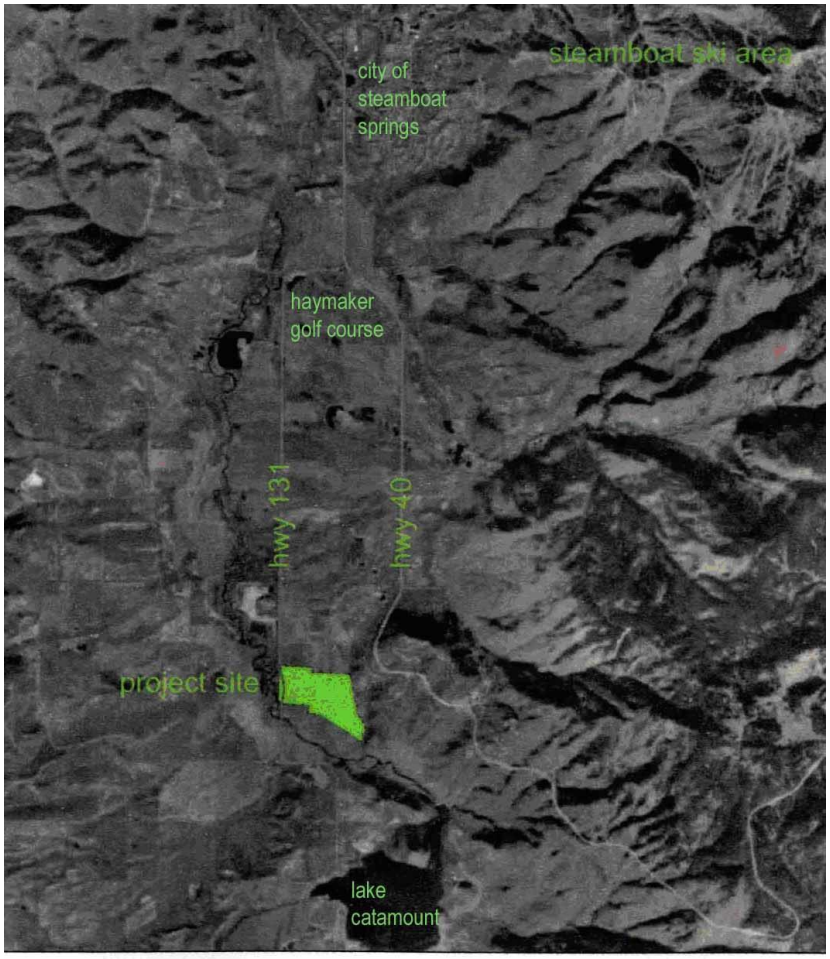
Steamboat Sand and Gravel
Project Description for Special Use Permit
12 April 2010
Renewal: 9 May 2022

I. Project Summary

The Steamboat Sand and Gravel mine (SSG) is active on approximately 147 acres of land located about 6 miles south of Steamboat Springs, CO along State Highway (SH) 131 (see aerial photo of the site and vicinity below). This Project Description is a portion of the materials contained in the Special Use Permit (SUP) application. SSG completed a pre-application review with the Routt County Planning Commission (PC) and Board of County Commissioners (BCC) in the fall of 2009 and received an approved SUP in July of 2010.



The 147 acre site consists of two parcels owned by Steamboat Sand and Gravel, LLC; a 42-acre parcel facing SH 131, known as the Four Sisters parcel and a 105-acre property that was formerly part of the More Ranch (see graphic below). The applicant for the gravel mine is Alpine Aggregates, LLC of which Ed MacArthur is the Managing Partner. Alpine Aggregates, LLC has an agreement with Steamboat Sand and Gravel, LLC to lease the land for the gravel operations.

To provide a substantial visual and noise buffer between SH 131 and the mining operation, gravel mining will be restricted to the More Family Ranch parcel. The Four Sisters parcel will be preserved as a hay meadow.

The proposal is for a 25-35 year mining life that will extract an estimated 300,000 tons of gravel per year. To limit the impacts of the mine, the mining phasing plan proposed that at any given time there will be no more than 10 acres of disturbed area (not including the processing area). The 10 acres would consist of about 5 acres of mining and 5 acres of reclamation. Reclamation will occur simultaneously with mining.

The Landscaping Plan features extensive berms and tree planting that limits views into and sounds emanating from the operation. Access to the site will be solely from SH 131, removed from existing residential uses. Routt County Road 20 to the north will be used for emergency access. Turning and

acceleration/deceleration lane improvements have been completed for SH 131 and prior to implementation were approved by the Colorado Department of Transportation (CDOT).

While the mine has been planned to avoid wetlands where feasible, approximately 5-acres of wetlands will be impacted. Mitigation has taken place by purchasing an equal amount of high quality wetlands at the Finger Rock Preserve wetlands bank in southern Routt County. The Reclamation Plan for the property features a series of ponds in naturally undulating shapes.

There are multiple public benefits associated with the proposed gravel operation, including but not limited to:

- Ensuring the provision of sand and gravel products to the growing region for the future.
- Reduction of heavy truck traffic impacts on downtown Steamboat Springs.
- Convenient construction site access to all of south Routt County areas by locating the mine in south Routt County.
- Preservation and enhancement of the agricultural meadow adjacent to SH 131.
- Extensive new tree and willow planting on the perimeter of the mined area.
- Off-site creation of higher quality wetlands for wildlife and other wetland functions.
- Donation by Alpine Aggregates, Inc. of $0.10 per ton to Steamboat Springs Winter Sports Club Foundation.
- Conservation of off-site land to offset on-site mining impacts.

A conceptual mining plan, landscape plan, and reclamation plan have been created (see plan package) to depict the gravel mining operation, berms and screening during the operation, and plan for the ultimate use and appearance of the land when the reclamation is complete.

Prior to the original submittal, the applicant communicated with the neighbors of the operation to introduce the proposal and solicit input. Some of the input has already been incorporated into the plan. For example, the applicant initially planned to mine the Four Sisters parcel until meeting with one of the original neighboring property owners. In response to those concerns, the proposal was modified to preserve and enhance the Four Sisters parcel as open space. Further concessions have been made with the original immediate adjacent property owners to address their concerns. Agreements are in place with adjacent owners to allow mining phases 2, 5, and 6 and to provide landscaping on what was the Romick property. Only one of the original landowners is still in place, the applicant has maintained good working relationships with the new landowners, keeping them apprised of the mining plan.

II. Site Description

A. Background Information

In 2005 Lafarge, Inc. received approval on portions of the subject site for gravel mining. The SSG proposal utilizes the same land as was proposed by Lafarge, Inc. with the exception of adding the Four Sister parcel and subtracting out a 20-acre portion of the original More Family Ranches, LLC land to the south of the 105-acres.

The project site has an extensive history related to potential and actual gravel mine operations. Lafarge West, Inc applied for and eventually received approval for the River Valley Resource gravel mine. Starting in the fall of 2001, Lafarge submitted for a Conceptual SUP to operate a gravel mine, concrete batch plant and asphalt plant and received approval for the mine in 2005. Lafarge never acted on the SUP approval and it lapsed.

Most recently, the Four Sisters parcel was approved on 31 May 2006 with an Administrative SUP for a temporary gravel mine used for SH 131 highway widening purposes. The approval was for a 9.9-acre gravel mine and the removal of 350,000 tons of gravel. A pond from that operation remains on the property and will be filled-in and reclaimed to hay-meadow as part of this application.

B. Existing Conditions

The property has historically been used for grass hay production and as livestock pasture. Most of the parcel is upland hay meadow, interspersed with emergent herbaceous and/or willow riparian wetland. The property provides similar natural resource value to those that exist on ranch land throughout the south Yampa Valley. An approximately 4-acre pond is located on the Four Sisters parcel from the recent gravel mining operation. A total of 16.83-acres of wetland have been delineated on both development parcels. Four Sisters has 3.74-acres east of SH 131 and 1.8-acres on a small sliver of land west of SH 131 and the More Family Ranch, LLC parcel includes 11.29-acres. No structures exist on the subject site, but there are barbed wire fences delineating property boundaries.

There is an existing watercourse/slough running south to north through the property. According to the Flood Insurance Rate Maps (FIRM) dated 4

February 2005, the tributary is referred to as the Yampa River Bypass. The FIRM indicates that there are 100-year floodway and floodplain boundaries associated with the tributary.

In addition, There are 3 irrigation ditches that pass through the property; the Summer Goldsworthy, a lateral of the Suttle Ditch, and the Weiskopf Ditch. No changes to on-site ditches are proposed and their operation will continue unabated during the mining operation.

C. Easements

The Yampa Realty Holdings, LLC owns a 35-acre parcel immediately to the south of the subject site. As part of an agreement between the Yampa Realty Holdings, LLC and Steamboat Sand and Gravel, LLC, there is a reciprocal easement of 100-feet on either side of the joint common boundary of the 35-acre parcel and theFour Sisters parcel for the purposes of ingress and egress to the two properties. The easement extends 1,122' from the easterly right of way of SH 131. In addition, there is a 20' wide easement along the existing driveway that crosses the northeast corner of the 105-acre parcel for access to the old ranch house in the Yampa Tailwaters Partners Limited Partnership land.

D. Surrounding Uses

Uses and structures immediately surrounding the property include:

1. *North of the site:* A single family residence on 36.1-acres owned by the Ann F Frolik 2006 Trust and a single family residence owned by the Susan D Thompson Living Trust U/A DTD 8/26/19.
2. *West of the site:* A single family residence owned by the Whispering Willows Ranch, LLC on 264-acres.
3. *South of the site:* A 35-acre parcel owned by Yampa Realty Holdings, LLC with a caretaker residence for the Yampa Realty Holdings, LLC. The lot is zoned Residential Single Family with Agricultural easements.
4. *South and East of the site:* This 515-acre parcel is owned by Yampa Realty Holdings, LLC, which is also zoned Residential Single Family with Agricultural easements.

E. Distances to Surrounding Residences

The following are the approximate distances between SSG and the immediately surrounding residences:

Direction from the mine:	Residence/Use:	Distance from residence to closest edge of the gravel mine (approx)	Distance from the residence to the edge of the processing plant (approx)
North	Frolik Residence	1,100’	3,055’
	Thompson Residence	1,150’	2,600’
West	Whispering Willows Ranch	3,750’	5,515
South	Yampa Realty Holdings, LLC	3,200’’	4.600’
East	Yampa Realty Holdings, LLC	235’[1]	1,050’

1- The More Family farmhouse has been removed.

III. Mining Plan

A. Operations and Phasing

The Mining Plan is to extract approximately 300,000 tons of gravel on an annual basis for a period of between 25-35 years (depending on market conditions) from the start of operation, which commenced in the fall of 2010. There will be no concrete batch, asphalt plant, or any service shop on site. These functions will occur off-site. It is estimated that 4.3 million tons of gravel exist on the site. The mine will be open year round with the following hours of operation.

