

**UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
GRAND JUNCTION FIELD OFFICE
2815 H Road, Grand Junction, CO 81506**

DECISION RECORD

**Gateway Canyons Resort
Sundial Storm Water Diversion
DOI-BLM-CO-N030-2014-0037-EA**

DECISION:

It is my decision to approve authorization the Proposed Action as described in the attached environmental assessment (EA), including the mitigation measures and monitoring requirements listed below. This decision is to authorize a right-of-way for construction, operation, and maintenance of a storm water diversion system on public land. The proposed project would consist of two diversion berms, a new drainage channel, and relocation of an existing road. The system would protect the planned Sundial residential subdivision at Gateway Canyons from potential flooding emanating from the Little Canyon watershed by intercepting storm water flow and aligning it with the existing storm water system installed at Gateway Canyons Resort.

Public scoping was conducted by posting this project on the Grand Junction Field Office (GJFO) National Environmental Policy Act (NEPA) website. No comments were received from the public for this project.

This office completed an EA for this project, and reached a Finding of No Significant Impact. Therefore, an Environmental Impact Statement will not be prepared.

RATIONALE:

I have considered the potential impacts expected from the proposed action. Minor short-term impacts to soils, hydrology, vegetation, and wildlife habitat will occur. All impacts are localized, and none are significant. No impacts will occur to threatened or endangered species or cultural resources. Approval of this action is in conformance with the 2015 Grand Junction Resource Management Plan.

This project will route storm water runoff in an ephemeral stream channel, from the Little Canyon watershed into an existing storm water system on the Gateway Canyons Resort. The system will protect private land resources, including housing, from storm water flooding.

MITIGATION MEASURES/MONITORING:

Mitigating and monitoring measures that will be incorporated as stipulations in granting this right-of-way are included in Attachment 1.

PROTEST/APPEALS:

This decision shall take effect immediately upon the date it is signed by the Authorized Officer, and shall remain in effect while any appeal is pending unless the Interior Board of Land Appeals issues a stay (43 CFR §2801.10(b)). Any appeal of this decision must follow the procedures set forth in 43 CFR Part 4. Within 30 days of the decision, a notice of appeal must be filed in the office of the Authorized Officer at Grand Junction Field Office, 2815 H Road, Grand Junction, Colorado, 81506. If a statement of reasons for the appeal is not included with the notice, it must be filed with the Interior Board of Land Appeals, Office of Hearings and Appeals, U.S. Department of the Interior, 801 North Quincy St., Suite 300, Arlington, VA 22203 within 30 days after the notice of appeal is filed with the Authorized Officer.

NAME OF PREPARER: Robin Lacy

NAME OF ENVIRONMENTAL COORDINATOR: Christina Stark

DATE: ~~2/25/16~~ 2/24/16

SIGNATURE OF AUTHORIZED OFFICIAL:

 2-24-2016
Grand Junction Field Manager

DATE SIGNED:

ATTACHMENTS:

- 1) Stipulations and Applicant Committed Measures
- 2) Engineering Drawings/Design Specifications

ATTACHMENT 1

Standard and Special Stipulations and Applicant Committed Measures COC-77225 Gateway Canyons Resort Sundial Storm Water Diversion Project

1. The holder shall construct, operate, and maintain the facilities, improvements, and structures within this right-of-way in strict conformity with the drawings and specifications which were approved and made part of the grant on 2/24/16. Any relocation, additional construction, or use that is not in accord with the approved drawings and specifications, shall not be initiated without the prior written approval of the authorized officer. A copy of the complete right-of-way grant, including all stipulations and approved drawings and specifications, shall be made available on the right-of-way area during construction, operation, and termination to the authorized officer of the Bureau of Land Management (BLM). Noncompliance with the above will be grounds for an immediate temporary suspension of activities if it constitutes a threat to public health and safety or the environment.
2. The holder shall contact the authorized officer at least 3 days prior to the anticipated start of construction and/or any surface disturbing activities. The BLM contact person is Robin Lacy, 2815 H Road, Grand Junction, CO 81506, phone 970-244-3028. The authorized officer may require and schedule a preconstruction conference with the holder prior to the holder's commencing construction and/or surface disturbing activities on the right-of-way. The holder and/or his representative shall attend this conference. The holder's contractor, or agents involved with construction and/or any surface disturbing activities associated with the right-of-way, shall also attend this conference to review the stipulations of the grant including the project specifications.
3. The holder shall survey and clearly mark the exterior limits of the right-of-way, as determined by the authorized officer.
4. The holder shall conduct all activities associated with the construction, operation, and termination of the right-of-way within the authorized limits of the right-of-way.
5. Holder shall disturb and remove only the minimum amount of soils and vegetation necessary for the construction of structures and facilities. Topsoil shall be conserved during excavation and reused as cover on disturbed areas to facilitate regrowth of vegetation.
6. No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates

- ruts in excess of 3 inches deep, the soil shall be deemed too wet to adequately support construction equipment.
7. All design, material, and construction, operation, maintenance, and termination practices shall be in accordance with safe and proven engineering practices.
 8. Fences, gates, and brace panels shall be reconstructed to appropriate Bureau standards and/or specifications as determined by the authorized officer.
 9. Construction-related traffic shall be restricted to routes approved by the authorized officer. New access roads or cross-country vehicle travel will not be permitted unless prior written approval is given by the authorized officer. Authorized roads used by the holder shall be rehabilitated or maintained when construction activities are complete as approved by the authorized officer.
 10. Construction sites shall be maintained in a sanitary condition at all times; waste materials at those sites shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.
 11. The holder shall comply with the construction practices and mitigating measures established by 33 CFR 323.4, which sets forth the parameters of the "nationwide permit" required by Section 404 of the Clean Water Act. If the proposed action exceeds the parameters of the nationwide permit, the holder shall obtain an individual permit from the appropriate office of the Army Corps of Engineers and provide the authorized officer with a copy of same. Failure to comply with this requirement shall be cause for suspension or termination of this right-of-way grant.
 12. For projects with surface disturbance equal to or greater than one acre, a stormwater permit and stormwater management plan (SWMP) is required by the State of Colorado. Best Management Practices (BMPs) identified in the SWMP must be in place prior to any surface-disturbing activity. The holder shall install additional BMPs as determined necessary by the authorized officer.
 13. The United States, its officers and employees shall be held harmless from and indemnified against any damage, injury, or liability resulting from the construction, operation, or maintenance of the storm water diversion system being authorized by this right-of-way grant; including, but not limited to, any liability which the United States may have as owner of the land which is the subject of the right-of-way grant.
 14. Within 60 days of completion, the holder shall submit to the authorized officer as-built drawings and a certification of construction verifying that the facility has been constructed (and tested) in accordance with the design, plans, specifications, and applicable laws and regulations.
 15. Within 30 days after receipt of the authorized officer's written notification of damage or defects found in the structure or related facilities, the holder will restore the facility to the originally constructed condition, using materials of equal or superior quality to those used in the original construction.

16. Sixty days prior to termination of the right-of-way, the holder shall contact the authorized officer to arrange a joint inspection of the right-of-way. This inspection will be held to agree to an acceptable termination (and rehabilitation) plan. This plan shall include, but is not limited to, removal of facilities, drainage structures, surface material, recontouring, topsoiling, or seeding. The authorized officer must approve the plan in writing prior to the holder's commencement of any termination activities.
17. Any cultural and/or vertebrate paleontological resource (historic or prehistoric site or object) discovered by the Holder, or any person working on its behalf, on Federal land shall be immediately reported to the authorized officer. The Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the BLM authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The Holder may be responsible for the cost of evaluation, and any decision as to proper mitigation measures will be made by the authorized officer after consulting the Holder.
18. Pursuant to 43 CFR 10.4(g) the Holder of this authorization must notify the authorized officer, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), Holder must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.
19. The Holder or its contractor is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites or for collecting artifacts. If historic or archaeological materials are uncovered during any project or construction activity, the operator must stop work in the area of the discovery that might further disturb such materials and immediately contact the authorized officer. Within five working days, the authorized officer will inform the operator as to the mitigation measures the operator will likely have to undertake before the site can be used (assuming in-place preservation is not necessary).
20. All construction equipment shall be washed clean and weed seed free prior to moving equipment on public lands and start of construction. The Holder shall monitor and control those noxious weeds that may occur or be found, as listed in the booklet, Noxious Weeds of Mesa County. If chemical control is necessary, use of pesticides shall comply with the applicable Federal and State laws. Pesticides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, the proponent shall obtain from the authorized officer written approval of a plan showing the type and quantity of material to be used, the pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary by the authorized officer. Emergency use of pesticides shall be approved in writing by the authorized officer prior to such use.
21. The Holder shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601 et seq.), with regard to any toxic substances that are used, generated by or

stored on the lease or on facilities authorized under this lease (see 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR, Part 761.1-761.193). Additionally, any release of toxic substances (leaks, spills, etc.) in excess of reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act of 1980, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

22. The Holder shall comply with applicable State standards for public health and safety, environmental protection and siting, construction, operation and maintenance, if these State standards are more stringent than Federal standards for similar projects.
23. The holder shall protect all survey monuments found within the right-of-way. Survey monuments include, but are not limited to, General Land Office and Bureau of Land Management Cadastral Survey Corners, reference corners, witness points, U.S. Coastal and Geodetic benchmarks and triangulation stations, military control monuments, and recognizable civil (both public and private) survey monuments. In the event of obliteration or disturbance of any of the above, the holder shall immediately report the incident, in writing, to the authorized officer and the respective installing authority if known. Where General Land Office or Bureau of Land Management right-of-way monuments or references are obliterated during operations, the holder shall secure the services of a registered land surveyor or a Bureau cadastral surveyor to restore the disturbed monuments and references using surveying procedures found in the Manual of Surveying Instructions for the Survey of the Public Lands in the United States, latest edition. The holder shall record such survey in the appropriate county and send a copy to the authorized officer. If the Bureau cadastral surveyors or other Federal surveyors are used to restore the disturbed survey monument, the holder shall be responsible for the survey cost.
24. All construction equipment shall be washed clean and weed seed free prior to moving equipment on public lands and start of construction. The Holder shall monitor and control those noxious weeds that may occur or be found, as listed in the booklet, Noxious Weeds of Mesa County. If chemical control is necessary, use of pesticides shall comply with the applicable Federal and State laws. Pesticides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, the proponent shall obtain from the authorized officer written approval of a plan showing the type and quantity of material to be used, the pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary by the authorized officer. Emergency use of pesticides shall be approved in writing by the authorized officer prior to such use.
25. Lands involved in this grant are subject to Section 24 of the Federal Power Act of 1920 (41 Stat. 1075 as amended (16 U.S.C. 818)). If these lands are ever required for power development purposes, any structures or improvements placed thereon which are found to obstruct or interfere with such projects shall, without expense to the United States, its

permittees or licensees, be removed or relocated insofar as is necessary to eliminate the interference.

Special Stipulations

Surface Water

1. Dredge and fill activities are subject to Clean Water Act compliance and the holder shall submit all appropriate applications and obtain proper permits per state and federal regulations.

Invasive, Non-Native Species

1. The holder shall submit a weed management plan which must be approved by the Grand Junction Field Office prior to any surface disturbance on public land.
2. If herbicide is to be used on public land, the applicant shall submit a pesticide use proposal (PUP) before herbicide is applied.
3. The holder shall survey the area annually for noxious weeds, and, if present, treat the sites with the appropriate herbicides.
4. Russian knapweed adjacent to the project location shall be treated in the fall, prior to construction if possible, or, if necessary, it could be treated the following spring.

