JVWCD – Proposed Chlorination Building in Herriman

Geotechnical Investigation

June 1, 2021

SUNRISE ENGINEERING

SUNRISE ENGINEERING

Salt Lake City Office
6875 South 900 East, Midvale, Utah 84047 | **TEL** 801.523.0100 | **FAX** 801.523.0990

June 1, 2021

Steve Hansen
Sunrise-Salt Lake Office
6875 South 900 East
Midvale, Utah 84047

Subject: JVWCD – Proposed Chlorination Building in Herriman
Geotechnical Investigation
Herriman, Utah

Steve,

Enclosed herein is the report for a geotechnical investigation for the above referenced project. This report presents the results of the geotechnical subsurface exploration, engineering analysis, and recommendations for design and construction of the proposed chlorination building in Herriman, Utah.

We appreciate the opportunity to provide geotechnical services to you for this project. Should you have any questions about the report, or if we may be of further service in any way, please let us know.

Sincerely,
SUNRISE ENGINEERING, INC.

Prepared by:

6/1/2021

Dao Yang, P.E.
Project Engineer/Hydrogeologist

Reviewed by:

Derek Anderson, P.E.
Principal/Division Manager

JVWCD – PROPOSED CHLORINATION BUILDING IN HERRIMAN

GEOTECHNICAL INVESTIGATION

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1 INTRODUCTION

Sunrise Engineering, Inc. (Sunrise) has completed a geotechnical investigation for a new chlorination building proposed by the Jordan Valley Water Conservancy District (JVWCD) in Herriman, Utah. The topographic locale of the project site is in the northeast quarter of Section 11, Township 4 South, Range 2 West, Salt Lake Base and Meridian (SLBM), as shown in Figure 1. This report presents a summary of the geotechnical investigation at the project site.

1.1 Objectives

The objectives of the geotechnical investigation were to provide the following:

- Evaluate subsurface soil/rock and groundwater conditions within the project area, and
- Provide appropriate foundation and earthwork recommendations for the proposed construction.

1.2 Scope of Work

To accomplish the objectives, the following tasks were performed:

- Collect and review available geologic and soil data within the project area
- Excavate one test pit (TP-1) at the proposed building site
- Analyze collected geotechnical data
- Provide recommendations for design and construction of the proposed structure

2 PROPOSED CONSTRUCTION

A new chlorination building will be constructed at the project site. The new building will have a horizontal dimension of 12-15 feet long by 12-15 feet wide. No basement will be constructed.

3 SITE INVESTIGATION

3.1 General Geology

The project site is underlain by lacustrine gravel and sand related to the Bonneville (transgressive) phase of the Bonneville lake cycle (Upper Pleistocene). The formation consists of moderately to well-sorted, moderately to well-rounded, clast-supported, pebble to cobble and rare boulder gravel and pebbly sand deposited between the Bonneville and Provo shorelines; thin to thick bedded; typically interbedded with, or laterally gradational to, lacustrine sand and silt; gastropods locally common in sandy lenses; locally partly cemented with calcium carbonate; forms a beach intermittently along the Bonneville shoreline at the base of the Traverse Mountains; typically less than 20 to 30 feet thick in this area (Biek and others, 2005).

3.2 Test Pit Excavation and Subsurface Conditions

Fieldwork was conducted on April 28, 2021. One test pit (TP-1) was excavated using a backhoe. The Test pit location is shown in Figure 2. Table 1 summarizes the soil and groundwater conditions at the test pit location.

Table 1: Soil and Groundwater Conditions at Test Pit Locations

Test Pit #	Description	Total Depth	Groundwater
1	0-6": Gravel fill (GP); and 6-32": silty gravel with sand (GM) underlain by a big boulder or bedrock where refusal occurred.	32"	No groundwater

Groundwater was not encountered at the test pit. According to Jensen and others (1985), groundwater at the site is estimated to be more than 100 feet below grade.

3.3 Geologic Hazards

3.3.1 Active Fault and Surface Fault Rupture

An active fault is a fault displaying evidence of greater than four inches of displacement along one or more of its traces during Holocene time (about 10,000 years ago to present).

According to the U.S. Geological Survey (2021), no active fault is located with a 2-miles radius of the site. Moreover, according to Christenson and Shaw (2008a), there is no surface fault rupture hazard within Section 11, Township 4 South, Range 2 West, SLBM, where the chlorination building site is located. According to Christenson and Shaw (2008a), the chlorination building site is not located within any surface-fault-rupture hazard special-study area. Therefore, a fault trench study is not required.

