STATE OF COLORADO

Lennberg - DNR, Patrick <patrick.lennberg@state.co.us>

Adequacy Review No. 2, Bill Nelson Borrow Pit, M2023-010

JC York <jcyork@j-tconsulting.com> Tue, Jun 6, 2023 at 7:42 AM
To: "Lennberg - DNR, Patrick" <patrick.lennberg@state.co.us>, Blake Foerster <bfoerster@ihcscott.com>

Patrick –

Attached is the Adequacy Review No. 2 response. The only item not included is the stamped received paper from Washington County as Blake is delivering the materials to them today to put on file with them. As soon as I have the stamped received paper from the County I will send over.

Regards,

J.C.

J.C. York, P.E.

J&T Consulting, Inc.

305 Denver Avenue, Suite D

Fort Lupton, CO 80621

Office: (303) 857-6222

Mobile: (970) 222-9530

FAX: (303) 857-6224

From: Lennberg - DNR, Patrick <patrick.lennberg@state.co.us>
Sent: Friday, May 26, 2023 1:57 PM
To: Blake Foerster <bfoerster@ihcscott.com>; JC York <jcyork@j-tconsulting.com>
Subject: Adequacy Review No. 2, Bill Nelson Borrow Pit, M2023-010

Good Afternoon,

[Quoted text hidden]

M-2023-010 JT DRMS Nelson Adequacy Review 2 Letter Response 6.2.23_.pdf
9009K

J&T Consulting, Inc.

June 2, 2023

Mr. Patrick Lennberg
Environmental Protection Specialist
Physical Address:
1313 Sherman Street, Room 215
Denver, CO 80203
Mailing Address:
Division of Reclamation, Mining and Safety, Room 215
1001 East 62nd Avenue
Denver, CO 80216

RE: IHC Scott, Inc. – W. Max (Bill Nelson) Borrow Pit, File No. M-2023-010, New 111 Construction Materials Application Adequacy Review Letter No. 2 Response

Dear Mr. Lennberg,

IHC Scott, Inc has received the Division's Adequacy Review Letter No. 2 of the Special Operation 111 Construction Materials Permit Application letter dated May 26, 2023. Below are the comments and the corresponding responses that we have provided to address the adequacy review comments.

1. The Division reviewed the updated maps and there are three permanent man-made structures, which the Operator needs to obtain structure agreements for, within 200 feet of the affected land boundary. Those structures are County Road CR4/CRJ, the fence between the Nelson/Schueller properties and the Mountain View Electric Association powerline and poles. Pursuant to Rule 6.3.12, where the mining operation will adversely affect the stability of any significant, valuable and permanent man- made structures, located within 200 feet of the affected land, the applicant may either:

    a. Provide a notarized agreement between the applicant and the person(s) having an interest in the structure, that the Applicant is to provide compensation for any damage to the structure*; or

        Response: The structure agreements for the fence, county road, and powerline and poles are attached that have been sent to the structure owners for their signatures. The agreements for Washington County and Mountain View Electric Association were emailed to email addresses each entity provided to us. The Shueller agreement was hand delivered by Mr. Blake Foerster with IHC Scott to Bill Shueller.

    b. Where such an agreement cannot be reached, the applicant shall provide an engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation; or

        Response: A slope stability evaluation is attached that demonstrates the no damage to the adjacent structures will occur as a result of the mining activities.

c. Where such structure is a utility, the Applicant may supply a notarized letter, on utility letterhead, from the owner(s) of the utility that the mining and reclamation activities, as proposed, will have "no negative effect" on their utility.

Response: Acknowledged

* Structure agreements shall be sent by a trackable method, i.e. certified mail. In addition, the individual structure agreements shall be labeled with the certified mail number or other tracking number. A sample agreement form has been provided as an Attachment.

2. Pursuant to Rule 1.6.2(2), please demonstrate that the Applicant's response to these adequacy issues have been placed with the application materials previously placed with the County Clerk or Recorders Office, and made available for public review.

Response: A copy of the Applicant's response to these adequacy issues has been made available for public review at the County Clerk and Recorders Office. A copy of the transmittal stamped received is attached.

Thank you for your consideration of our responses to the comments. Please feel free to contact me with any questions or if you need additional information.

Sincerely,

J.C. York, P.E.
J&T Consulting, Inc.

Attachments:

1) Structure agreement for William & Hannah Schueller for the fence adjacent to affected lands signed by IHC Scott, Inc.
2) Structure agreement for Washington County for the county roads adjacent to affected lands signed by IHC Scott, Inc.
3) Structure agreement for Mountain View Electric Association for the powerline and poles adjacent to affected lands signed by IHC Scott, Inc.
4) E-mail to Washington County with structure agreement attachment.
5) E-mail to Mountain View Electric Association with structure agreement attachment.
6) Letter from Blake Foerster on hand delivery of Shueller agreement.
7) Slope Stability Report
8) Copy of Washington County Stamped Transmittal

An example Structure Agreement which meets the requirements of the Statutes is shown below.
****

Structure Agreement

This letter has been provided to you as the owner of a structure on or within two hundred (200) feet of a proposed mine site. The State of Colorado, Division of Reclamation, Mining and Safety ("Division") requires that where a mining operation will adversely affect the stability of any significant, valuable and permanent man-made structure located within two hundred (200) feet of the affected land, the Applicant shall either:

a) Provide a notarized agreement between the Applicant and the Person(s) having an interest in the structure, that the Applicant is to provide compensation for any damage to the structure; or

b) Where such an agreement cannot be reached, the Applicant shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation; or

c) Where such structure is a utility, the Applicant may supply a notarized letter, on utility letterhead, from the owner(s) of the utility that the mining and reclamation activities, as proposed, will have "no negative effect" on their utility. (*Construction Materials Rule 6.3.12 and Rule 6.4.19 & Hard Rock/Metal Mining Rule 6.3.12 and Rule 6.4.20)*

The Colorado Mined Land Reclamation Board ("Board") has determined that this form, if properly executed, represents an agreement that complies with Construction Materials Rule 6.3.12(a), Rule 6.4.19(a), and C.R.S. § 34-32.5-115(4)(e) and with Hard Rock/Metal Mining Rule 6.3.12(a), Rule 6.4.20(a), and C.R.S. § 34-32-115(4)(d). This form is for the sole purpose of ensuring compliance with the Rules and Regulations and shall not make the Board or Division a necessary party to any private civil lawsuit to enforce the terms of the agreement or create any enforcement obligations in the Board or the Division.

The following structures are located on or within 200 feet of the proposed affected area:

1. Fence _____
2. _____
3. _____
4. _____
5. _____

(*Please list additional structures on a separate page*)

CERTIFICATION

The Applicant, IHC Scott, Inc. (print applicant/company name), by John Medberry (print representative's name), as Vice President (print representative's title), does hereby certify that William & Hannah Schueller (structure owner) shall be compensated for any damage from the proposed mining operation to the above listed structure(s) located on or within 200 feet of the proposed affected area described within Exhibit A, of the Reclamation Permit Application for W. Max (Bill Nelson) Borrow Pit (operation name), File Number M-2023-010.

This form has been approved by the Colorado Mined Land Reclamation Board pursuant to its authority under the Colorado Land Reclamation Act for the Extraction of Construction Materials and the Colorado Mined Land Reclamation Act for Hard Rock, Metal, and Designated Mining Operations. Any alteration or modification to this form shall result in voiding this form.

NOTARY FOR PERMIT APPLICANT

ACKNOWLEGED BY:

Applicant IHC Scott Inc. Representative Name John Medberry

Date 5/30/23 Title Vice President

STATE OF Colorado)
) ss.
COUNTY OF Arapahoe)

The foregoing was acknowledged before me this 30 day of May, 2023, by John Medberry as Vice President of IHC Scott Inc.

Patricia Parrino
Notary Public

My Commission Expires: May 28, 2024

PATRICIA PARRINO
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20104015234
MY COMMISSION EXPIRES MAY 28, 2024

NOTARY FOR STRUCTURE OWNER

ACKNOWLEGED BY:

Structure Owner _____ Name _____

Date _____ Title _____

STATE OF _____)
) ss.
COUNTY OF_____)

The foregoing was acknowledged before me this____ day of _____, 20___, by _____ as _____ of _____.

_____ My Commission Expires:_____
Notary Public

An example Structure Agreement which meets the requirements of the Statutes is shown below.
****

Structure Agreement

This letter has been provided to you as the owner of a structure on or within two hundred (200) feet of a proposed mine site. The State of Colorado, Division of Reclamation, Mining and Safety ("Division") requires that where a mining operation will adversely affect the stability of any significant, valuable and permanent man-made structure located within two hundred (200) feet of the affected land, the Applicant shall either:

a) Provide a notarized agreement between the Applicant and the Person(s) having an interest in the structure, that the Applicant is to provide compensation for any damage to the structure; or

b) Where such an agreement cannot be reached, the Applicant shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation; or

c) Where such structure is a utility, the Applicant may supply a notarized letter, on utility letterhead, from the owner(s) of the utility that the mining and reclamation activities, as proposed, will have "no negative effect" on their utility. (*Construction Materials Rule 6.3.12 and Rule 6.4.19 & Hard Rock/Metal Mining Rule 6.3.12 and Rule 6.4.20)*

The Colorado Mined Land Reclamation Board ("Board") has determined that this form, if properly executed, represents an agreement that complies with Construction Materials Rule 6.3.12(a), Rule 6.4.19(a), and C.R.S. § 34-32.5-115(4)(e) and with Hard Rock/Metal Mining Rule 6.3.12(a), Rule 6.4.20(a), and C.R.S. § 34-32-115(4)(d). This form is for the sole purpose of ensuring compliance with the Rules and Regulations and shall not make the Board or Division a necessary party to any private civil lawsuit to enforce the terms of the agreement or create any enforcement obligations in the Board or the Division.

The following structures are located on or within 200 feet of the proposed affected area:

1. County Roads 4 & J
2. _____
3. _____
4. _____
5. _____

(*Please list additional structures on a separate page*)

CERTIFICATION

The Applicant, IHC Scott, Inc. (print applicant/company name), by John Medberry (print representative's name), as Vice President (print representative's title), does hereby certify that Washington County (structure owner) shall be compensated for any damage from the proposed mining operation to the above listed structure(s) located on or within 200 feet of the proposed affected area described within Exhibit A, of the Reclamation Permit Application for W. Max (Bill Nelson) Borrow Pit (operation name), File Number M-2023-010.

This form has been approved by the Colorado Mined Land Reclamation Board pursuant to its authority under the Colorado Land Reclamation Act for the Extraction of Construction Materials and the Colorado Mined Land Reclamation Act for Hard Rock, Metal, and Designated Mining Operations. Any alteration or modification to this form shall result in voiding this form.

NOTARY FOR PERMIT APPLICANT

ACKNOWLEGED BY:

Applicant IHC Scott Inc. Representative Name John Medberry

Date 5/30/23 Title Vice President

STATE OF Colorado)
) ss.
COUNTY OF Arapahoe)

The foregoing was acknowledged before me this 30 day of May, 2023, by John Medberry as Vice President of IHC Scott Inc..

Patricia Parrino My Commission Expires: May 28, 2024
Notary Public

PATRICIA PARRINO
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20104015234
MY COMMISSION EXPIRES MAY 28, 2024

NOTARY FOR STRUCTURE OWNER

ACKNOWLEGED BY:

Structure Owner _____ Name _____

Date _____ Title _____

STATE OF _____)
) ss.
COUNTY OF_____)

The foregoing was acknowledged before me this____ day of _____, 20___, by _____ as _____ of _____.