Endangered Species

1. The 0.5 acre feet of water depletion will be entered into the GJFO water depletion log, which will be submitted to the Colorado State Office at the end of the Fiscal Year. To offset impacts associated with the proposed action, BLM will make an annual contribution in the form of monetary payment of \$10.27 (The 2015 acre foot fee is \$20.54 per acre foot) to the National Fish and Wildlife Foundation on behalf of the Upper Colorado River Endangered Fish Recovery Program.

Sensitive Plant Species

1. Prior to construction (surface disturbing activities), the limits of disturbance shall be flagged along the southern side of the proposed east-west drainage channel to ensure the avoidance of BLM sensitive plants.

Vegetation

1. The holder shall have an on-site consultation with the BLM ecologist and resource staff representative prior to the start of the project and/or the reclamation phase.
2. Only viability-tested, certified seed for the current year, with a minimum germination rate of 80% and a minimum purity of 90% shall be used unless otherwise approved by BLM in advance of purchase. Seed shall contain no noxious, prohibited, or restricted weed seeds

and shall contain no more than 0.5 percent by weight of other weed seeds. Seed tags or other official documentation shall be submitted to BLM at least 14 days before the date of proposed seeding. Seed that does not meet the above criteria shall not be applied to public lands.

3. Seeding shall be conducted no more than 24 hours following completion of final seedbed preparation. Where practical, seed shall be drilled to a depth of 0.25 to 0.5 inch. Where drill-seeding is impractical, seed may be applied by broadcast-seeding at twice the drill-seeding rate, followed by raking or harrowing to provide 0.25 to 0.5 inch of soil cover, or by hydro-seeding and hydro-mulching. Hydro-seeding and hydro-mulching shall be conducted in two separate applications to ensure adequate contact of seeds with the soil.
4. The Applicant's BLM approved seed mix (see Tables 1 and 2 below) shall be applied to all disturbed public land at the rates shown. The recommended seeding time is between September 1st and December 1st.
5. To protect the integrity of the berms, no trees or shrubs shall be planted on or immediately adjacent to the berms.
6. All juniper trees removed from the site shall be chipped and applied as mulch on specific locations as directed by the authorized officer. If chipped tree materials are not available in sufficient quantity to use as mulch, the chipped material shall be distributed over the topsoil proposed for removal and storage.
7. All juniper root boles that cannot be blended into the character of the area surrounding the project site shall be removed and disposed of off-site.
8. No Juniper stumps left on-site should exceed 6" in height.
9. After the first growing season if there are no positive indicators of successful establishment of seeded species, additional reclamation efforts shall be undertaken at the applicant's expense.
10. Reclamation success shall be monitored annually and a monitoring report furnished to the BLM Grand Junction Field Office by December 1, until such time as the authorized officer agrees that seeding and transplanting success has met the objective of establishing a self-sustaining native plant community.

Migratory Birds

1. To prevent potential taking of migratory birds, new surface disturbance/construction, especially vegetation removal, shall not be allowed between May 15 and July 15. If surface disturbance is proposed during this period, a migratory bird survey shall be required following submittal of a written request for exception before any surface disturbance occurs. If vegetation removal is completed before May 15, an exception to this rule may be granted.

Visual

1. In order to establish final details of meeting Visual Resource Management Class II requirements, the holder shall have an on-site consultation with the BLM ecologist and resource staff representative prior to the start of the project and/or the reclamation phase.

Transportation

1. Any projects on public land that are disturbed or damaged by construction activities shall be restored to a fully functional pre-project condition. Known projects involved include the BLM administrative access road, and fence.

Applicant Committed Measures

1. The contractor shall work in a manner as to minimize ground disturbance outside the physical grading area.
2. All materials and workmanship shall be subject to inspection by the engineer. The engineer reserves the right to accept or reject any material and workmanship that does not conform to the plans.
3. The contractor shall repair or replace any drainage, fencing, asphalt, concrete or other improvements damaged during construction.
4. Use of imported fill material shall be limited to the “select backfill” component of the mechanically stabilized earth berm.
5. Topsoil shall be stripped to a depth of 4” over all areas to be graded. Vegetation on the sites to be disturbed will be chopped in place and incorporated into the topsoil at the time the topsoil is removed for temporary storage. Topsoil shall be stockpiled on Hendricks Real Estate Holdings LLC’s property. Topsoil shall be evenly spread over final graded areas with the exception of the roadway.
6. All disturbed areas beyond gravel road surfaces and rock lined channel shall receive BLM approved native seed mix. The seeded area will require periodic watering to ensure established growth.
7. The upstream and downstream slopes of the road shall be armored with rip rap to limit the erosion when high flows occur.
8. Unless otherwise specified, all fill material shall be compacted to at least 85% of ASTM-D698 within 2% of optimum moisture content.
9. Rip rap size shall be d50=12” or on-site boulders 9” - 24” in diameter.

TABLE 1:**Seed Mix to be Applied to the Disturbance Area for Berms:**

Common Name	Scientific Name	Variety	PLS lbs./acre*	# PLS seeds/lb.	# PLS seeds/ac @ mix rate	# PLS seeds/sqft
Indian Ricegrass	Achnatherum hymenoides	Paloma	1.9	141000	267900	6.15
Needle-and-thread Grass	Hesperostipa [Stipa] comata	VNS**	2.2	115000	253000	5.81
Bottlebrush Squirreltail	Elymus elymoides,		1.4	192000	268800	6.17
Blue Grama	Bouteloua gracilis	VNS	0.7	825000	577500	13.26
Sand Dropseed	Sporobolus cryptandrus	VNS	0.1	5298000	529800	12.16
Purple Three-awn	Aristida purpurea	VNS	0.8	250000	200000	4.59
Galleta***	Pleuraphis [Hilaria] jamesii	VNS	0.96	159000	152640	3.50
Annual Sunflower	Helianthus annuus	VNS	1	58500	58500	1.34
Sulphur Buckwheat	Eriogonum umbellatum	VNS	0.5	209000	104500	2.40
Scarlet Globemallow	Sphaeralcea coccinea	VNS	0.5	500000	250000	5.74
		TOTAL	10.06			61.13

* Seeding rates shown are for drilled seeding. If broadcast seeding, rate must be doubled.