- Extraction and reclamation: 7:30 AM to 7:00 PM, Monday through Friday. No extraction and reclamation on Saturdays.
- Crushing and processing of material: 8:00 AM to 6:00 PM, Monday through Friday. No crushing or processing on Saturdays.
- Loading and hauling of material: 8:00 AM to 6:00 PM, Monday through Friday. 9:00 AM to 2:00 PM on Saturday.
- No extraction, hauling, or operation of trucks or other equipment shall occur on Sundays or national holidays, which include New Year’s Day, President’s Day, Memorial Day, 4th of July, Labor Day, Thanksgiving Day, and Christmas Day.

- Warming of equipment will take place starting 15 minutes prior to startup.
- The applicant will be implementing a fog mitigation plan at the start of the project and testing the plan in the first few years of operation.

It is important to note that the applicant initially proposed more restrictive hours of operation than the Lafarge proposal by restricting Saturdays to loading and hauling only. No crushing or processing will occur on Saturdays.

Mining of the site will be conducted in a phased manner to limit the amount of exposed ground at any one time (see Mining Phasing Plan in Sheet No. MP.100). There will be 15 different phases ranging in size from 3 to 6.9-acres, not including the processing area. Phase 1A of mining is to establish the 14.5-acre processing area near the southeast corner of the site. There will be 6.9 acres of mining in Phase 1 which will be reclaimed as mining moves to the next phase.

The location for the processing area is as far away from existing residences and SH 131 as possible, to limit the visual and noise impacts. The processing area will be surrounded by berms and planted with trees on the south, west, and north sides. In addition, the crusher plant will be recessed below grade to screen the view of it from neighboring vantage points. The operation will use fuel trucks brought onto the site for fueling equipment. There will be spill kits located on the fuel truck and on-site at all times to ensure proper management and cleanup of any fuel spills. Since fuel will not be stored on site, it is far less likely that a significant fuel spill would occur.

Permanent dewatering pumps will be connected to line electric power, except for the first 3 months of each phase, in which generators may be used. Noise will not exceed the performance standards in the State noise statute.

The only structure on the site will be a 900 square foot scale house (with a 30’ x 60’ scale), which will be located about 1,200’ into the site from SH 131. Solid waste disposal will be handled with portalets and dumpsters as needed. The applicant will consult with solid waste service providers prior to initiating operations.

Original phases 2-4 will occur in the northeast portion of the mining site. The original phasing then proceeds in a counterclockwise manner on the north and west parts of the site with the final phases working back to the south and southeast toward the processing area. This phasing approach will allow areas closer to existing residences to the north to be mined and reclaimed earlier in the process. In the renewal the applicant is requesting a re-phasing, though this general approach would still be intact.

By using this phased approach, the total area of disturbance at any one time can be minimized. After mining has been exhausted on one phase, the operation will proceed to the next phase at the same time commencing reclamation efforts on the phase just completed. Excluding the Phase 1A processing area, which will be used for the life of the mine, the maximum disturbance during most of the mine life will be 10-acres or less. To visually screen the operation and mitigate noise coming from the site, berms (in a natural, undulating pattern versus the traditional linear design) and planting (approximately 450 cottonwood tree will be planted) will occur on the west, north, and south sides of the operation (see the Landscape Plan in Sheet No. LPS.100). To maximize their effectiveness, the berms and trees will be planted within one year of commencement of the operation.

B. Visual Impacts

Mitigating visual impacts from public vantage points and neighboring properties are of paramount importance to maintaining good relationships with neighbors and the community. A Landscape Plan has been prepared and was included in the submittal package of plans. The implementation of this plan thereby further demonstrates the applicant's continued commitment to this issue. Natural looking berms and extensive tree plantings designed by local landscape architecture firm, MGC Design, Inc., are proposed around the perimeter of the property and will incorporate irrigation systems to ensure the long term viability of the vegetation. There will be a second landscaped berm closely surrounding the processing area to further bolster the visual screening from outside the site looking in. The berms and landscaping, coupled with locating the material stockpiles and crusher about 20 feet below existing grade, will help to lessen the impact of the operation. Additionally, stockpiles will not be more than 10 feet above existing grade.

C. Access and Traffic Study

Access to the site is from a new entry points from SH 131 (See Sheet C.100 Highway Improvements in the submittal plan package) located approximately 2,500 feet north of the Routt County Road (CR) 18 and 2,600 feet south of CR 20, which is a gravel road connecting between SH 131 and US 40. The access drive is located approximately 750 north of the centerline of the Yampa River and 550 feet north of the north end of the bridge guardrail. The access road through the site will be paved and lead to the processing area. Vehicles entering the site will first stop at the scale house located about 1,200 feet from SH 131 to be weighed and monitored for clean fill material, then proceed to the processing area for loading and then be weighed again prior to leaving the site. A conveyor system is planned to be used on the site to transport material from the phase currently being mined to the processing area. This system will allow the operation to limit the construction of internal haul roads and keep truck traffic and dust to a minimum. A water truck will be on site to handle any small dust problems.

A Traffic Study was conducted for the initial proposal by the Fox Higgins Transportation Group to meet the requirements of a CDOT Level Two-Auxiliary Turn Lane Assessment (see attached report). The State Highway Access Code requires that auxiliary turn lanes be provided to a site access when certain peak hour access traffic thresholds are exceeded. In this case, the mine warrants the construction of an inbound (southbound) left turn deceleration lane on SH 131. Based on CDOT regulations, the site traffic does not warrant the addition of either a right turn deceleration lane or acceleration lane. However, after receiving feedback from the Routt County Planning Commission and the Routt County Commissioners, the applicant included the construction of a right lane acceleration lane in the construction. The left turn deceleration and right turn acceleration lane were designed to be consistent with the geometric recommendations of the State Highway Access CDOT. A CDOT Access Permit was obtained for the project (CDOT Permit #309152).

IV. Reclamation Plan

As the gravel operation is being proposed and operated by local residents with long standing roots in the community, it is their goal to reclaim the land from the mining operation into an aesthetically pleasing environment that will leave little

trace of its use for gravel mining and provide a model for future reclamation projects. A Reclamation Plan has been prepared in conjunction with well-known mining experts Lewicki and Associates (see Sheet RE.100 Reclamation Plan) that depicts how the site will appear after the mining is complete. The following is a summary of the Reclamation Plan:

- Return the Four Sisters property to a natural looking haymeadow.
- Only two phases of mining will occur at a time, one of them being reclaimed.
- As mining phases are completed, imported inert fill will be placed to reduce the side of the ponds. Topsoil will be placed and seeded with natural grasses to create reclaimed hay meadows as shown.
- Creation of approximately 56 acres of connected ponds and sculpting them into naturally occurring and undulating shapes.
- The pond edge planting will create an attractive variety of native vegetation for these areas.
- Planting of willows and a significant account of cottonwood trees (approximately 450) as a long-term vegetative buffer. All new vegetation will be irrigated until growth has been established to ensure that the visual barricade the vegetation provides is not diminished.
- The ability to remove the screening berms, which are not natural to the area, at the completion of mining.

V. Compliance with Routt County Regulations and Master Plan

Section VI of the Project Description provides applicant responses to all criteria applicable to SSG in the Routt County Zoning Regulations and applicable policies of the Routt County Master Plan. The Criteria from the code or policy from the master plan are underlined and the applicant's responses are in *italics* following the criteria.

A. Existing Zoning
The existing zoning on the property is AF (Agricultural Forestry), which allows Mining, Resource Extraction and Accessory Uses as Use Permitted by Special Use Permit.

B. General Performance and Development Standards (Section 5, Zoning Code)

The following standards are from Section 5.1 of the Routt County Zoning Regulations and apply to all zone districts and land uses. Following each standard is the applicant's response detailing how the proposal complies:

5.1 General Performance Standards:
Applicant response: The proposal complies with all applicable criteria, especially with regard to all federal, state, and local regulations and standards and operating the mine to "not pose a danger to public health, safety, or welfare."

5.2 Dimensional Standards:
Applicant response: The proposal complies with all applicable dimensional standards in the AF zone district with regard to any structures.

5.3 Secondary Dwelling Unit Standards:
Applicant response: The provision is not applicable as no secondary dwelling units are proposed.

5.4 Parking Standards:
Applicant response: SSG will provide adequate parking spaces for the number of employees on site and in conformance with the code required of two spaces/three employees.

5.5 Addressing Standards:
Applicant response: The project will comply with the addressing standards prior to request for appropriate permits from the County.

5.6 Access to Buildable Lot Standards: - All Buildable Lots shall have access to the public road system pursuant to this Section 5.6. All building permits required by Routt County for any building, structure, or use on any Buildable Lot, if approved, shall be approved only if or on the condition that such Buildable Lot, Structure, or use has access to the public road system consistent with the Section 5.6
Applicant response: All structures in the processing area requiring a building permit will comply with this policy. Access is provided directly to the public road system (SH 131). A CDOT Access Permit was obtained.

5.7 Right of Way Access Standards - A Right of Way Access Permit was required prior to construction of any new access point onto a County Road or other Local Public Road or RIght of Way.

Applicant response: Not applicable - no access is proposed to a County Road.

5.8 Road Construction Standards - Prior to the construction of any Common Road, a Road Construction permit pursuant to this Section 5.8 shall be required which shall be issued by the Road and Bridge Department.
Applicant response: The applicant applied for a Road Construction permit after the SUP was initially approved, but prior to the initial road construction of the common roads.

5.9 Sign Standards - Any exterior sign erected or maintained in Routt County outside of incorporated areas shall be governed by the regulations of this Section 5.9
Applicant response:All signs will be constructed in compliance with this section.

5.10 Waterbody Setback Standards
Applicant response: The applicant initially and currently believes that a Waterbody Setback Permit is not required for this project because the project meets the requirements of Section 5.11.3 Exemptions (A) and (B). Letters from the former rancher of the property regarding agricultural use (addressing exemptions A) as well as a letter from the project wetlands biologist (addressing exemption B) are attached in Appendix D.

C. General Standards and Mitigation Techniques for Land Use Approvals (Section 6)

General Approval Standards. The following standards shall apply to all Minor, Administrative, Conditional or Special uses allowed by permit only, PUD plans, Site plans, and Subdivisions that come before Planning Staff, Planning Director, Planning Commission, or County Commissioners for action. These standards do not apply to Uses by Right.

6.1.1 Health, Safety, and Welfare. The proposal shall be consistent with public health, safety, and welfare.
Applicant Response: The proposal shall be consistent with public health, safety, and welfare by properly mitigating impacts created. These may include, but are not limited to, noise, air, water, traffic, and visual impacts

and by meeting and exceeding the criteria in Sections 5, 6, and 9 of the Routt County Zoning Code.

6.1.2 Master Plans. The proposal shall be consistent with applicable Master Plans and sub-area plans.
Applicant Response: The proposal is consistent with the Routt County Master Plan (see analysis later in the narrative).

6.1.3 Local, State, and Federal Regulations and Standards. It is the intent of Routt County to avoid unnecessary and duplicative regulations. Where other local, state, or federal regulations adequately address local land use issues, Routt County has chosen not to enact additional regulations.

