NOTICE OF MEETING
HILLSIDE REVIEW BOARD
CITY OF ST. GEORGE
WASHINGTON COUNTY, UTAH

Public Notice

Notice is hereby given that the Hillside Review Board of the City of St. George, Washington County, Utah, will hold meetings at the referenced sites on **Wednesday, July 21, 2021,** commencing on-site at approximately 8:30 a.m.

The estimated site time is in bold.
The agenda for the meeting is as follows:

1. Consider a request for a Hillside Development Permit on Twin Lakes. The property is located east of Twin Lakes Dr approximately between 700 N and 800 N. The property is currently zoned Open Space & R-3 (Residential multi-family). The owner is Twin Lakes Rhino LLC. Case No. 2021-HS-006. (*See 'Meeting Place' exhibit below*). **Meeting time approx. 8:30 am**

Mike Hadley, GISP
Planner III
Development Services

Reasonable Accommodation: The City of St. George will make efforts to provide reasonable accommodations to disabled members of the public in accessing City programs. Please contact the City Human Resources Office at (435) 627-4674 at least 24 hours in advance if you have special needs

Meeting Place
Cottonwood Springs Dr & Twin Lakes Dr



St.George
Community Development

Hillside Permit

HILLSIDE REVIEW BOARD AGENDA REPORT: 07/21/2021

HILLSIDE DEVELOPMENT PERMIT
Twin Lakes
Case No. 2021-HS-006

Request: This is a request for a Hillside Development Permit to allow the applicant to cut into the (20-40%+) hillside for access to a proposed multifamily development. The applicant has provided a slope analysis, proposed drainage report and site layout for consideration.

Exhibits Provided:

1) Exhibit A – Narrative
The narrative is a brief description of the proposal and the applicant's reasoning for asking for the Hillside Review Board's consideration.

2) Exhibit B - Slope Analysis Maps & Site Plan
"Exhibit B" in the packet shows the overall slope analysis for the townhome site under review. The proposed site plan for the multifamily development.

3) Exhibit C – Geotech Report:
Geotech report for the proposed development.

4) Exhibit D – Conceptual Drainage Control Plan.
Dated July 2021 – Conceptual Drainage plant produced by Gush & Gudgell Inc.

5) Exhibit E – Rockfall Hazard
Applied Geotechnical Engineering Consultants, Inc. (AGEC) was requested to evaluate potential rockfall hazard for the proposed Twin Lakes multifamily development.

Background: This project is a Hillside application for a Twin Lakes Multi-Family development project. A portion of the area lies within the Hillside Overlay Zone. Although within the HOZ, this land has previously been disturbed. This project will help clean up the disturbance and other issues left by previous owners and replace it with a well-designed and aesthetically pleasing development.

Owner: Twin Lakes Rhino LLC

Representative: Bob Hermandson

Engineer: Bush & Gudgell

APN: SG-5-2-20-12101, SGM-5-3-B, SGM-5-1-F

Location: The property is located east of Twin Lakes Dr Approximately between 700 N and 800 N.

Acreage: Approximately 5.04 Acres
Zoning: Open Space & R-3
General Plan: MDR (Medium Density Residential)

Adjacent zones: PD-C (Planned Development Commercial), R-3 (Multi-Family), M-1 (Manufacturing), M-H (Mobile Home).

Powers & Duties: Section 10-13A-8. B.1 of the "Hillside Review Board Powers and Duties" states that the hillside board can make recommendations to "adopt, modify or reject a proposal" to the Planning Commission (PC).

Permit required: Section 10-13A-7 requires that all major development (i.e., cut greater than 4', etc.) on slopes above 20% requires a 'hillside development permit' granted by the City Council upon recommendation from the Hillside Review Board and the Planning Commission.

Analysis: The applicant is proposing to cut into areas that are 20%, 30%, 40% or greater slope (see slope analysis attached). While there are areas within the Hillside Overlay Zone these areas have previously been disturbed and bothered.

The Hillside Review Board will need to determine whether or not the areas to be disturbed are "significant" or not. If so, are there conditions that can be placed on the request to mitigate the impacts or is it just not feasible and warrants a denial? Applicable ordinances which may help the board in their review can be found below.

Applicable Ordinance(s):
(Selected portions)

10-13A-1: Density and Disturbance Standards

A. The hillside development overlay zone (HDOZ) limits development densities and provides specific development incentives to transfer underlying zone densities from hillsides (sending areas), to less steep slopes or more safe development areas (receiving areas), within a development.

Percent Natural Slope	Dwelling Units (DU) / Acre

	undisturbed. The 70 percent area is based upon the overall area/development rather than per lot. Also see subsections A1, A2, and A3 of this section.
30-39	1 DU/10 acres, provided no more than 5 percent (5%) of the site is disturbed, and 95 percent of the site remains undisturbed. If the cumulative area is at least 1 acre but less than 10 acres, the cumulative area shall be allowed 1 DU.
40	Development is not permitted (0%), **except** as provided for in subsection A4 of this section.

Section 10-13A-1: Density and Disturbance Standards

F. The applicant may:

1. Transfer all development density from steeper slope categories (sending areas), to areas within the development with natural slopes of twenty percent (20%) or less (receiving areas); and
2. Develop additional bonus density, calculated from each slope category, as follows:
    a. Natural slopes twenty percent (20%) or less transferred on a one-to-one (1:1) unit basis; plus
    b. One (1) additional density unit for each density unit transferred from natural slopes of twenty-one percent (21%) to thirty percent (30%); plus
    c. Two (2) additional density units for each density unit transferred from natural slopes of thirty-one percent (31%) to forty percent (40%).
3. Unit calculation for the receiving area shall be based on the requirements of the sending area zone.

G. Density transfers to the receiving area may occur without a zone change within the receiving area even though the resulting density or configuration may exceed the density limits of the receiving area zone. Other than density, the receiving area's zoning requirements apply to development in the receiving area. For instance, lot sizes may vary, but single-family zoning districts only allow single-family detached dwellings.

H. If the applicant proposes to develop within the twenty-one percent (21%) to forty percent (40%) slope area, the applicant cannot employ partial density transfers from the sending area and must propose a design, site development plans, and a grading plan that blends and harmonizes all aspects of the proposed development into the natural topography, and that minimizes road cuts and fills.

I. Non-disturb areas within a residential lot as shown on the slope analysis map shall not be used to calculate minimum lot size.

