

APPENDIX A

Notice of Preparation and Comments Received

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NOTICE OF PREPARATION

To: Office of Planning and Research;
State Clearinghouse; Responsible
and Trustee Agencies; Federal
Agencies; Organizations; and
Interested Parties

From: Gary King
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945

Subject: Notice of Preparation of a Draft Environmental Impact Report

Nevada Irrigation District will be the Lead Agency and will prepare an Environmental Impact Report (EIR) for the Greenhorn Sediment Removal at Rollins Reservoir Project (Project). We need to know the views of your agency as to the scope and content of the Proposed Project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the Project.

The Project description, location, and the potential environmental effects are contained in the attached materials. A copy of the Initial Study is not attached.

Due to the time limits mandated by state law, your response must be sent at the earliest possible date, but not later than thirty (30) days after receipt of this notice.

Please send your response to Kris Stepanian via e-mail at stepaniank@nidwater.com or regular mail to the address shown above. We will need the name for a contact person in your agency.

Project Title: Greenhorn Sediment Removal at Rollins Reservoir Project

Project Applicant, if any: Nevada Irrigation District

Date: May 17, 2017

Signature:



Gary D. King

Title:

Engineering Manager

Telephone:

530-273-6185 ext. 260

Notice of Preparation and Public Scoping Meeting

Date	May 17, 2017
Lead Agency	Nevada Irrigation District
Contact	Gary D. King, PE PhD Engineering Manager 1036 West Main Street Grass Valley, CA 95945 Phone: 530-273-6185 ext. 260 Email:king@nidwater.com
Project Title	Greenhorn Sediment Removal at Rollins Reservoir Project
Project Location	The Project is located in unincorporated Nevada County, California, approximately 6 miles north of the City of Colfax on the Greenhorn Arm of Rollins Reservoir (Attachment A).
County	Nevada
<p>Project Description. The Nevada Irrigation District (NID), acting as Lead Agency under the California Environmental Quality Act (CEQA), will prepare an Environmental Impact Report (EIR) for the Greenhorn Sediment Removal at Rollins Reservoir Project (Project). The objectives of the Project are as follows:</p> <ul style="list-style-type: none"> • Restore and maintain the historic water storage capacity in the Greenhorn Arm of Rollins Reservoir and prevent further migration of suspended sediment from this arm into the main reservoir. • Maintain the water storage capacity in the Greenhorn Arm of Rollins Reservoir in perpetuity by conducting annual sediment maintenance activities to remove accumulated sediments which could enter the main reservoir during storm water flows. • Restore recreational opportunities in the Greenhorn Arm of Rollins Reservoir through the removal of accumulated sediment thereby increasing water depth and improving aquatic habitat and boating access. • Economically dispose of the sediment removed from the Greenhorn Arm of Rollins Reservoir. <p>The EIR will evaluate the environmental impacts of the Project and identified alternatives. Additional information about the Project is presented in Attachment A. This Notice of Preparation (NOP) is also available for review at the following locations: NID's Business Center, 1036 West Main Street, Grass Valley, CA; NID's website: http://www.nidwater.com; and the Nevada County Clerk's office.</p>	

Purpose of this Notice. Pursuant to CEQA Guidelines Section 15082, NID prepared this NOP to notify responsible and trustee agencies; Federal agencies; organizations; and other interested parties that it will prepare an EIR for the Project. The purpose of the NOP is to solicit guidance and input from those agencies and interested parties as to the scope and content of the environmental information to be included in the EIR. The NOP is intended to provide agencies with sufficient information describing the Project and its potential environmental effects to allow these agencies to offer meaningful responses related to the scope and content of the EIR.

Probable Environmental Effects. Based on preliminary review, NID has determined that the Project may affect aesthetics, air quality, biological resources, cultural resources, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, recreation, transportation and traffic, and utilities and service systems.

Public Comment Period. The NOP will be circulated for a 30-day public review period. Written comments from interested parties are encouraged and must be received before close of business on **June 16, 2017**. For agencies with statutory responsibilities in connection with the Project (CEQA Guidelines Section 15082[b]), we are requesting your views regarding the scope and content of the environmental information necessary to make any relevant decision by your agency. Your agency may need to use the EIR prepared by NID when considering issuance of a permit or other approval for the Project, if any is required. Written comments and requests for information should be sent to Kris Stepanian at stepianiak@nidwater.com. All comments received, including commenter's names and addresses, will become part of the administrative record and will be made available to the public.

Public Scoping Meeting. Pursuant to CEQA Guidelines Section 15082[c] and 15206, NID will conduct a public scoping meeting for the Project. Meeting information is provided below.

June 1, 2017

6:00–7:30 p.m.

NID Business Center

1036 West Main Street

Grass Valley, CA 95945

The purpose of this meeting is to provide NID with comments on the proposed scope and content of the EIR. The public will have the opportunity to offer oral and/or written comments for consideration during the meeting.

Attachment A

**Greenhorn Sediment Removal at Rollins
Reservoir Project**

**Notice of Preparation
Background Information**

PROJECT LOCATION

The Project is in unincorporated Nevada County, California, approximately 6 miles north of the City of Colfax on the Greenhorn Arm of Rollins Reservoir (**Map 1**). The currently operating Hansen Bros. Enterprises Greenhorn Gravel Plant is located north of the Project area. The Project is located within Sections 2, 3, 10, and 11 of Township 15N and Range 9E on the Chicago Park 7.5-minute USGS topographic quadrangle.

To access the Project area from Interstate 80, exit Highway 174 in Colfax and proceed 7.75 miles north toward Grass Valley. Turn right onto You Bet Road and proceed 2.5 miles to the You Bet Bridge (39°11'14.52" N, 120°56'30.77" W) which is at the northern end of the Project area (**Map 2**).

The Project site is approximately 147 acres in size, including the sediment removal area, three staging areas, and the haul/access road. Sediment removal operations would occur in a 49.7-acre area (Work Area), downstream of the Hansen Bros. Enterprises' lease boundary (**Map 2**).

PROJECT BACKGROUND

Following construction of the Rollins Reservoir Dam in 1965, sediments have accumulated in Rollins Reservoir. An estimated 10,000 acre-feet of storage capacity (17%) has been lost in Rollins Reservoir, which had a capacity of 65,998 acre-feet upon its completion in 1965.

Sediment accumulation in the Greenhorn Arm of Rollins Reservoir can occur very quickly depending on water year type and flows from Greenhorn Creek. **Figure 1** shows the build-up of sediment that has occurred from July 2014 to late 2016. In July 2014 sediments extended in the Greenhorn Arm approximately 9,300 feet from the intersection of You Bet Bridge and the existing access/haul road. In late 2016, sediment build-up began to extend into the main body of the reservoir (extending an additional 980 feet).

In October 2013, NID entered into an agreement with Hansen Bros. Enterprises to remove sediment from Greenhorn Creek during record low water levels. During the work, it was discovered that foothill yellow-legged frogs (FYLF) were present along the haul route in the Greenhorn Arm of Rollins Reservoir. Accordingly, work was halted until NID and Hansen Bros. Enterprises could prepare a Corrective Action Plan (CAP) to protect the frogs. The CAP was completed at the end of November 2013; however, no additional sediment removal has occurred and sediment has continued to be deposited in the Greenhorn Arm and subsequently transported into the reservoir during high-flow events.

PROPOSED PROJECT

NID's Proposed Project includes the annual removal of sediment from the Greenhorn Arm of Rollins Reservoir. Due to the annual migration of aggregate from Greenhorn Creek into the Project area, the Project will be ongoing with the ultimate goal of returning the Project area to pre-1965 conditions (following construction of Rollins Reservoir), and then maintaining this condition in perpetuity.

The Greenhorn Sediment Removal Project objectives are as follows:

- Restore and maintain the historic water storage capacity in the Greenhorn Arm of Rollins Reservoir and prevent further migration of suspended sediment from this arm into the main reservoir.
- Maintain the water storage capacity in the Greenhorn Arm of Rollins Reservoir in perpetuity by conducting annual sediment maintenance activities to remove accumulated sediments which could enter the main reservoir during high flows.
- Restore recreational opportunities in the Greenhorn Arm of Rollins Reservoir through the removal of accumulated sediment thereby increasing water depth and improving aquatic habitat and boating access.
- Economically remove and dispose of the sediment removed from the Greenhorn Arm of Rollins Reservoir.

PROJECT ACTIVITIES

Three primary activities will be implemented annually as part of the Project: (1) notification/mobilization; (2) sediment removal activities; and (3) demobilization. In addition, the Project includes implementation of a water quality and methylmercury monitoring program.

Notification/Mobilization

- Public Notification
 - a. Rollins Reservoir supports three district operated campgrounds, Long Ravine, Orchard Springs, and Peninsula, and one independently operated campground, Greenhorn. Combined these campgrounds offer approximately 250 campsites and a complete range of services, including stores, restaurants, fuel sales and rentals (Map 3). As part of the Project, NID will keep the Rollins Reservoir campground concessionaires apprised of water surface elevation conditions and other construction-related activities in the Greenhorn Arm so that information can be disseminated to the public via the NID website (www.nidwater.com). In addition, NID will provide concessionaires annual notification of the Project schedule and activities in a format that can be posted onsite at the reservation window, at information boards within the campgrounds, and at boat docks. Information will also be posted on NID's website to ensure that prospective recreation visitors are informed of Project activities.
- Transport Equipment and Material Staging Areas
 - a. Sediment removal activities will involve the use of heavy equipment, vehicles, and machinery. **Table 1** includes a list of anticipated heavy equipment that will be used during Project implementation. A barge and pile driver will be used to install the sediment barrier to reduce future creep of sediment in the reservoir. A track hoe, front end loaders, excavators, dump trucks/yukes and scrapers will be used during sediment removal activities. In addition, a small backhoe, front-loader, excavator, bulldozer, and flat-bed trucks will be used to transport materials to and within the Work Area and for removal of sediment. Pick-up trucks will be used to transport personnel to and from the Work Area.
 - b. NID has three staging areas (SA), as shown on **Map 2**. All staging areas are located in previously-disturbed locations. No grading, vegetation removal, or other site preparation will be necessary prior to use. NID will designate vehicle fueling areas

at SA-1 and SA-3. Fuel will be stored in a mobile tanker truck. Any pumps, generators, or other stationary equipment that must be fueled on the dewatered reservoir bed will be placed on secondary containment structures to avoid soil/water contamination. All fueling activities will be completed consistent with state and federal Best Management Practices.

- c. Project office trailers, personnel parking, and portable restrooms, will be located at SA-1 and SA-3. Portable restrooms will be placed onsite by a licensed vendor and operated in accordance with Nevada County Environmental Health requirements.

Sediment Removal Activities

- Establish Work Area Boundary
 - a. Prior to initiation of work activities each year, NID will install a buoy line with hazard markers and closure signage to restrict access to the Greenhorn Arm at Rollins Reservoir. The buoy line will remain in place until the reservoir levels drop precluding entrance into the Greenhorn Arm.
 - b. Hazard markers and signage will also be placed in the Greenhorn Campground and along the shoreline near the entrance to the Greenhorn Arm to notify the public of the Work Area closure. NID will also notify and provide a Project schedule and activity information to campground concessionaires on Rollins Reservoir for posting on their reservation website, and at the reservation window and information boards.
 - c. Hazard markers and additional buoys or signage with a 5-mile-per-hour (mph) speed restriction will be placed near the location of the sediment barrier in the main body of the reservoir. The buoys or signage will remain in place when the sediment barrier is present within the reservoir.
 - d. Work area boundaries will be delineated, including the upstream and downstream ends, with fencing, stakes, or flagging.
- Water Quality Monitoring
 - a. NID will prepare a Water Quality Monitoring Plan (Plan) for the Project. This Plan will describe the approach for monitoring water quality (baseline and Project conditions) in the vicinity of the Project during implementation (setup through demobilization). The Plan will include compliance thresholds and adaptive management to address potential water quality issues should any arise. The Plan would be implemented in any year which sediment removal activities occur. The Plan will include water quality monitoring for the following constituents:
 - Water temperature;
 - Dissolved oxygen (DO);
 - Turbidity;
 - Total dissolved solids (TDS);
 - Total suspended solids (TSS);
 - Total mercury; and
 - Methylmercury.

- Installation of Sediment Barrier

- a. Interlocking steel sheet piles (36-foot-long steel sheets) will also be driven into the reservoir bottom, with a pile driver off of a barge, to form a sediment barrier perpendicular to the main body of the reservoir. The purpose of the sediment barrier is to:
 - Prevent further migration of sediment into the reservoir;
 - Provide a barrier between the area of active sediment removal and the main body of the reservoir.

Initially, the sediment barrier will be installed in Rollins Reservoir proper, however, the location will eventually move into the Greenhorn Arm as sediment removal activities proceed. When located in the main body of the reservoir, the barrier will be maintained below the water surface and 5-mph buoys or signage will be installed over the top of the barrier.

- Establish Access/Haul Road

- a. An access/haul road will be used to support Project activities consisting of: (1) the existing road from You Bet Bridge through the Hansen Bros. Enterprises lease to the Greenhorn Arm of Rollins Reservoir; and (2) establishment of a new haul road within the inundation zone of the Greenhorn Arm for Project-specific sediment removal activities. The new haul road will be established annually, as high spring flows from the creek into the reservoir will likely redistribute material used to establish the road.
- b. The new haul road will be 24 feet wide and will be constructed using native material from the Project site. One or two construction vehicle turnarounds will be developed as part of the new road. Bridges and culverts, as appropriate, will be installed along the new haul road to provide access over Greenhorn Creek within the inundation zone of Rollins Reservoir (multiple crossings may be necessary because the creek meanders through Work Area).
- c. The bridge or pipe crossings will be sized and positioned to maintain passage of aquatic species (fish or amphibians) and the appropriate velocity of water flows. Exclusionary, high visibility fencing will be installed, where appropriate, to protect aquatic species breeding sites.

- Channelization of Creek Bed

- a. Following installation of the sediment barrier, and once water levels recede in the Greenhorn Arm, construction mats, bridges, and culverts will be installed, where necessary, to allow access from You Bet Bridge to the Work Area. A track hoe will then be used to construct a berm to form the channelized creek bed. Once the berm is complete, a pilot channel will be excavated. A channel will be constructed and will extend the entire length of the berm. The pilot channel will then be connected to the active stream allowing relocation of Greenhorn Creek to the channelized section. The berm if needed will be established annually as high spring flows will likely redistribute material used to establish the berm.

- b. Once the creek is re-routed, a corrugated pipe if needed will be installed perpendicular to the original stream channel and through the berm to collect and direct subsurface water into the channelized creek bed. A valve box/pond will also be installed in the active channel at the upper end of the pipe to allow for controlled release of water from the active channel through the pipe into the channelized creek bed. An aeration system will be placed in the value box and turned on, if necessary, to maintain oxygen concentrations to reduce the methylation of mercury.
- c. Flows will be released as needed, from the valve box/pond into the subsurface flow pipe to maintain a reasonable velocity of water, if available from the active channel. Continuous oxygen monitors will be installed in the stream channel upstream of the valve box/pond, at the valve box/pond, and at the end of the subsurface pipe entering the channelized creek bed. The aeration system and oxygen monitors will remain in place until demobilization is complete.
- Installation of Dewatering Pipes/Channels
 - a. After the creek bed has been channelized, dewatering pipes will be installed or channels will be excavated in the sediment removal area. The dewatering pipes/channels will direct subsurface flow from the proposed sediment removal area to the reservoir. The pipes/ channels will be installed to allow drainage from the sediment removal area. The dewatering pipes will be 24 inches or larger in diameter, perforated polyvinyl chloride (PVC) or polyethylene pipes.

The purpose of the dewatering pipes/channels is to collect subsurface water in the sediment removal area to speed up the drying process. Once the sediment in the Work Area is reasonably dry, such that heavy excavating and earthmoving equipment can travel and maneuver over the sediment allowing for initiation of sediment removal activities.
 - b. A valve box/pond will be installed in the active channel at the upper end of the dewatering pipes/channels to allow for controlled release of water from the active channel, through the dewatering pipes/channels. An aeration system will be placed in the valve box/pond.
 - c. Flows will be released from the valve box/pond into the dewatering pipes/channels to maintain a reasonable velocity of water, if available, from the active channel. As described above, continuous oxygen monitors will be installed in the stream channel upstream of the valve box/pond, and at the end of the dewatering pipes/channels. The aeration system will be turned on, when necessary, to maintain oxygen concentration to reduce the potential for methylation of mercury by anaerobic digestion.
- Sediment Removal
 - a. Dry sediment will be excavated in the Work Area using heavy excavating and earthmoving equipment (e.g., scrapers, trackhoes, backhoes, excavators, and/or front end loaders). Excavation will continue until the level of creek bed surface is lowered to the top of the dewatering pipe/channel. An additional dewatering pipe/channel will then be connected to the valve box/pond and sediment removal will continue.

No dredging would occur as part of the Project. Excavated material will be transported

to the stockpile area via the access/haul road.

- Sediment Transport to Stockpile Area and Processing
 - a. Sediment removed from the Work Area will be transported by dump trucks or other loading equipment via the access/haul road to the stockpile area. The stockpile area is an existing stockpile that is currently used as part of the Hansen Bros. Enterprises operations and is located on the east side of the Greenhorn Arm of Rollins Reservoir approximately 0.76 miles from intersection of You Bet Road and the access road maintained by Hansen Bros. Enterprises (**Map 2**).
 - b. At the stockpile area, sediment will be passed through a grizzly and various sized mesh screens for removal of debris and large rocks, and to sort the material into various sizes of aggregate. Typical screening sizes include: less than 1 inch, 1-2 inches, and greater than 2 inches. A containment system, such as a flatbed trailer or other container, will be placed under the grizzly to collect fine material. Material collected in the containment system may be returned to the grizzly for re-screening to separate “usable” aggregate material, or if the containment is dominated by silt-sized aggregates (fine sediment), it will be transported via dump truck to an approved offsite processing center for disposal. The screened material (larger aggregate) will be temporarily stockpiled at the site for commercial sale and/or use in a local mine reclamation project. Barrier walls would be placed along the stockpile area adjacent to the reservoir shoreline to minimize erosion during high flows and/or reservoir levels.
 - c. The only onsite processing will be screening of sediment and removal of debris. There will be no onsite washing of excavated materials. Water will be applied to material being stockpiled and loaded as required to reduce fugitive dust. Watering will be limited to dust suppression and will be applied in a manner to prevent direct run-off into the Greenhorn Arm. The water will be supplied onsite using NID’s surface water in the Project area.

Demobilization

- Annual Demobilization
 - a. Following completion of annual sediment removal activities (typically in mid- to late November), the following will be removed from the Work Area:
 - Dewatering pipes/channels;
 - Valve box/pond;
 - Aeration system;
 - Construction equipment and mats;
 - Bridges and culverts;
 - Work area closure buoy line; and
 - Processing plant.
 - b. The sediment barrier may remain in place depending on the extent of sediment removal completed. Buoys or signage with 5-mph speed restriction will be maintained adjacent to these features if they remain in place. The berm and new access/haul road will be left in place, but high spring flows will likely redistribute the material into the Work Area. In addition, the stockpile area barrier wall will remain in

place throughout the duration of the Project.

- Sediment Fate-Offsite Transport

- a. It is estimated that up to 250,000 tons (approximately 3.5 acre-feet) of material could be removed from the Work Area per year, depending on market demand; although a typical year (based on similar activities) would include removal of approximately 50,000 tons per year. It is assumed that 250,000 tons of material would be removed approximately every 6 years, depending on storm events.
- b. The stockpile area will be used to temporarily store sediment until the material can be transported to an approved offsite location. Sediment will be sampled and analyzed to identify any potential hazards to the public or environment. If sediments exceed hazardous waste thresholds, the sediment will be disposed of in accordance with relevant hazardous waste regulations at an approved hazardous materials disposal site. If sediments do not exceed hazardous waste thresholds, the materials will be distributed as follows:
 - Distribution of approximately 30% of material to Hansen Bros. Enterprises for processing at the local plant located across You Bet Road approximately 1.25 mile north of the Project (**Map 2**);
 - Distribution of approximately 30% of material for local sales in Nevada County via Highway 174;
 - Distribution of approximately 10% of material for use in reclamation of one or more mining sites within 10 miles of the Project; or
 - Distribution of approximately 30% of material via Highway 80 for sales outside of Nevada County.

ENVIRONMENTAL ANALYSIS

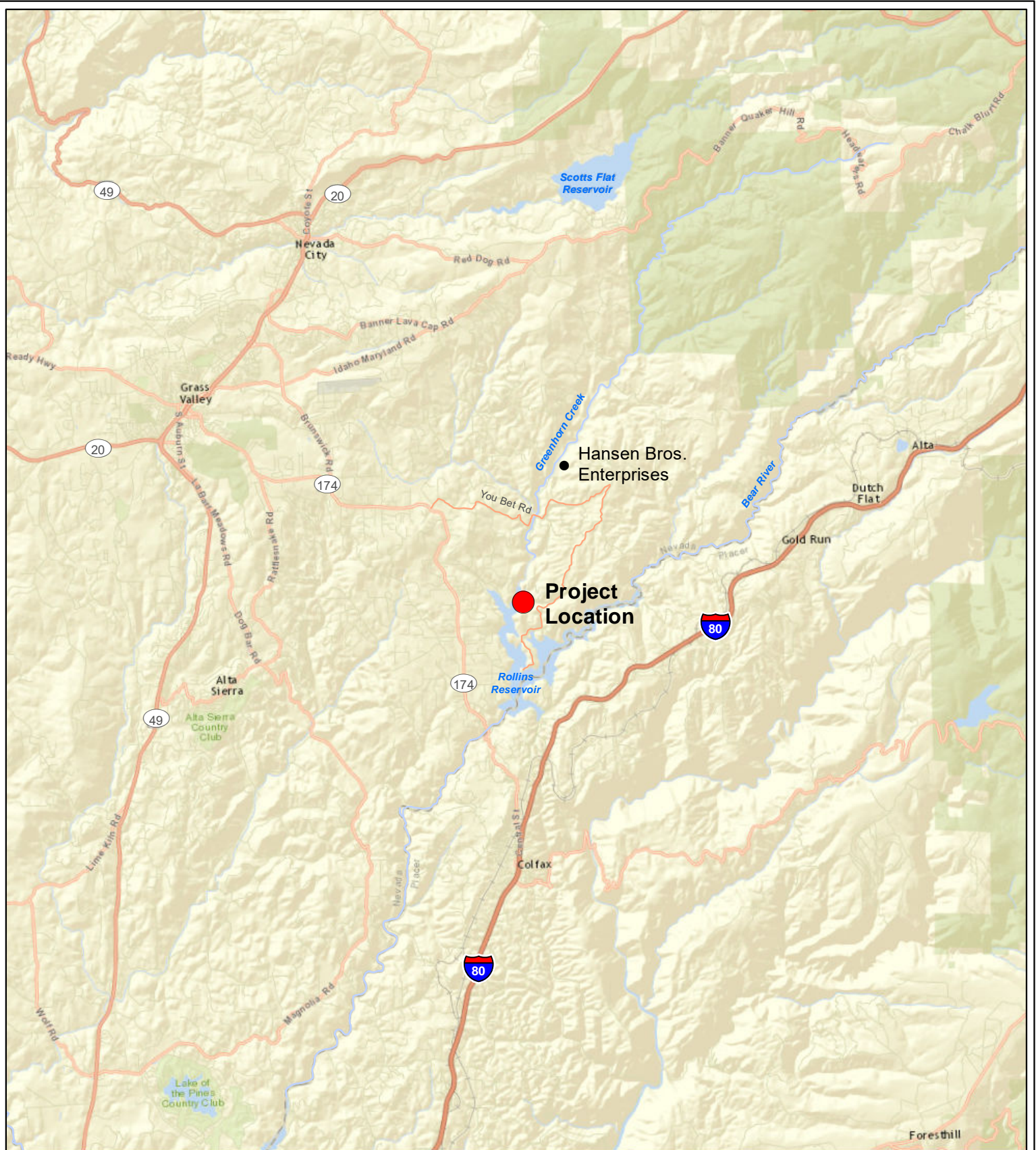
NID (as the lead agency) will prepare a Draft Environmental Impact Report (EIR) under CEQA that clearly demonstrates the future need for removal of sediment from the Greenhorn Arm of Rollins Reservoir and discloses potential environmental effects.

The Draft EIR will:

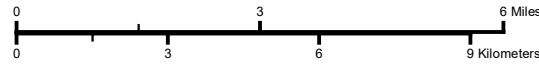
- Describe the environmental and regulatory setting;
- Evaluate a reasonable range of alternatives capable of avoiding or substantially lessening one or more of the Project's significant environmental effects;
- Identify thresholds of significance that will be used to evaluate the changes in the physical conditions;
- Evaluate the environmental effects of components of the Proposed Project, including direct, indirect, short-term, long-term, cumulative, and unavoidable impacts; and
- Propose mitigation measures to reduce significant impacts, should any be identified, to a less-than-significant level when possible.

ENVIRONMENTAL REVIEW

The initial step in the environmental review process is a formal public scoping period, for which this NOP has been prepared. During the public scoping period, NID will conduct a public meeting on June 1, 2017 to solicit comments on the proposed scope and content of the EIR. Following the public scoping period, a Draft EIR will be prepared and circulated for a 45-day public review period (CEQA Guidelines Section 15105). Public comments on the Draft EIR will be accepted in writing during the review period, or verbally at a public meeting to be held by NID. NID will subsequently prepare written responses to comments on environmental issues raised during the public review period and include these responses in the Final EIR. These documents will be considered by NID's Board of Directors (BOD), along with the Draft EIR, and any revisions to the draft based on the responses to comments, for certification as the Final EIR. Following the BOD's certification of the Final EIR, NID will prepare and file a Notice of Determination (NOD) to inform interested parties and responsible agencies that the Final EIR has been adopted pursuant to CEQA.



Project Location



1:150,000

Map 1: Project Vicinity

Greenhorn Sediment Removal
at Rollins Reservoir Project
Nevada County, CA

USGS 7.5' Quads:
Chicago Park, CA
T 15N, R 09E, Sections 2-3, 10-11

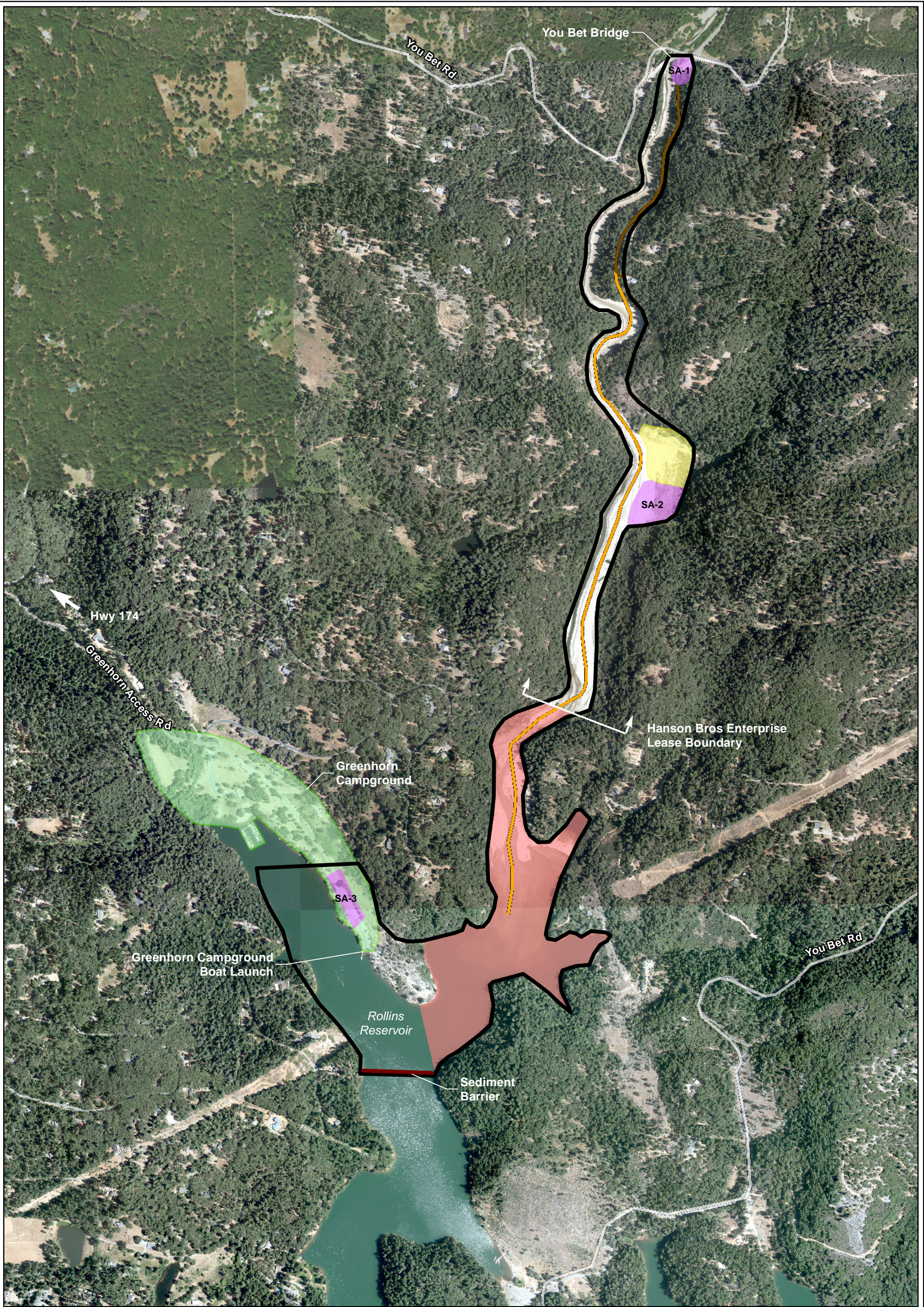
Map Prepared By A. Clare
11/18/2016



2300 Clayton Road, Suite 200 | tel (925) 935-9920
Concord, CA 94520 | fax (925) 935-5368

www.cardno.com

Map Projection : NAD 1983 UTM Zone 10N



Legend


	Project Site Boundary		Work Area
	Existing Haul Road		Staging Area
	New Haul Road		Stockpile Area
	Campground		

Map 2: Project Area

Greenhorn Sediment Removal at Rollins Reservoir Project
Nevada County, CA

USGS 7.5' Quads:
Chicago Park, CA
T 15N, R 09E, Sections 2-3, 10-11

Image Source: NID, 2016
Map Prepared By: A. Clare
3/1/2017



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Map Projection : NAD 1983 UTM Zone 10N



2014 Imagery (NAIP)



2016 Imagery (NID)

Figure 1: Extent of Sediment in the Greenhorn Arm of Rollins Reservoir

Greenhorn Sediment Removal at Rollins Reservoir Project
Nevada County, CA

USGS 7.5' Quads:
Chicago Park, CA
T 15N, R 09E, Sections 2-3, 10-11

Map Prepared By A. Clare
1/5/2017



1:5,138



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Map Projection : NAD 1983 UTM Zone 10N

Table 1. Construction Vehicles and Equipment.

Equipment	Quantity
Construction Vehicles	
Large Loader	2
Skid Steer Loader	1
Large Excavator	1
Medium Excavator	1
Small Excavator	2
Backhoe	2
Trackhoe	2
Scraper	3
Bulldozer	2
Compaction Equipment	
Large Vibratory Roller	1
Small Vibratory Roller	1
Hand Vibratory Compactor	1
Trucks	
Flat-bed Trucks	1
Pick-up Trucks	4
Delivery Trucks	2
Dump Truck/Yukes	4
Sweeper Truck	1
Water Truck	1
Other Construction Equipment	
Grizzly	1
Barge	1
Pile Driver	1
Chainsaw	3
Aeration Equipment	1-3
Oxygen Sensors	3-6

WO# 8515



Edmund G. Brown Jr.
Governor

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit



Ken Alex
Director

Notice of Preparation

May 19, 2017

To: Reviewing Agencies

Re: Greenhorn Sediment Removal at Rollins Reservoir Project
SCH# 2017052054

RECEIVED
MAY 24 2017
ENGINEERING
NEVADA IRRIGATION DISTRICT

Attached for your review and comment is the Notice of Preparation (NOP) for the Greenhorn Sediment Removal at Rollins Reservoir Project draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Gary D. King
Nevada Irrigation District
1036 W. Main Street
Grass Valley, CA 95945

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Morgan".

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

**Document Details Report
State Clearinghouse Data Base**

SCH# 2017052054
Project Title Greenhorn Sediment Removal at Rollins Reservoir Project
Lead Agency Nevada Irrigation District

Type NOP Notice of Preparation

Description The Nevada District, acting as Lead Agency under CEQA, will prepare an EIR for the Greenhorn Sediment Removal at Rollins Reservoir Project (Project). The objectives of the Project are as follows:

1. Restore and maintain the historic water storage capacity in the Greenhorn Arm of Rollins Reservoir and prevent further migration of suspended sediment from this arm into the main reservoir.
2. Maintain the water storage capacity in the Greenhorn Arm of Rollins Reservoir in perpetuity by conducting annual sediment maintenance activities to remove accumulated sediments which could enter the main reservoir during storm water flows.
3. Restore recreational opportunities in the Greenhorn Arm of Rollins Reservoir through the removal of accumulated sediment thereby increasing water depth and improving aquatic habitat and boating access.
4. Economically dispose of the sediment removed from the Greenhorn Arm of Rollins Reservoir.

Lead Agency Contact

Name Gary D. King
Agency Nevada Irrigation District
Phone 530-273-6185 x260 **Fax**
email
Address 1036 W. Main Street
City Grass Valley **State** CA **Zip** 95945

Project Location

County Nevada
City
Region
Cross Streets I-80, Hwy 174
Lat / Long 39° 11' 14.52" N / 120° 56' 30.77" W
Parcel No.

Township	Range	Section	Base
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Proximity to:

Highways 174, I-80
Airports
Railways
Waterways
Schools
Land Use

Project Issues Water Quality

Reviewing Agencies Resources Agency; Department of Boating and Waterways; Central Valley Flood Protection Board; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Wildlife, Region 2; Office of Emergency Services, California; Delta Protection Commission; Delta Stewardship Council; Native American Heritage Commission; State Lands Commission; California Highway Patrol; Caltrans, District 3 N; Air Resources Board, Transportation Projects; State Water Resources Control Board, Division of Drinking Water, District 5; State Water Resources Control Board, Division of Water Quality

Date Received 05/19/2017 **Start of Review** 05/19/2017 **End of Review** 06/19/2017

NOP Distribution List

SB

County: Nevada

SCH# 2017052054

Resources Agency

Resources Agency
Nadell Gayou

Dept. of Boating & Waterways
Denise Peterson

California Coastal Commission
Elizabeth A. Fuchs

Colorado River Board
Lisa Johansen

Dept. of Conservation
Crina Chan

Cal Fire
Dan Foster

Central Valley Flood Protection Board
James Herota

Office of Historic Preservation
Ron Parsons

Dept of Parks & Recreation
Environmental Stewardship Section

S.F. Bay Conservation & Dev't. Comm.
Steve Goldbeck

Dept. of Water Resources
Resources Agency
Nadell Gayou

Fish and Game

Depart. of Fish & Wildlife
Scott Flint
Environmental Services Division

Fish & Wildlife Region 1
Curt Babcock

Fish & Wildlife Region 1E
Laurie Harnsberger

Fish & Wildlife Region 2
Jeff Drongesen

Fish & Wildlife Region 3
Craig Weightman

Fish & Wildlife Region 4
Julie Vance

Fish & Wildlife Region 5
Leslie Newton-Reed
Habitat Conservation Program

Fish & Wildlife Region 6
Tiffany Ellis
Habitat Conservation Program

Fish & Wildlife Region 6 I/M
Heidi Calvert
Inyo/Mono, Habitat Conservation Program

Dept. of Fish & Wildlife M
William Paznokas
Marine Region

Other Departments

California Department of Education
Lesley Taylor

OES (Office of Emergency Services)
Monique Wilber

Food & Agriculture
Sandra Schubert
Dept. of Food and Agriculture

Dept. of General Services
Cathy Buck
Environmental Services Section

Housing & Comm. Dev.
CEQA Coordinator
Housing Policy Division

Independent

Commissions, Boards

Delta Protection Commission
Erik Vink

Delta Stewardship Council
Kevan Samsam

California Energy Commission
Eric Knight

Native American Heritage Comm.
Debbie Treadway

Public Utilities Commission
Supervisor

Santa Monica Bay Restoration
Guangyu Wang

State Lands Commission
Jennifer Deleong

Tahoe Regional Planning Agency (TRPA)
Cherry Jacques

Cal State Transportation Agency CalSTA

Caltrans - Division of Aeronautics
Philip Crimmins

Caltrans - Planning
HQ LD-IGR
Christian Bushong

California Highway Patrol
Suzann Ikeuchi
Office of Special Projects

Dept. of Transportation

Caltrans, District 1
Rex Jackman

Caltrans, District 2
Marcelino Gonzalez

Caltrans, District 3
Eric Federicks - South
Susan Zanchi - North

Caltrans, District 4
Patricia Maurice

Caltrans, District 5
Larry Newland

Caltrans, District 6
Michael Navarro

Caltrans, District 7
Dianna Watson

Caltrans, District 8
Mark Roberts

Caltrans, District 9
Gayle Rosander

Caltrans, District 10
Tom Dumas

Caltrans, District 11
Jacob Armstrong

Caltrans, District 12
Maureen El Harake

Cal EPA

Air Resources Board

Airport & Freight
Jack Wursten

Transportation Projects
Nesamani Kalandiyur

Industrial/Energy Projects
Mike Tollstrup

California Department of Resources, Recycling & Recovery
Sue O'Leary

State Water Resources Control Board
Regional Programs Unit
Division of Financial Assistance

State Water Resources Control Board
Cindy Forbes - Asst Deputy
Division of Drinking Water

State Water Resources Control Board
Div. Drinking Water # SS

State Water Resources Control Board
Student Intern, 401 Water Quality Certification Unit
Division of Water Quality

State Water Resources Control Board
Phil Crader
Division of Water Rights

Dept. of Toxic Substances Control
CEQA Tracking Center

Department of Pesticide Regulation

Regional Water Quality Control Board (RWQCB)

RWQCB 1
Cathleen Hudson
North Coast Region (1)

RWQCB 2
Environmental Document Coordinator
San Francisco Bay Region (2)

RWQCB 3
Central Coast Region (3)

RWQCB 4
Teresa Rodgers
Los Angeles Region (4)

RWQCB 5S
Central Valley Region (5)

RWQCB 5F
Central Valley Region (5)
Fresno Branch Office

RWQCB 5R
Central Valley Region (5)
Redding Branch Office

RWQCB 6
Lahontan Region (6)

RWQCB 6V
Lahontan Region (6)
Victorville Branch Office

RWQCB 7
Colorado River Basin Region (7)

RWQCB 8
Santa Ana Region (8)

RWQCB 9
San Diego Region (9)

Other _____

Conservancy

NOTICE OF PREPARATION

To: Office of Planning and Research;
State Clearinghouse; Responsible
and Trustee Agencies; Federal
Agencies; Organizations; and
Interested Parties

From: Gary King
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945

Subject: Notice of Preparation of a Draft Environmental Impact Report

Nevada Irrigation District will be the Lead Agency and will prepare an Environmental Impact Report (EIR) for the Greenhorn Sediment Removal at Rollins Reservoir Project (Project). We need to know the views of your agency as to the scope and content of the Proposed Project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the Project.

The Project description, location, and the potential environmental effects are contained in the attached materials. A copy of the Initial Study is not attached.

Due to the time limits mandated by state law, your response must be sent at the earliest possible date, but not later than thirty (30) days after receipt of this notice.

Please send your response to Kris Stepanian via e-mail at stepaniank@nidwater.com or regular mail to the address shown above. We will need the name for a contact person in your agency.