3.3.2 Liquefaction

Liquefaction is a process by which soils below the water table temporarily lose strength and behave as a viscous liquid rather than a solid. The types of soils most susceptible are clay-free deposits of sand and silts, and occasionally gravel. When seismic waves, primarily shear waves, pass through saturated granular layers, they distort the granular structure and cause loosely packed groups of particles to collapse. These collapses increase the pore-water pressure between the soil grains if drainage cannot occur. If the pore-water pressure rises to a level approaching the weight of the overlying soil, the effective stresses between soil grains drops to zero and the granular layer temporarily behaves as a viscous liquid rather than a solid. The liquefaction potential of a soil depends primarily on the looseness of the soil, the amount of cementing or clay between particles, and the amount of drainage restriction.

Two conditions must exist for liquefaction to occur: (1) the soil must be susceptible to liquefaction (loose, water-saturated, sandy soil, typically between 0 and 30 feet below the ground surface) and (2) ground shaking must be strong enough to cause susceptible soils to liquefy (Anderson and others, 1994).

According to Christenson and Shaw (2008b), the project site is located in a very low liquefaction susceptibility zone. Moreover, since groundwater at the site is more than 100 feet below grade, it is not likely the subsurface soil would liquefy should a strong earthquake occur in the project area.

3.3.3 Landslide/Rock Fall

Landslide or landslip is a geological phenomenon which includes a wide range of ground movement such as rock falls, deep failure of slopes, and shallow debris flows which can occur in offshore, coastal and onshore environments. Although the action of gravity is the primary driving force for a landslide to occur, there are other contributing factors affecting the original slope stability. Typically, pre-conditional factors build up specific sub-surface conditions that make the area/slope prone to failure, whereas the actual landslide often requires a trigger before being released.

According to Christenson and Shaw (2008c and 2008d), the project site is in a very low debris-flow zone and a very low landslide susceptibility zone. The site is not located on a steep slope; therefore, rock fall potential is low.

3.3.4 Floodplain

A floodplain is flat or nearly flat land adjacent to a stream or river that experiences occasional or periodic flooding. It includes the floodway, which consists of the stream channel and adjacent areas that carry flood flows, and the flood fringe, which are areas covered by the flood that do not experience a strong current. A 100-year flood is calculated to be the level of flood water expected to be equaled or exceeded every 100 years on average. The 100-year flood is more accurately referred to as the 1% flood, since it is a flood that has a 1% chance of being equaled or exceeded in any single year. Based on the expected flood water level, a predicted area of inundation can be mapped.

The Federal Emergency Management Agency (FEMA) website was reviewed for Flood Insurance Rate Maps (FIRMs) which cover the project area. The proposed site is included in FIRM 49035C0755G (FEMA, 2021), which indicates the project site is in an area of minimal flood hazard (Zone X).

3.3.5 Avalanche Path

An avalanche is a rapid flow of snow down a slope, from either natural triggers or human activity. Typically occurring in mountainous terrain, an avalanche can mix air and water with the descending snow. Powerful avalanches have the capability to entrain ice, rocks, trees, and other material on the slope. Avalanches are primarily composed of flowing snow, and are distinct from mudslides, rock slides, and serac collapses on an icefall. In mountainous terrain, avalanches are among the most serious objective hazards to life and property, with their destructive capability resulting from their potential to carry an enormous mass of snow rapidly over large distances.

According to the Utah Avalanche Center (2021), since 1910, no avalanches have been recorded within the project area. Therefore, the site is not within an avalanche path.

4 DESIGN RECOMMENDATIONS

4.1 Site Preparation

Topsoil, manmade fills (where encountered) and soils loosened by construction activities should be removed from the building pad, pavement areas, and concrete flatwork areas prior to foundation excavation and placement of site grading fills. Following stripping, the subgrade should be proof rolled to a firm, non-yielding condition or 90% of maximum dry density (ASTM D1557).

Soft areas detected during proof rolling operations should be removed and replaced with structural fill. If the soft soil extends more than 1.5 feet deep, stabilization may be required. The use of stabilization should be approved by the geotechnical engineer and would likely consist of over-excavating the area by at least 1.5 feet, placing a geofabric (such as Mirafi 600X) or geogrid (such as Tensar BX1100) at the bottom of the excavation over which a stabilizing fill consisting of angular coarse gravel with cobbles is placed up to the design subgrade.