J. Disturbance standards do not apply to the city for limited city facilities: trails, parks, and utilities.

10-13A-2: Density and Disturbance Standards

A. Slope shall be determined for each significant portion of a development parcel.

B. *Procedure:* The applicant shall map the location of the natural slope by using the following procedure:

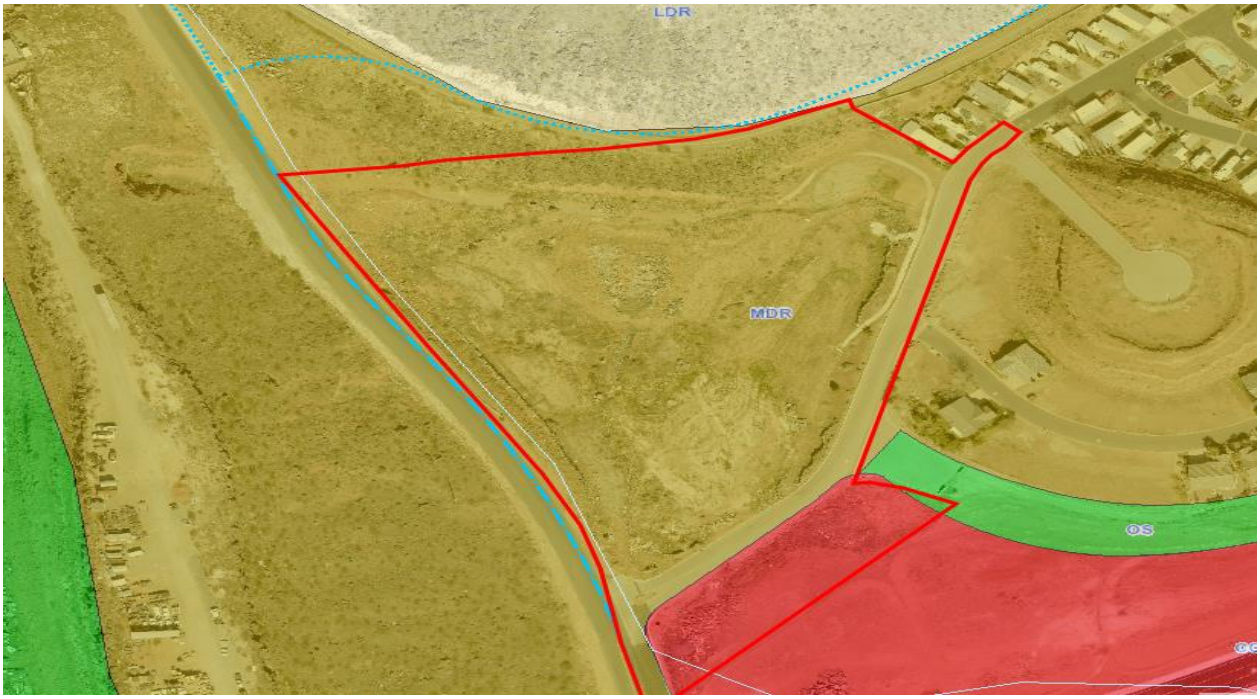
1. *Preparation of Contour Maps:* The applicant shall submit an accurate, current contour map, prepared and certified by a licensed professional engineer or surveyor, which shows all land contours at intervals no greater than five feet (5'), drawn at a one inch equals one hundred feet (1" = 100') scale maximum.
2. *Verification through Field Surveys:* The city engineer or designee may require the applicant to submit a field survey to verify the accuracy of the contour map.

C. *Determination of Slope Areas:* Using the contour map, natural slopes shall be calculated using points identified as natural slopes of twenty percent (20%), thirty percent (30%), and forty percent (40%), and shall be located on the contour map and connected by a continuous line. That area bounded by said lines and intersecting property lines shall be used for determining project density. Small washes or outcrops, which have slopes distinctly different from surrounding property, and are not part of the contiguous topography, may be excluded from the slope determination.

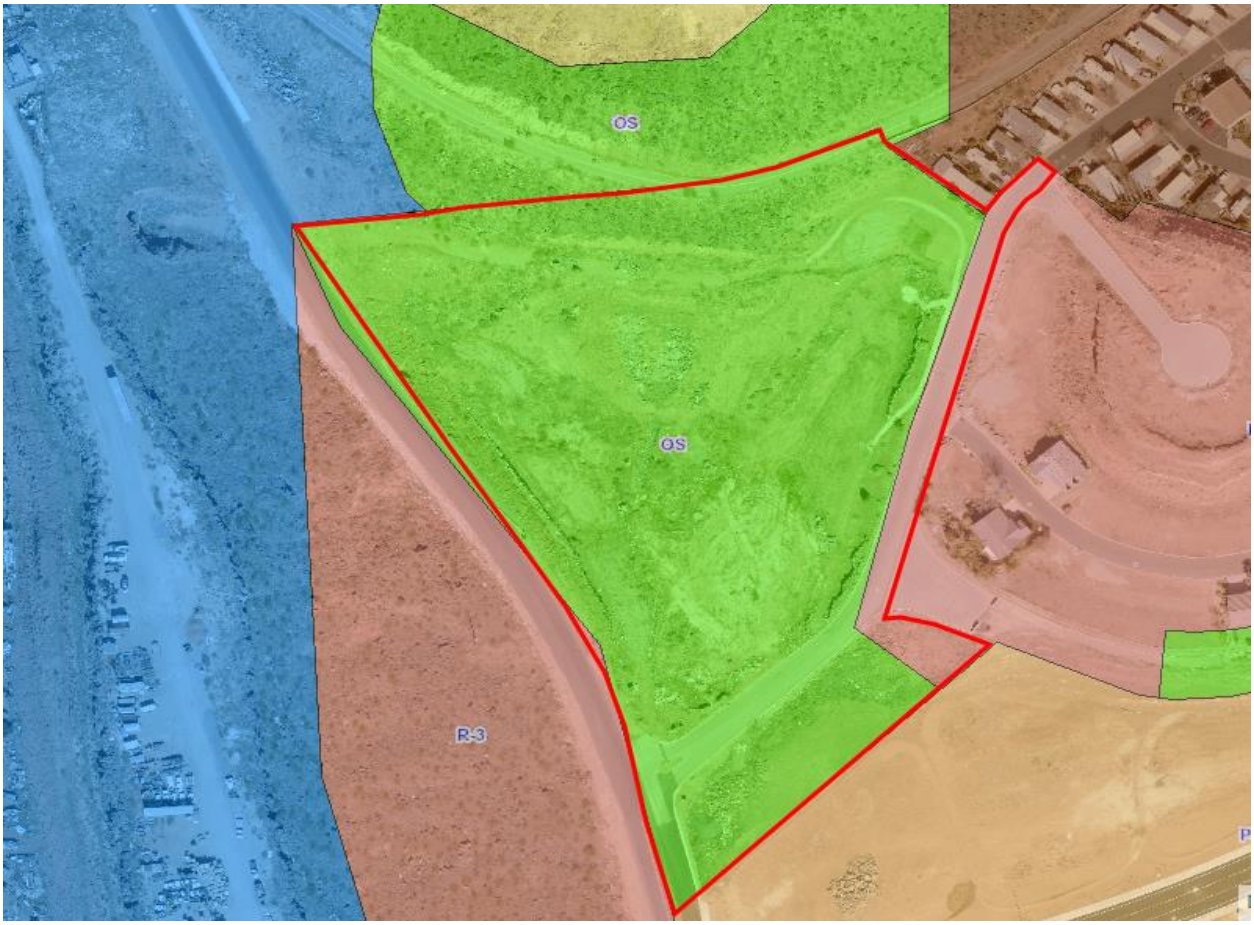
Vicinity Map



General Plan - MDR



Zoning – Open Space & R-3



Narrative

July 14, 2021

St George City
Community Development Department
175 North 200 East
St George, UT

Re: Twin Lakes Multi-Family Hillside Application

To whom it may concern:

