

6/24/2019

# Site Suitability for Septic Systems

Merriam Junction Sands, LLC  
on Property owned by Bryan  
Rock Products, Inc. and  
Malkerson Sales, Inc.

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**FESER**  
ENVIRONMENTAL

33319 Sand Prairie Lane • Le Sueur, MN 56058

## 1.0 INTRODUCTION

Feser Environmental was retained by Merriam Junction Sands, LLC (MJS) to evaluate a potential development of individual subsurface sewage treatment system (SSTS) sites on their property located in Louisville Township, Scott County, Minnesota (Exhibit A). The MJS property (Site) consists of approximately 682 acres. The eastern portion of the Site is owned by Bryan Rock Products (Bryan Rock) and the western portion of the Site is owned by Malkerson Sales, Inc (Malkerson Sales) (Exhibit B). The Site is currently located outside of any municipal services area. Residential, commercial, or industrial development requires a water supply well and an SSTS. This report presents the results of the evaluation with respect to potential septic site development in accordance with current state and county regulations.

The purpose of this evaluation is to identify all areas existing on the Site that are currently suitable for development of an SSTS site that meets both state and County regulations. Identification of suitable septic site locations will guide future mine planning, mine site reclamation, and future end use development plans for their proposed limestone, sand and gravel, and silica sand mining operation.

## 2.0 QUALIFICATIONS

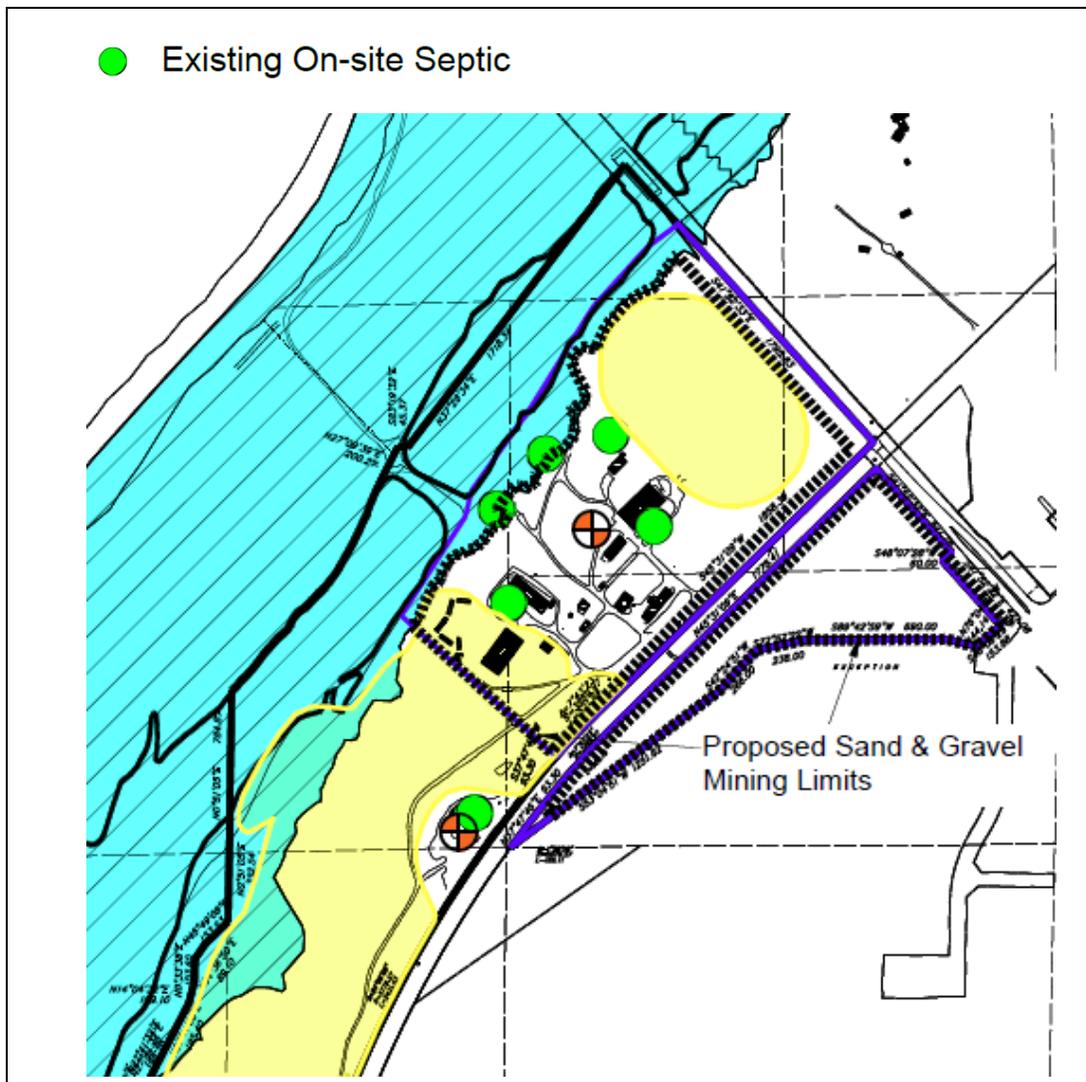
Stacey Feser owns and operates Feser Environmental and has been working in the SSTS industry for over 15 years in many different facets. She has a Bachelor of Science degree in Environmental Science and a Master of Science degree in Soil Science from the University of Minnesota. She carries Minnesota Pollution Control Agency (MPCA) SSTS certifications as an Advanced Designer, Advanced Inspector, Service Provider, and Installer. Prior to starting Feser Environmental she worked for 7 years overseeing and executing the Septic and Wetland program at Blue Earth County in Mankato, MN. Currently, Feser Environmental designs, inspects, and installs residential and commercial septic systems. Stacey is one of the lead instructors for the Basic Soils and Soils Continuing Education courses for the Onsite Sewage Treatment Program (OSTP) at the University of Minnesota. She also serves on the MPCA Advisory Committee and the Minnesota Onsite Wastewater Association (MOWA) Board of Directors, which help to shape, guide, and change the SSTS industry in Minnesota.

## 3.0 BACKGROUND AND EXISTING CONDITIONS:

The Site has a history of mining activity including the production of construction aggregates from both sand and gravel mining and limestone quarrying and processing that dates back to the 1950's and is still being actively mined today. Some of the parcels that make up the Site have been mined in the past, some are currently being mined and some are future mining areas. Other areas on the Site are used as festival grounds and parking areas, stables and horse training facilities, landscape material processing and supply, and residential uses.

These areas are illustrated in Exhibit C. There are currently six septic systems located on the Malkerson Sales property serving the stable area, old scale house, commercial and residential buildings in the northern portion of the site as shown on Excerpt of Figure 2 Existing Conditions, from the Natural Resources Plan<sup>1</sup> below. No formal investigation of these systems has been performed, however, based on age and requirements I don't believe these six systems would meet the compliance criteria.

As indicated on the Excerpt, there are currently six septic systems located in the northern portion the Malkerson Sales property that serve the various uses associated with the stable area. The Renaissance Festival booth site and campground are served using holding tanks and portable waste containment systems. There are no SSTS sites on the Bryan Rock Property. Mining areas on both the Malkerson Sales property and the Bryan Rock property are served with portable waste containment systems.



<sup>1</sup> The Natural Resource Plan was submitted as an Attachment to Section 3.4 physical impacts to water resources of the DEIS.

#### 4.0 SEPTIC SYSTEM REGULATIONS

The proper location, design, installation, use, and maintenance of an individual SSTS protects the public health, safety, and general welfare by the discharge of adequately treated sewage to the groundwater. In Minnesota, SSTSs are regulated by Minnesota Rules Chapter 7080-7083 which are established by the Minnesota Pollution Control Agency (MPCA), and by County Ordinance.

State Regulations: SSTS design is regulated by Mn Rules Chapter 7080-7083 Subsurface Sewage Treatment Systems. The rules in this chapter provide prescriptive design, construction, and operational standards. These rules establish the MPCA’s minimum standards for local SSTS ordinances and administrative programs developed to ensure proper permitting, inspection, and operation of an SSTS.

County Regulations: Under the state rules, all counties must adopt and implement SSTS ordinances. Scott County has adopted their Subsurface Sewage Treatment System Ordinance No. 4 to comply with this state regulation. The County administers and enforces the SSTS regulations and can be more restrictive in their ordinance than state regulation.

#### 5.0 FIELD EVALAUTION

Under the applicable Rules, SSTS are subject to specific size and locational requirements. Specifically, Scott County requires that a suitable Type 1 septic site of 5,000 square feet be identified along with an Alternate site of 5,000 square feet for a total of 10,000 square feet on any lot proposed for development. Rules also require site soils to meet certain criteria including:

1. A minimum of 12 inches of natural undisturbed soil.
2. Non-hydric soil

For a general frame of reference, the 5,000 square feet requirement set forth in the Scott County Ordinance correlates to the area needed to accommodate a septic system for a residential home with 5 bedrooms. This is approximately 750 gallons per day (gpd) of domestic wastewater being generated. The proposed future development that would be taking place on the Site would be that of Industrial/Commercial use. Therefore, this same 5,000 square foot area could accommodate a septic system for an industrial building with 30 to 43 employees. This is calculated using the flow values for an industrial building given in Table 1 (Estimated Design Sewage Flow from Other Establishments) under Minnesota Rules Chapter 7081.0130 and are as follows:

Industrial Building	Employee / 8-hour shift	17.5 gpd
	Employee / 8-hour shift with showers	25 gpd

A field investigation was performed to identify those areas that do or do not meet size and/or location requirements. A backsaver hand probe and a tile probe were used to determine the above outlined criteria. Areas where there is evidence of past mining, cut or filled areas, or disturbed or compacted soil, or areas with less than 10,000 square feet were noted as unsuitable for the development of a Type 1 SSTS. Areas that were considered suitable for the development of a Type 1 SSTS had two boxes of 5,000 square feet each drawn on the attached exhibits. The orientation of the boxes was determined based on the topography, slope, soil type, depth to limiting condition, setbacks, and contour loading rates of sewage effluent into the soil. The alignment of the 5,000 square foot area must follow the elevation lines and cannot be stacked on top of each other because of the potential for groundwater mounding.

## 6.0 RESULTS

### 6.1 Bryan Rock Property

The northern 2/3 of the Bryan Rock property has been disturbed by active limestone mining. The southern 1/3 of the property consists of an area of approximately 45 acres located north of 145<sup>th</sup> street and a piece of unmined property of approximately 13 acres located south of 145<sup>th</sup> Street. The unmined parcels are part of proposed future mining areas for both limestone and sandstone mining.

A site visit through the existing permitted limestone quarry was made. Perimeter areas were visually inspected for possible areas that may contain natural soils. All perimeter areas of the active quarry were determined to be disturbed. Soil probes and visual observations were then made throughout the unmined parcels north and south of 145<sup>th</sup>. The areas inspected are described as follows and illustrated in Exhibits D, E, and F. The soil boring log sheets for the Bryan Rock property can be found in Exhibit O.

#### 6.1.1 Northern Perimeter

Unmined portions of the northeastern perimeter of the Bryan Rock property include the main site access, storage buildings, scale house, and scales (Exhibit D). Moving towards the west along the northern perimeter of the quarry, there is evidence of site grading, internal access roads, a stormwater channel that conveys regional stormwater through the Bryan Rock site, a portion of a Dem-Con stormwater pond, a Bryan Rock sedimentation pond, and an aggregate wash pond. The entire northern perimeter was determined to be disturbed and no suitable locations for SSTS sites were identified.

#### 6.1.2 Western Perimeter and Eastern Perimeter of Existing Quarry

These areas contain internal access roads, spoil piles, and are on the edge of the existing mining faces (Exhibit D). No suitable locations for SSTS sites could be documented because of the complete disturbance to the soil.

### 6.1.3 Unmined Area north of 145<sup>th</sup>

(Future Limestone and Sand Mining proposed)

This area consists of approximately 45 acres of relatively undisturbed property. There is an access road around the western, northern, and eastern perimeter of this area. The vegetation consisted of Cedar trees, upland grasses, and shrubs. Soil probes were taken throughout this area and approximately 4 inches to 21 inches of natural, undisturbed soil was documented before limestone was encountered. There was limestone visible at the surface scattered frequently throughout this area, leaving a very inconsistent depth of soil. Although there were some soil borings where there was over 12" of natural undisturbed soils, there was no location that was large enough to meet the 10,000 square foot criteria. Due to the shallow, inconsistent depth of soil this area would not meet the requirements to support any Type 1 SSTS sites (Exhibit E). Previously Bohn Well Drilling performed soil borings in the northwest corner of this area investigating a potential site to serve the BRP plant site. They found no suitable sites in this area to accommodate a Type 1 SSTS either.