Vegetation and other deleterious materials should be removed from the site. The stripped soils will be unsuitable as structural fill but may be stockpiled for later use in landscaped areas.

4.2 Temporary Excavation and Site Grading

Earthwork will be required to level the construction site. All temporary excavations should conform to regulations of the Occupational Safety and Health Administration (OSHA). Based on the results of the field investigation, the onsite silty gravel soil may be classified as Type B for the purpose of OSHA classification of earth materials exposed in temporary excavations. With restrictions, Type B soils generally correspond to allowable temporary slope inclinations of 1:1 (horizontal to vertical). Shallow temporary construction excavations not exceeding 4 feet in depth may be constructed with near-vertical side slopes. It is the responsibility of the contractor to provide safe working conditions in connection with below grade excavations.

The maximum anticipated depth of trench excavations for electrical conduits is 4 feet. These trench excavations could be made with near-vertical side slopes. Sheeting and shoring should be used whenever required by safety considerations. OSHA regulations do not require that trenches less than 4 feet deep be shored, but deeper trenches should be sheeted and shored in all cases.

Steep slopes are particularly susceptible to shallow slope sloughing in periods of heavy rainfall or upslope surface runoff. This is particularly true for fill slopes constructed of soil. It may be necessary to protect temporary slope faces during periods of heavy rainfall by diverting surface water away from slopes or other measures. It may also be necessary to treat temporary slopes with protective material to keep from drying out depending on the length of time that the temporary slope will be exposed and whether it would be possible to remove the desiccated material prior to refilling the excavation.

4.3 Fill Material

All fill material should be inorganic soils free of vegetation and debris. Fill material should meet the requirements based on the intended use, as summarized in Table 2. Compaction requirements are provided in Table 3.

Table 2: Fill Material Requirements

Fill Type	Application	Requirements		
		Gradation		Plasticity
		Size	Percent finer by weight	
Structural Fill	Under foundations, concrete slabs or other structural areas	4 inch No. 4 sieve No. 200 sieve	100 35-65 15-35	Liquid limit 20 max Plasticity Index 6 max
Site Grading Fill	Fill in non-structural areas and below pavements	4 inch No. 200 sieve	100 <50	Liquid limit 40 max Plasticity Index 10 max
Pipe Zone Backfill	Within utility pipe zone	3/4 inch 3/8 inch No. 4 sieve No. 16 sieve No. 200 sieve	100 78-92 55-67 28-38 7-11	Non-plastic
Trench Backfill	Utility trench backfill above pipe zone	6 inch No. 200 sieve	100 <50	Liquid limit 30 max Plasticity Index 6 max
Aggregate Base Course	Access Road and Parking Area	2 inch 1½ inch 3/4 inch 3/8 inch No. 4 sieve No. 40 sieve No. 200 sieve	100 85-100 70-85 55-75 40-65 15-30 4-10	Non-plastic

Pea gravel or other similar non-cementitious, poorly graded materials should not be used as fill or backfill without prior approval from the geotechnical engineer.

Fill should be tested frequently for moisture content and compaction during placement. Should the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified compaction is achieved. This may require adjustment of the moisture content.

Table 3: Compaction Requirements

Item	Description
Fill Lift Thickness	8 inches or less in loose thickness
Compaction	• 95% of the material's maximum dry density (MDD) per ASTM D1557 below footings, floor slabs and road areas as well as areas with 5 feet or more fill. • 90% of material's MDD per ASTM D1557 in other areas of fill and backfill.
Moisture Content	• near optimum water content (within ±2% of optimum at the time of placement and compaction).

4.4 Permanent Slopes

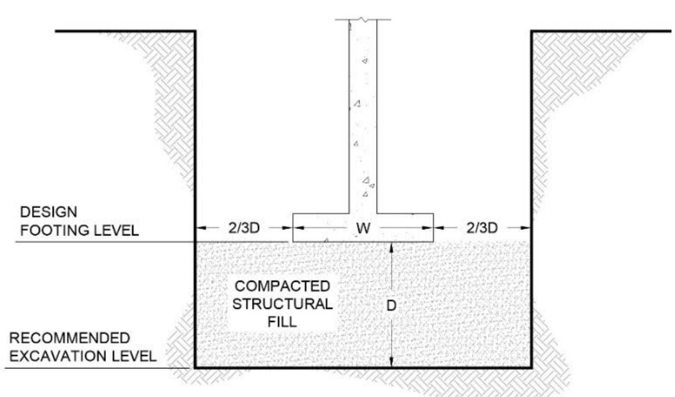
All final cut and fill slopes, if any, should be graded to at least 2.0:1.0 (horizontal: vertical) or retained.