We are submitting a Hillside application for a Twin Lakes Multi-Family development project. A portion of the area lies within the Hillside Overlay Zone. Although within the HOZ, this land has previously been disturbed. This project will help clean up the disturbance and other issues left by previous owners and replace it with a well-designed and aesthetically pleasing development. Please see the maps included in this application for further details.

We appreciate your consideration.

Sincerely,
Bush and Gudgell, Inc.



PROPOSED GRADING

TWIN LAKES MULTIFAMILY
LOCATED IN ST. GEORGE UTAH

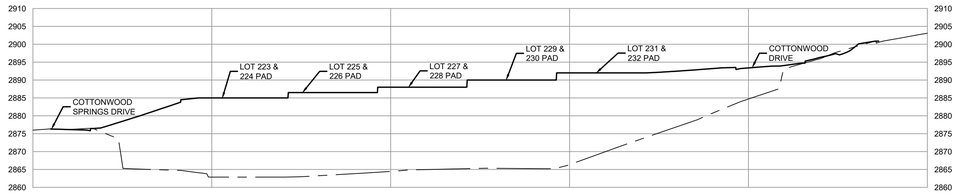
DATE: JUNE 2021
DRAWN: AG
APPROVED: RBS
SCALE: 1" = 40'
JOB NO. 201053

BUSH & GUDGELL, INC.
Engineers - Planners - Surveyors
205 East Tabernacle Suite #4
St. George, Utah 84770
Phone (435) 673-2337 / Fax (435) 673-3161
www.bushandgudgell.com