** VNS: Variety not specified

*** Galleta seeding rate is for florets. If planting using the caryopsis rather than the floret the seeding rate would be lower; 0.23 lb./ac based on NRCS data.

TABLE 2:**Seed Mix to be Applied to the Shrub Disturbance Areas:**

Common Name	Scientific Name	Variety	PLS lbs./acre*	# PLS seeds/lb.	# PLS seeds/ac @ mix rate	# PLS seeds/sqft
Fourwing Saltbush	<i>Atriplex canescens</i>	VNS**	2.5	52000	130000	2.98
Rubber Rabbitbrush	<i>Ericameria nauseosa</i>	VNS	0.2	400000	80000	1.84
Winterfat	<i>Krascheninnikovia lanata</i>	VNS	0.5	123000	61500	1.41
Indian Ricegrass	<i>Achnatherum hymenoides</i>	Rimrock	1.1	141000	155100	3.56
Needle-and-thread Grass	<i>Hesperostipa [Stipa] comata</i>	VNS	2.2	115000	253000	5.81
Bottlebrush Squirreltail	<i>Elymus elymoides</i> ,	VNS	1.4	192000	268800	6.17
Blue Grama	<i>Bouteloua gracilis</i>	VNS	0.7	825000	577500	13.26
Sand Dropseed	<i>Sporobolus cryptandrus</i>	VNS	0.1	5298000	529800	12.16
Purple Three-awn	<i>Aristida purpurea</i>	VNS	0.8	250000	200000	4.59
Annual Sunflower	<i>Helianthus annuus</i>	VNS	1.5	58500	87750	2.01
Rocky Mountain Beeplant	<i>Cleome serrulata</i>	VNS	1	65900	65900	1.51
Scarlet Globemallow	<i>Sphaeralcea coccinea</i>	VNS	0.5	500000	250000	5.74
		TOTAL	12.5			61.05

*Seeding rates shown are for drilled seeding. If broadcast seeding, rate must be doubled.

** VNS: Variety not specified

ATTACHMENT 2
COC-77225
Gateway Canyons Resort
Sundial Storm Water Diversion Project
Engineering Drawings and Design Features

GATEWAY CANYONS RESORT

OFFSITE BERM AND DIVERSION CHANNEL

BUREAU OF LAND MANAGEMENT PROPERTY

JUNE 2015

PREPARED FOR:

HENDRICKS REAL ESTATE HOLDINGS, LLC
8484 GEORGIA AVENUE, SUITE 700
SILVER SPRINGS, MD 20910

PREPARED BY:

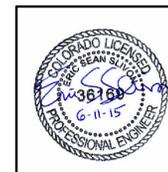
ROLLAND CONSULTING ENGINEERS, LLC
405 RIDGES BLVD.
GRAND JUNCTION, CO 81507

VICINITY MAP



INDEX OF SHEETS

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SITE PLAN-SCALE 1"=20'	B3
CROSS SECTIONS	B4
ROADWAY AND DRAINAGE CHANNEL PROFILES	B5



 Rolland Consulting Engineers, LLC 405 Ridges Blvd, Suite A Grand Junction, CO 81507 Voice: (970) 243-8300 Fax: (970) 241-1273 www.rcegi.com	GATEWAY CANYONS RESORT OFFSITE BERM AND DIVERSION CHANNEL COVER SHEET
Drawn: ESS Designed: ESS Checked: KTS Proj#: A4204 Rv: 6/11/15 File Name: c:\A4204\A4204-BLM-CivilCover.dwg Date: 6/24/14	B1

GENERAL NOTES:

1. THE CONTRACTOR SHALL WORK IN A MANNER AS TO MINIMIZE GROUND DISTURBANCE OUTSIDE THE PHYSICAL GRADING AREA.
2. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE ENGINEER. THE ENGINEER RESERVES THE RIGHT TO ACCEPT OR REJECT ANY MATERIAL AND WORKMANSHIP THAT DOES NOT CONFORM TO THE PLANS.
3. CONTRACTOR SHALL REPAIR OR REPLACE ANY DRAINAGE, FENCING, ASPHALT, CONCRETE OR OTHER IMPROVEMENTS DAMAGED DURING CONSTRUCTION.
4. USE OF IMPORTED FILL MATERIAL SHALL BE LIMITED TO THE "SELECT BACKFILL" COMPONENT OF THE MECHANICALLY STABILIZED EARTH BERM.
5. TOPSOIL SHALL BE STRIPED TO A DEPTH OF 4" OVER ALL AREAS TO BE GRADED. VEGETATION ON THE SITES TO BE DISTURBED SHOULD BE CHOPPED IN PLACE AND INCORPORATED INTO THE TOPSOIL AT THE TIME THE TOPSOIL IS REMOVED FOR TEMPORARY STORAGE. TOPSOIL SHALL BE STOCK PILED ON HENDRICKS REAL ESTATE HOLDINGS LLC'S PROPERTY. TOPSOIL SHALL BE EVENLY SPREAD OVER FINAL GRADED AREAS WITH EXCEPTION OF THE ROADWAY.
6. ALL DISTURBED AREAS BEYOND GRAVEL ROAD SURFACES AND ROCK LINED CHANNEL SHALL RECEIVE BLM APPROVED NATIVE SEED MIX. THE SEEDED AREA WILL REQUIRE PERIODIC WATERING TO ENSURE ESTABLISHED GROWTH.
7. SEE SHEET B3 FOR GREATER GRADING DETAIL.

