COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

MINERALS PROGRAM INSPECTION REPORT
PHONE: (303) 866-3567

The Division of Reclamation, Mining and Safety has conducted an inspection of the mining operation noted below. This report documents observations concerning compliance with the terms of the permit and applicable rules and regulations of the Mined Land Reclamation Board.

MINE NAME: Lyons Quarry	**MINE/PROSPECTING ID#:** M-1977-141	**MINERAL:** Quartz (quartzite/quartzose sandstone)	**COUNTY:** Boulder
INSPECTION TYPE: Monitoring	**INSPECTOR(S):** Amy Eschberger, Tim Cazier	**INSP. DATE:** April 28, 2021	**INSP. TIME:** 09:30
OPERATOR: Aggregate Industries - WCR, Inc.	**OPERATOR REPRESENTATIVE:** Jeremy Deuto, Joel Krech	**TYPE OF OPERATION:** 112c - Construction Regular Operation	

REASON FOR INSPECTION: Normal I&E Program	**BOND CALCULATION TYPE:** None	**BOND AMOUNT:** $9,887,461.00
DATE OF COMPLAINT: NA	**POST INSP. CONTACTS:** None	**JOINT INSP. AGENCY:** None
WEATHER: Clear	**INSPECTOR'S SIGNATURE:** Amy Eschberger	**SIGNATURE DATE:** May 10, 2021

GENERAL INSPECTION TOPICS

This list identifies the environmental and permit parameters inspected and gives a categorical evaluation of each. No problems or possible violations were noted during the inspection. The mine operation was found to be in full compliance with Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials and/or for Hard Rock, Metal and Designated Mining Operations. Any person engaged in any mining operation shall notify the office of any failure or imminent failure, as soon as reasonably practicable after such person has knowledge of such condition or of any impoundment, embankment, or slope that poses a reasonable potential for danger to any persons or property or to the environment; or any environmental protection facility designed to contain or control chemicals or waste which are acid or toxic-forming, as identified in the permit.

(AR) RECORDS---------- N	(FN) FINANCIAL WARRANTY-------- N	(RD) ROADS---------- N
(HB) HYDROLOGIC BALANCE---------- N	(BG) BACKFILL & GRADING---------- N	(EX) EXPLOSIVES--------- N
(PW) PROCESSING WASTE/TAILING---- N	(SF) PROCESSING FACILITIES------- N	(TS) TOPSOIL---------- N
(MP) GENL MINE PLAN COMPLIANCE- Y	(FW) FISH & WILDLIFE---------- N	(RV) REVEGETATION---- N
(SM) SIGNS AND MARKERS---------- N	(SP) STORM WATER MGT PLAN---- N	(RS) RECL PLAN/COMP-- N
(ES) OVERBURDEN/DEV. WASTE--------- N	(SC) EROSION/SEDIMENTATION--- N	(ST) STIPULATIONS------- N
(AT) ACID OR TOXIC MATERIALS------- N	(OD) OFF-SITE DAMAGE---------- N	

Y = Inspected / N = Not inspected / NA = Not applicable to this operation / PB = Problem cited / PV = Possible violation cited

OBSERVATIONS

This inspection of the Lyons Quarry (Permit No. M-1977-141) was conducted by Amy Eschberger and Tim Cazier of the Division of Reclamation, Mining and Safety (Division) in response to a Technical Revision (TR-5) submitted to our office on March 5, 2021 to update the reclamation plan, reclamation plan map, and bond estimate for the Reclamation Area 1 (quarry area). While a site inspection is not required for Technical Revision submittals, the Division determined it would be helpful in this case to allow its engineer staff, Mr. Cazier, whom is helping review TR-5, to observe the quarry in person. The operator was represented during the inspection by Jeremy Deuto and Joel Krech. The site is located approximately 2.5 miles southwest of Lyons, CO in Boulder County. The site is situated just south of the South Saint Vrain Creek and Hwy 7. The site is accessed from the east via Old St. Vrain Rd. The affected lands are owned by Boulder County. **Photos 1-28** taken during the inspection are included with this report.

This is a 112c operation permitted for 71 acres to mine quartz monzonite for construction material use. Pre-law disturbances were present in the area, the majority of which were included within the permit area. The approved mining plan includes six mining areas and a non-mining disturbance area for material processing, stockpiling, and equipment storage (see enclosed mining plan map, approved in AM-1) located adjacent to the creek. Mining began in the southeastern portion of the permit area (in phases 1 and 2) and moved generally westward (in phases 3 and 4). Phases 5 and 6 are located outside of the main quarry area and were never disturbed by the operation. Phase 6 is the only mining phase located north of the creek. The operation utilized blasting methods to extract the material. Mined material was processed on site using dry screening processes and temporarily stockpiled in the processing/stockpiling/storage area. Any salvaged overburden and topsoil was to be stockpiled on site for use in reclamation. A sediment pond approximately 0.35 acre in size was constructed at the northeastern edge of the quarry area.

Mining last occurred at this site in 2009, with some hauling off from stockpiled material occurring after that time. The operation was in Temporary Cessation from February 2011 through February 2016. During that period, the site was significantly impacted by the September 2013 flood event, primarily the flatter stockpiling/processing/storage area located adjacent to the creek. After the flood waters receded, much of the creek returned to its pre-flood channel. However, a segment of the creek in the northeastern portion of the permit area remains in the new channel that bisects the land between the former shed and office/scale house locations. The 2013 flooding destroyed several structures on the site and displaced stockpiled materials within the floodplain area. The original site access road and bridge were washed away during the flood. Access to the site was restored in 2017/2018 after the county installed a new bridge east of the site and completed permanent improvements to the access road. In 2018, the remains of the structures, equipment, and miscellaneous debris were removed from the floodplain area.

Per Rule 3.1.3, all reclamation shall be carried to completion by the operator with all reasonable diligence, and each phase of reclamation shall be completed within five years from the date the operator informs the Division that such phase has commenced, or from the date the Division has evidence that mining has ceased, unless extended by the Division or the Board. Given the operation exited Temporary Cessation in February 2016 and has not continued mining activities since that time, per Rule 3.1.3, reclamation of the site was to be completed within 5 years of that date, by February 2021. The operator had plans to begin final reclamation of the site in the spring of 2020. However, these plans were impacted by the COVID-19 pandemic. On April 14, 2020, the Division approved the operator's request for a one year extension to the five year period allowed for completing reclamation. This gives a new reclamation deadline of February 2022. The operator is currently working to obtain the necessary permits from the county, including floodplain development and grading permits, to begin reclamation activities at the site. Additionally, the operator has proposed a revised reclamation plan for the quarry area, which is currently under review by the Division (in TR-5).

The approved post-mining land use for the site is rangeland. The permit area is separated into two reclamation areas, Reclamation Area 1 - the quarry area, and Reclamation Area 2 - the former stockpiling/processing/storage area adjacent to the creek (see enclosed Figure C-1 Reclamation Plan Map showing two reclamation areas, submitted with TR-5). The Division estimates total disturbance at the site to consist of 54.2 acres, including 17 acres of disturbance in Reclamation Area 1, and 37.2 acres of disturbance in Reclamation Area 2 (see enclosed Google Earth image of site showing disturbance areas).

The quarry area (Reclamation Area 1) includes two quarries, the larger Quarry 1 at the eastern end, with approximately 300 foot tall highwalls, and the smaller (horseshoe-shaped) Quarry 2 at the western end, which was partially backfilled in 2017/2018 with imported material (in accordance with Technical Revision No. 3), with approximately 100 foot tall highwalls remaining. The bottom portion of the quarry highwalls (approximately 150 feet in Quarry 1) is comprised of dacite (a volcanic rock) with columnar jointing, while the top portion of the quarry highwalls is comprised of the overburden Fountain Formation (sedimentary rocks, primarily sandstone and siltstone). In Quarry 2, the majority of the highwalls remaining above the backfilled area is comprised of the overburden sedimentary rocks. Along the quarry highwalls, the overburden sedimentary rocks have slope gradients ranging from near vertical to 1.5H:1V, and the dacite rocks have slope gradients ranging from near vertical to 0.5H:1V. The earlier mined eastern portion of the Quarry 1 highwall was partially backfilled in the early 2000's at slope gradients of approximately 1H:1V to 1.5H:1V. During that time, a ramp was constructed out of overburden material along the base of the northwestern highwall (between the two quarries) to access the Quarry 2 area. A swale exists between the Quarry 1 backfill and the Quarry 2 access ramp backfill, which allows entry into Quarry 1. The Division estimates there is approximately 2,500 feet of unbackfilled quarry highwall remaining at the site.

The initial approved reclamation plan for the quarry area had included placing a sediment cap over the final benched highwalls to create 3H:1V slopes. However, the operation ended up mining less than originally planned, resulting in less salvaged overburden available for reclamation. Therefore, a significant amount of blasting and earthwork would have been required to achieve the balance of cut and fill quantities to backfill and regrade mined areas to a 3H:1V slope configuration. In 2017, the Division approved a revised reclamation plan for the quarry area in Technical Revision No. 2 (TR-2). This plan includes using drilling and blasting methods to cut overburden sedimentary rock slopes to an overall slope gradient of 1.5H:1V, then backfilling the lower dacite highwalls to achieve 50 foot high x 15 foot wide benches sloped at 2H:1V. Areas with slopes steeper than 1.5H:1V will be covered with a two foot thick layer of talus riprap and compacted with an excavator bucket. Areas with slopes flatter than 1.5H:1V will be backfilled and compacted then covered with 6-12 inches of growth medium and revegetated with a native grass seed mixture recommended by the county. Growth medium may be imported to the site for reclamation, if necessary. The appropriate blend of onsite and imported growth medium will be determined based on test plots using soil types and slopes planned for reclamation. A riprap scour berm will be constructed along the toe areas of fill slopes that extend into the low-lying areas and floodway of the creek. This berm will be designed to protect fill slopes from scour by future flood events. An upland diversion berm/ditch will be constructed above and around the quarry area for final reclamation.

As mentioned above, the Division is currently reviewing TR-5, which proposes a revised reclamation plan for the quarry area (see enclosed Figure 1 – Plan view of Lyons Quarry showing dacite walls and proposed rockfall mitigation, submitted with TR-5). This plan includes using heavy equipment or blasting to grade the overburden sedimentary rocks to an overall slope gradient of 2H:1V (from the northeast corner of Quarry 2 to the eastern extent of Quarry 1; see enclosed Final Grading Plan map and Final Grading Profile, Section & Details, submitted with TR-5), scaling and removing any loose rock from the dacite highwalls (from the northeast corner of Quarry 2 to the eastern extent of Quarry 1) and stabilizing these highwalls with rock bolts, constructing a rockfall catchment basin and/or berm coupled with restricted access (chain-link fencing) at the toe areas of the highwalls, backfilling Quarry 2 to achieve 50 foot high x 15 foot wide benches sloped at 2H:1V,

and contouring the Quarry 2 backfill area to form a swale (as existed in the area prior to mining) which will convey runoff from the Quarry 2 area via a riprap lined drainage channel to the large catchment basin in Quarry 1. Runoff from quarry highwalls will be conveyed to the rockfall catchment basin and a secondary earthen berm around the scour berm to capture potentially suspended sediments. Surface flows would then be directed through the Quarry 1 rockfall catchment berm and the scour berm via a 24-inch reinforced concrete pipe (RCP) culvert. The culvert outlet will tie into the drainage channel at the toe of the scour berm and direct flow to the east. A runoff control channel will be constructed along the eastern perimeter of the quarry area, running along the existing access road grade and tying in with the scour berm toe drainage channel before discharging through a 24-inch RCP culvert (installed under the access road) to discharge into the creek (under a CDPHE permit). Areas where slopes are 2H:1V or flatter will be retopsoiled and revegetated with a native plant seed mix developed in consultation with the county (see enclosed Overall Reclamation Plan & Details map, submitted with TR-5). As approved in TR-2, the sediment pond located at the northeastern edge of the quarry area will be backfilled for reclamation, and the area retopsoiled and revegetated.