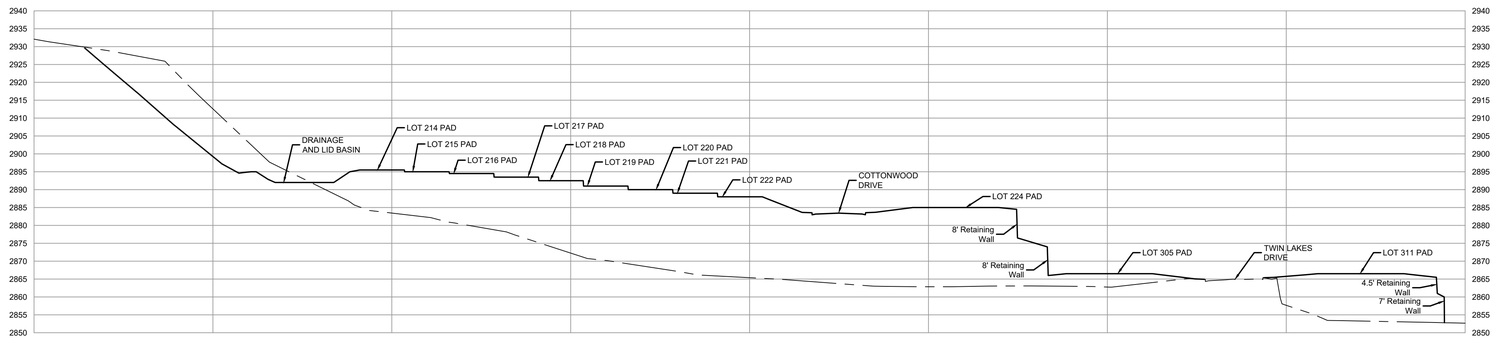
No	Date	By	Revision

FILE: GRADING PLAN

SHEET 1 OF 5 SHEETS



Section B
H: 1"=40'
V: 1"=20'
STA: 20+00 TO STA: 25+00



Section A
H: 1"=40'
V: 1"=20'
STA: 10+00 TO STA: 18+00

X:\201000-201999\201053 - TWIN LAKES MULTIFAMILY\DRAWINGS\HILLSIDE\GRADING PLAN.DWG

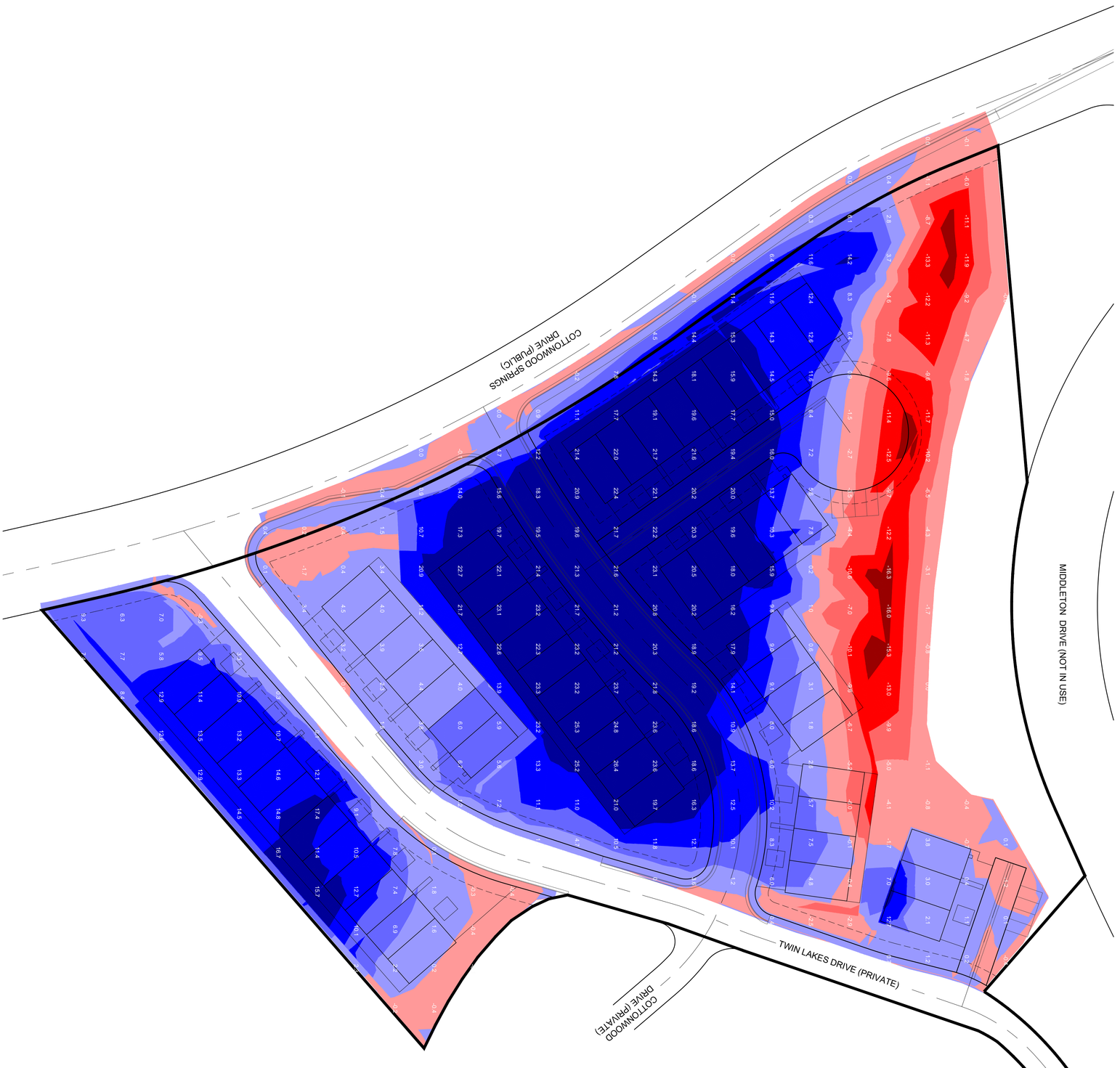
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CROSS SECTIONS
TWIN LAKES TOWNHOMES
LOCATED IN ST. GEORGE UTAH

SHEET 2 OF 5 SHEETS
FILE: HILLSIDE



Elevations Table		
Color	Minimum Elevation	Maximum Elevation
	-15.00	-10.00
	-10.00	-5.00
	-5.00	0.00
	0.00	5.00
	5.00	10.00
	10.00	15.00
	15.00	

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

CUT AND FILL MAP

TWIN LAKES TOWNHOMES
LOCATED IN ST. GEORGE UTAH

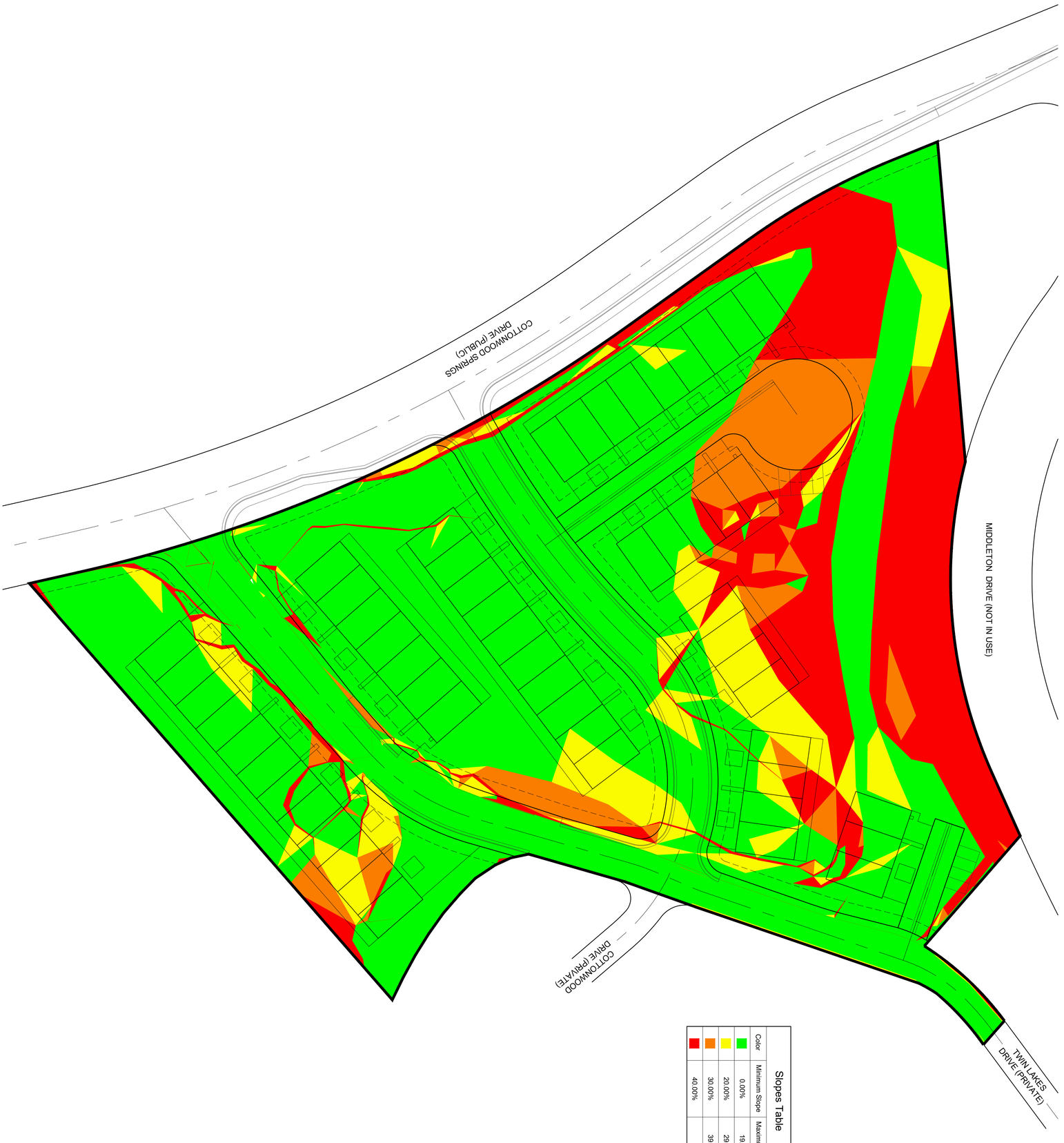
FILE HILLSIDE

SHEET 3 OF 5 SHEETS

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Slopes Table			
Color	Minimum Slope	Maximum Slope	
	0.00%	19.99%	
	20.00%	29.99%	
	30.00%	39.99%	
	40.00%		