4.5 Foundations

4.5.1 Footings

Based on the onsite soil conditions, it is recommended that the proposed building be constructed on spread/wall footings. A minimum thickness of 1 foot of structural fill should be placed beneath the footings. Prior to placement of structural fill, proof-rolling of previously stripped subgrade should be completed (see Section 4.1). Compaction of structural fill should follow the recommendations described in Section 4.3. If the exposed soils on which the footings are to be founded become loose or disturbed, they should be re-compacted before concrete is placed.

Structural fill placed below footings should extend laterally beyond the edges of the foundation. The over-excavation and backfill procedure is shown in the following diagram:



OVEREXCAVATION / BACKFILL FOR SPREAD FOOTINGS

Footings should not be installed on loose or disturbed soil, undocumented fill, topsoil, construction debris, frozen soil, or within ponded water. If unsuitable soils are encountered, they should be over-excavated and replaced with structural fill.

If soft soil is encountered and is difficult to compact, a geofabric (such as Mirafi 600X) or geogrid (such as Tensar BX1100) should be placed at the bottom of the excavation. Structural fill should then be placed up to the foundation elevation.

4.5.2 Design Criteria

Based on the available data and in compliance with applicable building codes, the recommended design parameters for footings are summarized in Table 4.

Table 4: Design Criteria

Bearing Capacity	
Spread/wall footings	3,000 pounds per square foot (psf)
Isolated columns	3,000 psf
Increase above value for short, transient loads	30%
Exterior footing frost depth	30 inches
Total allowable settlement	< 1 inch
Estimated differential settlement	<½ inch
Coefficient of subgrade reaction, k_1[1]	500 pounds per cubic inch (pci)
Density of subgrade	125 pounds per cubic foot (pcf)
Density of structural fill	130 pcf

Note 1: This value representative of a 1-foot by 1-foot footing and should be scaled appropriately for a larger foundation. The coefficient decreases as the width of the foundation increases. The following equation may be used to scale the coefficient of subgrade reaction:

$$k = k_1\left(\frac{B+1}{2B}\right)^2$$

Where, k = scaled coefficient of subgrade reaction and B = foundation width.

4.5.3 Lateral Pressure

Excavation walls and retaining walls will be subjected to horizontal loads from the lateral earth pressure of backfill. When the granular fill is lightly compacted, drained, and the surface of the soil slope behind the wall is horizontal, the backfill may be considered equivalent to a fluid with a density of 35 pcf for active pressure and 55 pcf for static pressure.

4.5.4 Lateral Resistance

Resistance to lateral loads at the bottom of the footings can be calculated based on a coefficient of friction of 0.3. Passive resistance provided by properly placed and compacted granular structural fill above the water table may be considered equivalent to a fluid with a density of 250 pcf. These are ultimate frictional and passive pressure values and should be used with appropriate safety factors during design. Note that fill against the sides of footings should be placed and compacted to at least 90% of the maximum dry density as indicated in Section 4.3 (Fill Material).

4.5.5 Drainage

Drainage design should provide for rapid removal of water from foundation soils and pavement materials, both during and after construction. Drainage design should provide for intercepting water and directing it away from cut and fill slopes.

4.5.6 Cement Type

One soil sample was collected at approximately two feet below grade from TP-1 during the subsurface investigation. The sample was delivered under proper chain-of-custody protocols to a laboratory for analysis of sulfate. The laboratory results for the sample indicate a sulfate concentration below 12 mg/kg of dry soil (Appendix A). Based on the laboratory results, cement would be subject to mild sulfate attack at the site. Therefore, Cement Type I or II is recommended for project construction.