A. Every use shall be operated in conformance with all applicable federal, state, and local regulations and standards. Failure to comply with any and all applicable federal, state, and local regulations and standards may be cause for review and/or revocation of any Land Use Approval granted pursuant to these Regulations.

Applicant Response: The proposal will comply with all applicable federal, state, and local regulations and standards, including securing federal wetland and floodplain permits, state stormwater permits, state mining permits, and local special use permits.

6.1.5 Industry Standards. The proposal shall meet or exceed accepted industry standards and Best Management Practices (BMPs)
Applicant Response: The proposal will meet or exceed accepted industry standards and applicable BMPs.

6.1.6 Outdoor Lighting. The proposal shall comply with the Outdoor Lighting Standards in Section 6.3 of these Regulations.
Applicant Response: Any proposed outdoor lighting will comply with the applicable standards.

6.1.7 Significant Negative Impacts. The proposal shall not create any significant negative impact in surrounding areas. Significant negative impacts are generally considered to be impacts that do not meet regulatory and/or generally accepted performance and environmental standards. If the Planning Director, Planning Commission, or County Commissioners determine a proposed Land Use Change has the potential to create a significant negative impact in the surrounding area mitigation

may be required, any such mitigation shall meet the Standards of Sections 6.4 through 6.13. If adequate mitigation cannot be accomplished, the use shall not be permitted. Issues that may be reviewed for potentially significant negative impacts include, but are not limited to:

A. Public Roads, Services, and Infrastructure
B. Road Capacity, Traffic, and Traffic Safety
C. Natural Hazards
D. Wildlife and Wildlife Habitat
E. Water Quality and Quantity
F. Air Quality
G. Visual Amenities and Scenic Qualities
H. Wildland Fire
I. Noise
J. Wetlands
K. Land Use Compatibility
L. Odors
M. Vibration
N. Snow Storage
O. Historical Significance
P. Reclamation and Restoration
Q. Noxious Weeds

Applicant Response: See analysis of Sections 6.4 through 6.13 below to find responses to 6.1.7.

6.1.8 Approval Criteria for Specific Land Uses. In addition to the general approval criteria, uses must meet all applicable specific Land Use Approval criteria contained in Sections 8 and 9 of these Regulations.
Applicant Response: See Analysis of Sections 8 and 9 later in the narrative.

6.3 Outdoor Lighting Standards (See A-E not listed here).
Applicant Response: Proposed outdoor lighting will comply with Standards A-E of this section to the greatest extent possible.

6.4 Mitigation Standards in General (Standards A-G not listed here)
Applicant Response: SSG will comply with Standards A-G and adequately mitigate the potential impacts, but acknowledges the above policies.

6.5.9 Flood Hazard Areas

A. Ensure development does not aggravate an existing flood hazard or increase flood hazard to upstream or downstream properties.
B. Avoid development in flood way areas or flood channel zones.
C. Reduce or eliminate potential flood damage.
D. ALternation of flood channels or changing direction or velocity of flow shall not be considered adequate mitigation.
E. Protect shallow wells, solid waste disposal sites, septic tanks and sewage disposal systems from floodwaters.
F. Limit development to non-dwelling uses that will not be damaged when flooded.

Applicant Response: According to the Federal Emergency Management Agency (FEMA) maps, there are special flood hazards areas (floodway and 100-year floodplain) areas on the site. The processing area will be protected from the floodway through the construction of a berm surrounding the appropriate portions of the processing area. The berm will be constructed outside the floodway and removed upon completion of mining. Mining will occur in portions of the floodplain and floodway. FEMA agents have indicated that the Conditional Letter of Map Revision (CLOMR) issued to Lafarge dates May 13, 2005 is still valid and will be valid for any project proposed for the same location that proposes improvements of equal or lesser impact within the Special Flood Hazard Area (SFHA - i.e. regulatory floodplain or regulatory floodway). The improvements proposed within the SFHA for SSG will either comply with the provisions and requirements of the existing 5/14/05 CLOMR or, if compliance with the existing CLOMR is not feasible, will be required to apply for a new and separate CLOMR from FEMA in accordance with the Routt County Flood Damage Prevention Regulations. Routt County floodplain regulations will be complied with through a Floodplain Development Permit, if necessary.

6.6 Mitigation Techniques for Development Within Critical Wildlife Areas

Applicant Response: According to Western Bionomics, the project wildlife biologist, the proposed location of the Steamboat Sand and Gravel Mine is not critical wildlife habitat. Western Bionomics is coordinating with Colorado Division of Wildlife (CDOW) on this proposal.

6.6 Mitigation Techniques to Reduce Water Quality and Quantity impacts

A. Create on-site sediment ponds to prevent erosion into waterways.

B. Lining of sediment, water, or waste disposal ponds with impervious material may be required based upon:
    a. Site conditions
    b. Distance to groundwater
    c. Quality of the water or materials being disposed of
    d. Input from the Colorado Department of Health, and other pertinent factors which may affect the use.
C. Limit the size of the excavated or disturbed area.
D. Place monitoring wells upstream and downstream of the use, on the permittee's property and/or adjacent properties with landowner consent, to test impacts to ground water and/or stream water quality and quantity:
    a. Where the use is located in a high ground water table and
    b. Where it has the potential to pollute nearby waterways.
E. Test nearby water wells, with the landowner;s permission, to ensure the operation is not negatively affecting water quality or flow.
F. Submit proof of sufficient water rights or a water augmentation plan.
G. Avoid sites that would present a high probability of surface or ground water pollution.
H. Provide buffers from waterbodies, rivers, streams, wetlands, etc.; buffers/setbacks in excess of 50-feet may be required depending on site conditions and proposed use.

Applicant Response: The applicant is proposing mitigation techniques A, C, D, E, F, G, and H.

A - Sediment ponds will be constructed in the processing area to handle any silt laden waters.

C - Disturbed areas will be limited to 25 acres including the processing area.

D/E - Regarding well monitoring, the applicant agrees to conditions 2, 3, and 4 under "Air and Water Quality" of the Lafarge Special Use Permit approved by the BCC on May 20, 2005.

F - The applicant will prepare and file with appropriate agencies a water augmentation plan.

G - This site does not present a high probability of surface or groundwater pollution.

H - Mining will be separated from any wetland to be preserved by a 10' vegetative buffer. Additionally, a Stormwater Management Plan has been prepared, implemented, and submitted to ACOE and will be kept on file by the State Division of Water Resources. BMPs will be followed wherever feasible.

6.8 Mitigation Techniques to Reduce Air Quality Impacts

A. Limit area of disturbance to reduce dust generation. Minimize overlot grading for projects and phase grading with construction.
B. Gravel, water, or chemically stabilize public and private access roads, striped areas, transfer points and excavations to minimize dust.
C. Limit hours of operation of batch plants to prevent cold weather firing during early morning inversions.
D. Increase watering operations immediately in response to periods of high wind conditions or dust complaints.
E. Revegetate disturbed areas as soon as possible. Plant stripped areas and soil stockpiles that area planned to remain uncovered for more than one season with rapid growing vegetative cover to minimize duster, erosion, and weeds.
F. Overburden and topsoil stockpiles shall be contoured and conditioned to a slope conducive to establishing vegetative cover.
G. Place air emissions monitors upwind and downwind to the use and on the permittee's property to assure that the employed mitigation methods are effective.
H. Cease aeration operations at commercial wastewater ponds during periods of high wind.
I. If the proposed use has the potential to negatively impact a sensitive airshed, a background study with baseline data may be required.

Applicant Response: The primary source of air quality impacts will be dust from the access road that is created by trucks entering the site. The access road will be paved back to the processing area to help mitigate dust. To properly mitigate those impacts, a water truck will be used to water the access road on a daily basis. The excavated material is handled in a moist state so little fugitive dust will be created by the material. Per MSHA regulations, air quality will be monitored and tested for fugitive dust (including Crystalline Silica). See Appendix C at the bottom of the narrative for a brief discussion on fugitive dust as a carcinogen. New berms and landscaping areas that will be created to help mitigate visual impacts into the site and to create and enhance on site wetlands will be revegetated as soon as feasible to limit potential air quality impacts.

6.9 Mitigation Techniques to Reduce Impacts to Scenic Quality

A. Limit the number of acres disturbed at one time. Minimize overlot grading for projects and phase grading with construction.

Applicant Response: The applicant has significantly limited the amount of disturbed acres at any one time to approximately 10-acres. (5-acres being mined and 5-acres being reclaimed) through careful planned phasing. In addition, a 14.5-acre processing area will remain open throughout the life of the mine. In total, there will not be more than 25-acres disturbed at any one time. The processing area has been placed as far from SH 131 and the neighboring residences as possible to mitigate negative impacts.

B. Conduct reclamation operations concurrently with the mining operation.

Applicant Response: Reclamation of a disturbed site will occur concurrently with moving onto the next phase of mining.

C. Phase mining or other operations to minimize the amount of disturbed ground at any given time.

Applicant Response: See response above in A.

D. Plan reclamation to create an aesthetically pleasing site or reclaimed area that will blend with or improve upon the surrounding areas through careful grading and the use of appropriate native species for revegetation.

Applicant Response: The focus of the Reclamation Plan is to reclaim the site to blend in with the surrounding areas. This will be accomplished by 1) Filling in portions of the created ponds into natural, undulating shapes and 2) Planting a significant amount of native vegetation, including cottonwood trees, willows, shrubs, and other groundcover (see Reclamation Plan Sheet RE.100).

E. Provide effective screening of equipment and stockpile areas:
    a. Limit the height of stockpiles
    b. Use low profile permanent equipment and/or permanent equipment to “blend with the surroundings.” Permanent equipment shall be constructed as that equipment left in place for 1 year or more. Color selection shall be reviewed and approved by the Planning Director.
    c. Maintain landscaping, weed control, and vegetation viability for the life of the project.
    d. Proposed landscaping, screening, fencing, and other visual impact mitigation shall be approved by the Planning Director, Planning Commission, or Board of County Commissioners prior to the operation.

e. Berms and other screening techniques may be used to effectively screen the area.
f. Berms must be contoured to slope conducive to establishing vegetative cover.
g. Significant vegetation shall be preserved wherever possible.

Applicant Response: Heights of stockpiles will be limited to approximately 30;, but because the base of the stockpiles will be located below grade and screened behind a berm, the view of the piles will be limited, if seen at all. Permanent equipment will consist of a crusher that will be placed below grade in an excavated area (about 15-20' below grade) in the northwest corner of the site. This places the crusher as far as possible from SH 131 and the majority of the residences, thereby effectively screening the crusher from most surrounding areas. Berms will be constructed along with tree planting around the processing area to provide additional visual screening. Berms and tree planting will also occur along the southern, western, and northern boundary of the mining area (See Landscape Plan on Sheet No. LA.100 for details).