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

SLOPE ANALYSIS

TWIN LAKES TOWNHOMES
LOCATED IN ST. GEORGE UTAH

FILE: HILLSIDE
SHEET 4 OF 5 SHEETS

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GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

EXISTING CONDITIONS

TWIN LAKES TOWNHOMES
LOCATED IN ST. GEORGE UTAH

PETE HILLSIDE

SHEET 5 OF 5 SHEETS

DATE: JUNE 2021
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No	Date	By	Revision

AGEC
Applied GeoTech

September 21, 2020

TW Holdings, LLC

Attn: Bob Hermanson

Subject: Geotechnical Evaluation – Twin Lakes Multi Family Development
St. George, Utah
AGEC Project No. 2200411

Applied Geotechnical was requested to provide preliminary geotechnical recommendations for the proposed multi-family development to be located west of the existing Twin Lakes Resort, Phase 1 development as shown on Figure 1. We understand this property is to be developed with multi family structures as shown on Figure 2. In order to evaluate the property, AGEC has conducted a field study to determine the subsurface conditions across the site. There were 17 test pits excavated at the locations shown on Figure 2. Primarily the study was to determine the depth and condition of the previously placed fill across the site.

SITE CONDITIONS

The subject site consists of the parcel shown on Figures 1 and 2. The property is was part of the old Twin Lakes Golf Course and was graded over the past 20 to 25 years. located around the base of the hill. The site is located east of the middleton black ridge and east of Cottonwood Springs Road. To the east is the Twin Lakes Resort Phase 1 that is developed with residences on portions of the lots. To the south is the Gateway Commons Commercial development. Twin Lakes Drive dissects a portion of the property on the south and borders the east side of the property. There is a hillside to the north with an old road that wraps around the lower portion of the hillside as can be seen in Figure 1 and 2.

The property has been previously graded a moderate amount of debris and rock on the surface across the site. There is sparce vegetation across the site.

FIELD STUDY/SUBSURFACE SOIL CONDITIONS

The subsurface soils were evaluated by excavating 17 test pits at the locations shown on Figure 2. The locations were surveyed by Bush and Gudgell Engineering. The subsurface conditions primarily consist of previously placed fill materials overlying bedrock or basalt boulders. The thickness of the fill varied from 1 to greater than 14 feet. The thickness of existing fill is shown adjacent each test pit on Figure 2. The fill north of Twin Lakes Drive varied from moderately well compacted to poorly compacted. In several of the test pits, practical backhoe refusal was encountered on basalt cobbles and boulders. The fill material encountered south of Twin Lakes Drive was found to be moderately well compacted. In evaluating the fill thicknesses along with the old aerial photos, there appears to be an old ravine along the eastern portion of the property in a north-south direction. There also appears to be a deeper zone of fill in the northwest portion of the property. The overlying fill varied from silty to clayey sand with varied amounts of gravel. Portions of the gravel contains cobbles (4-12 inch size) and boulders (>12 inch). The underlying bedrock is moderately hard and varies from sandstone to siltstone. The logs and photos of the test pits are shown on Figures 3-5.

CONCLUSIONS

1. The site is suitable for the proposed development, provided our recommendations are implemented and followed. The presence of expansive soils, collapsible soils were not encountered on the site. The fill materials previously placed will need to be addressed by removal and replacement.

2. The proposed grading is still being evaluated by Bush and Gudgell Engineering. Upon completion of a grading plan, AGEC will provide a final Geotechnical Study. For preliminary evaluation purposes, the following should be considered:

    a. The existing fill varied from poorly to moderately compacted. The fill is undocumented (no record of proper testing). Due to the variability, the fill should be removed down to moderately well compacted fill, dense sand or bedrock. The thickness of the fill removal will vary across the site as described above. We would anticipate that between 3 and 15 feet will be removed from various areas. The deeper areas are located just north of Twin Lakes Drive and extending northwest and northeast. There was a pond and a previous golf fairway through these areas. See Aerial Photo attached. The depths of removal may be correlated to the depths shown on Figure 2.

b. The existing materials may be reused. There will likely be larger boulders and rocks that cannot be used as fill. These materials should be removed or broken up/crushed.

3. Groundwater was encountered in the southwest corner of the property, which is located near the old pond of the previous golf course. We anticipate that this water is likely trapped or perched water. We are not aware of springs or seepages on this property. The water was found at a depth of 4½ feet within Test Pit, TP-10.

4. The residences may be supported on conventional slab on grade floors and foundations. Typical bearing values of 2500 psf may be used. Details for structural design will be provided in the final report.

5. The northern slope of the hillside presents a moderate rock fall hazard and should be mitigated by grading/berms. At this time, the proposed design shows one building located at the toe of the north slope. The existing roadway on the slope above may be used as a rock fall mitigation. This concern can be mitigated, but should be further evaluated.

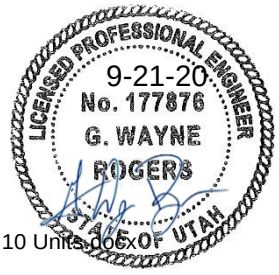
LIMITATIONS

This report has been prepared in accordance with generally accepted soil and foundation engineering practices in the area for the use of the client for design purposes. The conclusions and recommendations included within the report are based on the information obtained from the subsurface conditions from the test pits excavated n the site and our experience in the area. Variations in the subsurface conditions may not become evident until excavation is conducted. If the subsurface conditions or groundwater level are found to be significantly different from those described above, we should be notified to reevaluate our recommendations.

If you have any questions or would like to further discuss, please contact us.

Sincerely,

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.



G. Wayne Rogers, P.E.



Photo No. 1 – aerial photo of 2006, google map, shows the site with the Twin Lakes Golf Course. Note Pond at southwest corner of upper parcel of property.



Photo No. 2 – View of lower parcel south of Twin Lakes Drive.



Photo No. 3 – View of eastern portion upper parcel from Twin Lakes Drive.



Photo No. 4 – View of central portion of upper parcel from Twin Lakes Drive.



Photo No. 5 – View of south portion of the upper parcel from Twin Lakes Drive.