The reclamation plan for the former stockpiling/processing/storage area located adjacent to the creek (Reclamation Area 2) was revised through the Division's approval of Technical Revision No. 4 (TR-4) in 2020 to address the areas impacted by the 2013 flooding. TR-4 identified four discreet areas within the floodplain that contain stockpiled materials from mining operations or deposits of crusher fines (see enclosed Figure B-1 Grading Plan map and Figure B-2 Grading Plan map, approved in TR-4) , including an orphan stockpile located in the northwestern corner of Reclamation Area 2 (LQRA2), a vegetated berm located along the southern edge of the creek (LQRA3), a crusher fines deposit located at the southeastern edge of Reclamation Area 2 (LQRA4), and a crusher fines deposit located north of the creek channel (LQRA5). Where crusher fines are removed below the grade of the floodplain (in LQRA4 and LQRA5), these areas will be over-excavated by 18 inches and backfilled with soil riprap. The soil fill will be brought in either from the vegetated berm (LQRA3) or from areas within the quarry that provide suitable backfill characteristics. The soil material will be combined with riprap borrowed from on-site materials to create the soil riprap mixture. Any excess materials excavated from the Reclamation Area 2 will be used as backfill material in Quarry 2. Portions of the reclaimed areas adjacent to the creek (LQRA4 and LQRA5) will be protected with Type M riprap. There are no reclamation plans under this permit for the creek channel itself, and the approved grading plan will not change the existing elevations or flow path of the creek.

The reclaimed areas in Reclamation Area 2 will have final slopes of 4H:1V or flatter, except for the portions located directly adjacent to the creek (LQRA4 and LQRA5), which will have final slopes of 2.5H:1V. Growth medium will be placed on the reclaimed areas (estimated to cover approximately 5.15 acres) at an approximate depth of 6 inches and incorporated into the top 12 inches of the soil. The operator estimates the top 12 inches of soil from the LQRA3 reclamation area will provide a minimum of 2,096 CY of organic material for retopsoiling disturbance areas in Reclamation Area 2. The remaining amount of growth medium required for reclaiming this area will be developed from a composition of site-sourced weathered fine-grained sedimentary overburden rock and imported topsoil, biosolids, and/or compost. Until the test plot program can confirm the appropriate composition of this soil blend, it is assumed the additional required 2,058 CY of organic material will need to be imported to the site. Reclaimed areas in Reclamation Area 2 will be revegetated with a native plant seed mix developed in consultation with the county (see enclosed Figures C-2, C-3, and C-4 Reclamation Plan Maps, approved in TR-4). TR-4 (and the associated bond estimate) only addressed reclamation of the four discreet areas located within Reclamation Area 2 where stockpiled materials or crusher fines remained after the 2013 flooding, covering a total of 5.15 acres. Based on the Division's estimate of 17 acres disturbed in Reclamation Area 2, retopsoiling and revegetation of the remaining 11.85 acres of disturbance in this area will need to be addressed in TR-5 (currently under review).

With its approval of TR-4, the Division increased the required financial warranty for the site to $9,887,461.00,

which was an increase of $540,577.00. The operator posted the required additional financial warranty in February of 2021. The Division is currently re-evaluating the required financial warranty for the site through its review of TR-5. In the event this amount is determined to exceed the currently held amount, then after TR-5 approval, a surety increase will be issued, giving the operator 60 days to submit the additional required financial warranty. If the required financial warranty is determined to be less than the currently held amount, then after TR-5 approval, the operator could request a surety reduction.

The Division has identified a number of adequacy items in TR-5 which must be addressed before an approval of this revision can be issued. The Division sent its first adequacy review letter to the operator on March 24, 2021. A second adequacy review letter with adequacy items identified by Division engineering staff (Tim Cazier, P.E.) was sent to the operator on April 27, 2021. The Division has several questions regarding the proposed methods for stabilizing dacite portions of the highwall, the proposed grading plan, the proposed catchment berms, the proposed stormwater control structures/features, and the bond estimate provided with TR-5. The Division also identified some minor errors and discrepancies in the revision, including on the figures submitted, which need to be corrected. The current decision date for TR-5 is set for June 4, 2021. Observations made during this inspection will be beneficial as the Division continues to review TR-5, particularly the Geotechnical Stability Exhibit provided in Attachment E.

It has come to the Division's attention that the permitting and inspection contacts need to be revised for this permit (and possibly for other permits held by this operator), since the current contact, Jeremy Deuto is no longer with the company (as of May 1st). The permit contact information can be revised through the ePermitting system at https://dnrlaserfiche.state.co.us/Forms/DRMSeForms_LandingPage.

This concludes the report.

Any questions or comments regarding this inspection report should be forwarded to Amy Eschberger at the Colorado Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, CO 80203, via telephone at 303-866-3567, ext. 8129, or via email at amy.eschberger@state.co.us.

PHOTOGRAPHS

Photo 1. View looking southeast at Quarry 1, with approximately 300 foot tall highwalls and slope gradients ranging from near vertical (dacite) to 1.5H:1V (sedimentary overburden). Note western edge of Quarry 1 backfill visible at left edge of photo. Ponding shown in photo was from recent storm event.

Photo 2. View looking south at Quarry 1, with approximately 300 foot tall highwalls and slope gradients ranging from near vertical (dacite) to 1.5H:1V (sedimentary overburden).

Photo 3. View looking southeast at Quarry 1, showing closer view of its eastern (north-facing) highwall. Note dacite rocks (lower half of highwall) are heavily fractured (making rock bolt use for stabilization challenging) and dipping toward the quarry in some areas. The approximate contact between the lower dacite and the upper sedimentary rock units is delineated with a yellow dashed line.

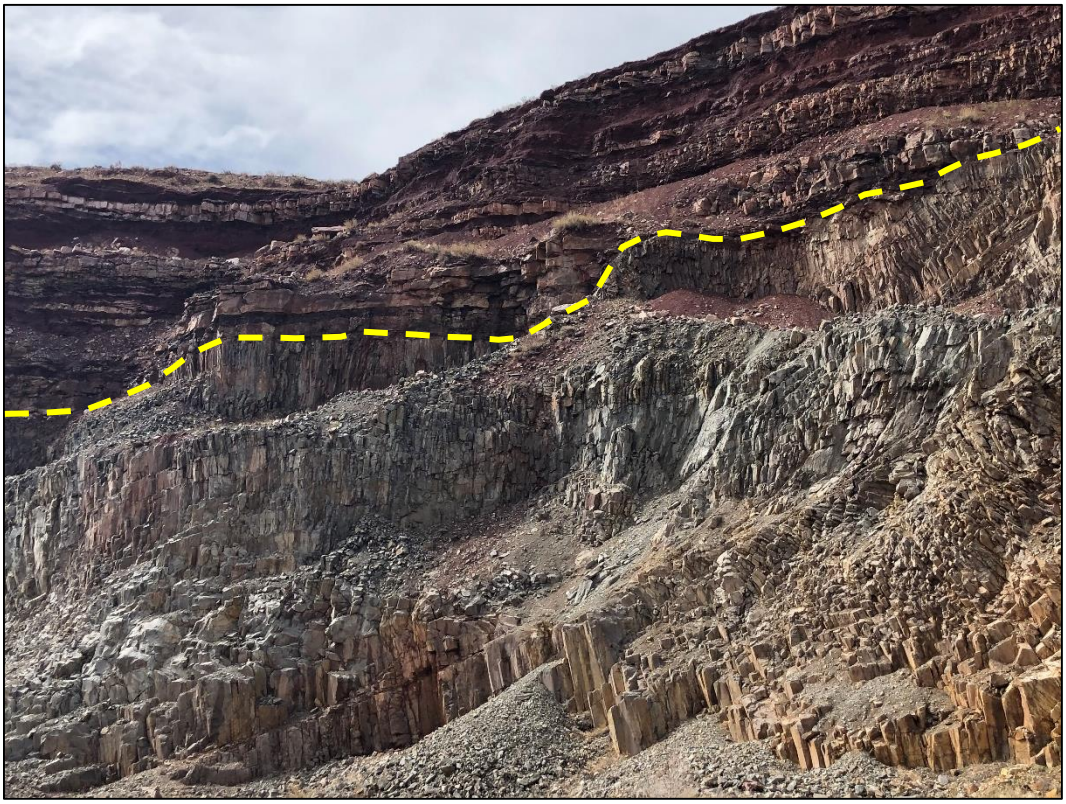


Photo 4. View looking south at Quarry 1, showing closer view of its western (northeast-facing) highwall. Note dacite rocks (lower half of highwall) are heavily fractured and dipping toward the quarry in some areas. The approximate contact between the lower dacite and the upper sedimentary rock units is delineated with a yellow dashed line.

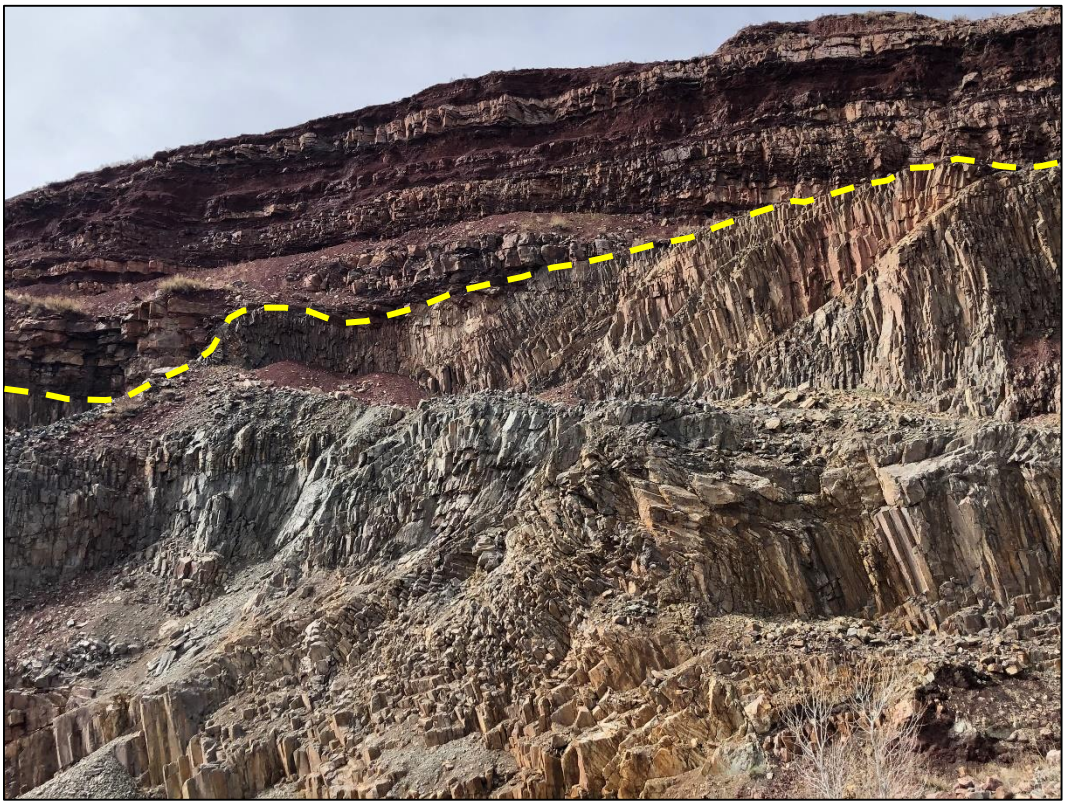


Photo 5. View looking southwest at Quarry 1, showing closer view of its western (northeast-facing) highwall. Note dacite rocks (lower half of highwall) are heavily fractured and dipping toward the quarry in some areas. The approximate contact between the lower dacite and the upper sedimentary rock units is delineated with a yellow dashed line.