DRAINAGE ANALYSIS:

IN A MEMORANDUM FROM WRIGHT WATER ENGINEERS, INC (WWE), TITLED "HYDROLOGY AND DEBRIS FLOW ASSESSMENT FOR LITTLE CANYON, GATEWAY, COLORADO", DATED FEBRUARY 27, 2014, WWE CONCLUDED "THE GEOLOGY AND SOILS IN THE WATERSHED WOULD LEND THEMSELVES TO SEDIMENT TRANSPORT, BUT NOT TRUE MUD AND DEBRIS FLOW." WWE ESTIMATED THE 100-YEAR RETURN FREQUENCY PEAK FLOW AT A POINT ABOUT 1200 FEET DOWNSTREAM IN THE BASIN WITH 20% SEDIMENT ALLOWANCE TO BE 330 CFS. USING PROPORTIONAL AREAS, IT CAN BE ESTIMATED THAT THE 100-YEAR RETURN FREQUENCY PEAK FLOW WITH 20% SEDIMENT ALLOWANCE AT THE BLM FENCE AND GATE NEAR THE PROPERTY BOUNDARY WOULD BE ABOUT 295 CFS. THE CULVERT UNDER THE ACCESS ROAD TO THE BLM GATE HAS A CAPACITY OF ABOUT 170 CFS (OR ABOUT THE 25-YEAR STORM FREQUENCY) BEFORE OVERTOPPING THE ROAD. THE UPSTREAM AND DOWNSTREAM SLOPES OF THE ROAD WILL BE ARMORED WITH RIP RAP TO LIMIT THE EROSION WHEN HIGH FLOWS OCCUR.

LANDSCAPE NARRATIVE:

THE INTENT OF THE REVEGETATION ON BUREAU OF LAND MANAGEMENT LAND WILL BE TO RE-ESTABLISH A DRY LAND NATIVE SEED AND FORB MIX. THE DRAINAGE SWALES AND BERMS WILL EITHER BE RIP RAP AS SHOWN OR LOWLAND NATIVE GRASS SEED. SEED MIX SHALL BE SPECIFIED BY THE BUREAU OF LAND MANAGEMENT.

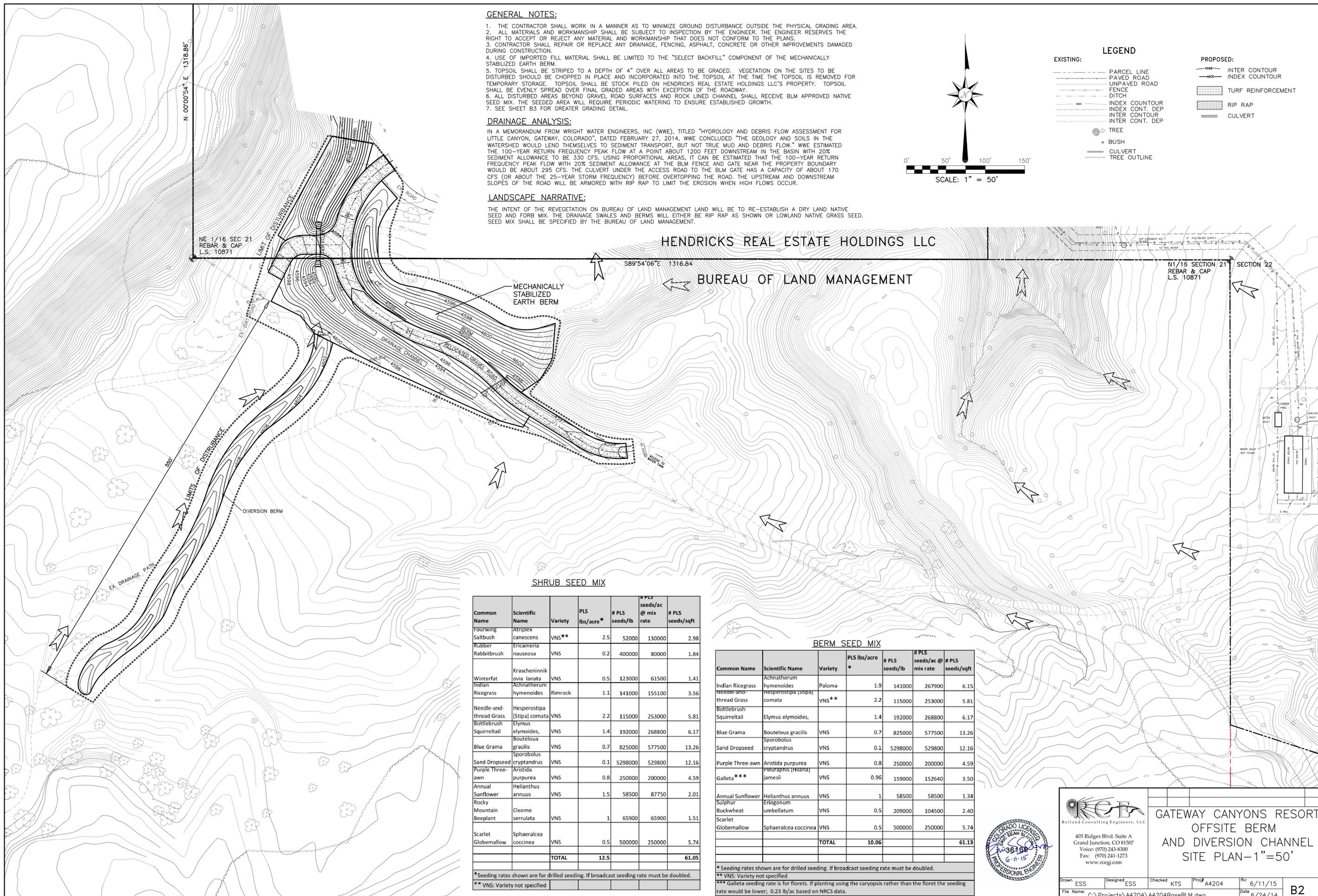
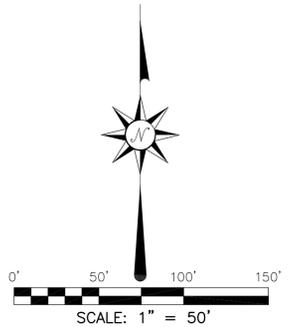
LEGEND