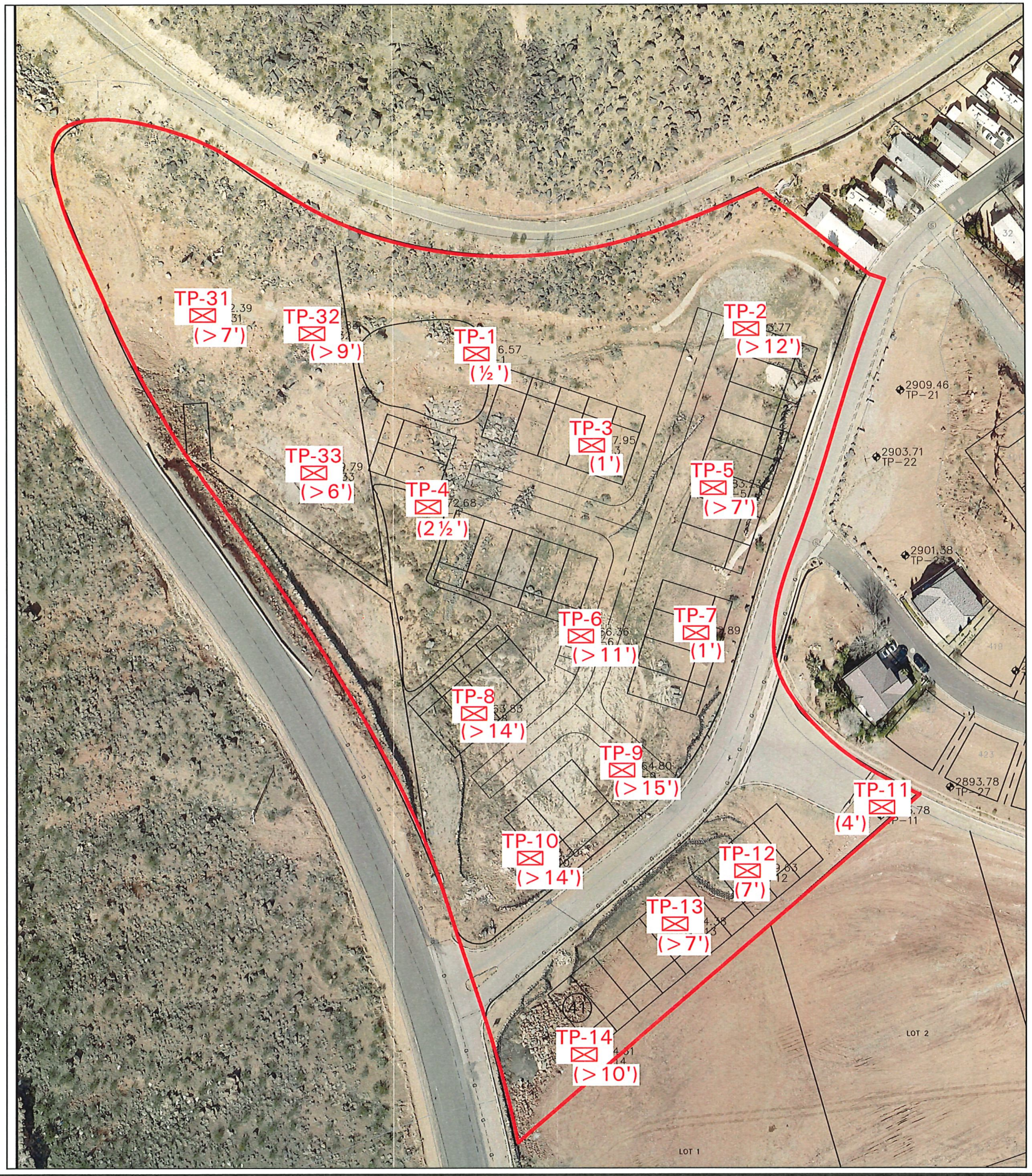
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Not to Scale

TWIN LAKES RESORT
MULTI FAMILY DWELLINGS
ST. GEORGE, UTAH

2200411	AGEC	Vicinity Map	Figure 1

TWIN LAKES RESORT
MULTI FAMILY DWELLINGS
ST. GEORGE, UTAH



⊠ Approximate test pit location

(#') Approximate thickness of existing fill (ft)

N

0 80 160 feet

Approximate Scale

2200411	AGEC	Site Plan	Figure 2

TP-1
Elev. 2916.6'



TP-2
Elev. 2913.8'

WC = 5
+4 = 14
-200 = 67

TP-3
Elev. 2887.0'



TP-4
Elev. 2872.7'



WC = 12
-200 = 48



Depth/Feet
0
5
10
15

TP-5
Elev. 2883.2'



WC = 9
+4 = 9
-200 = 41

TP-6
Elev. 2866.4'



TP-7
Elev.2872.9'



WC = 7
-200 = 64

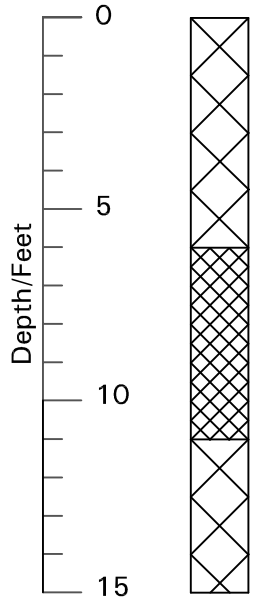
TP-8
Elev. 2863.8'



Depth/Feet
0
5
10
15

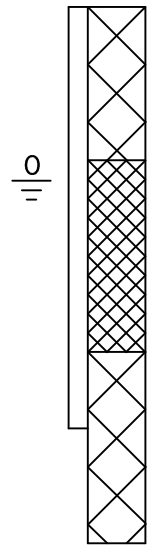
See Figure 5 for Legend and Notes

TP-9
Elev. 2864.8'



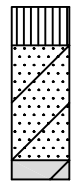


TP-10
Elev. 2863.2'



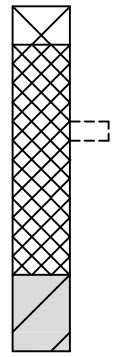


TP-11
Elev. 2875.8'



TP-12
Elev. 2859.6'

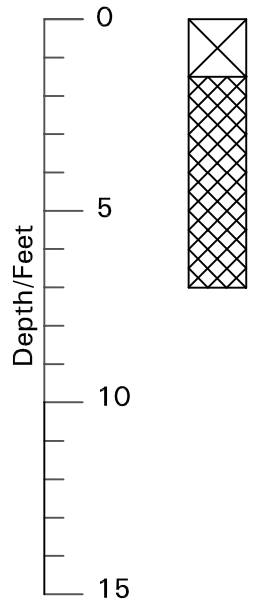






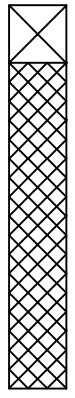


TP-13
Elev. 2854.4'