_____ My Commission Expires:_____
Notary Public

An example Structure Agreement which meets the requirements of the Statutes is shown below.
****

Structure Agreement

This letter has been provided to you as the owner of a structure on or within two hundred (200) feet of a proposed mine site. The State of Colorado, Division of Reclamation, Mining and Safety ("Division") requires that where a mining operation will adversely affect the stability of any significant, valuable and permanent man-made structure located within two hundred (200) feet of the affected land, the Applicant shall either:

a) Provide a notarized agreement between the Applicant and the Person(s) having an interest in the structure, that the Applicant is to provide compensation for any damage to the structure; or

b) Where such an agreement cannot be reached, the Applicant shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation; or

c) Where such structure is a utility, the Applicant may supply a notarized letter, on utility letterhead, from the owner(s) of the utility that the mining and reclamation activities, as proposed, will have "no negative effect" on their utility. (*Construction Materials Rule 6.3.12 and Rule 6.4.19 & Hard Rock/Metal Mining Rule 6.3.12 and Rule 6.4.20)*

The Colorado Mined Land Reclamation Board ("Board") has determined that this form, if properly executed, represents an agreement that complies with Construction Materials Rule 6.3.12(a), Rule 6.4.19(a), and C.R.S. § 34-32.5-115(4)(e) and with Hard Rock/Metal Mining Rule 6.3.12(a), Rule 6.4.20(a), and C.R.S. § 34-32-115(4)(d). This form is for the sole purpose of ensuring compliance with the Rules and Regulations and shall not make the Board or Division a necessary party to any private civil lawsuit to enforce the terms of the agreement or create any enforcement obligations in the Board or the Division.

The following structures are located on or within 200 feet of the proposed affected area:

1. Power Lines & Poles
2. _____
3. _____
4. _____
5. _____

(*Please list additional structures on a separate page*)

CERTIFICATION

The Applicant, IHC Scott, Inc. (print applicant/company name), by John Medberry (print representative's name), as Vice President (print representative's title), does hereby certify that Mountain View Electric Association (structure owner) shall be compensated for any damage from the proposed mining operation to the above listed structure(s) located on or within 200 feet of the proposed affected area described within Exhibit A, of the Reclamation Permit Application for W. Max (Bill Nelson) Borrow Pit (operation name), File Number M-2023-010.

This form has been approved by the Colorado Mined Land Reclamation Board pursuant to its authority under the Colorado Land Reclamation Act for the Extraction of Construction Materials and the Colorado Mined Land Reclamation Act for Hard Rock, Metal, and Designated Mining Operations. Any alteration or modification to this form shall result in voiding this form.

NOTARY FOR PERMIT APPLICANT

ACKNOWLEGED BY:

Applicant IHC Scott Inc. Representative Name John Medberry

Date 5/30/23 Title Vice President

STATE OF Colorado)
) ss.
COUNTY OF Arapahoe)

The foregoing was acknowledged before me this 30 day of May, 2023, by John Medberry as Vice President of IHC Scott Inc..

Patricia Parrino My Commission Expires: May 28, 2024
Notary Public

PATRICIA PARRINO
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20104015234
MY COMMISSION EXPIRES MAY 28, 2024

NOTARY FOR STRUCTURE OWNER

ACKNOWLEGED BY:

Structure Owner _____ Name _____

Date _____ Title _____

STATE OF _____)
) ss.
COUNTY OF_____)

The foregoing was acknowledged before me this____ day of _____, 20___, by _____ as _____ of _____.

_____ My Commission Expires:_____
Notary Public

JC York

From: JC York
Sent: Tuesday, May 30, 2023 2:59 PM
To: rmcmullen@co.washington.co.us
Cc: Blake Foerster; Chris Hurley; John Medberry; Brian Martinez
Subject: Structure Agreement for IHC Scott for DRMS Permit M-2023-010
Attachments: Washington County Structure Agreement 5.30.23.pdf; 1 Exhibit E - Mining Plan Map.pdf

Rebecca –

Per our phone conversation attached is the structure agreement that the Division of Reclamation, Mining, and Safety (Division) requires IHC Scott to try and get from structure owners that are within 200 feet of the permit boundary for the Special 111 Construction Materials permit. If the agreement can't be signed then the Division will refer back to an engineering stability analysis that shows that the slopes being mined at this site will not cause damage to the structure which in this case is the County Road J/County Road 4 where the access from the borrow area is. I have also attached a map showing the location of the access and mining for reference.

If you are able to have someone sign and also notarize for Washington County then we can provide back to the Division so IHC Scott may receive their approval on this permit.

Regards,

J.C.

J.C. York, P.E.

J&T Consulting, Inc.
305 Denver Avenue, Suite D
Fort Lupton, CO 80621

Office: (303) 857-6222
Mobile: (970) 222-9530
FAX: (303) 857-6224

An example Structure Agreement which meets the requirements of the Statutes is shown below.
****

Structure Agreement

This letter has been provided to you as the owner of a structure on or within two hundred (200) feet of a proposed mine site. The State of Colorado, Division of Reclamation, Mining and Safety ("Division") requires that where a mining operation will adversely affect the stability of any significant, valuable and permanent man-made structure located within two hundred (200) feet of the affected land, the Applicant shall either:

a) Provide a notarized agreement between the Applicant and the Person(s) having an interest in the structure, that the Applicant is to provide compensation for any damage to the structure; or

b) Where such an agreement cannot be reached, the Applicant shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation; or

c) Where such structure is a utility, the Applicant may supply a notarized letter, on utility letterhead, from the owner(s) of the utility that the mining and reclamation activities, as proposed, will have "no negative effect" on their utility. (*Construction Materials Rule 6.3.12 and Rule 6.4.19 & Hard Rock/Metal Mining Rule 6.3.12 and Rule 6.4.20)*

The Colorado Mined Land Reclamation Board ("Board") has determined that this form, if properly executed, represents an agreement that complies with Construction Materials Rule 6.3.12(a), Rule 6.4.19(a), and C.R.S. § 34-32.5-115(4)(e) and with Hard Rock/Metal Mining Rule 6.3.12(a), Rule 6.4.20(a), and C.R.S. § 34-32-115(4)(d). This form is for the sole purpose of ensuring compliance with the Rules and Regulations and shall not make the Board or Division a necessary party to any private civil lawsuit to enforce the terms of the agreement or create any enforcement obligations in the Board or the Division.

The following structures are located on or within 200 feet of the proposed affected area:

1. County Roads 4 & J
2. _____
3. _____
4. _____
5. _____

(*Please list additional structures on a separate page*)

CERTIFICATION

The Applicant, IHC Scott, Inc. (print applicant/company name), by John Medberry (print representative's name), as Vice President (print representative's title), does hereby certify that Washington County (structure owner) shall be compensated for any damage from the proposed mining operation to the above listed structure(s) located on or within 200 feet of the proposed affected area described within Exhibit A, of the Reclamation Permit Application for W. Max (Bill Nelson) Borrow Pit (operation name), File Number M-2023-010.

This form has been approved by the Colorado Mined Land Reclamation Board pursuant to its authority under the Colorado Land Reclamation Act for the Extraction of Construction Materials and the Colorado Mined Land Reclamation Act for Hard Rock, Metal, and Designated Mining Operations. Any alteration or modification to this form shall result in voiding this form.

NOTARY FOR PERMIT APPLICANT

ACKNOWLEGED BY:

Applicant IHC Scott Inc. Representative Name John Medberry

Date 5/30/23 Title Vice President

STATE OF Colorado)
) ss.
COUNTY OF Arapahoe)

The foregoing was acknowledged before me this 30 day of May, 2023, by John Medberry as Vice President of IHC Scott Inc..

Patricia Parrino My Commission Expires: May 28, 2024
Notary Public

PATRICIA PARRINO
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20104015234
MY COMMISSION EXPIRES MAY 28, 2024

NOTARY FOR STRUCTURE OWNER

ACKNOWLEGED BY:

Structure Owner _____ Name _____

Date _____ Title _____

STATE OF _____)
) ss.
COUNTY OF_____)

The foregoing was acknowledged before me this____ day of _____, 20___, by _____ as _____ of _____.

_____ My Commission Expires:_____
Notary Public

LEGEND:

- EXISTING CONTOURS (5280)
- PROPERTY LINE
- EXISTING FENCE
- EXISTING OVERHEAD ELECTRIC (OE)
- EXISTING POWER POLE
- SECTION LINE
- PERMIT BOUNDARY
- MINING LIMIT
- STOCKPILE AREA
- A — PROPERTY OWNER MAP ID

PROPERTY OWNERS WITHIN 200 FEET

MAP ID	NAME/ADDRESS	ASSESSORS ID NO.
	WASHINGTON COUNTY	
A	W. MAX & KENDALL NELSON 3502 CO RD H GENOA, CO 80818	7305000110
B	WILLIAM & HANNAH SCHUELLER 7811 CO RD O GENOA, CO 80818	7303000077 7309000027

VEGETATION:

THE VEGETATION THROUGHOUT THE PROJECT AREA CONTAINS BIG SAGEBRUSH (ARTEMISIA TRIDENTATA). THE HERBACEOUS UNDERSTORY MIXED WITHIN THE SHRUBS IN THE PROJECT AREA CONSISTS OF BLUE GRAMA, NEEDLE–AND–THREAD, BUFFALO GRASS, PRAIRIE JUNEGRASS AND COMPRISES 75–90% GROUND COVER, WHICH IS TYPICAL VEGETATION SPECIES COMPOSITION IN THE REGION AND OF THE VEGETATIVE COMMUNITY.

NOTE:
W. MAX AND KENDALL NELSON. ARE THE SURFACE AND SUBSURFACE OWNERS WITHIN THE PERMIT AREA.

PERMIT AREA = 9.94 AC
MINING AREA = 2.89 AC

N

100 50 0 100 200 300
SCALE IN FEET

J&T Consulting, Inc.
305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303-857-6222
www.j-tconsulting.com

W.Max (Bill Nelson) Borrow Pit

Exhibit E - Mining Plan Map

IHC Scott, Inc.

M-2023-010

REVISIONS				
No	Date	By	Chk	Description

J&T Consulting, Inc.
5/22/2023

Job #	23018
Date	5.22.23
Drawn By	TPY
Designed By	TPY
Checked By	JCY
File	IHCS Nelson Mining.dwg
Scale	As Shown

Sheet: 1 Of: 2

JC York

From: JC York
Sent: Tuesday, May 30, 2023 3:05 PM
To: engineering@mvea.coop
Cc: Blake Foerster; Chris Hurley; John Medberry; Brian Martinez
Subject: Structure Agreement for IHC Scott for DRMS Permit M-2023-010 near County Road J/County Road 4
Attachments: MVEA Structure Agreement 5.30.23.pdf; 1 Exhibit E - Mining Plan Map.pdf

Per our phone conversation attached is the structure agreement that the Division of Reclamation, Mining, and Safety (Division) requires IHC Scott to try and get from structure owners that are within 200 feet of the permit boundary for the Special 111 Construction Materials permit. If the agreement can't be signed then the Division will refer back to an engineering stability analysis that shows that the slopes being mined at this site will not cause damage to the structure which in this case is the Power Pole and Power Lines where the access from the borrow area is. I have also attached a map showing the location of the access and mining for reference.

If you are able to have someone sign and also notarize for Mountain Valley Electric Association then we can provide back to the Division so IHC Scott may receive their approval on this permit.

Regards,

J.C.

J.C. York, P.E.