### 6.1.4 Unmined Area South of 145<sup>th</sup>

(Future Limestone and Sand Mining proposed)

This area consists of approximately 13 acres of undisturbed property (Exhibit F). The vegetation contains upland grass, Cedar trees, and a small amount of Sumac. Generally, the area above the 760 ft. elevation line had shallow, inconsistent depth of soil over limestone with limestone frequently visible at the ground surface. This area would not be able to support any Type 1 SSTS sites. The area along the south and southwestern boundary of this site, below the 760 ft. elevation line, had areas that could support a Type 1 SSTS. The depth of natural, undisturbed soil over limestone documented in these areas were 12 inches to 41 inches. Preliminarily, this area could support approximately six 5,000 square foot areas or three 10,000 square foot areas. Based on the depth to the limiting condition the type of septic system that would need to be installed here would be mounds.

## 6.2 Malkerson Sales

The majority of the property has been disturbed from past sand and gravel mining, limestone quarrying and current stable and festival uses. Sand and gravel mining is expected to continue on this property under portions of the stable area and to the southeast across the railroad track on the triangular shaped parcel. Limestone quarrying is expected to continue across the Renaissance Festival Booth Area. Sandstone mining is proposed to occur beneath all areas of past and future limestone mining. A field review was made across the entire site which was visually inspected for possible areas that may contain natural soils. Areas that were not visibly disturbed were probed to determine soil depths and potential suitability for a SSTS. Specific areas of the Malkerson Sales property are described below and illustrated on Exhibits G through N. The soil boring log sheets for the Malkerson Sales property can be found in Exhibit P.

#### 6.2.1 Southern Unmined Portion of Property/Renaissance Festival Parking Lot

Compacted soils were observed in this area due to over 44 years of driving and parking on the soils for the Renaissance Festival. There were also many areas where limestone was visible at the surface, with less than 12 inches of soil depth to the limestone. This area would not be able to support any Type 1 SSTS sites (Exhibit G).

#### 6.2.2 Renaissance Festival Grounds

This area contains many roads, parking areas, walking paths, play areas, and booths that have compacted the soil above the shallow limestone (Exhibit H). This area would not be able to support Type 1 SSTS sites.

#### 6.2.3 Renaissance Festival Campground

There were three areas investigated in the Renaissance Campground site. The first was the area inside the road in the center of the campground and was circular in shape. This area exhibited shallow soils (4 inches to 6 inches) on top of the limestone. The second area was on the north end, west of the main road that goes through the campground. This area had soil piles in it, which appeared to be overburden pushed there by equipment from the creation of the road that curves around to the west. The third area was on the west side up in the wooded area. There was shallow soil (4 inches to 11 inches) on top of the limestone. The second and third areas also didn't have enough square footage on the correct slope to accommodate the requirements for Scott County. Therefore, the Renaissance Festival Campground area was deemed unsuitable for Type 1 SSTS sites (Exhibit H).

#### 6.2.4 Perimeter of Existing Quarry

The perimeter of the existing quarry which runs north and east of the Renaissance Festival grounds and campground had disturbance (Exhibit H). There is a road as well as many spoil piles pushed into this area from mining activity and the creation of the internal road. There were no suitable areas for Type 1 SSTS sites identified along the perimeter of the existing quarry.

#### 6.2.5 Perimeter of North Quarry

The North Quarry was mined years ago and has been backfilled, sloped, and vegetated. Through visual observation and discussion with the property owner, this area was determined to be completely disturbed and no suitable locations for SSTS sites could be documented (Exhibit I). Previous mining occurred in this area and remnant spoil piles were visible along the perimeter of the mine. An internal access road was created through this area and many yards of fill soil were brought in and placed along the western edge of the North Quarry perimeter.

#### 6.2.6 Adjacent to MS-N Plant Site

This area consists of woods on a western facing side slope. It is located between the north end of the North Quarry and the south end of Gifford Lake. As you move down slope toward Gifford lake you enter into the 100 year floodplain. There was a small elongated triangular piece that was evaluated, and six soil borings were taken and described (Exhibit J). The south

half of this elongated triangular piece was in a large swale and had hydric soils, meaning they were developed under wet conditions, and therefore do not meet Scott County requirements for suitable SSTS locations. The north half of this triangular piece had 10 to 12 % slopes with soils that met the applicable site and soil requirements listed above under Section 5.0. Preliminarily, this area could comfortably support approximately three 5,000 square foot areas or one 10,000 square foot Type 1 SSTS site. There is enough total square footage available to potentially support four 5,000 square foot areas or two 10,000 square foot Type 1 SSTS sites but additional onsite work during the time of platting would need to be done to confirm that. Based on the depth to the limiting condition, the type of septic system that would need to be installed here would be mounds.

#### 6.2.7 Trail of Terror Parking (old sand and gravel mine)

The Trail of Terror Parking area is located in an area previously mined for sand and gravel and has been completely disturbed (Exhibit K). The perimeter of the Trail of Terror parking also had visual disturbance. There are internal access roads, an old scale, as well as many spoil piles scattered throughout this area from the previous mining that took place. There were no suitable areas for Type 1 SSTS sites.

#### 6.2.8 Stable Area (Future Sand and Gravel Mining Area) and Area Adjacent to Gifford Lake

This area consisted of many internal access roads, buildings, sheds, barns, houses, mobile homes, fenced in pasture areas for horses, and a horse training track. There were many locations in the stable area that were evaluated (Exhibit L). Of the areas evaluated only two locations met the criteria for suitable Type 1 SSTS sites. The first area is located southeast of the horse training track and the second location is in an open area just northwest of the main haul road. Bohn Well Drilling previously did soil borings in this location when investigating a potential site to serve the MS-N plant site and had them verified with Scott County Environmental Services staff. The locations that did not meet the criteria were deemed insufficient for one of the following reasons: (1) compacted soils, (2) disturbed soils, (3) less than 12 inches of suitable soil above the bedrock, or (4) not enough square footage available.

The area located southeast of the horse training track conceptually has the potential to support four 5,000 sf or two 10,000 sf SSTS sites. The area to the south conceptually has the potential to comfortably support three 5,000 sf or one 10,000 sf SSTS sites. There is enough total square footage available to potentially support four 5,000 square foot areas or two 10,000 square foot Type 1 SSTS sites but additional onsite work during the time of platting would need to be done to confirm that. Based on the depth to the limiting condition the type of septic systems that would need to be installed here would be mounds for all areas except the south half of the area by the horse training track. This area could support at-grade septic systems.

#### 6.2.9 Triangle North Quarry (Future Sand and Gravel Mining Area)

This area is located on the southeast side of the railroad tracks (Exhibit N). A portion of the parcel is currently being farmed in row crops and a portion of the parcel is a wooded slope.

The old highway 41 alignment previously passed through this parcel. The roads original alignment remains as an access road that splits the parcel into two sections. Both sections were evaluated, and ten soil borings were described. All ten soil borings met the required criteria set forth in section 5.0 above and therefore have suitable areas that could accommodate Type 1 SSTS sites (Exhibit M). The size, shape, and topography of this parcel lends itself to one to three industrially zoned parcels. There is sufficient area on this parcel to support six 5,000 sf or three 10,000 sf SSTS sites. Based on the depth to the limiting condition the type of septic systems that would need to be installed here would be mounds.

## 7.0 PROJECTED SANITARY SEWER NEEDS DURING PROJECT

Seasonal sand and gravel mining and limestone quarry operations will continue to be served by portable waste containment systems. The sandstone mining area and wet processing plant(s) will operate seasonally and will also be served by portable waste containment systems. The construction of a year-round dry plant will require the development of a SSTS to serve the sand processing plant. The quantity of additional domestic wastewater to be generated by the Project is based on 45 new employees. 25 of these employees are assumed to use portable containment systems within the sandstone mine and wet plant area, which will operate on a seasonal basis. 20 of the employees are assumed to use facilities located in the office/maintenance/shop building and will generate an additional 350 gpd of domestic wastewater based on an average wastewater generation rate of 17.5 gpd per employee eight-hour shift.

A plant site developed on the Bryan Rock property will likely require wastewater to be pumped to the southern end of the Bryan Rock property to the area identified above as suitable for a Type 1 SSTS. A plant site on the Malkerson Sales South property will require pumping to the north to the area identified as suitable for a Type 1 SSTS. The proposed plant site on the northern portion of the Malkerson Sales site is situated adjacent to an area identified above. A Type I system can be developed to serve a plant site located on Malkerson Sales North.

## 8.0 SUMMARY

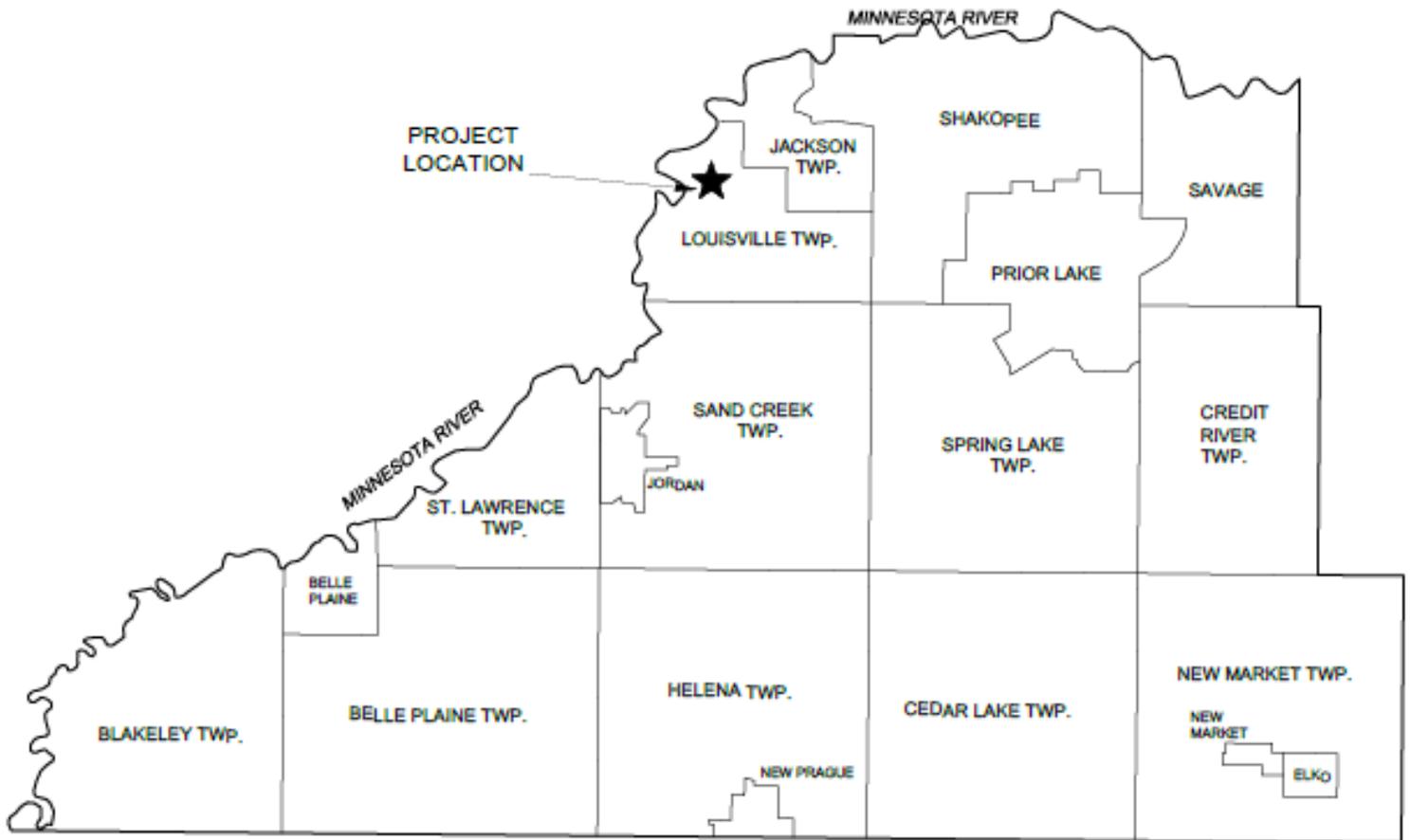
In summary, the Site was investigated to identify those areas that did or did not meet size and/or location requirements for a suitable Type 1 SSTS. Due to past land uses and naturally high bedrock conditions that are prevalent across the properties, a vast majority of the Site was determined to not be suitable for the development of SSTS sites and was not able to meet the requirements set forth by state and county regulations. In total, there are only five areas, encompassing 16 acres, that were identified as meeting the requirements to support a Type 1 SSTS site across the entire 682 acre Site. The Bryan Rock property has one area of just under three acres and the Malkerson Sales property has four areas just under 13 acres that are suitable for the development of SSTS sites.