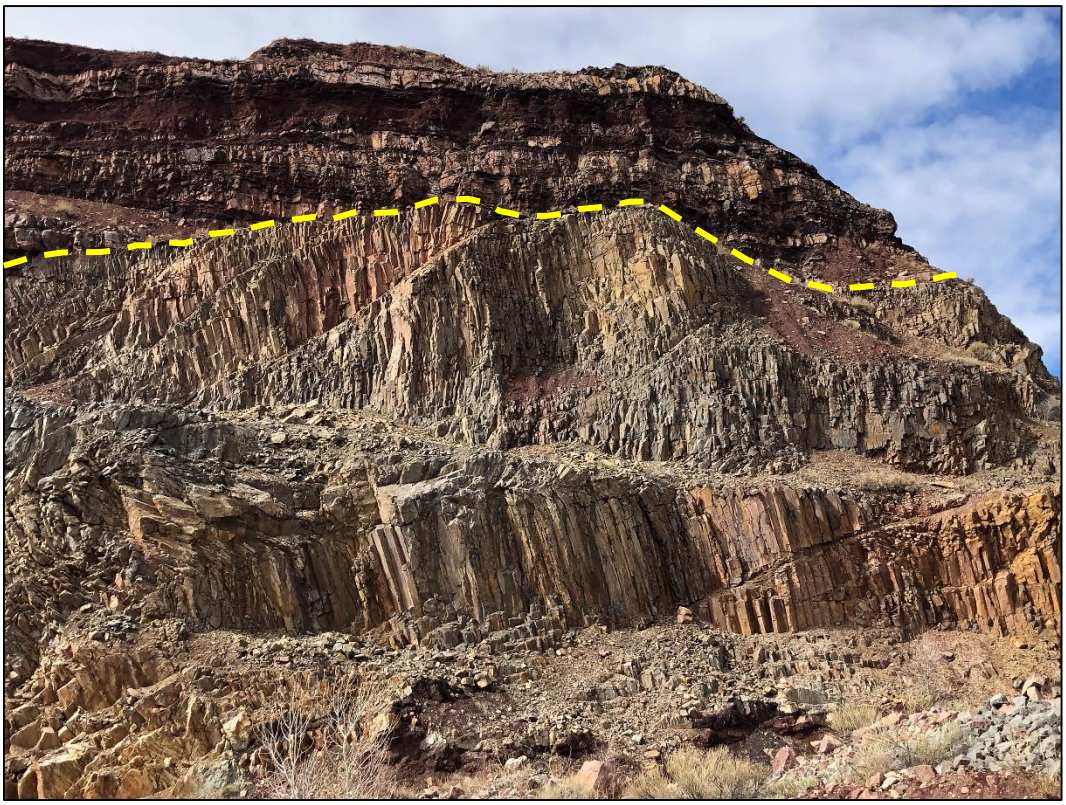


Photo 6. View looking southwest at Quarry 1, showing closer view of its western (northeast-facing) highwall. Note dacite rocks (lower half of highwall) are heavily fractured and dipping toward the quarry in some areas. The approximate contact between the lower dacite and the upper sedimentary rock units is delineated with a yellow dashed line.

Photo 7. View looking south at Quarry 1, showing western edge of its northeast-facing highwall. Note dacite rocks (lower half of highwall) are heavily fractured but dip mainly away from the quarry in this area. The approximate contact between the lower dacite and the upper sedimentary rock units is delineated with a yellow dashed line.

Photo 8. View looking southeast at Quarry 1 across lower (dacite) portion of its western (northeast-facing) highwall. Note dacite rocks are heavily fractured but dip mainly away from the quarry in this area, with slope gradients of near vertical to 0.5H:1V. Talus at foot of highwall includes rocks of various sizes, with larger boulders (up to 5 feet in length) typically derived from sandstone unit above dacite. Dacite rocks are typically smaller than 2 feet in length.

Photo 9. View looking southeast at Quarry 1 pit floor, showing talus present beneath highwall. Larger boulders (up to 5 feet in length) are typically derived from sandstone unit above dacite. Dacite rocks are typically smaller than 2 feet in length. Ponding shown in photo was from recent storm event.

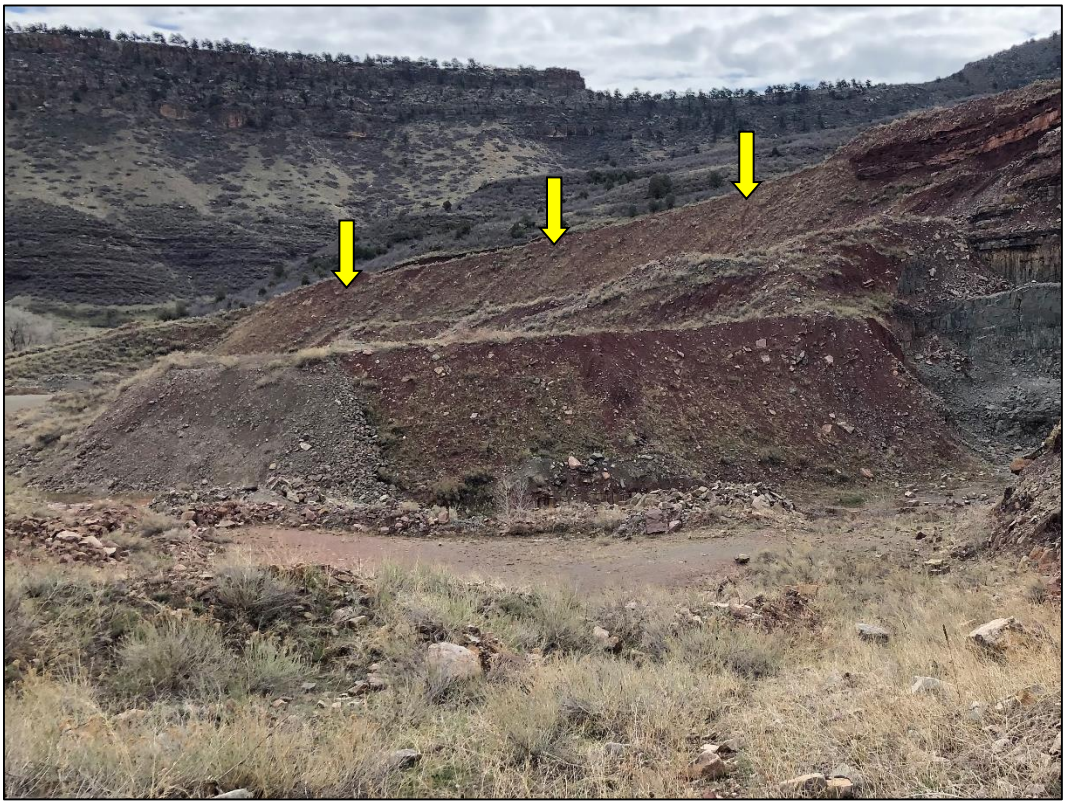


Photo 10. View looking east at Quarry 1, showing backfilled portion of its eastern highwall (indicated), with slope gradients of 1H:1V to 1.5H:1V. In TR-5, the operator proposes connecting the backfill material on the Quarry 1 pit floor (visible at center of photo) with the Quarry 2 access ramp (not visible in photo) to create a rockfall catchment berm.

Photo 11. View looking east at Quarry 1, showing "swale"/quarry access (indicated with arrow) that exists between Quarry 1 backfill material on pit floor (at right) and Quarry 2 access ramp (at left). In TR-5, the operator proposes backfilling this "swale" to create a rockfall catchment berm.

Photo 12. View looking east (toward Quarry 1) down road ramp constructed out of overburden material in early 2000's for Quarry 2 access.

Photo 13. View looking west (toward Quarry 2) up road ramp constructed out of overburden material in early 2000's for Quarry 2 access.

Photo 14. View looking west at northern side slope of road ramp constructed out of overburden material in early 2000's for Quarry 2 access, with slope gradients of approximately 1.5H:1V.

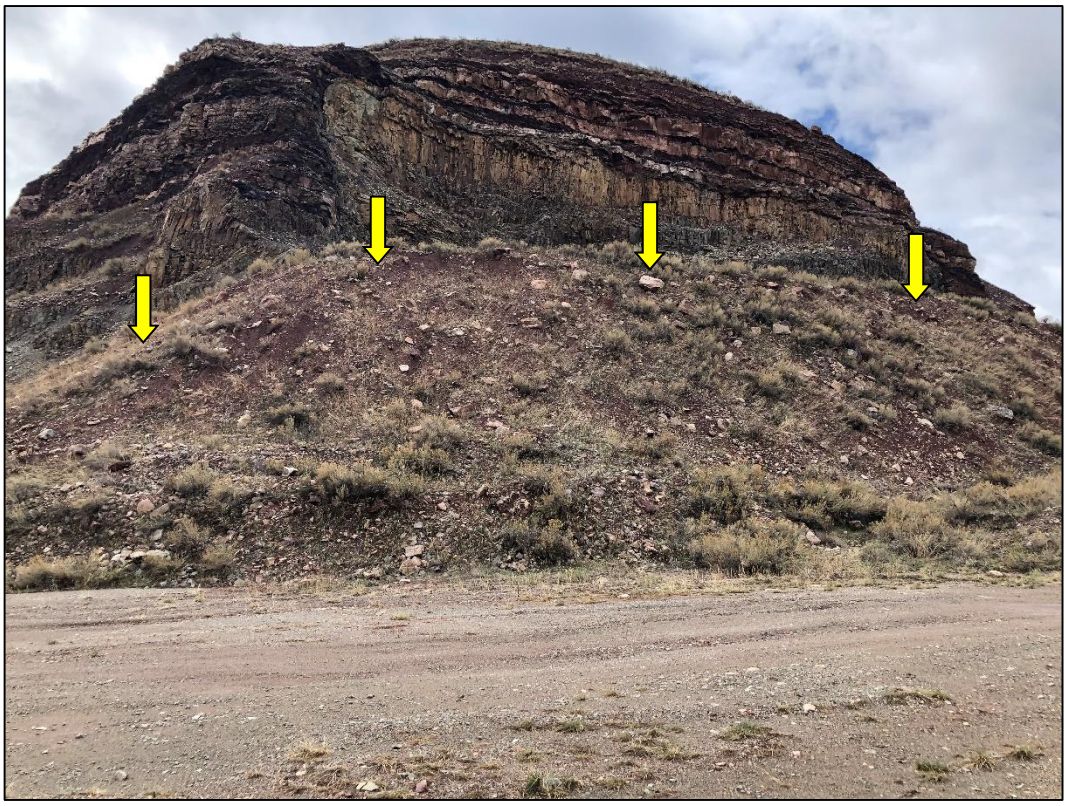


Photo 15. View looking south at northwest-facing highwall that exists between the two quarries. This highwall was partially backfilled (indicated) in the early 2000's during construction of the Quarry 2 access road ramp (road visible in foreground). In TR-5, the operator proposes constructing a rockfall catchment berm and chain-link fencing along the top of this backfill.