Project Title: Greenhorn Sediment Removal at Rollins Reservoir Project

Project Applicant, if any: Nevada Irrigation District

Date: May 17, 2017

Signature: 
Gary D. King

Title: Engineering Manager

Telephone: 530-273-6185 ext. 260

POSTED IN THE NEVADA
COUNTY CLERKS OFFICE
FROM 5/17/17 TO 6/17/17
BY 18 (DEPUTY)

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GREGORY J. DIAZ
NEVADA COUNTY
CLERK-RECORDER
2017 MAY 17 P 4: 04
18, DEPUTY
FRG 12



Gregory J. Diaz,
 Recorder
 950 Maidu Avenue
 Nevada City, CA 95959
 530-265-1221

Nevada County Transaction #: **156547**
 Receipt #: **152214**
 Cashier Date: **5/17/2017 4:11:22 PM (KP)**
 Scan the QR Code to search our services
 or go to www.mynevadacounty.com/nc/recorder

156547

Print Date:
 5/17/2017 4:11:22
 PM



Customer Information	Transaction Information	Payment Summary
(NID) NEVADA IRRIGATION DIST 1036 WEST MAIN ST GRASS VALLEY, CA 95945	DateReceived: 05/17/2017 Source Code: Over The Counter Q Code: Over The Counter Return Code: Mail Trans Type: Recording Agent Ref Num:	Total Fees \$0.00 Total Payments \$0.00

1 Payments
<u>NOCHARGE</u>

0 Recorded Items

0 Search Items

2 Miscellaneous Items		
(FNG) FNG GREENHORN SEDIMENT REMOVAL AT ROLLINS RESERVOIR PROJECT		
(CEQA LETTER) CEQA Filing Letter NEVADA IRRIGATION DIST		
No Charge	1	\$0.00

NATIVE AMERICAN HERITAGE COMMISSION

Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone (916) 373-3710
Fax (916) 373-5471
Email: nahc@nahc.ca.gov
Website: <http://www.nahc.ca.gov>
Twitter: @CA_NAHC

8515



May 24, 2017

Gary D. King
Nevada Irrigation District
1036 W. Main Street
Grass Valley, CA 95945

RE: SCH#2017052054 Greenhorn Sediment Removal at Rollins Reservoir Project, Nevada County

Dear Mr. King:

The Native American Heritage Commission has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et seq.), specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, § 15064.5 (b) (CEQA Guidelines Section 15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an environmental impact report (EIR) shall be prepared. (Pub. Resources Code § 21080 (d); Cal. Code Regs., tit. 14, § 15064 subd.(a)(1) (CEQA Guidelines § 15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code § 21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code § 21084.3 (a)). **AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. § 800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments. **Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.**

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
 - a. A brief description of the project.
 - b. The lead agency contact information.
 - c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code § 21080.3.1 (d)).
 - d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code § 21073).
2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code § 21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or environmental impact report. (Pub. Resources Code § 21080.3.1(b)).
 - a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code § 65352.4 (SB 18). (Pub. Resources Code § 21080.3.1 (b)).
3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
 - a. Alternatives to the project.
 - b. Recommended mitigation measures.
 - c. Significant effects. (Pub. Resources Code § 21080.3.2 (a)).
4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
 - a. Type of environmental review necessary.
 - b. Significance of the tribal cultural resources.
 - c. Significance of the project's impacts on tribal cultural resources.
 - d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code § 21080.3.2 (a)).
5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code sections 6254 (r) and 6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code § 21082.3 (c)(1)).
6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
 - a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
 - b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code section 21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code § 21082.3 (b)).
7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

- a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
 - b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code § 21080.3.2 (b)).
8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code section 21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code section 21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code § 21082.3 (a)).
9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code section 21084.3 (b). (Pub. Resources Code § 21082.3 (e)).
10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
- a. Avoidance and preservation of the resources in place, including, but not limited to:
 - i. Planning and construction to avoid the resources and protect the cultural and natural context.
 - ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
 - b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - i. Protecting the cultural character and integrity of the resource.
 - ii. Protecting the traditional use of the resource.
 - iii. Protecting the confidentiality of the resource.
 - c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
 - d. Protecting the resource. (Pub. Resource Code § 21084.3 (b)).
 - e. Please note that a federally recognized California Native American tribe or a nonfederally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code § 815.3 (c)).
 - f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code § 5097.991).
11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An environmental impact report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
- a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 21080.3.2.
 - b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
 - c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code section 21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code § 21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code § 65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. **Tribal Consultation**: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code § 65352.3 (a)(2)).
2. **No Statutory Time Limit on SB 18 Tribal Consultation**. There is no statutory time limit on SB 18 tribal consultation.
3. **Confidentiality**: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code section 65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code sections 5097.9 and 5097.993 that are within the city's or county's jurisdiction. (Gov. Code § 65352.3 (b)).
4. **Conclusion of SB 18 Tribal Consultation**: Consultation should be concluded at the point in which:
 - a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
 - b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: <http://nahc.ca.gov/resources/forms/>

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
 - a. If part or all of the APE has been previously surveyed for cultural resources.
 - b. If any known cultural resources have been already been recorded on or adjacent to the APE.
 - c. If the probability is low, moderate, or high that cultural resources are located in the APE.
 - d. If a survey is required to determine whether previously unrecorded cultural resources are present.
2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
 - a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
 - b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
 - a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
 - b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.
4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
 - a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, section 15064.5(f) (CEQA Guidelines section 15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
 - b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
 - c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subs. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions, please contact me at my email address: frank.lienert@nahc.ca.gov

Sincerely,



for Frank Lienert
Associate Governmental Program Analyst

cc: State Clearinghouse



MIWOK United Auburn Indian Community
 MAIDU of the Auburn Rancheria

Gene Whitehouse
 Chairman

John L. Williams
 Vice Chairman

Calvin Moman
 Secretary

Jason Camp
 Treasurer

Gabe Cayton
 Council Member

RECEIVED

JUN 15 2017

ENGINEERING
 NEVADA IRRIGATION DISTRICT

May 30, 2017

Gary D. King
 Nevada Irrigation District
 1036 W. Main Street
 Grass Valley, CA 95945

Subject: Notice of Preparation of a Draft EIR for the Greenhorn Sediment Removal at Rollins Reservoir Project

Dear Gary D. King,

Thank you for requesting information regarding the above referenced project. The United Auburn Indian Community (UAIC) of the Auburn Rancheria is comprised of Miwok and Southern Maidu (Nisenan) people whose tribal lands are within Placer County and whose service area includes El Dorado, Nevada, Placer, Sacramento, Sutter, and Yuba counties. The UAIC is concerned about development within its aboriginal territory that has potential to impact the lifeways, cultural sites, and landscapes that may be of sacred or ceremonial significance. We appreciate the opportunity to comment on this and other projects. The UAIC would like to consult on this project.

In order to ascertain whether the project could affect cultural resources that may be of importance to the UAIC, we would like to receive copies of any archaeological reports that are completed for the project. We also request copies of environmental documents for the proposed project so that we have the opportunity to comment on appropriate identification, assessment and mitigation related to cultural resources. We recommend UAIC tribal representatives observe and participate in all cultural resource surveys. If you are interested, the UAIC's preservation department offers a mapping, records and literature search services program that has been shown to assist project proponents in complying with the necessary resource laws and choosing the appropriate mitigation measures or form of environmental documentation during the planning process.

The UAIC's preservation committee would like to set up a meeting or site visit, and begin consulting on the proposed project. Based on the preservation committee's identification of cultural resources in and around your project area, UAIC recommends that a tribal monitor be present during any ground disturbing activities. Thank you again for taking these matters into consideration, and for involving the UAIC early in the planning process. We look forward to reviewing the documents requested above and consulting on your project. Please contact Marcos Guerrero, Cultural Resources Manager, at (530) 883-2364 or by email at mguerrero@auburnrancheria.com if you have any questions.

Sincerely,

Gene Whitehouse,
 Chairman

CC: Marcos Guerrero, CRM



MIWOK United Auburn Indian Community
 MAIDU of the Auburn Rancheria

Gene Whitehouse
 Chairman

John L. Williams
 Vice Chairman

Calvin Moman
 Secretary

Jason Camp
 Treasurer

Gabe Cayton
 Council Member

RECEIVED

JUN 15 2017

ENGINEERING
 NEVADA IRRIGATION DISTRICT

May 30, 2017

Gary D. King
 Engineering Manager
 Nevada Irrigation District
 1036 W. Main Street
 Grass Valley, CA 95945

RE: AB 52 Consultation Request for the Proposed Greenhorn Sediment Removal at Rollins Reservoir Project, Nevada County, CA

Dear Engineering Manager Gary D. King,

The United Auburn Indian Community (UAIC) received a letter from the Nevada Irrigation District dated 5/17/2017, formally notifying us of a proposed project, the Greenhorn Sediment Removal at Rollins Reservoir Project in Nevada County, and an opportunity to consult under AB 52. This letter is notice that UAIC would like to initiate consultation under AB 52.

We would like to discuss the topics listed in Cal. Public Resources Code section 21080.3.2(a), including the type of environmental review to be conducted for the project; project alternatives; the project's significant effects; and mitigation measures for any direct, indirect, or cumulative impacts the project may cause to tribal cultural resources. As consultation progresses, we may also wish to discuss design options that would avoid impacts to tribal cultural resources; the scope of any environmental document that is prepared for the project; pre-project surveys; and tribal cultural resource identification, significance evaluations and culturally-appropriate treatment.

This letter is also a formal request to allow UAIC tribal representatives to observe and participate in all cultural resource surveys, including initial pedestrian surveys for the project. Please send us all existing cultural resource assessments, as well as requests for, and the results of, any records searches that may have been conducted prior to our first consultation meeting. If tribal cultural resources are identified within the project area, it is UAIC's policy that tribal monitors must be present for all ground disturbing activities. Finally, please be advised that UAIC's strong preference is to preserve tribal cultural resources in place and avoid them whenever possible. Subsurface testing and data recovery must not occur without first consulting with UAIC and receiving UAIC's written consent.

In the letter Engineering Manager Gary D. King is identified as the lead contact person for consultation on the proposed project. Marcos Guerrero, our Cultural Resources Manager, will be UAIC's point of contact for this consultation. Please contact Mr. Guerrero by phone at (530) 883-2364 or email at mguerrero@auburnrancheria.com to begin the consultation process.

Thank you for involving UAIC in the planning process at an early stage. We ask that you make this letter a part of the project record and we look forward to working with you to ensure that tribal cultural resources are protected.

Sincerely,

A handwritten signature in blue ink, appearing to read "Gene Whitehouse". The signature is fluid and cursive, with a large loop at the end.

Gene Whitehouse,
Chairman

CC: Matthew Moore, UAIC Tribal Historic Preservation Officer
Marcos Guerrero, UAIC Cultural Resources Manager



Nevada City Rancheria Tribal Council

P.O. Box 574 Grass Valley, Ca. 95945

530-265-6563 (Chairman) 530-570-0846 (Secretary)

June 1, 2017

To Nevada Irrigation District:

Nevada City Rancheria would like to request consultation in the upcoming Greenhorn Sediment Removal project. We have seen the NOP and would like to officially request Tribal consultation on this project as it is within the ancestral homelands of the Nevada City Rancheria Nisenan Tribe.

Thank you,

Shelly Covert – Nevada City Rancheria

Chairman: Richard Johnson

Vice Chair: Virginia Covert

Secretary: Shelly Covert

Treasurer: Lorena Davis

Alt: Sarah Thomas

Mal: Saxon Thomas



EDMUND G. BROWN JR.
GOVERNOR



MATTHEW RODRIGUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

RECEIVED

JUN 14 2017

ENGINEERING
NEVADA IRRIGATION DISTRICT

Central Valley Regional Water Quality Control Board

12 June 2017

Gary D. King
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945

CERTIFIED MAIL
91 7199 9991 7036 6990 6989

COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, GREENHORN SEDIMENT REMOVAL AT ROLLINS RESERVOIR PROJECT, SCH# 2017052054, NEVADA COUNTY

Pursuant to the State Clearinghouse's 19 May 2017 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Draft Environment Impact Report* for the Greenhorn Sediment Removal at Rollins Reservoir Project, located in Nevada County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases,

the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues.

For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/.

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Policy is available on page IV-15.01 at:
http://www.waterboards.ca.gov/centralvalleywater_issues/basin_plans/sacsjr.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan

(SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits¹

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

For more information on the Caltrans Phase I MS4 Permit, visit the State Water Resources Control Board at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/caltrans.shtml.

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

¹ Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACOE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance (i.e., discharge of dredge or fill material) of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

Waste Discharge Requirements

Discharges to Waters of the State

If USACOE determines that only non-jurisdictional waters of the State (i.e., “non-federal” waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

Land Disposal of Dredge Material

If the project will involve dredging, Water Quality Certification for the dredging activity and Waste Discharge Requirements for the land disposal may be needed.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Risk General Order) 2003-0003 or the Central Valley Water Board’s

Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Risk Waiver) R5-2013-0145. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Risk General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Risk Waiver and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2013-0145_res.pdf

Regulatory Compliance for Commercially Irrigated Agriculture

If the property will be used for commercial irrigated agricultural, the discharger will be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program. There are two options to comply:

1. **Obtain Coverage Under a Coalition Group.** Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/app_approval/index.shtml; or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.
2. **Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order R5-2013-0100.** Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State administrative fees (for example, annual fees for farm sizes from 10-100 acres are currently \$1,084 + \$6.70/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at IrrLands@waterboards.ca.gov.

Low or Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Dewatering and Other Low Threat Discharges to Surface Waters* (Low Threat General Order) or the General Order for *Limited Threat Discharges of Treated/Untreated Groundwater from Cleanup Sites, Wastewater from Superchlorination Projects, and Other Limited Threat Wastewaters to Surface Water* (Limited Threat General Order). A complete application must be submitted to the Central Valley Water Board to obtain coverage under these General NPDES permits.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0074.pdf

For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0073.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of the waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit.

For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/help/business_help/permit3.shtml

If you have questions regarding these comments, please contact me at (916) 464-4644 or Stephanie.Tadlock@waterboards.ca.gov.



Stephanie Tadlock
Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

RECEIVED

JUN 15 2017

ENGINEERING
NEVADA IRRIGATION DISTRICT

June 12, 2017

Dr. Gary King
Engineering Manager
Nevada Irrigation District
1036 West Main St.
Grass Valley, CA. 95945

Subject: Greenhorn Sediment Removal at Rollins Reservoir Project

Dear Dr. King:

I applaud NID for their efforts to finally start a project to remove the silt from Greenhorn Creek. I have met with NID since the early 2000s, made several presentations to the board, and discussed this issue with past and present General Managers and other staff on numerous occasions.

However, after reading the NOP we recently received in the mail, and my having missed the meeting due to being out of town, I want to express several concerns:

- I trust this is a “real project,” and not just a formal excuse to extend Hanson Brothers (HBE) sand/gravel operation further down the creek. I am fully aware of the “good ole boy relationship” of HBE senior management with past NID top management. After seeing HBE “environmentally ravage the upper Greenhorn,” which in my opinion is a large part of the problem, mining sand/gravel in the summer, disturbing the creek bed, and then storing sand to wash downstream during the winter (and I have photos to prove it), one has to be suspicious. I hope I am wrong.
- Last summer I took a friend, retired Chief Engineer of Orange County, CA, to see what HBE was doing just below You Bet Bridge. His comment was, “they are just doing what’s easy.” I hope the currently proposed project is more serious. The equipment list doesn’t look very large.
- Since Rollins Reservoir has a designated purpose of recreation, the public who live nearby and boat on the lake and use Greenhorn Access Road, insist that no large trucks will use this road to move material. Your NOP says all material will move up and down the access road built in the stream bed. Stick to your word.
- Noise: I realize noise will be an issue, but please limit it. We and all our neighbors live within 300+/- feet of the creek.

Finally, I wish you and NID success on this project.



Art Meares
14203 Frederick Way
Grass Valley, CA 95945
530 273-8447

cc: NID Board Members



COUNTY OF NEVADA
COMMUNITY DEVELOPMENT AGENCY
DEPARTMENT OF PUBLIC WORKS
950 MAIDU AVENUE, NEVADA CITY, CA 95959-8617
(530) 265-1411 FAX (530) 265-9849 www.mynevadacounty.com

Sean Powers
Community Development Agency Director

Trisha Tillotson
Director of Public Works

July 15, 2017

Attn: Gary King
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945

RECEIVED
JUN 19 2017
ENGINEERING
NEVADA IRRIGATION DISTRICT

Re: Greenhorn Sediment Removal at Rollins Reservoir Project

Dear Mr. King:

Thank you for the opportunity to comment on NID's Notice of Preparation (NOP) of a Draft Environmental Impact Report (EIR) for the proposed Greenhorn Sediment Removal at Rollins Reservoir Project (Project). Nevada County received the NOP for the Project on May 19, 2017. The Project will remove sediment from the Greenhorn arm of Rollins Reservoir and prevent further migration of suspended sediment from this arm into the main reservoir. Removal of materials will occur annually to remove accumulated sediments entering the reservoir during the wet season. After removal, materials will be processed using a grizzly and screens to sort the material into various sizes of aggregate. Hansen Brothers Enterprises will contract to conduct the sediment removal and processing. Approximately 30 percent of the material will be processed at Hansen Brothers' permitted Greenhorn Creek facility.

The Nevada County Public Works Department requests that the following issues be addressed in the Draft EIR for the Greenhorn Sediment Removal at Rollins Reservoir Project:


1. Trip Generation: The EIR should evaluate the number of new trips generated by this proposed use in order for the County to determine the traffic impact fees applicable to the project.
2. Traffic Data: The traffic data prepared for the project should include an evaluation of impacts to local roads and intersections. Currently, You Bet Road is at Level of Service A.
3. Road Shoulder Maintenance: Given that heavy equipment will be used to access the Project haul road and the Hansen Gravel Road (for processing), the County's road shoulders in these locations at You Bet Road will likely be impacted. Please evaluate this impact and provide mitigation as necessary, which could include documentation of the shoulder prior to the project and repair of the shoulder as needed on an ongoing basis. Additionally, the County recommends that the contractor be responsible for ensuring that gravel, sand, soil, and other

debris from the project site is removed promptly from the County roadbed and shoulders for the life of project operations.

4. Sight Distance: The EIR should address the available sight distance for project traffic egressing from the staging area/haul road onto You Bet Road or the Hansen Gravel Road and provide any mitigation necessary to remedy any sight distance issues to County standards.
5. Staging Area 1: It appears from a review of NOP Map 2 and Record of Survey 12-52 that Staging Area 1 may be located within the County right of way (ROW). No permanent structures, improvements, or staging are typically permitted in the County ROW. Please clarify how Staging Area 1 will be used and whether it is in the ROW. Be advised that if there are temporary uses of the ROW or construction for project improvements (such as driveway improvements) that must occur for the project, an encroachment permit would be required.

If you have any questions, please contact me at 265-1254 or Jessica.Hankins@co.nevada.ca.us.

Sincerely,



Jessica Hankins
Public Works Project Manager

APPENDIX B
Air Quality Emissions Modeling

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Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

**Greenhorn Sed Removal at Rollins Reservoir - 50k
Nevada County, Summer**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	3.00	Acre	3.00	130,680.00	0
User Defined Recreational	49.70	User Defined Unit	49.70	2,164,932.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	80
Climate Zone	1			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

Project Characteristics - The construction emissions represents the operational emissions since the project will be implemented annually as maintenance.

Land Use - Acreage taken from CEQA Project Description for areas of disturbance.

Construction Phase - Construction details based on CEQA Project Description information. Sorting and Offsite Transport are split into two separate construction phases while Channelizing Creek Bed and Excavate Dewatering Channel are combined.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - No construction equipment usage. Haul trips only.

Off-road Equipment - No construction equipment usage. Haul trip only during this phase.

Off-road Equipment - No construction equipment usage. Haul trips only.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Trips and VMT - Assumptions: 20 haul trips to mobilize/demobilize equipment, ~3,333 haul trips to remove 50k tons of sediment with 15 ton capacity truck, 6 daily vendor trips, and 6 workers will commute daily averaging 40 miles roundtrip.

On-road Fugitive Dust - The only known unpaved road is the road entering into the site from You Bet Road.

Grading -

Energy Use -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
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tblConstructionPhase	NumDays	40.00	9.00
tblConstructionPhase	NumDays	110.00	6.00
tblConstructionPhase	NumDays	110.00	9.00
tblConstructionPhase	NumDays	40.00	105.00
tblConstructionPhase	NumDays	40.00	105.00

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

tblConstructionPhase	NumDays	110.00	105.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblLandUse	LandUseSquareFeet	0.00	2,164,932.00
tblLandUse	LotAcreage	0.00	49.70
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

tbloffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
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tbloffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
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tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
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tbloffRoadEquipment	PhaseName		Site Preparation-Sediment Stockpiling
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tbloffRoadEquipment	PhaseName		Site Preparation-Sorting
tbloffRoadEquipment	PhaseName		Site Preparation-Sorting
tbloffRoadEquipment	PhaseName		Site Preparation-Sediment Stockpiling
tbloffRoadEquipment	PhaseName		Site Preparation-Sorting
tbloffRoadEquipment	PhaseName		Grading-New Haul Road
tbloffRoadEquipment	PhaseName		Grading-Channelize Creek and Excavate Channel
tbloffRoadEquipment	PhaseName		Site Preparation-Sediment Stockpiling
tbloffRoadEquipment	UsageHours	8.00	0.00
tbloffRoadEquipment	UsageHours	8.00	0.00

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
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tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
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tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
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Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

tblTripsAndVMT	HaulingTripNumber	0.00	20.00
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tblTripsAndVMT	VendorTripNumber	0.00	6.00
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tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00

2.0 Emissions Summary

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	60.1471	5.0000e-005	5.4200e-003	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005	0.0000	0.0123

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	60.1471	5.0000e-005	5.4200e-003	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005	0.0000	0.0123

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation-Sorting	Site Preparation	7/1/2019	11/29/2019	6	131	Phase 2 Sorting
2	Site Preparation-Mobilization	Site Preparation	7/1/2019	7/10/2019	6	9	Phase 1 Mobilization
3	Grading-New Haul Road	Grading	7/15/2019	7/20/2019	6	6	Phase 1 Establish New Haul Road
4	Grading-Channelize Creek and Excavate Channel	Grading	7/21/2019	7/31/2019	6	9	Phase 1 Channelize Creek Bed and Excavate Dewatering Channel
5	Site Preparation-Sediment Stockpiling	Site Preparation	8/1/2019	11/30/2019	6	105	Phase 2 Transport to Stockpile
6	Site Preparation-Offsite Transport	Site Preparation	8/1/2019	11/30/2019	6	105	Phase 2 Offsite Transport
7	Grading-Conduct Sediment Removal	Grading	8/1/2019	11/30/2019	6	105	Phase 2 Conduct Sediment Removal
8	Site Preparation-Demobilization	Site Preparation	11/15/2019	12/31/2019	6	40	Phase 3 Demobilization

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 3

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation-Sorting	Crushing/Proc. Equipment	1	8.00	85	0.78

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

Site Preparation-Sorting	Dumpers/Tenders	1	8.00	16	0.38
Site Preparation-Sorting	Excavators	1	8.00	158	0.38
Site Preparation-Sorting	Generator Sets	2	8.00	84	0.74
Site Preparation-Sorting	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation-Sorting	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation-Mobilization	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Mobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Grading-New Haul Road	Crawler Tractors	1	8.00	212	0.43
Grading-New Haul Road	Excavators	1	8.00	158	0.38
Grading-New Haul Road	Graders	0	0.00	187	0.41
Grading-New Haul Road	Rollers	2	8.00	80	0.38
Grading-New Haul Road	Rubber Tired Dozers	0	0.00	247	0.40
Grading-New Haul Road	Scrapers	2	8.00	367	0.48
Grading-New Haul Road	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading-Channelize Creek and Excavate Channel	Excavators	3	8.00	158	0.38
Grading-Channelize Creek and Excavate Channel	Graders	0	0.00	187	0.41
Grading-Channelize Creek and Excavate Channel	Rubber Tired Dozers	0	0.00	247	0.40
Grading-Channelize Creek and Excavate Channel	Scrapers	0	0.00	367	0.48
Grading-Channelize Creek and Excavate Channel	Skid Steer Loaders	1	8.00	65	0.37
Grading-Channelize Creek and Excavate Channel	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation-Sediment Stockpiling	Crawler Tractors	1	8.00	212	0.43
Site Preparation-Sediment Stockpiling	Excavators	1	8.00	158	0.38
Site Preparation-Sediment Stockpiling	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Sediment Stockpiling	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation-Sediment Stockpiling	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation-Offsite Transport	Rubber Tired Dozers	0	0.00	247	0.40

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

Site Preparation-Offsite Transport	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Grading-Conduct Sediment Removal	Excavators	2	8.00	158	0.38
Grading-Conduct Sediment Removal	Graders	0	0.00	187	0.41
Grading-Conduct Sediment Removal	Rubber Tired Dozers	0	0.00	247	0.40
Grading-Conduct Sediment Removal	Scrapers	2	8.00	367	0.48
Grading-Conduct Sediment Removal	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation-Demobilization	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Demobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation-Sorting	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Mobilization	0	0.00	0.00	20.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT
Grading-New Haul Road	9	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Grading-Channelize Creek and Excavate C	6	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Sediment Stockpiling	4	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Offsite Transport	0	0.00	0.00	3,333.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT
Grading-Conduct Sediment Removal	6	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Demobilization	0	0.00	0.00	20.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

3.2 Site Preparation-Sorting - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8292	14.8473	15.3323	0.0261		0.8807	0.8807		0.8704	0.8704		2,482.665 2	2,482.665 2	0.3010		2,490.189 6
Total	1.8292	14.8473	15.3323	0.0261	0.0000	0.8807	0.8807	0.0000	0.8704	0.8704		2,482.665 2	2,482.665 2	0.3010		2,490.189 6

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

3.2 Site Preparation-Sorting - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8292	14.8473	15.3323	0.0261		0.8807	0.8807		0.8704	0.8704	0.0000	2,482.665 1	2,482.665 1	0.3010		2,490.189 6
Total	1.8292	14.8473	15.3323	0.0261	0.0000	0.8807	0.8807	0.0000	0.8704	0.8704	0.0000	2,482.665 1	2,482.665 1	0.3010		2,490.189 6

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

3.3 Site Preparation-Mobilization - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0338	1.0748	0.1731	3.3500e-003	0.0778	5.6900e-003	0.0835	0.0213	5.4400e-003	0.0268		352.2569	352.2569	9.2400e-003		352.4880
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0338	1.0748	0.1731	3.3500e-003	0.0778	5.6900e-003	0.0835	0.0213	5.4400e-003	0.0268		352.2569	352.2569	9.2400e-003		352.4880

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

3.3 Site Preparation-Mobilization - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0338	1.0748	0.1731	3.3500e-003	0.0778	5.6900e-003	0.0835	0.0213	5.4400e-003	0.0268		352.2569	352.2569	9.2400e-003		352.4880
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0338	1.0748	0.1731	3.3500e-003	0.0778	5.6900e-003	0.0835	0.0213	5.4400e-003	0.0268		352.2569	352.2569	9.2400e-003		352.4880

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

3.4 Grading-New Haul Road - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6513	0.0000	2.6513	0.2863	0.0000	0.2863			0.0000			0.0000
Off-Road	4.1531	47.9975	32.6883	0.0579		2.2056	2.2056		2.0291	2.0291		5,730.0306	5,730.0306	1.8129		5,775.3536
Total	4.1531	47.9975	32.6883	0.0579	2.6513	2.2056	4.8568	0.2863	2.0291	2.3154		5,730.0306	5,730.0306	1.8129		5,775.3536

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0665	1.4690	0.3297	4.0800e-003	3.6416	0.0160	3.6576	0.3840	0.0153	0.3994		427.2774	427.2774	0.0138		427.6222
Worker	0.0890	0.0757	0.8056	1.8400e-003	7.2433	1.1900e-003	7.2445	0.7525	1.1000e-003	0.7536		182.7011	182.7011	7.3000e-003		182.8835
Total	0.1555	1.5446	1.1354	5.9200e-003	10.8848	0.0172	10.9020	1.1365	0.0164	1.1529		609.9785	609.9785	0.0211		610.5057

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

3.4 Grading-New Haul Road - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1931	0.0000	1.1931	0.1288	0.0000	0.1288			0.0000			0.0000
Off-Road	4.1531	47.9975	32.6883	0.0579		2.2056	2.2056		2.0291	2.0291	0.0000	5,730.0306	5,730.0306	1.8129		5,775.3536
Total	4.1531	47.9975	32.6883	0.0579	1.1931	2.2056	3.3986	0.1288	2.0291	2.1579	0.0000	5,730.0306	5,730.0306	1.8129		5,775.3536

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0665	1.4690	0.3297	4.0800e-003	2.2720	0.0160	2.2880	0.2471	0.0153	0.2624		427.2774	427.2774	0.0138		427.6222
Worker	0.0890	0.0757	0.8056	1.8400e-003	4.5042	1.1900e-003	4.5054	0.4786	1.1000e-003	0.4797		182.7011	182.7011	7.3000e-003		182.8835
Total	0.1555	1.5446	1.1354	5.9200e-003	6.7762	0.0172	6.7934	0.7256	0.0164	0.7421		609.9785	609.9785	0.0211		610.5057

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

3.5 Grading-Channelize Creek and Excavate Channel - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3324	13.8469	15.7851	0.0238		0.7517	0.7517		0.6916	0.6916		2,353.073 1	2,353.073 1	0.7445		2,371.685 3
Total	1.3324	13.8469	15.7851	0.0238	0.0000	0.7517	0.7517	0.0000	0.6916	0.6916		2,353.073 1	2,353.073 1	0.7445		2,371.685 3

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0665	1.4690	0.3297	4.0800e-003	3.6416	0.0160	3.6576	0.3840	0.0153	0.3994		427.2774	427.2774	0.0138		427.6222
Worker	0.0890	0.0757	0.8056	1.8400e-003	7.2433	1.1900e-003	7.2445	0.7525	1.1000e-003	0.7536		182.7011	182.7011	7.3000e-003		182.8835
Total	0.1555	1.5446	1.1354	5.9200e-003	10.8848	0.0172	10.9020	1.1365	0.0164	1.1529		609.9785	609.9785	0.0211		610.5057

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

3.5 Grading-Channelize Creek and Excavate Channel - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3324	13.8469	15.7851	0.0238		0.7517	0.7517		0.6916	0.6916	0.0000	2,353.073 1	2,353.073 1	0.7445		2,371.685 3
Total	1.3324	13.8469	15.7851	0.0238	0.0000	0.7517	0.7517	0.0000	0.6916	0.6916	0.0000	2,353.073 1	2,353.073 1	0.7445		2,371.685 3

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0665	1.4690	0.3297	4.0800e-003	2.2720	0.0160	2.2880	0.2471	0.0153	0.2624		427.2774	427.2774	0.0138		427.6222
Worker	0.0890	0.0757	0.8056	1.8400e-003	4.5042	1.1900e-003	4.5054	0.4786	1.1000e-003	0.4797		182.7011	182.7011	7.3000e-003		182.8835
Total	0.1555	1.5446	1.1354	5.9200e-003	6.7762	0.0172	6.7934	0.7256	0.0164	0.7421		609.9785	609.9785	0.0211		610.5057

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

3.6 Site Preparation-Sediment Stockpiling - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	1.1884	14.1399	9.5357	0.0182		0.6385	0.6385		0.5874	0.5874		1,800.563 1	1,800.563 1	0.5697		1,814.805 0
Total	1.1884	14.1399	9.5357	0.0182	0.5303	0.6385	1.1687	0.0573	0.5874	0.6446		1,800.563 1	1,800.563 1	0.5697		1,814.805 0

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

3.6 Site Preparation-Sediment Stockpiling - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	1.1884	14.1399	9.5357	0.0182		0.6385	0.6385		0.5874	0.5874	0.0000	1,800.563 1	1,800.563 1	0.5697		1,814.805 0
Total	1.1884	14.1399	9.5357	0.0182	0.2386	0.6385	0.8771	0.0258	0.5874	0.6131	0.0000	1,800.563 1	1,800.563 1	0.5697		1,814.805 0

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

3.7 Site Preparation-Offsite Transport - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4829	15.3522	2.4725	0.0479	38.4662	0.0812	38.5474	4.0297	0.0777	4.1074		5,031.7385	5,031.7385	0.1320		5,035.0395
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.4829	15.3522	2.4725	0.0479	38.4662	0.0812	38.5474	4.0297	0.0777	4.1074		5,031.7385	5,031.7385	0.1320		5,035.0395

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

3.7 Site Preparation-Offsite Transport - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4829	15.3522	2.4725	0.0479	23.9751	0.0812	24.0563	2.5806	0.0777	2.6583		5,031.7385	5,031.7385	0.1320		5,035.0395
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.4829	15.3522	2.4725	0.0479	23.9751	0.0812	24.0563	2.5806	0.0777	2.6583		5,031.7385	5,031.7385	0.1320		5,035.0395

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

3.8 Grading-Conduct Sediment Removal - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1210	0.0000	2.1210	0.2290	0.0000	0.2290			0.0000			0.0000
Off-Road	3.1176	35.8662	27.2546	0.0468		1.5828	1.5828		1.4561	1.4561		4,636.9639	4,636.9639	1.4671		4,673.6410
Total	3.1176	35.8662	27.2546	0.0468	2.1210	1.5828	3.7038	0.2290	1.4561	1.6852		4,636.9639	4,636.9639	1.4671		4,673.6410

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0665	1.4690	0.3297	4.0800e-003	3.6416	0.0160	3.6576	0.3840	0.0153	0.3994		427.2774	427.2774	0.0138		427.6222
Worker	0.0890	0.0757	0.8056	1.8400e-003	7.2433	1.1900e-003	7.2445	0.7525	1.1000e-003	0.7536		182.7011	182.7011	7.3000e-003		182.8835
Total	0.1555	1.5446	1.1354	5.9200e-003	10.8848	0.0172	10.9020	1.1365	0.0164	1.1529		609.9785	609.9785	0.0211		610.5057

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

3.8 Grading-Conduct Sediment Removal - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.9545	0.0000	0.9545	0.1031	0.0000	0.1031			0.0000			0.0000
Off-Road	3.1176	35.8662	27.2546	0.0468		1.5828	1.5828		1.4561	1.4561	0.0000	4,636.9639	4,636.9639	1.4671		4,673.6410
Total	3.1176	35.8662	27.2546	0.0468	0.9545	1.5828	2.5372	0.1031	1.4561	1.5592	0.0000	4,636.9639	4,636.9639	1.4671		4,673.6410

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0665	1.4690	0.3297	4.0800e-003	2.2720	0.0160	2.2880	0.2471	0.0153	0.2624		427.2774	427.2774	0.0138		427.6222
Worker	0.0890	0.0757	0.8056	1.8400e-003	4.5042	1.1900e-003	4.5054	0.4786	1.1000e-003	0.4797		182.7011	182.7011	7.3000e-003		182.8835
Total	0.1555	1.5446	1.1354	5.9200e-003	6.7762	0.0172	6.7934	0.7256	0.0164	0.7421		609.9785	609.9785	0.0211		610.5057

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

3.9 Site Preparation-Demobilization - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.6100e-003	0.2418	0.0390	7.5000e-004	0.6059	1.2800e-003	0.6072	0.0635	1.2200e-003	0.0647		79.2578	79.2578	2.0800e-003		79.3098
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	7.6100e-003	0.2418	0.0390	7.5000e-004	0.6059	1.2800e-003	0.6072	0.0635	1.2200e-003	0.0647		79.2578	79.2578	2.0800e-003		79.3098

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

3.9 Site Preparation-Demobilization - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.6100e-003	0.2418	0.0390	7.5000e-004	0.3777	1.2800e-003	0.3789	0.0407	1.2200e-003	0.0419		79.2578	79.2578	2.0800e-003		79.3098
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	7.6100e-003	0.2418	0.0390	7.5000e-004	0.3777	1.2800e-003	0.3789	0.0407	1.2200e-003	0.0419		79.2578	79.2578	2.0800e-003		79.3098

4.0 Operational Detail - Mobile

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
User Defined Recreational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
User Defined Recreational	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.424008	0.043716	0.245079	0.148024	0.041041	0.007155	0.014640	0.065027	0.001791	0.000746	0.006285	0.000584	0.001901
User Defined Recreational	0.424008	0.043716	0.245079	0.148024	0.041041	0.007155	0.014640	0.065027	0.001791	0.000746	0.006285	0.000584	0.001901

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Unmitigated	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	13.7707					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	46.3758					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.1000e-004	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Total	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	13.7707					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	46.3758					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.1000e-004	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Total	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Summer

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

**Greenhorn Sed Removal at Rollins Reservoir - 50k
Nevada County, Winter**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	3.00	Acre	3.00	130,680.00	0
User Defined Recreational	49.70	User Defined Unit	49.70	2,164,932.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	80
Climate Zone	1			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

Project Characteristics - The construction emissions represents the operational emissions since the project will be implemented annually as maintenance.

Land Use - Acreage taken from CEQA Project Description for areas of disturbance.

Construction Phase - Construction details based on CEQA Project Description information. Sorting and Offsite Transport are split into two separate construction phases while Channelizing Creek Bed and Excavate Dewatering Channel are combined.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - No construction equipment usage. Haul trips only.

Off-road Equipment - No construction equipment usage. Haul trip only during this phase.

Off-road Equipment - No construction equipment usage. Haul trips only.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Trips and VMT - Assumptions: 20 haul trips to mobilize/demobilize equipment, ~3,333 haul trips to remove 50k tons of sediment with 15 ton capacity truck, 6 daily vendor trips, and 6 workers will commute daily averaging 40 miles roundtrip.

On-road Fugitive Dust - The only known unpaved road is the road entering into the site from You Bet Road.

Grading -

Energy Use -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	40.00	131.00
tblConstructionPhase	NumDays	40.00	9.00
tblConstructionPhase	NumDays	110.00	6.00
tblConstructionPhase	NumDays	110.00	9.00
tblConstructionPhase	NumDays	40.00	105.00
tblConstructionPhase	NumDays	40.00	105.00

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

tblConstructionPhase	NumDays	110.00	105.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblLandUse	LandUseSquareFeet	0.00	2,164,932.00
tblLandUse	LotAcreage	0.00	49.70
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00

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tbloffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	PhaseName		Grading-New Haul Road
tbloffRoadEquipment	PhaseName		Site Preparation-Sediment Stockpiling
tbloffRoadEquipment	PhaseName		Site Preparation-Sorting
tbloffRoadEquipment	PhaseName		Site Preparation-Sorting
tbloffRoadEquipment	PhaseName		Site Preparation-Sorting
tbloffRoadEquipment	PhaseName		Site Preparation-Sediment Stockpiling
tbloffRoadEquipment	PhaseName		Site Preparation-Sorting
tbloffRoadEquipment	PhaseName		Grading-New Haul Road
tbloffRoadEquipment	PhaseName		Grading-Channelize Creek and Excavate Channel
tbloffRoadEquipment	PhaseName		Site Preparation-Sediment Stockpiling
tbloffRoadEquipment	UsageHours	8.00	0.00
tbloffRoadEquipment	UsageHours	8.00	0.00

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	HaulingTripNumber	0.00	3,333.00

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripLength	16.80	40.00
tblTripsAndVMT	WorkerTripLength	16.80	40.00
tblTripsAndVMT	WorkerTripLength	16.80	40.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	6.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00

2.0 Emissions Summary

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	60.1471	5.0000e-005	5.4200e-003	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005	0.0000	0.0123

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	60.1471	5.0000e-005	5.4200e-003	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005	0.0000	0.0123

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation-Sorting	Site Preparation	7/1/2019	11/29/2019	6	131	Phase 2 Sorting
2	Site Preparation-Mobilization	Site Preparation	7/1/2019	7/10/2019	6	9	Phase 1 Mobilization
3	Grading-New Haul Road	Grading	7/15/2019	7/20/2019	6	6	Phase 1 Establish New Haul Road
4	Grading-Channelize Creek and Excavate Channel	Grading	7/21/2019	7/31/2019	6	9	Phase 1 Channelize Creek Bed and Excavate Dewatering Channel
5	Site Preparation-Sediment Stockpiling	Site Preparation	8/1/2019	11/30/2019	6	105	Phase 2 Transport to Stockpile
6	Site Preparation-Offsite Transport	Site Preparation	8/1/2019	11/30/2019	6	105	Phase 2 Offsite Transport
7	Grading-Conduct Sediment Removal	Grading	8/1/2019	11/30/2019	6	105	Phase 2 Conduct Sediment Removal
8	Site Preparation-Demobilization	Site Preparation	11/15/2019	12/31/2019	6	40	Phase 3 Demobilization

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 3

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation-Sorting	Crushing/Proc. Equipment	1	8.00	85	0.78

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

Site Preparation-Sorting	Dumpers/Tenders	1	8.00	16	0.38
Site Preparation-Sorting	Excavators	1	8.00	158	0.38
Site Preparation-Sorting	Generator Sets	2	8.00	84	0.74
Site Preparation-Sorting	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation-Sorting	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation-Mobilization	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Mobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Grading-New Haul Road	Crawler Tractors	1	8.00	212	0.43
Grading-New Haul Road	Excavators	1	8.00	158	0.38
Grading-New Haul Road	Graders	0	0.00	187	0.41
Grading-New Haul Road	Rollers	2	8.00	80	0.38
Grading-New Haul Road	Rubber Tired Dozers	0	0.00	247	0.40
Grading-New Haul Road	Scrapers	2	8.00	367	0.48
Grading-New Haul Road	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading-Channelize Creek and Excavate Channel	Excavators	3	8.00	158	0.38
Grading-Channelize Creek and Excavate Channel	Graders	0	0.00	187	0.41
Grading-Channelize Creek and Excavate Channel	Rubber Tired Dozers	0	0.00	247	0.40
Grading-Channelize Creek and Excavate Channel	Scrapers	0	0.00	367	0.48
Grading-Channelize Creek and Excavate Channel	Skid Steer Loaders	1	8.00	65	0.37
Grading-Channelize Creek and Excavate Channel	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation-Sediment Stockpiling	Crawler Tractors	1	8.00	212	0.43
Site Preparation-Sediment Stockpiling	Excavators	1	8.00	158	0.38
Site Preparation-Sediment Stockpiling	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Sediment Stockpiling	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation-Sediment Stockpiling	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation-Offsite Transport	Rubber Tired Dozers	0	0.00	247	0.40

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

Site Preparation-Offsite Transport	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Grading-Conduct Sediment Removal	Excavators	2	8.00	158	0.38
Grading-Conduct Sediment Removal	Graders	0	0.00	187	0.41
Grading-Conduct Sediment Removal	Rubber Tired Dozers	0	0.00	247	0.40
Grading-Conduct Sediment Removal	Scrapers	2	8.00	367	0.48
Grading-Conduct Sediment Removal	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation-Demobilization	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Demobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation-Sorting	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Mobilization	0	0.00	0.00	20.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT
Grading-New Haul Road	9	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Grading-Channelize Creek and Excavate C	6	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Sediment Stockpiling	4	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Offsite Transport	0	0.00	0.00	3,333.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT
Grading-Conduct Sediment Removal	6	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Demobilization	0	0.00	0.00	20.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

3.2 Site Preparation-Sorting - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8292	14.8473	15.3323	0.0261		0.8807	0.8807		0.8704	0.8704		2,482.665 2	2,482.665 2	0.3010		2,490.189 6
Total	1.8292	14.8473	15.3323	0.0261	0.0000	0.8807	0.8807	0.0000	0.8704	0.8704		2,482.665 2	2,482.665 2	0.3010		2,490.189 6

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

3.2 Site Preparation-Sorting - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8292	14.8473	15.3323	0.0261		0.8807	0.8807		0.8704	0.8704	0.0000	2,482.665 1	2,482.665 1	0.3010		2,490.189 6
Total	1.8292	14.8473	15.3323	0.0261	0.0000	0.8807	0.8807	0.0000	0.8704	0.8704	0.0000	2,482.665 1	2,482.665 1	0.3010		2,490.189 6

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

3.3 Site Preparation-Mobilization - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0346	1.1165	0.1872	3.3100e-003	0.0778	5.7500e-003	0.0835	0.0213	5.5000e-003	0.0268		347.5840	347.5840	0.0102		347.8394
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0346	1.1165	0.1872	3.3100e-003	0.0778	5.7500e-003	0.0835	0.0213	5.5000e-003	0.0268		347.5840	347.5840	0.0102		347.8394