4.5.7 Pavement

If a parking area is required at the building, pavement recommendations are based on light trucks as the expected traffic load. It is assumed that the CBR values for the onsite native subgrade and road base are 10 and 78, respectively, and the EAL for light trucks is 5,000. Based on the assumptions, the following pavement recommendations are provided: a 3-inch-thick asphalt concrete surface over an 8-inch-thick aggregate base course underlain by 12-inches of reworked subgrade or structural fill in fill areas.

4.6 Seismic Considerations

4.6.1 Site Class

Based on the data collected from the test pit and the geologic data in the area, the site may be classified as Site Class C (very dense soil and soft rock) according to International Code Council, Inc. (2018).

4.6.2 Seismic Design Category

The seismic design category for the project site is D.

4.6.3 Seismic Lateral Earth Force

Seismic activity can generate increased lateral earth pressures acting on the foundation walls of the proposed building. The increase is influenced by horizontal ground acceleration. Based on Mononobe-Okabe procedures for a vertical wall with horizontal backfill, the additional lateral pressures due to earthquake motions at the site may be estimated as follows:

$$\Delta P_{ae} = 16.05H^2 \text{ for the walls}$$

Where ΔP_{ae} = seismic lateral pressures in pounds per linear foot (plf) acting at a distance of 0.6*H from the base of the wall, where H is the height of retained soil in feet.

4.6.4 Other Seismic Parameter Values

Other seismic parameter values that may be useful for structural design at the project site are provided as follows:

Parameter	Value (g)	Parameter	Value (g)	Parameter	Value
S_s	1.029	S_{DS}	0.823	F_a	1.2
S_1	0.371	S_{D1}	0.371	F_v	1.5
S_{MS}	1.235	PGA	0.452		
S_{M1}	0.557				

5 LIMITATIONS

The analyses and recommendations presented in this report are based on the data obtained from the test pit at the indicated location (Figure 2). This report does not reflect variations which may occur at other areas or across the project site. The nature and extent of such variations may not become evident until construction. If variations appear evident, it will be necessary to reevaluate the recommendations of this report.

This report has been prepared for the exclusive use and specific application to the project discussed and has been prepared in accordance with currently accepted geotechnical engineering practices. No warranties, either expressed or implied, are provided. In the event that any changes in the nature, design, or location of the project as outlined in this report are planned, the recommendations contained in this report shall be considered invalid unless the changes are reviewed, and the conclusions of this report modified or verified in writing by the geotechnical engineer.

6 REFERENCES

Anderson, L.R., J.R. Keaton and S.N. Eldredge. 1994. Liquefaction Potential Map for Utah County, Utah: Utah Geological Survey Contract Report 94-3.