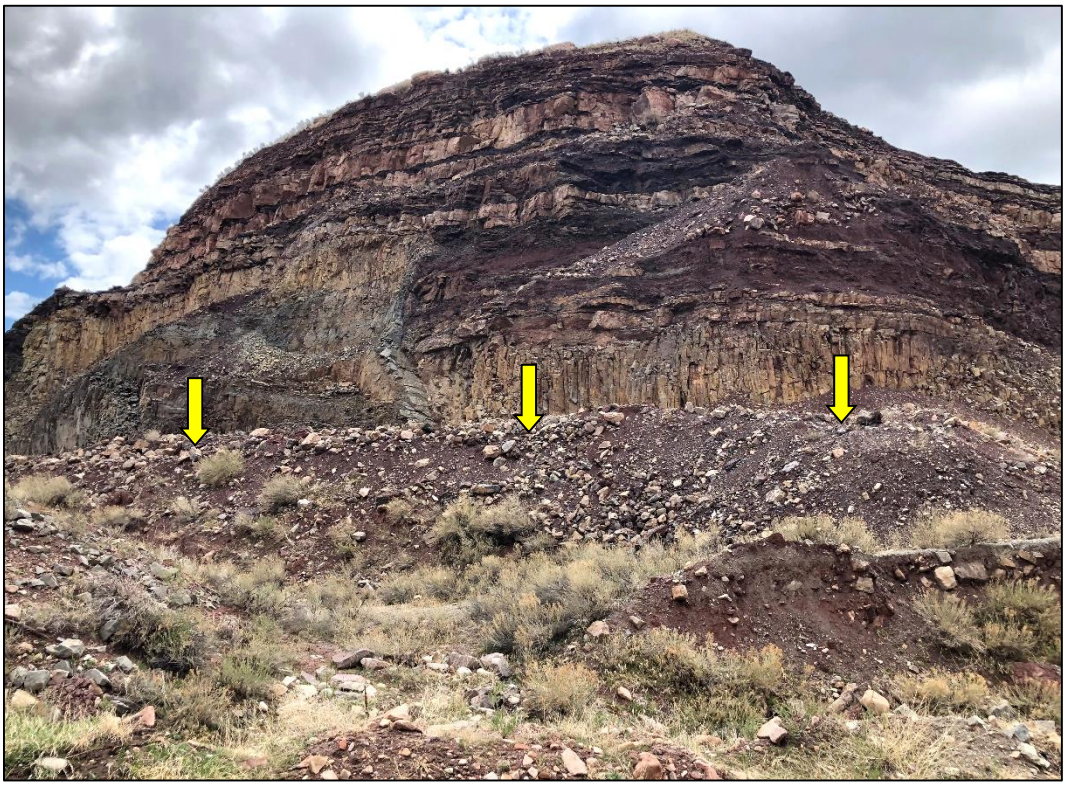


Photo 16. View looking southeast, showing closer view of northwest-facing highwall that exists between the two quarries. This highwall was partially backfilled (indicated) in the early 2000's during construction of the Quarry 2 access road ramp. In TR-5, the operator proposes constructing a rockfall catchment berm and chain-link fencing along the top of this backfill.

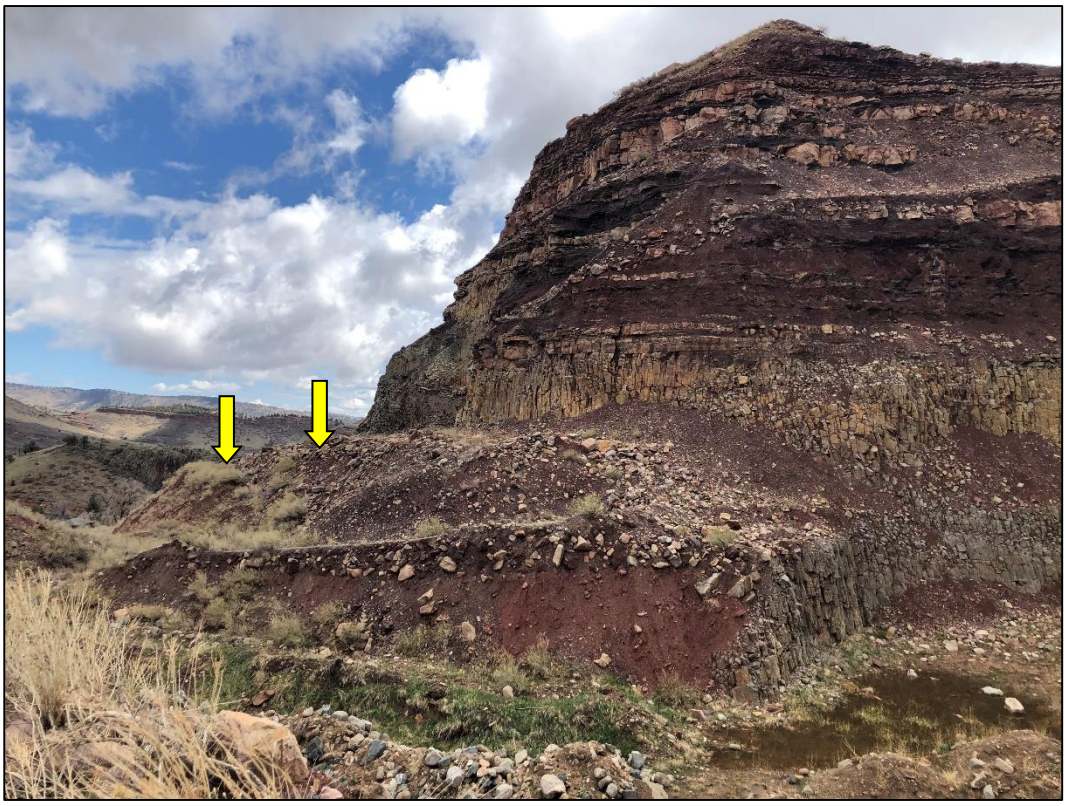


Photo 17. View looking east at western edge of northwest-facing highwall. In TR-5, the operator proposes constructing a rockfall catchment berm (for which space appears limited) and chain-link fencing along the top of the backfill area (indicated).

Photo 18. View looking southeast at Quarry 2, which was partially backfilled with imported material in 2017/2018. Highwalls above the backfill are approximately 100 feet tall with slope gradients ranging from near vertical (dacite) to 1.5H:1V (sedimentary overburden). Note majority of remaining highwalls consists of sedimentary overburden rocks.

Photo 19. View looking east at Quarry 2, showing its eastern (southwest-facing) highwall. The approximate contact between the lower dacite and the upper sedimentary rock units is delineated with a yellow dashed line.

Photo 20. View looking southeast at Quarry 2, showing its southern (northwest-facing) highwall. The approximate contact between the lower dacite and the upper sedimentary rock units is delineated with a yellow dashed line. Note rocks in foreground which fell from western highwall. Larger boulders are derived from overburden sandstone unit.

Photo 21. View looking southwest at Quarry 2, showing its western (northeast-facing) highwall. Note dacite rocks (lower portion of highwall) are heavily fractured. The approximate contact between the lower dacite and the upper sedimentary rock units is delineated with a yellow dashed line. Talus at foot of highwall includes rocks of various sizes, with larger boulders (up to 5 feet in length) typically derived from sandstone unit above dacite. Dacite rocks are typically smaller than 2 feet in length.

Photo 22. View looking southwest at Quarry 2, showing closer view of western (northeast-facing) highwall. Note dacite rocks (lower portion of highwall) are heavily fractured, and overburden sandstone rocks are overhanging the dacite. The approximate contact between the lower dacite and the upper sedimentary rock units is delineated with a yellow dashed line. Talus at foot of highwall includes rocks of various sizes, with larger boulders (up to 5 feet in length) typically derived from sandstone unit above dacite. Dacite rocks are typically smaller than 2 feet in length.

Photo 23. View looking southwest at Quarry 2, showing talus at foot of western highwall including rocks of various sizes, with larger boulders (up to 5 feet in length) typically derived from sandstone unit above dacite (a few of the larger sandstone boulders are indicated). Dacite rocks are typically smaller than 2 feet in length.

Photo 24. View looking north at Quarry 2 entrance (from inside quarry) where imported backfill material was placed in 2017/2018. Ponding shown in photo was from recent storm event.

Photo 25. View looking northwest from western edge of Quarry 2, showing western edge of former stockpiling/processing/storage area (Reclamation Area 2) below (indicated), located adjacent to creek. This area was significantly impacted by the September 2013 flooding. Reclamation of this area was partially addressed in TR-4.

Photo 26. View looking northwest from top of Quarry 2 access ramp, across former stockpiling/processing/storage area (Reclamation Area 2) below, located adjacent to creek. This area was significantly impacted by the September 2013 flooding. Reclamation of this area was partially addressed in TR-4.

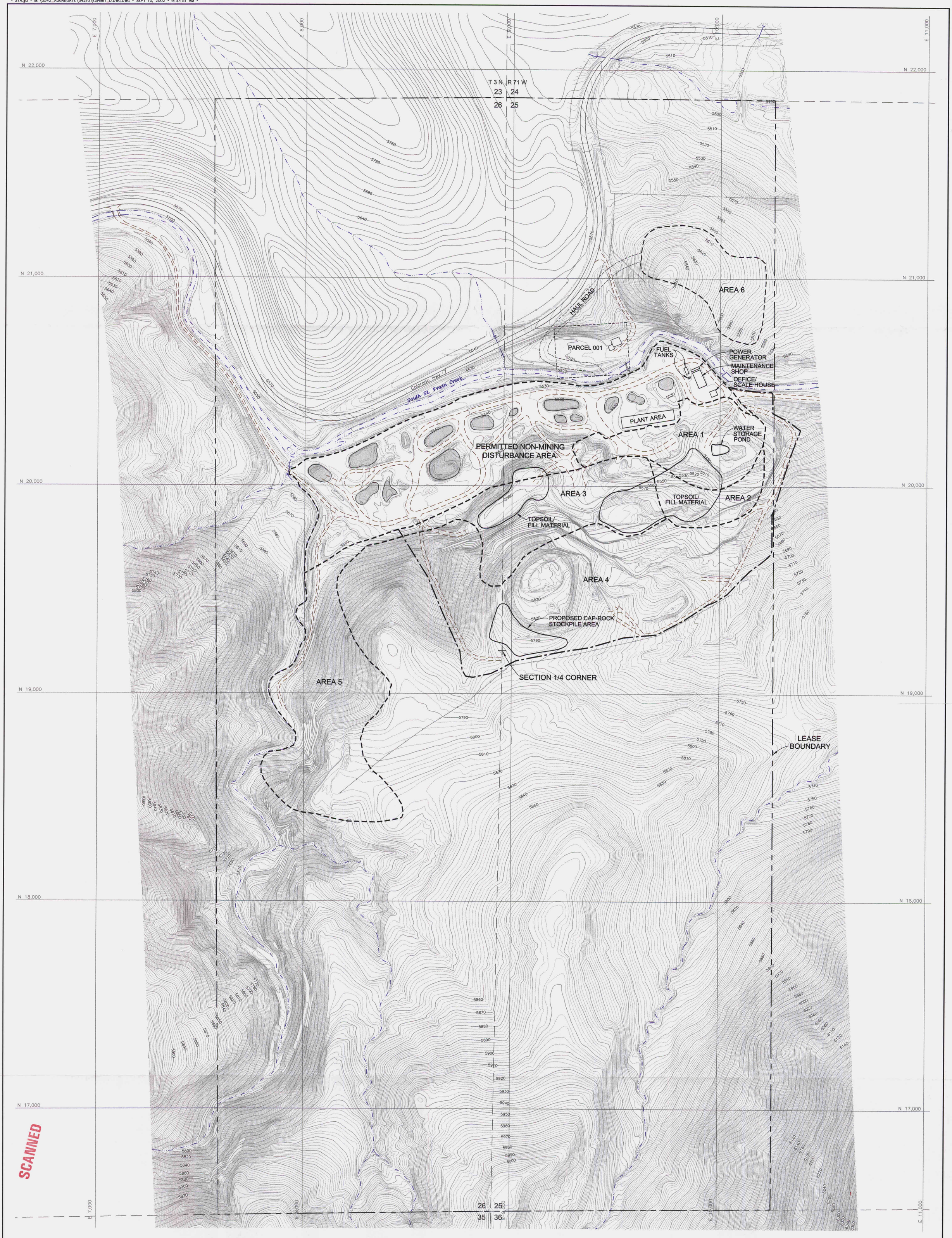
Photo 27. View looking north from top of Quarry 2 access ramp, across former stockpiling/processing/storage area (Reclamation Area 2) below, located adjacent to creek. This area was significantly impacted by the September 2013 flooding. Reclamation of this area was partially addressed in TR-4.