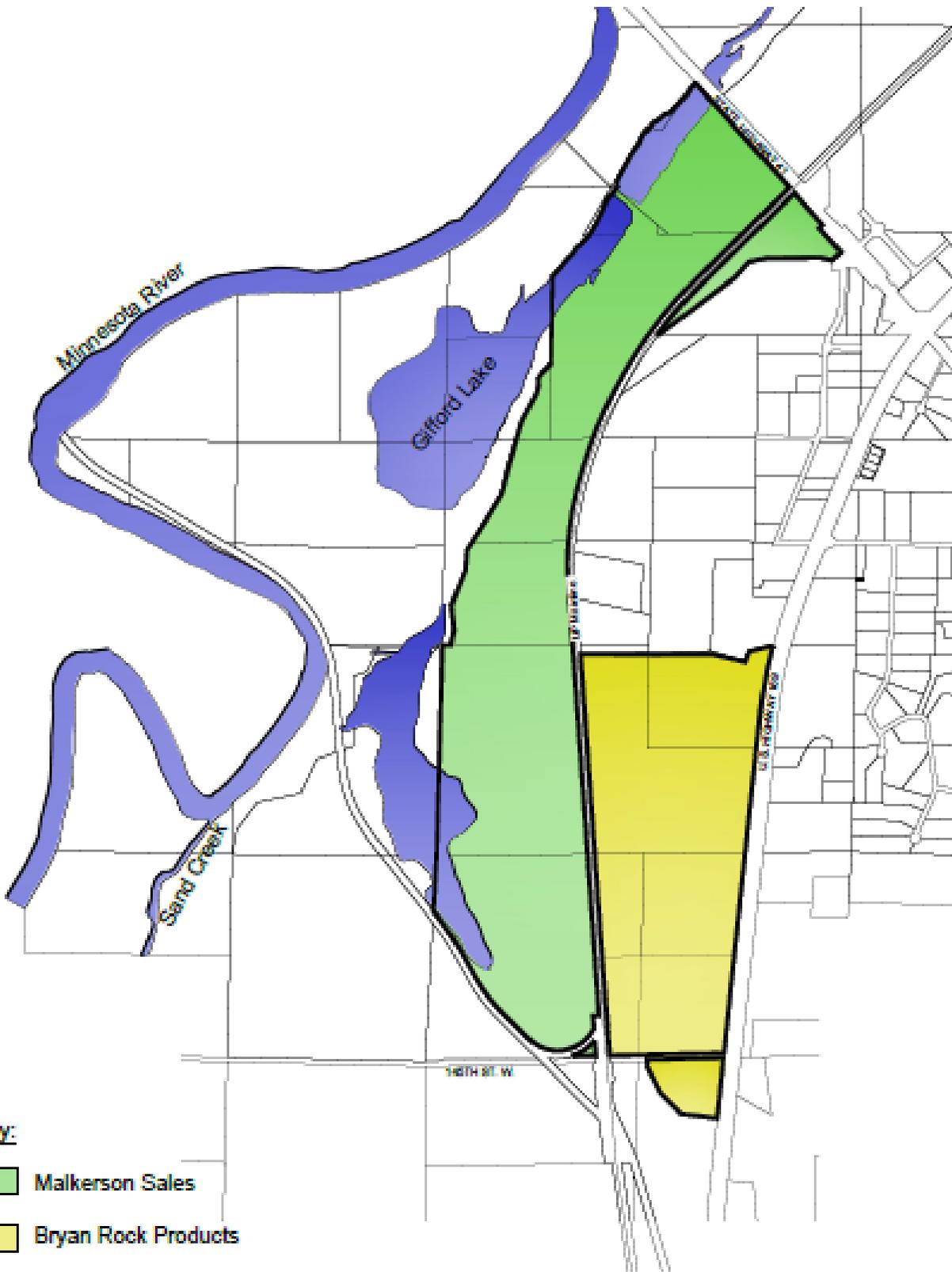
The one area determined suitable for the Bryan Rock property is located on the very southern end of the unmined area, south of 145<sup>th</sup>. This area could support three 10,000 sf SSTS sites. This is enough area to potentially serve the future development of three industrially zoned lots on the Bryan Rock property.

The four areas determined suitable for the Malkerson Sales property are located in the triangular shaped parcel across the railroad track from the stable area, in the north half of the area adjacent to the MS-N Plant Site, southeast of the horse training track, and north of the main haul road in the stable area. The majority of suitable septic area is located in the isolated triangular parcel, where 9.28 acres are located. The triangular parcel is a small parcel disconnected from the main Malkerson Sales property by the UP railroad corridor. Due to the irregular shape and slopes of this parcel, only one but up to three lots are likely to be developed on the triangular parcel due to the irregular shape and topography of the parcel. Suitable areas identified on the remaining portion of the Malkerson Sales property could support four 10,000 sf SSTS sites. Based on the available area of two of these sites, there is the potential for development of an additional two sites to be developed pending future investigation and design work. Therefore, there is enough suitable septic area to serve three lots in the triangular shaped parcel and between four and up to potentially six industrially zoned lots on the remainder of the Malkerson Sales property.

- Appendices:
- Exhibit A – Scott County General Locations Map
  - Exhibit B – Property and Ownership Map
  - Exhibit C – Existing Site Features Map
  - Exhibit D – Perimeter Map of Bryan Rock Property
  - Exhibit E – Unmined Area North of 145<sup>th</sup> Map
  - Exhibit F – Unmined Area South of 145<sup>th</sup> Map
  - Exhibit G – Renaissance Festival Parking Map
  - Exhibit H – Renaissance Festival Area Map
  - Exhibit I – North Quarry Map
  - Exhibit J – Adjacent to MS-N Plant Site Map
  - Exhibit K – Trail of Terror Parking Map
  - Exhibit L – Stable Area Map
  - Exhibit M – Triangle Future Sand and Gravel Mine Area Map
  - Exhibit N – Triangle Future Sand and Gravel Mine Area Location Map
  - Exhibit O – Soil Boring Log Sheets for Bryan Rock Property
  - Exhibit P – Soil Boring Log Sheets for Malkerson Sales Property