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

3.3 Site Preparation-Mobilization - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0346	1.1165	0.1872	3.3100e-003	0.0778	5.7500e-003	0.0835	0.0213	5.5000e-003	0.0268		347.5840	347.5840	0.0102		347.8394
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0346	1.1165	0.1872	3.3100e-003	0.0778	5.7500e-003	0.0835	0.0213	5.5000e-003	0.0268		347.5840	347.5840	0.0102		347.8394

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

3.4 Grading-New Haul Road - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6513	0.0000	2.6513	0.2863	0.0000	0.2863			0.0000			0.0000
Off-Road	4.1531	47.9975	32.6883	0.0579		2.2056	2.2056		2.0291	2.0291		5,730.0306	5,730.0306	1.8129		5,775.3536
Total	4.1531	47.9975	32.6883	0.0579	2.6513	2.2056	4.8568	0.2863	2.0291	2.3154		5,730.0306	5,730.0306	1.8129		5,775.3536

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0686	1.5241	0.3630	4.0200e-003	3.6416	0.0161	3.6577	0.3840	0.0154	0.3995		420.8199	420.8199	0.0152		421.1985
Worker	0.1016	0.0994	0.7356	1.6900e-003	7.2433	1.1900e-003	7.2445	0.7525	1.1000e-003	0.7536		167.7582	167.7582	6.7100e-003		167.9259
Total	0.1702	1.6235	1.0986	5.7100e-003	10.8848	0.0173	10.9021	1.1365	0.0165	1.1530		588.5781	588.5781	0.0219		589.1244

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

3.4 Grading-New Haul Road - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1931	0.0000	1.1931	0.1288	0.0000	0.1288			0.0000			0.0000
Off-Road	4.1531	47.9975	32.6883	0.0579		2.2056	2.2056		2.0291	2.0291	0.0000	5,730.0306	5,730.0306	1.8129		5,775.3536
Total	4.1531	47.9975	32.6883	0.0579	1.1931	2.2056	3.3986	0.1288	2.0291	2.1579	0.0000	5,730.0306	5,730.0306	1.8129		5,775.3536

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0686	1.5241	0.3630	4.0200e-003	2.2720	0.0161	2.2881	0.2471	0.0154	0.2625		420.8199	420.8199	0.0152		421.1985
Worker	0.1016	0.0994	0.7356	1.6900e-003	4.5042	1.1900e-003	4.5054	0.4786	1.1000e-003	0.4797		167.7582	167.7582	6.7100e-003		167.9259
Total	0.1702	1.6235	1.0986	5.7100e-003	6.7762	0.0173	6.7935	0.7256	0.0165	0.7422		588.5781	588.5781	0.0219		589.1244

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

3.5 Grading-Channelize Creek and Excavate Channel - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3324	13.8469	15.7851	0.0238		0.7517	0.7517		0.6916	0.6916		2,353.073 1	2,353.073 1	0.7445		2,371.685 3
Total	1.3324	13.8469	15.7851	0.0238	0.0000	0.7517	0.7517	0.0000	0.6916	0.6916		2,353.073 1	2,353.073 1	0.7445		2,371.685 3

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0686	1.5241	0.3630	4.0200e-003	3.6416	0.0161	3.6577	0.3840	0.0154	0.3995		420.8199	420.8199	0.0152		421.1985
Worker	0.1016	0.0994	0.7356	1.6900e-003	7.2433	1.1900e-003	7.2445	0.7525	1.1000e-003	0.7536		167.7582	167.7582	6.7100e-003		167.9259
Total	0.1702	1.6235	1.0986	5.7100e-003	10.8848	0.0173	10.9021	1.1365	0.0165	1.1530		588.5781	588.5781	0.0219		589.1244

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

3.5 Grading-Channelize Creek and Excavate Channel - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3324	13.8469	15.7851	0.0238		0.7517	0.7517		0.6916	0.6916	0.0000	2,353.073 1	2,353.073 1	0.7445		2,371.685 3
Total	1.3324	13.8469	15.7851	0.0238	0.0000	0.7517	0.7517	0.0000	0.6916	0.6916	0.0000	2,353.073 1	2,353.073 1	0.7445		2,371.685 3

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0686	1.5241	0.3630	4.0200e-003	2.2720	0.0161	2.2881	0.2471	0.0154	0.2625		420.8199	420.8199	0.0152		421.1985
Worker	0.1016	0.0994	0.7356	1.6900e-003	4.5042	1.1900e-003	4.5054	0.4786	1.1000e-003	0.4797		167.7582	167.7582	6.7100e-003		167.9259
Total	0.1702	1.6235	1.0986	5.7100e-003	6.7762	0.0173	6.7935	0.7256	0.0165	0.7422		588.5781	588.5781	0.0219		589.1244

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

3.6 Site Preparation-Sediment Stockpiling - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	1.1884	14.1399	9.5357	0.0182		0.6385	0.6385		0.5874	0.5874		1,800.563 1	1,800.563 1	0.5697		1,814.805 0
Total	1.1884	14.1399	9.5357	0.0182	0.5303	0.6385	1.1687	0.0573	0.5874	0.6446		1,800.563 1	1,800.563 1	0.5697		1,814.805 0

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

3.6 Site Preparation-Sediment Stockpiling - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	1.1884	14.1399	9.5357	0.0182		0.6385	0.6385		0.5874	0.5874	0.0000	1,800.563 1	1,800.563 1	0.5697		1,814.805 0
Total	1.1884	14.1399	9.5357	0.0182	0.2386	0.6385	0.8771	0.0258	0.5874	0.6131	0.0000	1,800.563 1	1,800.563 1	0.5697		1,814.805 0

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

3.7 Site Preparation-Offsite Transport - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4937	15.9477	2.6740	0.0473	38.4662	0.0822	38.5484	4.0297	0.0786	4.1083		4,964.9886	4,964.9886	0.1460		4,968.6374
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.4937	15.9477	2.6740	0.0473	38.4662	0.0822	38.5484	4.0297	0.0786	4.1083		4,964.9886	4,964.9886	0.1460		4,968.6374

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

3.7 Site Preparation-Offsite Transport - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4937	15.9477	2.6740	0.0473	23.9751	0.0822	24.0573	2.5806	0.0786	2.6592		4,964.9886	4,964.9886	0.1460		4,968.6374
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.4937	15.9477	2.6740	0.0473	23.9751	0.0822	24.0573	2.5806	0.0786	2.6592		4,964.9886	4,964.9886	0.1460		4,968.6374

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

3.8 Grading-Conduct Sediment Removal - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1210	0.0000	2.1210	0.2290	0.0000	0.2290			0.0000			0.0000
Off-Road	3.1176	35.8662	27.2546	0.0468		1.5828	1.5828		1.4561	1.4561		4,636.9639	4,636.9639	1.4671		4,673.6410
Total	3.1176	35.8662	27.2546	0.0468	2.1210	1.5828	3.7038	0.2290	1.4561	1.6852		4,636.9639	4,636.9639	1.4671		4,673.6410

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0686	1.5241	0.3630	4.0200e-003	3.6416	0.0161	3.6577	0.3840	0.0154	0.3995		420.8199	420.8199	0.0152		421.1985
Worker	0.1016	0.0994	0.7356	1.6900e-003	7.2433	1.1900e-003	7.2445	0.7525	1.1000e-003	0.7536		167.7582	167.7582	6.7100e-003		167.9259
Total	0.1702	1.6235	1.0986	5.7100e-003	10.8848	0.0173	10.9021	1.1365	0.0165	1.1530		588.5781	588.5781	0.0219		589.1244

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

3.8 Grading-Conduct Sediment Removal - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.9545	0.0000	0.9545	0.1031	0.0000	0.1031			0.0000			0.0000
Off-Road	3.1176	35.8662	27.2546	0.0468		1.5828	1.5828		1.4561	1.4561	0.0000	4,636.9639	4,636.9639	1.4671		4,673.6410
Total	3.1176	35.8662	27.2546	0.0468	0.9545	1.5828	2.5372	0.1031	1.4561	1.5592	0.0000	4,636.9639	4,636.9639	1.4671		4,673.6410

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0686	1.5241	0.3630	4.0200e-003	2.2720	0.0161	2.2881	0.2471	0.0154	0.2625		420.8199	420.8199	0.0152		421.1985
Worker	0.1016	0.0994	0.7356	1.6900e-003	4.5042	1.1900e-003	4.5054	0.4786	1.1000e-003	0.4797		167.7582	167.7582	6.7100e-003		167.9259
Total	0.1702	1.6235	1.0986	5.7100e-003	6.7762	0.0173	6.7935	0.7256	0.0165	0.7422		588.5781	588.5781	0.0219		589.1244

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

3.9 Site Preparation-Demobilization - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.7800e-003	0.2512	0.0421	7.4000e-004	0.6059	1.2900e-003	0.6072	0.0635	1.2400e-003	0.0647		78.2064	78.2064	2.3000e-003		78.2639
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	7.7800e-003	0.2512	0.0421	7.4000e-004	0.6059	1.2900e-003	0.6072	0.0635	1.2400e-003	0.0647		78.2064	78.2064	2.3000e-003		78.2639

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

3.9 Site Preparation-Demobilization - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.7800e-003	0.2512	0.0421	7.4000e-004	0.3777	1.2900e-003	0.3789	0.0407	1.2400e-003	0.0419		78.2064	78.2064	2.3000e-003		78.2639
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	7.7800e-003	0.2512	0.0421	7.4000e-004	0.3777	1.2900e-003	0.3789	0.0407	1.2400e-003	0.0419		78.2064	78.2064	2.3000e-003		78.2639

4.0 Operational Detail - Mobile

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
User Defined Recreational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
User Defined Recreational	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.424008	0.043716	0.245079	0.148024	0.041041	0.007155	0.014640	0.065027	0.001791	0.000746	0.006285	0.000584	0.001901
User Defined Recreational	0.424008	0.043716	0.245079	0.148024	0.041041	0.007155	0.014640	0.065027	0.001791	0.000746	0.006285	0.000584	0.001901

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Unmitigated	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	13.7707					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	46.3758					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.1000e-004	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Total	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	13.7707					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	46.3758					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.1000e-004	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Total	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Winter

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

**Greenhorn Sed Removal at Rollins Reservoir - 200k
Nevada County, Summer**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	3.00	Acre	3.00	130,680.00	0
User Defined Recreational	49.70	User Defined Unit	49.70	2,164,932.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	80
Climate Zone	1			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

Project Characteristics - The construction emissions represents the operational emissions since the project will be implemented annually as maintenance.

Land Use - Acreage taken from CEQA Project Description for areas of disturbance.

Construction Phase - Construction details based on CEQA Project Description information. Sorting and Offsite Transport are split into two separate construction phases while Channelizing Creek Bed and Excavate Dewatering Channel are combined.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - No construction equipment usage. Haul trips only.

Off-road Equipment - No construction equipment usage. Haul trip only during this phase.

Off-road Equipment - No construction equipment usage. Haul trips only.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Trips and VMT - Assumptions: 20 haul trips to mobilize/demobilize equipment, ~13,333 haul trips to remove 200k tons of sediment with 15 ton capacity truck, 6 daily vendor trips, and 6 workers will commute daily averaging 40 miles roundtrip.

On-road Fugitive Dust - The only known unpaved road is the road entering into the site from You Bet Road.

Grading -

Energy Use -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	40.00	131.00
tblConstructionPhase	NumDays	40.00	9.00
tblConstructionPhase	NumDays	110.00	6.00
tblConstructionPhase	NumDays	110.00	9.00
tblConstructionPhase	NumDays	40.00	105.00
tblConstructionPhase	NumDays	40.00	105.00

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

tblConstructionPhase	NumDays	110.00	105.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblLandUse	LandUseSquareFeet	0.00	2,164,932.00
tblLandUse	LotAcreage	0.00	49.70
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	HaulingTripNumber	0.00	13,333.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripLength	16.80	40.00
tblTripsAndVMT	WorkerTripLength	16.80	40.00
tblTripsAndVMT	WorkerTripLength	16.80	40.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	6.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00

2.0 Emissions Summary

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	60.1471	5.0000e-005	5.4200e-003	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005	0.0000	0.0123

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	60.1471	5.0000e-005	5.4200e-003	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005	0.0000	0.0123

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation-Sorting	Site Preparation	7/1/2019	11/29/2019	6	131	Phase 2 Sorting
2	Site Preparation-Mobilization	Site Preparation	7/1/2019	7/10/2019	6	9	Phase 1 Mobilization
3	Grading-New Haul Road	Grading	7/15/2019	7/20/2019	6	6	Phase 1 Establish New Haul Road
4	Grading-Channelize Creek and Excavate Channel	Grading	7/21/2019	7/31/2019	6	9	Phase 1 Channelize Creek Bed and Excavate Dewatering Channel
5	Site Preparation-Sediment Stockpiling	Site Preparation	8/1/2019	11/30/2019	6	105	Phase 2 Transport to Stockpile
6	Site Preparation-Offsite Transport	Site Preparation	8/1/2019	11/30/2019	6	105	Phase 2 Offsite Transport
7	Grading-Conduct Sediment Removal	Grading	8/1/2019	11/30/2019	6	105	Phase 2 Conduct Sediment Removal
8	Site Preparation-Demobilization	Site Preparation	11/15/2019	12/31/2019	6	40	Phase 3 Demobilization

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 3

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation-Sorting	Crushing/Proc. Equipment	1	8.00	85	0.78

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

Site Preparation-Sorting	Dumpers/Tenders	1	8.00	16	0.38
Site Preparation-Sorting	Excavators	1	8.00	158	0.38
Site Preparation-Sorting	Generator Sets	2	8.00	84	0.74
Site Preparation-Sorting	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation-Sorting	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation-Mobilization	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Mobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Grading-New Haul Road	Crawler Tractors	1	8.00	212	0.43
Grading-New Haul Road	Excavators	1	8.00	158	0.38
Grading-New Haul Road	Graders	0	0.00	187	0.41
Grading-New Haul Road	Rollers	2	8.00	80	0.38
Grading-New Haul Road	Rubber Tired Dozers	0	0.00	247	0.40
Grading-New Haul Road	Scrapers	2	8.00	367	0.48
Grading-New Haul Road	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading-Channelize Creek and Excavate Channel	Excavators	3	8.00	158	0.38
Grading-Channelize Creek and Excavate Channel	Graders	0	0.00	187	0.41
Grading-Channelize Creek and Excavate Channel	Rubber Tired Dozers	0	0.00	247	0.40
Grading-Channelize Creek and Excavate Channel	Scrapers	0	0.00	367	0.48
Grading-Channelize Creek and Excavate Channel	Skid Steer Loaders	1	8.00	65	0.37
Grading-Channelize Creek and Excavate Channel	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation-Sediment Stockpiling	Crawler Tractors	1	8.00	212	0.43
Site Preparation-Sediment Stockpiling	Excavators	1	8.00	158	0.38
Site Preparation-Sediment Stockpiling	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Sediment Stockpiling	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation-Sediment Stockpiling	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation-Offsite Transport	Rubber Tired Dozers	0	0.00	247	0.40

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

Site Preparation-Offsite Transport	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Grading-Conduct Sediment Removal	Excavators	2	8.00	158	0.38
Grading-Conduct Sediment Removal	Graders	0	0.00	187	0.41
Grading-Conduct Sediment Removal	Rubber Tired Dozers	0	0.00	247	0.40
Grading-Conduct Sediment Removal	Scrapers	2	8.00	367	0.48
Grading-Conduct Sediment Removal	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation-Demobilization	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Demobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation-Sorting	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Mobilization	0	0.00	0.00	20.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT
Grading-New Haul Road	9	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Grading-Channelize Creek and Excavate C	6	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Sediment Stockpiling	4	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Offsite Transport	0	0.00	0.00	13,333.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT
Grading-Conduct Sediment Removal	6	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Demobilization	0	0.00	0.00	20.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

3.2 Site Preparation-Sorting - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8292	14.8473	15.3323	0.0261		0.8807	0.8807		0.8704	0.8704		2,482.665 2	2,482.665 2	0.3010		2,490.189 6
Total	1.8292	14.8473	15.3323	0.0261	0.0000	0.8807	0.8807	0.0000	0.8704	0.8704		2,482.665 2	2,482.665 2	0.3010		2,490.189 6

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

3.2 Site Preparation-Sorting - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8292	14.8473	15.3323	0.0261		0.8807	0.8807		0.8704	0.8704	0.0000	2,482.665 1	2,482.665 1	0.3010		2,490.189 6
Total	1.8292	14.8473	15.3323	0.0261	0.0000	0.8807	0.8807	0.0000	0.8704	0.8704	0.0000	2,482.665 1	2,482.665 1	0.3010		2,490.189 6

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

3.3 Site Preparation-Mobilization - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0338	1.0748	0.1731	3.3500e-003	0.0778	5.6900e-003	0.0835	0.0213	5.4400e-003	0.0268		352.2569	352.2569	9.2400e-003		352.4880
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0338	1.0748	0.1731	3.3500e-003	0.0778	5.6900e-003	0.0835	0.0213	5.4400e-003	0.0268		352.2569	352.2569	9.2400e-003		352.4880

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

3.3 Site Preparation-Mobilization - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0338	1.0748	0.1731	3.3500e-003	0.0778	5.6900e-003	0.0835	0.0213	5.4400e-003	0.0268		352.2569	352.2569	9.2400e-003		352.4880
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0338	1.0748	0.1731	3.3500e-003	0.0778	5.6900e-003	0.0835	0.0213	5.4400e-003	0.0268		352.2569	352.2569	9.2400e-003		352.4880

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

3.4 Grading-New Haul Road - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6513	0.0000	2.6513	0.2863	0.0000	0.2863			0.0000			0.0000
Off-Road	4.1531	47.9975	32.6883	0.0579		2.2056	2.2056		2.0291	2.0291		5,730.0306	5,730.0306	1.8129		5,775.3536
Total	4.1531	47.9975	32.6883	0.0579	2.6513	2.2056	4.8568	0.2863	2.0291	2.3154		5,730.0306	5,730.0306	1.8129		5,775.3536

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0665	1.4690	0.3297	4.0800e-003	3.6416	0.0160	3.6576	0.3840	0.0153	0.3994		427.2774	427.2774	0.0138		427.6222
Worker	0.0890	0.0757	0.8056	1.8400e-003	7.2433	1.1900e-003	7.2445	0.7525	1.1000e-003	0.7536		182.7011	182.7011	7.3000e-003		182.8835
Total	0.1555	1.5446	1.1354	5.9200e-003	10.8848	0.0172	10.9020	1.1365	0.0164	1.1529		609.9785	609.9785	0.0211		610.5057

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

3.4 Grading-New Haul Road - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1931	0.0000	1.1931	0.1288	0.0000	0.1288			0.0000			0.0000
Off-Road	4.1531	47.9975	32.6883	0.0579		2.2056	2.2056		2.0291	2.0291	0.0000	5,730.0306	5,730.0306	1.8129		5,775.3536
Total	4.1531	47.9975	32.6883	0.0579	1.1931	2.2056	3.3986	0.1288	2.0291	2.1579	0.0000	5,730.0306	5,730.0306	1.8129		5,775.3536

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0665	1.4690	0.3297	4.0800e-003	2.2720	0.0160	2.2880	0.2471	0.0153	0.2624		427.2774	427.2774	0.0138		427.6222
Worker	0.0890	0.0757	0.8056	1.8400e-003	4.5042	1.1900e-003	4.5054	0.4786	1.1000e-003	0.4797		182.7011	182.7011	7.3000e-003		182.8835
Total	0.1555	1.5446	1.1354	5.9200e-003	6.7762	0.0172	6.7934	0.7256	0.0164	0.7421		609.9785	609.9785	0.0211		610.5057

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

3.5 Grading-Channelize Creek and Excavate Channel - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3324	13.8469	15.7851	0.0238		0.7517	0.7517		0.6916	0.6916		2,353.073 1	2,353.073 1	0.7445		2,371.685 3
Total	1.3324	13.8469	15.7851	0.0238	0.0000	0.7517	0.7517	0.0000	0.6916	0.6916		2,353.073 1	2,353.073 1	0.7445		2,371.685 3

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0665	1.4690	0.3297	4.0800e-003	3.6416	0.0160	3.6576	0.3840	0.0153	0.3994		427.2774	427.2774	0.0138		427.6222
Worker	0.0890	0.0757	0.8056	1.8400e-003	7.2433	1.1900e-003	7.2445	0.7525	1.1000e-003	0.7536		182.7011	182.7011	7.3000e-003		182.8835
Total	0.1555	1.5446	1.1354	5.9200e-003	10.8848	0.0172	10.9020	1.1365	0.0164	1.1529		609.9785	609.9785	0.0211		610.5057

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

3.5 Grading-Channelize Creek and Excavate Channel - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3324	13.8469	15.7851	0.0238		0.7517	0.7517		0.6916	0.6916	0.0000	2,353.073 1	2,353.073 1	0.7445		2,371.685 3
Total	1.3324	13.8469	15.7851	0.0238	0.0000	0.7517	0.7517	0.0000	0.6916	0.6916	0.0000	2,353.073 1	2,353.073 1	0.7445		2,371.685 3

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0665	1.4690	0.3297	4.0800e-003	2.2720	0.0160	2.2880	0.2471	0.0153	0.2624		427.2774	427.2774	0.0138		427.6222
Worker	0.0890	0.0757	0.8056	1.8400e-003	4.5042	1.1900e-003	4.5054	0.4786	1.1000e-003	0.4797		182.7011	182.7011	7.3000e-003		182.8835
Total	0.1555	1.5446	1.1354	5.9200e-003	6.7762	0.0172	6.7934	0.7256	0.0164	0.7421		609.9785	609.9785	0.0211		610.5057

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

3.6 Site Preparation-Sediment Stockpiling - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	1.1884	14.1399	9.5357	0.0182		0.6385	0.6385		0.5874	0.5874		1,800.563 1	1,800.563 1	0.5697		1,814.805 0
Total	1.1884	14.1399	9.5357	0.0182	0.5303	0.6385	1.1687	0.0573	0.5874	0.6446		1,800.563 1	1,800.563 1	0.5697		1,814.805 0

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

3.6 Site Preparation-Sediment Stockpiling - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	1.1884	14.1399	9.5357	0.0182		0.6385	0.6385		0.5874	0.5874	0.0000	1,800.563 1	1,800.563 1	0.5697		1,814.805 0
Total	1.1884	14.1399	9.5357	0.0182	0.2386	0.6385	0.8771	0.0258	0.5874	0.6131	0.0000	1,800.563 1	1,800.563 1	0.5697		1,814.805 0

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

3.7 Site Preparation-Offsite Transport - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.9318	61.4136	9.8908	0.1916	153.8764	0.3249	154.2013	16.1199	0.3109	16.4307		20,128.46 36	20,128.46 36	0.5282		20,141.66 88
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	1.9318	61.4136	9.8908	0.1916	153.8764	0.3249	154.2013	16.1199	0.3109	16.4307		20,128.46 36	20,128.46 36	0.5282		20,141.66 88

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

3.7 Site Preparation-Offsite Transport - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.9318	61.4136	9.8908	0.1916	95.9076	0.3249	96.2325	10.3230	0.3109	10.6338		20,128.46 36	20,128.46 36	0.5282		20,141.66 88
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	1.9318	61.4136	9.8908	0.1916	95.9076	0.3249	96.2325	10.3230	0.3109	10.6338		20,128.46 36	20,128.46 36	0.5282		20,141.66 88

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

3.8 Grading-Conduct Sediment Removal - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1210	0.0000	2.1210	0.2290	0.0000	0.2290			0.0000			0.0000
Off-Road	3.1176	35.8662	27.2546	0.0468		1.5828	1.5828		1.4561	1.4561		4,636.9639	4,636.9639	1.4671		4,673.6410
Total	3.1176	35.8662	27.2546	0.0468	2.1210	1.5828	3.7038	0.2290	1.4561	1.6852		4,636.9639	4,636.9639	1.4671		4,673.6410

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0665	1.4690	0.3297	4.0800e-003	3.6416	0.0160	3.6576	0.3840	0.0153	0.3994		427.2774	427.2774	0.0138		427.6222
Worker	0.0890	0.0757	0.8056	1.8400e-003	7.2433	1.1900e-003	7.2445	0.7525	1.1000e-003	0.7536		182.7011	182.7011	7.3000e-003		182.8835
Total	0.1555	1.5446	1.1354	5.9200e-003	10.8848	0.0172	10.9020	1.1365	0.0164	1.1529		609.9785	609.9785	0.0211		610.5057

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

3.8 Grading-Conduct Sediment Removal - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.9545	0.0000	0.9545	0.1031	0.0000	0.1031			0.0000			0.0000
Off-Road	3.1176	35.8662	27.2546	0.0468		1.5828	1.5828		1.4561	1.4561	0.0000	4,636.9639	4,636.9639	1.4671		4,673.6410
Total	3.1176	35.8662	27.2546	0.0468	0.9545	1.5828	2.5372	0.1031	1.4561	1.5592	0.0000	4,636.9639	4,636.9639	1.4671		4,673.6410

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0665	1.4690	0.3297	4.0800e-003	2.2720	0.0160	2.2880	0.2471	0.0153	0.2624		427.2774	427.2774	0.0138		427.6222
Worker	0.0890	0.0757	0.8056	1.8400e-003	4.5042	1.1900e-003	4.5054	0.4786	1.1000e-003	0.4797		182.7011	182.7011	7.3000e-003		182.8835
Total	0.1555	1.5446	1.1354	5.9200e-003	6.7762	0.0172	6.7934	0.7256	0.0164	0.7421		609.9785	609.9785	0.0211		610.5057

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

3.9 Site Preparation-Demobilization - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.6100e-003	0.2418	0.0390	7.5000e-004	0.6059	1.2800e-003	0.6072	0.0635	1.2200e-003	0.0647		79.2578	79.2578	2.0800e-003		79.3098
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	7.6100e-003	0.2418	0.0390	7.5000e-004	0.6059	1.2800e-003	0.6072	0.0635	1.2200e-003	0.0647		79.2578	79.2578	2.0800e-003		79.3098

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

3.9 Site Preparation-Demobilization - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.6100e-003	0.2418	0.0390	7.5000e-004	0.3777	1.2800e-003	0.3789	0.0407	1.2200e-003	0.0419		79.2578	79.2578	2.0800e-003		79.3098
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	7.6100e-003	0.2418	0.0390	7.5000e-004	0.3777	1.2800e-003	0.3789	0.0407	1.2200e-003	0.0419		79.2578	79.2578	2.0800e-003		79.3098

4.0 Operational Detail - Mobile

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
User Defined Recreational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
User Defined Recreational	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.424008	0.043716	0.245079	0.148024	0.041041	0.007155	0.014640	0.065027	0.001791	0.000746	0.006285	0.000584	0.001901
User Defined Recreational	0.424008	0.043716	0.245079	0.148024	0.041041	0.007155	0.014640	0.065027	0.001791	0.000746	0.006285	0.000584	0.001901

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Unmitigated	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	13.7707					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	46.3758					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.1000e-004	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Total	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	13.7707					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	46.3758					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.1000e-004	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Total	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Summer

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

**Greenhorn Sed Removal at Rollins Reservoir - 200k
Nevada County, Winter**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	3.00	Acre	3.00	130,680.00	0
User Defined Recreational	49.70	User Defined Unit	49.70	2,164,932.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	80
Climate Zone	1			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

Project Characteristics - The construction emissions represents the operational emissions since the project will be implemented annually as maintenance.

Land Use - Acreage taken from CEQA Project Description for areas of disturbance.

Construction Phase - Construction details based on CEQA Project Description information. Sorting and Offsite Transport are split into two separate construction phases while Channelizing Creek Bed and Excavate Dewatering Channel are combined.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - No construction equipment usage. Haul trips only.

Off-road Equipment - No construction equipment usage. Haul trip only during this phase.

Off-road Equipment - No construction equipment usage. Haul trips only.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Trips and VMT - Assumptions: 20 haul trips to mobilize/demobilize equipment, ~13,333 haul trips to remove 200k tons of sediment with 15 ton capacity truck, 6 daily vendor trips, and 6 workers will commute daily averaging 40 miles roundtrip.

On-road Fugitive Dust - The only known unpaved road is the road entering into the site from You Bet Road.

Grading -

Energy Use -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	40.00	131.00
tblConstructionPhase	NumDays	40.00	9.00
tblConstructionPhase	NumDays	110.00	6.00
tblConstructionPhase	NumDays	110.00	9.00
tblConstructionPhase	NumDays	40.00	105.00
tblConstructionPhase	NumDays	40.00	105.00

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

tblConstructionPhase	NumDays	110.00	105.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblLandUse	LandUseSquareFeet	0.00	2,164,932.00
tblLandUse	LotAcreage	0.00	49.70
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	HaulingTripNumber	0.00	13,333.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripLength	16.80	40.00
tblTripsAndVMT	WorkerTripLength	16.80	40.00
tblTripsAndVMT	WorkerTripLength	16.80	40.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	6.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00

2.0 Emissions Summary

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	60.1471	5.0000e-005	5.4200e-003	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005	0.0000	0.0123

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	60.1471	5.0000e-005	5.4200e-003	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005	0.0000	0.0123

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation-Sorting	Site Preparation	7/1/2019	11/29/2019	6	131	Phase 2 Sorting
2	Site Preparation-Mobilization	Site Preparation	7/1/2019	7/10/2019	6	9	Phase 1 Mobilization
3	Grading-New Haul Road	Grading	7/15/2019	7/20/2019	6	6	Phase 1 Establish New Haul Road
4	Grading-Channelize Creek and Excavate Channel	Grading	7/21/2019	7/31/2019	6	9	Phase 1 Channelize Creek Bed and Excavate Dewatering Channel
5	Site Preparation-Sediment Stockpiling	Site Preparation	8/1/2019	11/30/2019	6	105	Phase 2 Transport to Stockpile
6	Site Preparation-Offsite Transport	Site Preparation	8/1/2019	11/30/2019	6	105	Phase 2 Offsite Transport
7	Grading-Conduct Sediment Removal	Grading	8/1/2019	11/30/2019	6	105	Phase 2 Conduct Sediment Removal
8	Site Preparation-Demobilization	Site Preparation	11/15/2019	12/31/2019	6	40	Phase 3 Demobilization

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 3

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation-Sorting	Crushing/Proc. Equipment	1	8.00	85	0.78

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

Site Preparation-Sorting	Dumpers/Tenders	1	8.00	16	0.38
Site Preparation-Sorting	Excavators	1	8.00	158	0.38
Site Preparation-Sorting	Generator Sets	2	8.00	84	0.74
Site Preparation-Sorting	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation-Sorting	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation-Mobilization	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Mobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Grading-New Haul Road	Crawler Tractors	1	8.00	212	0.43
Grading-New Haul Road	Excavators	1	8.00	158	0.38
Grading-New Haul Road	Graders	0	0.00	187	0.41
Grading-New Haul Road	Rollers	2	8.00	80	0.38
Grading-New Haul Road	Rubber Tired Dozers	0	0.00	247	0.40
Grading-New Haul Road	Scrapers	2	8.00	367	0.48
Grading-New Haul Road	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading-Channelize Creek and Excavate Channel	Excavators	3	8.00	158	0.38
Grading-Channelize Creek and Excavate Channel	Graders	0	0.00	187	0.41
Grading-Channelize Creek and Excavate Channel	Rubber Tired Dozers	0	0.00	247	0.40
Grading-Channelize Creek and Excavate Channel	Scrapers	0	0.00	367	0.48
Grading-Channelize Creek and Excavate Channel	Skid Steer Loaders	1	8.00	65	0.37
Grading-Channelize Creek and Excavate Channel	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation-Sediment Stockpiling	Crawler Tractors	1	8.00	212	0.43
Site Preparation-Sediment Stockpiling	Excavators	1	8.00	158	0.38
Site Preparation-Sediment Stockpiling	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Sediment Stockpiling	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation-Sediment Stockpiling	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation-Offsite Transport	Rubber Tired Dozers	0	0.00	247	0.40

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

Site Preparation-Offsite Transport	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Grading-Conduct Sediment Removal	Excavators	2	8.00	158	0.38
Grading-Conduct Sediment Removal	Graders	0	0.00	187	0.41
Grading-Conduct Sediment Removal	Rubber Tired Dozers	0	0.00	247	0.40
Grading-Conduct Sediment Removal	Scrapers	2	8.00	367	0.48
Grading-Conduct Sediment Removal	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation-Demobilization	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Demobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation-Sorting	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Mobilization	0	0.00	0.00	20.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT
Grading-New Haul Road	9	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Grading-Channelize Creek and Excavate C	6	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Sediment Stockpiling	4	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Offsite Transport	0	0.00	0.00	13,333.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT
Grading-Conduct Sediment Removal	6	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Demobilization	0	0.00	0.00	20.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

3.2 Site Preparation-Sorting - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8292	14.8473	15.3323	0.0261		0.8807	0.8807		0.8704	0.8704		2,482.665 2	2,482.665 2	0.3010		2,490.189 6
Total	1.8292	14.8473	15.3323	0.0261	0.0000	0.8807	0.8807	0.0000	0.8704	0.8704		2,482.665 2	2,482.665 2	0.3010		2,490.189 6

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

3.2 Site Preparation-Sorting - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8292	14.8473	15.3323	0.0261		0.8807	0.8807		0.8704	0.8704	0.0000	2,482.665 1	2,482.665 1	0.3010		2,490.189 6
Total	1.8292	14.8473	15.3323	0.0261	0.0000	0.8807	0.8807	0.0000	0.8704	0.8704	0.0000	2,482.665 1	2,482.665 1	0.3010		2,490.189 6

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

3.3 Site Preparation-Mobilization - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0346	1.1165	0.1872	3.3100e-003	0.0778	5.7500e-003	0.0835	0.0213	5.5000e-003	0.0268		347.5840	347.5840	0.0102		347.8394
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0346	1.1165	0.1872	3.3100e-003	0.0778	5.7500e-003	0.0835	0.0213	5.5000e-003	0.0268		347.5840	347.5840	0.0102		347.8394

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

3.3 Site Preparation-Mobilization - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0346	1.1165	0.1872	3.3100e-003	0.0778	5.7500e-003	0.0835	0.0213	5.5000e-003	0.0268		347.5840	347.5840	0.0102		347.8394
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0346	1.1165	0.1872	3.3100e-003	0.0778	5.7500e-003	0.0835	0.0213	5.5000e-003	0.0268		347.5840	347.5840	0.0102		347.8394

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

3.4 Grading-New Haul Road - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6513	0.0000	2.6513	0.2863	0.0000	0.2863			0.0000			0.0000
Off-Road	4.1531	47.9975	32.6883	0.0579		2.2056	2.2056		2.0291	2.0291		5,730.0306	5,730.0306	1.8129		5,775.3536
Total	4.1531	47.9975	32.6883	0.0579	2.6513	2.2056	4.8568	0.2863	2.0291	2.3154		5,730.0306	5,730.0306	1.8129		5,775.3536

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0686	1.5241	0.3630	4.0200e-003	3.6416	0.0161	3.6577	0.3840	0.0154	0.3995		420.8199	420.8199	0.0152		421.1985
Worker	0.1016	0.0994	0.7356	1.6900e-003	7.2433	1.1900e-003	7.2445	0.7525	1.1000e-003	0.7536		167.7582	167.7582	6.7100e-003		167.9259
Total	0.1702	1.6235	1.0986	5.7100e-003	10.8848	0.0173	10.9021	1.1365	0.0165	1.1530		588.5781	588.5781	0.0219		589.1244

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

3.4 Grading-New Haul Road - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1931	0.0000	1.1931	0.1288	0.0000	0.1288			0.0000			0.0000
Off-Road	4.1531	47.9975	32.6883	0.0579		2.2056	2.2056		2.0291	2.0291	0.0000	5,730.0306	5,730.0306	1.8129		5,775.3536
Total	4.1531	47.9975	32.6883	0.0579	1.1931	2.2056	3.3986	0.1288	2.0291	2.1579	0.0000	5,730.0306	5,730.0306	1.8129		5,775.3536

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0686	1.5241	0.3630	4.0200e-003	2.2720	0.0161	2.2881	0.2471	0.0154	0.2625		420.8199	420.8199	0.0152		421.1985
Worker	0.1016	0.0994	0.7356	1.6900e-003	4.5042	1.1900e-003	4.5054	0.4786	1.1000e-003	0.4797		167.7582	167.7582	6.7100e-003		167.9259
Total	0.1702	1.6235	1.0986	5.7100e-003	6.7762	0.0173	6.7935	0.7256	0.0165	0.7422		588.5781	588.5781	0.0219		589.1244

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

3.5 Grading-Channelize Creek and Excavate Channel - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3324	13.8469	15.7851	0.0238		0.7517	0.7517		0.6916	0.6916		2,353.073 1	2,353.073 1	0.7445		2,371.685 3
Total	1.3324	13.8469	15.7851	0.0238	0.0000	0.7517	0.7517	0.0000	0.6916	0.6916		2,353.073 1	2,353.073 1	0.7445		2,371.685 3

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0686	1.5241	0.3630	4.0200e-003	3.6416	0.0161	3.6577	0.3840	0.0154	0.3995		420.8199	420.8199	0.0152		421.1985
Worker	0.1016	0.0994	0.7356	1.6900e-003	7.2433	1.1900e-003	7.2445	0.7525	1.1000e-003	0.7536		167.7582	167.7582	6.7100e-003		167.9259
Total	0.1702	1.6235	1.0986	5.7100e-003	10.8848	0.0173	10.9021	1.1365	0.0165	1.1530		588.5781	588.5781	0.0219		589.1244

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

3.5 Grading-Channelize Creek and Excavate Channel - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3324	13.8469	15.7851	0.0238		0.7517	0.7517		0.6916	0.6916	0.0000	2,353.073 1	2,353.073 1	0.7445		2,371.685 3
Total	1.3324	13.8469	15.7851	0.0238	0.0000	0.7517	0.7517	0.0000	0.6916	0.6916	0.0000	2,353.073 1	2,353.073 1	0.7445		2,371.685 3

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0686	1.5241	0.3630	4.0200e-003	2.2720	0.0161	2.2881	0.2471	0.0154	0.2625		420.8199	420.8199	0.0152		421.1985
Worker	0.1016	0.0994	0.7356	1.6900e-003	4.5042	1.1900e-003	4.5054	0.4786	1.1000e-003	0.4797		167.7582	167.7582	6.7100e-003		167.9259
Total	0.1702	1.6235	1.0986	5.7100e-003	6.7762	0.0173	6.7935	0.7256	0.0165	0.7422		588.5781	588.5781	0.0219		589.1244

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

3.6 Site Preparation-Sediment Stockpiling - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	1.1884	14.1399	9.5357	0.0182		0.6385	0.6385		0.5874	0.5874		1,800.563 1	1,800.563 1	0.5697		1,814.805 0
Total	1.1884	14.1399	9.5357	0.0182	0.5303	0.6385	1.1687	0.0573	0.5874	0.6446		1,800.563 1	1,800.563 1	0.5697		1,814.805 0

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

3.6 Site Preparation-Sediment Stockpiling - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	1.1884	14.1399	9.5357	0.0182		0.6385	0.6385		0.5874	0.5874	0.0000	1,800.563 1	1,800.563 1	0.5697		1,814.805 0
Total	1.1884	14.1399	9.5357	0.0182	0.2386	0.6385	0.8771	0.0258	0.5874	0.6131	0.0000	1,800.563 1	1,800.563 1	0.5697		1,814.805 0

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

3.7 Site Preparation-Offsite Transport - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.9751	63.7956	10.6967	0.1891	153.8764	0.3287	154.2052	16.1199	0.3145	16.4344		19,861.44 40	19,861.44 40	0.5839		19,876.04 05
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	1.9751	63.7956	10.6967	0.1891	153.8764	0.3287	154.2052	16.1199	0.3145	16.4344		19,861.44 40	19,861.44 40	0.5839		19,876.04 05

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

3.7 Site Preparation-Offsite Transport - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.9751	63.7956	10.6967	0.1891	95.9076	0.3287	96.2363	10.3230	0.3145	10.6375		19,861.44 40	19,861.44 40	0.5839		19,876.04 05
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	1.9751	63.7956	10.6967	0.1891	95.9076	0.3287	96.2363	10.3230	0.3145	10.6375		19,861.44 40	19,861.44 40	0.5839		19,876.04 05

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

3.8 Grading-Conduct Sediment Removal - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1210	0.0000	2.1210	0.2290	0.0000	0.2290			0.0000			0.0000
Off-Road	3.1176	35.8662	27.2546	0.0468		1.5828	1.5828		1.4561	1.4561		4,636.9639	4,636.9639	1.4671		4,673.6410
Total	3.1176	35.8662	27.2546	0.0468	2.1210	1.5828	3.7038	0.2290	1.4561	1.6852		4,636.9639	4,636.9639	1.4671		4,673.6410

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0686	1.5241	0.3630	4.0200e-003	3.6416	0.0161	3.6577	0.3840	0.0154	0.3995		420.8199	420.8199	0.0152		421.1985
Worker	0.1016	0.0994	0.7356	1.6900e-003	7.2433	1.1900e-003	7.2445	0.7525	1.1000e-003	0.7536		167.7582	167.7582	6.7100e-003		167.9259
Total	0.1702	1.6235	1.0986	5.7100e-003	10.8848	0.0173	10.9021	1.1365	0.0165	1.1530		588.5781	588.5781	0.0219		589.1244

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

3.8 Grading-Conduct Sediment Removal - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.9545	0.0000	0.9545	0.1031	0.0000	0.1031			0.0000			0.0000
Off-Road	3.1176	35.8662	27.2546	0.0468		1.5828	1.5828		1.4561	1.4561	0.0000	4,636.9639	4,636.9639	1.4671		4,673.6410
Total	3.1176	35.8662	27.2546	0.0468	0.9545	1.5828	2.5372	0.1031	1.4561	1.5592	0.0000	4,636.9639	4,636.9639	1.4671		4,673.6410

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0686	1.5241	0.3630	4.0200e-003	2.2720	0.0161	2.2881	0.2471	0.0154	0.2625		420.8199	420.8199	0.0152		421.1985
Worker	0.1016	0.0994	0.7356	1.6900e-003	4.5042	1.1900e-003	4.5054	0.4786	1.1000e-003	0.4797		167.7582	167.7582	6.7100e-003		167.9259
Total	0.1702	1.6235	1.0986	5.7100e-003	6.7762	0.0173	6.7935	0.7256	0.0165	0.7422		588.5781	588.5781	0.0219		589.1244

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

3.9 Site Preparation-Demobilization - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.7800e-003	0.2512	0.0421	7.4000e-004	0.6059	1.2900e-003	0.6072	0.0635	1.2400e-003	0.0647		78.2064	78.2064	2.3000e-003		78.2639
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	7.7800e-003	0.2512	0.0421	7.4000e-004	0.6059	1.2900e-003	0.6072	0.0635	1.2400e-003	0.0647		78.2064	78.2064	2.3000e-003		78.2639

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

3.9 Site Preparation-Demobilization - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	7.7800e-003	0.2512	0.0421	7.4000e-004	0.3777	1.2900e-003	0.3789	0.0407	1.2400e-003	0.0419		78.2064	78.2064	2.3000e-003		78.2639
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	7.7800e-003	0.2512	0.0421	7.4000e-004	0.3777	1.2900e-003	0.3789	0.0407	1.2400e-003	0.0419		78.2064	78.2064	2.3000e-003		78.2639

4.0 Operational Detail - Mobile

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
User Defined Recreational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
User Defined Recreational	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.424008	0.043716	0.245079	0.148024	0.041041	0.007155	0.014640	0.065027	0.001791	0.000746	0.006285	0.000584	0.001901
User Defined Recreational	0.424008	0.043716	0.245079	0.148024	0.041041	0.007155	0.014640	0.065027	0.001791	0.000746	0.006285	0.000584	0.001901

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Unmitigated	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	13.7707					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	46.3758					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.1000e-004	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Total	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	13.7707					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	46.3758					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.1000e-004	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123
Total	60.1471	5.0000e-005	5.4200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0115	0.0115	3.0000e-005		0.0123

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Winter

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

APPENDIX C

Nevada Irrigation District's Cultural Resources Policy (No. 6085)

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Staff Report

for the Board of Directors of June 10, 2015

TO: Board of Directors
FROM: Gary King, Engineering Manager
DATE: June 1, 2015
SUBJECT: Policy – Cultural Resources (Consent)

ENGINEERING

RECOMMENDATION:

Adopt Resolution No. 2015-16 (Establishing Policy for Administration – Cultural Resources) as recommended by the Administrative Practices Committee on May 5, 2015.