Photo 28. View looking northeast from top of Quarry 2 access ramp, across former stockpiling/processing/storage area (Reclamation Area 2) below, located adjacent to creek. This area was significantly impacted by the September 2013 flooding. Reclamation of this area was partially addressed in TR-4.

Inspection Contact Address
Joel Krech via email at: jkrech@ramboli.com

Encls: Mining Plan Map, approved in AM-1
Figure C-1 - Reclamation Plan Map showing two reclamation areas, submitted with TR-5
Google Earth image of site showing disturbance areas
Figure 1 - Plan view of Lyons Quarry showing dacite walls and proposed rockfall mitigation, submitted with TR-5
Final Grading Plan map, submitted with TR-5
Final Grading Profile, Section, & Details, submitted with TR-5
Overall Reclamation Plan & Details map, submitted with TR-5
Figure B-1 Grading Plan map, approved in TR-4
Figure B-2 Grading Plan map, approved in TR-4
Figure C-2 - Reclamation Plan Map, approved in TR-4
Figure C-3 - Reclamation Plan Map, approved in TR-4
Figure C-4 - Reclamation Plan Map, approved in TR-4

CC: Travis Snyder, HDR
Kimberly Dennis, Aggregate Industries - WCR, Inc.
Chance Allen, Aggregate Industries - WCR, Inc.
Tim Cazier, DRMS
Michael Cunningham, DRMS



SCANNED

NOTES:

1) MINING SEQUENCE IS NUMERICAL AS INDICATED BY MINE AREAS.

2) OWNERS OF RECORD OF AFFECTED LANDS AND OWNERS OF SUBSTANCE TO BE MINED:
JOHN A. HALL
RALPH E. GARNER, TRUSTEE, JETHRO INVESTMENT TRUST
THERESIA A. GARNER, MANAGER, RATHCUKA, LLC
SALLY A. GULICK, GENERAL PARTNER, BRACKET LAZY H, LLLP

3) OWNERS OF RECORD OF ADJOINING LANDS:
JOHN A. HALL
RALPH E. GARNER, TRUSTEE, JETHRO INVESTMENT TRUST
THERESIA A. GARNER, MANAGER, RATHCUKA, LLC
SALLY A. GULICK, GENERAL PARTNER, BRACKET LAZY H, LLLP

4) MINING WILL NOT INCLUDE THE DISTURBANCE OF SOUTH ST. VRAIN CREEK OR THE UNNAMED DRAINAGE WEST OF MINE AREA 5.

N

0 200 400
SCALE IN FEET

LEGEND

- EXISTING PERMIT BOUNDARY
- PROPOSED EXPANSION (AREA 4)
- EXISTING ROAD / TRAIL
- PRODUCT STOCKPILE AREA

RECEIVED
SEP 10 2002
Division of Minerals and Geology

ENGINEER

REVISIONS No.	DESCRIPTION	BY	DATE

REFERENCE

PREPARED FOR: AGGREGATE INDUSTRIES

PREPARED BY: SRK Consulting, Engineers and Scientists

TITLE: MINING PLAN
LYONS QUARRY

SCANNED

SCALE: 1" = 200 ft

DRAWING No.: EXHIBIT D

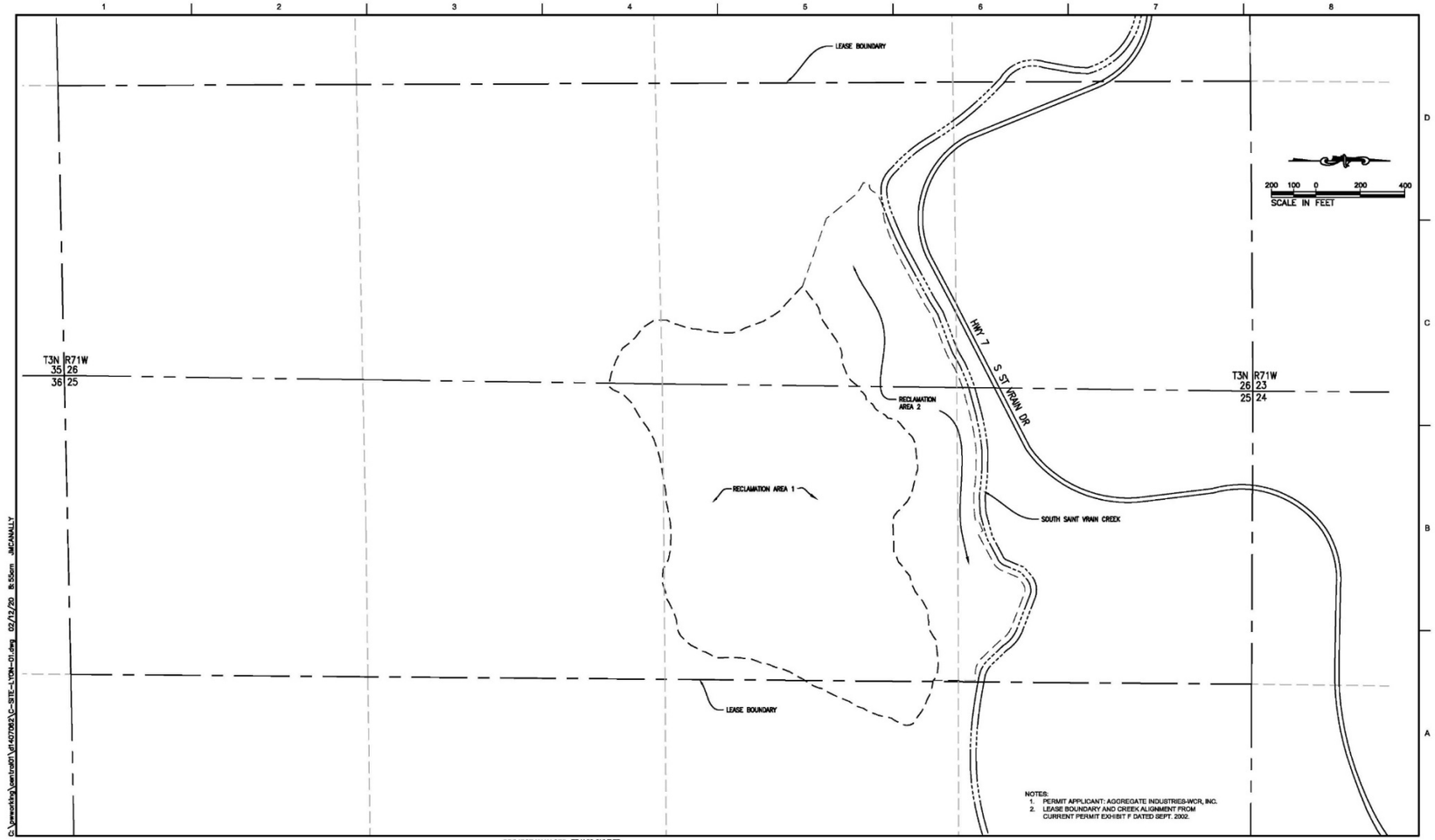
PROJECT No.: 54210

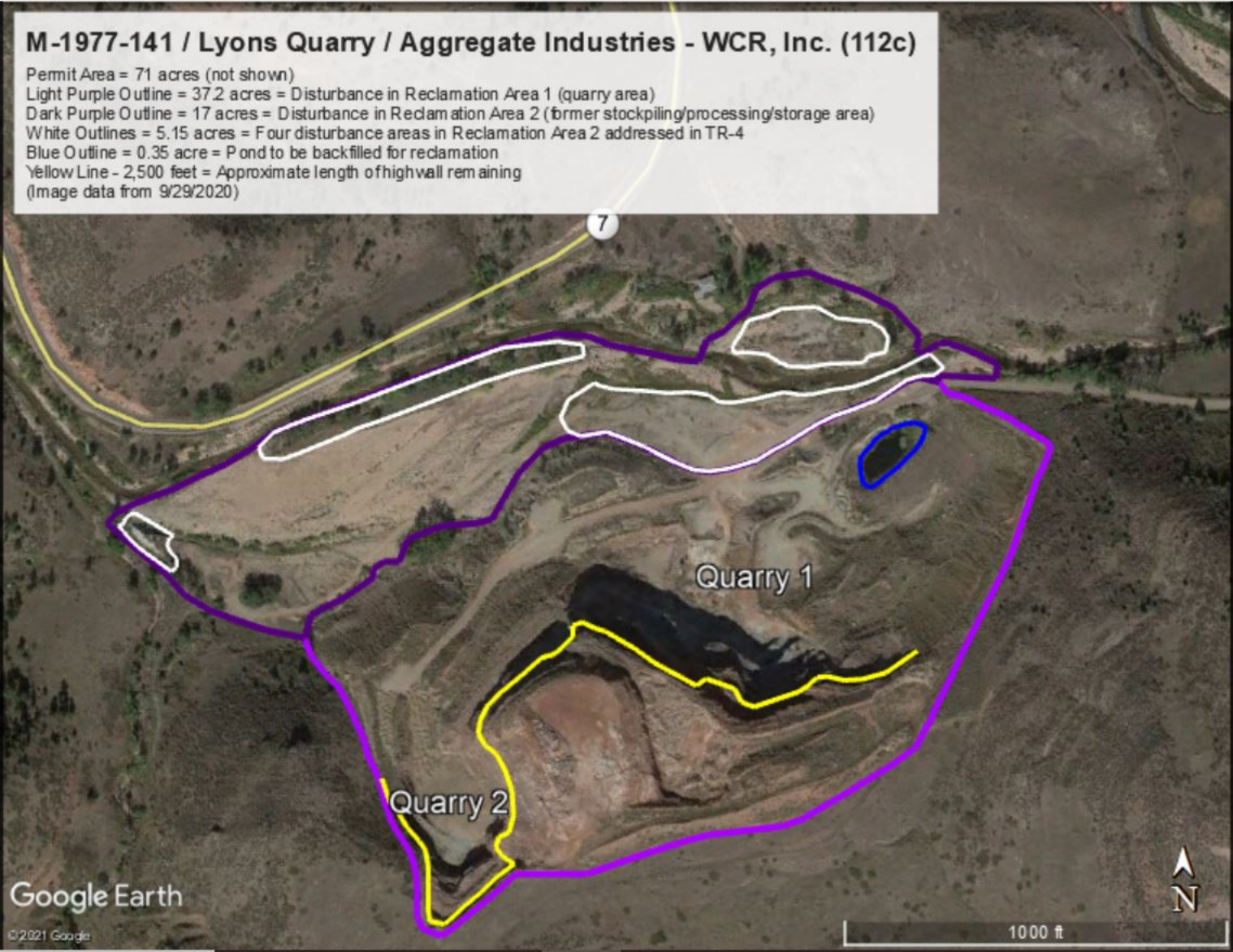
A REVISION

DESIGNED	TM	09/02
	DS	09/02
	GK	09/02

Permit #: M-1977-141 Confidental?: N
Class: REVISION Type-Seq.: AM01
From: SRK Consulting To: DMG
Doc. Name: EX. D Mining Plan Map
Doc. Date (if no date stamp): 9/10/02
Specialist: TGS