J&T Consulting, Inc.
305 Denver Avenue, Suite D
Fort Lupton, CO 80621

Office: (303) 857-6222
Mobile: (970) 222-9530
FAX: (303) 857-6224

An example Structure Agreement which meets the requirements of the Statutes is shown below.
****

Structure Agreement

This letter has been provided to you as the owner of a structure on or within two hundred (200) feet of a proposed mine site. The State of Colorado, Division of Reclamation, Mining and Safety ("Division") requires that where a mining operation will adversely affect the stability of any significant, valuable and permanent man-made structure located within two hundred (200) feet of the affected land, the Applicant shall either:

a) Provide a notarized agreement between the Applicant and the Person(s) having an interest in the structure, that the Applicant is to provide compensation for any damage to the structure; or

b) Where such an agreement cannot be reached, the Applicant shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation; or

c) Where such structure is a utility, the Applicant may supply a notarized letter, on utility letterhead, from the owner(s) of the utility that the mining and reclamation activities, as proposed, will have "no negative effect" on their utility. (*Construction Materials Rule 6.3.12 and Rule 6.4.19 & Hard Rock/Metal Mining Rule 6.3.12 and Rule 6.4.20)*

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The following structures are located on or within 200 feet of the proposed affected area:

1. Power Lines & Poles
2. _____
3. _____
4. _____
5. _____

(*Please list additional structures on a separate page*)

CERTIFICATION

The Applicant, IHC Scott, Inc. (print applicant/company name), by John Medberry (print representative's name), as Vice President (print representative's title), does hereby certify that Mountain View Electric Association (structure owner) shall be compensated for any damage from the proposed mining operation to the above listed structure(s) located on or within 200 feet of the proposed affected area described within Exhibit A, of the Reclamation Permit Application for W. Max (Bill Nelson) Borrow Pit (operation name), File Number M-2023-010.

This form has been approved by the Colorado Mined Land Reclamation Board pursuant to its authority under the Colorado Land Reclamation Act for the Extraction of Construction Materials and the Colorado Mined Land Reclamation Act for Hard Rock, Metal, and Designated Mining Operations. Any alteration or modification to this form shall result in voiding this form.

NOTARY FOR PERMIT APPLICANT

ACKNOWLEGED BY:

Applicant IHC Scott Inc. Representative Name John Medberry

Date 5/30/23 Title Vice President

STATE OF Colorado)
) ss.
COUNTY OF Arapahoe)

The foregoing was acknowledged before me this 30 day of May, 2023, by John Medberry as Vice President of IHC Scott Inc..

Patricia Parrino My Commission Expires: May 28, 2024
Notary Public

PATRICIA PARRINO
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20104015234
MY COMMISSION EXPIRES MAY 28, 2024

NOTARY FOR STRUCTURE OWNER

ACKNOWLEGED BY:

Structure Owner _____ Name _____

Date _____ Title _____

STATE OF _____)
) ss.
COUNTY OF_____)

The foregoing was acknowledged before me this____ day of _____, 20___, by _____ as _____ of _____.

_____ My Commission Expires:_____
Notary Public

LEGEND:

- EXISTING CONTOURS (5280)
- PROPERTY LINE
- EXISTING FENCE
- EXISTING OVERHEAD ELECTRIC (OE)
- EXISTING POWER POLE
- SECTION LINE
- PERMIT BOUNDARY
- MINING LIMIT
- STOCKPILE AREA
- A — PROPERTY OWNER MAP ID

PROPERTY OWNERS WITHIN 200 FEET

MAP ID	NAME/ADDRESS	ASSESSORS ID NO.
	WASHINGTON COUNTY	
A	W. MAX & KENDALL NELSON 3502 CO RD H GENOA, CO 80818	7305000110
B	WILLIAM & HANNAH SCHUELLER 7811 CO RD O GENOA, CO 80818	7303000077 7309000027

VEGETATION:

THE VEGETATION THROUGHOUT THE PROJECT AREA CONTAINS BIG SAGEBRUSH (ARTEMISIA TRIDENTATA). THE HERBACEOUS UNDERSTORY MIXED WITHIN THE SHRUBS IN THE PROJECT AREA CONSISTS OF BLUE GRAMA, NEEDLE–AND–THREAD, BUFFALO GRASS, PRAIRIE JUNEGRASS AND COMPRISES 75–90% GROUND COVER, WHICH IS TYPICAL VEGETATION SPECIES COMPOSITION IN THE REGION AND OF THE VEGETATIVE COMMUNITY.

NOTE:
W. MAX AND KENDALL NELSON. ARE THE SURFACE AND SUBSURFACE OWNERS WITHIN THE PERMIT AREA.

PERMIT AREA = 9.94 AC
MINING AREA = 2.89 AC

N

100 50 0 100 200 300
SCALE IN FEET

J&T Consulting, Inc.
305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303-857-6222
www.j-tconsulting.com

W.Max (Bill Nelson) Borrow Pit

Exhibit E - Mining Plan Map

IHC Scott, Inc.

M-2023-010

REVISIONS				
No	Date	By	Chk	Description

J&T Consulting, Inc.
5/22/2023

Job #	23018
Date	5.22.23
Drawn By	TPY
Designed By	TPY
Checked By	JCY
File	IHCS Nelson Mining.dwg
Scale	As Shown

Sheet: 1 Of: 2

Mr. Patrick Lennberg
Environmental Protection Specialist
Department of Natural Resources
Physical Address:
1313 Sherman Street, Room 215
Denver, CO 80203
Mailing Address:
Division of Reclamation, Mining and Safety, Room 215
1001 East 62nd Avenue
Denver, CO 80216

Re: IHC Scott, Inc. – W. Max (Bill Nelson) Borrow Pit, File No. M-2023-010, New 111 Construction Materials Application – Shueller Structure Agreement – Proof of Delivery

Mr. Lennberg:

Please accept this letter as evidence that the applicant/miner, IHC Scott, Inc., hand delivered the structure agreement for the Shueller's for the W. Max (Bill Nelson) Borrow Pit.

Thank you,

Mr. Blake Foerster
IHC Scott, Inc.

State of Colorado)
)ss
County of Denver)

The foregoing instrument was acknowledged before me this 2nd day of June, 2023, by Nancy Engelmann and IHC Scott, Inc..

Notary Public
My Commission Expires 12-31-2023

NANCY A. ENGELMANN
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20194048176
MY COMMISSION EXPIRES DECEMBER 31, 2023

SLOPE STABILITY REPORT

FOR THE
W. MAX (BILL NELSON) BORROW PIT
WASHINGTON COUNTY, COLORADO

MAY 2023

PREPARED FOR:

IHC SCOTT

10303 EAST DRY CREEK ROAD, #300
ENGLEWOOD, CO 80112
(303) 790-9100

PREPARED BY:

J&T Consulting, Inc.

305 DENVER AVENUE – SUITE D
FORT LUPTON, CO 80621
PHONE: 303-857-6222

CERTIFICATION:

I hereby certify this slope stability analysis for IHC Scott, Inc., the W. Max (Bill Nelson) Borrow Pit, located in Washington County, Colorado was prepared by me or under my direct supervision.

James C. York
Registered Professional Engineer
State of Colorado No. 36846

Table of Contents

INTRODUCTION

IHC Scott, Inc., proposes to mine the site located in the southeast 1/4 of Section 8, and the northeast 1/4 of Section 17, Township 5 South, Range 55 West of the 6th Principal Meridian, in Washington County, Colorado. The site is bounded by private property on the south, west, and, north sides, and Washington County Roads J & 4 on the east side. The proposed mining operation will extract gravel reserves from locations adjacent to man-made structures. The rules and regulations of the Division of Reclamation, Mining, and Safety (DRMS) require that any mining within a 200-foot setback of a man-made structure show thorough engineering analysis that the proposed mining will not cause damage to the structure. The accepted method of demonstrating this is through a slope stability analysis. This report contains an overview of the methodology used in the analysis of the mining slopes and their estimated affects on all man-made structures. Recommendations regarding acceptable setbacks from man-made structures have also been included.

OVERVIEW

The DRMS mining plan proposes that the property will be mined in a single pit, and reclaimed as natural pasture seeded areas. The mining/reclamation will occur at 3H:1V slopes. All disturbed areas will be reclaimed by scarifying, topsoiling, and seeding the areas.

GEOTECHNICAL DATA

A National Resource Conservation Service (NRCS) soils map and soil descriptions for the soils located on the site are included in Appendix D. J&T Consulting, Inc. (JT) estimated soil strength parameters based on the information from the NRCS soil descriptions and other stability analyses that have been performed on gravel mining operations along the Front Range. Table 1 below summarizes the soil strength parameters that were used in this stability analysis.

Table 1 – Soil Properties

Description	Max dry density (pcf)	Saturated Density (pcf)	Cohesion (psf)	Internal Friction Angle
Clay	107	130	50	24
Sand and Gravel	110	125	0	35

DESIGN ANALYSIS AND CRITERIA

The proposed mining slopes were analyzed using Clover Technologies Galena Slope Stability Analysis System, version 7.2. Galena was designed to analyze the slope stability of earth embankments subjected to several critical situations that may occur during the life of the embankment. For this project, one case was identified as critical during the mining operation. Static and pseudo-static conditions were analyzed for the case.

Pseudo-static peak acceleration factors (peak horizontal acceleration, or PHA) were taken from USGS information for the western United States. The 2% probability of exceedance in 50 years (the most conservative) was used. The USGS peak acceleration map is included in Appendix E. A peak acceleration factor of 0.06 x gravity was taken from this data. A conservative earthquake loading coefficient of 0.50 x PHA is often used for slope stability analyses (50% of PHA). We used an even more conservative approach and used 70% of the PHA for this area for our earthquake loading coefficient. Hence, 0.70 x 0.06 = 0.042.

All mining and reclamation side slopes will be 3H:1V.

The location of the case is shown on the case location map included in Appendix A.

Case SS-1 – Fence, County Roads J & 4, Power Lines & Poles East of Pit.
The mining operation is adjacent to a fence, County Roads J & 4, and power lines and poles on the east side of the pit. The proposed setbacks for mining are 2,124 feet from the fence, 2,184 feet from County Roads J & 4, and 2,251 feet from the power lines and poles. The mining depth was assumed to be 5 feet.

The cross-sections located in Appendix B show the estimated phreatic surface associated with the case, the geometry used in the mining/reclamation, and the locations of the man-made structures adjacent to the mining slopes.

METHODOLOGY

The mining embankment configuration shown in the computer analysis represents the estimated conditions for this site. If mining conditions differ from the estimated conditions, the slope stability will need to be re-evaluated on a case-by-case basis. The Bishop Method was used in the computer analysis for determining safety factors. The procedure searches for circular shear failures and automatically searches for the lowest safety factor. 20,000 separate failure surfaces were analyzed for each case. The required minimum safety factors are based on the policy of the Mined Land Reclamation Board (MLRB) for Factors of Safety for Slope Stability / Geotechnical Analyses.

SLOPE STABILITY RESULTS

When estimated soil strength parameters are used, the MLRB requires minimum safety factors of 1.50 for static condition analyses and 1.30 for pseudo-static (earthquake loading) condition analyses for embankments adjacent to critical structures. The calculated factors of safety are within the design criteria specified for this project and can be considered indicators of the mining slope performance under the various conditions. The results of the static condition and pseudo-static condition slope stability analyses are shown in Tables 2 and 3 below.