F. Setbacks of the project area from property boundaries, height limitations of facilities/equipment, the colors and screening of equipment and facilities shall be determined by the Board of County Commissioners on a project-specific basis, dependent upon:
    a. The constraints of topography and other natural features;
    b. Geologic information, site location, and surrounding uses; and
    c. The nature of the operation and other pertinent factors that may affect the proposal.

Applicant Response: Acknowledged.

6.10 Mitigation Techniques to Reduce Noise Impacts

A. Limit hours of operation.
B. Limit hours and days of equipment operation to reduce noise effects to adjacent or nearby residents.
C. Limit hours of hauling.
D. Route haul truck traffic away from residential, commercial, and recreation areas.

Applicant Response: Please refer to Section IV(A) for response.

E. Place processing area behind berms or soil stockpiles, or at the bottom of the excavation.

Applicant Response: See response above in E(7).

F. Use landscaping to muffle or redirect sounds including berms, fencing, soil stockpiles, or vegetation.

Applicant Response: Landscaping and berms will be planted and constructed strategically around the site to muffle and redirect sounds and the source of the greatest noise (i.e. the crusher) will be located well below grade to muffle it's sounds.

G. Locate equipment in an enclosed and acoustically insulated structure.

Applicant Response: It is not feasible to locate the crusher inside an enclosed structure. It will be located below grade with berms to muffle and redirect sounds.

H. Use electric pumps for water where feasible, and use "quiet design mufflers" where electricity is not available.

Applicant Response: The applicant is planning on using generators utilizing the best reasonable sound-reducing technology to power the crushing plant and the conveyor system. Wherever is possible, the applicant will use power from YVEA.

I. Use latest equipment approved by OSHA and MSHA to reduce or eliminate equipment back-up alarms.

Applicant Response: The operation will use the most up to date technology to reduce the amount of noise pollution, while still adhering to OSHA and MSHA standards. Equipment will be upgraded when new technology becomes available and when it is feasible.

J. Place the operation a sufficient distance from residences, commercial areas, and recreation areas to minimize noise impacts to those areas.

Applicant Response: The operation will be located at least 1,100' from the residences to the north of the operation, 300' to the Old More family farmhouse (currently vacant), 1,400' to the caretaker residence on the Yampa Realty Holdings, LLC property, and about 1,800' to the residence across SH 131 to the west. The applicant has worked diligently with the two landowners to the north to minimize noise and other impacts.

K. Install acoustically insulated housing or covers enclosing any motor or engine.

Applicant Response: The operation will use state of the art equipment to minimize noise as much as possible.

L. Install a solid wall or fence of acoustically insulating material surrounding all or part of the facility.

Applicant Response: See response above in E and F.

M. Require a noise management plan specifying hours of maximum noise and the type, frequency, and level of noise to be emitted.

Applicant Response: The "noise management plan" is essentially comprised of the mitigation measures described in this section and in Section IV(A) of the Project Description and Section 6.9 (E)(7) above. IF required, these items can be assembled into a "noise management plan" upon request.

N. Construction of insulated buildings or other enclosures may be required where facilities create otherwise unmitigatable noise impacts.

Applicant Response: See response above in G.

O. Eliminate or reduce the use of compression "jake" brakes on haul trucks, when possible, at the entries of or within sites located near residential areas.

Applicant Response: The operation will eliminate or reduce the use of compression "jake" brakes on haul trucks, when possible, at the entries of or within sites located near residential areas.

P. The location and grade of any proposed access will be considered in relation to the noise that may be created by vehicles using such access.

Applicant Response: The proposed access was constructed slightly above grade, but a considerable distance (1,100') away from the nearest occupied residence, which should adequately mitigate the impact of the access road.

Q. Limit traffic generation and/or provide customer shuttles.

Applicant Response: The Traffic Study prepared for the project estimated that there will be a total of 200 truck trips per day (50% entering the site and 50% leaving the site) and that the surrounding streets (in this case SH 131) can adequately accommodate the traffic with the installed deceleration lane. In addition, the applicant constructed a northbound acceleration lane at the request of the Routt County Planning Commission. Based on the Annual Report that the applicant supplies to the Planning Department each year the truck traffic does not meet or exceed the 200 truck trips per day. Obviously, this varies greatly, however anecdotal data supports this. No County Roads will be directly used to access the operation. Only visitors or employees on official business will be allowed on site, thus limiting the traffic generation on site. Due to the nature of the business, customer shuttles are not feasible.

6.11 Mitigation Techniques to Reduce Wetland impacts. All uses must comply with applicable Environmental Protection Agency (EPA) and Army Corps of Engineers (ACOE) standards and regulations for wetlands.

A. Avoid wetland areas.
B. Develop sediment ponds and drainage swales to prevent pollution of nearby wetlands.
C. Replace disturbed wetlands area in-kind and on-site.
D. Preserve existing significant vegetation within and surrounding wetland areas.

Applicant Response: Due to the fact that gravel deposits typically accumulate in alluvial formations, which are associated with rivers, wetland impacts are difficult, if not impossible, to avoid when mining gravel. Mitigation for wetland impacts occurred through the purchase of wetlands from an offsite location. All required permits have been obtained and maintained. All issues raised by ACOE regarding wetlands and floodplain impacts have been addressed. Please refer to Appendix A - Letter from Western Bionomics to ACOE.

6.12 Mitigation techniques to reduce impacts to Agricultural Uses

A. Prevent spread of weeks to surrounding agricultural and residential lands. An enforceable noxious weed management plan may be required.

Applicant Response: The SSG Weed Management Plan can be found in Appendix E.

B. Fence the prevent access by humans and animals

Applicant Response: The applicant has fenced the perimeter to prevent access by humans and animals.

C. Submit proof of water rights and plans for use and disposal of water prior to any operations. Comply with requirements of the Division of Water Resources applicable to proposed operation.

Applicant Response: The applicant has submitted proof of water rights and plans for use and disposal of water prior to any operations. The Division of Water Resources' comment on the project is addressed in Section 1.3 of Appendix A - Letter from Western Bionomics to ACOE.

D. Protect and maintain flows in all affected irrigation ditches.

Applicant Response: Several irrigation ditches pass through the site. The proposal protects and maintains flows in the ditches by avoiding them and providing adequate buffers.

E. Buffers may be required between agricultural and non-agricultural uses to ensure compatibility.

Applicant Response: See applicant response 6.10 above.

6.13 Mitigation Techniques to Reduce Impacts to Residential and Recreation Uses.

A. Avoid recreation areas and residential areas.

Applicant Response: The site is not immediately adjacent to any recreation areas and several single family homes. A significant buffer between the operation and these homes exists.

B. Located uses incompatible with residential or recreation and tourism uses a sufficient distance from such areas. Planning Commission and the Board of County Commissioners will determine sufficiency of distance.

Applicant Response: See response to A above.

C. Practice continued mitigation of noise, dust, and other environmental impacts.

Applicant Response: The applicant continues to be committed to mitigating noise, dust and environmental impacts on an ongoing basis.

D. Route haul truck traffic away from residential and recreation areas.

Applicant Response: Truck traffic has been routed away from the residential areas by accessing SH131 directly from the site and not utilizing RCR 20.

E. Limit traffic generation and/or provide customer shuttles.

Applicant Response: Traffic onto the site has been and will continue to be limited to only necessary vehicles, such as dump trucks, employee vehicles, and maintenance vehicles.

D. Regulations and Standards for Mining and Related Uses (Section 9)

9.2 General Standards for all mining, Resource Extraction, and Accessory Uses. All Mining and accessory uses shall comply with the applicable Standards and Mitigation Techniques of Section 5 and Section 6 of these Zoning Regulations. In addition, all Mining and accessory uses shall comply with the following standards:

A. Shall be compatible with surrounding agricultural, residential, and recreational land uses by selection of location and/or mitigation.

Applicant Response: See above responses.

B. The proposed operation will be located a sufficient distance from other mining operations so as not to create cumulative impacts to roads, air and water quality, or other resources and amenities. The Planning Commission and Board of Commissioners will determine sufficiency of distance.

Applicant Response: The nearest other mining operation is the Redmond Mine, approximately 12-15 miles south of this proposed mine along CR 14 near Stagecoach Reservoir.

C. Equipment used for the operation will not be visible from adjacent or surrounding residences or will be mitigated to the extent possible to reduce visual impacts. Planning Commission and/or the Board of Commissioners will determine sufficiency of mitigation.
D. Shall be operation such that noise generated by the use does not exceed State of Colorado residential noise standards within 150' of any residence.
E. New long-term (more than 1 year) mining operations will minimize visual impacts along entryways to growth centers or potential growth centers as defined in the Routt County Master Plan. The Planning Commission and/or the Board of County of Commissioners will determine sufficiency of minimization.
F. Truck traffic will not access the mining operation through residential, or commercial areas, or such traffic will be mitigated. The Planning Commission and/or the Board of County Commissioners will determine sufficiency of mitigation.

Applicant Response: Items C, D, E, and F have been addressed above.

G. Shall submit evidence of insurance for a minimum of $1,000,000 to cover any damages to public and private property, and Routt County shall be names as an additional insured.

Applicant Response: Evidence of insurance has been provided under the jurisdiction of the Colorado Division of Minerals and Geology.

H. Unless all disturbance created by the mining operation is coerced by a reclamation bond under jurisdiction of the Colorado Devision of Minerals and Geology, or by the federal government on federally owned lands, a bond or other acceptable financial performance guarantee shall be submitted in favor of Routt County in an amount of at least 150% of the cost of restoration of the site and access roads. The required amount of such financial performance guarantees may be increased at the discretion of the Planning Director to account for inflation. A bid for site restoration acceptable to the permittee and Routt County shall be submitted to the Planning Department as evidence of the cost of reclamation for bond setting purposes.

Applicant Response: A reclamation bond has been obtained and maintained under the jurisdiction of the Colorado Division of Minerals and Geology.

I. The Board of County Commissioners may require a financial performance guarantee in addition to that required by the State of Colorado to insure that certain conditions of a permit will be complied with. The required amount of such financial performance guarantees may be increased at the discretion of the Planning DIrector to account for inflation. The County will not require financial guarantees that are duplicative of that required by the State. Copies of all financial guarantees related to the project shall be submitted to the Planning Department prior to permit issuance; including but not limited to those required by the State, BLM, and Routt County.

Applicant Response: Copies of all financial guarantees were submitted to the Planning Department prior to the permit issuance. These are kept current.

J. Any land survey monuments shall be recorded in the Colorado Land Survey Monument Records prior to commencement of mining, and if removed, shall be replaced following reclamation.

Applicant Response: Acknowledged.

K. Routt County requires the use of the most technologically advanced and proven procedures and equipment to mitigate the significant negative impacts of mining operations and associated uses.

Applicant Response: The applicant will use technologically advanced methods including overland conveyors, electric pump systems, and state of the art crushers and wash plants.