BACKGROUND:

Cultural resources can be found during numerous District activities. These resources such as Indian pottery or mining equipment are relevant to the history of this area. If the District encounters these resources, staff will take reasonable efforts to protect and preserve resources. Once these materials are removed, they can be stored and then donated to a preservation organization with the potential of display to the public. Human remains if found have a more formal method which is indicated in the attached guideline.

Staff in collaboration with a professional archeologist has developed a guideline for dealing with either human or cultural remains. In addition, this guideline was discussed in the Engineering Committee on May 19, 2015 and will be used by staff and included as a guideline in future California Environmental Quality Act documents. The guideline has been provided as an information item as part of this request.

It is the recommendation of staff to approve the attached policy.

BUDGETARY IMPACT:

No budget impact

GDK

Nevada Irrigation District

POLICY MANUAL

POLICY TITLE: Cultural Resources

POLICY NUMBER: 6085

The purpose of this policy is to outline efforts of the District to protect inadvertently discover cultural resources or human remains.

6085.1 Discovery of Cultural Resources

Archaeological materials: may include, but are not limited to, flaked stone tools (projectile point, biface, scraper, etc.) and debitage (flakes) made of chert, obsidian, etc., groundstone milling tools and fragments (mortar, pestle, handstone, millstone, etc.), faunal bones, fire-affected rock, dark middens, house pit depressions and human interments.

Historic-era Resources: may include, but are not limited to, small cemeteries or burial plots, cut (square) nails, containers or miscellaneous hardware, glass fragments, cans with soldered seams or tops, ceramic or stoneware objects or fragments, milled or split lumber, earthworks, feature or structure remains and trash dumps.

The District will treat those materials in a manner consistent using guidelines developed by the District staff and appropriate professionals which will follow standards of the industry and regulatory requirements to manage the discovery of cultural resources.

6085.2 Discovery of Human Remains

According to Section 7050 of the California Health and Safety Code, it is a misdemeanor to knowingly disturb a human burial site. If human remains are encountered (or are suspected) during related activity, the District or its contractor will treat those remains or suspected remains in a dignified manner using guidelines developed by the District staff and appropriate professionals which will follow standards of the industry and regulatory requirements to manage the discovery of human remains.

Adopted: (Date) via Resolution No. 2015

Revised:

GUIDELINES FOR CULTURAL RESOURCES MAY 11, 2015

If subsurface cultural resources are inadvertently uncovered during Project ground disturbing activities

Archaeological materials: may include, but are not limited to, flaked stone tools (projectile point, biface, scraper, etc.) and debitage (flakes) made of chert, obsidian, etc., groundstone milling tools and fragments (mortar, pestle, handstone, millstone, etc.), faunal bones, fire-affected rock, dark middens, house pit depressions and human interments.

Historic-era Resources: may include, but are not limited to, small cemeteries or burial plots, cut (square) nails, containers or miscellaneous hardware, glass fragments, cans with soldered seams or tops, ceramic or stoneware objects or fragments, milled or split lumber, earthworks, feature or structure remains and trash dumps. NID or its contractor shall complete the following steps:

1. Stop all work when cultural resources are encountered
2. Immediately contact the NID Project Manager
3. NID will relocate work within no less than 150 feet of the discovery or otherwise directed by the NID Qualified Professional Archaeologist; If NID resumes work in a location where cultural resources have been discovered and cleared
4. NID will have an onsite archeologist to confirm that no additional archaeological resources are in the area.
5. NID or its contractor shall secure the discovery location with traffic plates over the exposed site or a person watching the site until cleared by the archeologist
6. NID contractor will make every effort not to further harass or damage, touch, or remove any cultural resources materials
7. All spoils will remain in their current location until directed to be moved by NID staff or the archeologist.
8. NID or its contractor shall record the location and keep notes of all calls and events
9. NID or its contractor shall treat the find as confidential and do not publically disclose the location. Only authorized personnel, or individuals with the permission of NID (and the land owner if different from NID) shall be allowed on the archeological site
10. The NID archaeologist will assess the significance of the find. All materials collected and secured by NID at the offsite District location. The NID archeologist will not provide any materials to a tribal agency or other group unless directed by the District. All materials found will be secured and provided to an appropriate tribal or museum of selection at the discretion of the District. The District will make every effort to treat the sharing of materials such that the community is benefited by the find
11. No additional work shall take place within the immediate vicinity of the find until NID's chosen archaeologist has given approval and with the concurrence of SHPO;

Unanticipated Discovery of Human Remains

Section 7050 of the California Health and Safety Code states that it is a misdemeanor to knowingly disturb a human burial site. If human remains are encountered (or are suspected) during any project-related activity, NID's contractor shall complete the following steps:

1. Immediately stop all work when human remains are encountered
2. Immediately contact the NID Project Manager or Department Manager
3. NID will contact a Qualified Professional Archaeologist (meeting the Secretary of the Interior's Qualifications) who will then notify the County Coroner immediately pursuant to PRC Section 7050.5;
4. NID or its contractor will relocate work if directed by NID within no less than 150 feet of the discovery or otherwise directed by the NID Qualified Professional Archaeologist;
5. NID will have the NID archeologist confirm that no additional archaeological resources are in the area. If NID resumes work in a location where human remains have been discovered and cleared, NID will have a Qualified Professional Archaeologist onsite to confirm that no additional human remains are in the area
6. NID's contractor shall not damage, touch, or remove any human remains or associated materials or remove associated spoils or pick through them;
7. Record the location and keep notes of all calls, site visits and events;
8. NID or its contractor shall treat the find as confidential and do not publically disclose the location. NID shall provide security to the area as needed. Only authorized personnel, or individuals with the permission of NID (and the land owner, if different from NID) shall be allowed onsite.
9. The County Coroner may assess the human remains. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission (NAHC) within 24 hours of such identification. The NAHC shall identify the most likely descendant (MLD).
10. Once given the permission by NID (and the land owner if different from NID) the MLD shall be allowed onsite. The MLD shall complete their inspection and make their recommendation to NID for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98. MLD recommendations must be made within 48 hours of the NAHC notification to the MLD.
11. No additional work shall take place within the immediate vicinity of the find until NID's chosen archaeologist gives approval to resume work in that area.

APPENDIX D
Greenhouse Gas Emissions Modeling

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Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

**Greenhorn Sed Removal at Rollins Reservoir - 50k
Nevada County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	3.00	Acre	3.00	130,680.00	0
User Defined Recreational	49.70	User Defined Unit	49.70	2,164,932.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	80
Climate Zone	1			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

Project Characteristics - The construction emissions represents the operational emissions since the project will be implemented annually as maintenance.

Land Use - Acreage taken from CEQA Project Description for areas of disturbance.

Construction Phase - Construction details based on CEQA Project Description information. Sorting and Offsite Transport are split into two separate construction phases while Channelizing Creek Bed and Excavate Dewatering Channel are combined.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - No construction equipment usage. Haul trips only.

Off-road Equipment - No construction equipment usage. Haul trip only during this phase.

Off-road Equipment - No construction equipment usage. Haul trips only.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Trips and VMT - Assumptions: 20 haul trips to mobilize/demobilize equipment, ~3,333 haul trips to remove 50k tons of sediment with 15 ton capacity truck, 6 daily vendor trips, and 6 workers will commute daily averaging 40 miles roundtrip.

On-road Fugitive Dust - The only known unpaved road is the road entering into the site from You Bet Road.

Grading -

Energy Use -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	40.00	131.00
tblConstructionPhase	NumDays	40.00	9.00
tblConstructionPhase	NumDays	110.00	6.00
tblConstructionPhase	NumDays	110.00	9.00
tblConstructionPhase	NumDays	40.00	105.00
tblConstructionPhase	NumDays	40.00	105.00

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

tblConstructionPhase	NumDays	110.00	105.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblLandUse	LandUseSquareFeet	0.00	2,164,932.00
tblLandUse	LotAcreage	0.00	49.70
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

tbloffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tbloffRoadEquipment	PhaseName		Grading-New Haul Road
tbloffRoadEquipment	PhaseName		Site Preparation-Sediment Stockpiling
tbloffRoadEquipment	PhaseName		Site Preparation-Sorting
tbloffRoadEquipment	PhaseName		Site Preparation-Sorting
tbloffRoadEquipment	PhaseName		Site Preparation-Sorting
tbloffRoadEquipment	PhaseName		Site Preparation-Sediment Stockpiling
tbloffRoadEquipment	PhaseName		Site Preparation-Sorting
tbloffRoadEquipment	PhaseName		Grading-New Haul Road
tbloffRoadEquipment	PhaseName		Grading-Channelize Creek and Excavate Channel
tbloffRoadEquipment	PhaseName		Site Preparation-Sediment Stockpiling
tbloffRoadEquipment	UsageHours	8.00	0.00
tbloffRoadEquipment	UsageHours	8.00	0.00

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tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	HaulingTripNumber	0.00	3,333.00

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tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripLength	16.80	40.00
tblTripsAndVMT	WorkerTripLength	16.80	40.00
tblTripsAndVMT	WorkerTripLength	16.80	40.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	6.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00

2.0 Emissions Summary

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	7-1-2019	9-30-2019	2.7586	2.7586
		Highest	2.7586	2.7586

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	10.9768	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	10.9768	0.0000	4.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	10.9768	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	10.9768	0.0000	4.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation-Sorting	Site Preparation	7/1/2019	11/29/2019	6	131	Phase 2 Sorting
2	Site Preparation-Mobilization	Site Preparation	7/1/2019	7/10/2019	6	9	Phase 1 Mobilization
3	Grading-New Haul Road	Grading	7/15/2019	7/20/2019	6	6	Phase 1 Establish New Haul Road
4	Grading-Channelize Creek and Excavate Channel	Grading	7/21/2019	7/31/2019	6	9	Phase 1 Channelize Creek Bed and Excavate Dewatering Channel
5	Site Preparation-Sediment Stockpiling	Site Preparation	8/1/2019	11/30/2019	6	105	Phase 2 Transport to Stockpile
6	Site Preparation-Offsite Transport	Site Preparation	8/1/2019	11/30/2019	6	105	Phase 2 Offsite Transport
7	Grading-Conduct Sediment Removal	Grading	8/1/2019	11/30/2019	6	105	Phase 2 Conduct Sediment Removal
8	Site Preparation-Demobilization	Site Preparation	11/15/2019	12/31/2019	6	40	Phase 3 Demobilization

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 3

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation-Sorting	Crushing/Proc. Equipment	1	8.00	85	0.78
Site Preparation-Sorting	Dumpers/Tenders	1	8.00	16	0.38
Site Preparation-Sorting	Excavators	1	8.00	158	0.38
Site Preparation-Sorting	Generator Sets	2	8.00	84	0.74
Site Preparation-Sorting	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation-Sorting	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation-Mobilization	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Mobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37

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Grading-New Haul Road	Crawler Tractors	1	8.00	212	0.43
Grading-New Haul Road	Excavators	1	8.00	158	0.38
Grading-New Haul Road	Graders	0	0.00	187	0.41
Grading-New Haul Road	Rollers	2	8.00	80	0.38
Grading-New Haul Road	Rubber Tired Dozers	0	0.00	247	0.40
Grading-New Haul Road	Scrapers	2	8.00	367	0.48
Grading-New Haul Road	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading-Channelize Creek and Excavate Channel	Excavators	3	8.00	158	0.38
Grading-Channelize Creek and Excavate Channel	Graders	0	0.00	187	0.41
Grading-Channelize Creek and Excavate Channel	Rubber Tired Dozers	0	0.00	247	0.40
Grading-Channelize Creek and Excavate Channel	Scrapers	0	0.00	367	0.48
Grading-Channelize Creek and Excavate Channel	Skid Steer Loaders	1	8.00	65	0.37
Grading-Channelize Creek and Excavate Channel	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation-Sediment Stockpiling	Crawler Tractors	1	8.00	212	0.43
Site Preparation-Sediment Stockpiling	Excavators	1	8.00	158	0.38
Site Preparation-Sediment Stockpiling	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Sediment Stockpiling	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation-Sediment Stockpiling	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation-Offsite Transport	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Offsite Transport	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Grading-Conduct Sediment Removal	Excavators	2	8.00	158	0.38
Grading-Conduct Sediment Removal	Graders	0	0.00	187	0.41
Grading-Conduct Sediment Removal	Rubber Tired Dozers	0	0.00	247	0.40
Grading-Conduct Sediment Removal	Scrapers	2	8.00	367	0.48
Grading-Conduct Sediment Removal	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation-Demobilization	Rubber Tired Dozers	0	0.00	247	0.40

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Site Preparation-Demobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37
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Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation-Sorting	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Mobilization	0	0.00	0.00	20.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT
Grading-New Haul Road	9	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Grading-Channelize Creek and Excavate C	6	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Sediment Stockpiling	4	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Offsite Transport	0	0.00	0.00	3,333.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT
Grading-Conduct Sediment Removal	6	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Demobilization	0	0.00	0.00	20.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

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3.3 Site Preparation-Mobilization - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-004	5.0000e-003	8.1000e-004	2.0000e-005	3.4000e-004	3.0000e-005	3.6000e-004	9.0000e-005	2.0000e-005	1.2000e-004	0.0000	1.4300	1.4300	4.0000e-005	0.0000	1.4310
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.5000e-004	5.0000e-003	8.1000e-004	2.0000e-005	3.4000e-004	3.0000e-005	3.6000e-004	9.0000e-005	2.0000e-005	1.2000e-004	0.0000	1.4300	1.4300	4.0000e-005	0.0000	1.4310

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3.3 Site Preparation-Mobilization - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-004	5.0000e-003	8.1000e-004	2.0000e-005	3.4000e-004	3.0000e-005	3.6000e-004	9.0000e-005	2.0000e-005	1.2000e-004	0.0000	1.4300	1.4300	4.0000e-005	0.0000	1.4310
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.5000e-004	5.0000e-003	8.1000e-004	2.0000e-005	3.4000e-004	3.0000e-005	3.6000e-004	9.0000e-005	2.0000e-005	1.2000e-004	0.0000	1.4300	1.4300	4.0000e-005	0.0000	1.4310

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

3.4 Grading-New Haul Road - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.9500e-003	0.0000	7.9500e-003	8.6000e-004	0.0000	8.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0125	0.1440	0.0981	1.7000e-004		6.6200e-003	6.6200e-003		6.0900e-003	6.0900e-003	0.0000	15.5946	15.5946	4.9300e-003	0.0000	15.7179
Total	0.0125	0.1440	0.0981	1.7000e-004	7.9500e-003	6.6200e-003	0.0146	8.6000e-004	6.0900e-003	6.9500e-003	0.0000	15.5946	15.5946	4.9300e-003	0.0000	15.7179

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-004	4.5500e-003	1.0400e-003	1.0000e-005	8.5900e-003	5.0000e-005	8.6400e-003	9.2000e-004	5.0000e-005	9.6000e-004	0.0000	1.1555	1.1555	4.0000e-005	0.0000	1.1565
Worker	2.7000e-004	2.7000e-004	2.2100e-003	1.0000e-005	0.0171	0.0000	0.0171	1.7900e-003	0.0000	1.7900e-003	0.0000	0.4639	0.4639	2.0000e-005	0.0000	0.4644
Total	4.7000e-004	4.8200e-003	3.2500e-003	2.0000e-005	0.0257	5.0000e-005	0.0257	2.7100e-003	5.0000e-005	2.7500e-003	0.0000	1.6194	1.6194	6.0000e-005	0.0000	1.6208

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

3.4 Grading-New Haul Road - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.5800e-003	0.0000	3.5800e-003	3.9000e-004	0.0000	3.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0125	0.1440	0.0981	1.7000e-004		6.6200e-003	6.6200e-003		6.0900e-003	6.0900e-003	0.0000	15.5946	15.5946	4.9300e-003	0.0000	15.7179
Total	0.0125	0.1440	0.0981	1.7000e-004	3.5800e-003	6.6200e-003	0.0102	3.9000e-004	6.0900e-003	6.4800e-003	0.0000	15.5946	15.5946	4.9300e-003	0.0000	15.7179

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-004	4.5500e-003	1.0400e-003	1.0000e-005	5.3800e-003	5.0000e-005	5.4300e-003	6.0000e-004	5.0000e-005	6.4000e-004	0.0000	1.1555	1.1555	4.0000e-005	0.0000	1.1565
Worker	2.7000e-004	2.7000e-004	2.2100e-003	1.0000e-005	0.0106	0.0000	0.0107	1.1500e-003	0.0000	1.1500e-003	0.0000	0.4639	0.4639	2.0000e-005	0.0000	0.4644
Total	4.7000e-004	4.8200e-003	3.2500e-003	2.0000e-005	0.0160	5.0000e-005	0.0161	1.7500e-003	5.0000e-005	1.7900e-003	0.0000	1.6194	1.6194	6.0000e-005	0.0000	1.6208

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3.5 Grading-Channelize Creek and Excavate Channel - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0000e-003	0.0623	0.0710	1.1000e-004		3.3800e-003	3.3800e-003		3.1100e-003	3.1100e-003	0.0000	9.6060	9.6060	3.0400e-003	0.0000	9.6820
Total	6.0000e-003	0.0623	0.0710	1.1000e-004	0.0000	3.3800e-003	3.3800e-003	0.0000	3.1100e-003	3.1100e-003	0.0000	9.6060	9.6060	3.0400e-003	0.0000	9.6820

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-004	6.8300e-003	1.5600e-003	2.0000e-005	0.0129	7.0000e-005	0.0130	1.3800e-003	7.0000e-005	1.4400e-003	0.0000	1.7332	1.7332	6.0000e-005	0.0000	1.7347
Worker	4.0000e-004	4.1000e-004	3.3100e-003	1.0000e-005	0.0256	1.0000e-005	0.0256	2.6800e-003	0.0000	2.6900e-003	0.0000	0.6959	0.6959	3.0000e-005	0.0000	0.6966
Total	7.0000e-004	7.2400e-003	4.8700e-003	3.0000e-005	0.0385	8.0000e-005	0.0386	4.0600e-003	7.0000e-005	4.1300e-003	0.0000	2.4291	2.4291	9.0000e-005	0.0000	2.4313

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3.5 Grading-Channelize Creek and Excavate Channel - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0000e-003	0.0623	0.0710	1.1000e-004		3.3800e-003	3.3800e-003		3.1100e-003	3.1100e-003	0.0000	9.6060	9.6060	3.0400e-003	0.0000	9.6820
Total	6.0000e-003	0.0623	0.0710	1.1000e-004	0.0000	3.3800e-003	3.3800e-003	0.0000	3.1100e-003	3.1100e-003	0.0000	9.6060	9.6060	3.0400e-003	0.0000	9.6820

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-004	6.8300e-003	1.5600e-003	2.0000e-005	8.0700e-003	7.0000e-005	8.1400e-003	8.9000e-004	7.0000e-005	9.6000e-004	0.0000	1.7332	1.7332	6.0000e-005	0.0000	1.7347
Worker	4.0000e-004	4.1000e-004	3.3100e-003	1.0000e-005	0.0160	1.0000e-005	0.0160	1.7200e-003	0.0000	1.7200e-003	0.0000	0.6959	0.6959	3.0000e-005	0.0000	0.6966
Total	7.0000e-004	7.2400e-003	4.8700e-003	3.0000e-005	0.0240	8.0000e-005	0.0241	2.6100e-003	7.0000e-005	2.6800e-003	0.0000	2.4291	2.4291	9.0000e-005	0.0000	2.4313

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3.7 Site Preparation-Offsite Transport - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0256	0.8331	0.1345	2.5000e-003	1.5871	4.2900e-003	1.5914	0.1681	4.1000e-003	0.1722	0.0000	238.3124	238.3124	6.5900e-003	0.0000	238.4772
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0256	0.8331	0.1345	2.5000e-003	1.5871	4.2900e-003	1.5914	0.1681	4.1000e-003	0.1722	0.0000	238.3124	238.3124	6.5900e-003	0.0000	238.4772

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3.7 Site Preparation-Offsite Transport - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0256	0.8331	0.1345	2.5000e-003	0.9930	4.2900e-003	0.9973	0.1087	4.1000e-003	0.1128	0.0000	238.3124	238.3124	6.5900e-003	0.0000	238.4772
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0256	0.8331	0.1345	2.5000e-003	0.9930	4.2900e-003	0.9973	0.1087	4.1000e-003	0.1128	0.0000	238.3124	238.3124	6.5900e-003	0.0000	238.4772

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

3.8 Grading-Conduct Sediment Removal - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1114	0.0000	0.1114	0.0120	0.0000	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1637	1.8830	1.4309	2.4600e-003		0.0831	0.0831		0.0765	0.0765	0.0000	220.8456	220.8456	0.0699	0.0000	222.5924
Total	0.1637	1.8830	1.4309	2.4600e-003	0.1114	0.0831	0.1944	0.0120	0.0765	0.0885	0.0000	220.8456	220.8456	0.0699	0.0000	222.5924

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.5300e-003	0.0797	0.0182	2.1000e-004	0.1503	8.4000e-004	0.1512	0.0161	8.1000e-004	0.0169	0.0000	20.2208	20.2208	6.9000e-004	0.0000	20.2380
Worker	4.6900e-003	4.7800e-003	0.0386	9.0000e-005	0.2985	6.0000e-005	0.2986	0.0313	6.0000e-005	0.0313	0.0000	8.1186	8.1186	3.2000e-004	0.0000	8.1266
Total	8.2200e-003	0.0844	0.0568	3.0000e-004	0.4489	9.0000e-004	0.4498	0.0473	8.7000e-004	0.0482	0.0000	28.3394	28.3394	1.0100e-003	0.0000	28.3646

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

3.8 Grading-Conduct Sediment Removal - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0501	0.0000	0.0501	5.4100e-003	0.0000	5.4100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1637	1.8830	1.4309	2.4600e-003		0.0831	0.0831		0.0765	0.0765	0.0000	220.8453	220.8453	0.0699	0.0000	222.5922
Total	0.1637	1.8830	1.4309	2.4600e-003	0.0501	0.0831	0.1332	5.4100e-003	0.0765	0.0819	0.0000	220.8453	220.8453	0.0699	0.0000	222.5922

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.5300e-003	0.0797	0.0182	2.1000e-004	0.0942	8.4000e-004	0.0950	0.0104	8.1000e-004	0.0112	0.0000	20.2208	20.2208	6.9000e-004	0.0000	20.2380
Worker	4.6900e-003	4.7800e-003	0.0386	9.0000e-005	0.1863	6.0000e-005	0.1863	0.0201	6.0000e-005	0.0201	0.0000	8.1186	8.1186	3.2000e-004	0.0000	8.1266
Total	8.2200e-003	0.0844	0.0568	3.0000e-004	0.2804	9.0000e-004	0.2813	0.0305	8.7000e-004	0.0314	0.0000	28.3394	28.3394	1.0100e-003	0.0000	28.3646

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

3.9 Site Preparation-Demobilization - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-004	5.0000e-003	8.1000e-004	2.0000e-005	9.5200e-003	3.0000e-005	9.5500e-003	1.0100e-003	2.0000e-005	1.0300e-003	0.0000	1.4300	1.4300	4.0000e-005	0.0000	1.4310
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.5000e-004	5.0000e-003	8.1000e-004	2.0000e-005	9.5200e-003	3.0000e-005	9.5500e-003	1.0100e-003	2.0000e-005	1.0300e-003	0.0000	1.4300	1.4300	4.0000e-005	0.0000	1.4310

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3.9 Site Preparation-Demobilization - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-004	5.0000e-003	8.1000e-004	2.0000e-005	5.9600e-003	3.0000e-005	5.9800e-003	6.5000e-004	2.0000e-005	6.8000e-004	0.0000	1.4300	1.4300	4.0000e-005	0.0000	1.4310
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.5000e-004	5.0000e-003	8.1000e-004	2.0000e-005	5.9600e-003	3.0000e-005	5.9800e-003	6.5000e-004	2.0000e-005	6.8000e-004	0.0000	1.4300	1.4300	4.0000e-005	0.0000	1.4310

4.0 Operational Detail - Mobile

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
User Defined Recreational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
User Defined Recreational	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	10.9768	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Unmitigated	10.9768	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.5132					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.4636					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Total	10.9768	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.5132					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.4636					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Total	10.9768	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003

7.0 Water Detail

7.1 Mitigation Measures Water

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Greenhorn Sed Removal at Rollins Reservoir - 50k - Nevada County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

**Greenhorn Sed Removal at Rollins Reservoir - 200k
Nevada County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	3.00	Acre	3.00	130,680.00	0
User Defined Recreational	49.70	User Defined Unit	49.70	2,164,932.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	80
Climate Zone	1			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

Project Characteristics - The construction emissions represents the operational emissions since the project will be implemented annually as maintenance.

Land Use - Acreage taken from CEQA Project Description for areas of disturbance.

Construction Phase - Construction details based on CEQA Project Description information. Sorting and Offsite Transport are split into two separate construction phases while Channelizing Creek Bed and Excavate Dewatering Channel are combined.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - No construction equipment usage. Haul trips only.

Off-road Equipment - No construction equipment usage. Haul trip only during this phase.

Off-road Equipment - No construction equipment usage. Haul trips only.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Off-road Equipment - Construction equipment details based on CEQA Project Description information.

Trips and VMT - Assumptions: 20 haul trips to mobilize/demobilize equipment, ~13,333 haul trips to remove 200k tons of sediment with 15 ton capacity truck, 6 daily vendor trips, and 6 workers will commute daily averaging 40 miles roundtrip.

On-road Fugitive Dust - The only known unpaved road is the road entering into the site from You Bet Road.

Grading -

Energy Use -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	40.00	131.00
tblConstructionPhase	NumDays	40.00	9.00
tblConstructionPhase	NumDays	110.00	6.00
tblConstructionPhase	NumDays	110.00	9.00
tblConstructionPhase	NumDays	40.00	105.00
tblConstructionPhase	NumDays	40.00	105.00

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tblConstructionPhase	NumDays	110.00	105.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblLandUse	LandUseSquareFeet	0.00	2,164,932.00
tblLandUse	LotAcreage	0.00	49.70
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00

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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	HaulingPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	VendorPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00
tblOnRoadDust	WorkerPercentPave	100.00	98.00

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tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripLength	20.00	40.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	HaulingTripNumber	0.00	13,333.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripLength	16.80	40.00
tblTripsAndVMT	WorkerTripLength	16.80	40.00
tblTripsAndVMT	WorkerTripLength	16.80	40.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	6.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00

2.0 Emissions Summary

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	7-1-2019	9-30-2019	4.0007	4.0007
		Highest	4.0007	4.0007

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	10.9768	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	10.9768	0.0000	4.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	10.9768	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	10.9768	0.0000	4.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation-Sorting	Site Preparation	7/1/2019	11/29/2019	6	131	Phase 2 Sorting
2	Site Preparation-Mobilization	Site Preparation	7/1/2019	7/10/2019	6	9	Phase 1 Mobilization
3	Grading-New Haul Road	Grading	7/15/2019	7/20/2019	6	6	Phase 1 Establish New Haul Road
4	Grading-Channelize Creek and Excavate Channel	Grading	7/21/2019	7/31/2019	6	9	Phase 1 Channelize Creek Bed and Excavate Dewatering Channel
5	Site Preparation-Sediment Stockpiling	Site Preparation	8/1/2019	11/30/2019	6	105	Phase 2 Transport to Stockpile
6	Site Preparation-Offsite Transport	Site Preparation	8/1/2019	11/30/2019	6	105	Phase 2 Offsite Transport
7	Grading-Conduct Sediment Removal	Grading	8/1/2019	11/30/2019	6	105	Phase 2 Conduct Sediment Removal
8	Site Preparation-Demobilization	Site Preparation	11/15/2019	12/31/2019	6	40	Phase 3 Demobilization

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 3

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation-Sorting	Crushing/Proc. Equipment	1	8.00	85	0.78
Site Preparation-Sorting	Dumpers/Tenders	1	8.00	16	0.38
Site Preparation-Sorting	Excavators	1	8.00	158	0.38
Site Preparation-Sorting	Generator Sets	2	8.00	84	0.74
Site Preparation-Sorting	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation-Sorting	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation-Mobilization	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Mobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37

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Grading-New Haul Road	Crawler Tractors	1	8.00	212	0.43
Grading-New Haul Road	Excavators	1	8.00	158	0.38
Grading-New Haul Road	Graders	0	0.00	187	0.41
Grading-New Haul Road	Rollers	2	8.00	80	0.38
Grading-New Haul Road	Rubber Tired Dozers	0	0.00	247	0.40
Grading-New Haul Road	Scrapers	2	8.00	367	0.48
Grading-New Haul Road	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading-Channelize Creek and Excavate Channel	Excavators	3	8.00	158	0.38
Grading-Channelize Creek and Excavate Channel	Graders	0	0.00	187	0.41
Grading-Channelize Creek and Excavate Channel	Rubber Tired Dozers	0	0.00	247	0.40
Grading-Channelize Creek and Excavate Channel	Scrapers	0	0.00	367	0.48
Grading-Channelize Creek and Excavate Channel	Skid Steer Loaders	1	8.00	65	0.37
Grading-Channelize Creek and Excavate Channel	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation-Sediment Stockpiling	Crawler Tractors	1	8.00	212	0.43
Site Preparation-Sediment Stockpiling	Excavators	1	8.00	158	0.38
Site Preparation-Sediment Stockpiling	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Sediment Stockpiling	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation-Sediment Stockpiling	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation-Offsite Transport	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation-Offsite Transport	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Grading-Conduct Sediment Removal	Excavators	2	8.00	158	0.38
Grading-Conduct Sediment Removal	Graders	0	0.00	187	0.41
Grading-Conduct Sediment Removal	Rubber Tired Dozers	0	0.00	247	0.40
Grading-Conduct Sediment Removal	Scrapers	2	8.00	367	0.48
Grading-Conduct Sediment Removal	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation-Demobilization	Rubber Tired Dozers	0	0.00	247	0.40

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

Site Preparation-Demobilization	Tractors/Loaders/Backhoes	0	0.00	97	0.37
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Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation-Sorting	5	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Mobilization	0	0.00	0.00	20.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT
Grading-New Haul Road	9	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Grading-Channelize Creek and Excavate C	6	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Sediment Stockpiling	4	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Offsite Transport	0	0.00	0.00	13,333.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT
Grading-Conduct Sediment Removal	6	6.00	6.00	0.00	40.00	20.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation-Demobilization	0	0.00	0.00	20.00	16.80	6.60	40.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

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3.3 Site Preparation-Mobilization - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-004	5.0000e-003	8.1000e-004	2.0000e-005	3.4000e-004	3.0000e-005	3.6000e-004	9.0000e-005	2.0000e-005	1.2000e-004	0.0000	1.4300	1.4300	4.0000e-005	0.0000	1.4310
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.5000e-004	5.0000e-003	8.1000e-004	2.0000e-005	3.4000e-004	3.0000e-005	3.6000e-004	9.0000e-005	2.0000e-005	1.2000e-004	0.0000	1.4300	1.4300	4.0000e-005	0.0000	1.4310

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

3.3 Site Preparation-Mobilization - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-004	5.0000e-003	8.1000e-004	2.0000e-005	3.4000e-004	3.0000e-005	3.6000e-004	9.0000e-005	2.0000e-005	1.2000e-004	0.0000	1.4300	1.4300	4.0000e-005	0.0000	1.4310
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.5000e-004	5.0000e-003	8.1000e-004	2.0000e-005	3.4000e-004	3.0000e-005	3.6000e-004	9.0000e-005	2.0000e-005	1.2000e-004	0.0000	1.4300	1.4300	4.0000e-005	0.0000	1.4310

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3.4 Grading-New Haul Road - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.9500e-003	0.0000	7.9500e-003	8.6000e-004	0.0000	8.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0125	0.1440	0.0981	1.7000e-004		6.6200e-003	6.6200e-003		6.0900e-003	6.0900e-003	0.0000	15.5946	15.5946	4.9300e-003	0.0000	15.7179
Total	0.0125	0.1440	0.0981	1.7000e-004	7.9500e-003	6.6200e-003	0.0146	8.6000e-004	6.0900e-003	6.9500e-003	0.0000	15.5946	15.5946	4.9300e-003	0.0000	15.7179

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-004	4.5500e-003	1.0400e-003	1.0000e-005	8.5900e-003	5.0000e-005	8.6400e-003	9.2000e-004	5.0000e-005	9.6000e-004	0.0000	1.1555	1.1555	4.0000e-005	0.0000	1.1565
Worker	2.7000e-004	2.7000e-004	2.2100e-003	1.0000e-005	0.0171	0.0000	0.0171	1.7900e-003	0.0000	1.7900e-003	0.0000	0.4639	0.4639	2.0000e-005	0.0000	0.4644
Total	4.7000e-004	4.8200e-003	3.2500e-003	2.0000e-005	0.0257	5.0000e-005	0.0257	2.7100e-003	5.0000e-005	2.7500e-003	0.0000	1.6194	1.6194	6.0000e-005	0.0000	1.6208

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3.4 Grading-New Haul Road - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.5800e-003	0.0000	3.5800e-003	3.9000e-004	0.0000	3.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0125	0.1440	0.0981	1.7000e-004		6.6200e-003	6.6200e-003		6.0900e-003	6.0900e-003	0.0000	15.5946	15.5946	4.9300e-003	0.0000	15.7179
Total	0.0125	0.1440	0.0981	1.7000e-004	3.5800e-003	6.6200e-003	0.0102	3.9000e-004	6.0900e-003	6.4800e-003	0.0000	15.5946	15.5946	4.9300e-003	0.0000	15.7179

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-004	4.5500e-003	1.0400e-003	1.0000e-005	5.3800e-003	5.0000e-005	5.4300e-003	6.0000e-004	5.0000e-005	6.4000e-004	0.0000	1.1555	1.1555	4.0000e-005	0.0000	1.1565
Worker	2.7000e-004	2.7000e-004	2.2100e-003	1.0000e-005	0.0106	0.0000	0.0107	1.1500e-003	0.0000	1.1500e-003	0.0000	0.4639	0.4639	2.0000e-005	0.0000	0.4644
Total	4.7000e-004	4.8200e-003	3.2500e-003	2.0000e-005	0.0160	5.0000e-005	0.0161	1.7500e-003	5.0000e-005	1.7900e-003	0.0000	1.6194	1.6194	6.0000e-005	0.0000	1.6208

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3.5 Grading-Channelize Creek and Excavate Channel - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0000e-003	0.0623	0.0710	1.1000e-004		3.3800e-003	3.3800e-003		3.1100e-003	3.1100e-003	0.0000	9.6060	9.6060	3.0400e-003	0.0000	9.6820
Total	6.0000e-003	0.0623	0.0710	1.1000e-004	0.0000	3.3800e-003	3.3800e-003	0.0000	3.1100e-003	3.1100e-003	0.0000	9.6060	9.6060	3.0400e-003	0.0000	9.6820

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-004	6.8300e-003	1.5600e-003	2.0000e-005	0.0129	7.0000e-005	0.0130	1.3800e-003	7.0000e-005	1.4400e-003	0.0000	1.7332	1.7332	6.0000e-005	0.0000	1.7347
Worker	4.0000e-004	4.1000e-004	3.3100e-003	1.0000e-005	0.0256	1.0000e-005	0.0256	2.6800e-003	0.0000	2.6900e-003	0.0000	0.6959	0.6959	3.0000e-005	0.0000	0.6966
Total	7.0000e-004	7.2400e-003	4.8700e-003	3.0000e-005	0.0385	8.0000e-005	0.0386	4.0600e-003	7.0000e-005	4.1300e-003	0.0000	2.4291	2.4291	9.0000e-005	0.0000	2.4313

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3.5 Grading-Channelize Creek and Excavate Channel - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0000e-003	0.0623	0.0710	1.1000e-004		3.3800e-003	3.3800e-003		3.1100e-003	3.1100e-003	0.0000	9.6060	9.6060	3.0400e-003	0.0000	9.6820
Total	6.0000e-003	0.0623	0.0710	1.1000e-004	0.0000	3.3800e-003	3.3800e-003	0.0000	3.1100e-003	3.1100e-003	0.0000	9.6060	9.6060	3.0400e-003	0.0000	9.6820

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-004	6.8300e-003	1.5600e-003	2.0000e-005	8.0700e-003	7.0000e-005	8.1400e-003	8.9000e-004	7.0000e-005	9.6000e-004	0.0000	1.7332	1.7332	6.0000e-005	0.0000	1.7347
Worker	4.0000e-004	4.1000e-004	3.3100e-003	1.0000e-005	0.0160	1.0000e-005	0.0160	1.7200e-003	0.0000	1.7200e-003	0.0000	0.6959	0.6959	3.0000e-005	0.0000	0.6966
Total	7.0000e-004	7.2400e-003	4.8700e-003	3.0000e-005	0.0240	8.0000e-005	0.0241	2.6100e-003	7.0000e-005	2.6800e-003	0.0000	2.4291	2.4291	9.0000e-005	0.0000	2.4313

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

3.7 Site Preparation-Offsite Transport - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1024	3.3327	0.5380	0.0100	6.3488	0.0171	6.3659	0.6723	0.0164	0.6887	0.0000	953.3210	953.3210	0.0264	0.0000	953.9801
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1024	3.3327	0.5380	0.0100	6.3488	0.0171	6.3659	0.6723	0.0164	0.6887	0.0000	953.3210	953.3210	0.0264	0.0000	953.9801

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

3.7 Site Preparation-Offsite Transport - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.1024	3.3327	0.5380	0.0100	3.9724	0.0171	3.9896	0.4347	0.0164	0.4511	0.0000	953.3210	953.3210	0.0264	0.0000	953.9801
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.1024	3.3327	0.5380	0.0100	3.9724	0.0171	3.9896	0.4347	0.0164	0.4511	0.0000	953.3210	953.3210	0.0264	0.0000	953.9801

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

3.8 Grading-Conduct Sediment Removal - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1114	0.0000	0.1114	0.0120	0.0000	0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1637	1.8830	1.4309	2.4600e-003		0.0831	0.0831		0.0765	0.0765	0.0000	220.8456	220.8456	0.0699	0.0000	222.5924
Total	0.1637	1.8830	1.4309	2.4600e-003	0.1114	0.0831	0.1944	0.0120	0.0765	0.0885	0.0000	220.8456	220.8456	0.0699	0.0000	222.5924

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.5300e-003	0.0797	0.0182	2.1000e-004	0.1503	8.4000e-004	0.1512	0.0161	8.1000e-004	0.0169	0.0000	20.2208	20.2208	6.9000e-004	0.0000	20.2380
Worker	4.6900e-003	4.7800e-003	0.0386	9.0000e-005	0.2985	6.0000e-005	0.2986	0.0313	6.0000e-005	0.0313	0.0000	8.1186	8.1186	3.2000e-004	0.0000	8.1266
Total	8.2200e-003	0.0844	0.0568	3.0000e-004	0.4489	9.0000e-004	0.4498	0.0473	8.7000e-004	0.0482	0.0000	28.3394	28.3394	1.0100e-003	0.0000	28.3646

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

3.8 Grading-Conduct Sediment Removal - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0501	0.0000	0.0501	5.4100e-003	0.0000	5.4100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1637	1.8830	1.4309	2.4600e-003		0.0831	0.0831		0.0765	0.0765	0.0000	220.8453	220.8453	0.0699	0.0000	222.5922
Total	0.1637	1.8830	1.4309	2.4600e-003	0.0501	0.0831	0.1332	5.4100e-003	0.0765	0.0819	0.0000	220.8453	220.8453	0.0699	0.0000	222.5922

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.5300e-003	0.0797	0.0182	2.1000e-004	0.0942	8.4000e-004	0.0950	0.0104	8.1000e-004	0.0112	0.0000	20.2208	20.2208	6.9000e-004	0.0000	20.2380
Worker	4.6900e-003	4.7800e-003	0.0386	9.0000e-005	0.1863	6.0000e-005	0.1863	0.0201	6.0000e-005	0.0201	0.0000	8.1186	8.1186	3.2000e-004	0.0000	8.1266
Total	8.2200e-003	0.0844	0.0568	3.0000e-004	0.2804	9.0000e-004	0.2813	0.0305	8.7000e-004	0.0314	0.0000	28.3394	28.3394	1.0100e-003	0.0000	28.3646

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

3.9 Site Preparation-Demobilization - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-004	5.0000e-003	8.1000e-004	2.0000e-005	9.5200e-003	3.0000e-005	9.5500e-003	1.0100e-003	2.0000e-005	1.0300e-003	0.0000	1.4300	1.4300	4.0000e-005	0.0000	1.4310
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.5000e-004	5.0000e-003	8.1000e-004	2.0000e-005	9.5200e-003	3.0000e-005	9.5500e-003	1.0100e-003	2.0000e-005	1.0300e-003	0.0000	1.4300	1.4300	4.0000e-005	0.0000	1.4310

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

3.9 Site Preparation-Demobilization - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5000e-004	5.0000e-003	8.1000e-004	2.0000e-005	5.9600e-003	3.0000e-005	5.9800e-003	6.5000e-004	2.0000e-005	6.8000e-004	0.0000	1.4300	1.4300	4.0000e-005	0.0000	1.4310
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.5000e-004	5.0000e-003	8.1000e-004	2.0000e-005	5.9600e-003	3.0000e-005	5.9800e-003	6.5000e-004	2.0000e-005	6.8000e-004	0.0000	1.4300	1.4300	4.0000e-005	0.0000	1.4310

4.0 Operational Detail - Mobile

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
User Defined Recreational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
User Defined Recreational	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	10.9768	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Unmitigated	10.9768	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.5132					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.4636					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Total	10.9768	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.5132					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.4636					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Total	10.9768	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003

7.0 Water Detail

7.1 Mitigation Measures Water

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Greenhorn Sed Removal at Rollins Reservoir - 200k - Nevada County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

APPENDIX E

Sediment Characterization Report, 2019

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SEDIMENT CHARACTERIZATION REPORT

FOR

GREENHORN SEDIMENT REMOVAL

AT ROLLINS RESERVOIR

NEVADA COUNTY, CALIFORNIA

PREPARED FOR:



NEVADA IRRIGATION DISTRICT
ENGINEERING DEPARTMENT
1036 WEST MAIN STREET
GRASS VALLEY, CA 95945



792 SEARLS AVENUE
NEVADA CITY, CALIFORNIA 95959
PROJECT NO. 5264.00



Project No. 5264.00

March 25, 2019

Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945

Attention: Gary King, PE, Engineering Manager

Reference: *Greenhorn Sediment Removal at Rollins Reservoir*

Nevada Irrigation District FATR #8515

Nevada County, California

Subject: *Sediment Characterization Report*

Dear Mr. King:

On behalf of the Nevada Irrigation District (NID), NV5 prepared this report to summarize site investigation procedures and to present the results of sediment characterization for the Greenhorn Sediment Removal at Rollins Reservoir Project. The site investigation was performed in general accordance with the scope of work presented in the *Revised Proposal for Sediment Characterization, Greenhorn Sediment Removal at Rollins Reservoir* (NV5; February 28, 2019).