Table 2: Static Condition Slope Stability Analysis Results

Description	Calculated Factor of Safety	Required Minimum Factor of Safety
Case SS-1 –Fence, County Roads J & 4, Power Lines & Poles East of Pit – Static	236.84	1.50

Table 3: Pseudo-Static Condition Slope Stability Analysis Results

Description	Calculated Factor of Safety	Required Minimum Factor of Safety
Case SS-1 –Fence, County Roads J & 4, Power Lines & Poles East of Pit – EQ	12.05	1.30

The Galena analysis output files are included in Appendix C for all cases.

CONCLUSIONS AND RECOMMENDATIONS

Case SS-1 – At setbacks of 2,124 feet from the fence, 2,184 feet from County Roads J & 4, and 2,251 feet from the power lines and poles, the lowest resulting static condition safety factor of 236.84 exceeds the MLRB minimum requirement of 1.50 for an embankment adjacent to a critical structure. The lowest resulting pseudo-static condition safety factor of 12.05 exceeds the MLRB minimum requirement of 1.30 for an embankment adjacent to a critical structure subject to earthquake loading. The proposed setbacks are satisfactory.

The following recommendations for monitoring of slope stability should be followed:

1. A visual inspection of the excavated slopes should be done on a weekly basis for the duration of mining. This inspection should consist of walking the existing ground and looking for any signs of stress cracks or other potential signs of slope failure. Some minor sloughing of slopes is expected on any mine site. The intent of this inspection is to locate potential major slope failures that could potentially extend back into a structure.

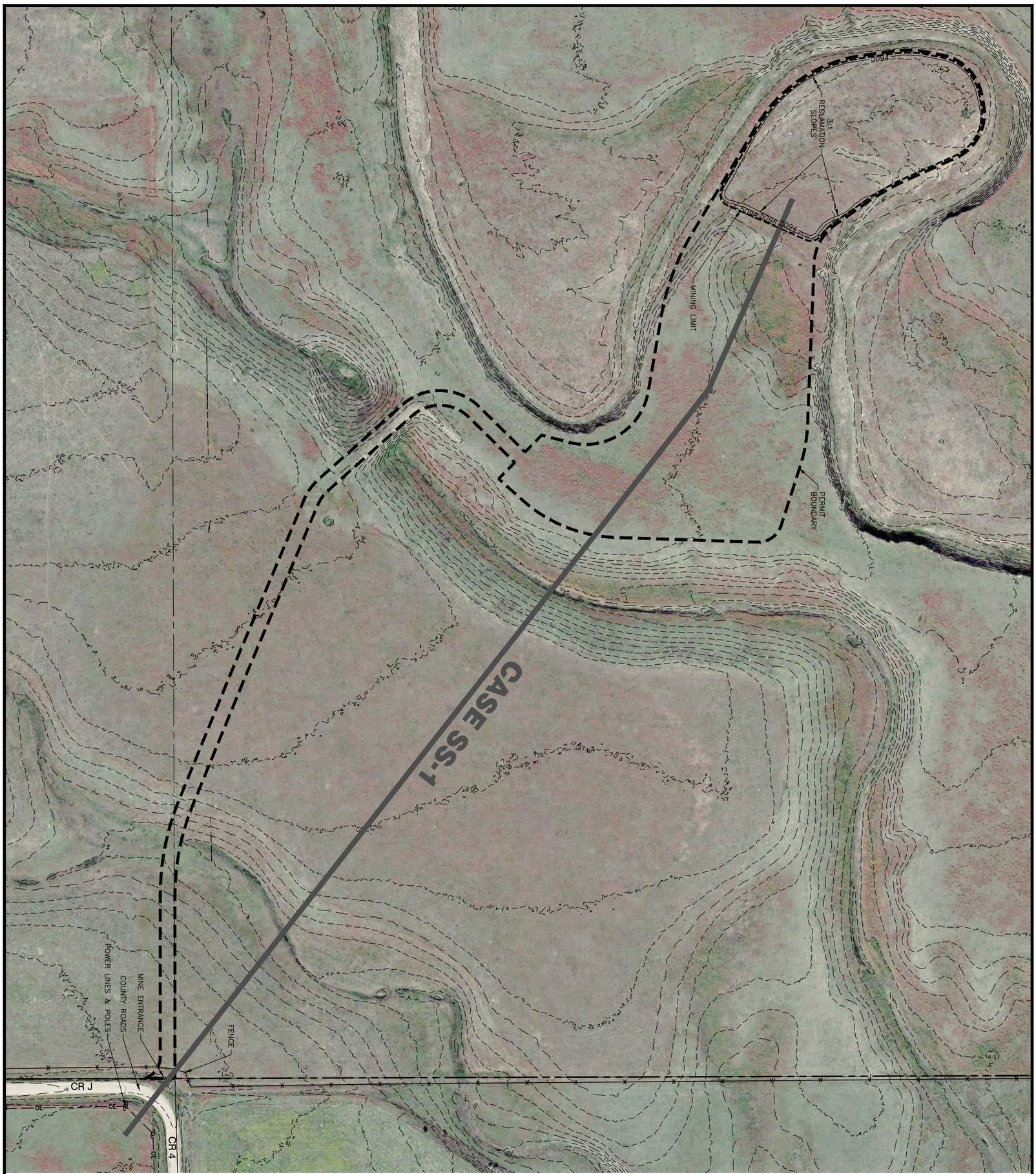
2. A visual inspection should be done after a major precipitation event that has saturated the ground using the same procedures. A major precipitation event would be defined as a storm that produces an intensity level reached once in 50 years on the average.

3. If a visual inspection detects signs of a potential slope failure, qualified personnel should be contacted to evaluate and recommend remediation work to stabilize the area.

4. If no visible signs of slope failure are detected during mining, then the inspection period could be reduced to once per 6 months after mining completion, or after every major precipitation event.

APPENDIX A

P:\23018 IHC Scott DRMS 111 Nelson Pit\Drawings\Plan Sheets\Slope Stability\IHCS Nelson SS.dwg, Slope Stability Case Location Map, 5/31/2023 11:29:02 AM



SCALE IN FEET
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Job #	23018			
Date	5.31.23			
Drawn By	TPY			
Designed By	TPY			
Checked By	JCY			
File	IHCS Nelson SS.dwg			
Scale	As Shown			

REVISIONS

No.	Date	By	Chk	Description

IHC Scott, Inc.

M-2023-010

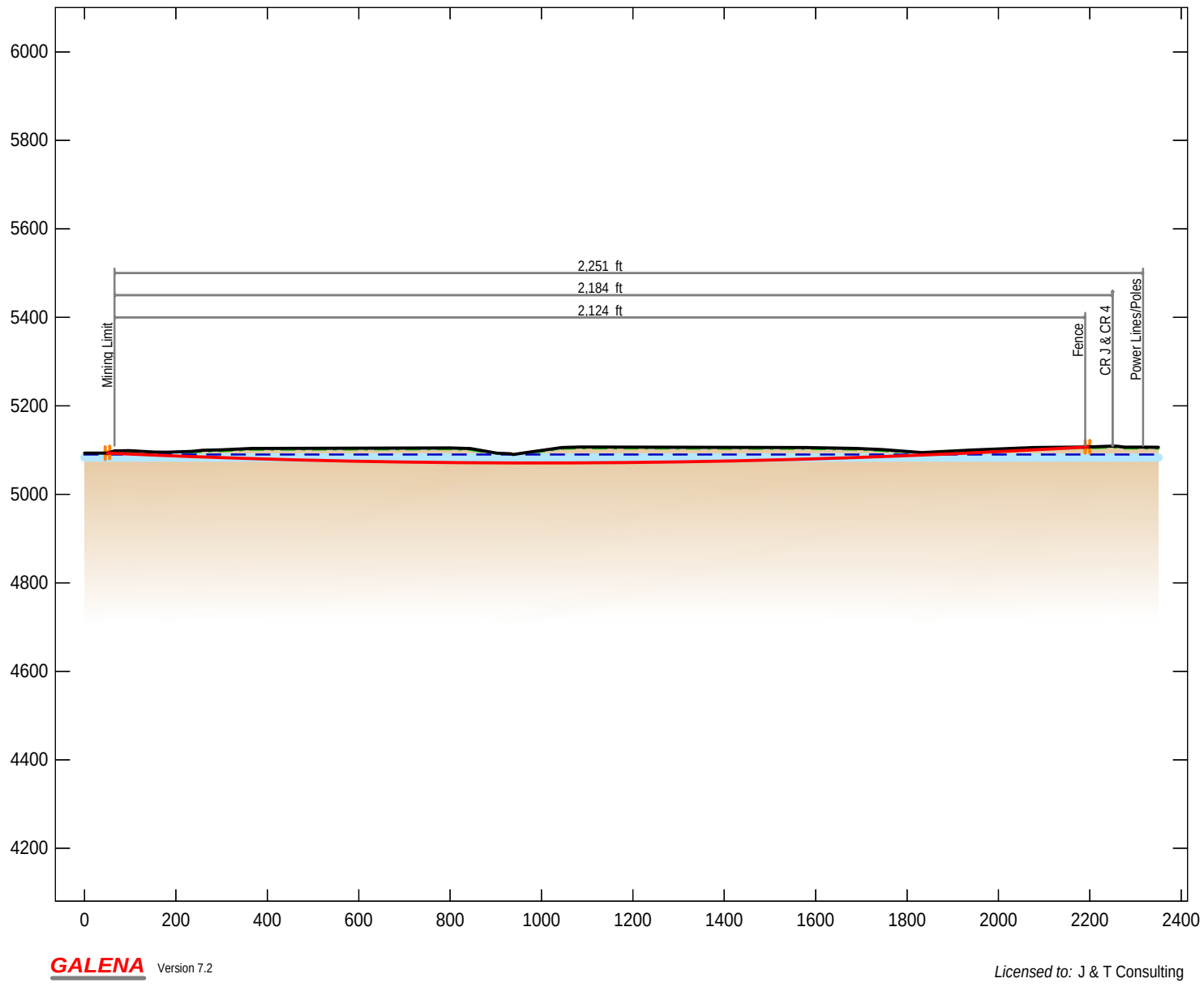
W. Max (Bill Nelson) Borrow Pit

Slope Stability Case Location Map

J&T Consulting, Inc.

305 Denver Avenue - Suite D
Fort Lupton, CO 80621
Ph: 303-857-6222
www.j-tconsulting.com

APPENDIX B



GALENA Version 7.2

Licensed to: J & T Consulting

Material Keys

1: Sand and Gravel (c:0 ø:35 g:125)

2: Clay (c:50 ø:24 g:130)

Note:
When Galena calculates Factors of Safety over 100 it reports the Critical Factor of Safety as undertermined. The Factor of Safety shown below was taken from the detailed program output. See output file in Appendix C.