Figure C-1 – Reclamation Plan Map – Exhibit F




M-1977-141 / Lyons Quarry / Aggregate Industries - WCR, Inc. (112c)
Permit Area = 71 acres (not shown)
Light Purple Outline = 37.2 acres = Disturbance in Reclamation Area 1 (quarry area)
Dark Purple Outline = 17 acres = Disturbance in Reclamation Area 2 (former stockpiling/processing/storage area)
White Outlines = 5.15 acres = Four disturbance areas in Reclamation Area 2 addressed in TR-4
Blue Outline = 0.35 acre = Pond to be backfilled for reclamation
Yellow Line - 2,500 feet = Approximate length of highwall remaining
(Image data from 9/29/2020)
7
Quarry 1
Quarry 2
Google Earth
©2021 Google
N
1000 ft

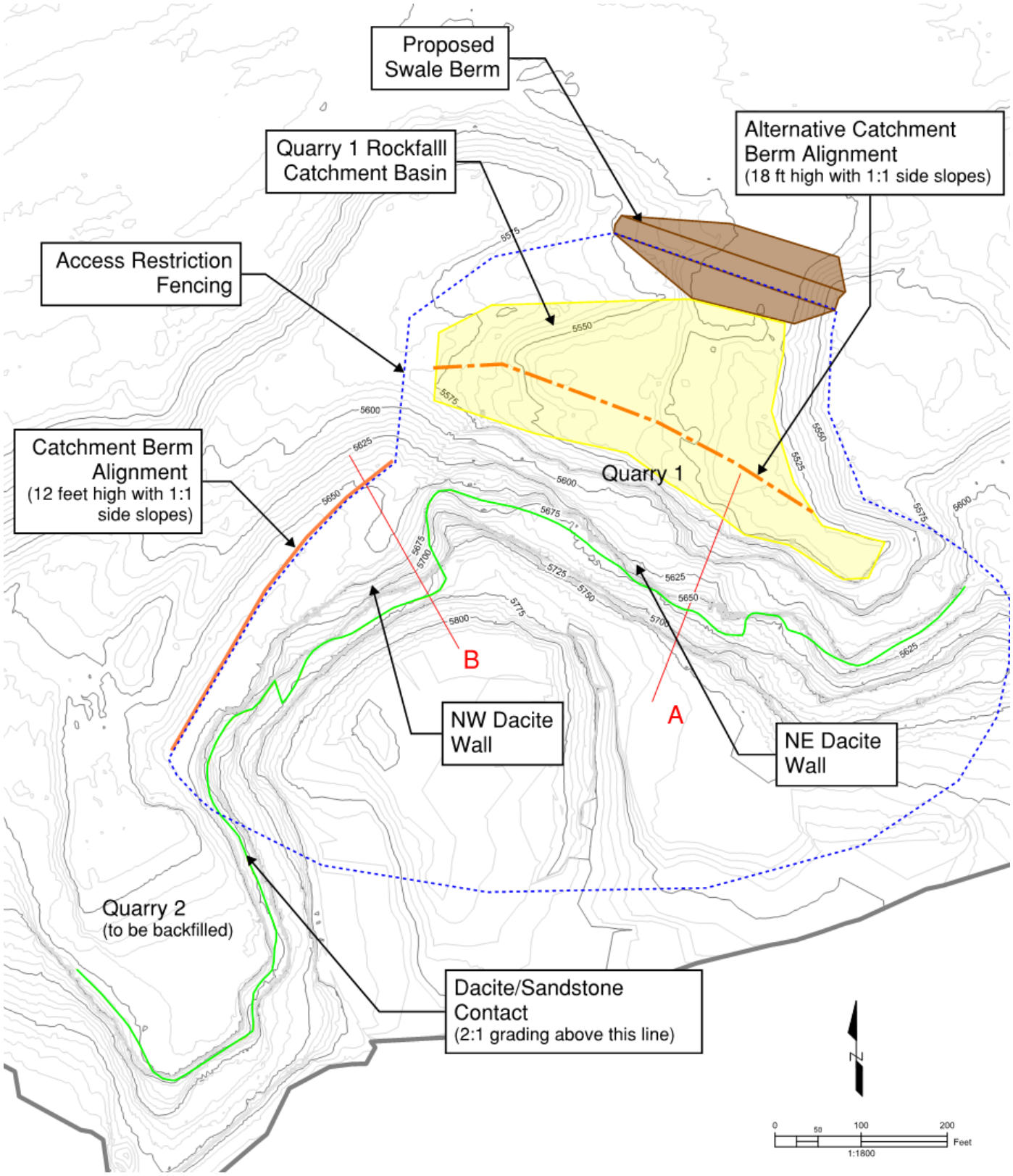


Figure 1. Plan view of Lyons Quarry showing dacite walls and proposed rockfall mitigation

QUANTITIES TABLE		
ITEM	CUT (CU. YD.)	FILL (CU. YD.)
SLOPE GRADING	245,080	125,300
CATCHMENT BERM	-	8,238
NORTHWEST BERM	-	2,231
SEDIMENTATION POND	-	2,222
SCOUR BERM	-	19,033
FLOODPLAIN SOIL REMOVAL	23,300	13,685
NET CUT/FILL: 97,671 CU. YD. (CUT)		

SEE SHEET 01C-04 FOR FLOODPLAIN SOIL REMOVAL SITE GRADING PLAN

PROTECT AREA OF POOL 1

POND TO BE FILLED TO SURROUNDING TOPOGRAPHY (2,222 CY)

CULVERT THROUGH BERM

GRADE EXISTING FILL SLOPES AS REQUIRED (NOTE 1)

DRAINAGE CHANNEL

EXCESS SPOIL MATERIAL AREA (97,671 CY)

LIMITS OF DISTURBANCE

NOTES:

1. GRADE EXISTING FILL SLOPES GREATER THAN 50' IN HEIGHT TO 2H:1V SLOPES OR FLATTER, 15' MIN. BENCH WIDTHS, 50' MAX. BENCH HEIGHTS.
2. ROCK REINFORCEMENT MAY BE NEEDED FOR STABILIZATION WHERE LARGE BLOCKS ARE EVIDENT IN THE BEDROCK. LOCATIONS TO BE DETERMINED BY ON-SITE ENGINEER AFTER SCALING.

100 50 0 100 200
SCALE IN FEET

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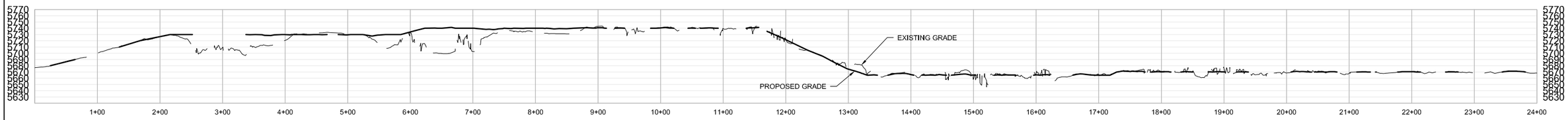
ISSUE	DATE	DESCRIPTION
90%	2/12/2021	PRE-FINAL DESIGN
60%	01/22/2021	INTERMEDIATE DESIGN PACKAGE

PROJECT MANAGER TRAVIS SNYDER
DRAWN BY R. NALLEY
PROJECT NUMBER 10092468

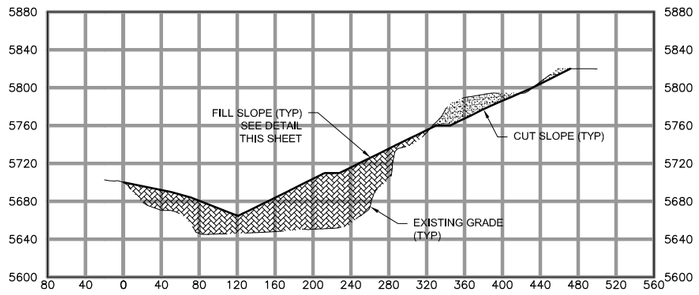
AGGREGATE INDUSTRIES
LYONS QUARRY
RECLAMATION PROJECT

CIVIL
FINAL GRADING PLAN

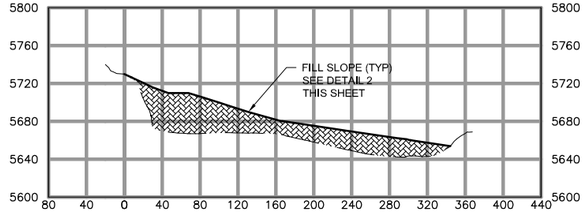
FILENAME 01C-02.dwg
SCALE AS NOTED
SHEET **01C-02**



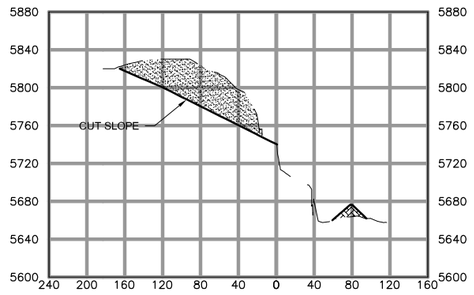
STATION
EXCAVATION BASE PROFILE
1" = 80' 01C-02



STATION 1+00
SECTION A 01C-02
1" = 80'



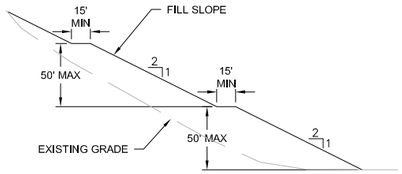
STATION 5+24
SECTION B 01C-02
1" = 80'



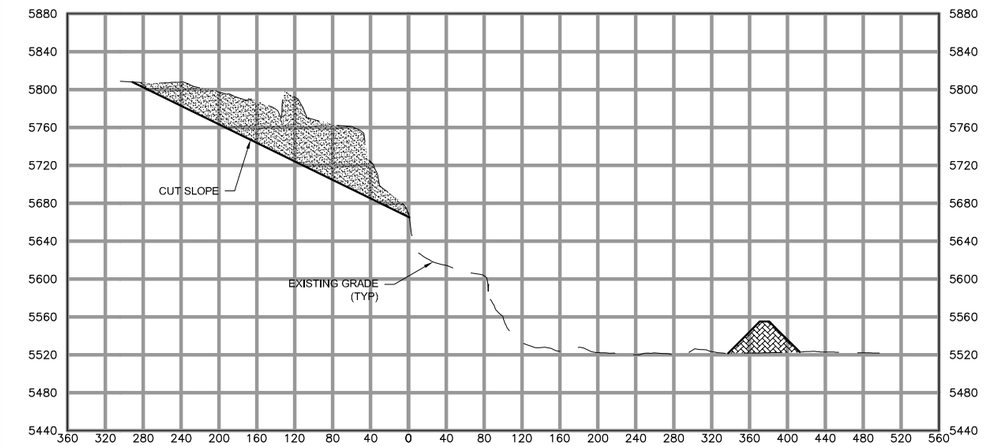
STATION 10+75
SECTION C 01C-02
1" = 80'

NOTES:

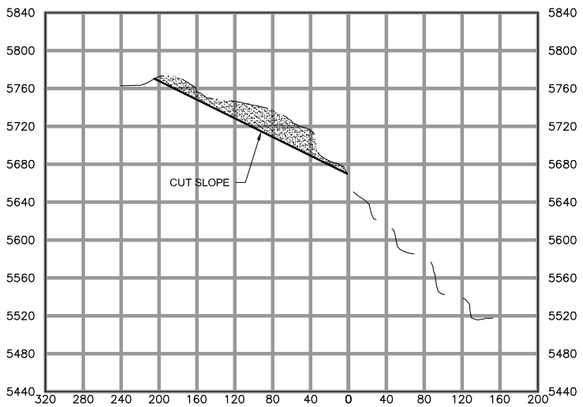
1. ROCK REINFORCEMENT MAY BE NEEDED FOR STABILIZATION WHERE LARGE BLOCKS ARE EVIDENT IN THE BEDROCK. LOCATIONS TO BE DETERMINED BY ON-SITE ENGINEER AFTER SCALING.