EXISTING:

- PARCEL LINE
- == PAVED ROAD
- UNPAVED ROAD
- - - FENCE
- - - DITCH
- INDEX COUNTOUR
- - - INDEX CONT. DEP
- INTER COUNTOUR
- - - INTER CONT. DEP
- TREE
- BUSH
- CULVERT
- TREE OUTLINE

PROPOSED:

- INTER COUNTOUR
- INDEX COUNTOUR
- TURF REINFORCEMENT
- RIP RAP
- CULVERT



SHRUB SEED MIX

Common Name	Scientific Name	Variety	PLS lbs/acre*	# PLS seeds/lb	# PLS seeds/ac @ mix rate	# PLS seeds/sqft
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Blue Grama	Bouteloua gracilis	VNS	0.7	825000	577500	13.26
Sand Dropseed	Sporobolus cryptandrus	VNS	0.1	5298000	529800	12.16
Purple Three-awn	Aristida purpurea	VNS	0.8	250000	200000	4.59
Annual Sunflower	Helianthus annuus	VNS	1.5	58500	87750	2.01
Rocky Mountain Beeplant	Cleome serrulata	VNS	1	65900	65900	1.51
Scarlet Globemallow	Sphaeralcea coccinea	VNS	0.5	500000	250000	5.74
TOTAL			12.5			61.05

* Seeding rates shown are for drilled seeding. If broadcast seeding rate must be doubled.
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BERM SEED MIX

Common Name	Scientific Name	Variety	PLS lbs/acre*	# PLS seeds/lb	# PLS seeds/ac @ mix rate	# PLS seeds/sqft
Indian Ricegrass	Achnatherum hymenoides	Paloma	1.9	141000	267900	6.15
Needle-and-thread Grass	Hesperostipa [stipa] comata	VNS**	2.2	115000	253000	5.81
Bottlebrush Squirreltail	Elymus elymoides	VNS	1.4	192000	268800	6.17
Blue Grama	Bouteloua gracilis	VNS	0.7	825000	577500	13.26
Sand Dropseed	Sporobolus cryptandrus	VNS	0.1	5298000	529800	12.16
Purple Three-awn	Aristida purpurea	VNS	0.8	250000	200000	4.59
Galleta ***	Pleuraphis [pinnatis] jamesii	VNS	0.96	159000	152640	3.50
Annual Sunflower	Helianthus annuus	VNS	1	58500	58500	1.34
Sulphur Buckwheat	Eriogonum umbellatum	VNS	0.5	209000	104500	2.40
Scarlet Globemallow	Sphaeralcea coccinea	VNS	0.5	500000	250000	5.74
TOTAL			10.06			61.13

* Seeding rates shown are for drilled seeding. If broadcast seeding rate must be doubled.
 ** VNS: Variety not specified
 *** Galleta seeding rate is for florets. If planting using the caryopsis rather than the floret the seeding rate would be lower; 0.23 lb/ac based on NRCS data.



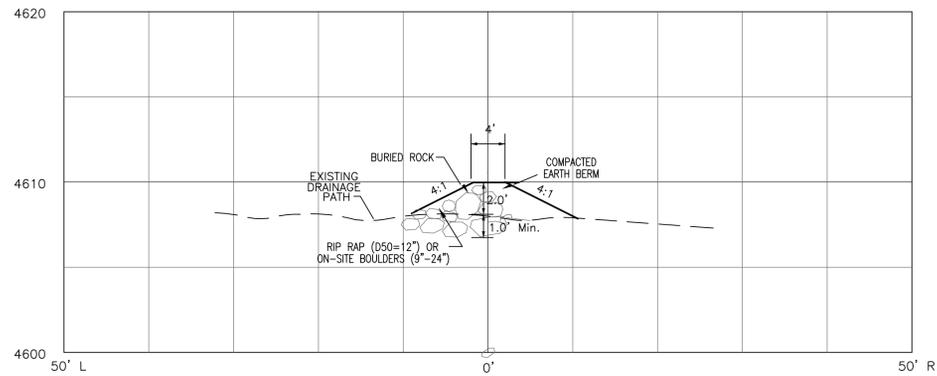
Rolland Consulting Engineers, LLC
 405 Ridges Blvd, Suite A
 Grand Junction, CO 81507
 Voice: (970) 243-8300
 Fax: (970) 241-1273
 www.rceegm.com

**GATEWAY CANYONS RESORT
 OFFSITE BERM
 AND DIVERSION CHANNEL
 SITE PLAN-1"=50'**

Drawn: ESS, Designed: ESS, Checked: KTS, Proj#: A4204, Rv: 6/11/15, Date: 6/24/14

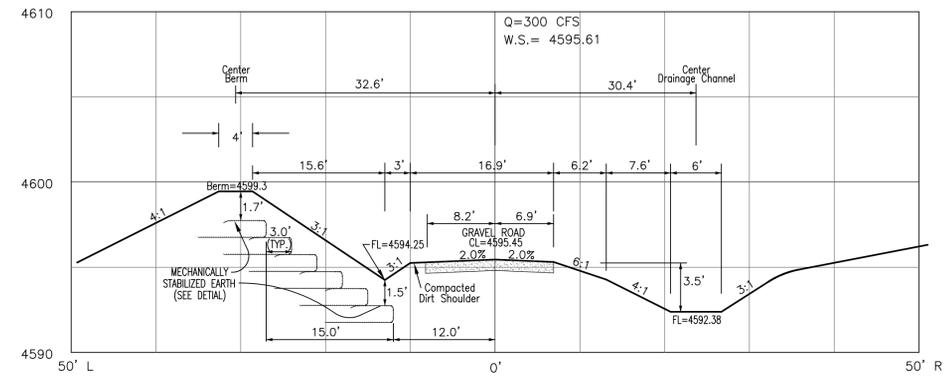
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B2