9.4.2 Annual Reports An annual report is required for all new and existing mining operations that exceed 9.9 acres in cumulative surface disturbance. Annual reports shall be due on a date determined by the Planning Director. Failure to submit annual reports required as either a condition of approval or as required by this section may result in revocation of the applicable Administrative, Conditional or Special Use Permit. The report shall include the following information:

1. Copy of most recent Colorado Department of Natural Resources, Division of Minerals and Geology (DMG) annual report.
2. Total sales of all products mined at the site for the previous calendar year.
3. Total disturbed acreage on the site.
4. Other information as required as a condition of approval.

Applicant Response: Acknowledged. Annual Reports have been filed in a timely fashion including all the required information.

E. Routt County Master Plan

Special Use Permits and Section 5 of the Routt County Zoning Regulations require that applications be in compliance with the Routt County Master Plan. An analysis of how the proposal complies with the applicable policies follows:

Chapter 3 - Development

3.3 A new residential, commercial and industrial developments and sues should occur within the vicinity of designated growth centers and in compliance with the adopted comprehensive plans of those areas.

Applicant Response: The gravel mine is approximately 6 miles south of Steamboat Springs, which is the closest designated growth center.

Chapter 4 - Rural Development

4.3.I Routt County encourages adjoining property owners to work together for proposed land use changes. Adjoining landowners should be consulted and encouraged to participate if the project results in preservation of large tracts of agricultural land, preservation of wildlife habitat, access to public lands, more efficient infrastructure (roads), and/or large conservation easements.

Applicant Response: The applicant has continued to maintain open and honest relationships with our immediate neighbors. The original SSG plans were extensively revised based upon neighbor's input. The proposal was modified to preserve and enhance the Four Sisters parcel as agricultural open space.

Chapter 5 - Environmental Impacts

5.3.B While respecting private property rights, the County will not approve development applications or special use permits that would lead to the degradation of the environment without proper mitigation that would bring the proposal into compliance with the Master Plan, appropriate Sub-area Plans, Zoning Resolution, and Subdivision Regulations.

Applicant Response: Through extensive mitigation techniques, the application adequately mitigates its impacts.

5.3.D Require Best Management Practices and grading plans and strongly discourage overlot grading.

Applicant Response: The applicant will incorporate Best Management Practices into all activities to the extent feasible.

5.3.E Routt County requires that all new developments do not contribute to light pollution.

Applicant Response: All outdoor lighting will be in conformance with all Routt County lighting standards and generally be shielded and downcast so as to not contribute to light pollution.

5.3.F Routt County will continue to consider the impacts of development and uses on view corridors, water, wetlands, and air.

Applicant Response: Through extensive mitigation techniques, the applicant believes that all impacts have been and continue to mitigates it's impacts.

Chapter 7 - Mineral Resources

7.3.A Exploration and extraction of minerals from Known and Probable Mineral Resource Areas should occur prior to any other developments being constructed at said Mineral Resource Areas that would permanently prevent extraction of the mineral.

Applicant Response: Exploration and extraction of minerals from this site will occur prior to any future development.

7.3.B If it can be shown through sufficient technical or other evidence that the economic or other value of a surface use would be more than minerals present, then the surface development of said site should not be discouraged.

Applicant Response: No known surface use is presented which would prove of more economic value than the minerals present.

7.3.C Routt County discourages mining that would cause significant health or safety problems to people.

Applicant Response: The gravel mine will operate under strict safety guidelines and proposes mitigation of all impacts to avoid health or safety problems to people. Per MSHA, testing for respirable dust will be conducted and evaluated for harmful carcinogens. See Appendix C for further discussion on Respirable Dust.

7.3.D Routt County encourages mitigation of significant health and safety dangers resulting from proposed mines.

Applicant Response: See above response.

7.3.E Where applicable, according to County, State, and Federal regulations, Routt County encourages the surface and mineral right owners to come to an agreement for any proposed use prior to said use commencing.

Applicant Response: Steamboat Sand and Gravel, LLC purchased the More Family Ranch, LLC parcel and the Four Sisters Parcel, thereby giving SSG full ownership of both the surface and mineral rights.

7.3.H Where two minerals are in the same geologic environment, and when extraction of one mineral will prevent the mining of another secondary mineral or destroy the secondary mineral, both minerals should be extracted.

Applicant Response: Sand and gravel are the only known minerals available for extraction on the site.

7.3.I Routt County will review mining operation plans and mitigation plans to ensure that the plans adequately address significant negative impacts and local zoning concerns.

Applicant Response: Acknowledged.

7.3.J Where mitigation is not possible, or where mitigation is not sufficient to alleviate significant negative impacts to the surrounding areas, Routt County shall deny permits in those areas altogether until mitigation measures and are available to remedy significant negative impacts.

Applicant Response: As expressed in other parts of the Project Narrative, the applicant has proposed an extensive plan to adequately mitigate all potential impacts.

7.3.K Routt County desires to ensure that new long-term (more than one year) mineral extraction operations shall be mitigates for visual impacts along entryways to growth centers, and to ensure that visual impacts of existing operations are mitigated to the maximum extent feasible.

Applicant Response: See responses above.

7.3.M Routt County desires to ensure that mineral extraction operations within the boundaries of the county subject to Area Plan #1 of this Master Plan are compatible with other uses in that area.

Applicant Response: Area Plan #1 is the South of Steamboat Area Land Use Plan. There is no boundary for that plan, but according to COunty Planning Staff, it is assumed that the subject site is included within that boundary. Through extensive mitigation measures, the SSG proposal is compatible with other uses in the area.

7.3.N Routt County Desires to ensure that all mineral extraction operations within the boundaries of the county subject to Area Plan #1 of this Master Plan are designed and managed to be consistent with the other goals and objectives of the Area Plan.

Applicant Response: The proposal is designed and will be managed to be consistent with the other goals and objectives of the Area Plan, many of which are the same as those found in the Routt County Zoning Code and the Routt County Master Plan and are addressed in this narrative.

7.3.O Routt County discourages the placement of mining operations that would permanently harm significant wildlife habitat, permanently displace wildlife populations or interfere with migration corridors.

Applicant Response: See wildlife-related responses above.

7.3.R Routt County encourages the limitation of haul distances.

7.3.S Routt County encourages the temporary location of mining operations in the vicinity of certain projects, if there are no mining operations within working distance of such projects, to prevent increased significant negative impacts to the roads accessing the project sites.

Applicant Response: This is one of the primary benefits of SSG. Please see Appendix B for more information.

7.3.T Routt County encourages the separation and sufficient spacing of mining operations to prevent cumulative significant negative impacts to roads and to surrounding areas.

Applicant Response: The nearest mining operation to SSG s the Redmond Mine, located approximately 12-15 miles away near the Stagecoach Reservoir.

7.3.U Routt County encourages the payment of impact fees, ton-mile fees, up-front improvement fees, or other fee system to be used to offset costs for maintenance and improvements to roads used for hauling or minerals.

Applicant Response: There will be direct impacts to Routt County roads based on this operation access will be directly onto SH 131 and use of CR 20 is prohibited.

7.3.V Routt County encourages the completion and reclamation of existing mining operations and abandoned mines, prior to development of new mining operations, and discourages the permitting of new mining operations in areas where there are existing mining operations that have not been completed to reclaimed.

Applicant Response: See above responses.

7.3.W Routt County encourages the timely completion and reclamation of mining operations. If a mining operation is inactive, the mine should be reclaimed as soon as practicable.

Applicant Response: Reclamation will occur as mining is completed by phase (see Mining Phasing Plan) which will result in the minimum area of disturbance at any one time.

7.3.X Routt County encourages the reclamation of mining operations for beneficial uses. Where reclamation for wildlife habitat is appropriate, techniques recommended by the Colorado Division of Wildlife should be used.

Applicant Response: Reclamation will include enhanced wildlife habitat through newly created off site wetlands and new on site habitat in and adjacent to the created ponds. The project wildlife biologist will work closely with the Colorado Division of Wildlife in this regard.

7.3.Z Long term mining operations and associated uses should be located in areas where they do not greatly impact scenic vistas, where there are compatible agricultural and industrial uses, and where they are not in proximity to residential neighborhoods, recreational, or other incompatible uses. Areas with parcels of 35 acres and greater are not considered residential neighborhoods.

Applicant Response: See responses above.

7.3.AA Routt County encourages the expedited completion and reclamation of existing mining operations and abandoned mines that are located in proximity to incompatible uses.

7.3.BB Routt County encourages the development and use of haul roads which route haul traffic awa from areas of residential, recreational, or other incompatible uses.

7.3.CC Routt County encourages reclamation of mine operations to reduce the amount of exposed groundwater. Reclamation that results in productive agricultural land or significant wildlife habitat is preferred.

Applicant Response: The project complies with all of the above criteria. See multiple responses on the above subjects for more details.

7.3.EE The provision of local, public benefits such as open space, trails, hunting, and fishing access, recreational, or agricultural use as a condition for the mining operation is encouraged as part of an end use of the mining activity.

Applicant Response: At this time, public access is not being proposed after reclamation.

7.3.FF The provision of wildlife parks, reserves, wetland mitigation sites, or other beneficial environmental use is encouraged as an end result of the mining activity.

Applicant Response: The reclamation plan includes some of these benefits.

7.3.GG Routt County will require that aggregate be recycled whenever possible and will strive to be current on the best available recycling techniques.

7.3.HH Routt County discourages the exportation of gravel to surrounding counties.

Applicant Response: Acknowledged.

7.3.II Routt County requires that any mining operations established within a 100-year floodplain as identified on the National Flood

Insurance Rate maps comply with applicable FEMA regulations and the Routt County Floodplain Resolution/regulations.

Applicant Response: The proposal will comply with the applicable FEMA and Routt County floodplain requirements.

Chapter 8 - Hazards to Development; Environmental Constraints

8.3 Flooding

8.4.A Routt County strongly discourages buildings in the 100-year floodplain and in flood prone areas. When an owner chooses to build in a 100-year flood plain, Routt County is not responsible for assisting the owner during a flood event or preventing floods in the area.

Applicant Response: No buildings will be located in the 100-year floodplain during the mining operation.

8.4.B Where development in a flood prone area or 100-year floodplain occurs, the county encourages:

- All structures to be built above expected high flood water levels,
- Flood-proofing of all construction in the flood prone area, and
- Other techniques for construction that would prevent damage to said structure and would not raise the flood elevation for downstream residents.

8.4.C Routt County discourages the placement and storage of materials in flood prone areas and 100-year floodplains which could significantly obstruct flows, thereby creating additional damage to others or causing damaging debris to be carried downstream.

Applicant Response: See responses above.

8.4.D Routt County encourages FEMA to complete 100-year floodplain maps for all major drainages throughout Routt County.

Applicant Response: The property is included in the current Routt County Flood Insurance Study.

8.4.E Routt County encourages flood control devices such as retention ponds that reduce runoff to adjacent downstream properties.

Applicant Response: Per the Reclamation Plan, approximately 56 acres of new ponds will be created when the mining and reclamation are complete to help reduce runoff to downstream properties.

8.4.F Routt County encourages that all structures in a flood prone area and 100-year floodplains be securely anchored.

8.4.H Routt COunty encourages the professional design and construction of hydrologic control features to prevent flooding hazards on and adjacent to mining operations.