Analysis 1

Multiple Stability Analysis

Method: Bishop Simplified

Surface: Circular

Results

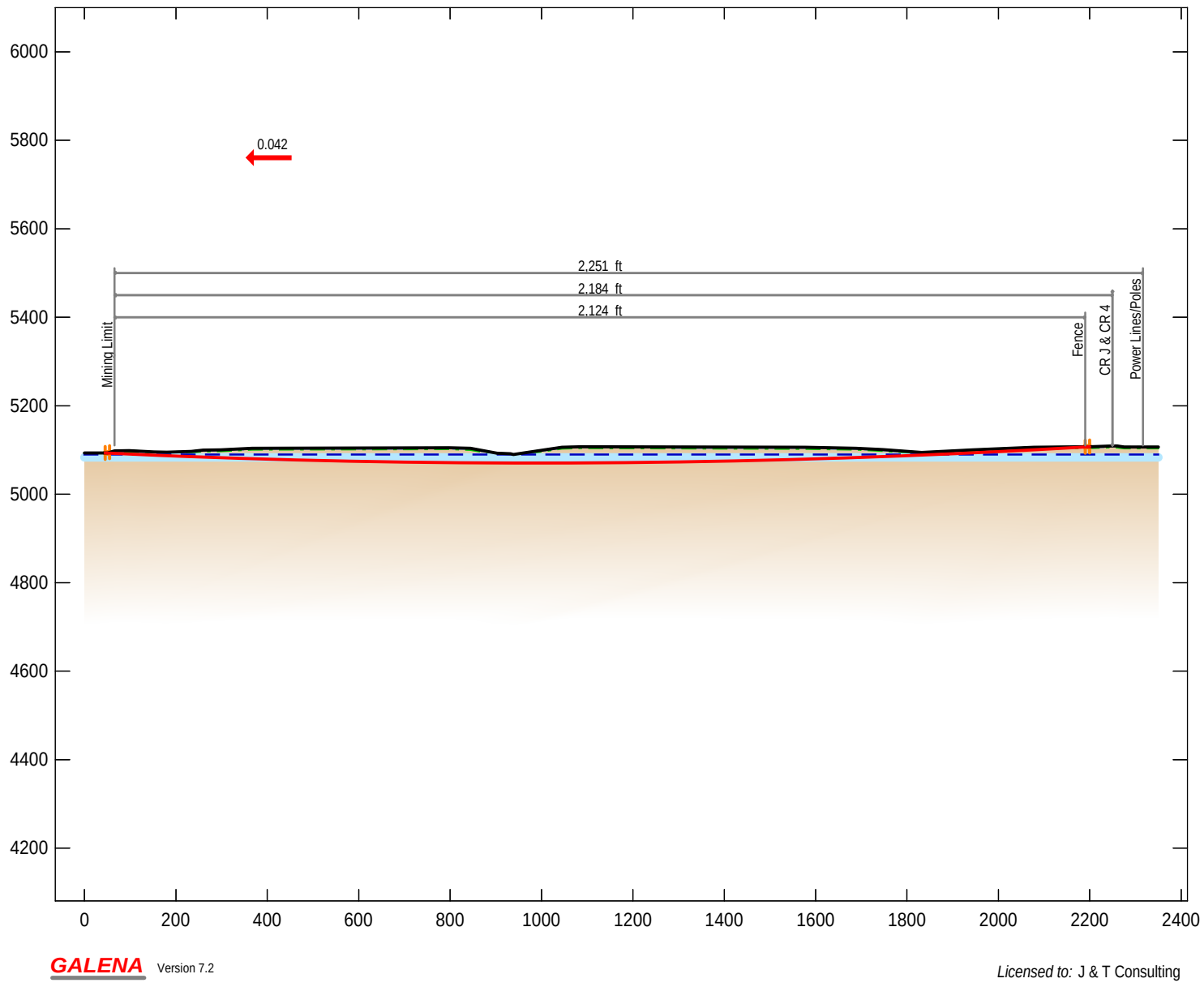
Critical Factor of Safety: ~~Undetermined~~ 236.84

Project W. Max (Bill Nelson) Borrow Pit
Case SS-1 - Static

File: C:\Galena Models\Nelson SS1.gmf

Edited: 31 May 2023
Processed: 31 May 2023

J&T Consulting, Inc.



GALENA Version 7.2

Licensed to: J & T Consulting

Material Keys

1: Sand and Gravel (c:0 ø:35 g:125)

2: Clay (c:50 ø:24 g:130)

Analysis 1

Multiple Stability Analysis

Method: Bishop Simplified

Surface: Circular

Results

Critical Factor of Safety: 12.05

Project W. Max (Bill Nelson) Borrow Pit
Case SS-1 - Pseudo-Static

File: C:\Galena Models\Nelson SS1-EQ.gmf

Edited: 31 May 2023
Processed: 31 May 2023

J&T Consulting, Inc.

APPENDIX C

Project: W. Max (Bill Nelson) Borrow Pit
File: C:\Galena Models\Nelson SS1.gmf Processed: 31 May 2023 12:33:22

DATA: Analysis 1 - Case SS-1 - Static

Material Properties (2 materials)

Material: 1 (Mohr-Coulomb Isotropic) - Sand and Gravel

Cohesion	Phi	UnitWeight	Ru
0.00	35.0	125.00	Auto

Material: 2 (Mohr-Coulomb Isotropic) - Clay

Cohesion	Phi	UnitWeight	Ru
50.00	24.0	130.00	Auto

Water Properties

Unit weight of water: 62.400 Unit weight of water/medium above ground: 62.400

Material Profiles (2 profiles)

Profile: 1 (2 points) Material beneath: 2 - Clay

0.00	5110.00	2350.00	5110.00

Profile: 2 (32 points) Material beneath: 1 - Sand and Gravel

0.00	5090.00	50.00	5090.00	65.60	5095.20	97.70	5095.70	152.10	5092.60
180.10	5092.20	233.60	5094.00	259.70	5096.50	298.00	5097.40	366.50	5100.80
798.80	5102.00	844.60	5100.50	902.90	5089.90	932.10	5088.60	938.40	5087.00
953.00	5089.30	1044.80	5103.00	1086.30	5104.20	1578.20	5102.90	1688.50	5101.00
1747.00	5098.00	1832.10	5091.20	1943.80	5097.10	2077.80	5103.00	2190.00	5104.20
2202.10	5104.40	2233.90	5105.70	2249.80	5106.30	2259.80	5105.80	2275.60	5103.80
2316.60	5103.90	2350.00	5103.70						

Slope Surface (32 points)

0.00	5093.00	50.00	5093.00	65.60	5098.20	97.70	5098.70	152.10	5095.60
180.10	5095.20	233.60	5097.00	259.70	5099.50	298.00	5100.40	366.50	5103.80
798.80	5105.00	844.60	5103.50	902.90	5092.90	932.10	5091.60	938.40	5090.00
953.00	5092.30	1044.80	5106.00	1086.30	5107.20	1578.20	5105.90	1688.50	5104.00
1747.00	5101.00	1832.10	5094.20	1943.80	5100.10	2077.80	5106.00	2190.00	5107.20
2202.10	5107.40	2233.90	5108.70	2249.80	5109.30	2259.80	5108.80	2275.60	5106.80
2316.60	5106.90	2350.00	5106.70						

Phreatic Surface (2 points)

0.00	5090.00	2350.00	5090.00

Failure Surface

Initial circular surface for critical search defined by: XL,XR,R

Intersects: XL: 50.00 YL: 5093.00 XR: 2195.00 YR: 5107.28

Centre: XC: 989.52 YC: 25070.92 Radius: R: 20000.00

Variable Restraints

Parameter descriptor:	XL	XR	R
Range of variation:	10.00	10.00	150.00
Trial positions within range:	20	20	50

RESULTS: Analysis 1 - Case SS-1 - Static

Bishop Simplified Method of Analysis - Circular Failure Surface

Critical Failure Surface Search using Multiple Circle Generation Techniques

Initial failure surface approximation - Factor of Safety: 236.836

Analysis Summary

There were: 20001 successful analyses from a total of 20001 trial failure surfaces

Invalid Result - Factor of Safety >= 100

Results Summary - Lowest 1 Factor of Safety circles

Circle	X-Left	Y-Left	X-Right	Y-Right	X-Centre	Y-Centre	Radius	FoS	
1	50.00	5093.00	2195.00	5107.28	989.52	25070.92	20000.00	******	<-- Critical Surface

Critical Failure Surface (circle 1)

Intersects: XL: 50.00 YL: 5093.00 XR: 2195.00 YR: 5107.28
Centre: XC: 989.52 YC: 25070.92 Radius: R: 20000.00
Generated failure surface: (20 points)

50.00	5093.00	162.84	5088.01	275.71	5083.66	388.61	5079.95	501.52	5076.88
614.43	5074.44	727.37	5072.64	840.32	5071.48	953.27	5070.96	1066.22	5071.07
1179.18	5071.82	1292.12	5073.21	1405.05	5075.24	1517.98	5077.90	1630.88	5081.21
1743.76	5085.15	1856.62	5089.73	1969.45	5094.94	2082.25	5100.79	2195.00	5107.28

Slice Geometry and Properties - Critical Failure Surface (circle 1, 49 slices)

Slice	X-S	Base							PoreWater	Normal	Test
	X-Left	Area	Angle	Width	Length	Matl	Cohesion	Phi	Weight	Force	Stress	Factor
1	50.00	45.94	-2.5	15.60	15.62	2	50.00	24.0	5972.10	0.00	382.87	1.00
2	65.60	219.86	-2.5	32.10	32.13	1	0.00	35.0	27963.60	0.00	871.25	1.00
3	97.70	154.87	-2.5	20.17	20.19	1	0.00	35.0	19660.88	0.00	975.09	1.00
4	117.87	251.02	-2.5	34.23	34.27	1	0.00	35.0	31891.25	1618.34	931.68	1.00
5	152.10	78.16	-2.5	10.74	10.76	1	0.00	35.0	9931.28	1175.12	924.41	1.00
6	162.84	131.90	-2.2	17.26	17.27	1	0.00	35.0	16746.40	2500.74	970.60	1.00
7	180.10	523.40	-2.2	53.50	53.54	1	0.00	35.0	66227.67	12304.80	1238.02	1.00
8	233.60	351.47	-2.2	26.10	26.12	1	0.00	35.0	44325.34	8501.79	1698.45	1.00
9	259.70	251.66	-2.2	16.01	16.03	1	0.00	35.0	31698.09	6027.38	1979.60	1.00
10	275.71	375.32	-1.9	22.29	22.30	1	0.00	35.0	47248.89	9326.10	2120.27	1.00
11	298.00	1390.27	-1.9	68.50	68.54	1	0.00	35.0	174810.97	35053.18	2552.18	1.00
12	366.50	519.88	-1.9	22.11	22.12	1	0.00	35.0	65316.18	13369.58	2954.92	1.00
13	388.61	1397.77	-1.6	56.46	56.48	1	0.00	35.0	175568.14	38128.78	3110.04	1.00
14	445.06	1493.40	-1.6	56.46	56.48	1	0.00	35.0	187521.66	43545.76	3321.79	1.00
15	501.52	1580.10	-1.2	56.46	56.47	1	0.00	35.0	198358.78	48395.93	3513.52	1.00
16	557.98	1657.70	-1.2	56.46	56.47	1	0.00	35.0	208059.25	52687.21	3685.34	1.00
17	614.43	1726.64	-0.9	56.47	56.48	1	0.00	35.0	216677.45	56422.30	3837.21	1.00
18	670.90	1786.28	-0.9	56.47	56.48	1	0.00	35.0	224132.62	59591.96	3969.24	1.00
19	727.37	2330.52	-0.6	71.43	71.43	1	0.00	35.0	292386.06	79014.51	4093.58	1.00
20	798.80	1354.73	-0.6	41.52	41.52	1	0.00	35.0	169964.53	47436.12	4093.64	1.00
21	840.32	1705.64	-0.3	62.58	62.58	1	0.00	35.0	214143.70	72893.28	3421.95	1.00
22	902.90	616.96	-0.3	29.20	29.20	1	0.00	35.0	77558.38	34399.19	2656.13	1.00
23	932.10	410.66	-0.3	20.90	20.90	1	0.00	35.0	51646.38	24772.97	2471.13	1.00
24	953.00	1135.87	0.1	45.90	45.90	1	0.00	35.0	142671.98	54482.03	3108.31	1.00