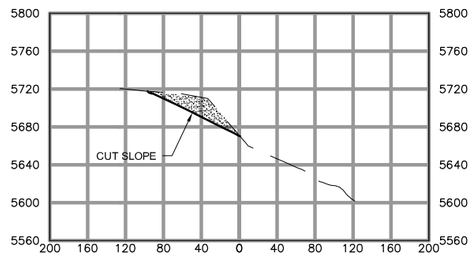
FILL SLOPE DETAIL 1 01C-03
1" = 60'



STATION 16+00
SECTION D 01C-02
1" = 80'



STATION 19+50
SECTION E 01C-02
1" = 80'



STATION 22+00
SECTION F 01C-02
1" = 80'

80 40 0 80 160
SCALE IN FEET

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ISSUE	DATE	DESCRIPTION
90%	2/12/2021	PRE-FINAL DESIGN
60%	01/22/2021	INTERMEDIATE DESIGN PACKAGE

PROJECT MANAGER JOHN BALLEGEER
DRAWN BY R. NALLEY
PROJECT NUMBER 10092468

AGGREGATE INDUSTRIES
LYONS QUARRY
RECLAMATION PROJECT

CIVIL
FINAL GRADING PROFILE, SECTION, & DETAILS

FILENAME 01C-03.dwg
SCALE AS NOTED
SHEET 01C-03

SLOPE	RECLAMATION DESCRIPTION	SYMBOL	PLAN AREA
VARIES	MULCH		25.9 ACRES
2.0H:1V	HYDRO MULCH		11.3 ACRES
>3.0H:1V	TYPE L SOIL RIPRAP WITH STAKED COIR MATTING		6.0 ACRES
VARIES	TYPE M RIPRAP		1.0 ACRES

N

LQRA2 LQRA3 LQRA4 LQRA5

POINT1 POINT2 POINT3

SCALE IN FEET
100 50 0 100 200

NOTES:
1. PERMIT APPLICANT: AGGREGATE INDUSTRIES-WCR, INC.
2. PERMIT BOUNDARY FROM CURRENT PERMIT EXHIBIT F DATED SEPT. 2002.
3. AREAS OF RE-VEGETATION AS SHOWN ARE APPROXIMATE, RE-VEGETATION AREAS WILL BE BASED OFF OF FINAL TOPOGRAPHIC SURVEY.

C:\pwworking\central01\d2130103\01C-09.dwg 02/11/21 4:08pm RNALLEY

ISSUE	DATE	DESCRIPTION
90%	2/12/2021	PRE-FINAL DESIGN
60%	01/22/2021	INTERMEDIATE DESIGN PACKAGE

PROJECT MANAGER TRAVIS SNYDER
DRAWN BY R. NALLEY
PROJECT NUMBER 10092468

AGGREGATE INDUSTRIES
LYONS QUARRY
RECLAMATION PROJECT

CIVIL
OVERALL RECLAMATION PLAN & DETAILS

FILENAME 01C-09.dwg
SCALE AS NOTED
SHEET 01C-09

Figure B-1 – Grading Plan

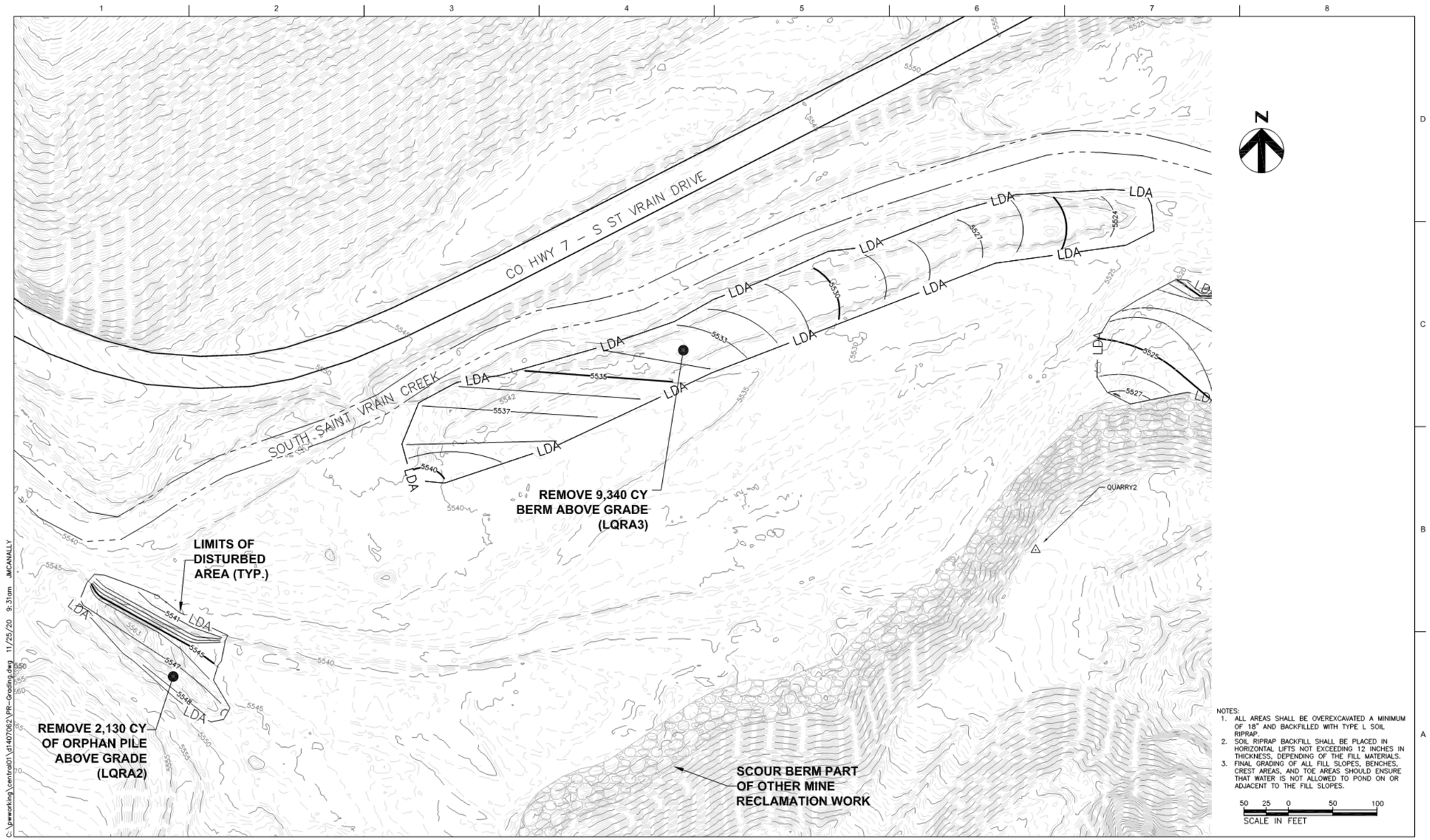
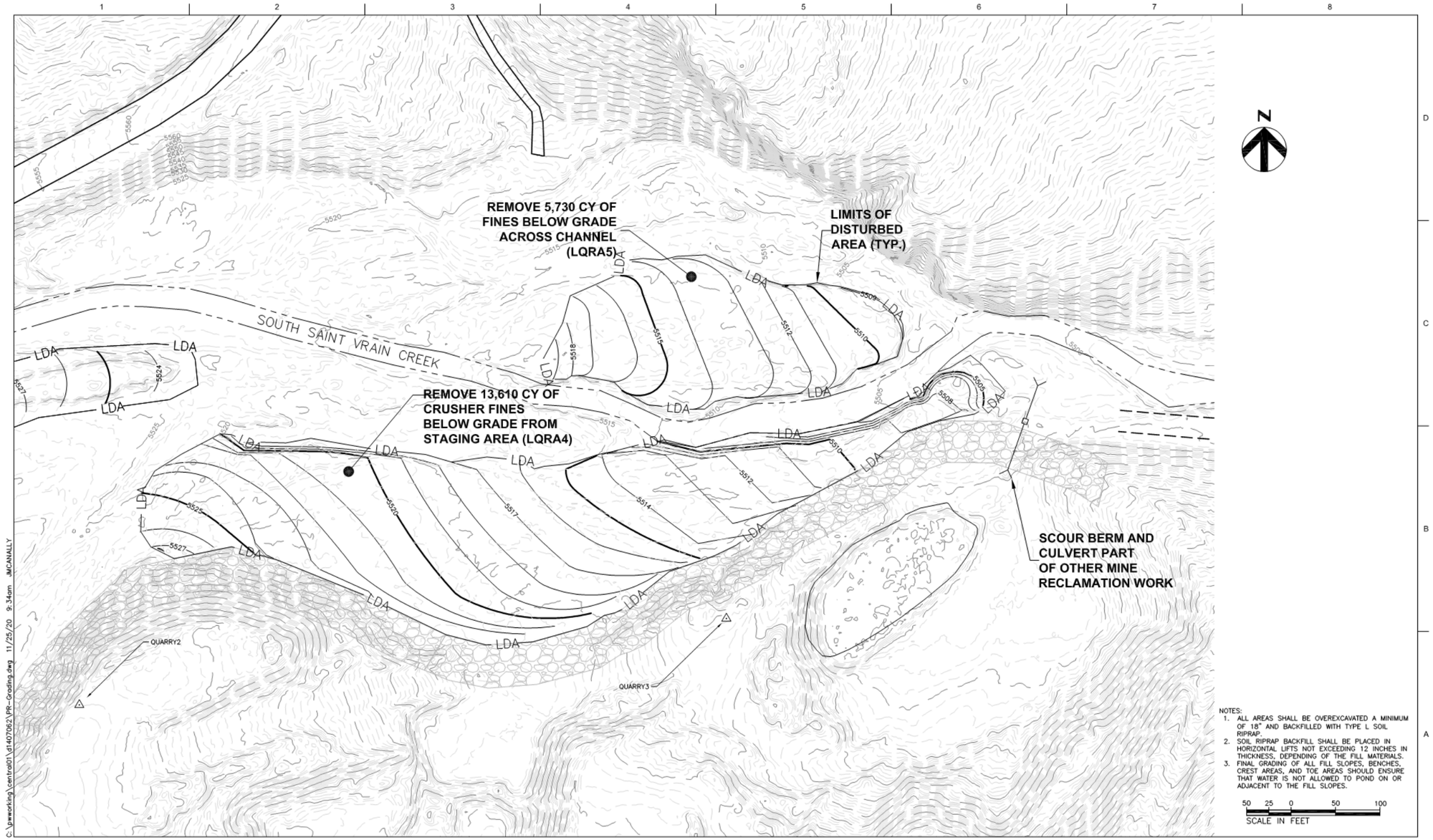