8.4.I Routt County requires that any mining operations established within a 100-year floodplain as identified on the National Flood Insurance Rate maps comply with applicable FEMA regulations and the Routt County Floodplain Resolution/regulations.

8.4.J Flood Insurance Rate Maps (FIRMs) will be utilized to determine 100-year flood limits. In the event that mapping does not exist, l available data should be considered while determining the suitability of a parcel for the proposed development or use.

Applicant Response: See above responses.

Chapter 9 - Wildlife

Applicant Response: Wildlife issues have been addressed previously in the Project Description.

APPENDIX A: Western Bionomics Letter Response to ACOE

January 25, 2010

Mr. Nathan Green
US Army Corps of Engineers
Colorado/Gunnison Basin Office
Wayne N. Aspinall Federal Building
402 Rood Ave., Room 142
Grand Junction, CO 81501

RE: Steamboat Sand and Gravel (SPK-2000-75350)

Dear Nate:

This correspondence has been prepared in response to the Corps' comment letter (COE November 20, 2009) to the individual permit application for the above-referenced project. Your letter provided four (4) comments and included additional comment letters from Colorado Division of Wildlife (CDOW) and Colorado Division of Water Resources (CDWR). The applicant's response to these comments is included in the following narrative. Section 1 will address the Corps' comments. Section 2 addresses the CDOW comment letter. Section 3 addresses CDWR's comment letter. Each comment has been assigned a specific numeric identification and is reproduced in indented *bold italic* font; the applicant's response to each comment immediately follows.

1.1 Army Corps of Engineers

1) ***Provide an evaluation of an alternative that excludes mining through the oxbow portion of wetland M.***

The applicant has revised the proposed alternative to preserve the oxbow portion of wetland M. Please refer to the attached revision of Figure 8 (Wetland Impact and Mitigation Plan). The revised table of wetland impacts is included below.

Table 6 (Revised). Steamboat Sand & Gravel Impacts to Wetlands and Waters of the United States.										
Parcel	Wetland	Total Wetland Area (sqft)	Total Wetland Area (ac)	Open Water Area (sqft)	Open Water Area (ac)	Total Wetland + Open Water (ac)	Overall Wetland Functional Value	Wetland Impact (sqft)	Wetland Impact (ac)	Open Water Impact (ac)
Highway 131 ROW	East[2]	22,319	0.51			0.51	L	15,449	0.35	0
	West	38,267	0.88			0.88	H	16,959	0.39	0
	Subtotal	***60,586***	***1.39***			***1.39***		***32,408***	0.74	
4-Sisters	A	130,599	3.00			3.00	M	0	0.00	0
	B	4,020	0.09			0.09	M	0	0.00	0
	C	7,345	0.17			0.17	M	0	0.00	0
	D	4,005	0.09			0.09	M	0	0.00	0
	E	5,933	0.14			0.14	M	0	0.00	0
	F	8,406	0.19			0.19	M	0	0.00	0
	G	2,600	0.06			0.06	M	0	0.00	0
	H	77,453	1.78			1.78	M	0	0.00	0
	Subtotal	***240,361***	***5.52***			***5.52***		***0***	0.00	0
More Family Trust	I	21,095	0.48	10870	0.25	0.73	M	21,095	0.48	0.25
	J	3,326	0.08	0		0.08	M	1,439	0.03	0.00
	K	1,074	0.02	0		0.02	M	1,074	0.02	0.00
	L	4,384	0.10	0		0.10	L	3,274	0.08	0.00
	M	240,479	5.52	0		5.52	H	1,573	0.04	0.00
	N	28,169	0.65	0		0.65	H	14,853	0.34	0.00
	O	7,675	0.18	0		0.18	M		0.00	0.00
	P	58,880	1.35	10494	0.24	1.59	M	58,880	1.35	0.24
	P_1	8,695	0.20	0		0.20	M		0.00	0.00
	Q	5,603	0.13	0		0.13	H	5,603	0.13	0.00
	R	7,278	0.17	0		0.17	M	7,278	0.17	0.00
	S	909	0.02	0		0.02	M	909	0.02	0.00
	T	6,294	0.14	0		0.14	M	6,294	0.14	0.00
	U	2,343	0.05	0		0.05	M	2,343	0.05	0.00
	V	37,447	0.86	0		0.86	M	37,076	0.85	0.00
	W	2,837	0.07	0		0.07	M	2,837	0.07	0.00
	X	10,206	0.23	0		0.23	L	10,206	0.23	0.00
	Y	1,651	0.04	0		0.04	M	411	0.01	0.00
	Z	2,224	0.05	0		0.05	L		0.00	0.00
	AA	3,401	0.08	0		0.08	M	3,028	0.07	0.00
	BB	7,720	0.18	3506	0.08	0.26	M		0.00	0.08
	CC	2,972	0.07	0		0.07	M	2,032	0.05	0.00
	DD	57,524	1.32	0		1.32	M	3,800	0.09	0.00
	EE	1,886	0.04	0		0.04	M		0.00	0.00
	Subtotal	***524,072***	***12.03***	***24870***	***0.57***	***12.60***		***184,005***	4.22	***0.57***
GRAND TOTAL			18.94	24870	0.57	19.51		216,413	4.97	0.57

The proposed alternative analyzed in the permit application would have resulted in 5.95 acres of wetland impact. As can be seen from the above table, wetland impacts have

been reduced by almost 1 acre by the elimination of the oxbow from the mine plan and from slight revisions to the road alignment.

> *2) How will you ensure that the imported material to be backfilled into the mined out areas will be only clean fill? Will the operator hire a 3rd party contractor to evaluate all fill being brought into the site to ensure that fill is clean?*

Each load of fill entering the mine site will be required to check in at the scale house located on the main mine access road. The Scale Operator will utilize a MiniRAE 3000 Portable Handheld VOC (Volatile Organic Compound) Monitor, or similar device, to detect the presence of volatile organics (http://www.raesystems.com/products/minirae-3000). Any load containing volatile organics will be turned away at the scale house.

The MiniRAE 3000 is the most advanced handheld volatile organic compound (VOC) detector on the market. It's Photoionization Detector's (PID) extended range of 0 to 15,000 ppm makes it an ideal instrument for detection of hazardous materials. A copy of the MiniRAE 3000 product specifications is included as an attachment to this letter.

> *3) Please provide a final plan for excluding the ingress and egress of Northern Pike fish from the reclaimed lakes.*

The applicant has developed a pike exclusion plan in consultation with Bill Atkinson, Fishery Biologist with Colorado Division of Wildlife. A drawing displaying the proposed plan is included as an attachment to this letter. The plan will create a "pre-pond" retention basin that will be bermed on the down-gradient side with washed rock to filter incoming water from existing Yampa River diversions. The washed rock filter will screen out all pike that may attempt access via these diversions. The applicant and CDOW are confident that this exclusion plan provides the most appropriate solution for preventing ingress of northern pike from the river to the gravel pit and/or final reclaimed ponds. Should a similar basin be deemed necessary on the downstream end of the reclaimed ponds, it will be installed. At this point, CDOW has not stated a necessity for downstream barriers to pike ingress.

> *4) Provide evidence that the project will comply with Routt County floodplain ordinance.*

The Routt County Flood Damage Prevention Regulations (Routt County Zoning Regulations, Section 5.13) permit encroachment within the regulatory floodway "…provided the community applies for and receives a conditional FIRM and floodway revision through FEMA." On behalf of Lafarge NA, Inc., Taylor Engineering submitted on October 19, 2004 an application for a Conditional Letter of Map Revision (CLOMR) to the Federal Emergency Management Agency (FEMA) for a proposed mining operation and access road associated with the River Valley Resource gravel pit project. On May 13, 2005, the Routt County Board of County Commissioners (BOCC) received

the CLOMR (included as an attachment to this correspondence) in which FEMA determined that the proposed project met the minimum floodplain management criteria set forth in the National Flood Insurance Program (NFIP) regulations.

Subsequent conversations with FEMA agents have indicated that the CLOMR dated May 13, 2005 is still valid and will be valid for any project proposed for the same location that proposes improvements of equal or lesser impact within the Special Flood Hazard Area (SFHA - i.e. regulatory floodplain or regulatory floodway). The improvements proposed within the SFHA for the Steamboat Sand and Gravel project will either comply with the provisions and requirements of the existing 5/14/05 CLOMR or, if compliance with the existing CLOMR is not feasible, will be required to apply for a new and separate CLOMR from FEMA in accordance with the Routt County Flood Damage Prevention Regulations.

1.2 Colorado Division of Wildlife

CDOW's letter stated that the retention of many wildlife values on the property would be beneficial to wildlife. Enhancement of existing wetlands, minimizing the amount of acres disturbed at one time during mining, and screening of the processing area were all considered by CDOW to be a benefit of the proposed operation for wildlife. CDOW further commented that:

> *5) During the mining operation as well as once the site is reclaimed, all connecting irrigation channels as well as the Yampa River bypass should be properly screened to prevent Northern pike ingress and egress.*

Please see response to #3 above. The applicant has developed a plan in consultation with CDOW that provides the most appropriate solution for preventing ingress of northern pike from the river to the gravel pit and/or final reclaimed ponds. The Yampa River bypass does not maintain any sort of connection with the Yampa River. As a consequence, there is no need to provide any ingress or egress screening of this channel.

1.3 Colorado Division of Water Resources

> *6) "…to prevent injury to vested water rights, the wetlands mitigation must be limited to a one-to-one ratio."*

The applicant has revised the proposed mitigation plan in a manner that renders this comment no longer applicable. The applicant is currently proposing to transfer compensatory mitigation requirements and liability for 4.97 acres to Finger Rock Preserve Wetland Mitigation Bank. The project's mitigation plan will therefore not result in any additional depletion to the Yampa River system.

In order to reduce risk and uncertainty and help ensure that the required compensation is provided, the Army Corps of Engineers has promulgated a compensatory wetland mitigation rule (73 FR 70) that establishes a preference hierarchy for mitigation options. The most preferred option as stated in the mitigation rule is transfer of mitigation requirements and liability to an approved mitigation bank. It is Western Bionomics' opinion that replacement of the wetlands to be impacted as a result of the Steamboat Sand & Gravel Project with an equal area of Finger Rock's high quality wetlands would more than compensate for the project's wetland impacts. A completed Credit Request Form will be submitted to Finger Rock and to the Corps of Engineers prior to any wetland impacts.

1.4 CONCLUSION

This concludes Alpine Aggregates' response to the items and issues concerning which the Corps asked for additional information. We are confident that we have answered these questions or posed solutions which shall provide for the Corps' ability to resume processing the Individual Permit application submitted for this project. Please contact Kelly Colfer at Western Bionomics with any questions or clarification needs.

