0 entitled "Sanctions for Violations" of the Hamburg Township Municipal Civil Infraction Ordinance, as it may be amended from time to time, are incorporated herein by reference.
- (b) For purposes of assessing fines and penalties only, a violation under this article shall be classified as a Class C municipal civil infraction.

(Ord. No. 94-C, § 8.0, 3-1-2022)

Secs. 22-27—22-55. - Reserved.

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