25	998.90	1448.20	0.1	45.90	45.90	1	0.00	35.0	181714.00	54350.57	3958.90	1.00
26	1044.80	755.27	0.1	21.42	21.42	1	0.00	35.0	94729.59	25324.23	4421.48	1.00
27	1066.22	718.18	0.4	20.08	20.08	1	0.00	35.0	90073.38	23632.25	4486.73	1.00
28	1086.30	1661.64	0.4	46.44	46.44	1	0.00	35.0	208401.62	54024.77	4487.71	1.00
29	1132.74	1641.60	0.4	46.44	46.44	1	0.00	35.0	205896.20	53129.12	4433.76	1.00
30	1179.18	1960.29	0.7	56.47	56.48	1	0.00	35.0	245883.19	62844.25	4353.93	1.00
31	1235.65	1912.67	0.7	56.47	56.48	1	0.00	35.0	239930.56	60397.32	4248.53	1.00
32	1292.12	1855.81	1.0	56.47	56.48	1	0.00	35.0	232823.69	57385.93	4122.99	1.00
33	1348.59	1790.08	1.0	56.47	56.48	1	0.00	35.0	224607.38	53810.17	3977.49	1.00
34	1405.05	1715.19	1.4	56.46	56.48	1	0.00	35.0	215245.70	49673.47	3812.10	1.00
35	1461.52	1631.49	1.4	56.46	56.48	1	0.00	35.0	204783.36	44975.77	3626.80	1.00
36	1517.98	1637.74	1.7	60.22	60.25	1	0.00	35.0	205620.92	42162.90	3414.05	1.00
37	1578.20	1317.54	1.7	52.68	52.70	1	0.00	35.0	165482.62	31451.43	3141.00	1.00
38	1630.88	1283.94	2.0	57.62	57.65	1	0.00	35.0	161356.33	28015.05	2800.16	1.00
39	1688.50	1016.67	2.0	55.26	55.29	1	0.00	35.0	127912.70	20066.90	2314.73	1.00
40	1743.76	594.12	2.3	44.17	44.21	1	0.00	35.0	74927.92	10911.86	1696.10	1.00
41	1787.93	359.07	2.3	44.17	44.21	1	0.00	35.0	45546.59	5969.81	1031.01	1.00
42	1832.10	137.73	2.3	24.52	24.54	1	0.00	35.0	17584.54	1179.69	717.19	1.00
43	1856.62	257.74	2.6	43.59	43.64	1	0.00	35.0	32871.55	0.00	753.97	1.00
44	1900.21	270.28	2.6	43.59	43.64	1	0.00	35.0	34438.67	0.00	789.91	1.00
45	1943.80	161.99	2.6	25.65	25.68	1	0.00	35.0	20633.84	0.00	804.38	1.00
46	1969.45	329.10	3.0	54.18	54.25	1	0.00	35.0	41950.39	0.00	774.22	1.00
47	2023.62	306.03	3.0	54.18	54.25	1	0.00	35.0	39067.01	0.00	721.01	1.00
48	2077.80	222.26	3.3	52.54	52.62	1	0.00	35.0	28570.79	0.00	543.72	1.00
49	2130.34	96.05	3.3	64.66	64.77	2	50.00	24.0	12485.88	0.00	193.06	1.00
		46570.73			2146.07				5853020.00			

X-S Area: 46570.73 Path Length: 2146.07 X-S Weight: 5853020.00

Project: W. Max (Bill Nelson) Borrow Pit
File: C:\Galena Models\Nelson SS1-EQ.gmf Processed: 31 May 2023 12:43:08

DATA: Analysis 1 - Case SS-1 - Pseudo-Static

Material Properties (2 materials)

Material: 1 (Mohr-Coulomb Isotropic) - Sand and Gravel

Cohesion	Phi	UnitWeight	Ru
0.00	35.0	125.00	Auto

Material: 2 (Mohr-Coulomb Isotropic) - Clay

Cohesion	Phi	UnitWeight	Ru
50.00	24.0	130.00	Auto

Water Properties

Unit weight of water: 62.400 Unit weight of water/medium above ground: 62.400

Material Profiles (2 profiles)

Profile: 1 (2 points) Material beneath: 2 - Clay

0.00	5110.00	2350.00	5110.00

Profile: 2 (32 points) Material beneath: 1 - Sand and Gravel

0.00	5090.00	50.00	5090.00	65.60	5095.20	97.70	5095.70	152.10	5092.60
180.10	5092.20	233.60	5094.00	259.70	5096.50	298.00	5097.40	366.50	5100.80
798.80	5102.00	844.60	5100.50	902.90	5089.90	932.10	5088.60	938.40	5087.00
953.00	5089.30	1044.80	5103.00	1086.30	5104.20	1578.20	5102.90	1688.50	5101.00
1747.00	5098.00	1832.10	5091.20	1943.80	5097.10	2077.80	5103.00	2190.00	5104.20
2202.10	5104.40	2233.90	5105.70	2249.80	5106.30	2259.80	5105.80	2275.60	5103.80
2316.60	5103.90	2350.00	5103.70						

Slope Surface (32 points)

0.00	5093.00	50.00	5093.00	65.60	5098.20	97.70	5098.70	152.10	5095.60
180.10	5095.20	233.60	5097.00	259.70	5099.50	298.00	5100.40	366.50	5103.80
798.80	5105.00	844.60	5103.50	902.90	5092.90	932.10	5091.60	938.40	5090.00
953.00	5092.30	1044.80	5106.00	1086.30	5107.20	1578.20	5105.90	1688.50	5104.00
1747.00	5101.00	1832.10	5094.20	1943.80	5100.10	2077.80	5106.00	2190.00	5107.20
2202.10	5107.40	2233.90	5108.70	2249.80	5109.30	2259.80	5108.80	2275.60	5106.80
2316.60	5106.90	2350.00	5106.70						

Phreatic Surface (2 points)

0.00	5090.00	2350.00	5090.00

Failure Surface

Initial circular surface for critical search defined by: XL,XR,R

Intersects: XL: 50.00 YL: 5093.00 XR: 2195.00 YR: 5107.28

Centre: XC: 989.52 YC: 25070.92 Radius: R: 20000.00

Earthquake Force

Pseudo-static earthquake (seismic) coefficient: 0.042

Variable Restraints

Parameter descriptor:	XL	XR	R
Range of variation:	10.00	10.00	150.00
Trial positions within range:	20	20	50

RESULTS: Analysis 1 - Case SS-1 - Pseudo-Static

Bishop Simplified Method of Analysis - Circular Failure Surface

Critical Failure Surface Search using Multiple Circle Generation Techniques

Initial failure surface approximation - Factor of Safety: 12.099

Analysis Summary

There were: 20001 successful analyses from a total of 20001 trial failure surfaces

Critical (minimum) Factor of Safety: 12.05

Results Summary - Lowest 99 Factor of Safety circles

Circle	X-Left	Y-Left	X-Right	Y-Right	X-Centre	Y-Centre	Radius	FoS	
1	45.00	5093.00	2200.00	5107.37	989.88	24995.58	19925.00	12.054	<-- Critical Surface
2	45.00	5093.00	2200.00	5107.37	989.85	24998.65	19928.06	12.054	
3	45.00	5093.00	2199.47	5107.36	989.66	24995.59	19925.00	12.054	
4	45.00	5093.00	2200.00	5107.37	989.84	25001.71	19931.12	12.054	
5	45.00	5093.00	2199.47	5107.36	989.64	24998.66	19928.06	12.055	
6	45.00	5093.00	2200.00	5107.37	989.82	25004.78	19934.18	12.055	
7	45.00	5093.00	2198.95	5107.35	989.45	24995.60	19925.00	12.056	
8	45.00	5093.00	2199.47	5107.36	989.62	25001.73	19931.12	12.056	
9	45.00	5093.00	2200.00	5107.37	989.79	25007.85	19937.25	12.056	
10	45.00	5093.00	2200.00	5107.37	989.78	25010.91	19940.31	12.056	
11	45.00	5093.00	2199.47	5107.36	989.60	25004.79	19934.18	12.056	
12	45.00	5093.00	2199.47	5107.36	989.58	25007.86	19937.25	12.056	
13	45.00	5093.00	2198.95	5107.35	989.43	24998.67	19928.06	12.057	
14	45.00	5093.00	2200.00	5107.37	989.75	25013.98	19943.37	12.057	
15	45.00	5093.00	2200.00	5107.37	989.73	25017.04	19946.43	12.057	
16	45.00	5093.00	2198.95	5107.35	989.41	25001.74	19931.12	12.057	
17	45.53	5093.00	2200.00	5107.37	990.11	24995.60	19925.00	12.057	
18	45.00	5093.00	2198.95	5107.35	989.39	25004.80	19934.18	12.057	
19	45.00	5093.00	2199.47	5107.36	989.56	25010.92	19940.31	12.057	
20	45.53	5093.00	2200.00	5107.37	990.09	24998.66	19928.06	12.057	
21	45.00	5093.00	2199.47	5107.36	989.54	25013.99	19943.37	12.057	
22	45.00	5093.00	2200.00	5107.37	989.71	25020.11	19949.49	12.057	
23	45.00	5093.00	2198.42	5107.34	989.23	24995.62	19925.00	12.058	
24	45.53	5093.00	2200.00	5107.37	990.07	25001.73	19931.12	12.058	
25	45.53	5093.00	2199.47	5107.36	989.89	24995.61	19925.00	12.058	
26	45.00	5093.00	2198.42	5107.34	989.21	24998.68	19928.06	12.058	
27	45.00	5093.00	2199.47	5107.36	989.52	25017.05	19946.43	12.058	
28	45.00	5093.00	2200.00	5107.37	989.69	25023.17	19952.55	12.058	
29	45.00	5093.00	2197.89	5107.33	989.01	24995.62	19925.00	12.058	
30	45.53	5093.00	2199.47	5107.36	989.87	24998.67	19928.06	12.058	
31	45.00	5093.00	2198.95	5107.35	989.36	25007.87	19937.25	12.058	
32	45.53	5093.00	2200.00	5107.37	990.05	25004.79	19934.18	12.058	
33	45.00	5093.00	2199.47	5107.36	989.50	25020.12	19949.49	12.058	
34	45.00	5093.00	2198.95	5107.35	989.35	25010.93	19940.31	12.058	