Sincerely,
Western Bionomics LLC

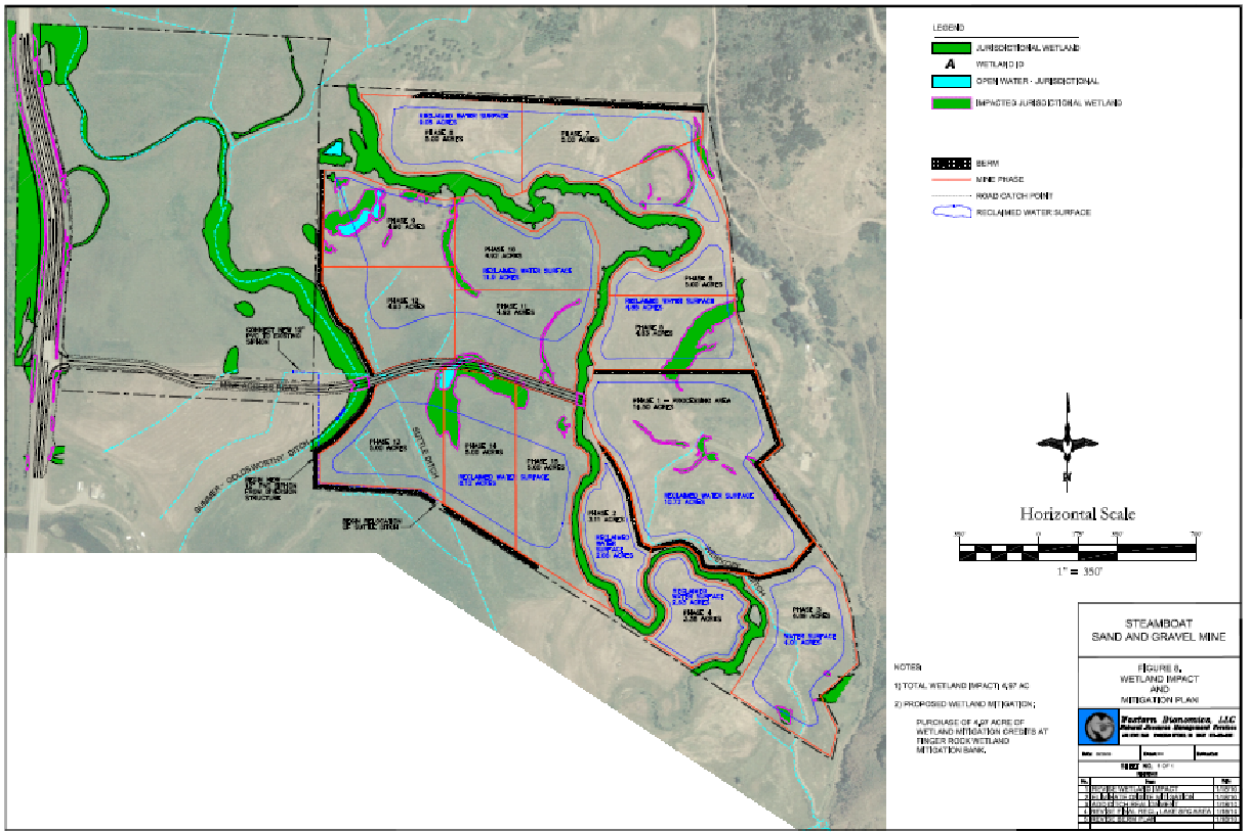
Kelly Colfer

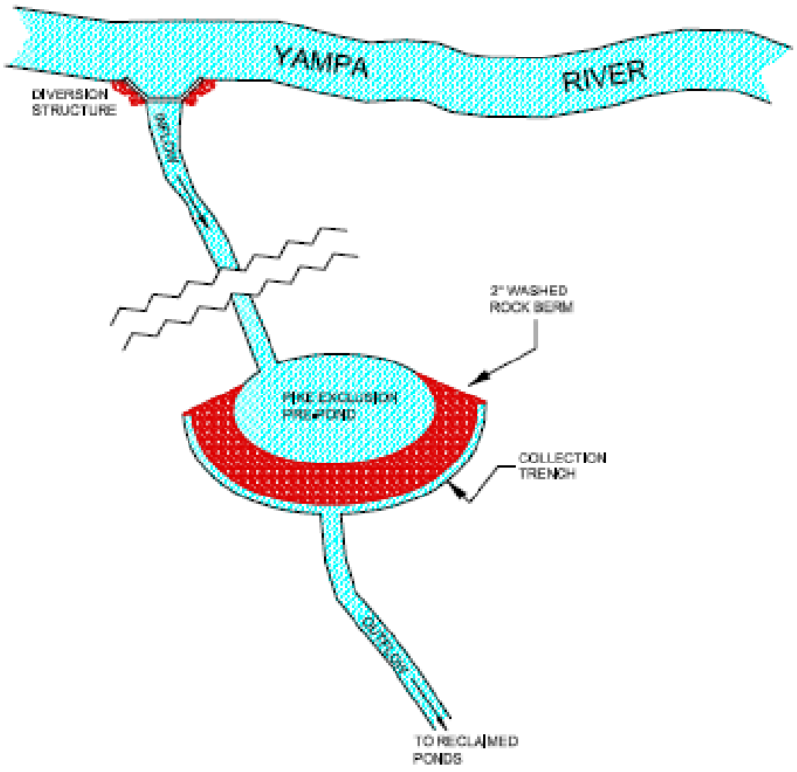
Principal

Enclosures: Figure 8 (Revised) Drawing
Pike Exclusion Structure Drawing
MiniRAE 3000 Specification Sheet
May 13, 2005 FEMA CLOMR Transmittal

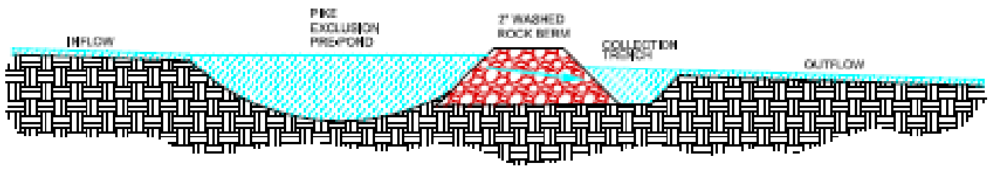
cc: Alpine Aggregates
ATTN: Ed MacArthur
1878 13th St.
Steamboat Springs, CO 80487

Patten Associates
ATTN: Peter Patten
2145 Resort Drive
Steamboat Springs, CO 80487


LEGEND
JURISDICTIONAL WETLAND
A
WETLAND ID
OPEN WATER - JURISDICTIONAL
IMPACTED JURISDICTIONAL WETLAND
BERM
MINE PHASE
ROAD CATCH POINT
RECLAIMED WATER SURFACE
Horizontal Scale
1" = 350'
NOTES:
1) TOTAL WETLAND IMPACT) 4.97 AC
2) PROPOSED WETLAND MITIGATION;
PURCHASE OF 4.97 ACRE OF WETLAND MITIGATION CREDITS AT FINGER ROCK WETLAND MITIGATION BANK.
STEAMBOAT
SAND AND GRAVEL MINE
FIGURE 8.
WETLAND IMPACT
AND
MITIGATION PLAN



PLAN VIEW (NTS)



PROFILE VIEW (NTS)

STEAMBOAT SAND & GRAVEL	PROPOSED PIKE EXCLUSION STRUCTURE	Western Ekonomics, LLC Natural Resource Management Services		SHEET NO. 1 OF 1

APPENDIX B: Aggregate Demand and Truck Traffic

An aggregate demand study was conducted by Apine Aggregates, LLC to quantify the south valley's gravel needs and evaluate the necessity for a put in this region of the county. This breakdown was initially performed to analyze and determine whether or not to pursue this opportunity from an economic viability standpoint, and has been incorporated as a component of the Special Use Permit submittal to support the demand for gravel on the south side of Steamboat Springs. The study's conclusion was that the total known aggregate demand, approximately 2.9 million tons, would generate 208,606 one-way tandem axle dump truck trips through town if there were not another option available. This was one of the primary reasons for pursuing this project.

In analyzing the amount of gravel consumed on past projects, we found that on average commercial developments require approximately 1.1 tons per square foot of building footprint area. While evaluating many residences of numerous sizes that have been built in the valley, it was determined that on average a newly constructed home consumes approximately 2500 tons of gravel. When looking at reconstructed roads/highways, it was concluded that approximately 27,300 tons of gravel products are required per one mile of reconstruction.

Listed below are the total amounts (tons) of the top four aggregate products for the past 10 years and the total number of trucks for each year. While the total aggregate sold and the truck traffic has not met the anticipated levels from the aggregate demand study, it is certainly a significant portion of the aggregates being sold in the valley.

Year	34RB	34SR	CF	PR	Total Trucks
2012	1,332.7	892.4	4,027.6	3,5395.0	344
2013	18,841.2	240.7	937.7	14,039.5	3,333
2014	20,624.6	17,055.2	3,094.9	25,950.3	5,637
2015	27,027.9	2,736.9	6,553.1	27,482.2	6,109
2016	20,402.4	24,413.6	23,447.9	30,784.1	7,958
2017	52,860.7	25,057.7	45,557.3	50,754.9	13,450
2018	37,422.5	29,815.6	20,017.6	28,491.4	8,764

Year	34RB	34SR	CF	PR	Total Trucks
2019	35,416.6	35,986.7	31,801.8	85,527.8	14,345
2020	59,842.8	42,223.2	29,440.3	23,810.8	11,992
2021	43,836.5	42,679.9	30,603.6	24,523.2	11,276

Furthermore, SSG has dedicated itself to recycling certain products when feasible. These products include asphalt, concrete, and fill dirt. The amounts of these recycled products in tons are listed below for the specific years. Much of the imported waste dirt is also used in the construction of the dams in the reclaimed areas.

Year	Waste Asphalt - In	Black Base - Out	Waste Concrete - In	Processed Concrete - Out	Waste Dirt - In	Fill Dirt - Out
2013	1,065	159	892		21,097	2,187
2014	1,065	12	3,105		12,019	1,830
2015	1,642	420	1,364		21,915	2,932
2016*	4,659	991	848	1,605	26,800	74
2017	4,943	3,474	2,072	4,952	49,008	472
2018	7,140	3,796	3,435	107	67,860	574
2019	4,380	9,787	5,249	1,169	70,845	245
2020	4,350	1,818	2,756	1,852	81,255	390
2021	3,180	3,316	5,100	2,755	107,276	209

* - 2016 was the first year we brought in a jaw crusher to process waste concrete into a usable product.

In addition, the following table outlines the gravel consumption specifically from SSG for specific projects that have been conducted over the past years.

Project Name	Total Aggregate Consumption (tons)
Sunlight Development	46,120.53
Sunlight Crossings	16,704.99
Lower Gondola	13,397.47
Greenhorn Ranch	2,195.01
MWW Sewer, Phase 2	2,384.47
Flat Tops Site Development	3,121.98
Oak Creek Water Main	21,291.04
Combined Law Enforcement Facility	8,126.07
Fox Springs Development	6,833.01
Residences Inn By Marriott	31,908.56
Alpenglow Village	37,432.50

APPENDIX C: Crystalline Silica in relation to gravel mining operations

Crystalline Silica is regulated under Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard (HCS). In 1987, the International Agency for Research on Cancer (IARC), an agency of the World Health Organization, evaluated the available medical literature on silica. Based on this evidence, IARC concluded that crystalline silica, with enough exposure, was a probable carcinogen for humans.