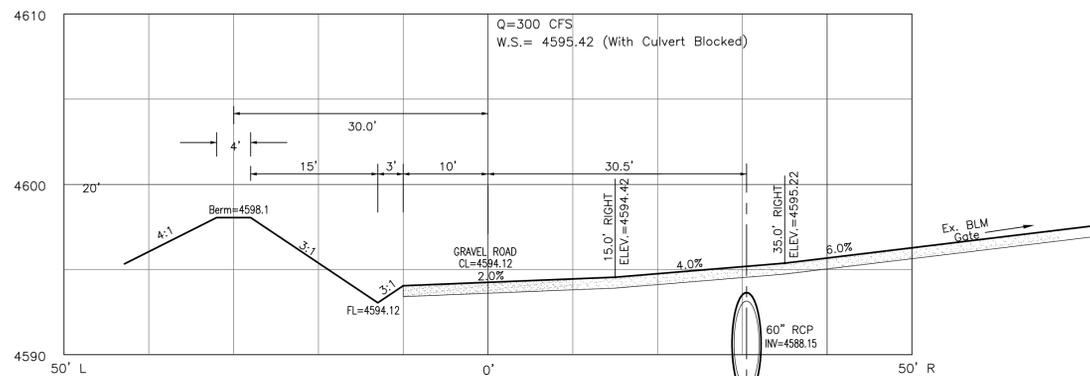
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VERTICAL SCALE: 1" = 5'

SECTION A-A



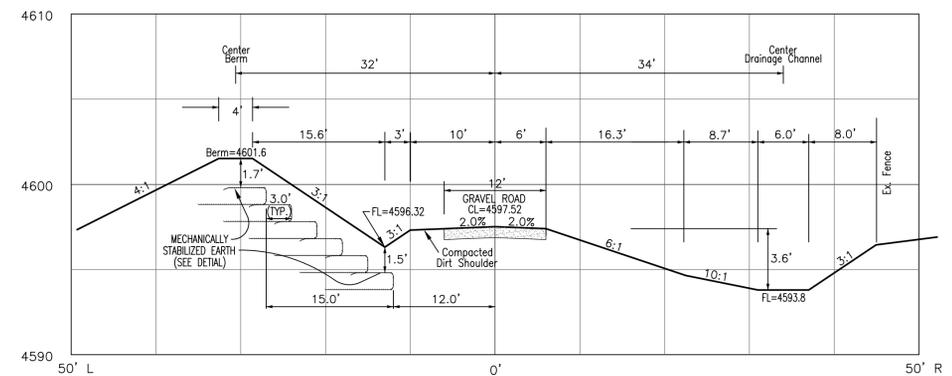
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VERTICAL SCALE: 1" = 5'

SECTION C-C



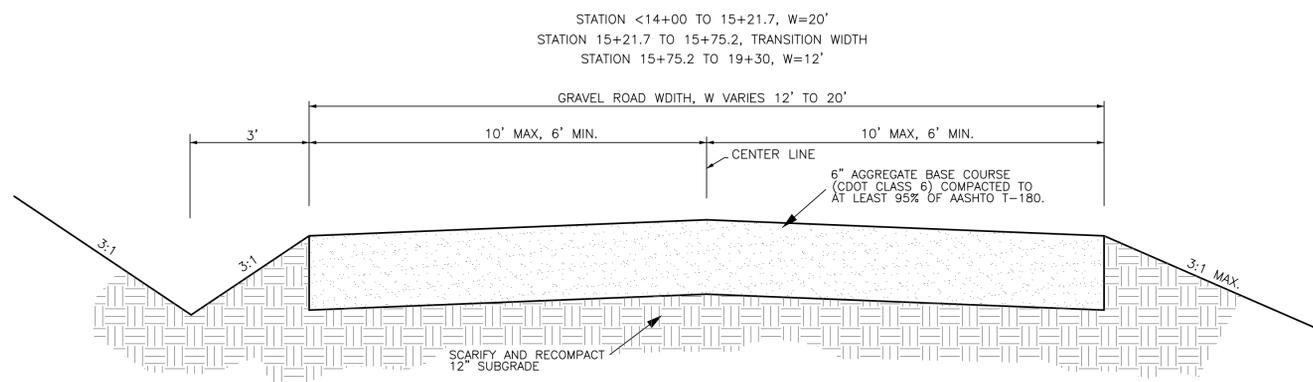
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VERTICAL SCALE: 1" = 5'

SECTION B-B



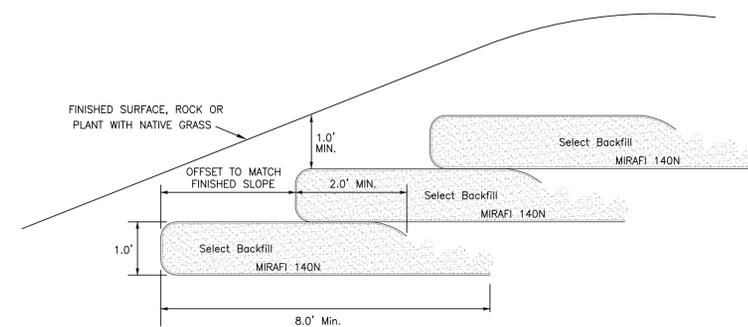
HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 5'

SECTION D-D



TYPICAL ROAD SECTION

N.T.S.