NV5 appreciates the opportunity to perform sediment characterization in support of the maintenance of our local reservoirs. Please contact the undersigned with any questions or comments regarding the investigation.

Sincerely,

NV5

Mars Nelson Tredwell
Staff Geologist

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APPENDIX

Analytical Laboratory Report

Chain-of-Custody Documentation

ACRONYMS AND ABBREVIATIONS

ATL	Advanced Technology Laboratories, Inc.
CalEPA	California Environmental Protection Agency
CAM	California Assessment Manual
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CTR	California Toxics Rule
CWC	California Water Code
DTSC	California Department of Toxic Substances Control
DTSC-SL	DTSC Screening Level
ELAP	Environmental Laboratory Accreditation Program
EPA	United States Environmental Protection Agency
MCL	Maximum Contaminant Level
MDL	method detection limit
mg/kg	milligram per kilogram
MQO	measurement quality objective
MS	matrix spike
MSD	matrix spike duplicate
NID	Nevada Irrigation District
Non 15	Non Chapter 15 Program
NTR	National Toxics Rule
OEHHA	Office of Environmental Health Hazard Assessment
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PQL	practical quantitation limit
RL	laboratory reporting limit
RPD	relative percent difference
RSL	USEPA Regional Screening Level
RWQCB	California Regional Water Quality Control Board
SL	screening level
STLC	Soluble Threshold Limit Concentration
SVOC	semivolatile organic compound
SWRCB	California State Water Resources Control Board
Title 22	Title 22 of the California Code of Regulations
TPH	total petroleum hydrocarbons
TTLC	Total Threshold Limit Concentration
USGS	United States Geological Survey
WDR	Waste Discharge Requirement
%REC	percent recovery

1 INTRODUCTION

On behalf of the Nevada Irrigation District (NID), NV5 prepared this report to summarize the methodology and findings of sediment characterization performed at the Greenhorn Creek inlet of Rollins Reservoir in Nevada County, California. The site investigation was performed in general accordance with the scope of work presented in our *Revised Proposal for Sediment Characterization, Greenhorn Sediment Removal at Rollins Reservoir* (NV5; February 28, 2019).

1.1 PURPOSE

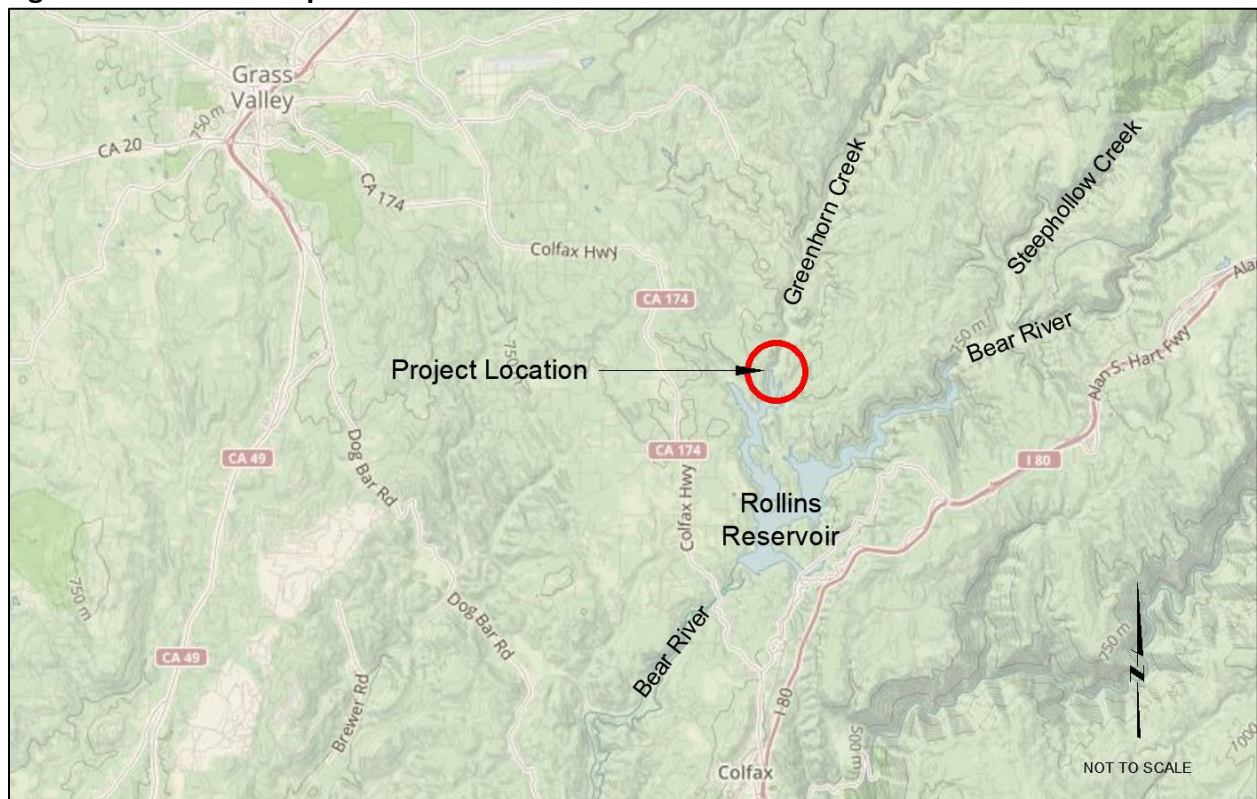
The purpose of the investigation was to obtain bulk sediment samples and to test the samples for total and soluble concentrations of inorganic constituents (metals) and total concentrations of organic constituents. Findings of the sediment characterization are intended to facilitate project planning and permitting.

The purpose of the sediment removal project is to restore and maintain the reservoir's historical water storage capacity; reduce the transport of sediment further into the reservoir; restore recreational opportunities and boating access; and improve aquatic habitat.

1.2 SITE LOCATION

The site is located in unincorporated Nevada County, California, approximately six miles north of the City of Colfax on the Greenhorn arm of Rollins Reservoir. The site is located within Sections 10 and 11 of Township 15 North, Range 9 East, on the Chicago Park 7.5-minute USGS topographic quadrangle.

Figure 1 – Location Map

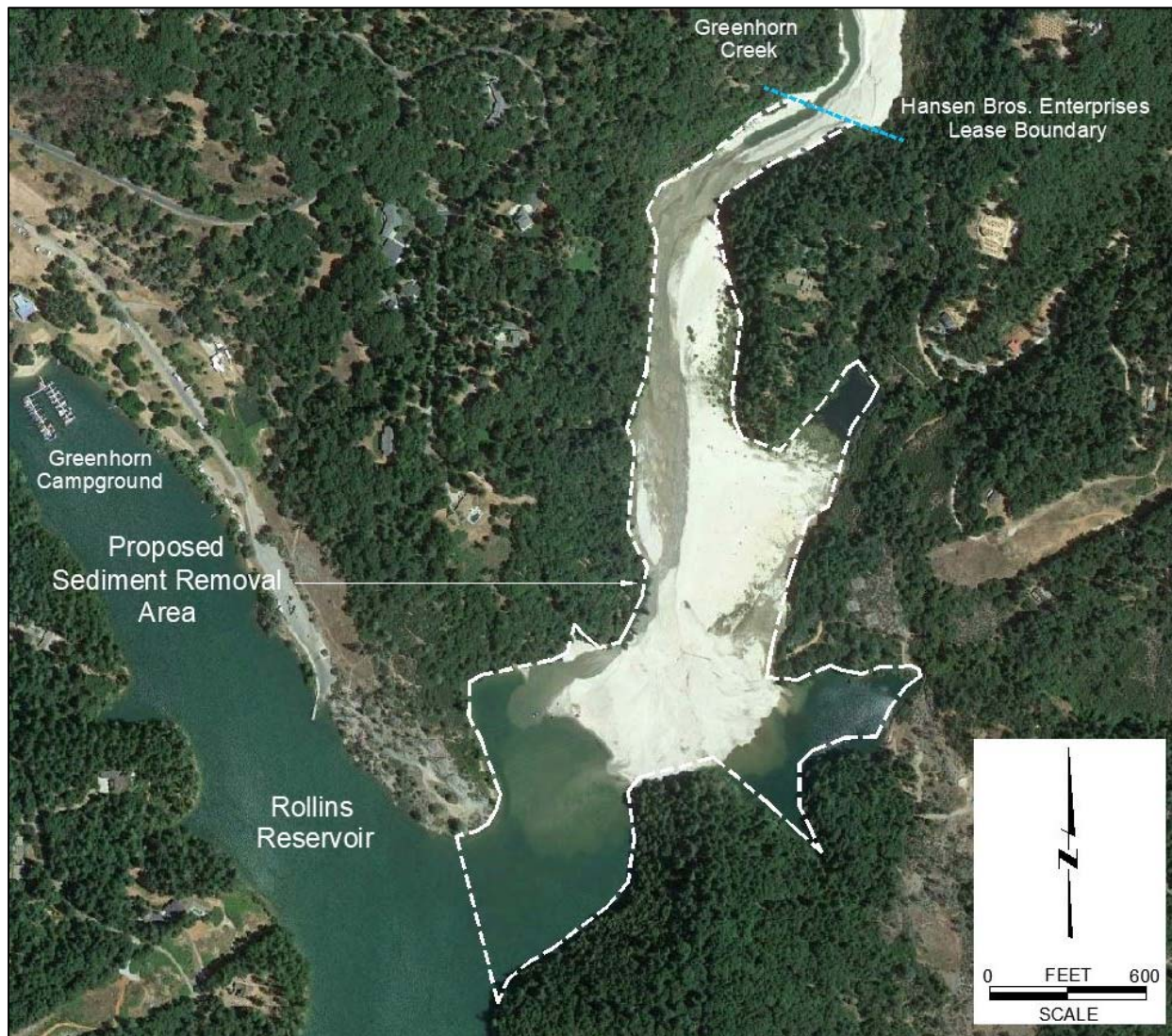


Base map from United States Geological Survey (<https://ngmdb.usgs.gov/topoview/>)

1.3 SITE DESCRIPTION

The proposed sediment removal area comprises approximately 50 acres of the lower Greenhorn arm of Rollins Reservoir between the main body of the reservoir (to the south) and the Hansen Bros. Enterprises lease area (to the north).

Figure 2 – Site Map



Base map from Google Earth; aerial image from June 26, 2018

1.4 BACKGROUND

NID (2017) reports that since the construction of Rollins Reservoir Dam in 1965, an estimated 10,000 acre-feet of the original 65,998 acre-feet water storage capacity (17%) has been lost. Sediment continues to be deposited in the Greenhorn arm and is subsequently transported into the reservoir during winter high-flow events. NID estimates that up to approximately 200,000 tons (three acre-feet) of material could be removed from the Greenhorn arm of Rollins Reservoir per year, depending on market demand for aggregate materials. A typical year (based on similar activities) would likely include removal of approximately 50,000 tons.

Photo 1 – Greenhorn arm of Rollins Reservoir



March 4, 2019, view to south

1.5 RATIONALE FOR SAMPLING STRATEGY

The sediment sampling and laboratory analysis are intended to provide information regarding inorganic and organic constituents in near-surface sediment to facilitate planning and permitting. The laboratory results are evaluated by comparison to common regulatory benchmarks.

Twelve discrete sediment samples were obtained from within the upper three feet of the sediment surface using hand tools. The sediment removal area was divided into three sub-areas (north, central and south) each measuring approximately 16 to 17 acres. One composite sample was prepared for each sub-area by combining equal parts by weight of four discrete samples obtained from that sub-area. The three composite samples were shipped to a California-certified laboratory for analysis of metals and organic constituents.

1.6 REGULATORY FRAMEWORK

The California EPA (CalEPA), including the State Water Resources Control Board (SWRCB) and the Department of Toxic Substances Control (DTSC), is responsible for protection of public health and the environment. The SWRCB and its nine Regional Water Quality Control Boards (RWQCBs) have the responsibility for the coordination and control of water quality, including the protection of the beneficial uses of the waters of the state. The site is located within the SWRCB's Central Valley Region. DTSC has the responsibility of managing the state's hazardous waste program to protect public health and the environment.

1.6.1 Water Quality

The regulatory framework governing protection of water quality in California is described in the Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California, which is also known as the State Implementation Policy (SWRCB 2005). Pursuant to the State Implementation Policy, the following water quality objectives and criteria are potentially applicable based on state and federal regulation.

Federal Water Quality Criteria

Federal water quality criteria are set forth in the National Toxics Rule (NTR; EPA 1995) and in the California Toxics Rule (CTR; EPA 2000), which is promulgated by the EPA in 40 CFR 131.38.

Basin Plan Objectives

Water quality objectives are identified in the Water Quality Control Plan (Basin Plan) for the Sacramento River Basin and the San Joaquin River Basin (RWQCB 2018). The Basin Plan does not specify beneficial uses specifically for Greenhorn Creek or Rollins Reservoir, but lists the following existing and potential beneficial uses for the Bear River:

- Municipal and domestic supply;
- Agricultural water supply;
- Electrical power generation;
- Water contact and non-contact recreation;
- Warm and cold freshwater habitat;
- Potential warm/cold water migration of aquatic organisms (such as anadromous fish);
- Potential warm/cold water spawning, reproduction and/or early development of fish; and
- Wildlife habitat.

Water quality objectives corresponding to these beneficial uses include Maximum Contaminant Levels (MCLs) for drinking water specified in Title 22 of the California Code of Regulations (22 CCR), CTR values for protection of human health and aquatic life, and agricultural water quality objectives. The Basin Plan defines water quality objectives for metals as dissolved concentrations except for selenium, molybdenum, and boron, which are defined as total concentrations.

Ambient Water Quality Criteria

EPA ambient water quality recommended criteria and other criteria are commonly used by the RWQCB to interpret narrative objectives in the Basin Plan, such as Office of Environmental Health Hazard Assessment (OEHHA) fish consumption benchmarks, federal and state antidegradation requirements, and waterway-specific benchmarks.

Waste Disposal to Land

The California Water Code (CWC), Division 7, Chapter 4, Article 4, Sections 13260 through 13274, pertains to Waste Discharge Requirements (WDRs) issued by the RWQCB. State regulations pertaining to the treatment, storage, processing, or disposal of solid waste are found in California Code of Regulations (CCR) Title 27, beginning with Section 20005. Pursuant to Title 27 Section 20090, certain activities are exempt from Title 27.

The RWQCB Non Chapter 15 (Non 15) Program regulates point discharges that are exempt from Title 27 pursuant to Subsection 20090 and are not subject to the Federal Water Pollution Control Act. The Non 15 Program also regulates the discharge of wastes classified as inert pursuant to Section 20230 of Title 27. Section 20230 defines inert waste as solid waste that does not contain hazardous waste or soluble pollutants at concentrations in excess of applicable water quality objectives; and does not contain significant quantities of decomposable waste.

Inert wastes do not need to be discharged at classified waste disposal units, and the RWQCB can prescribe individual or general WDRs for discharges of inert wastes.

1.6.2 Human Health

Screening levels related to protection of human health in the case of routine, long term exposure by direct pathways (i.e., ingestion, inhalation and dermal contact) commonly include EPA Regional Screening Levels (RSLs) and DTSC Screening Levels (DTSC-SLs). For inorganics, background concentrations are also used as a basis for comparison.

RSLs and DTSC-SLs include inorganic constituent concentrations that are based on the protection of public health. In California, DTSC-SLs are commonly used in lieu of RSLs when DTSC uses toxicity criteria that are different than the toxicity criteria used by EPA.

The RSLs and DTSC-SLs are considered conservative. Under most circumstances, the presence of a chemical in media at concentrations less than the corresponding RSL or DTSC-SL can be assumed not to pose a significant, long-term (chronic) threat to human health. The presence of a chemical or inorganic constituent at a concentration in excess of a screening level does not necessarily indicate that adverse impacts to human health are occurring or will occur; however, further evaluation of potential human health concerns are generally appropriate if screening values are exceeded.

1.7 LIMITATIONS AND EXCEPTIONS

NV5 performed this work in accordance with present, regional, generally accepted standards of care. This report does not represent a legal opinion. No warranty, expressed or implied, including any implied warranty of merchantability or fitness for the purpose is made or intended in connection with the work.

The findings of this report are valid as of the present date. However, changes in the conditions of the property can occur with the passage of time. The changes may be due to natural processes or to the works of man, on the project site or adjacent properties. Changes in regulations, interpretations, and/or enforcement policies may occur at any time.

Concentrations detected in the samples collected during the site investigation may not be representative of conditions between the locations sampled. Other forms of contamination may be present within the site that the investigation did not detect. Professional judgment and interpretation are inherent in the process and uncertainty is inevitable. Therefore, the findings presented in this report may need to be revised based on the results of future sampling and analysis.

2 INVESTIGATION METHODOLOGY

The investigation was performed on March 4, 2019. The investigation methodology is summarized below. Sample locations are depicted on Figure 1.3.

Because the sampling event was performed during high water conditions in March 2019, the site was accessed by boat from the south. The southern sediment sample locations were submerged, and therefore these samples were collected beneath the water surface. The northern sample locations were accessed on foot, walking north from the creek inlet.

2.1 SEDIMENT SAMPLING

Sediment samples were collected as grab samples (independent, discrete samples) from twelve locations (19GHC1-1 through 1-4; 19GHC2-1 through 2-4; and 19GHC3-1 through 3-4) via foot and boat using a hand-actuated slide hammer fitted with a 4-foot long, stainless steel sampling shoe lined with 2-inch diameter clear polyvinyl chloride (PVC) sleeves. In general, samples were obtained from the upper three feet of the sediment deposit.

Because the depth of water at sample location 19GHC3-4 was greater than six feet, a steel clamshell sampler was used instead of the drive sampler. The sample collected with the clamshell sampler was obtained from the upper foot of the sediment deposit.

Photo 2 – Sample location 19GHC1-1



March 4, 2019

The discrete samples were transferred to laboratory-supplied glass jars and were placed in pre-chilled, thermally-insulated container for transport to the NV5 laboratory in Nevada City, where they were composited and packaged for shipping.

Discrete sediment samples 19GHC1-1 through 19GHC1-4 were composited in equal parts by weight to prepare composite sample 19GHC-1 (northern third of sediment removal area). Likewise, discrete sediment samples 19GHC2-1 through 19GHC2-4 were used to prepare composite sample 19GHC-2 (central), and discrete sediment samples 19GHC3-1 through 19GHC3-4 were used to prepare composite sample 19GHC-3 (southern).

The composite samples were placed on ice in a thermally-insulated container and were shipped via overnight mail to the laboratory. Sample handling and shipment were performed under chain-of-custody documentation. Equipment decontamination procedures are described in the following section.

Photo 3 – Sample location 19GHC1-2

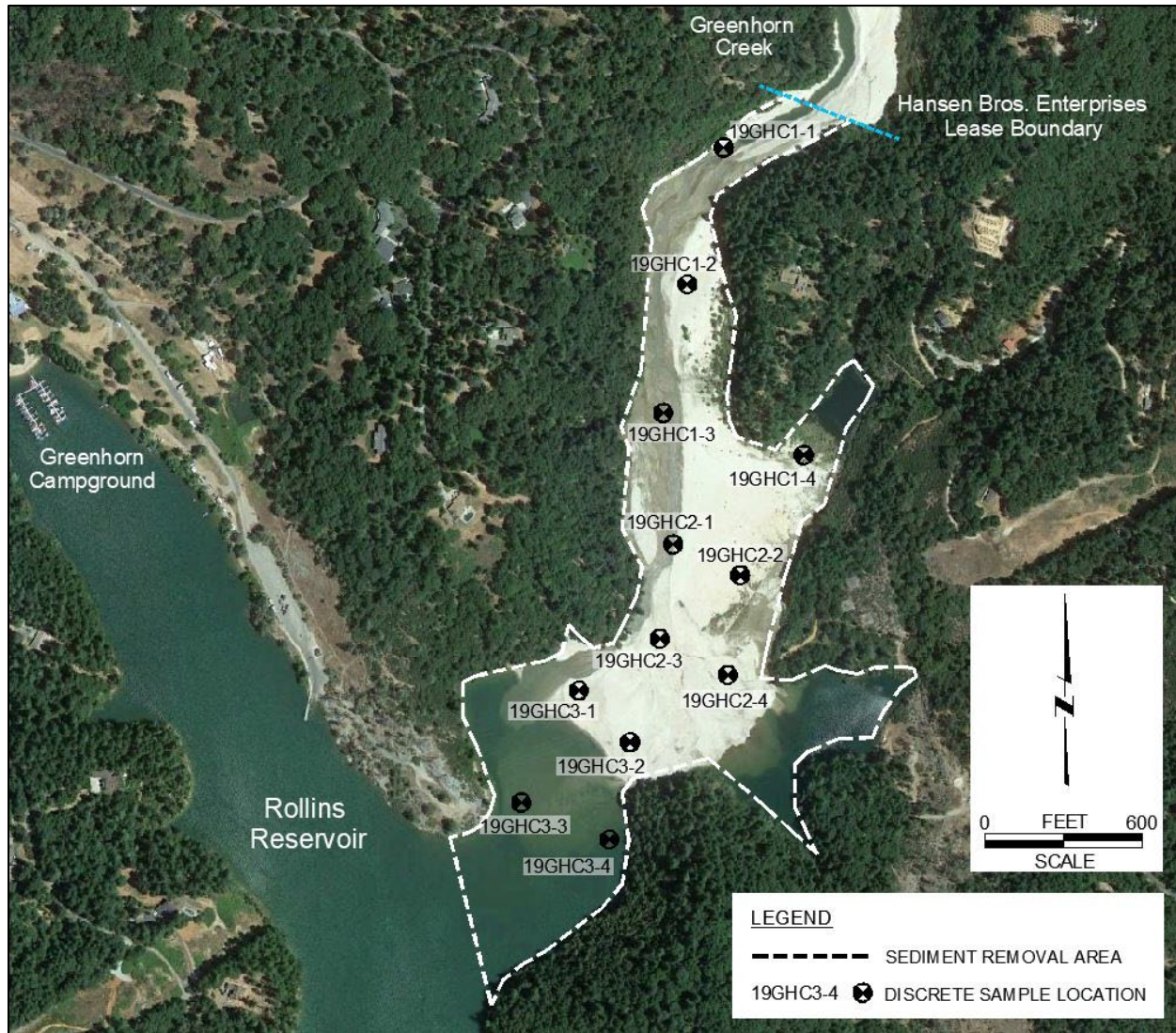


March 4, 2019

2.2 SAMPLE LOCATIONS

Sample locations are depicted on the Figure 3. Sample coordinates are listed in the following Table 2.1.

Figure 3 – Sample Location Map



Base map from Google Earth; aerial image from June 26, 2018

Table 2.1 – Sample Location Coordinates

Sample Number	Latitude	Longitude
19GHC1-1	39.170230°	-120.947151°
19GHC1-2	39.168789°	-120.947627°
19GHC1-3	39.167451°	-120.947947°
19GHC1-4	39.167015°	-120.946065°
19GHC2-1	39.166112°	-120.947814°
19GHC2-2	39.165767°	-120.946901°
19GHC2-3	39.165107°	-120.947978°
19GHC2-4	39.164732°	-120.947088°
19GHC3-1	39.164574°	-120.949064°

Table 2.1 – Sample Location Coordinates

19GHC3-2	39.164035°	-120.948384°
19GHC-3-3	39.163430°	-120.949829°
19GHC-3-4	39.163055°	-120.948657°

Notes:

Coordinates are approximate and were not determined by survey methods.

2.3 DECONTAMINATION

The laboratory testing program included analysis of inorganic (metals) and organic constituents. Single-use sample containers and equipment were used when possible to reduce the chance of cross-contamination. When reusable equipment was employed, decontamination was performed prior to sampling and between composite sample locations to remove potential contaminants from the sampling equipment.

The PVC sample liners were decontaminated prior to the sampling event by using laboratory-grade liquid soap (Liquinox™), a dilute nitric acid wash and triple rinsing with tap water and deionized water. The steel sampling equipment was decontaminated before its first use and between composite sample locations by washing with Liquinox™ and rinsing with tap water.

2.4 LABORATORY ANALYSIS

The laboratory testing program included analysis of the three composite sediment samples 19GHC-1, 19GHC-2 and 19GHC-3 for inorganic and organic constituents as described in the following sections.

Analysis was performed by Advanced Technology Laboratories (ATL; Environmental Laboratory Accreditation Program [ELAP] certification number 1838) of Signal Hill, California. ATL subcontracted the analysis of hexavalent chromium (CrVI; EPA Method 7199) to American Scientific Laboratories, LLC (ELAP certification number 2200).

2.5 Inorganics Analysis

The composite sediment samples were analyzed for the heavy metals listed in the RWQCB General Order for Maintenance Dredging (R5-2009-0085), including total CAM 17 (Title 22) metals, total aluminum, and hexavalent chromium.

Table 2.2 – Laboratory Testing Program, Inorganics, Total Concentrations

Analysis	Method
Total CAM 17 (Title 22) Metals	EPA 6010B
Total Mercury	EPA 7471A
Total Aluminum	EPA 6010B
Total Hexavalent Chromium	EPA 7199A

Notes:

CAM = California Assessment Manual

EPA = United States Environmental Protection Agency

Title 22 Metals = Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Mo, Ni, Se, Ag, Tl, V, Zn

Extraction testing was performed for waste characterization purposes using the Title 22 Waste Extraction Test (WET) with the standard citrate buffer and the Toxicity Characteristic Leaching Procedure (TCLP). The extractant solutions were analyzed for CAM 17 (Title 22) metals (including mercury).

Table 2.3 – Laboratory Testing Program, Inorganics, Extractable Concentrations

Analysis	Method
WET CAM 17 (Title 22) Metals	CCR Ch11 Article 5 App II (extraction) EPA 6010B/7471A (analysis)
TCLP CAM 17 (Title 22) Metals	EPA 1311 (extraction) EPA 6010B/7471A (analysis)

Notes:
 CAM = California Assessment Manual
 TCLP = Toxicity Characteristic Leaching Potential
 Title 22 Metals = Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Mo, Ni, Se, Ag, Tl, V, Zn
 EPA = United States Environmental Protection Agency
 WET = Title 22 Waste Extraction Test, standard citrate buffered extractant solution

2.5.1 Organics Analysis

Organics analysis consisted of semi-volatile organic compounds (SVOCs); total petroleum hydrocarbons (TPH) in the gas, diesel, and motor oil ranges; polychlorinated biphenyls (PCBs); and polycyclic aromatic hydrocarbons (PAHs), as summarized below.

Table 2.4 – Laboratory Testing Program, Organics

Analysis	Method
Semi-volatile organic compounds (SVOCs)	EPA 8270C
TPH Gas, Diesel, Motor Oil	EPA 8015B Modified
Polychlorinated biphenyls (PCBs)	EPA 8082
Polycyclic aromatic hydrocarbons (PAHs)	EPA 8270C

Notes:
 EPA = United States Environmental Protection Agency
 TPH = total petroleum hydrocarbons

3 DATA VALIDATION

Investigation data were reviewed to assess the accuracy of data recording, processing and transmittal. Based on the findings of the data validation, the data were accepted for use. Data validation procedures and criteria are summarized below.

No field quality control (QC) samples (e.g., field replicates or blanks) were obtained. Laboratory QC data are presented in the laboratory report (Appendix A) and are summarized below. Laboratory measurement quality objectives (MQOs) are defined by the contract laboratory.

3.1 PRECISION

The precision of laboratory analysis is assessed by comparing the analytical results with laboratory duplicate results for inorganic analysis. For laboratory precision, general MQOs include:

- Relative percent difference (RPD) between duplicate blank spikes less than or equal to 20%.
- RPD between laboratory duplicate samples less than or equal to 30% for analyte concentrations greater than or equal to five times the MDL, and the absolute concentration difference less than or equal to the MDL for analyte concentrations less than five times the MDL.
- RPD between MSD samples less than or equal to 20%.

No duplicate blank spikes or laboratory duplicate samples were analyzed. MS/MSD recoveries were within the acceptable RPD range.

3.2 ACCURACY

NV5 assessed the accuracy of laboratory results by reviewing method blank, reagent and preparation blank, and MS/MSD results. The percent recovery (%REC or %R as shown in the following equation) of MS samples was calculated using the following equation:

$$\%R_i = \left(\frac{Y_i}{X_i} \right) \times 100$$

where:

$\%R_i$ = percent recovery for compound i

Y_i = measured analyte concentration in sample i (measured - original sample concentration)

X_i = known analyte concentration in sample i

For matrix spikes, the %REC calculation typically takes into account correcting the matrix spike concentration for the naturally occurring amounts (as measured in the unspiked sample). The calculation may be represented by the following equation:

$$\%R = \frac{(A - B)}{K} \times 100$$

where:

$\%R$ = percent recovery

A = measured value or concentration in the matrix spike

- B = measured value or concentration in the unspiked sample
 K = known or accepted/true value or concentration in the matrix spike without native amounts present

For laboratory accuracy, the MQOs are:

- Detections less than the RL for field blanks.
- Detections less than $\frac{1}{2}$ the RL for laboratory blanks.
- %REC between 80 and 120%.

Quality control flags are summarized below. These flags did not signify a negative impact on data usability.

- No field blank samples were collected or analyzed.
- %REC for LCS and MS samples were within acceptable limits.
- MSD recoveries for thallium and mercury were outside of acceptance limits, and the analytical batch was validated by the LCS.
- Mercury was detected in a laboratory blank sample at a concentration of 0.032 ug/L.
- The RPD for mercury MSD was outside the acceptance criteria and the analytical batch was validated by the LCS.
- MSD recovery for 2,4-dinitrophenol was outside the acceptance limit due to possible matrix interference. The analytical batch was validated by the LCS.

3.3 REPRESENTATIVENESS

Representativeness expresses the degree to which sample data accurately and precisely represent the characteristics of a population, variations in parameters at a sampling point, or an environmental condition that they are intended to represent. NV5 and the contract laboratory addressed the representativeness of data by consistent application of established field and laboratory procedures. Nevertheless, concentrations may vary between and beyond the location sampled.

Sample holding times were verified and chain-of-custody forms were checked for completeness. Temperature of samples was measured upon receipt by the laboratory if applicable. Laboratory blank samples were evaluated for the presence of contaminants. No significant discrepancies were identified.

3.4 COMPARABILITY

The comparability objective determines whether analytical conditions are sufficiently uniform for each analytical run to ensure that all reported data will be consistent. Comparability is addressed by using similar analytical methods from one investigation to the next. All samples were analyzed by EPA methods pursuant to standard practice.

3.5 COMPLETENESS

The chain-of-custody documentation associated with the sample shipment was reviewed for completeness. Samples were received in good condition and the sample designations and requested analyses matched the sampling and analysis matrix.

3.6 SENSITIVITY

The laboratory method detection limit (MDL) is the minimum concentration of an analyte that can be reliably distinguished from background noise for a specific analytical method. The reporting limit (RL), or practical quantitation limit (PQL), represents the lowest concentration of an analyte that can be accurately and reproducibly quantified in a sample matrix. The screening levels described herein are typically several times the MDL to allow for reproducibility.

NV5 verified the sensitivity of laboratory analysis by comparing the RLs and MDLs reported by the laboratory to the associated screening levels:

- The RL for arsenic (1.3 mg/kg) exceeds the screening level for arsenic in residential soil (0.11 mg/kg) and commercial soil (0.36 mg/kg), but does not exceed the regional background level (typically up to 17 mg/kg). The MDL for arsenic is 0.15 mg/kg.
- The RL for thallium (1.3 mg/kg) exceeds the screening level for thallium in residential soil (0.78 mg/kg). The MDL for thallium is 0.49 mg/kg, and no thallium was detected.
- The RL (0.5 mg/kg) for hexavalent chromium (CrVI) exceeds the screening level for CrVI in residential soil (0.3 mg/kg). CrVI was not detected.

NV5 does not expect these conditions to significantly impact the investigation data.

4 INVESTIGATION RESULTS

Laboratory results for composite samples 19GHC-1, 19GHC-2 and 19GHC-3 are summarized below. Concentrations are reported by dry sediment weight. Total and extractable metals concentrations and benchmark values are presented in the attached Tables 1 and 2. The laboratory report and chain-of-custody documentation are presented in Appendix A.

4.1 INORGANIC CONSTITUENTS IN SEDIMENT SAMPLES

4.1.1 Total Metals Concentrations

Results of total metals analysis and benchmark concentrations for human health are presented in Table 1. Total metals concentrations detected in the sediment samples are compared to the screening levels for human health (DTSC-SLs and RSLs) described in Section 1.6.2. The detected total metals concentrations are below the corresponding DTSC-SLs and RSLs for commercial and residential soil, with the exception of arsenic, as described below.

Total arsenic was detected in samples 19GHC-1, 19GHC-2 and 19GHC-3 at concentrations of 1.6 to 5.4 mg/kg. These concentrations exceed the DTSC-SLs for residential soil (0.11 mg/kg) and commercial soil (0.36 mg/kg), but are within the range of background soil arsenic concentrations for the region (typically up to 17 mg/kg). The range of background soil arsenic concentrations was determined by NV5's statistical analysis of over 200 data points previously obtained by NV5 from sites in the region as part of DTSC's Voluntary Cleanup Program. Additional information regarding regional background concentrations can be provided upon request.

The total metals concentrations detected in the sediment samples are below the corresponding Total Threshold Limit Concentration (TTLC) values for designation of hazardous waste in California.

4.1.2 Extractable Metals Concentrations

Results of extraction testing and metals analysis are presented in Table 2. Extractions were performed by Title 22 Waste Extraction Test (WET) using the standard citrate buffer extractant solution and by Toxicity Characteristic Leaching Procedure (TCLP). Extractant solution metals analysis was performed by EPA Methods 6010B/7471A. The resulting extractable metals concentrations were compared to the Soluble Threshold Limit Concentration (STLC), which is used for designation of hazardous waste in California. None of the extractable metals concentrations exceeded the corresponding STLCs listed in Table 2.

4.2 ORGANIC CONSTITUENTS IN SEDIMENT SAMPLES

4.2.1 Petroleum Hydrocarbons

Total petroleum hydrocarbons (TPH) in the C10 to C18 carbon chain range (primarily diesel fuel range) were detected by EPA Method 8015B Modified in sample 19GHC-3 at a concentration of 28 mg/kg. The detected concentration is lower than the screening levels for mid-range aliphatic and aromatic petroleum hydrocarbons:

- TPH aliphatic, medium: RSL for residential soil = 96 mg/kg
- TPH aromatic, medium: RSL for residential soil = 110 mg/kg

TPH compounds in the C8 to C40 carbon chain range were otherwise not detected by EPA Method 8015B Modified at concentrations equal to or greater than the corresponding practical quantitation limits (PQLs; also known as reporting limits, or RLs). The RL is 13 mg/kg.

4.2.2 Semivolatile Organic Compounds

Semivolatile organic compounds (SVOCs) other than PAH compounds as discussed below were not detected by EPA Method 8270C at concentrations equal to or greater than the RLs. RLs for each VOC are listed in the laboratory report (Appendix A).

4.2.3 Polycyclic Aromatic Hydrocarbons

Polycyclic aromatic hydrocarbon (PAH) compounds were not detected by EPA Method 8270/SIM at concentrations equal to or greater than the corresponding RLs. RLs for each PAH compound are listed in the laboratory report (Appendix A).

Three PAH compounds were detected in composite sediment samples at concentrations between the RL and the method detection limit (MDL):

- Sample 19GHC-2: benzo(k)fluoranthene (0.84 ug/kg) and chrysene (0.77 ug/kg); and
- Sample 19GCH-3: fluoranthene (3.4 ug/kg).

These trace concentrations are estimates because they were detected below the practical quantitation limit (PQL). The estimated concentrations are lower than the corresponding screening levels:

- Benzo(k)fluoranthene: RSL for residential soil = 11 mg/kg = 11,000 ug/kg
- Chrysene: RSL for residential soil = 110 mg/kg = 110,000 ug/kg
- Fluoranthene: RSL for residential soil = 2,400 mg/kg = 2,400,000 ug/kg

4.2.4 Polychlorinated Biphenyls

Polychlorinated Biphenyls (PCBs) were not detected by EPA Method 8082 at concentrations equal to or greater than the corresponding RLs. The RL is 21 ug/kg.

5 FINDINGS AND CONCLUSIONS

NV5's opinion is that the investigation was performed in general accordance with our proposal dated February 28, 2019.

The chemical characterization of the sediment samples did not detect total concentrations of organic or inorganic constituents that exceeded the corresponding human health screening levels, except for total arsenic, and the total arsenic concentrations were not notably elevated with respect to regional background conditions.

NV5 concludes that land disposal of the sediment is likely to be acceptable from the standpoint of protection of human health and water quality provided that best management practices are implemented for erosion and sediment control. Depending upon the specific sediment management practices employed during the project, surface water sampling and analysis may be required to meet specific permitting requirements.