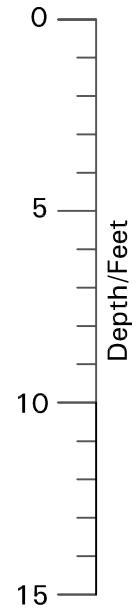




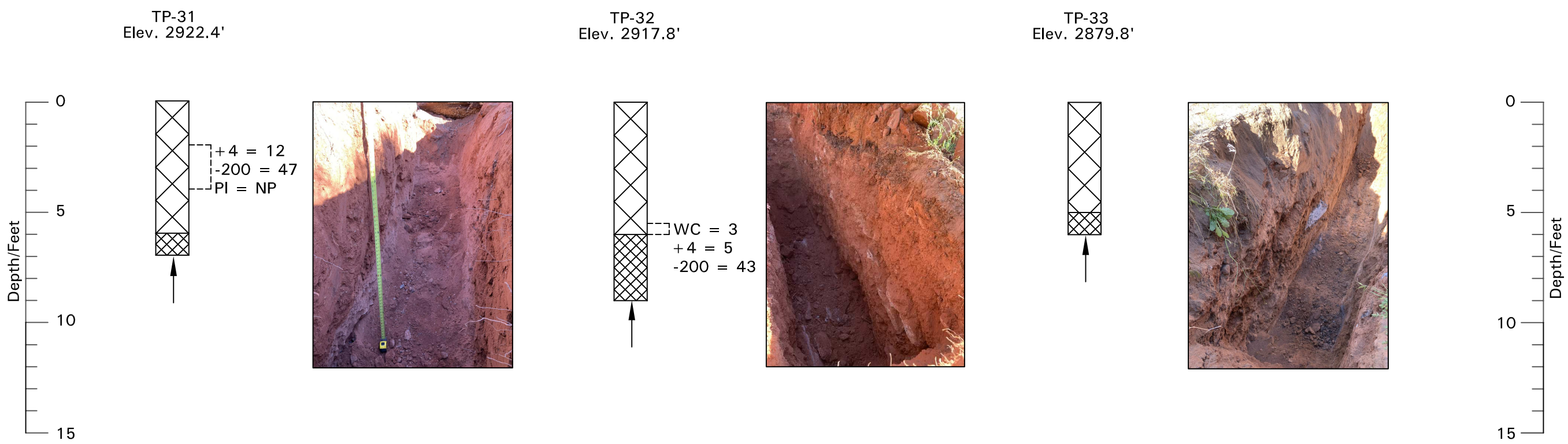
TP-14
Elev. 2854.6'







See Figure 5 for Legend and Notes



LEGEND:

Asphaltic Concrete; existing parking area

Fill 1; Clayey Sand with Grave; poorly to moderately well compacted, dry to slightly moist, and red-brown in color.

Fill 2; Silty Sand with Gravel; occasional cobbles and boulders, poorly to moderately well compacted, dry to moist, and red-brown in color.

Silty Sand (SM); medium dense, moist, and red-brown in color.

Sandstone/Siltstone Bedrock; interlayered, moderately hard, dry, low plastic, and red-brown in color.

Indicates slotted 1 inch PVC pipe installed in the boring to the depth shown.

$\frac{0}{\equiv}$ Indicates the depth to free water and the number days after excavation the measurement was taken.

Indicates practical backhoe refusal on bedrock.

NOTES:

1. The test pits were excavated on March 19 and April 1, 2020 with a trackhoe.
2. The locations and elevations of the test pits were located by survey by Bush & Gudgell, Inc.
3. The test pit locations and elevations should be considered accurate only to the degree implied by the method used.
4. The lines between the materials shown on the test pit logs represent the approximate boundaries between material types and the transitions may be gradual.
5. Water level readings shown on the logs were made at the time and under the conditions indicated. Fluctuations in the water level may occur with time.

St.George
THE BRIGHTER SIDE

Brenda Hatch <brenda.hatch@sgcity.org>

Twin Lakes Geotech Report

1 message

Ryan Lay <rlay@bushandgudgell.com> Mon, Jun 14, 2021 at 5:06 PM
To: Brenda Hatch <brenda.hatch@sgcity.org>
Cc: Wesley Jenkins <wes.jenkins@sgcity.org>, Bob Hermandson <bobh@bushandgudgell.com>

Brenda,

Here is the Geotech report for the Twin Lakes Townhome project. Is there any way we could still get this project on the upcoming hillside committee agenda? I can't find anyone in our office who Wes talked to about this.

Thanks,

Ryan

Ryan Lay

Project Manager

Bush & Gudgell, Inc.

Engineers :: Planners :: Surveyors

205 East Tabernacle Suite #4

St. George, Utah 84770

435-673-2337 Office

435-773-2403 Mobile

435-673-3161 Fax

www.bushandgudgell.com

2 attachments

AGEC Prelim Report for Twin Lakes Multi Family Project.pdf
11017K

image001.wmz

1140K



GRAPHIC SCALE

60 0 30 60 120

(IN FEET)
1 inch = 60 ft.

BUSH & GUDGELL, INC.
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No.	Date	By	Revision

DATE: JULY 2021
DRAWN: AG
APPROVED: RS
SCALE: 1" = 40'
JOB NO.: 201053

CONCEPTUAL DRAINAGE PLAN
TWIN LAKES TOWNHOMES
LOCATED IN ST. GEORGE UTAH

SHEET 1 OF 1 SHEETS

FILE: HILLSIDE

AGEC
Applied GeoTech

June 16, 2021

TW Holdings, LLC
205 East Tabernacle, Suite No. 4
St George, Utah 84770

Attention: Bob Hermanson

Subject: Rockfall Hazard Assessment
Twin Lakes Multifamily
Twin Lakes Drive and Cottonwood Springs Road
St George, Utah
Project No. 2211526

Gentlemen:

Applied Geotechnical Engineering Consultants, Inc. (AGEC) was requested to evaluate potential rockfall hazard for the proposed Twin Lakes multifamily development located at Twin Lakes Drive and Cottonwood Springs Road in St George, Utah.

PROPOSED CONSTRUCTION

We understand the area is planned for multi-family residences.

GEOLOGY

The geology of the site is mapped by Hayden and Willis (2011) to consist of the Jurassic-age Kayenta Formation overlain in some areas by Quaternary-age talus. There are outcrops of basalt north of the site, which represents the main source for rockfall hazard at the site. The basalt is mapped as the Lava Ridge basalt.

SITE DESCRIPTION

The site has an abandoned road that extends in a general east-west direction through the north end of the property. There is a concrete pathway in the east side of the property and several filled areas in the south and central portions of the property. The north side of the property is a filled area from an abandoned road along the north boundary of the property and the west side has fill from Cottonwood Springs Road.

Vegetation at the site consists of a sparse coverage of grass and brush.

The general topography of the site along with proposed grading of the site are presented on Figure 1. The slope of the ground is generally down to the south with gentle slopes in all but the north side where the road cuts and fills are located. These slopes are near vertical to about 2 horizontal to 1 vertical.

There are residential developments to the north and east of the site, undeveloped land to the south, and hillside and commercial properties to the west.