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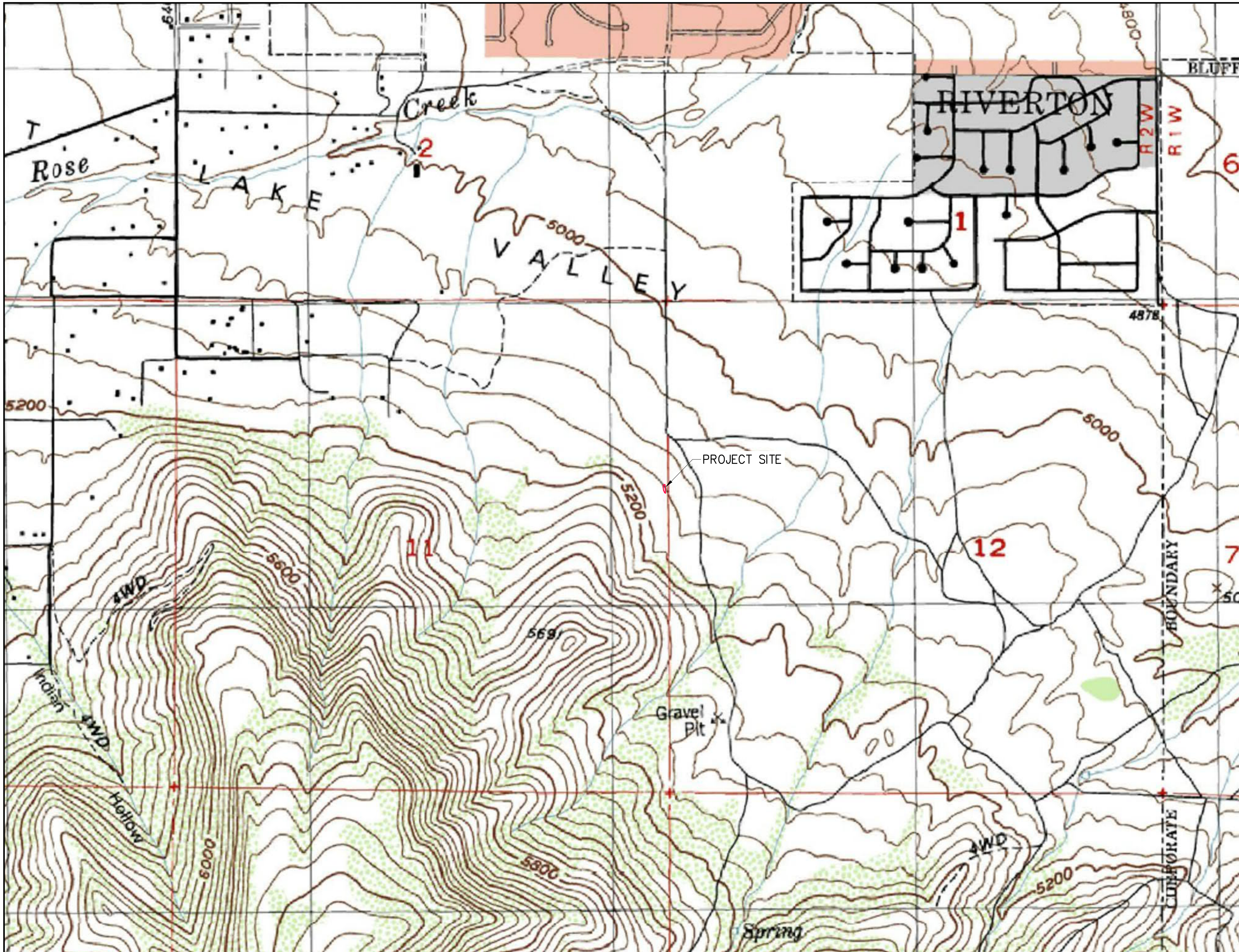
Figures



NORTH

SCALE

500' 0 500'