6 REFERENCES

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TABLES

Table 1 Total Metals in Composite Sediment Samples

Table 2 Extractable Metals in Composite Sediment Samples

Table 1 - Total Metals in Composite Sediment SamplesGreenhorn Sediment Removal at Rollins Reservoir
Nevada County, California

Parameter	CAS No.	EPA Method	Unit	MDL	RL	Total Metals			Benchmark Values			
						19GHC-1	19GHC-2	19GHC-3	Residential Soil	Commercial Soil	Basis for Benchmark Value	TTLIC
<i>Date Sampled</i>						<i>03/04/19</i>	<i>03/04/19</i>	<i>03/04/19</i>				
Aluminum	7429-90-5	6010B	mg/kg	3.5	32	1600	3200	4000	7.7E+04	1.1E+06	RSL	NE
Antimony, metallic	7440-36-0	6010B	mg/kg	0.66	2.6	ND	ND	0.89 J	31	470	RSL	500
Arsenic, inorganic	7440-38-2	6010B	mg/kg	0.15	1.3	1.6	3.6	5.4	0.11	0.36	DTSC-SL	500
Barium	7440-39-3	6010B	mg/kg	0.15	1.3	11	29	40	15,000	2.2E+05	RSL	10,000
Beryllium and compounds	7440-41-7	6010B	mg/kg	0.04	1.3	ND	ND	ND	15	210	DTSC-SL	75
Cadmium	7440-43-9	6010B	mg/kg	0.18	1.3	ND	ND	ND	5.2	7.3	DTSC-SL	100
Chromium, total (1)	16065-83-1	6010B	mg/kg	0.33	1.3	4.1	8.4	12	36,000	1.7E+05	DTSC-SL	2,500
Cobalt	7440-48-4	6010B	mg/kg	0.08	1.3	1.1 J	2.6	4.2	23	350	RSL	8,000
Copper	7440-50-8	6010B	mg/kg	0.24	2.6	3.1	7.0	11	3,100	47,000	RSL	2,500
Hexavalent Chromium	18540-29-9	6010B	mg/kg	na	0.5	ND	ND	ND	0.3	6.3	RSL	500
Lead and compounds	7439-92-1	6010B	mg/kg	0.23	1.3	0.66 J	1.7	2.2	80	320	DTSC-SL	1,000
Mercury, elemental	7439-97-6	7471A	mg/kg	0.009	0.13	0.04 J	0.08 J	0.27	1.0	4.4	DTSC-SL	20
Molybdenum	7439-98-7	6010B	mg/kg	0.16	1.3	0.16 J	0.40 J	0.45 J	390	5,800	RSL	3,500
Nickel, soluble salts	7440-02-0	6010B	mg/kg	0.23	1.3	2.8	5.0	7.6	490	3,100	DTSC-SL	2,000
Selenium	7782-49-2	6010B	mg/kg	0.52	1.3	ND	ND	ND	390	5,800	RSL	100
Silver	7440-22-4	6010B	mg/kg	0.15	1.3	ND	ND	ND	390	1,500	RSL	500
Thallium, soluble salts	7440-28-0	6010B	mg/kg	0.49	1.3	ND	ND	ND	0.78	12	RSL	700
Vanadium and compounds	7440-62-2	6010B	mg/kg	0.08	1.3	6.7	15	22	390	1,000	DTSC-SL	2,400
Zinc and compounds	7440-66-6	6010B	mg/kg	0.19	1.3	8.2	10	15	23,000	3.5E+05	RSL	5,000

Notes:

1 Total chromium (CAS No. 7440-47-3) results compared to RSLs for Chromium III (CAS No. 16065-83-1)

CAS = Chemical Abstracts Service registry number

DTSC-SL = California Department of Toxic Substances Control (DTSC) Screening Level (SL), Human Health Risk Assessment (HHRA) Note 3 (DTSC; June 2018)

MDL = method detection limit

mg/kg = milligrams per kilogram

ND = not detected above listed MDL

RL = laboratory reporting limit

RSL = USEPA Region 9 Regional Screening Level (November 2018)

TTLIC = total threshold limit concentration

NE = not established

J = analyte detected between MDL and RL, the value listed is estimated

Table 2 - Extractable Metals in Composite Sediment Samples

Greenhorn Sediment Removal at Rollins Reservoir

Nevada County, California

Parameter	CAS No.	EPA Method	Unit	WET Metals					TCLP Metals					STLC
				MDL	RL	19GHC-1	19GHC-2	19GHC-3	MDL	RL	19GHC-1	19GHC-2	19GHC-3	
						03/04/19	03/04/19	03/04/19			03/04/19	03/04/19	03/04/19	
<i>Date Sampled</i>														
Antimony, metallic	7440-36-0	6010B	mg/L	0.18	2.0	ND	ND	ND	0.044	0.5	ND	ND	ND	15
Arsenic, inorganic	7440-38-2	6010B	mg/L	0.16	1.0	ND	ND	ND	0.039	0.25	ND	ND	ND	5
Barium	7440-39-3	6010B	mg/L	0.053	1.0	0.48 J	1.1	1.6	0.013	0.25	1.1	1.2	1.2	100
Beryllium and compounds	7440-41-7	6010B	mg/L	0.033	1.0	ND	ND	ND	0.082	0.25	ND	ND	ND	0.75
Cadmium	7440-43-9	6010B	mg/L	0.048	1.0	ND	ND	ND	0.012	0.25	ND	ND	ND	1
Chromium, total (1)	16065-83-1	6010B	mg/L	0.039	1.0	ND	ND	4.7	0.010	0.25	ND	ND	ND	5
Cobalt	7440-48-4	6010B	mg/L	0.032	1.0	0.049 J	0.12 J	0.14 J	0.008	0.25	ND	ND	0.022 J	80
Copper	7440-50-8	6010B	mg/L	0.076	1.0	ND	0.084 J	0.15 J	0.019	0.25	ND	ND	ND	25
Lead and compounds	7439-92-1	6010B	mg/L	0.094	1.0	ND	ND	ND	0.024	0.25	ND	ND	ND	5
Mercury, elemental	7439-97-6	7471A	ug/L	0.16	1.0	ND	0.75 J	0.30 J	0.030	0.20	0.04 J	0.04 J	ND	20
Molybdenum	7439-98-7	6010B	mg/L	0.059	1.0	ND	ND	ND	0.015	0.25	ND	ND	ND	350
Nickel, soluble salts	7440-02-0	6010B	mg/L	0.092	1.0	ND	ND	0.21 J	0.023	0.25	ND	ND	ND	20
Selenium	7782-49-2	6010B	mg/L	0.190	1.0	ND	ND	ND	0.047	0.25	ND	ND	ND	1
Silver	7440-22-4	6010B	mg/L	0.047	1.0	ND	ND	ND	0.012	0.25	ND	ND	ND	5
Thallium, soluble salts	7440-28-0	6010B	mg/L	0.17	1.0	ND	ND	ND	0.043	0.25	ND	ND	ND	7
Vanadium and compounds	7440-62-2	6010B	mg/L	0.045	1.0	ND	0.070 J	0.13 J	0.011	0.25	ND	ND	ND	24
Zinc and compounds	7440-66-6	6010B	mg/L	0.11	1.0	0.25 J	0.12 J	0.14 J	0.029	0.25	0.20 J	0.18 J	0.16 J	250

Notes:

CAS = Chemical Abstracts Service registry number

J = analyte detected between MDL and RL, the value listed is estimated

MDL = method detection limit

mg/L = milligrams per liter

ND = not detected above listed MDL

NE = not established

RL = laboratory reporting limit

STLC = Soluble Threshold Limit Concentration

TCLP = Toxicity Characteristic Leaching Procedure

ug/L = micrograms per liter

WET = Title 22 Waste Extraction Test, standard citrate buffer extractant solution

APPENDIX A

Analytical Laboratory Reports

Chain-of-Custody Documentation

March 18, 2019

Mars Nelson Tredwell
NV5
792 Searls Avenue
Nevada City, CA 95959
Tel: (530) 478-1305
Fax:(530) 478-1019

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003

Re: ATL Work Order Number : 1900897

Client Reference : Greenhorn Sediment Removal Project at Rollin Reservoir, PN19030

Enclosed are the results for sample(s) received on March 07, 2019 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,



Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

NV5
792 Searls Avenue
Nevada City , CA 95959

Project Number : Greenhorn Sediment Removal Prject at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
19GHC-1	1900897-01	Sediment	3/04/19 15:30	3/07/19 9:09
19GHC-2	1900897-02	Sediment	3/04/19 14:00	3/07/19 9:09
19GHC-3	1900897-03	Sediment	3/04/19 12:00	3/07/19 9:09

CASE NARRATIVE

The sample for Hexavalent Chromium (EPA 7199) was subcontracted to American Scientific Laboratories, LLC with ELAP Cert. # 2200.



Certificate of Analysis

NV5
792 Searls Avenue
Nevada City, CA 95959

Project Number : Greenhorn Sediment Removal Project at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

Client Sample ID 19GHC-1

Lab ID: 1900897-01

Percent Moisture

Analyst: JL

Analyte	Result (% by Weight)	PQL (% by Weight)	MDL (% by Weight)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Percent Moisture	22	0.10	0.10	1	B9C0278	03/11/2019	03/11/19 14:48	

Total Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg dry)	PQL (mg/kg dry)	MDL (mg/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Aluminum	1600	32	3.5	1	B9C0249	03/11/2019	03/12/19 12:22	

Title 22 Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg dry)	PQL (mg/kg dry)	MDL (mg/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.6	0.65	1	B9C0248	03/11/2019	03/12/19 12:12	
Arsenic	1.6	1.3	0.15	1	B9C0248	03/11/2019	03/12/19 12:12	
Barium	11	1.3	0.15	1	B9C0248	03/11/2019	03/12/19 12:12	
Beryllium	ND	1.3	0.04	1	B9C0248	03/11/2019	03/12/19 12:12	
Cadmium	ND	1.3	0.18	1	B9C0248	03/11/2019	03/12/19 12:12	
Chromium	4.1	1.3	0.33	1	B9C0248	03/11/2019	03/12/19 12:12	
Cobalt	1.1	1.3	0.08	1	B9C0248	03/11/2019	03/12/19 12:12	J
Copper	3.1	2.6	0.24	1	B9C0248	03/11/2019	03/12/19 12:12	
Lead	0.66	1.3	0.23	1	B9C0248	03/11/2019	03/12/19 12:12	J
Molybdenum	0.16	1.3	0.16	1	B9C0248	03/11/2019	03/12/19 12:12	J
Nickel	2.8	1.3	0.23	1	B9C0248	03/11/2019	03/12/19 12:12	
Selenium	ND	1.3	0.52	1	B9C0248	03/11/2019	03/12/19 12:12	
Silver	ND	1.3	0.15	1	B9C0248	03/11/2019	03/12/19 12:12	
Thallium	ND	1.3	0.49	1	B9C0248	03/11/2019	03/12/19 12:12	
Vanadium	6.7	1.3	0.08	1	B9C0248	03/11/2019	03/12/19 12:12	
Zinc	8.2	1.3	0.19	1	B9C0248	03/11/2019	03/12/19 12:12	

TCLP Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	0.50	0.044	5	B9C0273	03/12/2019	03/12/19 12:48	D1
Arsenic	ND	0.25	0.039	5	B9C0273	03/12/2019	03/12/19 12:48	D1
Barium	1.1	0.25	0.013	5	B9C0273	03/12/2019	03/12/19 12:48	D1
Beryllium	ND	0.25	0.0082	5	B9C0273	03/12/2019	03/12/19 12:48	D1



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Client Sample ID 19GHC-1

Lab ID: 1900897-01

TCLP Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Cadmium	ND	0.25	0.012	5	B9C0273	03/12/2019	03/12/19 12:48	D1
Chromium	ND	0.25	0.0098	5	B9C0273	03/12/2019	03/12/19 12:48	D1
Cobalt	ND	0.25	0.0079	5	B9C0273	03/12/2019	03/12/19 12:48	D1
Copper	ND	0.25	0.019	5	B9C0273	03/12/2019	03/12/19 12:48	D1
Lead	ND	0.25	0.024	5	B9C0273	03/12/2019	03/12/19 12:48	D1
Molybdenum	ND	0.25	0.015	5	B9C0273	03/12/2019	03/12/19 12:48	D1
Nickel	ND	0.25	0.023	5	B9C0273	03/12/2019	03/12/19 12:48	D1
Selenium	ND	0.25	0.047	5	B9C0273	03/12/2019	03/12/19 12:48	D1
Silver	ND	0.25	0.012	5	B9C0273	03/12/2019	03/12/19 12:48	D1
Thallium	ND	0.25	0.043	5	B9C0273	03/12/2019	03/12/19 12:48	D1
Vanadium	ND	0.25	0.011	5	B9C0273	03/12/2019	03/12/19 12:48	D1
Zinc	0.20	0.25	0.029	5	B9C0273	03/12/2019	03/12/19 12:48	D1, J

STLC Metals by ICP-AES by EPA 6010B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	0.18	20	B9C0245	03/11/2019	03/11/19 15:31	D1
Arsenic	ND	1.0	0.16	20	B9C0245	03/11/2019	03/11/19 15:31	D1
Barium	0.48	1.0	0.053	20	B9C0245	03/11/2019	03/11/19 15:31	D1, J
Beryllium	ND	1.0	0.033	20	B9C0245	03/11/2019	03/11/19 15:31	D1
Cadmium	ND	1.0	0.048	20	B9C0245	03/11/2019	03/11/19 15:31	D1
Chromium	ND	1.0	0.039	20	B9C0245	03/11/2019	03/11/19 15:31	D1
Cobalt	0.049	1.0	0.032	20	B9C0245	03/11/2019	03/11/19 15:31	D1, J
Copper	ND	1.0	0.076	20	B9C0245	03/11/2019	03/11/19 15:31	D1
Lead	ND	1.0	0.094	20	B9C0245	03/11/2019	03/11/19 15:31	D1
Molybdenum	ND	1.0	0.059	20	B9C0245	03/11/2019	03/11/19 15:31	D1
Nickel	ND	1.0	0.092	20	B9C0245	03/11/2019	03/11/19 15:31	D1
Selenium	ND	1.0	0.19	20	B9C0245	03/11/2019	03/11/19 15:31	D1
Silver	ND	1.0	0.047	20	B9C0245	03/11/2019	03/11/19 15:31	D1
Thallium	ND	1.0	0.17	20	B9C0245	03/11/2019	03/11/19 15:31	D1
Vanadium	ND	1.0	0.045	20	B9C0245	03/11/2019	03/11/19 15:31	D1
Zinc	0.25	1.0	0.11	20	B9C0245	03/11/2019	03/11/19 15:31	D1, J



Certificate of Analysis

NV5
792 Searls Avenue
Nevada City, CA 95959

Project Number : Greenhorn Sediment Removal Project at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

Client Sample ID 19GHC-1

Lab ID: 1900897-01

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: KEK

Analyte	Result (mg/kg dry)	PQL (mg/kg dry)	MDL (mg/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	0.04	0.13	0.009	1	B9C0250	03/11/2019	03/13/19 16:42	J

STLC Mercury by AA (Cold Vapor) EPA 7470A

Analyst: KEK

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	1.0	0.16	1	B9C0244	03/11/2019	03/13/19 15:24	

TCLP Mercury by AA (Cold Vapor) by EPA 7470A

Analyst: KEK

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	0.04	0.20	0.03	1	B9C0274	03/12/2019	03/13/19 13:08	J

Hydrocarbon Chain Distribution by EPA 8015B (Modified)

Analyst: HT

Analyte	Result (mg/kg dry)	PQL (mg/kg dry)	MDL (mg/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
C8-C10	ND	13	13	1	B9C0373	03/14/2019	03/14/19 17:12	
C10-C18	ND	13	13	1	B9C0373	03/14/2019	03/14/19 17:12	
C18-C28	ND	13	13	1	B9C0373	03/14/2019	03/14/19 17:12	
C28-C36	ND	13	13	1	B9C0373	03/14/2019	03/14/19 17:12	
C36-C40	ND	13	13	1	B9C0373	03/14/2019	03/14/19 17:12	
C8-C40 Total	ND	13	13	1	B9C0373	03/14/2019	03/14/19 17:12	
<i>Surrogate: p-Terphenyl</i>	<i>105 %</i>		<i>58 - 172</i>		B9C0373	03/14/2019	<i>03/14/19 17:12</i>	

Polychlorinated Biphenyls by EPA 8082

Analyst: KD

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Aroclor 1016	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:17	
Aroclor 1221	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:17	
Aroclor 1232	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:17	
Aroclor 1242	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:17	
Aroclor 1248	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:17	
Aroclor 1254	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:17	
Aroclor 1260	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:17	



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Nevada City , CA 95959

Project Number : Greenhorn Sediment Removal Project at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

Client Sample ID 19GHC-1

Lab ID: 1900897-01

Polychlorinated Biphenyls by EPA 8082

Analyst: KD

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Aroclor 1262	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:17	
Aroclor 1268	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:17	
<i>Surrogate: Decachlorobiphenyl</i>	<i>77.9 %</i>		<i>18 - 136</i>		B9C0388	03/14/2019	<i>03/15/19 09:17</i>	
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>86.8 %</i>		<i>30 - 130</i>		B9C0388	03/14/2019	<i>03/15/19 09:17</i>	

Semivolatile Organic Compounds by EPA 8270C

Analyst: SP

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,2,4-Trichlorobenzene	ND	420	91	1	B9C0387	03/14/2019	03/14/19 21:59	
1,2-Dichlorobenzene	ND	420	78	1	B9C0387	03/14/2019	03/14/19 21:59	
1,3-Dichlorobenzene	ND	420	83	1	B9C0387	03/14/2019	03/14/19 21:59	
1,4-Dichlorobenzene	ND	420	77	1	B9C0387	03/14/2019	03/14/19 21:59	
2,4,5-Trichlorophenol	ND	420	79	1	B9C0387	03/14/2019	03/14/19 21:59	
2,4,6-Trichlorophenol	ND	420	290	1	B9C0387	03/14/2019	03/14/19 21:59	
2,4-Dichlorophenol	ND	2100	150	1	B9C0387	03/14/2019	03/14/19 21:59	
2,4-Dimethylphenol	ND	420	150	1	B9C0387	03/14/2019	03/14/19 21:59	
2,4-Dinitrophenol	ND	2100	110	1	B9C0387	03/14/2019	03/14/19 21:59	
2,4-Dinitrotoluene	ND	420	59	1	B9C0387	03/14/2019	03/14/19 21:59	
2,6-Dinitrotoluene	ND	420	63	1	B9C0387	03/14/2019	03/14/19 21:59	
2-Chloronaphthalene	ND	420	75	1	B9C0387	03/14/2019	03/14/19 21:59	
2-Chlorophenol	ND	420	150	1	B9C0387	03/14/2019	03/14/19 21:59	
2-Methylnaphthalene	ND	420	86	1	B9C0387	03/14/2019	03/14/19 21:59	
2-Methylphenol	ND	420	86	1	B9C0387	03/14/2019	03/14/19 21:59	
2-Nitroaniline	ND	2100	260	1	B9C0387	03/14/2019	03/14/19 21:59	
2-Nitrophenol	ND	420	140	1	B9C0387	03/14/2019	03/14/19 21:59	
3,3'-Dichlorobenzidine	ND	850	360	1	B9C0387	03/14/2019	03/14/19 21:59	
3-Nitroaniline	ND	2100	57	1	B9C0387	03/14/2019	03/14/19 21:59	
4,6-Dinitro-2-methylphenol	ND	2100	390	1	B9C0387	03/14/2019	03/14/19 21:59	
4-Bromophenyl-phenylether	ND	420	64	1	B9C0387	03/14/2019	03/14/19 21:59	
4-Chloro-3-methylphenol	ND	850	140	1	B9C0387	03/14/2019	03/14/19 21:59	
4-Chloroaniline	ND	850	68	1	B9C0387	03/14/2019	03/14/19 21:59	
4-Chlorophenyl-phenylether	ND	420	61	1	B9C0387	03/14/2019	03/14/19 21:59	
4-Methylphenol	ND	420	85	1	B9C0387	03/14/2019	03/14/19 21:59	
4-Nitroaniline	ND	2100	370	1	B9C0387	03/14/2019	03/14/19 21:59	
4-Nitrophenol	ND	420	200	1	B9C0387	03/14/2019	03/14/19 21:59	
Acenaphthene	ND	420	62	1	B9C0387	03/14/2019	03/14/19 21:59	



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Project Number : Greenhorn Sediment Removal Project at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

Client Sample ID 19GHC-1

Lab ID: 1900897-01

Semivolatile Organic Compounds by EPA 8270C

Analyst: SP

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Acenaphthylene	ND	420	66	1	B9C0387	03/14/2019	03/14/19 21:59	
Anthracene	ND	420	62	1	B9C0387	03/14/2019	03/14/19 21:59	
Benzidine (M)	ND	2100	1800	1	B9C0387	03/14/2019	03/14/19 21:59	
Benzo(a)anthracene	ND	420	50	1	B9C0387	03/14/2019	03/14/19 21:59	
Benzo(a)pyrene	ND	420	58	1	B9C0387	03/14/2019	03/14/19 21:59	
Benzo(b)fluoranthene	ND	420	71	1	B9C0387	03/14/2019	03/14/19 21:59	
Benzo(g,h,i)perylene	ND	420	48	1	B9C0387	03/14/2019	03/14/19 21:59	
Benzo(k)fluoranthene	ND	420	66	1	B9C0387	03/14/2019	03/14/19 21:59	
Benzoic acid	ND	2100	1100	1	B9C0387	03/14/2019	03/14/19 21:59	
Benzyl alcohol	ND	850	86	1	B9C0387	03/14/2019	03/14/19 21:59	
bis(2-chloroethoxy)methane	ND	420	76	1	B9C0387	03/14/2019	03/14/19 21:59	
bis(2-Chloroethyl)ether	ND	420	74	1	B9C0387	03/14/2019	03/14/19 21:59	
bis(2-chloroisopropyl)ether	ND	420	83	1	B9C0387	03/14/2019	03/14/19 21:59	
bis(2-ethylhexyl)phthalate	ND	420	110	1	B9C0387	03/14/2019	03/14/19 21:59	
Butylbenzylphthalate	ND	420	320	1	B9C0387	03/14/2019	03/14/19 21:59	
Chrysene	ND	420	55	1	B9C0387	03/14/2019	03/14/19 21:59	
Di-n-butylphthalate	ND	420	290	1	B9C0387	03/14/2019	03/14/19 21:59	
Di-n-octylphthalate	ND	420	62	1	B9C0387	03/14/2019	03/14/19 21:59	
Dibenz(a,h)anthracene	ND	420	56	1	B9C0387	03/14/2019	03/14/19 21:59	
Dibenzofuran	ND	420	70	1	B9C0387	03/14/2019	03/14/19 21:59	
Diethyl phthalate	ND	420	61	1	B9C0387	03/14/2019	03/14/19 21:59	
Dimethyl phthalate	ND	420	59	1	B9C0387	03/14/2019	03/14/19 21:59	
Fluoranthene	ND	420	61	1	B9C0387	03/14/2019	03/14/19 21:59	
Fluorene	ND	420	63	1	B9C0387	03/14/2019	03/14/19 21:59	
Hexachlorobenzene	ND	420	53	1	B9C0387	03/14/2019	03/14/19 21:59	
Hexachlorobutadiene	ND	850	79	1	B9C0387	03/14/2019	03/14/19 21:59	
Hexachlorocyclopentadiene	ND	850	82	1	B9C0387	03/14/2019	03/14/19 21:59	
Hexachloroethane	ND	420	91	1	B9C0387	03/14/2019	03/14/19 21:59	
Indeno(1,2,3-cd)pyrene	ND	420	56	1	B9C0387	03/14/2019	03/14/19 21:59	
Isophorone	ND	420	73	1	B9C0387	03/14/2019	03/14/19 21:59	
N-Nitroso-di-n propylamine	ND	420	84	1	B9C0387	03/14/2019	03/14/19 21:59	
N-Nitrosodiphenylamine	ND	420	62	1	B9C0387	03/14/2019	03/14/19 21:59	
Naphthalene	ND	420	77	1	B9C0387	03/14/2019	03/14/19 21:59	
Nitrobenzene	ND	420	86	1	B9C0387	03/14/2019	03/14/19 21:59	
Pentachlorophenol	ND	2100	240	1	B9C0387	03/14/2019	03/14/19 21:59	
Phenanthrene	ND	420	59	1	B9C0387	03/14/2019	03/14/19 21:59	
Phenol	ND	420	170	1	B9C0387	03/14/2019	03/14/19 21:59	



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Reported : 03/18/2019

Client Sample ID 19GHC-1

Lab ID: 1900897-01

Semivolatile Organic Compounds by EPA 8270C

Analyst: SP

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Pyrene	ND	420	68	1	B9C0387	03/14/2019	03/14/19 21:59	
Pyridine	ND	2100	340	1	B9C0387	03/14/2019	03/14/19 21:59	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>67.6 %</i>		<i>16 - 87</i>		B9C0387	03/14/2019	<i>03/14/19 21:59</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>	<i>121 %</i>		<i>0 - 148</i>		B9C0387	03/14/2019	<i>03/14/19 21:59</i>	
<i>Surrogate: 2-Chlorophenol-d4</i>	<i>82.3 %</i>		<i>17 - 96</i>		B9C0387	03/14/2019	<i>03/14/19 21:59</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>71.0 %</i>		<i>16 - 107</i>		B9C0387	03/14/2019	<i>03/14/19 21:59</i>	
<i>Surrogate: 2-Fluorophenol</i>	<i>75.6 %</i>		<i>16 - 86</i>		B9C0387	03/14/2019	<i>03/14/19 21:59</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>94.7 %</i>		<i>3 - 156</i>		B9C0387	03/14/2019	<i>03/14/19 21:59</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>73.1 %</i>		<i>16 - 99</i>		B9C0387	03/14/2019	<i>03/14/19 21:59</i>	
<i>Surrogate: Phenol-d6</i>	<i>79.4 %</i>		<i>17 - 90</i>		B9C0387	03/14/2019	<i>03/14/19 21:59</i>	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: SP

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	6.4	1.4	1	B9C0386	03/14/2019	03/14/19 21:13	
Acenaphthene	ND	6.4	1.0	1	B9C0386	03/14/2019	03/14/19 21:13	
Acenaphthylene	ND	6.4	1.2	1	B9C0386	03/14/2019	03/14/19 21:13	
Anthracene	ND	6.4	0.87	1	B9C0386	03/14/2019	03/14/19 21:13	
Benzo(a)anthracene	ND	6.4	0.82	1	B9C0386	03/14/2019	03/14/19 21:13	
Benzo(a)pyrene	ND	6.4	1.1	1	B9C0386	03/14/2019	03/14/19 21:13	
Benzo(b)fluoranthene	ND	6.4	1.0	1	B9C0386	03/14/2019	03/14/19 21:13	
Benzo(g,h,i)perylene	ND	6.4	1.3	1	B9C0386	03/14/2019	03/14/19 21:13	
Benzo(k)fluoranthene	ND	6.4	0.71	1	B9C0386	03/14/2019	03/14/19 21:13	
Chrysene	ND	6.4	0.78	1	B9C0386	03/14/2019	03/14/19 21:13	
Dibenz(a,h)anthracene	ND	6.4	1.4	1	B9C0386	03/14/2019	03/14/19 21:13	
Fluoranthene	ND	6.4	0.93	1	B9C0386	03/14/2019	03/14/19 21:13	
Fluorene	ND	6.4	0.98	1	B9C0386	03/14/2019	03/14/19 21:13	
Indeno(1,2,3-cd)pyrene	ND	6.4	1.6	1	B9C0386	03/14/2019	03/14/19 21:13	
Naphthalene	ND	6.4	1.2	1	B9C0386	03/14/2019	03/14/19 21:13	
Phenanthrene	ND	6.4	0.87	1	B9C0386	03/14/2019	03/14/19 21:13	
Pyrene	ND	6.4	0.89	1	B9C0386	03/14/2019	03/14/19 21:13	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>70.2 %</i>		<i>26 - 107</i>		B9C0386	03/14/2019	<i>03/14/19 21:13</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>75.1 %</i>		<i>35 - 107</i>		B9C0386	03/14/2019	<i>03/14/19 21:13</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>84.3 %</i>		<i>2 - 129</i>		B9C0386	03/14/2019	<i>03/14/19 21:13</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>83.7 %</i>		<i>48 - 123</i>		B9C0386	03/14/2019	<i>03/14/19 21:13</i>	



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Client Sample ID 19GHC-2

Lab ID: 1900897-02

Percent Moisture

Analyst: JL

Analyte	Result (% by Weight)	PQL (% by Weight)	MDL (% by Weight)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Percent Moisture	21	0.10	0.10	1	B9C0278	03/11/2019	03/11/19 14:48	

Total Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg dry)	PQL (mg/kg dry)	MDL (mg/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Aluminum	2200	32	3.4	1	B9C0249	03/11/2019	03/12/19 12:23	

Title 22 Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg dry)	PQL (mg/kg dry)	MDL (mg/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.5	0.65	1	B9C0248	03/11/2019	03/12/19 12:13	
Arsenic	3.6	1.3	0.15	1	B9C0248	03/11/2019	03/12/19 12:13	
Barium	29	1.3	0.15	1	B9C0248	03/11/2019	03/12/19 12:13	
Beryllium	ND	1.3	0.04	1	B9C0248	03/11/2019	03/12/19 12:13	
Cadmium	ND	1.3	0.18	1	B9C0248	03/11/2019	03/12/19 12:13	
Chromium	8.4	1.3	0.33	1	B9C0248	03/11/2019	03/12/19 12:13	
Cobalt	2.6	1.3	0.08	1	B9C0248	03/11/2019	03/12/19 12:13	
Copper	7.0	2.5	0.24	1	B9C0248	03/11/2019	03/12/19 12:13	
Lead	1.7	1.3	0.23	1	B9C0248	03/11/2019	03/12/19 12:13	
Molybdenum	0.40	1.3	0.16	1	B9C0248	03/11/2019	03/12/19 12:13	J
Nickel	5.0	1.3	0.23	1	B9C0248	03/11/2019	03/12/19 12:13	
Selenium	ND	1.3	0.51	1	B9C0248	03/11/2019	03/12/19 12:13	
Silver	ND	1.3	0.15	1	B9C0248	03/11/2019	03/12/19 12:13	
Thallium	ND	1.3	0.48	1	B9C0248	03/11/2019	03/12/19 12:13	
Vanadium	15	1.3	0.08	1	B9C0248	03/11/2019	03/12/19 12:13	
Zinc	10	1.3	0.19	1	B9C0248	03/11/2019	03/12/19 12:13	

TCLP Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	0.50	0.044	5	B9C0273	03/12/2019	03/12/19 12:51	D1
Arsenic	ND	0.25	0.039	5	B9C0273	03/12/2019	03/12/19 12:51	D1
Barium	1.2	0.25	0.013	5	B9C0273	03/12/2019	03/12/19 12:51	D1
Beryllium	ND	0.25	0.0082	5	B9C0273	03/12/2019	03/12/19 12:51	D1



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TCLP Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Cadmium	ND	0.25	0.012	5	B9C0273	03/12/2019	03/12/19 12:51	D1
Chromium	ND	0.25	0.0098	5	B9C0273	03/12/2019	03/12/19 12:51	D1
Cobalt	ND	0.25	0.0079	5	B9C0273	03/12/2019	03/12/19 12:51	D1
Copper	ND	0.25	0.019	5	B9C0273	03/12/2019	03/12/19 12:51	D1
Lead	ND	0.25	0.024	5	B9C0273	03/12/2019	03/12/19 12:51	D1
Molybdenum	ND	0.25	0.015	5	B9C0273	03/12/2019	03/12/19 12:51	D1
Nickel	ND	0.25	0.023	5	B9C0273	03/12/2019	03/12/19 12:51	D1
Selenium	ND	0.25	0.047	5	B9C0273	03/12/2019	03/12/19 12:51	D1
Silver	ND	0.25	0.012	5	B9C0273	03/12/2019	03/12/19 12:51	D1
Thallium	ND	0.25	0.043	5	B9C0273	03/12/2019	03/12/19 12:51	D1
Vanadium	ND	0.25	0.011	5	B9C0273	03/12/2019	03/12/19 12:51	D1
Zinc	0.18	0.25	0.029	5	B9C0273	03/12/2019	03/12/19 12:51	J, D1

STLC Metals by ICP-AES by EPA 6010B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	0.18	20	B9C0245	03/11/2019	03/11/19 15:35	D1
Arsenic	ND	1.0	0.16	20	B9C0245	03/11/2019	03/11/19 15:35	D1
Barium	1.1	1.0	0.053	20	B9C0245	03/11/2019	03/11/19 15:35	D1
Beryllium	ND	1.0	0.033	20	B9C0245	03/11/2019	03/11/19 15:35	D1
Cadmium	ND	1.0	0.048	20	B9C0245	03/11/2019	03/11/19 15:35	D1
Chromium	ND	1.0	0.039	20	B9C0245	03/11/2019	03/11/19 15:35	D1
Cobalt	0.12	1.0	0.032	20	B9C0245	03/11/2019	03/11/19 15:35	J, D1
Copper	0.084	1.0	0.076	20	B9C0245	03/11/2019	03/11/19 15:35	J, D1
Lead	ND	1.0	0.094	20	B9C0245	03/11/2019	03/11/19 15:35	D1
Molybdenum	ND	1.0	0.059	20	B9C0245	03/11/2019	03/11/19 15:35	D1
Nickel	ND	1.0	0.092	20	B9C0245	03/11/2019	03/11/19 15:35	D1
Selenium	ND	1.0	0.19	20	B9C0245	03/11/2019	03/11/19 15:35	D1
Silver	ND	1.0	0.047	20	B9C0245	03/11/2019	03/11/19 15:35	D1
Thallium	ND	1.0	0.17	20	B9C0245	03/11/2019	03/11/19 15:35	D1
Vanadium	0.070	1.0	0.045	20	B9C0245	03/11/2019	03/11/19 15:35	J, D1
Zinc	0.12	1.0	0.11	20	B9C0245	03/11/2019	03/11/19 15:35	J, D1



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Lab ID: 1900897-02

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: KEK

Analyte	Result (mg/kg dry)	PQL (mg/kg dry)	MDL (mg/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	0.08	0.13	0.009	1	B9C0250	03/11/2019	03/13/19 16:49	J

STLC Mercury by AA (Cold Vapor) EPA 7470A

Analyst: KEK

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	0.75	1.0	0.16	1	B9C0244	03/11/2019	03/13/19 15:32	J

TCLP Mercury by AA (Cold Vapor) by EPA 7470A

Analyst: KEK

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	0.04	0.20	0.03	1	B9C0274	03/12/2019	03/13/19 13:15	J

Hydrocarbon Chain Distribution by EPA 8015B (Modified)

Analyst: HT

Analyte	Result (mg/kg dry)	PQL (mg/kg dry)	MDL (mg/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
C8-C10	ND	13	13	1	B9C0373	03/14/2019	03/14/19 17:27	
C10-C18	ND	13	13	1	B9C0373	03/14/2019	03/14/19 17:27	
C18-C28	ND	13	13	1	B9C0373	03/14/2019	03/14/19 17:27	
C28-C36	ND	13	13	1	B9C0373	03/14/2019	03/14/19 17:27	
C36-C40	ND	13	13	1	B9C0373	03/14/2019	03/14/19 17:27	
C8-C40 Total	ND	13	13	1	B9C0373	03/14/2019	03/14/19 17:27	
Surrogate: <i>p</i> -Terphenyl	105 %		58 - 172		B9C0373	03/14/2019	03/14/19 17:27	

Polychlorinated Biphenyls by EPA 8082

Analyst: KD

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Aroclor 1016	ND	20	1.9	1	B9C0388	03/14/2019	03/15/19 09:35	
Aroclor 1221	ND	20	1.9	1	B9C0388	03/14/2019	03/15/19 09:35	
Aroclor 1232	ND	20	1.9	1	B9C0388	03/14/2019	03/15/19 09:35	
Aroclor 1242	ND	20	1.9	1	B9C0388	03/14/2019	03/15/19 09:35	
Aroclor 1248	ND	20	1.9	1	B9C0388	03/14/2019	03/15/19 09:35	
Aroclor 1254	ND	20	1.9	1	B9C0388	03/14/2019	03/15/19 09:35	
Aroclor 1260	ND	20	1.9	1	B9C0388	03/14/2019	03/15/19 09:35	



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Lab ID: 1900897-02

Polychlorinated Biphenyls by EPA 8082

Analyst: KD

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Aroclor 1262	ND	20	1.9	1	B9C0388	03/14/2019	03/15/19 09:35	
Aroclor 1268	ND	20	1.9	1	B9C0388	03/14/2019	03/15/19 09:35	
<i>Surrogate: Decachlorobiphenyl</i>	<i>73.1 %</i>		<i>18 - 136</i>		B9C0388	03/14/2019	<i>03/15/19 09:35</i>	
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>83.9 %</i>		<i>30 - 130</i>		B9C0388	03/14/2019	<i>03/15/19 09:35</i>	

Semivolatile Organic Compounds by EPA 8270C

Analyst: SP

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,2,4-Trichlorobenzene	ND	420	90	1	B9C0387	03/14/2019	03/14/19 22:24	
1,2-Dichlorobenzene	ND	420	77	1	B9C0387	03/14/2019	03/14/19 22:24	
1,3-Dichlorobenzene	ND	420	82	1	B9C0387	03/14/2019	03/14/19 22:24	
1,4-Dichlorobenzene	ND	420	76	1	B9C0387	03/14/2019	03/14/19 22:24	
2,4,5-Trichlorophenol	ND	420	78	1	B9C0387	03/14/2019	03/14/19 22:24	
2,4,6-Trichlorophenol	ND	420	280	1	B9C0387	03/14/2019	03/14/19 22:24	
2,4-Dichlorophenol	ND	2100	150	1	B9C0387	03/14/2019	03/14/19 22:24	
2,4-Dimethylphenol	ND	420	150	1	B9C0387	03/14/2019	03/14/19 22:24	
2,4-Dinitrophenol	ND	2100	110	1	B9C0387	03/14/2019	03/14/19 22:24	
2,4-Dinitrotoluene	ND	420	58	1	B9C0387	03/14/2019	03/14/19 22:24	
2,6-Dinitrotoluene	ND	420	62	1	B9C0387	03/14/2019	03/14/19 22:24	
2-Chloronaphthalene	ND	420	75	1	B9C0387	03/14/2019	03/14/19 22:24	
2-Chlorophenol	ND	420	150	1	B9C0387	03/14/2019	03/14/19 22:24	
2-Methylnaphthalene	ND	420	85	1	B9C0387	03/14/2019	03/14/19 22:24	
2-Methylphenol	ND	420	85	1	B9C0387	03/14/2019	03/14/19 22:24	
2-Nitroaniline	ND	2100	260	1	B9C0387	03/14/2019	03/14/19 22:24	
2-Nitrophenol	ND	420	130	1	B9C0387	03/14/2019	03/14/19 22:24	
3,3'-Dichlorobenzidine	ND	840	350	1	B9C0387	03/14/2019	03/14/19 22:24	
3-Nitroaniline	ND	2100	56	1	B9C0387	03/14/2019	03/14/19 22:24	
4,6-Dinitro-2-methylphenol	ND	2100	380	1	B9C0387	03/14/2019	03/14/19 22:24	
4-Bromophenyl-phenylether	ND	420	63	1	B9C0387	03/14/2019	03/14/19 22:24	
4-Chloro-3-methylphenol	ND	840	140	1	B9C0387	03/14/2019	03/14/19 22:24	
4-Chloroaniline	ND	840	67	1	B9C0387	03/14/2019	03/14/19 22:24	
4-Chlorophenyl-phenylether	ND	420	60	1	B9C0387	03/14/2019	03/14/19 22:24	
4-Methylphenol	ND	420	84	1	B9C0387	03/14/2019	03/14/19 22:24	
4-Nitroaniline	ND	2100	370	1	B9C0387	03/14/2019	03/14/19 22:24	
4-Nitrophenol	ND	420	190	1	B9C0387	03/14/2019	03/14/19 22:24	
Acenaphthene	ND	420	61	1	B9C0387	03/14/2019	03/14/19 22:24	



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Project Number : Greenhorn Sediment Removal Project at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

Client Sample ID 19GHC-2

Lab ID: 1900897-02

Semivolatile Organic Compounds by EPA 8270C

Analyst: SP

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Acenaphthylene	ND	420	65	1	B9C0387	03/14/2019	03/14/19 22:24	
Anthracene	ND	420	62	1	B9C0387	03/14/2019	03/14/19 22:24	
Benzidine (M)	ND	2100	1800	1	B9C0387	03/14/2019	03/14/19 22:24	
Benzo(a)anthracene	ND	420	50	1	B9C0387	03/14/2019	03/14/19 22:24	
Benzo(a)pyrene	ND	420	57	1	B9C0387	03/14/2019	03/14/19 22:24	
Benzo(b)fluoranthene	ND	420	70	1	B9C0387	03/14/2019	03/14/19 22:24	
Benzo(g,h,i)perylene	ND	420	48	1	B9C0387	03/14/2019	03/14/19 22:24	
Benzo(k)fluoranthene	ND	420	65	1	B9C0387	03/14/2019	03/14/19 22:24	
Benzoic acid	ND	2100	1100	1	B9C0387	03/14/2019	03/14/19 22:24	
Benzyl alcohol	ND	840	85	1	B9C0387	03/14/2019	03/14/19 22:24	
bis(2-chloroethoxy)methane	ND	420	75	1	B9C0387	03/14/2019	03/14/19 22:24	
bis(2-Chloroethyl)ether	ND	420	73	1	B9C0387	03/14/2019	03/14/19 22:24	
bis(2-chloroisopropyl)ether	ND	420	82	1	B9C0387	03/14/2019	03/14/19 22:24	
bis(2-ethylhexyl)phthalate	ND	420	110	1	B9C0387	03/14/2019	03/14/19 22:24	
Butylbenzylphthalate	ND	420	310	1	B9C0387	03/14/2019	03/14/19 22:24	
Chrysene	ND	420	55	1	B9C0387	03/14/2019	03/14/19 22:24	
Di-n-butylphthalate	ND	420	290	1	B9C0387	03/14/2019	03/14/19 22:24	
Di-n-octylphthalate	ND	420	61	1	B9C0387	03/14/2019	03/14/19 22:24	
Dibenz(a,h)anthracene	ND	420	55	1	B9C0387	03/14/2019	03/14/19 22:24	
Dibenzofuran	ND	420	70	1	B9C0387	03/14/2019	03/14/19 22:24	
Diethyl phthalate	ND	420	60	1	B9C0387	03/14/2019	03/14/19 22:24	
Dimethyl phthalate	ND	420	58	1	B9C0387	03/14/2019	03/14/19 22:24	
Fluoranthene	ND	420	60	1	B9C0387	03/14/2019	03/14/19 22:24	
Fluorene	ND	420	62	1	B9C0387	03/14/2019	03/14/19 22:24	
Hexachlorobenzene	ND	420	52	1	B9C0387	03/14/2019	03/14/19 22:24	
Hexachlorobutadiene	ND	840	78	1	B9C0387	03/14/2019	03/14/19 22:24	
Hexachlorocyclopentadiene	ND	840	81	1	B9C0387	03/14/2019	03/14/19 22:24	
Hexachloroethane	ND	420	90	1	B9C0387	03/14/2019	03/14/19 22:24	
Indeno(1,2,3-cd)pyrene	ND	420	55	1	B9C0387	03/14/2019	03/14/19 22:24	
Isophorone	ND	420	73	1	B9C0387	03/14/2019	03/14/19 22:24	
N-Nitroso-di-n propylamine	ND	420	83	1	B9C0387	03/14/2019	03/14/19 22:24	
N-Nitrosodiphenylamine	ND	420	61	1	B9C0387	03/14/2019	03/14/19 22:24	
Naphthalene	ND	420	76	1	B9C0387	03/14/2019	03/14/19 22:24	
Nitrobenzene	ND	420	85	1	B9C0387	03/14/2019	03/14/19 22:24	
Pentachlorophenol	ND	2100	240	1	B9C0387	03/14/2019	03/14/19 22:24	
Phenanthrene	ND	420	59	1	B9C0387	03/14/2019	03/14/19 22:24	
Phenol	ND	420	170	1	B9C0387	03/14/2019	03/14/19 22:24	



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Project Number : Greenhorn Sediment Removal Project at R