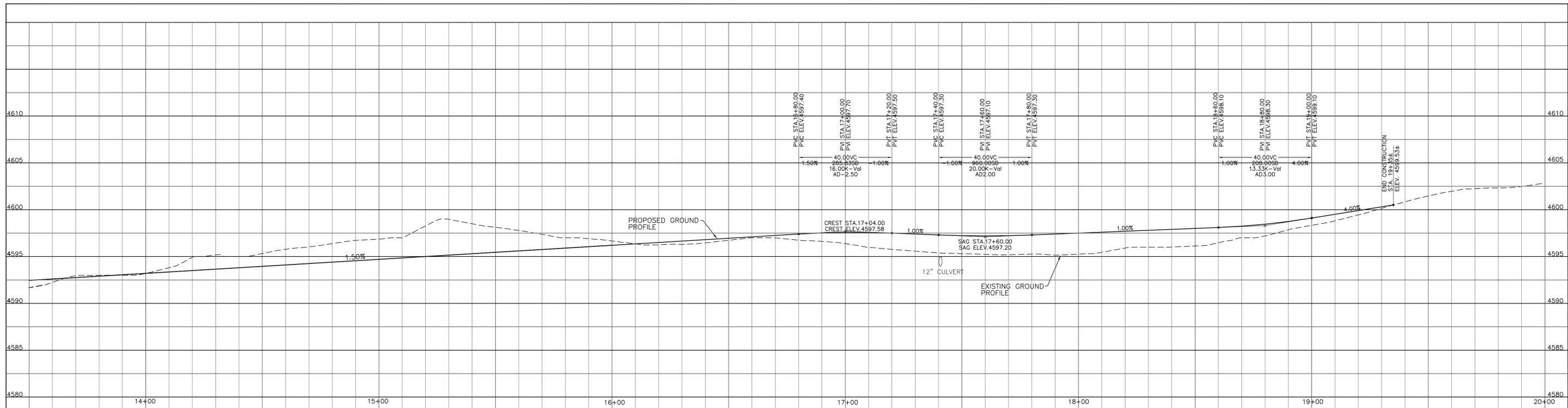
- NOTES:
1. Native Gravelly Sand can be used as Slect Backfill.
 2. Backfill to be Mechanically Compacted to 90% of ASTM D-1557.
 3. Construct 6 Layers at a 3 ft. offset for this application.

MECHANICALLY STABILIZED EARTH BERM

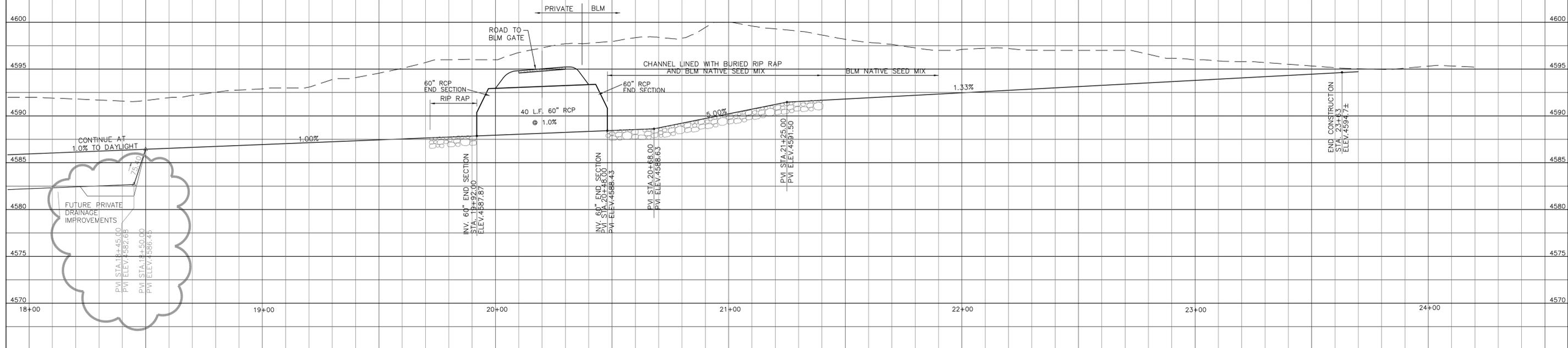
N.T.S.



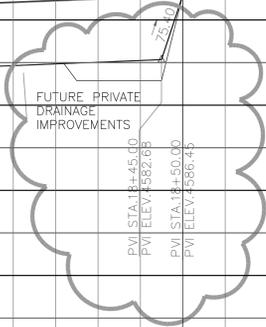
		GATEWAY CANYONS RESORT OFFSITE BERM AND DIVERSION CHANNEL CROSS SECTIONS	
Rolland Consulting Engineers, LLC 405 Ridges Blvd, Suite A Grand Junction, CO 81507 Voice: (970) 243-8300 Fax: (970) 241-1273 www.rcenj.com		Drawn: ESS Designed: ESS Checked: KTS Proj#: A4204 Rvr: 6/11/15 Date: 6/24/14	
File Name: c:\Projects\A4204\A4204BaseBLM.dwg		B4	



GRAVEL ROAD PROFILE



DRAINAGE CHANNEL PROFILE



		GATEWAY CANYONS RESORT OFFSITE BERM AND DIVERSION CHANNEL GRAVEL ROAD PROFILE AND DRAINAGE CHANNEL PROFILE	
405 Ridges Blvd, Suite A Grand Junction, CO 81507 Voice: (970) 243-8300 Fax: (970) 241-1273 www.rcegi.com	Drawn: ESS Designed: ESS Checked: ESS Proj#: A4204 Rv: 6/11/15 Date: 6/24/14	B5	File Name: C:\PROJECTS\A4204\A4204BaseBLM.dwg