AREA MAP

REV NO.	COMMENT	DATE

FOR REVIEW ONLY
NOT
FOR CONSTRUCTION
DATE

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JVWCD

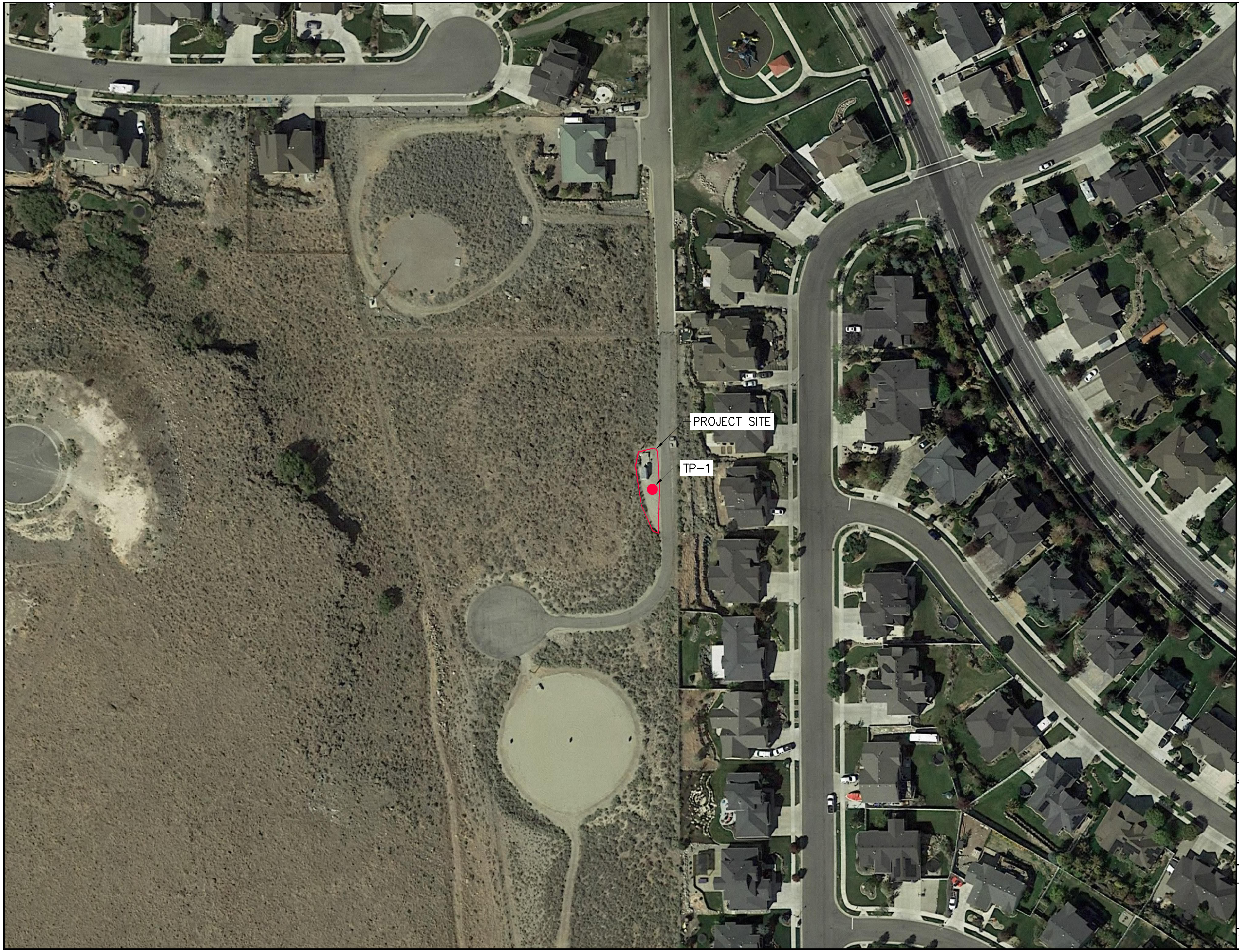
CHLORINATION BUILDING

GEOTECHNICAL INVESTIGATION

SITE VICINITY MAP

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
07810	DQY	DQY	DSA	01 of 02	FIG. 1

P:\JVWCD Jordan Valley Water Conservancy District\07810 Chlorine Booster Building Geotech\Design 3D\JVWCD.dwg May 18, 2021 6:35pm dyang



NORTH

SCALE

50' 0 50'

AREA MAP

REV NO.	COMMENT	DATE

FOR REVIEW ONLY
NOT
FOR CONSTRUCTION
DATE

SUNRISE ENGINEERING

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JVWCD

CHLORINATION BUILDING
GEOTECHNICAL INVESTIGATION
SITE MAP

SEI NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
07810	DQY	DQY	DSA	02 of 02	FIG. 2

P:\JVWCD Jordan Valley Water Conservancy District\07810 Chlorine Booster Building Geotech\Design 3D\JVWCD.dwg May 19, 2021 9:08am dyang

Appendix A

Chemical Laboratory Results

5/10/2021

Work Order: 21D1524
Project: [none]

Sunrise Engineering Inc.
Attn: Dao Yang
6875 S 900 E
Midvale, UT 84047

Client Service Contact: 801.262.7299

The analyses presented on this report were performed in accordance with the National Environmental Laboratory Accreditation Program (NELAP) unless noted in the comments, flags, or case narrative. If the report is to be used for regulatory compliance, it should be presented in its entirety, and not be altered.

Approved By:

Mark Broadhead, Project Manager

Chemtech-Ford Laboratories
Serving the Intermountain West Since 1953

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Sandy, UT 84070
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www.ChemtechFord.com

Certificate of Analysis

Sunrise Engineering Inc.
Dao Yang
6875 S 900 E
Midvale, UT 84047

PO#:
Receipt: **4/29/21 10:00 @ 14.9** °C
Date Reported: 5/10/2021
Project Name: **[none]**

Sample ID: **TP-1 @ 2'**

Matrix: **Solid**

Lab ID: **21D1524-01**

Date Sampled: **4/28/21 5:20**

Sampled By: **Dao Yang**

	Result	Units	Minimum Reporting Limit	Method	Preparation Date/Time	Analysis Date/Time	Flag(s)
Inorganic							
Sulfate, Soluble (IC)	ND	mg/kg dry	12	EPA 300.0	5/6/21	5/6/21	
Total Solids	86.6	%	0.1	SM 2540G	5/3/21	5/3/21	

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Certificate of Analysis

Sunrise Engineering Inc.		PO#:	
Dao Yang		Receipt:	**4/29/21 10:00 @ 14.9** °C
6875 S 900 E		Date Reported:	5/10/2021
Midvale, UT 84047		Project Name:	**[none]**

Report Footnotes

Abbreviations

ND = Not detected at the corresponding Minimum Reporting Limit (MRL).
1 mg/L = one milligram per liter or 1 mg/kg = one milligram per kilogram = 1 part per million.
1 ug/L = one microgram per liter or 1 ug/kg = one microgram per kilogram = 1 part per billion.
1 ng/L = one nanogram per liter or 1 ng/kg = one nanogram per kilogram = 1 part per trillion.