Report To : Mars Nelson Tredwell

Reported : 03/18/2019

Client Sample ID 19GHC-2

Lab ID: 1900897-02

Semivolatile Organic Compounds by EPA 8270C

Analyst: SP

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Pyrene	ND	420	67	1	B9C0387	03/14/2019	03/14/19 22:24	
Pyridine	ND	2100	340	1	B9C0387	03/14/2019	03/14/19 22:24	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	53.1 %		16 - 87		B9C0387	03/14/2019	03/14/19 22:24	
<i>Surrogate: 2,4,6-Tribromophenol</i>	98.2 %		0 - 148		B9C0387	03/14/2019	03/14/19 22:24	
<i>Surrogate: 2-Chlorophenol-d4</i>	63.6 %		17 - 96		B9C0387	03/14/2019	03/14/19 22:24	
<i>Surrogate: 2-Fluorobiphenyl</i>	57.4 %		16 - 107		B9C0387	03/14/2019	03/14/19 22:24	
<i>Surrogate: 2-Fluorophenol</i>	58.3 %		16 - 86		B9C0387	03/14/2019	03/14/19 22:24	
<i>Surrogate: 4-Terphenyl-d14</i>	77.7 %		3 - 156		B9C0387	03/14/2019	03/14/19 22:24	
<i>Surrogate: Nitrobenzene-d5</i>	56.2 %		16 - 99		B9C0387	03/14/2019	03/14/19 22:24	
<i>Surrogate: Phenol-d6</i>	61.4 %		17 - 90		B9C0387	03/14/2019	03/14/19 22:24	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: SP

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	6.3	1.4	1	B9C0386	03/14/2019	03/14/19 21:39	
Acenaphthene	ND	6.3	1.0	1	B9C0386	03/14/2019	03/14/19 21:39	
Acenaphthylene	ND	6.3	1.1	1	B9C0386	03/14/2019	03/14/19 21:39	
Anthracene	ND	6.3	0.86	1	B9C0386	03/14/2019	03/14/19 21:39	
Benzo(a)anthracene	ND	6.3	0.81	1	B9C0386	03/14/2019	03/14/19 21:39	
Benzo(a)pyrene	ND	6.3	1.0	1	B9C0386	03/14/2019	03/14/19 21:39	
Benzo(b)fluoranthene	ND	6.3	1.0	1	B9C0386	03/14/2019	03/14/19 21:39	
Benzo(g,h,i)perylene	ND	6.3	1.3	1	B9C0386	03/14/2019	03/14/19 21:39	
Benzo(k)fluoranthene	0.84	6.3	0.70	1	B9C0386	03/14/2019	03/14/19 21:39	J
Chrysene	0.77	6.3	0.77	1	B9C0386	03/14/2019	03/14/19 21:39	J
Dibenz(a,h)anthracene	ND	6.3	1.3	1	B9C0386	03/14/2019	03/14/19 21:39	
Fluoranthene	ND	6.3	0.92	1	B9C0386	03/14/2019	03/14/19 21:39	
Fluorene	ND	6.3	0.97	1	B9C0386	03/14/2019	03/14/19 21:39	
Indeno(1,2,3-cd)pyrene	ND	6.3	1.6	1	B9C0386	03/14/2019	03/14/19 21:39	
Naphthalene	ND	6.3	1.2	1	B9C0386	03/14/2019	03/14/19 21:39	
Phenanthrene	ND	6.3	0.86	1	B9C0386	03/14/2019	03/14/19 21:39	
Pyrene	ND	6.3	0.88	1	B9C0386	03/14/2019	03/14/19 21:39	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	66.9 %		26 - 107		B9C0386	03/14/2019	03/14/19 21:39	
<i>Surrogate: 2-Fluorobiphenyl</i>	72.3 %		35 - 107		B9C0386	03/14/2019	03/14/19 21:39	
<i>Surrogate: Nitrobenzene-d5</i>	79.5 %		2 - 129		B9C0386	03/14/2019	03/14/19 21:39	
<i>Surrogate: 4-Terphenyl-d14</i>	82.6 %		48 - 123		B9C0386	03/14/2019	03/14/19 21:39	



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Project Number : Greenhorn Sediment Removal Project at R
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Reported : 03/18/2019

Client Sample ID 19GHC-3

Lab ID: 1900897-03

Percent Moisture

Analyst: JL

Analyte	Result (% by Weight)	PQL (% by Weight)	MDL (% by Weight)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Percent Moisture	23	0.10	0.10	1	B9C0278	03/11/2019	03/11/19 14:48	

Total Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg dry)	PQL (mg/kg dry)	MDL (mg/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Aluminum	4000	32	3.5	1	B9C0249	03/11/2019	03/12/19 12:27	

Title 22 Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/kg dry)	PQL (mg/kg dry)	MDL (mg/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	0.89	2.6	0.66	1	B9C0248	03/11/2019	03/12/19 12:16	J
Arsenic	5.4	1.3	0.16	1	B9C0248	03/11/2019	03/12/19 12:16	
Barium	40	1.3	0.15	1	B9C0248	03/11/2019	03/12/19 12:16	
Beryllium	ND	1.3	0.04	1	B9C0248	03/11/2019	03/12/19 12:16	
Cadmium	ND	1.3	0.18	1	B9C0248	03/11/2019	03/12/19 12:16	
Chromium	12	1.3	0.33	1	B9C0248	03/11/2019	03/12/19 12:16	
Cobalt	4.2	1.3	0.08	1	B9C0248	03/11/2019	03/12/19 12:16	
Copper	11	2.6	0.24	1	B9C0248	03/11/2019	03/12/19 12:16	
Lead	2.2	1.3	0.24	1	B9C0248	03/11/2019	03/12/19 12:16	
Molybdenum	0.45	1.3	0.16	1	B9C0248	03/11/2019	03/12/19 12:16	J
Nickel	7.6	1.3	0.23	1	B9C0248	03/11/2019	03/12/19 12:16	
Selenium	ND	1.3	0.52	1	B9C0248	03/11/2019	03/12/19 12:16	
Silver	ND	1.3	0.15	1	B9C0248	03/11/2019	03/12/19 12:16	
Thallium	ND	1.3	0.49	1	B9C0248	03/11/2019	03/12/19 12:16	
Vanadium	22	1.3	0.08	1	B9C0248	03/11/2019	03/12/19 12:16	
Zinc	15	1.3	0.20	1	B9C0248	03/11/2019	03/12/19 12:16	

TCLP Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	0.50	0.044	5	B9C0273	03/12/2019	03/12/19 12:53	D1
Arsenic	ND	0.25	0.039	5	B9C0273	03/12/2019	03/12/19 12:53	D1
Barium	1.2	0.25	0.013	5	B9C0273	03/12/2019	03/12/19 12:53	D1
Beryllium	ND	0.25	0.0082	5	B9C0273	03/12/2019	03/12/19 12:53	D1



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Lab ID: 1900897-03

TCLP Metals by ICP-AES EPA 6010B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Cadmium	ND	0.25	0.012	5	B9C0273	03/12/2019	03/12/19 12:53	D1
Chromium	ND	0.25	0.0098	5	B9C0273	03/12/2019	03/12/19 12:53	D1
Cobalt	0.022	0.25	0.0079	5	B9C0273	03/12/2019	03/12/19 12:53	J, D1
Copper	ND	0.25	0.019	5	B9C0273	03/12/2019	03/12/19 12:53	D1
Lead	ND	0.25	0.024	5	B9C0273	03/12/2019	03/12/19 12:53	D1
Molybdenum	ND	0.25	0.015	5	B9C0273	03/12/2019	03/12/19 12:53	D1
Nickel	ND	0.25	0.023	5	B9C0273	03/12/2019	03/12/19 12:53	D1
Selenium	ND	0.25	0.047	5	B9C0273	03/12/2019	03/12/19 12:53	D1
Silver	ND	0.25	0.012	5	B9C0273	03/12/2019	03/12/19 12:53	D1
Thallium	ND	0.25	0.043	5	B9C0273	03/12/2019	03/12/19 12:53	D1
Vanadium	ND	0.25	0.011	5	B9C0273	03/12/2019	03/12/19 12:53	D1
Zinc	0.16	0.25	0.029	5	B9C0273	03/12/2019	03/12/19 12:53	J, D1

STLC Metals by ICP-AES by EPA 6010B

Analyst: GO

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	0.18	20	B9C0245	03/11/2019	03/11/19 15:37	D1
Arsenic	ND	1.0	0.16	20	B9C0245	03/11/2019	03/11/19 15:37	D1
Barium	1.6	1.0	0.053	20	B9C0245	03/11/2019	03/11/19 15:37	D1
Beryllium	ND	1.0	0.033	20	B9C0245	03/11/2019	03/11/19 15:37	D1
Cadmium	ND	1.0	0.048	20	B9C0245	03/11/2019	03/11/19 15:37	D1
Chromium	4.7	1.0	0.039	20	B9C0245	03/11/2019	03/11/19 15:37	D1
Cobalt	0.14	1.0	0.032	20	B9C0245	03/11/2019	03/11/19 15:37	J, D1
Copper	0.15	1.0	0.076	20	B9C0245	03/11/2019	03/11/19 15:37	J, D1
Lead	ND	1.0	0.094	20	B9C0245	03/11/2019	03/11/19 15:37	D1
Molybdenum	ND	1.0	0.059	20	B9C0245	03/11/2019	03/11/19 15:37	D1
Nickel	0.21	1.0	0.092	20	B9C0245	03/11/2019	03/11/19 15:37	J, D1
Selenium	ND	1.0	0.19	20	B9C0245	03/11/2019	03/11/19 15:37	D1
Silver	ND	1.0	0.047	20	B9C0245	03/11/2019	03/11/19 15:37	D1
Thallium	ND	1.0	0.17	20	B9C0245	03/11/2019	03/11/19 15:37	D1
Vanadium	0.13	1.0	0.045	20	B9C0245	03/11/2019	03/11/19 15:37	J, D1
Zinc	0.14	1.0	0.11	20	B9C0245	03/11/2019	03/11/19 15:37	J, D1



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Project Number : Greenhorn Sediment Removal Project at R
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Lab ID: 1900897-03

Mercury by AA (Cold Vapor) EPA 7471A

Analyst: KEK

Analyte	Result (mg/kg dry)	PQL (mg/kg dry)	MDL (mg/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	0.27	0.13	0.009	1	B9C0250	03/11/2019	03/13/19 16:51	

STLC Mercury by AA (Cold Vapor) EPA 7470A

Analyst: KEK

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	0.30	1.0	0.16	1	B9C0244	03/11/2019	03/13/19 15:33	J

TCLP Mercury by AA (Cold Vapor) by EPA 7470A

Analyst: KEK

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Mercury	ND	0.20	0.03	1	B9C0274	03/12/2019	03/13/19 13:22	

Hydrocarbon Chain Distribution by EPA 8015B (Modified)

Analyst: HT

Analyte	Result (mg/kg dry)	PQL (mg/kg dry)	MDL (mg/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
C8-C10	ND	13	13	1	B9C0373	03/14/2019	03/14/19 16:57	
C10-C18	28	13	13	1	B9C0373	03/14/2019	03/14/19 16:57	
C18-C28	ND	13	13	1	B9C0373	03/14/2019	03/14/19 16:57	
C28-C36	ND	13	13	1	B9C0373	03/14/2019	03/14/19 16:57	
C36-C40	ND	13	13	1	B9C0373	03/14/2019	03/14/19 16:57	
C8-C40 Total	28	13	13	1	B9C0373	03/14/2019	03/14/19 16:57	
<i>Surrogate: p-Terphenyl</i>	<i>90.9 %</i>		<i>58 - 172</i>		B9C0373	03/14/2019	03/14/19 16:57	

Polychlorinated Biphenyls by EPA 8082

Analyst: KD

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Aroclor 1016	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:53	
Aroclor 1221	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:53	
Aroclor 1232	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:53	
Aroclor 1242	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:53	
Aroclor 1248	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:53	
Aroclor 1254	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:53	
Aroclor 1260	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:53	



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Lab ID: 1900897-03

Polychlorinated Biphenyls by EPA 8082

Analyst: KD

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Aroclor 1262	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:53	
Aroclor 1268	ND	21	1.9	1	B9C0388	03/14/2019	03/15/19 09:53	
<i>Surrogate: Decachlorobiphenyl</i>	<i>67.7 %</i>		<i>18 - 136</i>		B9C0388	03/14/2019	<i>03/15/19 09:53</i>	
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>78.5 %</i>		<i>30 - 130</i>		B9C0388	03/14/2019	<i>03/15/19 09:53</i>	

Semivolatile Organic Compounds by EPA 8270C

Analyst: SP

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,2,4-Trichlorobenzene	ND	430	92	1	B9C0387	03/14/2019	03/14/19 21:33	
1,2-Dichlorobenzene	ND	430	78	1	B9C0387	03/14/2019	03/14/19 21:33	
1,3-Dichlorobenzene	ND	430	84	1	B9C0387	03/14/2019	03/14/19 21:33	
1,4-Dichlorobenzene	ND	430	78	1	B9C0387	03/14/2019	03/14/19 21:33	
2,4,5-Trichlorophenol	ND	430	80	1	B9C0387	03/14/2019	03/14/19 21:33	
2,4,6-Trichlorophenol	ND	430	290	1	B9C0387	03/14/2019	03/14/19 21:33	
2,4-Dichlorophenol	ND	2100	150	1	B9C0387	03/14/2019	03/14/19 21:33	
2,4-Dimethylphenol	ND	430	150	1	B9C0387	03/14/2019	03/14/19 21:33	
2,4-Dinitrophenol	ND	2100	110	1	B9C0387	03/14/2019	03/14/19 21:33	
2,4-Dinitrotoluene	ND	430	59	1	B9C0387	03/14/2019	03/14/19 21:33	
2,6-Dinitrotoluene	ND	430	63	1	B9C0387	03/14/2019	03/14/19 21:33	
2-Chloronaphthalene	ND	430	76	1	B9C0387	03/14/2019	03/14/19 21:33	
2-Chlorophenol	ND	430	160	1	B9C0387	03/14/2019	03/14/19 21:33	
2-Methylnaphthalene	ND	430	86	1	B9C0387	03/14/2019	03/14/19 21:33	
2-Methylphenol	ND	430	87	1	B9C0387	03/14/2019	03/14/19 21:33	
2-Nitroaniline	ND	2100	260	1	B9C0387	03/14/2019	03/14/19 21:33	
2-Nitrophenol	ND	430	140	1	B9C0387	03/14/2019	03/14/19 21:33	
3,3'-Dichlorobenzidine	ND	860	360	1	B9C0387	03/14/2019	03/14/19 21:33	
3-Nitroaniline	ND	2100	58	1	B9C0387	03/14/2019	03/14/19 21:33	
4,6-Dinitro-2-methylphenol	ND	2100	390	1	B9C0387	03/14/2019	03/14/19 21:33	
4-Bromophenyl-phenylether	ND	430	64	1	B9C0387	03/14/2019	03/14/19 21:33	
4-Chloro-3-methylphenol	ND	860	140	1	B9C0387	03/14/2019	03/14/19 21:33	
4-Chloroaniline	ND	860	68	1	B9C0387	03/14/2019	03/14/19 21:33	
4-Chlorophenyl-phenylether	ND	430	62	1	B9C0387	03/14/2019	03/14/19 21:33	
4-Methylphenol	ND	430	86	1	B9C0387	03/14/2019	03/14/19 21:33	
4-Nitroaniline	ND	2100	370	1	B9C0387	03/14/2019	03/14/19 21:33	
4-Nitrophenol	ND	430	200	1	B9C0387	03/14/2019	03/14/19 21:33	
Acenaphthene	ND	430	63	1	B9C0387	03/14/2019	03/14/19 21:33	



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Project Number : Greenhorn Sediment Removal Project at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

Client Sample ID 19GHC-3

Lab ID: 1900897-03

Semivolatile Organic Compounds by EPA 8270C

Analyst: SP

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Acenaphthylene	ND	430	66	1	B9C0387	03/14/2019	03/14/19 21:33	
Anthracene	ND	430	63	1	B9C0387	03/14/2019	03/14/19 21:33	
Benzidine (M)	ND	2100	1900	1	B9C0387	03/14/2019	03/14/19 21:33	
Benzo(a)anthracene	ND	430	51	1	B9C0387	03/14/2019	03/14/19 21:33	
Benzo(a)pyrene	ND	430	59	1	B9C0387	03/14/2019	03/14/19 21:33	
Benzo(b)fluoranthene	ND	430	72	1	B9C0387	03/14/2019	03/14/19 21:33	
Benzo(g,h,i)perylene	ND	430	49	1	B9C0387	03/14/2019	03/14/19 21:33	
Benzo(k)fluoranthene	ND	430	67	1	B9C0387	03/14/2019	03/14/19 21:33	
Benzoic acid	ND	2100	1200	1	B9C0387	03/14/2019	03/14/19 21:33	
Benzyl alcohol	ND	860	87	1	B9C0387	03/14/2019	03/14/19 21:33	
bis(2-chloroethoxy)methane	ND	430	77	1	B9C0387	03/14/2019	03/14/19 21:33	
bis(2-Chloroethyl)ether	ND	430	74	1	B9C0387	03/14/2019	03/14/19 21:33	
bis(2-chloroisopropyl)ether	ND	430	84	1	B9C0387	03/14/2019	03/14/19 21:33	
bis(2-ethylhexyl)phthalate	ND	430	110	1	B9C0387	03/14/2019	03/14/19 21:33	
Butylbenzylphthalate	ND	430	320	1	B9C0387	03/14/2019	03/14/19 21:33	
Chrysene	ND	430	56	1	B9C0387	03/14/2019	03/14/19 21:33	
Di-n-butylphthalate	ND	430	290	1	B9C0387	03/14/2019	03/14/19 21:33	
Di-n-octylphthalate	ND	430	62	1	B9C0387	03/14/2019	03/14/19 21:33	
Dibenz(a,h)anthracene	ND	430	56	1	B9C0387	03/14/2019	03/14/19 21:33	
Dibenzofuran	ND	430	71	1	B9C0387	03/14/2019	03/14/19 21:33	
Diethyl phthalate	ND	430	61	1	B9C0387	03/14/2019	03/14/19 21:33	
Dimethyl phthalate	ND	430	59	1	B9C0387	03/14/2019	03/14/19 21:33	
Fluoranthene	ND	430	61	1	B9C0387	03/14/2019	03/14/19 21:33	
Fluorene	ND	430	64	1	B9C0387	03/14/2019	03/14/19 21:33	
Hexachlorobenzene	ND	430	53	1	B9C0387	03/14/2019	03/14/19 21:33	
Hexachlorobutadiene	ND	860	79	1	B9C0387	03/14/2019	03/14/19 21:33	
Hexachlorocyclopentadiene	ND	860	82	1	B9C0387	03/14/2019	03/14/19 21:33	
Hexachloroethane	ND	430	92	1	B9C0387	03/14/2019	03/14/19 21:33	
Indeno(1,2,3-cd)pyrene	ND	430	56	1	B9C0387	03/14/2019	03/14/19 21:33	
Isophorone	ND	430	74	1	B9C0387	03/14/2019	03/14/19 21:33	
N-Nitroso-di-n propylamine	ND	430	84	1	B9C0387	03/14/2019	03/14/19 21:33	
N-Nitrosodiphenylamine	ND	430	62	1	B9C0387	03/14/2019	03/14/19 21:33	
Naphthalene	ND	430	77	1	B9C0387	03/14/2019	03/14/19 21:33	
Nitrobenzene	ND	430	87	1	B9C0387	03/14/2019	03/14/19 21:33	
Pentachlorophenol	ND	2100	240	1	B9C0387	03/14/2019	03/14/19 21:33	
Phenanthrene	ND	430	60	1	B9C0387	03/14/2019	03/14/19 21:33	
Phenol	ND	430	170	1	B9C0387	03/14/2019	03/14/19 21:33	



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Project Number : Greenhorn Sediment Removal Project at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

Client Sample ID 19GHC-3

Lab ID: 1900897-03

Semivolatile Organic Compounds by EPA 8270C

Analyst: SP

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Pyrene	ND	430	69	1	B9C0387	03/14/2019	03/14/19 21:33	
Pyridine	ND	2100	340	1	B9C0387	03/14/2019	03/14/19 21:33	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>53.0 %</i>		<i>16 - 87</i>		B9C0387	03/14/2019	<i>03/14/19 21:33</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>	<i>101 %</i>		<i>0 - 148</i>		B9C0387	03/14/2019	<i>03/14/19 21:33</i>	
<i>Surrogate: 2-Chlorophenol-d4</i>	<i>64.3 %</i>		<i>17 - 96</i>		B9C0387	03/14/2019	<i>03/14/19 21:33</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>55.1 %</i>		<i>16 - 107</i>		B9C0387	03/14/2019	<i>03/14/19 21:33</i>	
<i>Surrogate: 2-Fluorophenol</i>	<i>58.6 %</i>		<i>16 - 86</i>		B9C0387	03/14/2019	<i>03/14/19 21:33</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>75.7 %</i>		<i>3 - 156</i>		B9C0387	03/14/2019	<i>03/14/19 21:33</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>55.6 %</i>		<i>16 - 99</i>		B9C0387	03/14/2019	<i>03/14/19 21:33</i>	
<i>Surrogate: Phenol-d6</i>	<i>62.3 %</i>		<i>17 - 90</i>		B9C0387	03/14/2019	<i>03/14/19 21:33</i>	

Semivolatile Organic Compounds by EPA 8270/SIM

Analyst: SP

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2-Methylnaphthalene	ND	6.5	1.5	1	B9C0386	03/14/2019	03/14/19 22:06	
Acenaphthene	ND	6.5	1.0	1	B9C0386	03/14/2019	03/14/19 22:06	
Acenaphthylene	ND	6.5	1.2	1	B9C0386	03/14/2019	03/14/19 22:06	
Anthracene	ND	6.5	0.88	1	B9C0386	03/14/2019	03/14/19 22:06	
Benzo(a)anthracene	ND	6.5	0.83	1	B9C0386	03/14/2019	03/14/19 22:06	
Benzo(a)pyrene	ND	6.5	1.1	1	B9C0386	03/14/2019	03/14/19 22:06	
Benzo(b)fluoranthene	ND	6.5	1.0	1	B9C0386	03/14/2019	03/14/19 22:06	
Benzo(g,h,i)perylene	ND	6.5	1.3	1	B9C0386	03/14/2019	03/14/19 22:06	
Benzo(k)fluoranthene	ND	6.5	0.72	1	B9C0386	03/14/2019	03/14/19 22:06	
Chrysene	ND	6.5	0.78	1	B9C0386	03/14/2019	03/14/19 22:06	
Dibenz(a,h)anthracene	ND	6.5	1.4	1	B9C0386	03/14/2019	03/14/19 22:06	
Fluoranthene	3.4	6.5	0.94	1	B9C0386	03/14/2019	03/14/19 22:06	J
Fluorene	ND	6.5	0.99	1	B9C0386	03/14/2019	03/14/19 22:06	
Indeno(1,2,3-cd)pyrene	ND	6.5	1.7	1	B9C0386	03/14/2019	03/14/19 22:06	
Naphthalene	ND	6.5	1.2	1	B9C0386	03/14/2019	03/14/19 22:06	
Phenanthrene	ND	6.5	0.88	1	B9C0386	03/14/2019	03/14/19 22:06	
Pyrene	ND	6.5	0.90	1	B9C0386	03/14/2019	03/14/19 22:06	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>68.8 %</i>		<i>26 - 107</i>		B9C0386	03/14/2019	<i>03/14/19 22:06</i>	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>75.1 %</i>		<i>35 - 107</i>		B9C0386	03/14/2019	<i>03/14/19 22:06</i>	
<i>Surrogate: Nitrobenzene-d5</i>	<i>86.6 %</i>		<i>2 - 129</i>		B9C0386	03/14/2019	<i>03/14/19 22:06</i>	
<i>Surrogate: 4-Terphenyl-d14</i>	<i>79.5 %</i>		<i>48 - 123</i>		B9C0386	03/14/2019	<i>03/14/19 22:06</i>	



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Project Number : Greenhorn Sediment Removal Prject at R
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 Reported : 03/18/2019

QUALITY CONTROL SECTION

Percent Moisture - Quality Control

Analyte	Result % by Weight	PQL % by Weight	MDL % by Weight	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B9C0278 - No_Prep_WC1_SED

Duplicate (B9C0278-DUP1)

Source: 1900897-03

Prepared: 3/11/2019 Analyzed: 3/11/2019

Percent Moisture	23.6485	0.10	0.10		22.9282		3.09	30	
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Project Number : Greenhorn Sediment Removal Prject at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

Total Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg dry)	PQL (mg/kg dry)	MDL (mg/kg dry)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B9C0249 - EPA 3050B_SED

Matrix Spike (B9C0249-MS1)		Source: 1900897-02			Prepared: 3/11/2019 Analyzed: 3/12/2019					
Aluminum	3044.78	32	3.4	1269.71	2207.23	66.0	0 - 257			
Matrix Spike Dup (B9C0249-MSD1)		Source: 1900897-02			Prepared: 3/11/2019 Analyzed: 3/12/2019					
Aluminum	3145.36	32	3.4	1269.71	2207.23	73.9	0 - 257	3.25	20	



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 Nevada City , CA 95959

Project Number : Greenhorn Sediment Removal Prject at R
 Report To : Mars Nelson Tredwell
 Reported : 03/18/2019

Total Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg wet)	PQL (mg/kg wet)	MDL (mg/kg wet)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B9C0249 - EPA 3050B_SED

Blank (B9C0249-BLK1)

Prepared: 3/11/2019 Analyzed: 3/12/2019

Aluminum ND 25 2.7

LCS (B9C0249-BS1)

Prepared: 3/11/2019 Analyzed: 3/12/2019

Aluminum 863.012 25 2.7 1000.00 86.3 80 - 120



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Project Number : Greenhorn Sediment Removal Project at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg dry)	PQL (mg/kg dry)	MDL (mg/kg dry)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B9C0248 - EPA 3050B_SED

Matrix Spike (B9C0248-MS1)

Source: 1900897-02

Prepared: 3/11/2019 Analyzed: 3/12/2019

Antimony	123.220	2.5	0.65	158.714	ND	77.6	21 - 102
Arsenic	128.230	1.3	0.15	158.714	3.56751	78.5	49 - 96
Barium	172.686	1.3	0.15	158.714	28.6565	90.7	26 - 121
Beryllium	130.746	1.3	0.04	158.714	ND	82.4	51 - 96
Cadmium	126.979	1.3	0.18	158.714	ND	80.0	46 - 93
Chromium	148.766	1.3	0.33	158.714	8.36835	88.5	44 - 107
Cobalt	135.630	1.3	0.08	158.714	2.58654	83.8	49 - 100
Copper	142.174	2.5	0.24	158.714	6.97670	85.2	46 - 115
Lead	127.571	1.3	0.23	158.714	1.71376	79.3	29 - 126
Molybdenum	133.537	1.3	0.16	158.714	0.397057	83.9	48 - 99
Nickel	135.520	1.3	0.23	158.714	5.03546	82.2	37 - 108
Selenium	122.830	1.3	0.51	158.714	ND	77.4	48 - 95
Silver	136.850	1.3	0.15	158.714	ND	86.2	53 - 99
Thallium	122.264	1.3	0.48	158.714	ND	77.0	38 - 93
Vanadium	158.434	1.3	0.08	158.714	14.5758	90.6	48 - 104
Zinc	134.742	1.3	0.19	158.714	10.0951	78.5	24 - 111

Matrix Spike Dup (B9C0248-MSD1)

Source: 1900897-02

Prepared: 3/11/2019 Analyzed: 3/12/2019

Antimony	120.940	2.5	0.65	158.714	ND	76.2	21 - 102	1.87	20
Arsenic	127.770	1.3	0.15	158.714	3.56751	78.3	49 - 96	0.359	20
Barium	160.244	1.3	0.15	158.714	28.6565	82.9	26 - 121	7.47	20
Beryllium	129.368	1.3	0.04	158.714	ND	81.5	51 - 96	1.06	20
Cadmium	123.727	1.3	0.18	158.714	ND	78.0	46 - 93	2.59	20
Chromium	144.839	1.3	0.33	158.714	8.36835	86.0	44 - 107	2.68	20
Cobalt	132.567	1.3	0.08	158.714	2.58654	81.9	49 - 100	2.28	20
Copper	140.607	2.5	0.24	158.714	6.97670	84.2	46 - 115	1.11	20
Lead	125.777	1.3	0.23	158.714	1.71376	78.2	29 - 126	1.42	20
Molybdenum	131.671	1.3	0.16	158.714	0.397057	82.7	48 - 99	1.41	20
Nickel	132.419	1.3	0.23	158.714	5.03546	80.3	37 - 108	2.32	20
Selenium	122.010	1.3	0.51	158.714	ND	76.9	48 - 95	0.669	20
Silver	134.102	1.3	0.15	158.714	ND	84.5	53 - 99	2.03	20
Thallium	121.739	1.3	0.48	158.714	ND	76.7	38 - 93	0.430	20
Vanadium	154.494	1.3	0.08	158.714	14.5758	88.2	48 - 104	2.52	20
Zinc	129.621	1.3	0.19	158.714	10.0951	75.3	24 - 111	3.87	20



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Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg wet)	PQL (mg/kg wet)	MDL (mg/kg wet)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B9C0248 - EPA 3050B_SED

Blank (B9C0248-BLK1)

Prepared: 3/11/2019 Analyzed: 3/12/2019

Antimony	ND	2.0	0.51
Arsenic	ND	1.0	0.12
Barium	ND	1.0	0.12
Beryllium	ND	1.0	0.03
Cadmium	ND	1.0	0.14
Chromium	ND	1.0	0.26
Cobalt	ND	1.0	0.07
Copper	ND	2.0	0.19
Lead	ND	1.0	0.18
Molybdenum	ND	1.0	0.12
Nickel	ND	1.0	0.18
Selenium	ND	1.0	0.40
Silver	ND	1.0	0.12
Thallium	ND	1.0	0.38
Vanadium	ND	1.0	0.06
Zinc	ND	1.0	0.15

LCS (B9C0248-BS1)

Prepared: 3/11/2019 Analyzed: 3/12/2019

Antimony	41.9262	2.0	0.51	50.0000	83.9	80 - 120
Arsenic	40.5379	1.0	0.12	50.0000	81.1	80 - 120
Barium	44.6544	1.0	0.12	50.0000	89.3	80 - 120
Beryllium	42.6906	1.0	0.03	50.0000	85.4	80 - 120
Cadmium	41.1327	1.0	0.14	50.0000	82.3	80 - 120
Chromium	44.6883	1.0	0.26	50.0000	89.4	80 - 120
Cobalt	43.9006	1.0	0.07	50.0000	87.8	80 - 120
Copper	45.2270	2.0	0.19	50.0000	90.5	80 - 120
Lead	41.4697	1.0	0.18	50.0000	82.9	80 - 120
Molybdenum	43.0126	1.0	0.12	50.0000	86.0	80 - 120
Nickel	43.1668	1.0	0.18	50.0000	86.3	80 - 120
Selenium	40.8918	1.0	0.40	50.0000	81.8	80 - 120
Silver	44.4512	1.0	0.12	50.0000	88.9	80 - 120
Thallium	41.4186	1.0	0.38	50.0000	82.8	80 - 120
Vanadium	45.3482	1.0	0.06	50.0000	90.7	80 - 120
Zinc	40.7346	1.0	0.15	50.0000	81.5	80 - 120



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Reported : 03/18/2019

TCLP Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B9C0273 - EPA 3010A_SED

Blank (B9C0273-BLK1)

Prepared: 3/12/2019 Analyzed: 3/12/2019

Antimony	ND	0.10	0.0088
Arsenic	ND	0.050	0.0078
Barium	ND	0.050	0.0026
Beryllium	ND	0.050	0.0016
Cadmium	ND	0.050	0.0024
Chromium	ND	0.050	0.0020
Cobalt	ND	0.050	0.0016
Copper	ND	0.050	0.0038
Lead	ND	0.050	0.0047
Molybdenum	ND	0.050	0.0030
Nickel	ND	0.050	0.0046
Selenium	ND	0.050	0.0093
Silver	ND	0.050	0.0024
Thallium	ND	0.050	0.0085
Vanadium	ND	0.050	0.0022
Zinc	ND	0.050	0.0057

LCS (B9C0273-BS1)

Prepared: 3/12/2019 Analyzed: 3/12/2019

Antimony	0.863892	0.10	0.0088	1.00000	86.4	80 - 120
Arsenic	0.880550	0.050	0.0078	1.00000	88.1	80 - 120
Barium	0.958343	0.050	0.0026	1.00000	95.8	80 - 120
Beryllium	0.893044	0.050	0.0016	1.00000	89.3	80 - 120
Cadmium	0.874404	0.050	0.0024	1.00000	87.4	80 - 120
Chromium	0.950198	0.050	0.0020	1.00000	95.0	80 - 120
Cobalt	0.943281	0.050	0.0016	1.00000	94.3	80 - 120
Copper	0.938570	0.050	0.0038	1.00000	93.9	80 - 120
Lead	0.865510	0.050	0.0047	1.00000	86.6	80 - 120
Molybdenum	0.946290	0.050	0.0030	1.00000	94.6	80 - 120
Nickel	0.930603	0.050	0.0046	1.00000	93.1	80 - 120
Selenium	0.876227	0.050	0.0093	1.00000	87.6	80 - 120
Silver	0.945695	0.050	0.0024	1.00000	94.6	80 - 120
Thallium	0.852256	0.050	0.0085	1.00000	85.2	80 - 120
Vanadium	0.946175	0.050	0.0022	1.00000	94.6	80 - 120
Zinc	0.901431	0.050	0.0057	1.00000	90.1	80 - 120

Matrix Spike (B9C0273-MS1)

Source: 1900897-01

Prepared: 3/12/2019 Analyzed: 3/12/2019

Antimony	2.13038	0.50	0.044	2.50000	ND	85.2	66 - 127
Arsenic	2.22802	0.25	0.039	2.50000	ND	89.1	63 - 131
Barium	3.65712	0.25	0.013	2.50000	1.08728	103	62 - 129
Beryllium	2.24764	0.25	0.0082	2.50000	ND	89.9	66 - 126
Cadmium	2.24750	0.25	0.012	2.50000	ND	89.9	59 - 124
Chromium	2.34162	0.25	0.0098	2.50000	ND	93.7	63 - 127



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TCLP Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B9C0273 - EPA 3010A_SED (continued)

Matrix Spike (B9C0273-MS1) - Continued

Source: 1900897-01

Prepared: 3/12/2019 Analyzed: 3/12/2019

Cobalt	2.29869	0.25	0.0079	2.50000	ND	91.9	62 - 125			
Copper	2.31686	0.25	0.019	2.50000	ND	92.7	59 - 139			
Lead	2.16024	0.25	0.024	2.50000	ND	86.4	59 - 123			
Molybdenum	2.39046	0.25	0.015	2.50000	ND	95.6	30 - 169			
Nickel	2.25540	0.25	0.023	2.50000	ND	90.2	60 - 125			
Selenium	2.28416	0.25	0.047	2.50000	ND	91.4	55 - 136			
Silver	2.36167	0.25	0.012	2.50000	ND	94.5	58 - 139			
Thallium	2.04257	0.25	0.043	2.50000	ND	81.7	68 - 11			M1
Vanadium	2.34216	0.25	0.011	2.50000	ND	93.7	63 - 131			
Zinc	2.51014	0.25	0.029	2.50000	0.204746	92.2	50 - 131			

Matrix Spike Dup (B9C0273-MSD1)

Source: 1900897-01

Prepared: 3/12/2019 Analyzed: 3/12/2019

Antimony	2.07660	0.50	0.044	2.50000	ND	83.1	66 - 127	2.56	20	
Arsenic	2.16313	0.25	0.039	2.50000	ND	86.5	63 - 131	2.96	20	
Barium	3.20885	0.25	0.013	2.50000	1.08728	84.9	62 - 129	13.1	20	
Beryllium	2.16498	0.25	0.0082	2.50000	ND	86.6	66 - 126	3.75	20	
Cadmium	2.17235	0.25	0.012	2.50000	ND	86.9	59 - 124	3.40	20	
Chromium	2.22474	0.25	0.0098	2.50000	ND	89.0	63 - 127	5.12	20	
Cobalt	2.21421	0.25	0.0079	2.50000	ND	88.6	62 - 125	3.74	20	
Copper	2.17337	0.25	0.019	2.50000	ND	86.9	59 - 139	6.39	20	
Lead	2.11438	0.25	0.024	2.50000	ND	84.6	59 - 123	2.15	20	
Molybdenum	2.32399	0.25	0.015	2.50000	ND	93.0	30 - 169	2.82	20	
Nickel	2.19721	0.25	0.023	2.50000	ND	87.9	60 - 125	2.61	20	
Selenium	2.18275	0.25	0.047	2.50000	ND	87.3	55 - 136	4.54	20	
Silver	2.22761	0.25	0.012	2.50000	ND	89.1	58 - 139	5.84	20	
Thallium	2.00925	0.25	0.043	2.50000	ND	80.4	68 - 11	1.64	20	M1
Vanadium	2.20993	0.25	0.011	2.50000	ND	88.4	63 - 131	5.81	20	
Zinc	2.35559	0.25	0.029	2.50000	0.204746	86.0	50 - 131	6.35	20	



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STLC Metals by ICP-AES by EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	MDL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B9C0245 - STLC_SED Extraction

Blank (B9C0245-BLK1)

Prepared: 3/11/2019 Analyzed: 3/11/2019

Antimony	ND	2.0	0.18
Arsenic	ND	1.0	0.16
Barium	ND	1.0	0.053
Beryllium	ND	1.0	0.033
Cadmium	ND	1.0	0.048
Chromium	ND	1.0	0.039
Cobalt	ND	1.0	0.032
Copper	ND	1.0	0.076
Lead	ND	1.0	0.094
Molybdenum	ND	1.0	0.059
Nickel	ND	1.0	0.092
Selenium	ND	1.0	0.19
Silver	ND	1.0	0.047
Thallium	ND	1.0	0.17
Vanadium	ND	1.0	0.045
Zinc	ND	1.0	0.11

LCS (B9C0245-BS1)

Prepared: 3/11/2019 Analyzed: 3/11/2019

Antimony	1.89630	2.00000	94.8	80 - 120
Arsenic	2.11569	2.00000	106	80 - 120
Barium	2.27009	2.00000	114	80 - 120
Beryllium	1.95366	2.00000	97.7	80 - 120
Cadmium	2.15768	2.00000	108	80 - 120
Chromium	2.07617	2.00000	104	80 - 120
Cobalt	2.11037	2.00000	106	80 - 120
Copper	2.05278	2.00000	103	80 - 120
Lead	1.89014	2.00000	94.5	80 - 120
Molybdenum	1.99094	2.00000	99.5	80 - 120
Nickel	2.15579	2.00000	108	80 - 120
Selenium	2.02753	2.00000	101	80 - 120
Silver	2.02839	2.00000	101	80 - 120
Thallium	2.06597	2.00000	103	80 - 120
Vanadium	2.13780	2.00000	107	80 - 120
Zinc	2.14293	2.00000	107	80 - 120

LCS Dup (B9C0245-BSD1)

Prepared: 3/11/2019 Analyzed: 3/11/2019

Antimony	1.88382	2.00000	94.2	80 - 120	0.660	20
Arsenic	1.85913	2.00000	93.0	80 - 120	12.9	20
Barium	2.08453	2.00000	104	80 - 120	8.52	20
Beryllium	1.79090	2.00000	89.5	80 - 120	8.69	20
Cadmium	1.98192	2.00000	99.1	80 - 120	8.49	20
Chromium	1.88882	2.00000	94.4	80 - 120	9.45	20



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STLC Metals by ICP-AES by EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B9C0245 - STLC_SED Extraction (continued)

LCS Dup (B9C0245-BSD1) - Continued

Prepared: 3/11/2019 Analyzed: 3/11/2019

Cobalt	1.95315		2.00000		97.7	80 - 120	7.74	20	
Copper	1.85589		2.00000		92.8	80 - 120	10.1	20	
Lead	1.73709		2.00000		86.9	80 - 120	8.44	20	
Molybdenum	1.84904		2.00000		92.5	80 - 120	7.39	20	
Nickel	1.98642		2.00000		99.3	80 - 120	8.18	20	
Selenium	1.81913		2.00000		91.0	80 - 120	10.8	20	
Silver	1.85280		2.00000		92.6	80 - 120	9.05	20	
Thallium	1.91281		2.00000		95.6	80 - 120	7.70	20	
Vanadium	1.92405		2.00000		96.2	80 - 120	10.5	20	
Zinc	1.99162		2.00000		99.6	80 - 120	7.32	20	



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Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg dry)	PQL (mg/kg dry)	MDL (mg/kg dry)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B9C0250 - EPA 7471_SED

Matrix Spike (B9C0250-MS1)

Source: 1900897-01

Prepared: 3/11/2019 Analyzed: 3/13/2019

Mercury 1.21328 0.13 0.009 1.07120 0.040102 110 70 - 130

Matrix Spike Dup (B9C0250-MSD1)

Source: 1900897-01

Prepared: 3/11/2019 Analyzed: 3/13/2019

Mercury 1.24313 0.13 0.009 1.07120 0.040102 112 70 - 130 2.43 20



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Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg wet)	PQL (mg/kg wet)	MDL (mg/kg wet)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B9C0250 - EPA 7471_SED

Blank (B9C0250-BLK1)

Prepared: 3/11/2019 Analyzed: 3/13/2019

Mercury ND 0.10 0.007

LCS (B9C0250-BS1)

Prepared: 3/11/2019 Analyzed: 3/13/2019

Mercury 0.808367 0.10 0.007 0.833333 97.0 80 - 120



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Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B9C0250 - EPA 7471_SED

Post Spike (B9C0250-PS1)

Source: 1900897-01

Prepared: 3/11/2019 Analyzed: 3/13/2019

Mercury	7.5236E-3		5.00000E-3	0.000374	143	85 - 115			M1
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Report To : Mars Nelson Tredwell
Reported : 03/18/2019

STLC Mercury by AA (Cold Vapor) EPA 7470A - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B9C0244 - EPA 245.1/7470_SED

Blank (B9C0244-BLK1)					Prepared: 3/11/2019 Analyzed: 3/13/2019					
Mercury	ND	0.20	0.03							
LCS (B9C0244-BS1)					Prepared: 3/11/2019 Analyzed: 3/13/2019					
Mercury	9.90872	0.20	0.03	10.0000		99.1	80 - 120			
Matrix Spike (B9C0244-MS1)					Source: 1900897-01 Prepared: 3/11/2019 Analyzed: 3/13/2019					
Mercury	37.7691	1.0	0.16	50.0000	ND	75.5	70 - 130			
Matrix Spike Dup (B9C0244-MSD1)					Source: 1900897-01 Prepared: 3/11/2019 Analyzed: 3/13/2019					
Mercury	51.5943	1.0	0.16	50.0000	ND	103	70 - 130	30.9	20	R
Post Spike (B9C0244-PS1)					Source: 1900897-01 Prepared: 3/11/2019 Analyzed: 3/13/2019					
Mercury	5.08485			5.00000	0.010771	101	85 - 115			