Figure B-2 – Grading Plan

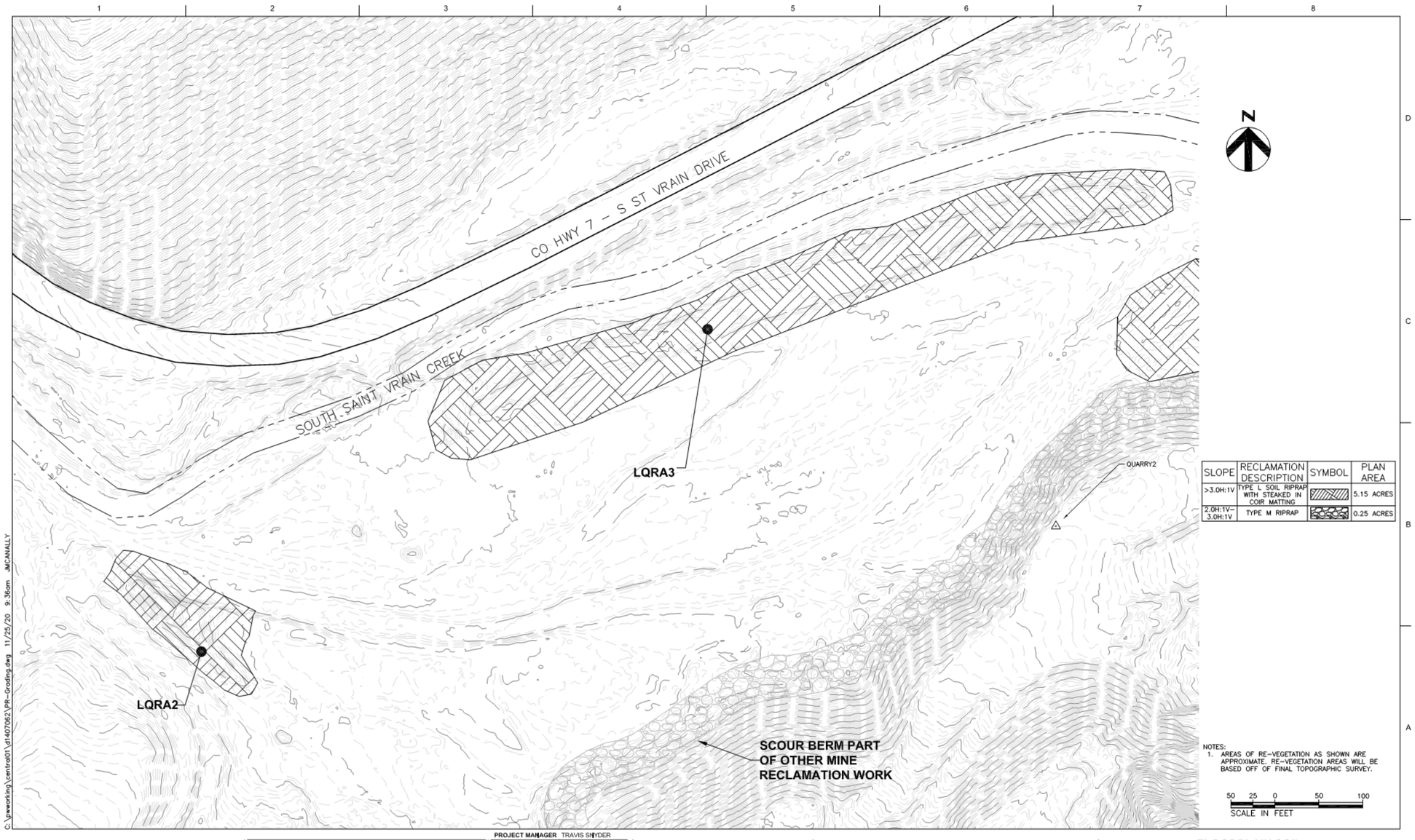


ISSUE DATE DESCRIPTION	PROJECT MANAGER TRAVIS SNYDER DRAWN BY J. MCANALLY PROJECT NUMBER 10191853	AGGREGATE INDUSTRIES LYONS QUARRY RECLAMATION PROJECT

FLOODPLAIN SOIL REMOVAL AREAS SITE GRADING PLAN

FILENAME PR-Grading.dwg
SCALE AS NOTED
SHEET C0-02

Figure C-2 – Reclamation Plan Map – Exhibit F



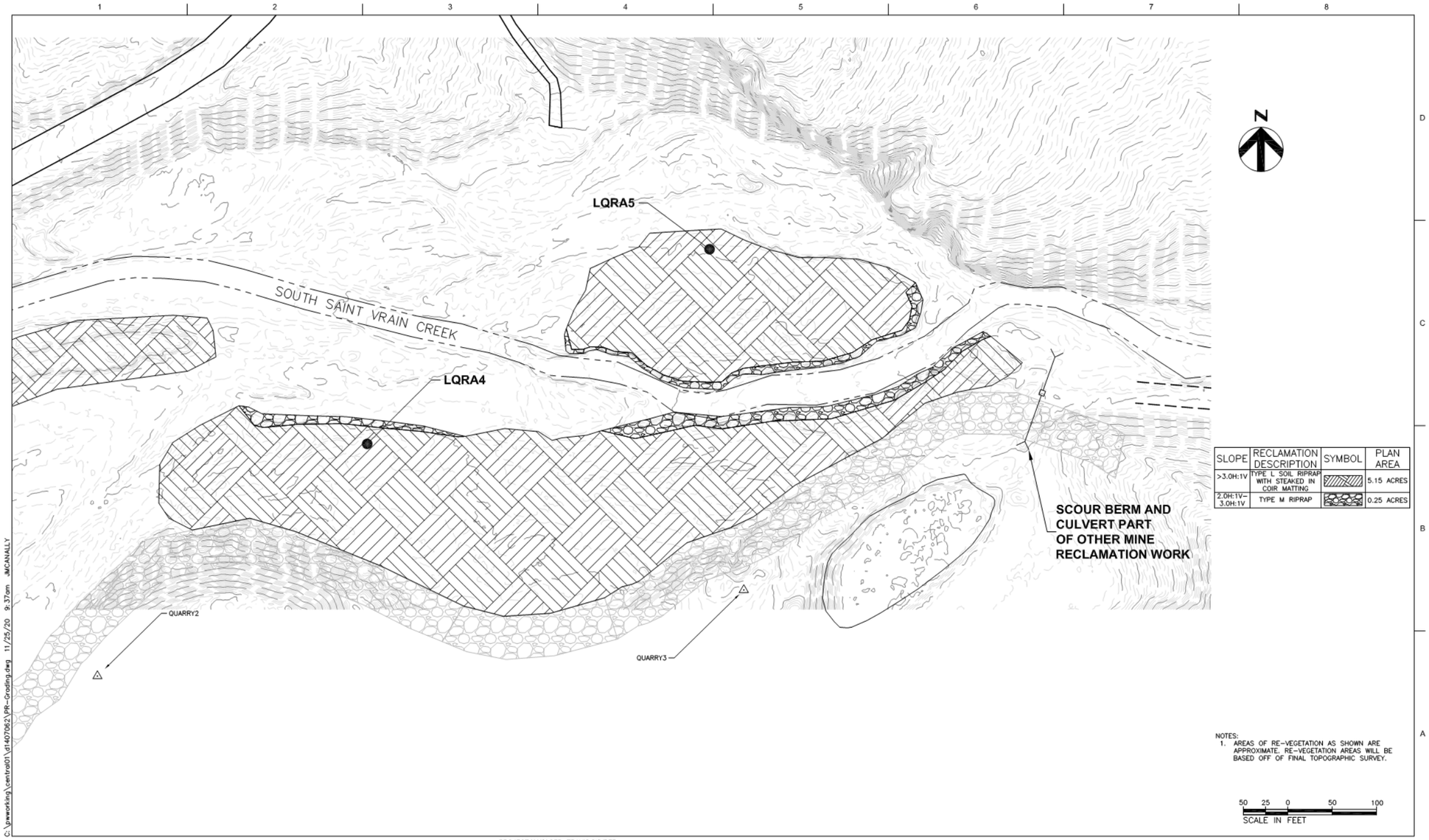
PROJECT MANAGER TRAVIS SNYDER
DRAWN BY J. MCANALLY
PROJECT NUMBER 10191853
ISSUE DATE DESCRIPTION

AGGREGATE INDUSTRIES
LYONS QUARRY
RECLAMATION PROJECT

FLOODPLAIN SOIL REMOVAL AREAS
RECLAMATION PLAN MAP

FILENAME PR-Grading.dwg
SCALE AS NOTED
SHEET C0-04

Figure C-3 – Reclamation Plan Map – Exhibit F

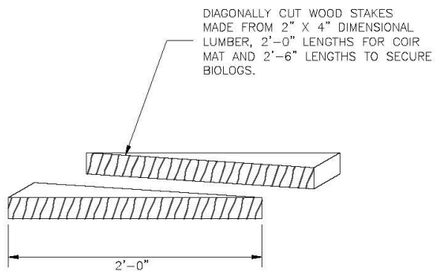


PROJECT MANAGER TRAVIS SNYDER
DRAWN BY J. MCANALLY
PROJECT NUMBER 10191853
ISSUE DATE DESCRIPTION

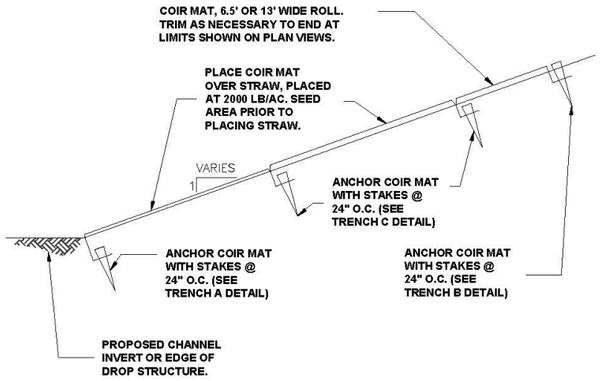
AGGREGATE INDUSTRIES
LYONS QUARRY
RECLAMATION PROJECT

FLOODPLAIN SOIL REMOVAL AREAS
RECLAMATION PLAN MAP

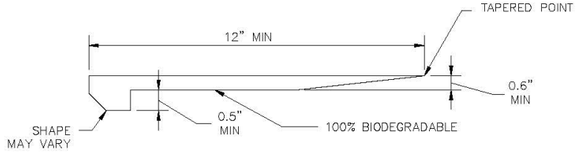
FILENAME PR-Grading.dwg
SCALE AS NOTED
SHEET C0-05



CUT WOOD



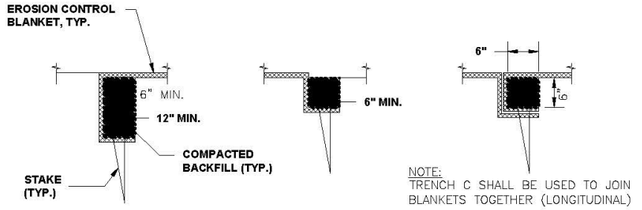
COIR MAT PLACEMENT DETAIL



PROPRIETARY

NOTES
1. PLACE STAKES 1'–6" O.C. TO 3' ABOVE WATER, THEN 2' O.C. TO UPPER LIMIT OF FABRIC.

STAKES



TRENCH A TRENCH B TRENCH C

ANCHOR TRENCH DETAILS FOR EROSION CONTROL BLANKETS

C:\pwworking\central01\d1407062\PR-Grading.dwg 02/11/20 1:27pm JMCANALLY

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	TRAVIS SNYDER
DRAWN BY	J. MCANALLY
PROJECT NUMBER	10191853

AGGREGATE INDUSTRIES
LYONS QUARRY
RECLAMATION PROJECT

FLOODPLAIN SOIL REMOVAL AREAS RECLAMATION DETAILS

FILENAME	PR-Grading.dwg
SCALE	AS NOTED
SHEET	C0-06