CHEMTECH - FORD ANALYTICAL LABORATORY **CHAIN OF CUSTODY**

COMPANY: Sunrise Engineering
ADDRESS:
CITY/STATE/ZIP:
PHONE #: FAX:
CONTACT: Dao Yang PROJECT:
EMAIL:

BILLING ADDRESS:
BILLING CITY/STATE/ZIP:
PURCHASE ORDER #:

CHEMTECH-FORD LABORATORIES

TURNAROUND REQUIRED:*
* Expedited turnaround subject to additional charge

21D1524

Lab Use Only	LOCATION / IDENTIFICATION	DATE	TIME	MATRIX	Field: Residual Chlorine	TESTS REQUESTED: Sulfate	Bacteria: Total Coliform + E. coli (Present/Absent)	Total Coliform + E. coli (Enumerated)	HPC (Plate Count)	E. Coli Only
01	1. TP-1 @ 2'	4/28/21	520	Soil		X				
	2.									
	3.									
	4.									
	5.									
	6.									
	7.									
	8.									
	9.									
	10.									

Sampled by: [print] Dao Yang
Sampled by: [signature] Dao Yang

ON ICE NOT ON ICE Temp (C°): 14.9

Samples received outside the EPA recommended temperature range of 0-6 C° may be rejected.

Special Instructions:

Relinquished by: [signature]	Date/Time	Received by: [signature]	Date/Time
Dao Yang	4/29/21 1000	[signature]	4-29-21 10:00

CHEMTECH-FORD
9632 South 500 West
Sandy, UT 84070

801.262.7299 PHONE
866.792.0093 FAX
www.ChemtechFord.com

Payment Terms are net 30 days OAC. 1.5% interest charge per month (18% per annum). Client agress to pay collection costs and attorney's fees.

Work Order # 21D1524

CHEMTECH FORD LABORATORIES
Sample Receipt

CHEMTECH-FORD LABORATORIES

Delivery Method:

- ☐ UPS
- ☐ USPS
- ☐ FedEx
- ☐ Chemtech Courier
- ☒ Walk-in
- ☐ Customer Courier

Receiving Temperature 14.9 °C

Sample #	Container	Chemtech Lot # or Preservative	Number of Subsamples	Preserved by Client/Third Party	Preserved in Receiving/Laboratory	Filtered in Field by Client	Misc Volume (oz/mL)	Comments
01	G	980					4oz	

Sample Condition
(check if *yes*)

- ☐ Custody Seals
- ☒ Containers Intact
- ☒ COC can be matched to bottles
- ☒ Received on Ice
- ☒ Correct Containers(s)
- ☒ Sufficent Sample Volume
- ☐ Headspace Present (VOC)
- ☐ Temperature Blank
- ☒ Received within Holding Time

Plastic Containers

A- Plastic Unpreserved
B- Miscellaneous Plastic
C- Cyanide Qt (NaOH)
E- Coliform/Ecoli/HPC
F- Sulfide Qt (Zn Acetate)
L- Mercury 1631
M- Metals Pint (HNO3)
N- Nutrient Pint (H2SO4)
R- Radiological (HNO3)
S- Sludge Cups/Tubs
Q- Plastic Bag

Glass Containers

D- 625 (Na2S2O3)
G- Glass Unpreserved
H- HAAs (NH4Cl)
J- 508/515/525 (Na2SO3)
K- 515.3 Herbicides
O- Oil & Grease (HCl)
P- Phenols (H2SO4)
T- TOC/TOX (H3PO4)
U- 531 (MCAA, Na2S2O3)
V- 524/THMs (Ascorbic Acid)
W- 8260 VOC (1:1 HCl)
X- Vial Unpreserved
Y- 624/504 (Na2S2O3)
Z- Miscellaneous Glass