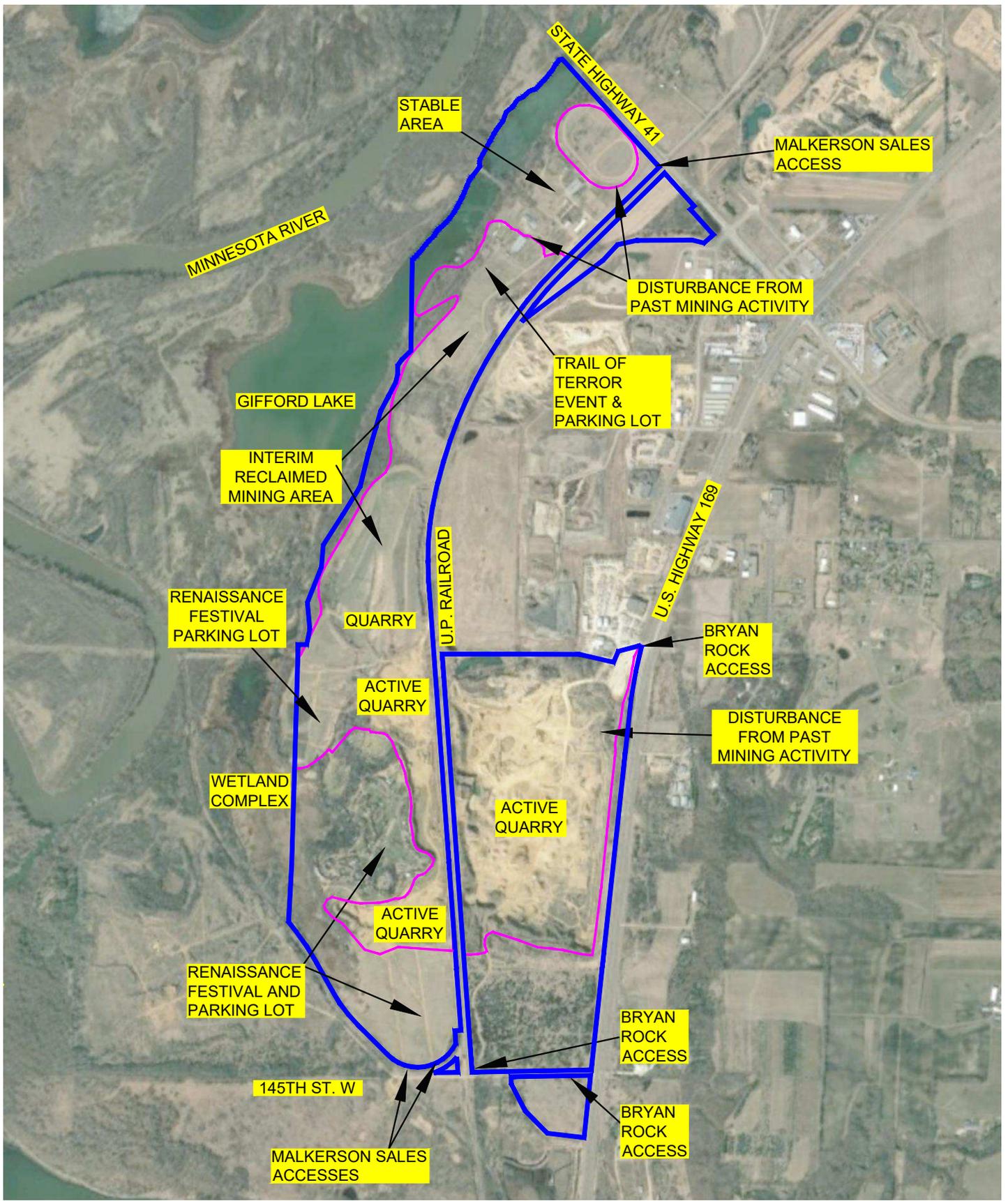


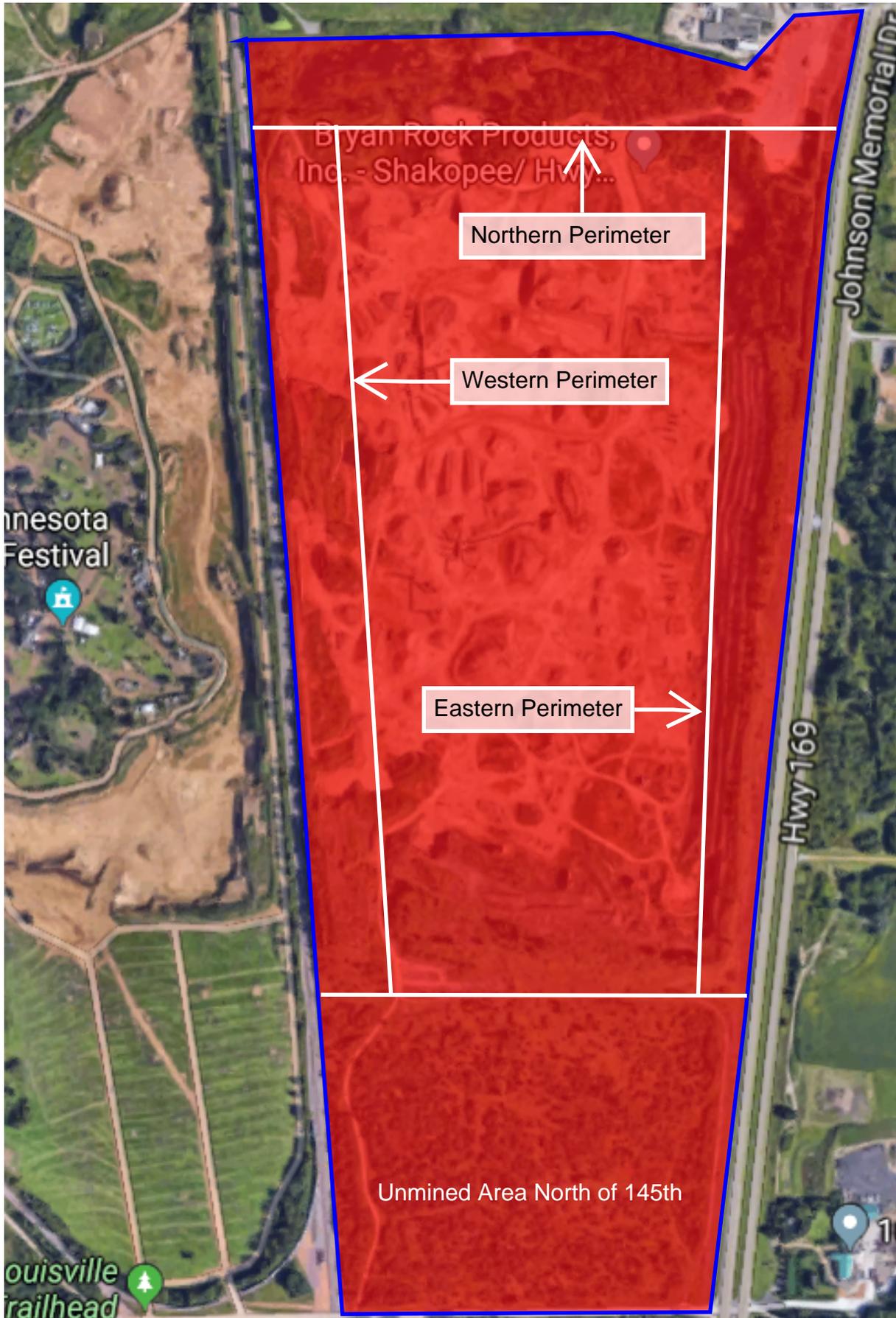


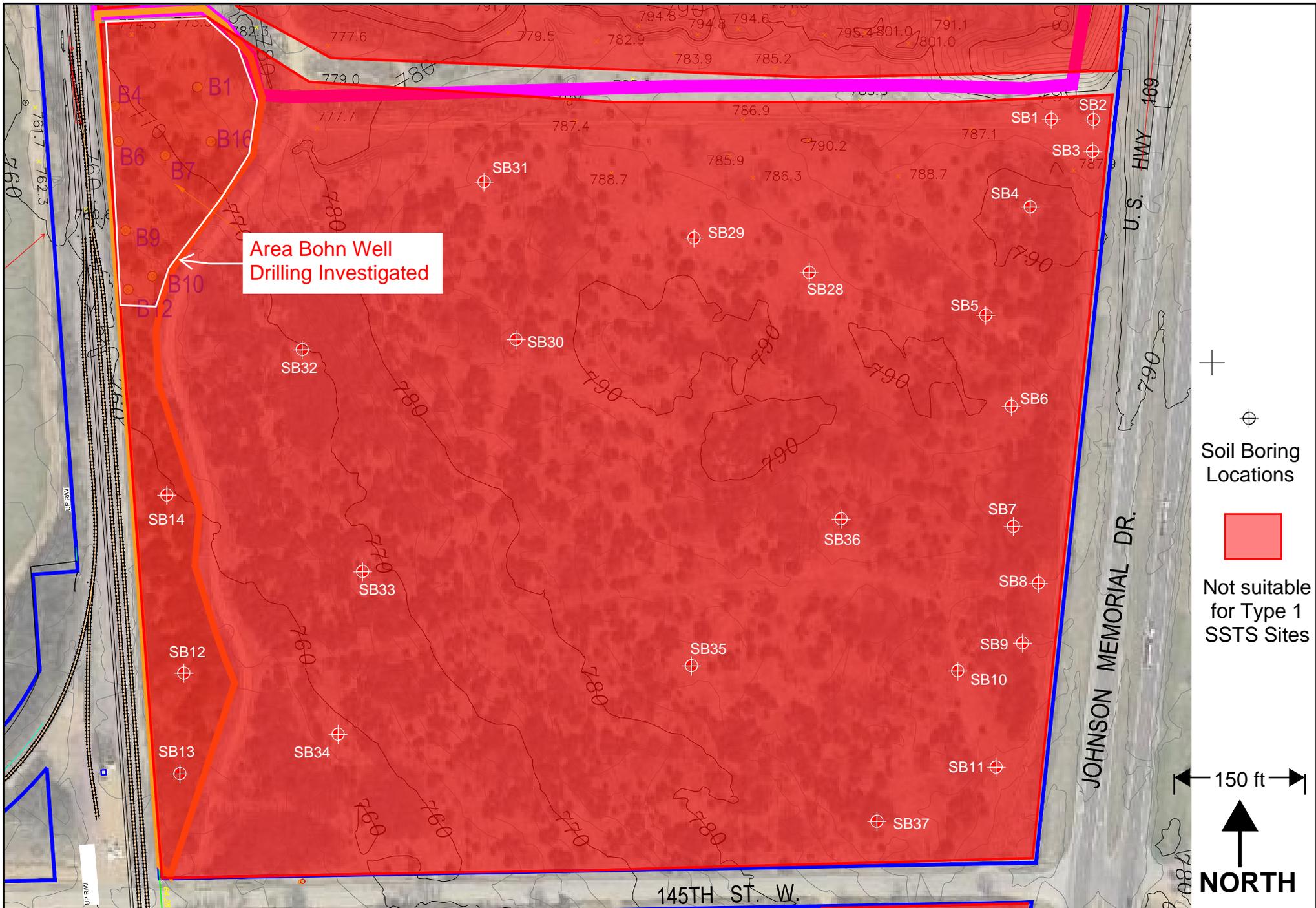
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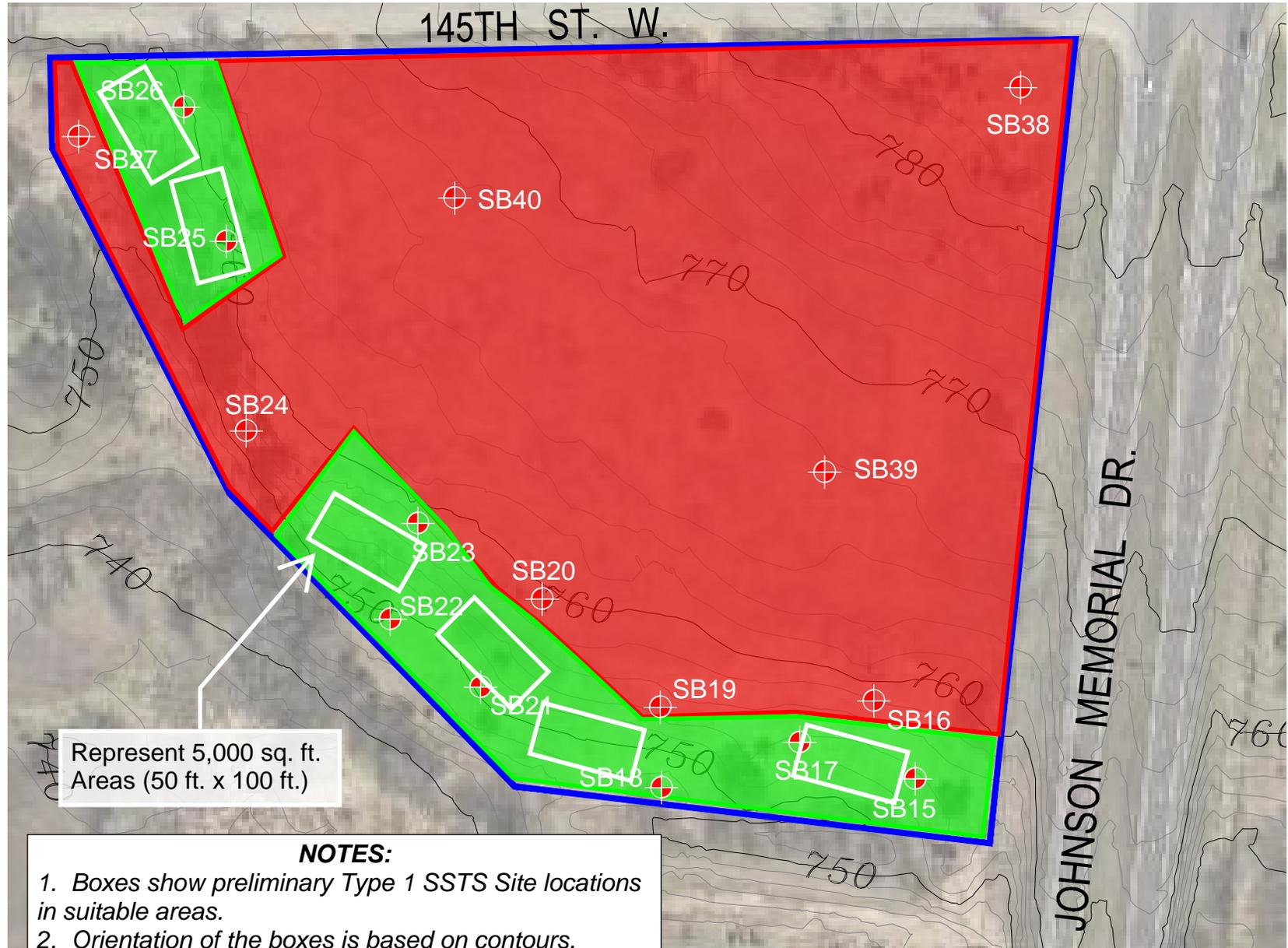
- Malkerson Sales
- Bryan Rock Products











Represent 5,000 sq. ft. Areas (50 ft. x 100 ft.)

- NOTES:**
- Boxes show preliminary Type 1 SSTS Site locations in suitable areas.
  - Orientation of the boxes is based on contours, topography, slope, soil type, depth to limiting condition, and setbacks.

⊕  
Soil Boring Locations

■  
Not suitable for Type 1 SSTS Sites

■  
Suitable for Type 1 SSTS Sites

← 150 ft →

▲  
NORTH



Not suitable  
for Type 1  
SSTS Sites



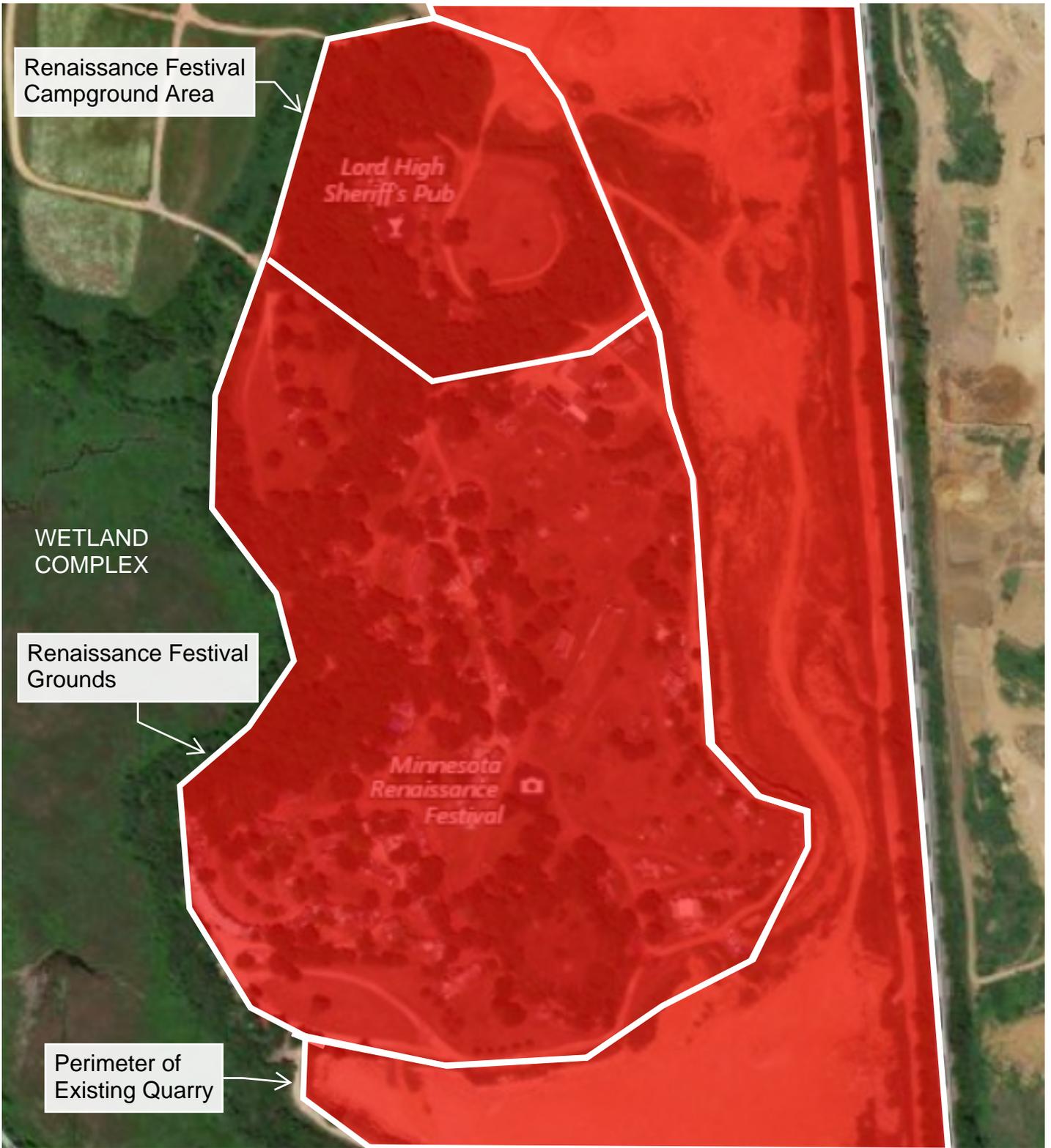
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Client:

**Merriam Junction  
Sands, LLC.**

**Exhibit G -  
Renaissance Festival Parking Lot Map  
on Malkerson Sales Property**



Not suitable for  
Type 1 SSTS Sites





Not suitable  
for Type 1  
SSTS Sites



**NORTH**

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Client:

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Sands, LLC.**

**Exhibit I -  
Map of North Quarry on Malkerson  
Sales Property**

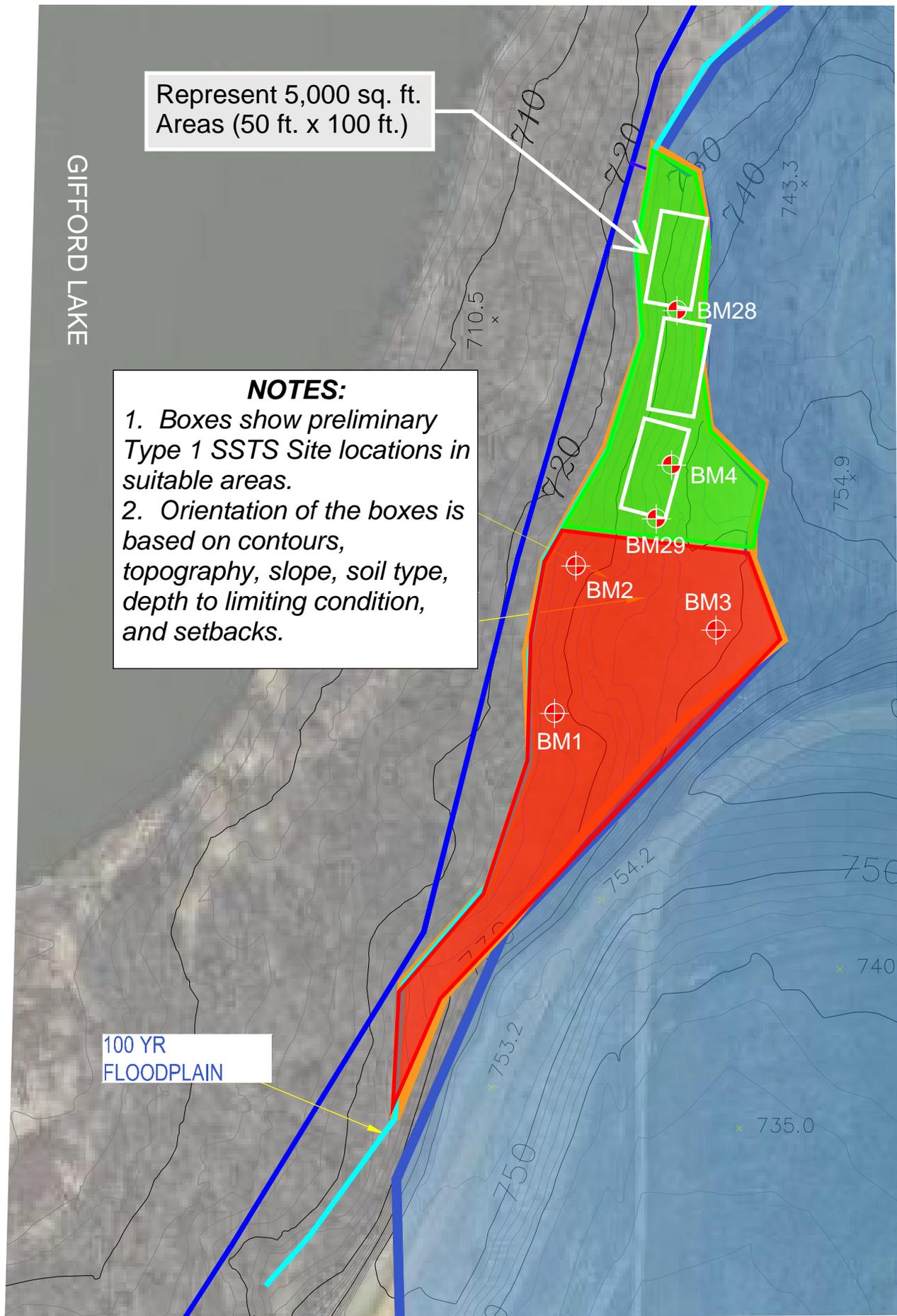
GIFFORD LAKE

Represent 5,000 sq. ft. Areas (50 ft. x 100 ft.)

**NOTES:**

1. Boxes show preliminary Type 1 SSTS Site locations in suitable areas.
2. Orientation of the boxes is based on contours, topography, slope, soil type, depth to limiting condition, and setbacks.

100 YR FLOODPLAIN



⊕ Soil Boring Locations

Not suitable for Type 1 SSTS Sites

Suitable for Type 1 SSTS Sites

North Quarry Area

150 ft

NORTH

NORTH

GIFFORD LAKE

Trail of Terror Parking

Not suitable  
for Type 1  
SSTS Sites

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Client:

**Merriam Junction  
Sands, LLC.**

**Exhibit K -  
Map of Trail of Terror Parking on  
Malkerson Sales Property**

**NOTES:**

1. Boxes show preliminary Type 1 SSTS Site locations in suitable areas.
2. Orientation of the boxes is based on contours, topography, slope, soil type, depth to limiting condition, and setbacks.



⊕  
Soil Boring  
Locations

■  
Not suitable for  
Type 1 SSTS Sites

■  
Suitable for Type  
1 SSTS Sites

↔ 250 ft ↔



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Client:  
**Merriam Junction  
Sands, LLC.**

**Exhibit L -  
Map of Stable Area on Malkerson Sales Property**



Soil Boring Locations

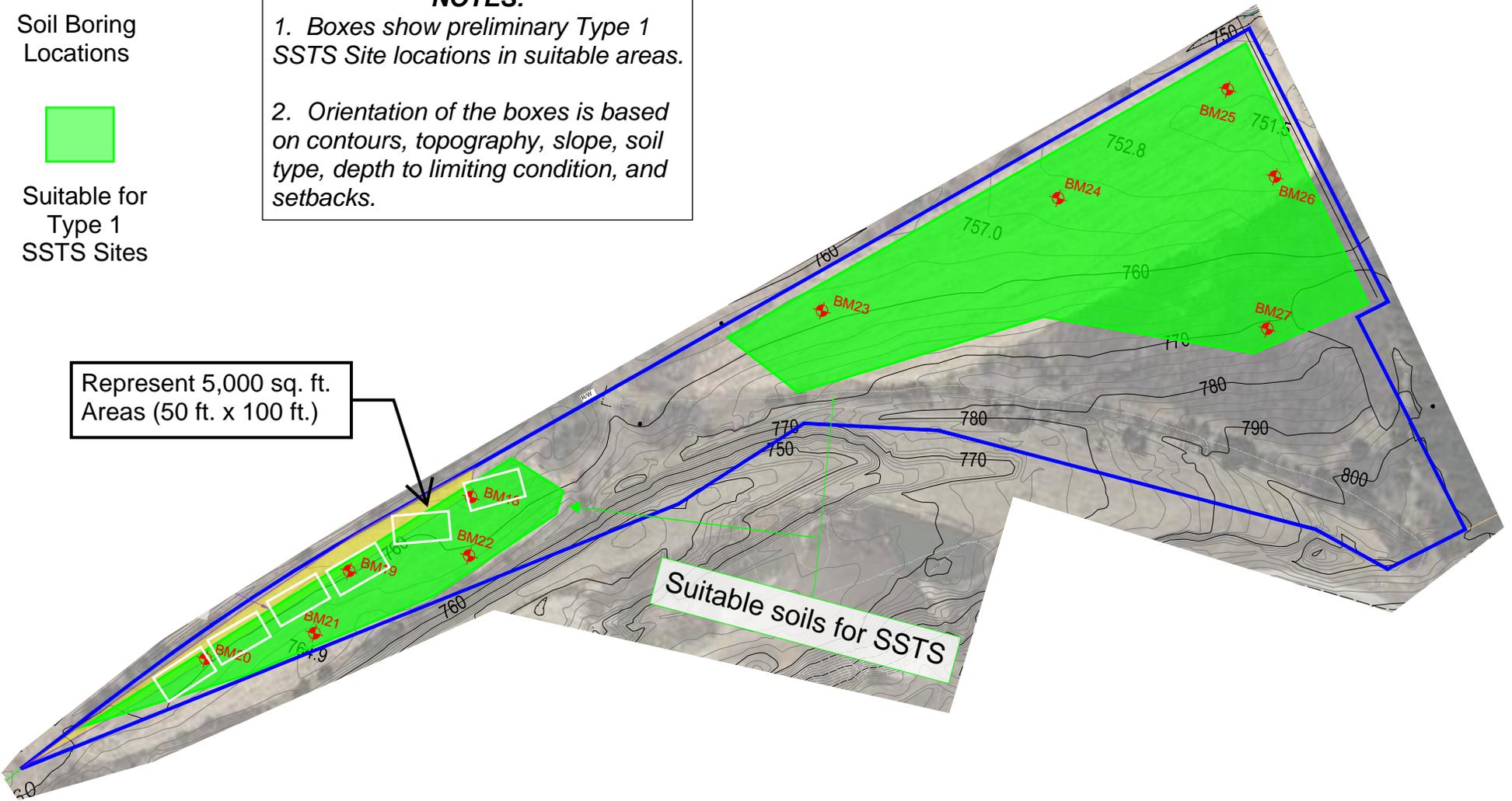


Suitable for Type 1 SSTS Sites

**NOTES:**

1. Boxes show preliminary Type 1 SSTS Site locations in suitable areas.
2. Orientation of the boxes is based on contours, topography, slope, soil type, depth to limiting condition, and setbacks.

Represent 5,000 sq. ft. Areas (50 ft. x 100 ft.)



Suitable soils for SSTS



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Client: **Merriam Junction Sands, LLC.**

**Exhibit M - Map of Triangle Future Sand and Gravel Mine Area on Malkerson Sales Property**



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Client:

**Merriam Junction  
Sands, LLC.**

**Exhibit N -  
Map of Triangle Future Sand and Gravel  
Mine Area on Malkerson Sales Property**

# **EXHIBIT O**

Soil Boring Log Sheets for  
Bryan Rock Property



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bryan Rock Property	Location / Address:	13580 Johnson Memorial Drive, Shakopee						
Soil parent material(s): (Check all that apply)									
<input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one)									
<input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope           Slope shape: Linear, Linear									
Vegetation:	Grasses	Soil survey map units:	Sc	Slope %:	0-2				
Weather Conditions/Time of Day:		Sunny / 9:30 am		Date:	05/10/18				
Observation #/Location:	SB1			Observation Type:	Probe				
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-10	Sandy Loam	<35%	10YR 2/1	None		N/A	Granular	Moderate	Friable
10-17	Sandy Loam	<35%	10YR 3/3	None		N/A	Granular	Moderate	Friable
17+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	

# Additional Soil Observation Logs

Project ID:



Client		Bryan Rock Property			Location / Address:		13580 Johnson Memorial Drive, Shakopee		
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope							Slope shape	Linear, Linear	
Vegetation:		Grasses		Soil survey map units:		Sc	Slope %:	2.0	Elevation:
Weather Conditions/Time of Day:			Sunny / 9:30 am				Date:		05/10/18
Observation #/Location:		SB2				Observation Type:		Probe	
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-11	Sandy Loam	<35%	10YR 2/1	None		N/A	Granular	Moderate	Friable
11-19	Sandy Loam	<35%	10YR 3/3	None		N/A	Granular	Moderate	Friable
19+	Bedrock	>50%							
Comments									