35	45.00	5093.00	2198.42	5107.34	989.19	25001.75	19931.12	12.058
36	45.00	5093.00	2200.00	5107.37	989.67	25026.24	19955.61	12.058
37	45.53	5093.00	2200.00	5107.37	990.03	25007.86	19937.25	12.059
38	45.53	5093.00	2199.47	5107.36	989.85	25001.74	19931.12	12.059
39	45.00	5093.00	2197.89	5107.33	989.00	24998.69	19928.06	12.059
40	45.00	5093.00	2198.95	5107.35	989.32	25014.00	19943.37	12.059
41	45.00	5093.00	2199.47	5107.36	989.48	25023.18	19952.55	12.059
42	45.00	5093.00	2198.42	5107.34	989.17	25004.81	19934.18	12.059
43	45.53	5093.00	2198.95	5107.35	989.68	24995.62	19925.00	12.059
44	45.53	5093.00	2200.00	5107.37	990.01	25010.93	19940.31	12.059
45	45.00	5093.00	2200.00	5107.37	989.65	25029.31	19958.67	12.059
46	45.00	5093.00	2199.47	5107.36	989.46	25026.25	19955.61	12.059
47	45.00	5093.00	2198.42	5107.34	989.15	25007.88	19937.25	12.059
48	45.53	5093.00	2199.47	5107.36	989.83	25004.80	19934.18	12.059
49	45.00	5093.00	2198.95	5107.35	989.30	25017.06	19946.43	12.059
50	45.00	5093.00	2200.00	5107.37	989.63	25032.37	19961.74	12.059
51	45.53	5093.00	2198.95	5107.35	989.66	24998.68	19928.06	12.059
52	45.00	5093.00	2197.89	5107.33	988.97	25001.76	19931.12	12.059
53	45.53	5093.00	2199.47	5107.36	989.81	25007.87	19937.25	12.059
54	45.53	5093.00	2200.00	5107.37	989.99	25013.99	19943.37	12.059
55	45.00	5093.00	2198.95	5107.35	989.28	25020.13	19949.49	12.060
56	45.00	5093.00	2197.37	5107.32	988.80	24995.63	19925.00	12.060
57	45.00	5093.00	2200.00	5107.37	989.61	25035.44	19964.80	12.060
58	45.00	5093.00	2198.42	5107.34	989.13	25010.94	19940.31	12.060
59	45.00	5093.00	2199.47	5107.36	989.44	25029.32	19958.67	12.060
60	45.53	5093.00	2199.47	5107.36	989.79	25010.94	19940.31	12.060
61	46.05	5093.00	2200.00	5107.37	990.34	24995.61	19925.00	12.060
62	45.53	5093.00	2198.95	5107.35	989.64	25001.75	19931.12	12.060
63	45.00	5093.00	2197.89	5107.33	988.95	25004.82	19934.18	12.060
64	45.00	5093.00	2197.37	5107.32	988.78	24998.70	19928.06	12.060
65	46.05	5093.00	2200.00	5107.37	990.32	24998.68	19928.06	12.060
66	45.53	5093.00	2200.00	5107.37	989.96	25017.06	19946.43	12.060
67	45.00	5093.00	2200.00	5107.37	989.59	25038.50	19967.86	12.060
68	45.00	5093.00	2198.42	5107.34	989.11	25014.01	19943.37	12.060
69	45.00	5093.00	2199.47	5107.36	989.42	25032.38	19961.74	12.060
70	45.00	5093.00	2198.95	5107.35	989.26	25023.20	19952.55	12.060
71	45.00	5093.00	2197.37	5107.32	988.76	25001.77	19931.12	12.060
72	45.53	5093.00	2198.95	5107.35	989.62	25004.81	19934.18	12.060
73	45.53	5093.00	2200.00	5107.37	989.95	25020.12	19949.49	12.060
74	45.00	5093.00	2198.42	5107.34	989.09	25017.07	19946.43	12.060
75	45.53	5093.00	2198.42	5107.34	989.46	24995.63	19925.00	12.061
76	46.05	5093.00	2199.47	5107.36	990.12	24995.62	19925.00	12.061
77	45.53	5093.00	2199.47	5107.36	989.77	25014.00	19943.37	12.061
78	45.00	5093.00	2197.89	5107.33	988.93	25007.89	19937.25	12.061
79	45.53	5093.00	2198.95	5107.35	989.60	25007.88	19937.25	12.061
80	45.00	5093.00	2198.95	5107.35	989.24	25026.26	19955.61	12.061
81	45.00	5093.00	2199.47	5107.36	989.40	25035.45	19964.80	12.061
82	45.00	5093.00	2196.84	5107.31	988.59	24995.64	19925.00	12.061
83	45.53	5093.00	2200.00	5107.37	989.92	25023.19	19952.55	12.061
84	46.05	5093.00	2200.00	5107.37	990.30	25001.74	19931.12	12.061
85	45.53	5093.00	2198.42	5107.34	989.44	24998.70	19928.06	12.061
86	45.53	5093.00	2199.47	5107.36	989.75	25017.07	19946.43	12.061
87	45.00	5093.00	2200.00	5107.37	989.57	25041.57	19970.92	12.061
88	45.00	5093.00	2198.95	5107.35	989.22	25029.33	19958.67	12.061
89	45.00	5093.00	2197.89	5107.33	988.91	25010.95	19940.31	12.061
90	45.53	5093.00	2199.47	5107.36	989.73	25020.13	19949.49	12.061
91	45.00	5093.00	2198.42	5107.34	989.07	25020.14	19949.49	12.061
92	45.00	5093.00	2200.00	5107.37	989.55	25044.63	19973.98	12.061
93	46.05	5093.00	2200.00	5107.37	990.28	25004.81	19934.18	12.061

94	46.05	5093.00	2199.47	5107.36	990.11	24998.69	19928.06	12.061
95	45.00	5093.00	2196.84	5107.31	988.57	24998.71	19928.06	12.061
96	45.53	5093.00	2198.42	5107.34	989.42	25001.76	19931.12	12.061
97	45.00	5093.00	2197.89	5107.33	988.89	25014.02	19943.37	12.061
98	45.00	5093.00	2197.37	5107.32	988.74	25004.83	19934.18	12.061
99	45.00	5093.00	2198.95	5107.35	989.20	25032.39	19961.74	12.061

Critical Failure Surface (circle 1)

Intersects: XL: 45.00 YL: 5093.00 XR: 2200.00 YR: 5107.37
Centre: XC: 989.88 YC: 24995.58 Radius: R: 19925.00

Generated failure surface: (20 points)

45.00	5093.00	158.37	5087.94	271.77	5083.53	385.18	5079.76	498.62	5076.64
612.07	5074.17	725.54	5072.34	839.01	5071.16	952.49	5070.62	1065.97	5070.73
1179.44	5071.49	1292.91	5072.89	1406.37	5074.94	1519.82	5077.63	1633.25	5080.97
1746.66	5084.96	1860.04	5089.60	1973.40	5094.88	2086.72	5100.80	2200.00	5107.37

Slice Geometry and Properties - Critical Failure Surface (circle 1, 52 slices)

Slice		X-S	Base						PoreWater	Normal	Test
	X-Left	Area	Angle	Width	Length	Matl	Cohesion	Phi	Weight	Force	Stress	Factor
1	45.00	8.23	-2.6	12.35	12.36	2	50.00	24.0	1069.86	0.00	86.97	1.00
2	57.35	275.87	-2.6	40.35	40.39	1	0.00	35.0	35088.50	0.00	871.81	1.00
3	97.70	115.92	-2.6	14.56	14.58	1	0.00	35.0	14708.43	0.00	1012.68	1.00
4	112.26	303.71	-2.6	39.84	39.88	1	0.00	35.0	38560.79	2210.12	970.31	1.00
5	152.10	217.22	-2.3	28.00	28.02	1	0.00	35.0	27572.28	4122.21	986.68	1.00
6	180.10	537.35	-2.2	53.50	53.54	1	0.00	35.0	67971.38	13176.11	1272.81	1.00
7	233.60	358.70	-2.2	26.10	26.12	1	0.00	35.0	45228.59	8953.17	1736.05	1.00
8	259.70	191.59	-2.2	12.07	12.08	1	0.00	35.0	24130.02	4699.01	2003.33	1.00
9	271.77	445.91	-1.9	26.23	26.25	1	0.00	35.0	56132.28	11311.36	2143.06	1.00
10	298.00	1409.70	-1.9	68.50	68.54	1	0.00	35.0	177240.08	36266.82	2591.43	1.00
11	366.50	443.81	-1.9	18.68	18.69	1	0.00	35.0	55756.21	11580.92	2988.75	1.00
12	385.18	1415.02	-1.6	56.72	56.74	1	0.00	35.0	177728.58	39010.14	3137.44	1.00
13	441.90	1512.42	-1.6	56.72	56.74	1	0.00	35.0	189903.69	44531.87	3352.29	1.00
14	498.62	1600.88	-1.2	56.73	56.74	1	0.00	35.0	200961.33	49483.16	3546.04	1.00
15	555.35	1680.02	-1.2	56.73	56.74	1	0.00	35.0	210853.23	53863.95	3720.54	1.00
16	612.07	1750.17	-0.9	56.73	56.74	1	0.00	35.0	219622.48	57672.45	3873.87	1.00
17	668.81	1810.95	-0.9	56.73	56.74	1	0.00	35.0	227219.72	60908.74	4007.86	1.00
18	725.54	1197.79	-0.6	36.63	36.63	1	0.00	35.0	150272.69	40805.73	4104.15	1.00
19	762.17	1215.51	-0.6	36.63	36.63	1	0.00	35.0	152488.44	41679.68	4164.66	1.00
20	798.80	1326.00	-0.6	40.21	40.21	1	0.00	35.0	166352.48	46759.54	4138.75	1.00
21	839.01	1769.91	-0.3	63.89	63.89	1	0.00	35.0	222197.59	75727.73	3478.52	1.00
22	902.90	626.79	-0.3	29.20	29.20	1	0.00	35.0	78786.33	35012.21	2698.58	1.00
23	932.10	406.69	-0.3	20.39	20.39	1	0.00	35.0	51141.93	24597.39	2508.58	1.00
24	952.49	1155.10	0.1	46.16	46.16	1	0.00	35.0	145079.48	55753.86	3143.19	1.00
25	998.64	1470.93	0.1	46.16	46.16	1	0.00	35.0	184557.97	55623.01	3998.49	1.00
26	1044.80	753.33	0.1	21.17	21.17	1	0.00	35.0	94483.22	25467.79	4463.05	1.00
27	1065.97	734.10	0.4	20.33	20.33	1	0.00	35.0	92067.90	24360.58	4527.20	1.00
28	1086.30	1681.94	0.4	46.57	46.57	1	0.00	35.0	210941.03	55151.66	4528.41	1.00
29	1132.87	1661.77	0.4	46.57	46.57	1	0.00	35.0	208419.89	54250.65	4474.29	1.00
30	1179.44	1988.09	0.7	56.74	56.74	1	0.00	35.0	249362.53	64305.72	4392.84	1.00
31	1236.17	1939.75	0.7	56.74	56.74	1	0.00	35.0	243320.38	61819.85	4286.38	1.00
32	1292.91	1882.11	1.0	56.73	56.74	1	0.00	35.0	236114.62	58763.37	4158.76	1.00
33	1349.64	1815.49	1.0	56.73	56.74	1	0.00	35.0	227786.69	55136.25	4012.05	1.00
34	1406.37	1739.52	1.4	56.72	56.74	1	0.00	35.0	218290.61	50938.77	3844.25	1.00
35	1463.09	1654.63	1.4	56.72	56.74	1	0.00	35.0	207679.14	46170.77	3657.32	1.00
36	1519.82	1604.64	1.7	58.38	58.41	1	0.00	35.0	201456.00	41941.09	3445.88	1.00
37	1578.20	1390.60	1.7	55.05	55.07	1	0.00	35.0	174650.62	33801.89	3168.40	1.00
38	1633.25	1244.85	2.0	55.25	55.29	1	0.00	35.0	156434.75	27784.85	2826.48	1.00

39	1688.50	1079.86	2.0	58.16	58.19	1	0.00	35.0	135855.05	22003.38	2332.05	1.00
40	1746.66	576.12	2.3	42.72	42.76	1	0.00	35.0	72655.84	11111.32	1697.26	1.00
41	1789.38	355.71	2.3	42.72	42.76	1	0.00	35.0	45104.72	6453.94	1053.63	1.00
42	1832.10	165.22	2.3	27.94	27.96	1	0.00	35.0	21071.34	1701.52	752.49	1.00
43	1860.04	53.02	2.7	8.68	8.69	1	0.00	35.0	6757.53	109.62	776.36	1.00
44	1868.72	234.69	2.7	37.54	37.58	1	0.00	35.0	29899.55	0.00	794.35	1.00
45	1906.26	243.49	2.7	37.54	37.58	1	0.00	35.0	30999.42	0.00	823.56	1.00
46	1943.80	194.34	2.7	29.60	29.63	1	0.00	35.0	24735.87	0.00	833.48	1.00
47	1973.40	329.55	3.0	52.20	52.27	1	0.00	35.0	41976.32	0.00	801.69	1.00
48	2025.60	307.06	3.0	52.20	52.27	1	0.00	35.0	39165.91	0.00	748.02	1.00
49	2077.80	48.92	3.0	8.92	8.93	1	0.00	35.0	6248.36	0.00	698.18	1.00
50	2086.72	201.55	3.3	48.58	48.67	1	0.00	35.0	25922.36	0.00	531.76	1.00
51	2135.31	93.39	3.3	54.69	54.78	2	50.00	24.0	12140.64	0.00	221.26	1.00
52	2190.00	2.08	3.3	10.00	10.02	2	50.00	24.0	269.78	0.00	26.68	1.00
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	X-S Area:	47222.00	Path Length:		2156.10			X-S Weight:	5934434.50			