Gravel pits are regulated by the Department of Labor, Mine Safety and Health Administration (MSHA). MSHA uses the results of IARC, the National Toxicology Program, (NTP) and OSHA studies to set the mining industry standards for above ground metal and nonmetal mines, which include gravel pits. Respirable Crystalline Silica (often referred to as respirable dust) is defined as dust that contains particles small enough to enter the gas-exchange region of the human lung (about 3.5 microns). OSHA states that particles less than 1 micron in size are the most troublesome and that particles in the range of 0.5 to 0.7 microns are retained in the lung.

In 2008, MSHA published Permissible Exposure Limits; (PELs) for Crystalline Silica entered into the human lung. This regulation reduces the PELs for airborne crystalline silica fibers to .1 f/cc (fibers per cubic centimeter) in a given sample.

In the creation of this regulation, MSHA tested 127 rock and quarry mines and took 326 air samples from those mines. Of the 127 mines tested, nine percent contained enough dust of a small enough size to warrant further investigation. Looking further at the 326 samples taken, six percent warranted a transmission electron microscopy (TEM) test (to test for respirable silica). Of the six percent, .006, or less than one percent, contained more than 0.1 f/cc (less than one percent of the samples taken contained an unacceptable level of respirable dust).

MSHA requires testing for, among many things, respirable dust. The proposed Steamboat Sand and Gravel pit would be no exception. If PEL limits are exceeded during a test, there are many ways to reduce the impact of that dust (including, but not limited to; dust control through watering, ventilation, and respiratory protection.

A further study looked at mortality rates per 100,000 people based on number of years exposed and exposure level. The study found that there is only a .3 percent mortality rate for a person exposed to 0.1 f/cc for forty-five years (336 per 100,000 people).

Alpine Aggregates, LLC. contacted MSHA's technical division by phone, and spoke with Mr. Mark Schultz. After a brief description of the proposed gravel operation (wet alluvial deposit located near the river bottom), Mr. Schultz explained, based on past experience, that it was doubtful this pit would have a problem with exceeding the permissible exposure limits for respirable dust. However, if it were to exceed the PEL

limit, there are numerous control options available such as previously mentioned above. Information confirming this opinion and going into further detail can be found at MSHA.gov. Furthermore, repeated environmental testing conducted by MSHA during periodic inspections have demonstrated that SSG falls below the threshold for permissible exposure limits for respirable dust.

References: Friday Feb. 29 2008 Special Publication
Part IV Crystalline Silica Primer
Dept. of Labor Staff, Branch of Industrial Minerals
MSHA

MSHA 30 CFR
Parts 46/47/48, 56/57/58 & 62

Appendix D: Water Body Setback Exemption Letters

March 5, 2010

Chad Phillips, Routt County Planning Director
Routt County Planning Department
PO Box 773749
136 6th Street
Steamboat Springs, CO 80477

Dear Mr. Phillips:

Ed MacArthur has contacted me regarding his proposal for a gravel mine on the former More Ranch property in South Routt County. I lived on and ranched this property for more than 60 years and recently relocated elsewhere in Routt County. Ranching the property for so many years, I am very familiar with the terrain and the various ponds and water bodies on the ranch.

The attached wetlands map shows a wetland in Phase 9. It is my belief that this pond was created as a small gravel mine for a road project. After the gravel was taken out, the pond filled in with groundwater and was occasionally used by cattle as a stock pond, as were many of the ponds throughout the ranch.

I hope this information is helpful to you in your review of the proposed gravel mine.

Sincerely,

Gonk Jacobs Gonk Jacobs

Val R Jacobs

March 4, 2010

Routt County Planning Department
ATTN: Chad Phillips, Planning Director
PO Box 773749
Steamboat Springs, CO 80477

RE: Steamboat Sand and Gravel - Ponds and Wetland Mitigation

Dear Chad,

This correspondence addresses Steamboat Sand and Gravel's plan to mitigate wetland impacts associated with their proposed mine plan. Specifically, I intend to address the net result of impacts and mitigation regarding a ¼ acre pond in the northwest corner of the proposed mine. The pond appears to have been formerly used as a small gravel pit and for watering livestock. The pond is identified as "*Wetland I*" in the attached drawing.

As can be seen in the drawing, the mine plan would include this pond within the limits of the gravel extraction operation. As compensatory wetland mitigation for impacts to this and other wetlands on the More Ranch Parcel, Alpine Aggregates has proposed to the Corps of Engineers to purchase wetland credits from Finger Rock Wetland Mitigation Bank in Yampa. Finger Rock's Mitigation Banking Instrument ensures that all of their mitigation wetlands perform ecological functions and values at a "High" level. Conversely, the ecologic functional rating for Wetland I at Steamboat Sand and Gravel is "Moderate." Therefore, it can be accurately stated that the net result of activities associated with Steamboat Sand and Gravel's impact to *Wetland I* at their mine site, in combination with their proposed wetland mitigation at Finger Rock, will be a net gain or enhancement, within the Yampa River watershed, of wetland ecological functions and values.

The proposed Steamboat Sand & Gravel mining plan has been submitted to the US Army Corps of Engineers for permitting. The submittal includes, among other items, the proposed mitigation plan at Finger Rock. The Army Corps of Engineers has yet to respond to the permit application, however they have not indicated to the applicant that this permit application would result in denial.

If you require more information, please do not hesitate to call me with questions.

Sincerely,
Western Bionomics LLC

Kelly Colfer
Principal

Attachment: Steamboat Sand and Gravel Mine – Wetland Impact and Mitigation Plan

cc: Peter Patten
Ed MacArthur

Appendix E: Steamboat Sand and Gravel Mine
Weed Management Plan

Site Location

The Steamboat Sand and Gravel Mine property is approximately 147 acres in size and is located north of the Yampa River and east of State Highway 131.

Objective

To control undesirable plants on the property, a Weed Management Plan is proposed. Plants identified through the Colorado Weed Management Act (CRS@35-5.5-101, et seq.) as undesirable and designated for management within the County include Canada Thistle, Musk Thistle, Diffuse Knapweed, Russian Knapweed, Spotted Knapweed, Dalmatian Toadflax, Yellow Toadflax and Leafy Spurge.

Due to the combined uses of grazing and hay cutting, weeds are not prevalent on the site. Disturbances from mining may create opportunities for weeds and will be monitored closely.

Sub-areas

The final reclaimed use of an area on the property will dictate the type of plant species planted. Under this plan, subareas are created to assist in identifying specific management practices for these specific areas on the parcel. These subareas are Wetlands and Pastureland.

Methods of Control

The methods of control are cultural, mechanical, biological, and chemical. An integration of one or more of these methods can be applied to these subareas. These methods are defined as follows:

Cultural - The method or management practices that encourage the growth of desirable plants over undesirable plants.

Mechanical - The method or management practices that physically disrupt plant growth including but not limited to tilling, mowing, burning, flooding, mulching, hand-pulling, hoeing, and weed whacking.

Biological - The use of organisms such as sheep, goats, cattle, insects, and plant diseases to disrupt the growth of undesirable plants.

Chemical - The use of herbicides or plant regulators to disrupt the growth of undesirable plants.

Weed management of undesirable weeds for the subareas are as follows:

Wetlands

Please note that any herbicide that is used in this subarea is not to be harmful to aquatic wildlife or vegetation.

1. Canada Thistle
    a. Mechanical and Chemical Control - Hand-pulling, mowing or weed whacking (or a combination of these methods) can occur throughout the growing season in order to keep the plants from going to seed. Mowing should be terminated in late August followed by an herbicide treatment during late September through October, before a hard frost.
    b. Cultural and Chemical Control - Use a short residual herbicide followed by a seeding with a competitive grass such as canary reed grass (*Phalaris arundinacea*) or other similar native grass species.
    c. Chemical Control Only - Herbicide applications can be applied from rosette to bud stage and if needed, retreat in the fall.
2. Bull Thistle
    a. Mechanical and Chemical Control - Hand-pulling, mowing or weed whacking (or a combination of these methods) to occur throughout the summer to address the bud stage of the thistle. Apply an herbicide in October to new rosettes and any bolted plants.
    b. Mechanical Control Only - Hand pulling, mowing or weed whacking (or a combination of these methods) during the summer (two to four times) to keep seeds from being produced.
    c. Chemical Control Only - Use an herbicide that is not harmful to aquatic wildlife and vegetation in the spring and fall.

3. Leafy Spurge
    a. Cultural and Chemical Control - An herbicide application, using short residual herbicides can be used followed up by seeding the area with a competitive grass such as canary reed grass (*Phalaris arundinacea*) or other similar native grass species.
    b. Mechanical Control Only - Hand-pulling, mowing or weed whacking (or a combination of these methods) can be carried out throughout the season, which will reduce seed set. However, mowing or weed whacking must be repeated every 14-21 days throughout the summer, starting before the flowering stage.
    c. Chemical Control Only - Herbicide applications can be made to the spurge in the spring, early summer during the true flower stage and in the fall just before a hard freeze if necessary.

Hay Meadows

Please note that any herbicide that is used in this subarea is not to be harmful to aquatic wildlife or vegetation.

1. Canada Thistle
    a. Mechanical and Chemical Control - Mowing can occur throughout the growing season in order to keep the plants from going to seed. Mowing should be terminated in late August followed by an herbicide treatment during late September through October, before a hard frost.
    b. Cultural and Chemical Control - Use a short residual herbicide followed by a seeding with a competitive grass such as smooth brome or wheat grass.
    c. Chemical Control Only - Herbicide applications can be applied from rosette to bud stage and if needed, retreated in the fall.

2. Bull Thistle
    a. Mechanical and Chemical Control - Mowing to occur throughout the summer to address the bud stage of the thistle. Apply an herbicide in October to new rosettes and any bolted plants.
    b. Mechanical Control Only - Conduct multiple mowings during the summer (two to four times) to keep seeds from being produced.
    c. Chemical Control Only - Use an herbicide in the spring and fall.

3. Leafy Spurge
    a. Cultural and Chemical Control - An herbicide application, using short residual herbicides can be used followed up by seeding the area with a competitive grass such as smooth brome, wheat grasses or other sod forming species.
    b. Mechanical Control Only - Mowing can be carried out throughout the season, which will reduce seed set. However, mowing must be repeated every 14-21 days throughout the summer, starting before the flowering stage.
    c. Chemical Control Only - Herbicide applications can be made to the spurge in the spring, early summer during the true flower stage and in the fall just before a hard freeze if necessary.

Biological controls can and may be used in conjunction with any of the above treatment options.

Herbicides will be used as a last resort. Cultural, mechanical and biological controls will begin on re-vegetated areas during the first growing season following planting.