# Soil Observation Log

Project ID:

v 04.17.2018

Client:		Bryan Rock Products			Location / Address:		13580 Johnson Memorial Drive, Shakopee		
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape							Linear, Linear		
Vegetation:		Grasses		Soil survey map units:		Sc	Slope %:	0-2	Elevation:
Weather Conditions/Time of Day:			Sunny / 9:30 am				Date		05/10/18
Observation #/Location:		SB3				Observation Type:		Probe	
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-6	Fill Soil	<35%		None		N/A	Granular	Moderate	Friable
6-11	Sandy Loam	<35%	10YR 2/1	None		N/A	Blocky	Moderate	Friable
11-15	Sandy Loam	35-50%	10YR 3/3						
15+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	





# Soil Observation Log

Project ID:

v 04.17.2018

Client:		Bryan Rock Products			Location / Address:		13580 Johnson Memorial Drive, Shakopee			
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter										
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape							Linear, Linear			
Vegetation:		Grasses		Soil survey map units:		Sc	Slope %:	0-2	Elevation:	
Weather Conditions/Time of Day:			Sunny / 9:30 am				Date	05/10/18		
Observation #/Location:		SB5				Observation Type:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I			
							Shape	Grade	Consistence	
0-7	Sandy Loam	<35%	10YR 2/1	None		N/A	Granular	Strong	Friable	
7-15	Sandy Loam	<35%	10YR 3/3	None		N/A	Blocky	Moderate	Friable	
15+	Bedrock	>50%								
Comments: Lots of rock outcroppings all over in SB5 area.										
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.										
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018		
(Designer/Inspector)			(Signature)			(License #)		(Date)		

# Additional Soil Observation Logs

Project ID:



Client		Bryan Rock Products			Location / Address:		13580 Johnson Memorial Drive, Shakopee		
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope							Slope shape	Linear, Linear	
Vegetation:		Grasses		Soil survey map units:		Sc	Slope %:	2.0	Elevation:
Weather Conditions/Time of Day:			Sunny / 9:30 am				Date:		05/10/18
Observation #/Location:		SB6				Observation Type:		Probe	
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-10	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Strong	Friable
10-15	Sandy Loam	<35%	10YR 3/3	None		N/A	Blocky	Strong	Friable
15+	Bedrock	>50%							
Comments: Lots of rock outcroppings all over in SB6 area.									



# Soil Observation Log

Project ID:

v 04.17.2018

Client:		Bryan Rock Products			Location / Address:		13580 Johnson Memorial Drive, Shakopee			
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter										
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape							Linear, Linear			
Vegetation:		Grasses		Soil survey map units:		Sc	Slope %:	0-2	Elevation:	
Weather Conditions/Time of Day:			Sunny / 9:30 am				Date	05/10/18		
Observation #/Location:		SB7				Observation Type:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I			
							Shape	Grade	Consistence	
0-8	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Strong	Friable	
8+	Bedrock	>50%								
Comments: Outcroppings everywhere										
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.										
Stacey Feser		<i>Stacey Feser</i>				3907		6/28/2018		
(Designer/Inspector)		(Signature)				(License #)		(Date)		





# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bryan Rock Products	Location / Address:	13580 Johnson Memorial Drive, Shakopee						
Soil parent material(s): (Check all that apply)									
<input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one)				Slope shape	Linear, Linear				
<input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope									
Vegetation:	Grasses	Soil survey map units:	Sc	Slope %:	0-2				
Weather Conditions/Time of Day:		Sunny / 8 am		Date	05/18/18				
Observation #/Location:	SB9			Observation Type:	Probe				
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-21	Sandy Loam	<35%	10YR 2/1	None		N/A	Blocky	Strong	Friable
21+	Bedrock	>50%							
Comments	All around there are outcroppings with 0" to Limerock								
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser	<i>Stacey Feser</i>				3907	6/28/2018			
(Designer/Inspector)	(Signature)				(License #)	(Date)			

# Additional Soil Observation Logs

Project ID:



Client		Bryan Rock Products			Location / Address:		13580 Johnson Memorial Drive, Shakopee		
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope							Slope shape	Linear, Linear	
Vegetation:		Grasses		Soil survey map units:		Sc	Slope %:	2.0	Elevation:
Weather Conditions/Time of Day:			Sunny / 8 am				Date:		05/18/18
Observation #/Location:		SB10				Observation Type:		Probe	
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-9	Sandy Loam	<35%	10YR 2/1	None		N/A	Blocky	Strong	Friable
9-11	Sandy Loam	<35%	10YR 3/3	None		N/A	Blocky	Strong	Friable
11+	Bedrock	>50%							
Comments: Outcroppings everywhere.									



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bryan Rock Products	Location / Address:	13580 Johnson Memorial Drive, Shakopee						
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape					Linear, Linear				
Vegetation:	Grasses	Soil survey map units:	Sc	Slope %:	0-2	Elevation:			
Weather Conditions/Time of Day:		Sunny / 8:30 am			Date	05/18/18			
Observation #/Location:		SB11			Observation Type:	Probe			
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-4	Sandy Loam	<35%	10YR 2/1	None		N/A	Granular	Strong	Friable
4+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	

# Additional Soil Observation Logs

Project ID:



Client	Bryan Rock Products			Location / Address:	13580 Johnson Memorial Drive, Shakopee					
Soil parent material(s): (Check all that apply)										
<input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter										
Landscape Position: (check one)										
<input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope           Slope shape: <span style="float:right">Linear, Linear</span>										
Vegetation:		Grasses		Soil survey map units:		Sc		Slope %:		2.0
Elevation:										
Weather Conditions/Time of Day:			Sunny / 8:30 am					Date:		05/18/18
Observation #/Location:			SB12				Observation Type:		Probe	
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I			
							Shape	Grade	Consistence	
0-8	Sandy Loam	<35%	10YR 2/1	None		N/A	Granular	Strong	Friable	
8+	Bedrock	>50%								
Comments										



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bryan Rock Products	Location / Address:	13580 Johnson Memorial Drive, Shakopee						
Soil parent material(s): (Check all that apply)									
<input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one)									
<input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope           Slope shape: <span style="float: right;">Linear, Linear</span>									
Vegetation:	Grasses	Soil survey map units:	Sc	Slope %:	0-2				
Weather Conditions/Time of Day:		Sunny / 9:00 am		Date:	05/18/18				
Observation #/Location:	SB13			Observation Type:	Probe				
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-10	Sandy Loam	<35%	10YR 2/1	None		N/A	Granular	Strong	Friable
10+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	

# Additional Soil Observation Logs

Project ID:



Client		Bryan Rock Products			Location / Address:		13580 Johnson Memorial Drive, Shakopee			
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter										
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear										
Vegetation:		Grasses		Soil survey map units:		Sc	Slope %:	2.0	Elevation:	
Weather Conditions/Time of Day:			Sunny / 9:00 am				Date:		05/18/18	
Observation #/Location:			SB14			Observation Type:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I			
							Shape	Grade	Consistence	
0-19	Sandy Loam	<35%	10YR 2/1	None		N/A	Granular	Strong	Friable	
19-22	Sandy Loam	<35%	10YR 3/3	None		N/A	Granular	Strong	Friable	
22+	Bedrock	>50%								
Comments: Looked at Bohn's Pit #1 and #10 and found the same results as they did.										



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bryan Rock Products	Location / Address:	13580 Johnson Memorial Drive, Shakopee						
Soil parent material(s): (Check all that apply)									
<input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one)									
<input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope           Slope shape: <span style="float: right;">Linear, Linear</span>									
Vegetation:	Grasses	Soil survey map units:	Sc	Slope %:	0-2				
Weather Conditions/Time of Day:		Sunny / 9:30 am		Date:	05/18/18				
Observation #/Location:	SB15			Observation Type:	Probe				
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-14	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Strong	Friable
14-24	Loam	<35%	10YR 3/4	None		N/A	Blocky	Strong	Friable
24+	Bedrock	>50%							

Comments

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

<b>Stacey Feser</b> _____ (Designer/Inspector)	 _____ (Signature)	<b>3907</b> _____ (License #)	<b>6/28/2018</b> _____ (Date)
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# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bryan Rock Products	Location / Address:	13580 Johnson Memorial Drive, Shakopee						
Soil parent material(s): (Check all that apply)									
<input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one)				Slope shape	Linear, Linear				
<input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope									
Vegetation:	Grasses	Soil survey map units:	Sc	Slope %:	0-2				
Weather Conditions/Time of Day:		Sunny / 10 am		Date:	05/18/18				
Observation #/Location:	SB17			Observation Type:	Probe				
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-12	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Strong	Friable
12-16	Sandy Loam	<35%	10YR 3/2	None		N/A	Granular	Strong	Friable
16+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	

# Additional Soil Observation Logs

Project ID:



Client		Bryan Rock Products			Location / Address:		13580 Johnson Memorial Drive, Shakopee		
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input checked="" type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear									
Vegetation:		Grasses		Soil survey map units:		Sc	Slope %:	2.0	Elevation:
Weather Conditions/Time of Day:			Sunny / 10 am				Date:		05/18/18
Observation #/Location:		SB18				Slope %:		Probe	
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-14	Loam	<35%	10YR 2/2	None		N/A	Granular	Strong	Friable
14-28	Loam	<35%	7.5YR 3/2	None		N/A	Blocky	Strong	Friable
28-41	Loam	<35%	7.5YR 3/4	None		N/A	Blocky	Strong	Friable
41+	Bedrock	>50%							
Comments									



# Soil Observation Log

Project ID:

v 04.17.2018

Client:		Bryan Rock Products			Location / Address:		13580 Johnson Memorial Drive, Shakopee			
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter										
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape							Linear, Linear			
Vegetation:		Grasses		Soil survey map units:		Sc	Slope %:	0-2	Elevation:	
Weather Conditions/Time of Day:			Sunny / 10 am				Date	05/18/18		
Observation #/Location:		SB19				Observation Type:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I			
							Shape	Grade	Consistence	
0-4	Sandy Loam	<35%	10YR 2/2	None		N/A	Blocky	Strong	Friable	
4+	Bedrock	>50%								
Comments										
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.										
Stacey Feser		<i>Stacey Feser</i>				3907		6/28/2018		
(Designer/Inspector)		(Signature)				(License #)		(Date)		





# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bryan Rock Products	Location / Address:	13580 Johnson Memorial Drive, Shakopee						
Soil parent material(s): (Check all that apply)									
<input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one)				Slope shape	Linear, Linear				
<input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope									
Vegetation:	Grasses	Soil survey map units:	Sc	Slope %:	0-2				
Weather Conditions/Time of Day:	Sunny / 10:30 am			Date	05/18/18				
Observation #/Location:	SB21			Observation Type:	Probe				
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-7	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Strong	Friable
7-14	Loam	<35%	7.5YR 3/3	None		N/A	Granular	Strong	Friable
14+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	

# Additional Soil Observation Logs

Project ID:



Client		Bryan Rock Products			Location / Address:		13580 Johnson Memorial Drive, Shakopee			
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter										
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear										
Vegetation:		Grasses		Soil survey map units:		Sc	Slope %:	2.0	Elevation:	
Weather Conditions/Time of Day:			Sunny / 10:30 am				Date:		05/18/18	
Observation #/Location:		SB22				Slope %:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I			
							Shape	Grade	Consistence	
0-11	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Strong	Friable	
11-14	Loam	<35%	7.5YR 3/2	None		N/A	Granular	Strong	Friable	
14+	Bedrock	>50%								
Comments										



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bryan Rock Products	Location / Address:	13580 Johnson Memorial Drive, Shakopee						
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape				Linear, Linear					
Vegetation:	Grasses	Soil survey map units:	Sc	Slope %:	0-2	Elevation:			
Weather Conditions/Time of Day:		Sunny / 11 am		Date	05/18/18				
Observation #/Location:		SB23			Observation Type:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-14	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Strong	Friable
14-18	Sandy Loam	<35%	7.5YR 3/2	None		N/A	Granular	Strong	Friable
18+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	





# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bryan Rock Products	Location / Address:	13580 Johnson Memorial Drive, Shakopee						
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape				Linear, Linear					
Vegetation:	Grasses	Soil survey map units:	Sc	Slope %:	0-2	Elevation:			
Weather Conditions/Time of Day:		Sunny / 11:30 am		Date	05/18/18				
Observation #/Location:		SB25			Observation Type:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-8	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Strong	Friable
8-24	Sandy Loam	<35%	7.5YR 3/3	None		N/A	Granular	Strong	Friable
24+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	

# Additional Soil Observation Logs

Project ID:



Client		Bryan Rock Products			Location / Address:		13580 Johnson Memorial Drive, Shakopee		
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear									
Vegetation:		Grasses		Soil survey map units:		Sc	Slope %:	2.0	Elevation:
Weather Conditions/Time of Day:			Sunny / 11:30 am				Date:		05/18/18
Observation #/Location:		SB26				Slope %:		Probe	
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-10	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Strong	Friable
10-12	Sandy Loam	<35%	10YR 3/2	None		N/A	Granular	Strong	Friable
12+	Bedrock	>50%							
Comments									



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bryan Rock Products	Location / Address:	13580 Johnson Memorial Drive, Shakopee						
Soil parent material(s): (Check all that apply)									
<input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one)									
<input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input checked="" type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope           Slope shape: <span style="float: right;">Linear, Linear</span>									
Vegetation:	Grasses	Soil survey map units:	Sc	Slope %:	0-2				
Weather Conditions/Time of Day:		Sunny / 11:30 am		Date:	05/18/18				
Observation #/Location:	SB27			Observation Type:	Probe				
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-5	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Strong	Friable
5+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	





# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bryan Rock Products	Location / Address:	13580 Johnson Memorial Drive, Shakopee						
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape				Linear, Linear					
Vegetation:	Grasses	Soil survey map units:	Sc	Slope %:	0-2	Elevation:			
Weather Conditions/Time of Day:		Sunny / 8:30 am			Date	06/07/18			
Observation #/Location:	SB29			Observation Type:	Probe				
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-9	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Moderate	Friable
9+	Bedrock	>50%							

Comments

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

<b>Stacey Feser</b> _____ (Designer/Inspector)	 _____ (Signature)	<b>3907</b> _____ (License #)	<b>6/28/2018</b> _____ (Date)
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# Soil Observation Log

Project ID:

v 04.17.2018

Client:		Bryan Rock Products			Location / Address:		13580 Johnson Memorial Drive, Shakopee		
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape							Linear, Linear		
Vegetation:		Grasses		Soil survey map units:		Sc	Slope %:	0-2	Elevation:
Weather Conditions/Time of Day:			Sunny / 9 am				Date		06/07/18
Observation #/Location:		SB31				Observation Type:		Probe	
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-16	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Moderate	Friable
16+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	





# Soil Observation Log

Project ID:

v 04.17.2018

Client:		Bryan Rock Products			Location / Address:		13580 Johnson Memorial Drive, Shakopee			
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter										
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape							Linear, Linear			
Vegetation:		Grasses		Soil survey map units:		Sc	Slope %:	0-2	Elevation:	
Weather Conditions/Time of Day:			Sunny / 9:30 am				Date	06/07/18		
Observation #/Location:		SB33				Observation Type:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I			
							Shape	Grade	Consistence	
0-12	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Moderate	Friable	
12+	Bedrock	>50%								
Comments										
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.										
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018		
(Designer/Inspector)			(Signature)			(License #)		(Date)		





# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bryan Rock Products	Location / Address:	13580 Johnson Memorial Drive, Shakopee						
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape				Linear, Linear					
Vegetation:	Grasses	Soil survey map units:	Sc	Slope %:	0-2	Elevation:			
Weather Conditions/Time of Day:		Sunny / 9:30 am		Date	06/07/18				
Observation #/Location:		SB35			Observation Type:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-6	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Moderate	Friable
6+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser		<i>Stacey Feser</i>			3907		6/28/2018		
(Designer/Inspector)		(Signature)			(License #)		(Date)		





# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bryan Rock Products	Location / Address:	13580 Johnson Memorial Drive, Shakopee						
Soil parent material(s): (Check all that apply)									
<input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one)				Slope shape	Linear, Linear				
<input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope									
Vegetation:	Grasses	Soil survey map units:	Sc	Slope %:	0-2				
Weather Conditions/Time of Day:		Sunny / 10 am		Date	06/07/18				
Observation #/Location:	SB37			Observation Type:	Probe				
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-9	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Moderate	Friable
9+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	





# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bryan Rock Products	Location / Address:	13580 Johnson Memorial Drive, Shakopee						
Soil parent material(s): (Check all that apply)									
<input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input checked="" type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one)				Slope shape	Linear, Linear				
<input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope									
Vegetation:	Grasses	Soil survey map units:	Sc	Slope %:	0-2				
Weather Conditions/Time of Day:		Sunny / 10 am		Date	06/07/18				
Observation #/Location:	SB39			Observation Type:	Probe				
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-6	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Moderate	Friable
6+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	



# **EXHIBIT P**

Soil Boring Log Sheets for  
Malkerson Sales Property



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bruce Malkerson Property	Location / Address:	079210010						
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input checked="" type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape				Linear, Linear					
Vegetation:	Forest	Soil survey map units:	Ta, TbC	Slope %:	10.0	Elevation:			
Weather Conditions/Time of Day:		Sunny / 1 pm		Date	05/18/18				
Observation #/Location:		BM1		Observation Type:		Probe			
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-25	Sandy Loam	<35%	10YR 2/2	None		N/A	Granular	Strong	Friable
25-28	Loam	<35%	10YR 3/2	None		N/A	Granular	Strong	Friable
28+	Bedrock	>50%							
Comments: Downhill from mattress by post 178									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser						3907		6/28/2018	
(Designer/Inspector)		(Signature)				(License #)		(Date)	

# Additional Soil Observation Logs

Project ID:



Client		Bruce Malkerson Property			Location / Address:		079210010		
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input checked="" type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear									
Vegetation:		Forest		Soil survey map units:		Ta, TbC	Slope %:	10.0	Elevation:
Weather Conditions/Time of Day:			Sunny / 1 pm				Date:		05/18/18
Observation #/Location:		BM2				Observation Type:		Probe	
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-12	Sandy Loam	<35%	10YR 2/1	None		N/A	Granular	Strong	Friable
12-14	Loam	<35%	10YR 4/2	None		N/A	Blocky	Moderate	Friable
14+	Bedrock	>50%							
Comments: Hydric, in a large swale/drainageway for water to get to river									



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bruce Malkerson Property	Location / Address:	079210010						
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input checked="" type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input checked="" type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear									
Vegetation:	Forest	Soil survey map units:	Ta, TbC	Slope %:	0-2	Elevation:			
Weather Conditions/Time of Day:		Sunny / 1 pm		Date:	05/18/18				
Observation #/Location:		BM3		Observation Type:		Probe			
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-23	Loam	<35%	10YR 2/1	None		N/A	Granular	Moderate	Friable
23-28	Silty Clay Loam	<35%	10YR 3/1	None		N/A	Blocky	Moderate	Friable
28-34	Silty Clay Loam	<35%	2.5YR 5/3	None		N/A	Granular	Strong	Friable
		<35%	<u>2.5YR 6/2</u>	<u>None</u>		<u>N/A</u>	Blocky	Strong	Friable
		<35%	10YR 5/6	None		N/A	Blocky	Strong	Friable
Comments	Measured H2O table at 20" below surface 5 minutes after hole was probed. Hydric. In a large swale/drainageway for water to get to river from upslope areas.								
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
<b>Stacey Feser</b>					<b>3907</b>	<b>6/28/2018</b>			
(Designer/Inspector)	(Signature)				(License #)	(Date)			

# Additional Soil Observation Logs

Project ID:



Client		Bruce Malkerson Property			Location / Address:		079210010			
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input checked="" type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter										
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear										
Vegetation:		Forest		Soil survey map units:		Ta, TbC	Slope %:	2.0	Elevation:	
Weather Conditions/Time of Day:			Sunny / 1:30 pm				Date:		05/10/18	
Observation #/Location:		BM4				Observation Type:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I			
							Shape	Grade	Consistence	
0-23	Sandy Loam	<35%	10YR 2/1	None		N/A	Granular	Strong	Friable	
23-32	Loam	<35%	10YR 3/2	None		N/A	Granular	Strong	Friable	
32-37	Clay Loam	<35%	10YR 4/4	None		N/A	Blocky	Strong	Friable	
37+	Bedrock									
Comments: Next to Bohn Pit #5										



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bruce Malkerson Property	Location / Address:	079160042						
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape				Linear, Linear					
Vegetation:	Grasses	Soil survey map units:	EbB	Slope %:	0-2	Elevation:			
Weather Conditions/Time of Day:		Sunny / 2 pm		Date	05/18/18				
Observation #/Location:		BM5			Observation Type:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-19	Loamy Fine Sand	<35%	10YR 2/2	None		N/A	Granular	Strong	Friable
19-32	Loamy Fine Sand	<35%	10YR 3/2	None		N/A	Blocky	Moderate	Friable
32-40	Loamy Fine Sand	<35%	10YR 4/4	None		N/A	Blocky	Moderate	Friable
40-42	Loam	<35%	<u>7.5YR 4/4</u>	<u>None</u>		<u>N/A</u>	Blocky	Moderate	Friable
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	

# Additional Soil Observation Logs

Project ID:



Client		Bruce Malkerson Property			Location / Address:		079160042		
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope							Slope shape	Linear, Linear	
Vegetation:		Grasses		Soil survey map units:		EbB	Slope %:	2.0	Elevation:
Weather Conditions/Time of Day:			Sunny / 2 pm				Date:		05/18/18
Observation #/Location:		BM6				Observation Type:		Probe	
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-17	Loamy Sand	<35%	10YR 2/2	None		N/A	Granular	Strong	Friable
17+	Bedrock	>50%							
Comments   I think old drainfield for the house is in this area.									



# Additional Soil Observation Logs

Project ID:



Client		Bruce Malkerson Property			Location / Address:		079160040			
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter										
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear										
Vegetation:		Woods		Soil survey map units:		EaB	Slope %:	2.0	Elevation:	
Weather Conditions/Time of Day:			Sunny / 2:30 pm				Date:		05/18/18	
Observation #/Location:		BM8				Observation Type:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I			
							Shape	Grade	Consistence	
0-6	Fill Soil	<35%								
6-13	Loamy Fine Sand	<35%	10YR 2/2	None		N/A	Granular	Strong	Friable	
13+	Bedrock	>50%								
Comments										



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bruce Malkerson Property	Location / Address:	079160040						
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input checked="" type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear									
Vegetation:	Grasses	Soil survey map units:	DbB	Slope %:	0-2	Elevation:			
Weather Conditions/Time of Day:		Sunny / 2:30 pm		Date:	05/18/18				
Observation #/Location:		BM9		Observation Type:		Probe			
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-14	Fill Soil	<35%							
14-20	Loamy Fine Sand	<35%	10YR 2/1	None		N/A	Granular	Strong	Friable
20-24	Loamy Fine Sand	<35%	10YR 4/4	None		N/A	Granular	Strong	Friable
24+	Bedrock	>50%							
Comments: In the Road Ditch. Disturbed from road construction and building of horse track.									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
<b>Stacey Feser</b> _____ (Designer/Inspector)		 _____ (Signature)				<b>3907</b> _____ (License #)		<b>6/28/2018</b> _____ (Date)	

# Additional Soil Observation Logs

Project ID:



Client		Bruce Malkerson Property			Location / Address:		079160040			
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter										
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear										
Vegetation:		Grasses		Soil survey map units:		EaA	Slope %:	2.0	Elevation:	
Weather Conditions/Time of Day:			Sunny / 3 pm				Date:		05/18/18	
Observation #/Location:		BM10				Observation Type:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I			
							Shape	Grade	Consistence	
0-12	Sandy Loam	<35%	10YR 2/1	None		N/A	Granular	Strong	Friable	
12-23	Sandy Loam	<35%	10YR 3/4	None		N/A	Granular	Strong	Friable	
23+	Bedrock	>50%								
Comments										



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bruce Malkerson Property	Location / Address:	079160040						
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape					Linear, Linear				
Vegetation:	Grasses	Soil survey map units:	EaA	Slope %:	0-2	Elevation:			
Weather Conditions/Time of Day:		Sunny / 3 pm			Date	05/18/18			
Observation #/Location:		BM11			Observation Type:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-16	Sandy Loam	<35%	10YR 2/1	None		N/A	Granular	Strong	Friable
16-25	Sandy Loam	<35%	7.5YR 3/3	None		N/A	Granular	Strong	Friable
25+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	

# Additional Soil Observation Logs

Project ID:



Client		Bruce Malkerson Property			Location / Address:		079160040		
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope							Slope shape	Linear, Linear	
Vegetation:		Grasses		Soil survey map units:		EaA	Slope %:	2.0	Elevation:
Weather Conditions/Time of Day:			Sunny / 3:00 pm				Date:		05/18/18
Observation #/Location:		BM12				Observation Type:		Probe	
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-26	Sandy Loam	<35%	10YR 2/1	None		N/A	Granular	Strong	Friable
26-36	Sandy Loam	<35%	7.5YR 3/3	None		N/A	Granular	Strong	Friable
36+	Bedrock	>50%							
Comments									



# Additional Soil Observation Logs

Project ID:



Client		Bruce Malkerson Property			Location / Address:		079160040			
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter										
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape							Linear, Linear			
Vegetation:		Grasses		Soil survey map units:		EaA	Slope %:	2.0	Elevation:	
Weather Conditions/Time of Day:			Sunny / 3:30 pm				Date:		05/18/18	
Observation #/Location:		BM14				Observation Type:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I			
							Shape	Grade	Consistence	
0+	Fill Soil									
Comments   Disturbed and mixed soil										



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bruce Malkerson Property	Location / Address:	079160040						
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape					Linear, Linear				
Vegetation:	Grasses	Soil survey map units:	HeB, EaA	Slope %:	0-2				
Weather Conditions/Time of Day:		Sunny / 4 pm		Date	05/18/18				
Observation #/Location:	BM15			Observation Type:	Probe				
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-10	Sandy Loam	<35%	10YR 2/1	None		N/A	Granular	Strong	Friable
10+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	

# Additional Soil Observation Logs

Project ID:



Client		Bruce Malkerson Property			Location / Address:		079160040			
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter										
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape    Linear, Linear										
Vegetation:		Grasses		Soil survey map units:		HeB, EaA	Slope %:	2.0	Elevation:	
Weather Conditions/Time of Day:			Sunny / 4 pm				Date:		05/18/18	
Observation #/Location:		BM16				Observation Type:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I			
							Shape	Grade	Consistence	
0+	Fill Soil									
Comments   Disturbed and mixed soil										



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bruce Malkerson Property	Location / Address:	079160040						
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input checked="" type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape				Linear, Linear					
Vegetation:	Grasses	Soil survey map units:	HeB, EaA	Slope %:	0-2	Elevation:			
Weather Conditions/Time of Day:		Sunny / 4 pm		Date	05/18/18				
Observation #/Location:		BM17			Observation Type:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0+	Fill Soil								
Comments		Compacted and mixed soil							
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser		<i>Stacey Feser</i>				3907		6/28/2018	
(Designer/Inspector)		(Signature)				(License #)		(Date)	

# Additional Soil Observation Logs

Project ID:



Client		Bruce Malkerson Property			Location / Address:		079160040		
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input checked="" type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear									
Vegetation:		Row Crops		Soil survey map units:		EaB	Slope %:	2.0	Elevation:
Weather Conditions/Time of Day:			Sunny / 8 am				Date:		05/21/18
Observation #/Location:		BM18				Slope %:		Probe	
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-20	Loam	<35%	10YR 2/1	None		N/A	Blocky	Strong	Friable
20-27	Loam	<35%	10YR 3/2	None		N/A	Blocky	Strong	Friable
27-40	Loam	<35%	7.5YR 4/4	None		N/A	Blocky	Strong	Friable
40+	Bedrock	>50%							
Comments									



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bruce Malkerson Property	Location / Address:	079160040						
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input checked="" type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape				Linear, Linear					
Vegetation:	Row Crops	Soil survey map units:	EaB	Slope %:	0-2	Elevation:			
Weather Conditions/Time of Day:		Sunny / 8 am		Date	05/21/18				
Observation #/Location:		BM19		Observation Type:		Probe			
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-11	Loam	<35%	10YR 2/1	None		N/A	Blocky	Strong	Friable
11-22	Loam	<35%	7.5YR 3/3				Blocky	Strong	Friable
			7.5YR 3/2						
22-24	Loam	<35%	7.5YR 4/4				Blocky	Moderate	Friable
24+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	

# Additional Soil Observation Logs

Project ID:



Client		Bruce Malkerson Property			Location / Address:		079160040		
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input checked="" type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear									
Vegetation:		Row Crops		Soil survey map units:		EaB	Slope %:	2.0	Elevation:
Weather Conditions/Time of Day:			Sunny / 8:30 am				Date:		05/21/18
Observation #/Location:		BM20				Slope %:		Probe	
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-13	Sandy Loam	<35%	10YR 2/1	None		N/A	Blocky	Strong	Friable
13-21	Loam	<35%	10YR 3/3				Blocky	Strong	Friable
21+	Bedrock	>50%							
Comments									



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bruce Malkerson Property	Location / Address:	079160040						
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape					Linear, Linear				
Vegetation:	Row Crops	Soil survey map units:	EaB	Slope %:	0-2				
Weather Conditions/Time of Day:		Sunny / 8:30 am		Date	05/21/18				
Observation #/Location:	BM21			Observation Type:	Probe				
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-7	Sandy Loam	<35%	10YR 2/1	None		N/A	Blocky	Strong	Friable
7-14	Loam	<35%	10YR 3/2	None		N/A	Blocky	Strong	Friable
14-29	Loam	>50%	7.5YR 4/4				Blocky	Moderate	Friable
29+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser			<i>Stacey Feser</i>			3907		6/28/2018	
(Designer/Inspector)			(Signature)			(License #)		(Date)	

# Additional Soil Observation Logs

Project ID:



Client		Bruce Malkerson Property			Location / Address:		079160040		
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope							Slope shape		Linear, Linear
Vegetation:		Row Crops		Soil survey map units:		EaB	Slope %:	2.0	Elevation:
Weather Conditions/Time of Day:			Sunny / 8:30 am				Date:		05/21/18
Observation #/Location:		BM22				Slope %:		Probe	
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-16	Sandy Loam	<35%	10YR 2/1	None		N/A	Blocky	Moderate	Friable
16-27	Loam	<35%	10YR 3/2	None		N/A	Blocky	Moderate	Friable
27-43	Loam	<35%	7.5YR 4/4	None		N/A	Blocky	Moderate	Friable
Comments: 43" is all the deeper the probe would go, did NOT hit Bedrock									



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bruce Malkerson Property	Location / Address:	079160040						
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input checked="" type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear									
Vegetation:	Row Crops	Soil survey map units:	EaB	Slope %:	0-2	Elevation:			
Weather Conditions/Time of Day:		Sunny / 9 am		Date:	05/21/18				
Observation #/Location:	BM23			Observation Type:	Probe				
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-13	Sandy Loam	<35%	10YR 2/1	None		N/A	Blocky	Moderate	Friable
13-20	Loam	<35%	10YR 3/2	None		N/A	Blocky	Moderate	Friable
20-28	Loam	<35%	7.5YR 4/4	None		N/A	Blocky	Moderate	Friable
28+	Bedrock	>50%							
Comments									
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
Stacey Feser		<i>Stacey Feser</i>			3907		6/28/2018		
(Designer/Inspector)		(Signature)			(License #)		(Date)		

# Additional Soil Observation Logs

Project ID:



Client		Bruce Malkerson Property			Location / Address:		079160040		
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input checked="" type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear									
Vegetation:		Row Crops		Soil survey map units:		EaB	Slope %:	2.0	Elevation:
Weather Conditions/Time of Day:			Sunny / 9 am				Date:		05/21/18
Observation #/Location:		BM24				Slope %:		Probe	
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-17	Sandy Loam	<35%	10YR 2/1	None		N/A	Blocky	Moderate	Friable
17-24	Loam	<35%	10YR 3/2	None		N/A	Blocky	Moderate	Friable
24-27	Loam	<35%	7.5YR 4/4	None		N/A	Blocky	Moderate	Friable
27+	Bedrock	>50%							
Comments									



# Additional Soil Observation Logs

Project ID:



Client		Bruce Malkerson Property			Location / Address:		079160040			
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter										
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Back/Side Slope <input checked="" type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear										
Vegetation:		Row Crops		Soil survey map units:		EaB	Slope %:	2.0	Elevation:	
Weather Conditions/Time of Day:			Sunny / 9:30 am				Date:		05/21/18	
Observation #/Location:		BM26				Slope %:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I			
							Shape	Grade	Consistence	
0-15	Sandy Loam	<35%	10YR 2/1	None		N/A	Blocky	Strong	Friable	
15-29	Loam	<35%	10YR 3/2	None		N/A	Blocky	Strong	Friable	
29-43	Loam	<35%	7.5YR 4/4	None		N/A	Blocky	Moderate	Friable	
Comments: No limestone encountered, all the deeper the probe would go.										



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bruce Malkerson Property	Location / Address:	079210010						
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape: <span style="float: right;">Linear, Linear</span>									
Vegetation:	Woods	Soil survey map units:	EbC, Ta	Slope %:	0-2	Elevation:			
Weather Conditions/Time of Day:		Sunny / 9:30 am		Date:	05/21/18				
Observation #/Location:	BM27			Observation Type:	Probe				
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-20	Loamy Sand	<35%	10YR 2/1	None		N/A	Blocky	Strong	Friable
20-37	Sand	>50%	10YR 3/3	None		N/A	Blocky	Strong	Friable
37-42	Sand	>50%	10YR 4/4	None		N/A	Blocky	Moderate	Friable
Comments	No limestone encountered, all the deeper the probe would go.								
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
<b>Stacey Feser</b>	<i>Stacey Feser</i>			<b>3907</b>			<b>6/28/2018</b>		
(Designer/Inspector)	(Signature)			(License #)			(Date)		

# Additional Soil Observation Logs

Project ID:



Client		Bruce Malkerson Property			Location / Address:		079210010			
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input checked="" type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter										
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear										
Vegetation:		Woods		Soil survey map units:		Ta, TbC		Slope %:	10.0	Elevation:
Weather Conditions/Time of Day:			Sunny / 9:30 am					Date:		06/07/18
Observation #/Location:		BM28				Slope %:		Probe		
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I			
							Shape	Grade	Consistence	
0-14	Sandy Loam	<35%	10YR 2/1	None		N/A	Blocky	Moderate	Friable	
14-20	Sandy Loam	<35%	10YR 3/2	None		N/A	Blocky	Moderate	Friable	
20+	Bedrock	>50%								
Comments										



# Soil Observation Log

Project ID:

v 04.17.2018

Client:	Bruce Malkerson Property	Location / Address:	079210010						
Soil parent material(s): (Check all that apply) <input type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input checked="" type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape				Linear, Linear					
Vegetation:	Grasses	Soil survey map units:	Ta, TbCd	Slope %:	10.0				
Weather Conditions/Time of Day:		Sunny / 2:30 pm		Date	06/07/18				
Observation #/Location:	BM29			Observation Type:	Probe				
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-13	Loam	<35%	10YR 2/1	None		N/A	Blocky	Moderate	Friable
13-21	Loam	<35%	10YR 4/3	None		N/A	Blocky	Moderate	Friable
21-27	Loam	<35%	10YR 4/3	10YR 5/6	Concentrations	S1	Blocky	Moderate	Friable
				10YR 5/2	Depletions				
Comments	Starting at 21" there was Fe nodules and CaCO3								
I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.									
<b>Stacey Feser</b>				<b>3907</b>		<b>6/28/2018</b>			
(Designer/Inspector)	(Signature)			(License #)		(Date)			

# Additional Soil Observation Logs

Project ID:



Client	Bruce Malkerson Property			Location / Address:	079210010				
Soil parent material(s): (Check all that apply) <input checked="" type="checkbox"/> Outwash <input type="checkbox"/> Lacustrine <input type="checkbox"/> Loess <input type="checkbox"/> Till <input type="checkbox"/> Alluvium <input type="checkbox"/> Bedrock <input type="checkbox"/> Organic Matter									
Landscape Position: (check one) <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input checked="" type="checkbox"/> Back/Side Slope <input type="checkbox"/> Foot Slope <input type="checkbox"/> Toe Slope    Slope shape:    Linear, Linear									
Vegetation:		Grasses		Soil survey map units:		EaB	Slope %:	2.0	Elevation:
Weather Conditions/Time of Day:			Sunny / 1:30 pm				Date:		06/07/18
Observation #/Location:		BM30				Slope %:		Probe	
Depth (in)	Texture	Rock Frag. %	Matrix Color(s)	Mottle Color(s)	Redox Kind(s)	Indicator(s)	I----- Structure-----I		
							Shape	Grade	Consistence
0-19	Fine Sandy Loam	<35%	10YR 2/2				Blocky	Strong	Friable
19-30	Fine Sandy Loam	<35%	10YR 3/3				Blocky	Strong	Friable
30+	Bedrock	>50%							
Comments									