APPENDIX D

Map Scale: 1:2,280 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 30 60 120 180

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Washington County, Colorado
Survey Area Data: Version 24, Sep 1, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 11, 2022—Apr 18, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
7	Ellicott-Ellicott sandy-skeletal complex, 0 to 3 percent slopes, rarely flooded	9.3	93.4%
64	Sampson loam	0.7	6.6%
Totals for Area of Interest		**9.9**	**100.0%**

Component Text Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the selected area. The component descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit. A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the associated soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas (components) for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The "Map Unit Component Nontechnical Descriptions" report gives a brief, general description of the soil components that occur in a map unit. Descriptions of nonsoil (miscellaneous areas) and minor map unit components may or may not be included. This description is written by the local soil scientists responsible for the respective soil survey area data. A more detailed description can be generated by the "Map Unit Description" report.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Component Text Descriptions

Washington County, Colorado

Map Unit: 7—Ellicott-Ellicott sandy-skeletal complex, 0 to 3 percent slopes, rarely flooded

Description Category: GENSOIL

Ellicott, rarely flooded: 65 percent

The Ellicott, rarely flooded component makes up 65 percent of the map unit. Slopes are 0 to 3 percent. This component is on drainageways on uplands, flood plains on intermittent streams on uplands. The parent material consists of noncalcareous, stratified sandy alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is rarely flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R067BY031CO Sandy Bottomland ecological site. Nonirrigated land capability classification is 7s. Irrigated land capability classification is 4e. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Description Category: GENSOIL

Ellicott sandy-skeletal, rarely flooded: 25 percent

The Ellicott sandy-skeletal, rarely flooded component makes up 25 percent of the map unit. Slopes are 0 to 3 percent. This component is on channels on intermittent streams on uplands, channels on drainageways on uplands. The parent material consists of noncalcareous, stratified sandy alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is rarely flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. This component is in the R067BY031CO Sandy Bottomland ecological site. Nonirrigated land capability classification is 8s. Irrigated land capability classification is 4s. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface.

Description Category: GENSOIL

Haverson: 10 percent

Generated brief soil descriptions are created for major soil components. The Haverson soil is a minor component.

Map Unit: 64—Sampson loam

Description Category: GENSOIL

Sampson: 85 percent

The Sampson component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on intermittent streams, stream terraces. The parent material consists of calcareous loamy alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. This component is in the R067BY002CO Loamy Plains ecological site. Nonirrigated land capability classification is 3c. Irrigated land capability classification is 2e. This soil does not meet hydric criteria.

Description Category: GENSOIL

Bridgeport: 15 percent

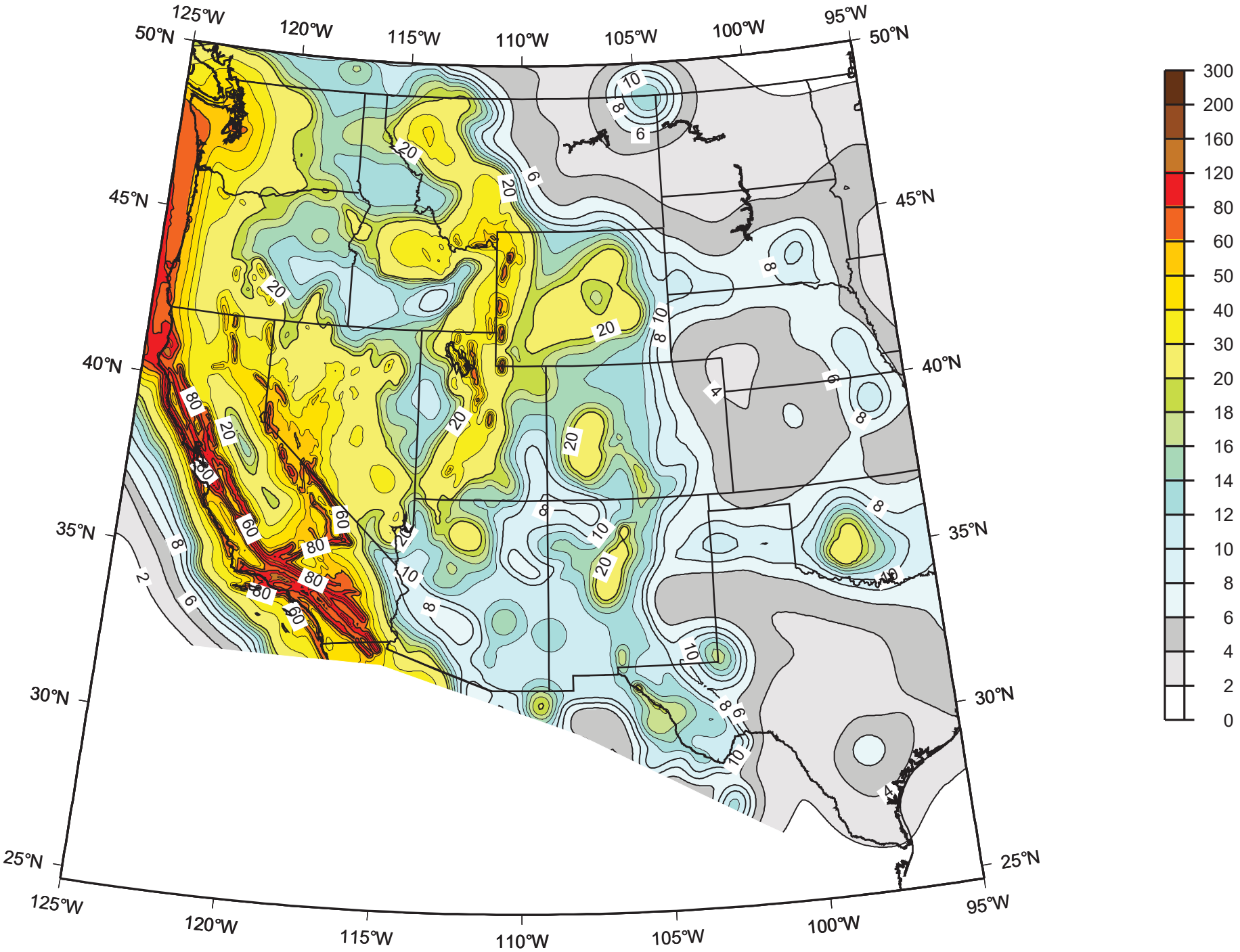
Generated brief soil descriptions are created for major soil components. The Bridgeport soil is a minor component.

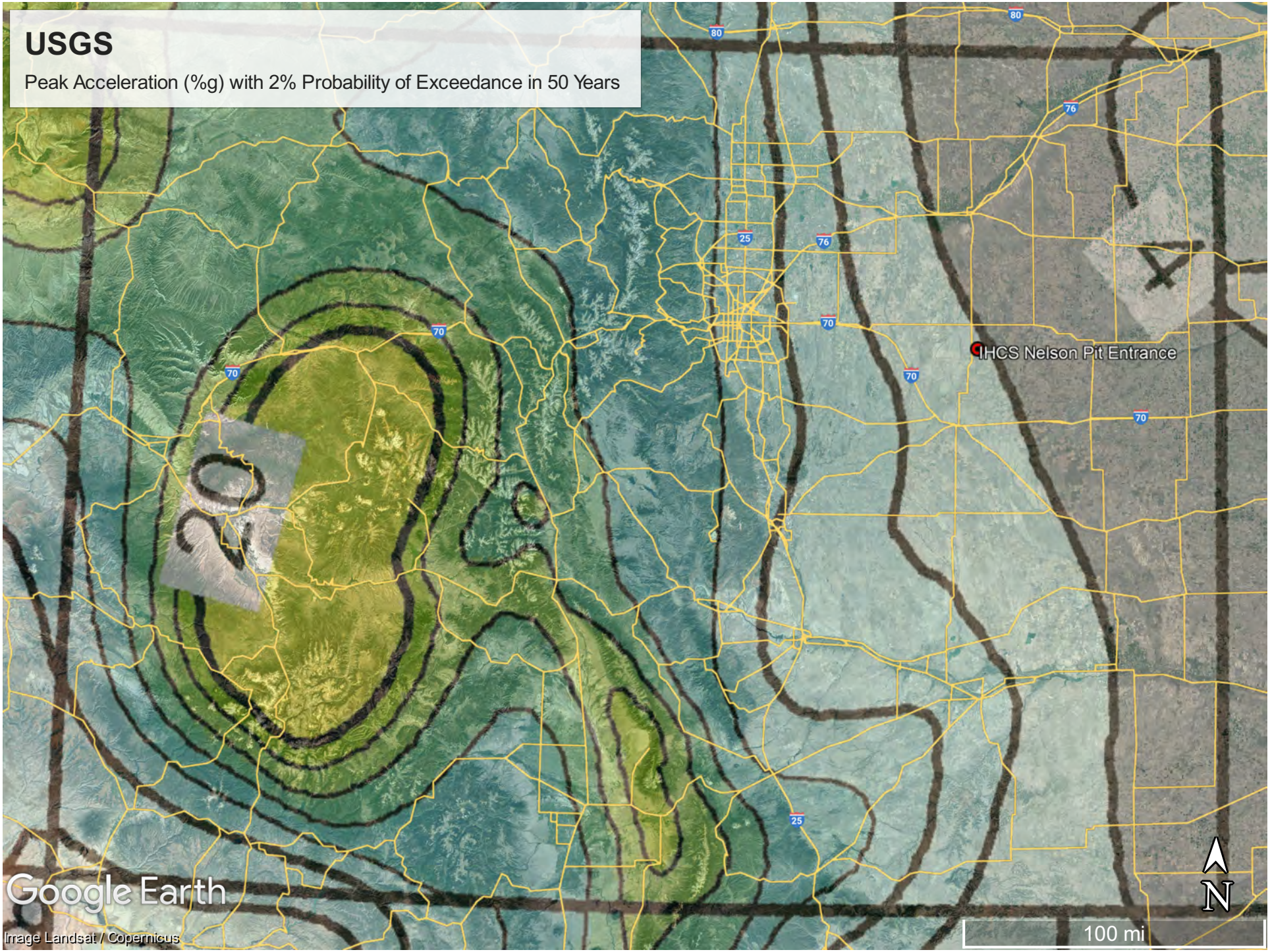
Data Source Information

Soil Survey Area: Washington County, Colorado
Survey Area Data: Version 24, Sep 1, 2022

APPENDIX E

Peak Acceleration (%g) with 2% Probability of Exceedance in 50 Years
USGS Map, Oct. 2002rev




USGS
Peak Acceleration (%g) with 2% Probability of Exceedance in 50 Years
IHCS Nelson Pit Entrance
80
76
25
70
Google Earth
Image Landsat / Copernicus
N
100 mi