ROCKFALL EVALUATION

A site visit was made on June 10, 2021. Source boulders for rockfall hazard originate from the basalt outcrops north of the site and from rocks forming talus on slopes, weathering from road cuts and rocks placed on road fills above the site. The rocks, which are mostly basalt but in some road cuts consist of rounded cobbles in alluvium or pieces of the Kayenta Formation, vary in size and shape. Potential rockfall rocks are up to approximately 5 feet in size. They range from angular blocks to rounded cobbles and boulders.

Reconnaissance of the rockfall source areas finds that there are numerous rocks that could potentially dislodge from the cliffs, slopes, and road cuts and fills above the site.

Review of aerial photographs from as far back as 1960 show two roads extending generally east-west; one through the north end of the property and the other just north of the site, which have since been abandoned. The roads along with site grading and disturbance do not allow for determining the rock runout distance. We have assumed a shadow angle of 22 degrees in selecting the rockfall hazard area on Figure 1, which has been found to provide a reasonable estimate for rock runout for the St. George area. The approximate area of rockfall hazard is presented on Figure 1.

ROCKFALL MITIGATION

The rockfall hazard could be mitigated by scaling rocks from slopes steeper than 2 horizontal to 1 vertical that have a potential to come loose either through erosion or seismic activity in the area. This would include scaling of source rocks from the property north of the site. Constructing barriers above areas to be protected could be used in conjunction with partial scaling of slopes or as the primary method of rockfall mitigation. Setting back from the rockfall-hazard areas is another option to consider.

We can assist in identifying rocks that may be a potential rockfall hazard, but some rocks of concern would need to be identified during the scaling operation. A contractor experienced in scaling rocks for mitigation of rockfall hazard should be used if scaling of rocks is the planned mitigation option.

LIMITATIONS

This letter has been prepared in accordance with generally accepted geologic engineering practices in the area for the use of the client. The conclusions and recommendations included in the letter are based on conditions observed during our field study and the topographic information provided. If conditions are significantly different from those described in this letter, we should be notified to reevaluate the recommendations given.

If you have questions or if we can be of further service, please call.

Sincerely,

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.



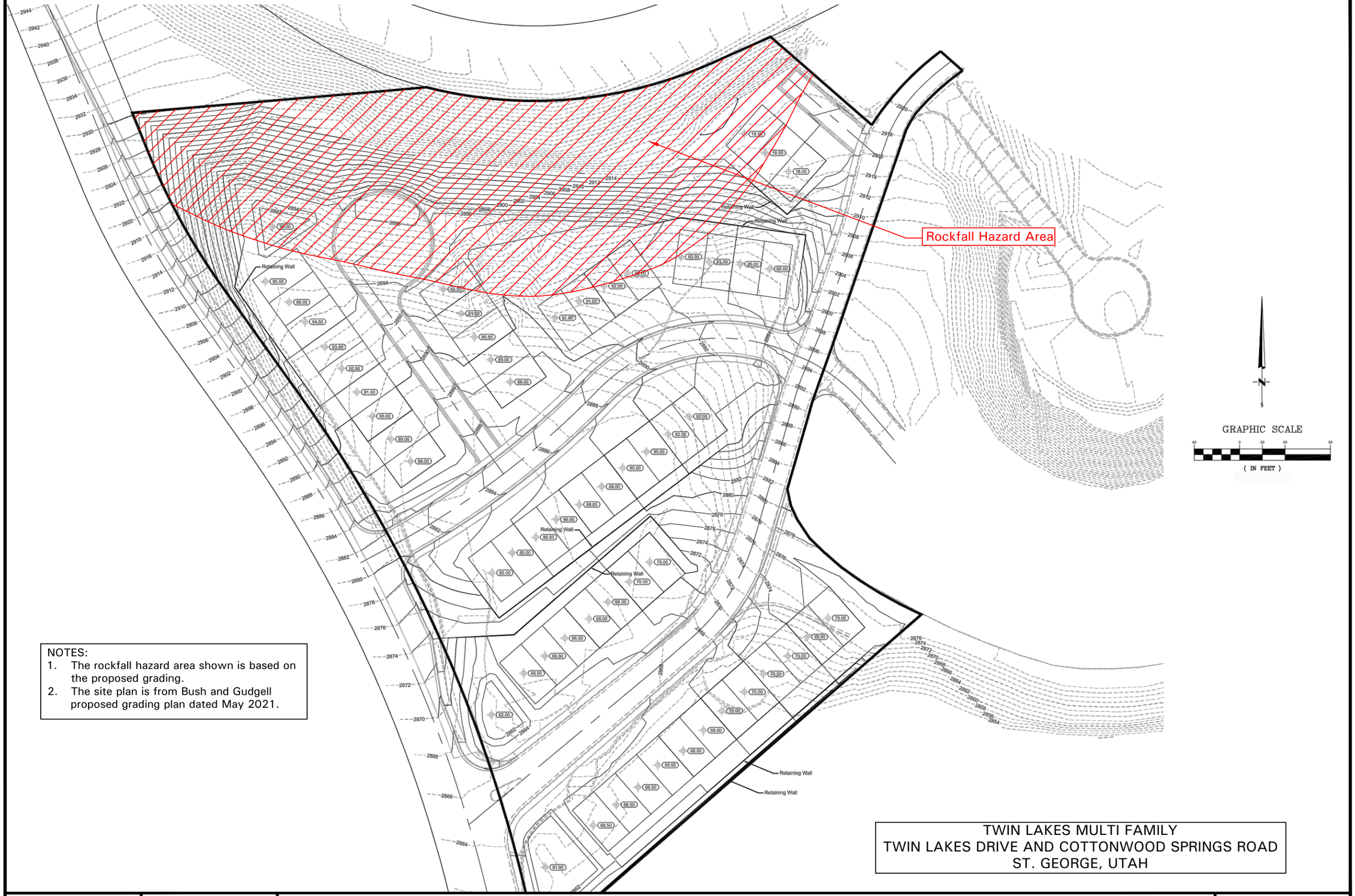
Douglas R. Hawkes, P.E., P.G.

Reviewed by JEN, P.E.

DRH/rs
Enclosure

Reference:

Hayden, J.M. and Willis, G.C. 2011; Geologic map of the St George quadrangle, Washington County, Utah, Utah Geological Survey Map 251DM.



NOTES:
1. The rockfall hazard area shown is based on the proposed grading.
2. The site plan is from Bush and Gudgell proposed grading plan dated May 2021.

TWIN LAKES MULTI FAMILY
TWIN LAKES DRIVE AND COTTONWOOD SPRINGS ROAD
ST. GEORGE, UTAH

2211526	AGEC	Rockfall Hazard Area	Figure 1