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Project Number : Greenhorn Sediment Removal Prject at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

TCLP Mercury by AA (Cold Vapor) by EPA 7470A - Quality Control

Analyte	Result (ug/L)	PQL (ug/L)	MDL (ug/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B9C0274 - EPA 245.1/7470_SED										
Blank (B9C0274-BLK1)					Prepared: 3/12/2019 Analyzed: 3/13/2019					
Mercury	0.031761	0.20	0.03							J
LCS (B9C0274-BS1)					Prepared: 3/12/2019 Analyzed: 3/13/2019					
Mercury	9.02804	0.20	0.03	10.0000		90.3	80 - 120			
Matrix Spike (B9C0274-MS1)					Source: 1900897-01 Prepared: 3/12/2019 Analyzed: 3/13/2019					
Mercury	9.59204	0.20	0.03	10.0000	0.037391	95.5	70 - 130			
Matrix Spike Dup (B9C0274-MSD1)					Source: 1900897-01 Prepared: 3/12/2019 Analyzed: 3/13/2019					
Mercury	9.48722	0.20	0.03	10.0000	0.037391	94.5	70 - 130	1.10	20	
Post Spike (B9C0274-PS1)					Source: 1900897-01 Prepared: 3/12/2019 Analyzed: 3/13/2019					
Mercury	4.87316			5.00000	0.037391	96.7	85 - 115			



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Report To : Mars Nelson Tredwell
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Hydrocarbon Chain Distribution by EPA 8015B (Modified) - Quality Control

Analyte	Result (mg/kg dry)	PQL (mg/kg dry)	MDL (mg/kg dry)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B9C0373 - GCSEMI_DRO_SED

Matrix Spike (B9C0373-MS1)		Source: 1900897-01			Prepared: 3/14/2019 Analyzed: 3/14/2019					
DRO	1270.54	13	13	1285.44	ND	98.8	61 - 171			
<i>Surrogate: p-Terphenyl</i>		<i>107.4</i>		<i>102.836</i>		<i>104</i>	<i>58 - 172</i>			
Matrix Spike Dup (B9C0373-MSD1)		Source: 1900897-01			Prepared: 3/14/2019 Analyzed: 3/14/2019					
DRO	1340.95	13	13	1285.44	ND	104	61 - 171		5.39	20
<i>Surrogate: p-Terphenyl</i>		<i>101.5</i>		<i>102.836</i>		<i>98.7</i>	<i>58 - 172</i>			



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Project Number : Greenhorn Sediment Removal Prject at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

Hydrocarbon Chain Distribution by EPA 8015B (Modified) - Quality Control

Analyte	Result (mg/kg wet)	PQL (mg/kg wet)	MDL (mg/kg wet)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B9C0373 - GCSEMI_DRO_SED

Blank (B9C0373-BLK1)

Prepared: 3/14/2019 Analyzed: 3/14/2019

C8-C10	ND	10	10							
C10-C18	ND	10	10							
C18-C28	ND	10	10							
C28-C36	ND	10	10							
C36-C40	ND	10	10							
C8-C40 Total	ND	10	10							

<i>Surrogate: p-Terphenyl</i>	82.07			80.0000		103	58 - 172			
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LCS (B9C0373-BS1)

Prepared: 3/14/2019 Analyzed: 3/14/2019

DRO	966.830	10	10	1000.00		96.7	71 - 165			
<i>Surrogate: p-Terphenyl</i>	75.94			80.0000		94.9	58 - 172			



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Project Number : Greenhorn Sediment Removal Prject at R
Report To : Mars Nelson Tredwell
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Polychlorinated Biphenyls by EPA 8082 - Quality Control

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B9C0388 - GCSEMI_PCB/PEST_SED

Matrix Spike (B9C0388-MS1)

Source: 1900897-02

Prepared: 3/14/2019 Analyzed: 3/15/2019

Aroclor 1016	181.534	20	1.9	211.619	ND	85.8	36 - 127			
Aroclor 1260	197.590	20	1.9	211.619	ND	93.4	31 - 142			
<i>Surrogate: Decachlorobiphenyl</i>	<i>14.97</i>			<i>21.1619</i>		<i>70.7</i>	<i>18 - 136</i>			
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>19.44</i>			<i>21.1619</i>		<i>91.9</i>	<i>30 - 130</i>			

Matrix Spike Dup (B9C0388-MSD1)

Source: 1900897-02

Prepared: 3/14/2019 Analyzed: 3/15/2019

Aroclor 1016	156.082	20	1.9	211.619	ND	73.8	36 - 127	15.1	20	
Aroclor 1260	173.766	20	1.9	211.619	ND	82.1	31 - 142	12.8	20	
<i>Surrogate: Decachlorobiphenyl</i>	<i>17.41</i>			<i>21.1619</i>		<i>82.3</i>	<i>18 - 136</i>			
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>16.84</i>			<i>21.1619</i>		<i>79.6</i>	<i>30 - 130</i>			



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Project Number : Greenhorn Sediment Removal Project at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

Polychlorinated Biphenyls by EPA 8082 - Quality Control

Analyte	Result (ug/kg wet)	PQL (ug/kg wet)	MDL (ug/kg wet)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B9C0388 - GCSEMI_PCB/PEST_SED

Blank (B9C0388-BLK1)

Prepared: 3/14/2019 Analyzed: 3/14/2019

Aroclor 1016	ND	16	1.5
Aroclor 1221	ND	16	1.5
Aroclor 1232	ND	16	1.5
Aroclor 1242	ND	16	1.5
Aroclor 1248	ND	16	1.5
Aroclor 1254	ND	16	1.5
Aroclor 1260	ND	16	1.5
Aroclor 1262	ND	16	1.5
Aroclor 1268	ND	16	1.5

<i>Surrogate: Decachlorobiphenyl</i>	10.63		16.6667	63.8	18 - 136
<i>Surrogate: Tetrachloro-m-xylene</i>	13.56		16.6667	81.3	30 - 130

LCS (B9C0388-BS1)

Prepared: 3/14/2019 Analyzed: 3/15/2019

Aroclor 1016	121.773	16	1.5	166.667	73.1	73 - 111
Aroclor 1260	134.936	16	1.5	166.667	81.0	75 - 125

<i>Surrogate: Decachlorobiphenyl</i>	10.89		16.6667	65.3	18 - 136
<i>Surrogate: Tetrachloro-m-xylene</i>	13.22		16.6667	79.3	30 - 130



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Project Number : Greenhorn Sediment Removal Project at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

Semivolatile Organic Compounds by EPA 8270C - Quality Control

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B9C0387 - MSSEMI_SED

Matrix Spike (B9C0387-MS1)

Source: 1900897-03

Prepared: 3/14/2019 Analyzed: 3/14/2019

1,2,4-Trichlorobenzene	2927.57	430	92	4324.97	ND	67.7	27 - 96
1,2-Dichlorobenzene	2883.46	430	78	4324.97	ND	66.7	25 - 87
1,3-Dichlorobenzene	2864.43	430	84	4324.97	ND	66.2	24 - 84
1,4-Dichlorobenzene	2803.45	430	78	4324.97	ND	64.8	25 - 85
2,4,5-Trichlorophenol	3978.11	430	80	4324.97	ND	92.0	29 - 122
2,4,6-Trichlorophenol	3485.50	430	290	4324.97	ND	80.6	21 - 127
2,4-Dichlorophenol	3450.46	2100	150	4324.97	ND	79.8	24 - 115
2,4-Dimethylphenol	3630.81	430	150	4324.97	ND	83.9	19 - 124
2,4-Dinitrophenol	5097.84	2100	110	4324.97	ND	118	0 - 118
2,4-Dinitrotoluene	3864.36	430	59	4324.97	ND	89.3	35 - 112
2,6-Dinitrotoluene	3846.20	430	63	4324.97	ND	88.9	15 - 137
2-Chloronaphthalene	3345.80	430	76	4324.97	ND	77.4	35 - 95
2-Chlorophenol	3232.48	430	160	4324.97	ND	74.7	22 - 100
2-Methylnaphthalene	3388.18	430	86	4324.97	ND	78.3	17 - 123
2-Methylphenol	3607.89	430	87	4324.97	ND	83.4	28 - 100
2-Nitroaniline	3984.16	2100	260	4324.97	ND	92.1	34 - 120
2-Nitrophenol	3666.28	430	140	4324.97	ND	84.8	22 - 116
3,3'-Dichlorobenzidine	3852.69	860	360	4324.97	ND	89.1	9 - 117
3-Nitroaniline	4382.50	2100	58	4324.97	ND	101	29 - 116
4,6-Dinitro-2-methylphenol	4783.85	2100	390	4324.97	ND	111	21 - 126
4-Bromophenyl-phenylether	3769.65	430	64	4324.97	ND	87.2	36 - 108
4-Chloro-3-methylphenol	3781.76	860	140	4324.97	ND	87.4	32 - 116
4-Chloroaniline	3743.70	860	68	4324.97	ND	86.6	22 - 115
4-Chlorophenyl-phenylether	3247.19	430	62	4324.97	ND	75.1	36 - 104
4-Methylphenol	3697.85	430	86	4324.97	ND	85.5	32 - 98
4-Nitroaniline	4235.45	2100	370	4324.97	ND	97.9	37 - 116
4-Nitrophenol	3751.91	430	200	4324.97	ND	86.8	0 - 148
Acenaphthene	3412.40	430	63	4324.97	ND	78.9	35 - 108
Acenaphthylene	3502.80	430	66	4324.97	ND	81.0	35 - 108
Anthracene	3565.94	430	63	4324.97	ND	82.4	40 - 114
Benzidine (M)	3896.80	2100	1900	4324.97	ND	90.1	0 - 161
Benzo(a)anthracene	3396.83	430	51	4324.97	ND	78.5	42 - 113
Benzo(a)pyrene	3567.24	430	59	4324.97	ND	82.5	38 - 117
Benzo(b)fluoranthene	3602.70	430	72	4324.97	ND	83.3	35 - 117
Benzo(g,h,i)perylene	3827.17	430	49	4324.97	ND	88.5	32 - 121
Benzo(k)fluoranthene	3432.30	430	67	4324.97	ND	79.4	34 - 119
Benzoic acid	3401.59	2100	1200	4324.97	ND	78.6	19 - 133
Benzyl alcohol	3694.39	860	87	4324.97	ND	85.4	24 - 102
bis(2-chloroethoxy)methane	3137.34	430	77	4324.97	ND	72.5	27 - 88
bis(2-Chloroethyl)ether	2852.32	430	74	4324.97	ND	65.9	26 - 82
bis(2-chloroisopropyl)ether	3154.64	430	84	4324.97	ND	72.9	15 - 92



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Semivolatile Organic Compounds by EPA 8270C - Quality Control (cont'd)

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B9C0387 - MSSEMI_SED (continued)

Matrix Spike (B9C0387-MS1) - Continued

Source: 1900897-03

Prepared: 3/14/2019 Analyzed: 3/14/2019

bis(2-ethylhexyl)phthalate	4158.03	430	110	4324.97	ND	96.1	21 - 128		
Butylbenzylphthalate	4405.85	430	320	4324.97	ND	102	14 - 136		
Chrysene	3431.43	430	56	4324.97	ND	79.3	37 - 113		
Di-n-butylphthalate	4285.18	430	290	4324.97	ND	99.1	40 - 112		
Di-n-octylphthalate	3802.52	430	62	4324.97	ND	87.9	8 - 137		
Dibenz(a,h)anthracene	3687.90	430	56	4324.97	ND	85.3	29 - 128		
Dibenzofuran	3667.58	430	71	4324.97	ND	84.8	40 - 109		
Diethyl phthalate	3786.95	430	61	4324.97	ND	87.6	38 - 108		
Dimethyl phthalate	3623.46	430	59	4324.97	ND	83.8	38 - 106		
Fluoranthene	3383.86	430	61	4324.97	ND	78.2	37 - 118		
Fluorene	3380.40	430	64	4324.97	ND	78.2	38 - 114		
Hexachlorobenzene	3922.75	430	53	4324.97	ND	90.7	35 - 115		
Hexachlorobutadiene	2914.60	860	79	4324.97	ND	67.4	31 - 101		
Hexachlorocyclopentadiene	3213.02	860	82	4324.97	ND	74.3	28 - 99		
Hexachloroethane	2921.95	430	92	4324.97	ND	67.6	27 - 87		
Indeno(1,2,3-cd)pyrene	3805.11	430	56	4324.97	ND	88.0	29 - 125		
Isophorone	3197.88	430	74	4324.97	ND	73.9	26 - 97		
N-Nitroso-di-n propylamine	3213.46	430	84	4324.97	ND	74.3	27 - 97		
N-Nitrosodiphenylamine	3705.20	430	62	4324.97	ND	85.7	19 - 123		
Naphthalene	3054.73	430	77	4324.97	ND	70.6	26 - 103		
Nitrobenzene	3104.03	430	87	4324.97	ND	71.8	24 - 99		
Pentachlorophenol	4543.82	2100	240	4324.97	ND	105	13 - 130		
Phenanthrene	3590.16	430	60	4324.97	ND	83.0	40 - 116		
Phenol	3176.69	430	170	4324.97	ND	73.4	23 - 96		
Pyrene	3343.64	430	69	4324.97	ND	77.3	36 - 122		
Pyridine	2633.48	2100	340	4324.97	ND	60.9	7 - 87		

<i>Surrogate: 1,2-Dichlorobenzene-d</i>	2616			4324.97		60.5	16 - 87		
<i>Surrogate: 2,4,6-Tribromophenol</i>	4852			4314.16		112	0 - 148		
<i>Surrogate: 2-Chlorophenol-d4</i>	3253			4314.16		75.4	17 - 96		
<i>Surrogate: 2-Fluorobiphenyl</i>	2880			4324.97		66.6	16 - 107		
<i>Surrogate: 2-Fluorophenol</i>	2918			4314.16		67.6	16 - 86		
<i>Surrogate: 4-Terphenyl-d14</i>	3411			4324.97		78.9	3 - 156		
<i>Surrogate: Nitrobenzene-d5</i>	2880			4324.97		66.6	16 - 99		
<i>Surrogate: Phenol-d6</i>	3248			4314.16		75.3	17 - 90		

Matrix Spike Dup (B9C0387-MSD1)

Source: 1900897-03

Prepared: 3/14/2019 Analyzed: 3/14/2019

1,2,4-Trichlorobenzene	2950.06	430	92	4324.97	ND	68.2	27 - 96	0.765	20
1,2-Dichlorobenzene	2956.12	430	78	4324.97	ND	68.3	25 - 87	2.49	20
1,3-Dichlorobenzene	2926.71	430	84	4324.97	ND	67.7	24 - 84	2.15	20
1,4-Dichlorobenzene	2868.75	430	78	4324.97	ND	66.3	25 - 85	2.30	20
2,4,5-Trichlorophenol	4051.20	430	80	4324.97	ND	93.7	29 - 122	1.82	20



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Semivolatile Organic Compounds by EPA 8270C - Quality Control (cont'd)

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B9C0387 - MSSEMI_SED (continued)

Matrix Spike Dup (B9C0387-MSD1) - Continued

Source: 1900897-03

Prepared: 3/14/2019 Analyzed: 3/14/2019

2,4,6-Trichlorophenol	3481.60	430	290	4324.97	ND	80.5	21 - 127	0.112	20	
2,4-Dichlorophenol	3495.88	2100	150	4324.97	ND	80.8	24 - 115	1.31	20	
2,4-Dimethylphenol	3743.70	430	150	4324.97	ND	86.6	19 - 124	3.06	20	
2,4-Dinitrophenol	5195.59	2100	110	4324.97	ND	120	0 - 118	1.90	20	M2
2,4-Dinitrotoluene	4001.46	430	59	4324.97	ND	92.5	35 - 112	3.49	20	
2,6-Dinitrotoluene	3898.53	430	63	4324.97	ND	90.1	15 - 137	1.35	20	
2-Chloronaphthalene	3312.93	430	76	4324.97	ND	76.6	35 - 95	0.987	20	
2-Chlorophenol	3326.77	430	160	4324.97	ND	76.9	22 - 100	2.87	20	
2-Methylnaphthalene	3395.54	430	86	4324.97	ND	78.5	17 - 123	0.217	20	
2-Methylphenol	3625.62	430	87	4324.97	ND	83.8	28 - 100	0.490	20	
2-Nitroaniline	4077.15	2100	260	4324.97	ND	94.3	34 - 120	2.31	20	
2-Nitrophenol	3709.10	430	140	4324.97	ND	85.8	22 - 116	1.16	20	
3,3'-Dichlorobenzidine	3957.35	860	360	4324.97	ND	91.5	9 - 117	2.68	20	
3-Nitroaniline	4379.47	2100	58	4324.97	ND	101	29 - 116	0.0691	20	
4,6-Dinitro-2-methylphenol	4939.12	2100	390	4324.97	ND	114	21 - 126	3.19	20	
4-Bromophenyl-phenylether	3757.54	430	64	4324.97	ND	86.9	36 - 108	0.322	20	
4-Chloro-3-methylphenol	3745.43	860	140	4324.97	ND	86.6	32 - 116	0.965	20	
4-Chloroaniline	3739.37	860	68	4324.97	ND	86.5	22 - 115	0.116	20	
4-Chlorophenyl-phenylether	3238.54	430	62	4324.97	ND	74.9	36 - 104	0.267	20	
4-Methylphenol	3733.32	430	86	4324.97	ND	86.3	32 - 98	0.954	20	
4-Nitroaniline	4324.97	2100	370	4324.97	ND	100	37 - 116	2.09	20	
4-Nitrophenol	3889.45	430	200	4324.97	ND	89.9	0 - 148	3.60	20	
Acenaphthene	3442.25	430	63	4324.97	ND	79.6	35 - 108	0.871	20	
Acenaphthylene	3456.52	430	66	4324.97	ND	79.9	35 - 108	1.33	20	
Anthracene	3644.65	430	63	4324.97	ND	84.3	40 - 114	2.18	20	
Benzidine (M)	4141.59	2100	1900	4324.97	ND	95.8	0 - 161	6.09	20	
Benzo(a)anthracene	3464.74	430	51	4324.97	ND	80.1	42 - 113	1.98	20	
Benzo(a)pyrene	3682.71	430	59	4324.97	ND	85.1	38 - 117	3.19	20	
Benzo(b)fluoranthene	3756.67	430	72	4324.97	ND	86.9	35 - 117	4.18	20	
Benzo(g,h,i)perylene	3983.73	430	49	4324.97	ND	92.1	32 - 121	4.01	20	
Benzo(k)fluoranthene	3537.40	430	67	4324.97	ND	81.8	34 - 119	3.02	20	
Benzoic acid	3242.86	2100	1200	4324.97	ND	75.0	19 - 133	4.78	20	
Benzyl alcohol	3739.37	860	87	4324.97	ND	86.5	24 - 102	1.21	20	
bis(2-chloroethoxy)methane	3121.76	430	77	4324.97	ND	72.2	27 - 88	0.498	20	
bis(2-Chloroethyl)ether	2883.89	430	74	4324.97	ND	66.7	26 - 82	1.10	20	
bis(2-chloroisopropyl)ether	3182.75	430	84	4324.97	ND	73.6	15 - 92	0.887	20	
bis(2-ethylhexyl)phthalate	4258.37	430	110	4324.97	ND	98.5	21 - 128	2.38	20	
Butylbenzylphthalate	4553.33	430	320	4324.97	ND	105	14 - 136	3.29	20	
Chrysene	3600.97	430	56	4324.97	ND	83.3	37 - 113	4.82	20	
Di-n-butylphthalate	4282.16	430	290	4324.97	ND	99.0	40 - 112	0.0707	20	
Di-n-octylphthalate	3862.20	430	62	4324.97	ND	89.3	8 - 137	1.56	20	
Dibenz(a,h)anthracene	3801.22	430	56	4324.97	ND	87.9	29 - 128	3.03	20	



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Semivolatile Organic Compounds by EPA 8270C - Quality Control (cont'd)

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B9C0387 - MSSEMI_SED (continued)

Matrix Spike Dup (B9C0387-MSD1) - Continued

Source: 1900897-03

Prepared: 3/14/2019 Analyzed: 3/14/2019

Dibenzofuran	3680.98	430	71	4324.97	ND	85.1	40 - 109	0.365	20
Diethyl phthalate	3904.58	430	61	4324.97	ND	90.3	38 - 108	3.06	20
Dimethyl phthalate	3659.36	430	59	4324.97	ND	84.6	38 - 106	0.986	20
Fluoranthene	3437.49	430	61	4324.97	ND	79.5	37 - 118	1.57	20
Fluorene	3332.39	430	64	4324.97	ND	77.0	38 - 114	1.43	20
Hexachlorobenzene	4015.30	430	53	4324.97	ND	92.8	35 - 115	2.33	20
Hexachlorobutadiene	2963.04	860	79	4324.97	ND	68.5	31 - 101	1.65	20
Hexachlorocyclopentadiene	3210.86	860	82	4324.97	ND	74.2	28 - 99	0.0673	20
Hexachloroethane	3033.10	430	92	4324.97	ND	70.1	27 - 87	3.73	20
Indeno(1,2,3-cd)pyrene	3920.59	430	56	4324.97	ND	90.6	29 - 125	2.99	20
Isophorone	3156.80	430	74	4324.97	ND	73.0	26 - 97	1.29	20
N-Nitroso-di-n propylamine	3204.37	430	84	4324.97	ND	74.1	27 - 97	0.283	20
N-Nitrosodiphenylamine	3741.53	430	62	4324.97	ND	86.5	19 - 123	0.976	20
Naphthalene	3075.06	430	77	4324.97	ND	71.1	26 - 103	0.663	20
Nitrobenzene	3115.71	430	87	4324.97	ND	72.0	24 - 99	0.375	20
Pentachlorophenol	4555.49	2100	240	4324.97	ND	105	13 - 130	0.257	20
Phenanthrene	3577.62	430	60	4324.97	ND	82.7	40 - 116	0.350	20
Phenol	3287.84	430	170	4324.97	ND	76.0	23 - 96	3.44	20
Pyrene	3431.87	430	69	4324.97	ND	79.3	36 - 122	2.60	20
Pyridine	2708.73	2100	340	4324.97	ND	62.6	7 - 87	2.82	20

<i>Surrogate: 1,2-Dichlorobenzene-d</i>	2723			4324.97		62.9	16 - 87		
<i>Surrogate: 2,4,6-Tribromophenol</i>	4991			4314.16		116	0 - 148		
<i>Surrogate: 2-Chlorophenol-d4</i>	3311			4314.16		76.7	17 - 96		
<i>Surrogate: 2-Fluorobiphenyl</i>	2880			4324.97		66.6	16 - 107		
<i>Surrogate: 2-Fluorophenol</i>	3003			4314.16		69.6	16 - 86		
<i>Surrogate: 4-Terphenyl-d14</i>	3499			4324.97		80.9	3 - 156		
<i>Surrogate: Nitrobenzene-d5</i>	2918			4324.97		67.5	16 - 99		
<i>Surrogate: Phenol-d6</i>	3357			4314.16		77.8	17 - 90		



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Semivolatile Organic Compounds by EPA 8270C - Quality Control

Analyte	Result (ug/kg wet)	PQL (ug/kg wet)	MDL (ug/kg wet)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD	Limit	Notes
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Batch B9C0387 - MSSEMI_SED

Blank (B9C0387-BLK1)

Prepared: 3/14/2019 Analyzed: 3/14/2019

1,2,4-Trichlorobenzene	ND	330	71
1,2-Dichlorobenzene	ND	330	60
1,3-Dichlorobenzene	ND	330	65
1,4-Dichlorobenzene	ND	330	60
2,4,5-Trichlorophenol	ND	330	61
2,4,6-Trichlorophenol	ND	330	220
2,4-Dichlorophenol	ND	1600	120
2,4-Dimethylphenol	ND	330	120
2,4-Dinitrophenol	ND	1600	86
2,4-Dinitrotoluene	ND	330	46
2,6-Dinitrotoluene	ND	330	49
2-Chloronaphthalene	ND	330	59
2-Chlorophenol	ND	330	120
2-Methylnaphthalene	ND	330	67
2-Methylphenol	ND	330	67
2-Nitroaniline	ND	1600	200
2-Nitrophenol	ND	330	110
3,3'-Dichlorobenzidine	ND	660	280
3-Nitroaniline	ND	1600	44
4,6-Dinitro-2-methylphenol	ND	1600	300
4-Bromophenyl-phenylether	ND	330	50
4-Chloro-3-methylphenol	ND	660	110
4-Chloroaniline	ND	660	53
4-Chlorophenyl-phenylether	ND	330	48
4-Methylphenol	ND	330	66
4-Nitroaniline	ND	1600	290
4-Nitrophenol	ND	330	150
Acenaphthene	ND	330	48
Acenaphthylene	ND	330	51
Anthracene	ND	330	49
Benzidine (M)	ND	1600	1400
Benzo(a)anthracene	ND	330	39
Benzo(a)pyrene	ND	330	45
Benzo(b)fluoranthene	ND	330	55
Benzo(g,h,i)perylene	ND	330	38
Benzo(k)fluoranthene	ND	330	52
Benzoic acid	ND	1600	890
Benzyl alcohol	ND	660	67
bis(2-chloroethoxy)methane	ND	330	59
bis(2-Chloroethyl)ether	ND	330	57
bis(2-chloroisopropyl)ether	ND	330	65



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Semivolatile Organic Compounds by EPA 8270C - Quality Control (cont'd)

Analyte	Result (ug/kg wet)	PQL (ug/kg wet)	MDL (ug/kg wet)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B9C0387 - MSSEMI_SED (continued)

Blank (B9C0387-BLK1) - Continued

Prepared: 3/14/2019 Analyzed: 3/14/2019

bis(2-ethylhexyl)phthalate	ND	330	83
Butylbenzylphthalate	ND	330	250
Chrysene	ND	330	43
Di-n-butylphthalate	ND	330	230
Di-n-octylphthalate	ND	330	48
Dibenz(a,h)anthracene	ND	330	43
Dibenzofuran	ND	330	55
Diethyl phthalate	ND	330	47
Dimethyl phthalate	ND	330	46
Fluoranthene	ND	330	47
Fluorene	ND	330	49
Hexachlorobenzene	ND	330	41
Hexachlorobutadiene	ND	660	61
Hexachlorocyclopentadiene	ND	660	64
Hexachloroethane	ND	330	71
Indeno(1,2,3-cd)pyrene	ND	330	44
Isophorone	ND	330	57
N-Nitroso-di-n propylamine	ND	330	65
N-Nitrosodiphenylamine	ND	330	48
Naphthalene	ND	330	60
Nitrobenzene	ND	330	67
Pentachlorophenol	ND	1600	190
Phenanthrene	ND	330	46
Phenol	ND	330	130
Pyrene	ND	330	53
Pyridine	ND	1600	270

<i>Surrogate: 1,2-Dichlorobenzene-d</i>	1824			3333.33	54.7	16 - 87
<i>Surrogate: 2,4,6-Tribromophenol</i>	3357			3325.00	101	0 - 148
<i>Surrogate: 2-Chlorophenol-d4</i>	2217			3325.00	66.7	17 - 96
<i>Surrogate: 2-Fluorobiphenyl</i>	1921			3333.33	57.6	16 - 107
<i>Surrogate: 2-Fluorophenol</i>	1989			3325.00	59.8	16 - 86
<i>Surrogate: 4-Terphenyl-d14</i>	2794			3333.33	83.8	3 - 156
<i>Surrogate: Nitrobenzene-d5</i>	1937			3333.33	58.1	16 - 99
<i>Surrogate: Phenol-d6</i>	2121			3325.00	63.8	17 - 90

LCS (B9C0387-BS1)

Prepared: 3/14/2019 Analyzed: 3/14/2019

1,2,4-Trichlorobenzene	2383.00	330	71	3333.33	71.5	48 - 92
1,2-Dichlorobenzene	2351.00	330	60	3333.33	70.5	40 - 86
1,3-Dichlorobenzene	2318.00	330	65	3333.33	69.5	39 - 82
1,4-Dichlorobenzene	2259.67	330	60	3333.33	67.8	40 - 82
2,4,5-Trichlorophenol	3152.33	330	61	3333.33	94.6	70 - 111



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Semivolatile Organic Compounds by EPA 8270C - Quality Control (cont'd)

Analyte	Result (ug/kg wet)	PQL (ug/kg wet)	MDL (ug/kg wet)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B9C0387 - MSSEMI_SED (continued)

LCS (B9C0387-BS1) - Continued

Prepared: 3/14/2019 Analyzed: 3/14/2019

2,4,6-Trichlorophenol	2770.33	330	220	3333.33		83.1	54 - 121			
2,4-Dichlorophenol	2784.33	1600	120	3333.33		83.5	49 - 111			
2,4-Dimethylphenol	3046.67	330	120	3333.33		91.4	43 - 116			
2,4-Dinitrophenol	3643.67	1600	86	3333.33		109	48 - 138			
2,4-Dinitrotoluene	3040.67	330	46	3333.33		91.2	62 - 112			
2,6-Dinitrotoluene	3082.00	330	49	3333.33		92.5	59 - 114			
2-Chloronaphthalene	2707.67	330	59	3333.33		81.2	57 - 92			
2-Chlorophenol	2628.33	330	120	3333.33		78.8	43 - 94			
2-Methylnaphthalene	2784.00	330	67	3333.33		83.5	49 - 109			
2-Methylphenol	2839.00	330	67	3333.33		85.2	50 - 95			
2-Nitroaniline	3138.00	1600	200	3333.33		94.1	57 - 120			
2-Nitrophenol	2969.00	330	110	3333.33		89.1	48 - 110			
3,3'-Dichlorobenzidine	2963.67	660	280	3333.33		88.9	38 - 115			
3-Nitroaniline	3505.33	1600	44	3333.33		105	62 - 110			
4,6-Dinitro-2-methylphenol	3630.00	1600	300	3333.33		109	57 - 136			
4-Bromophenyl-phenylether	2939.00	330	50	3333.33		88.2	64 - 106			
4-Chloro-3-methylphenol	2953.33	660	110	3333.33		88.6	54 - 114			
4-Chloroaniline	3018.67	660	53	3333.33		90.6	60 - 103			
4-Chlorophenyl-phenylether	2550.67	330	48	3333.33		76.5	57 - 106			
4-Methylphenol	2953.00	330	66	3333.33		88.6	53 - 96			
4-Nitroaniline	3300.67	1600	290	3333.33		99.0	69 - 111			
4-Nitrophenol	3010.67	330	150	3333.33		90.3	51 - 141			
Acenaphthene	2761.00	330	48	3333.33		82.8	61 - 105			
Acenaphthylene	2814.33	330	51	3333.33		84.4	62 - 103			
Anthracene	2766.67	330	49	3333.33		83.0	68 - 113			
Benzidine (M)	2093.33	1600	1400	3333.33		62.8	25 - 109			
Benzo(a)anthracene	2618.33	330	39	3333.33		78.6	66 - 110			
Benzo(a)pyrene	2806.00	330	45	3333.33		84.2	68 - 118			
Benzo(b)fluoranthene	2812.00	330	55	3333.33		84.4	64 - 117			
Benzo(g,h,i)perylene	3001.67	330	38	3333.33		90.1	68 - 114			
Benzo(k)fluoranthene	2646.00	330	52	3333.33		79.4	62 - 121			
Benzoic acid	1257.00	1600	890	3333.33		37.7	23 - 115			J
Benzyl alcohol	2965.33	660	67	3333.33		89.0	47 - 99			
bis(2-chloroethoxy)methane	2509.00	330	59	3333.33		75.3	41 - 90			
bis(2-Chloroethyl)ether	2336.00	330	57	3333.33		70.1	38 - 84			
bis(2-chloroisopropyl)ether	2563.00	330	65	3333.33		76.9	20 - 100			
bis(2-ethylhexyl)phthalate	3174.00	330	83	3333.33		95.2	57 - 111			
Butylbenzylphthalate	3432.67	330	250	3333.33		103	54 - 109			
Chrysene	2712.33	330	43	3333.33		81.4	61 - 113			
Di-n-butylphthalate	3264.00	330	230	3333.33		97.9	65 - 113			
Di-n-octylphthalate	2960.00	330	48	3333.33		88.8	54 - 111			
Dibenz(a,h)anthracene	2854.67	330	43	3333.33		85.6	63 - 126			



Certificate of Analysis

NV5
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Project Number : Greenhorn Sediment Removal Prject at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

Semivolatile Organic Compounds by EPA 8270C - Quality Control (cont'd)

Analyte	Result (ug/kg wet)	PQL (ug/kg wet)	MDL (ug/kg wet)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B9C0387 - MSSEMI_SED (continued)

LCS (B9C0387-BS1) - Continued

Prepared: 3/14/2019 Analyzed: 3/14/2019

Dibenzofuran	2982.33	330	55	3333.33		89.5	67 - 103			
Diethyl phthalate	2990.67	330	47	3333.33		89.7	62 - 108			
Dimethyl phthalate	2876.00	330	46	3333.33		86.3	65 - 103			
Fluoranthene	2629.67	330	47	3333.33		78.9	66 - 117			
Fluorene	2679.00	330	49	3333.33		80.4	65 - 112			
Hexachlorobenzene	3065.00	330	41	3333.33		92.0	59 - 117			
Hexachlorobutadiene	2381.67	660	61	3333.33		71.5	44 - 99			
Hexachlorocyclopentadiene	2677.33	660	64	3333.33		80.3	44 - 102			
Hexachloroethane	2400.33	330	71	3333.33		72.0	38 - 85			
Indeno(1,2,3-cd)pyrene	2950.00	330	44	3333.33		88.5	63 - 123			
Isophorone	2542.00	330	57	3333.33		76.3	46 - 98			
N-Nitroso-di-n propylamine	2552.67	330	65	3333.33		76.6	45 - 98			
N-Nitrosodiphenylamine	2904.33	330	48	3333.33		87.1	67 - 101			
Naphthalene	2481.67	330	60	3333.33		74.5	54 - 92			
Nitrobenzene	2523.00	330	67	3333.33		75.7	45 - 94			
Pentachlorophenol	2985.67	1600	190	3333.33		89.6	45 - 137			
Phenanthrene	2762.00	330	46	3333.33		82.9	68 - 113			
Phenol	2548.00	330	130	3333.33		76.4	40 - 95			
Pyrene	2613.00	330	53	3333.33		78.4	62 - 124			
Pyridine	596.000	1600	270	3333.33		17.9	3 - 93			J
<hr/>										
<i>Surrogate: 1,2-Dichlorobenzene-d</i>	<i>2160</i>			<i>3333.33</i>		<i>64.8</i>	<i>16 - 87</i>			
<i>Surrogate: 2,4,6-Tribromophenol</i>	<i>3880</i>			<i>3325.00</i>		<i>117</i>	<i>0 - 148</i>			
<i>Surrogate: 2-Chlorophenol-d4</i>	<i>2683</i>			<i>3325.00</i>		<i>80.7</i>	<i>17 - 96</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>2396</i>			<i>3333.33</i>		<i>71.9</i>	<i>16 - 107</i>			
<i>Surrogate: 2-Fluorophenol</i>	<i>2398</i>			<i>3325.00</i>		<i>72.1</i>	<i>16 - 86</i>			
<i>Surrogate: 4-Terphenyl-d14</i>	<i>2698</i>			<i>3333.33</i>		<i>81.0</i>	<i>3 - 156</i>			
<i>Surrogate: Nitrobenzene-d5</i>	<i>2424</i>			<i>3333.33</i>		<i>72.7</i>	<i>16 - 99</i>			
<i>Surrogate: Phenol-d6</i>	<i>2680</i>			<i>3325.00</i>		<i>80.6</i>	<i>17 - 90</i>			



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792 Searls Avenue
Nevada City, CA 95959

Project Number : Greenhorn Sediment Removal Project at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	MDL (ug/kg dry)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B9C0386 - MSSEMI_SED

Matrix Spike (B9C0386-MS1)

Source: 1900897-01

Prepared: 3/14/2019 Analyzed: 3/14/2019

2-Methylnaphthalene	32.0251	6.4	1.4	42.8481	ND	74.7	19 - 95			
Acenaphthene	33.5839	6.4	1.0	42.8481	ND	78.4	36 - 95			
Acenaphthylene	32.0731	6.4	1.2	42.8481	ND	74.9	40 - 91			
Anthracene	30.4796	6.4	0.87	42.8481	ND	71.1	30 - 101			
Benzo(a)anthracene	31.1472	6.4	0.82	42.8481	ND	72.7	30 - 106			
Benzo(a)pyrene	29.0210	6.4	1.1	42.8481	ND	67.7	26 - 92			
Benzo(b)fluoranthene	34.7006	6.4	1.0	42.8481	ND	81.0	18 - 88			
Benzo(g,h,i)perylene	47.3982	6.4	1.3	42.8481	ND	111	18 - 118			
Benzo(k)fluoranthene	34.5716	6.4	0.71	42.8481	ND	80.7	32 - 116			
Chrysene	35.7379	6.4	0.78	42.8481	ND	83.4	31 - 114			
Dibenz(a,h)anthracene	45.2939	6.4	1.4	42.8481	ND	106	16 - 119			
Fluoranthene	36.8190	6.4	0.93	42.8481	ND	85.9	33 - 111			
Fluorene	34.5866	6.4	0.98	42.8481	ND	80.7	38 - 95			
Indeno(1,2,3-cd)pyrene	45.2103	6.4	1.6	42.8481	ND	106	26 - 131			
Naphthalene	33.2917	6.4	1.2	42.8481	ND	77.7	31 - 102			
Phenanthrene	37.0079	6.4	0.87	42.8481	ND	86.4	40 - 101			
Pyrene	36.5109	6.4	0.89	42.8481	ND	85.2	30 - 119			
<i>Surrogate: 1,2-Dichlorobenzene-d</i>	<i>29.82</i>			<i>42.8481</i>		<i>69.6</i>	<i>26 - 107</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>31.92</i>			<i>42.8481</i>		<i>74.5</i>	<i>35 - 107</i>			
<i>Surrogate: Nitrobenzene-d5</i>	<i>36.43</i>			<i>42.8481</i>		<i>85.0</i>	<i>2 - 129</i>			
<i>Surrogate: 4-Terphenyl-d14</i>	<i>34.05</i>			<i>42.8481</i>		<i>79.5</i>	<i>48 - 123</i>			

Matrix Spike Dup (B9C0386-MSD1)

Source: 1900897-01

Prepared: 3/14/2019 Analyzed: 3/14/2019

2-Methylnaphthalene	30.9706	6.4	1.4	42.8481	ND	72.3	19 - 95	3.35	20	
Acenaphthene	32.4964	6.4	1.0	42.8481	ND	75.8	36 - 95	3.29	20	
Acenaphthylene	31.1167	6.4	1.2	42.8481	ND	72.6	40 - 91	3.03	20	
Anthracene	33.0102	6.4	0.87	42.8481	ND	77.0	30 - 101	7.97	20	
Benzo(a)anthracene	32.7295	6.4	0.82	42.8481	ND	76.4	30 - 106	4.95	20	
Benzo(a)pyrene	31.2423	6.4	1.1	42.8481	ND	72.9	26 - 92	7.37	20	
Benzo(b)fluoranthene	36.5516	6.4	1.0	42.8481	ND	85.3	18 - 88	5.20	20	
Benzo(g,h,i)perylene	48.5731	6.4	1.3	42.8481	ND	113	18 - 118	2.45	20	
Benzo(k)fluoranthene	35.8056	6.4	0.71	42.8481	ND	83.6	32 - 116	3.51	20	
Chrysene	36.5649	6.4	0.78	42.8481	ND	85.3	31 - 114	2.29	20	
Dibenz(a,h)anthracene	46.3711	6.4	1.4	42.8481	ND	108	16 - 119	2.35	20	
Fluoranthene	38.0731	6.4	0.93	42.8481	ND	88.9	33 - 111	3.35	20	
Fluorene	34.0334	6.4	0.98	42.8481	ND	79.4	38 - 95	1.61	20	
Indeno(1,2,3-cd)pyrene	46.1813	6.4	1.6	42.8481	ND	108	26 - 131	2.12	20	
Naphthalene	31.7847	6.4	1.2	42.8481	ND	74.2	31 - 102	4.63	20	
Phenanthrene	37.9823	6.4	0.87	42.8481	ND	88.6	40 - 101	2.60	20	
Pyrene	37.8872	6.4	0.89	42.8481	ND	88.4	30 - 119	3.70	20	
<i>Surrogate: 1,2-Dichlorobenzene-d</i>	<i>31.81</i>			<i>42.8481</i>		<i>74.2</i>	<i>26 - 107</i>			



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Project Number : Greenhorn Sediment Removal Prject at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control (cont'd)

Analyte	Result (ug/kg dry)	PQL (ug/kg dry)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B9C0386 - MSSEMI_SED (continued)

Matrix Spike Dup (B9C0386-MSD1) - Continued

Source: 1900897-01

Prepared: 3/14/2019 Analyzed: 3/14/2019

<i>Surrogate: 2-Fluorobiphenyl</i>	32.13		42.8481		75.0	35 - 107		
<i>Surrogate: Nitrobenzene-d5</i>	38.88		42.8481		90.7	2 - 129		
<i>Surrogate: 4-Terphenyl-d14</i>	34.66		42.8481		80.9	48 - 123		



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Reported : 03/18/2019

Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control

Analyte	Result (ug/kg wet)	PQL (ug/kg wet)	MDL (ug/kg wet)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
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Batch B9C0386 - MSSEMI_SED

Blank (B9C0386-BLK1)

Prepared: 3/14/2019 Analyzed: 3/14/2019

2-Methylnaphthalene	ND	5.0	1.1
Acenaphthene	ND	5.0	0.80
Acenaphthylene	ND	5.0	0.90
Anthracene	ND	5.0	0.68
Benzo(a)anthracene	ND	5.0	0.64
Benzo(a)pyrene	ND	5.0	0.82
Benzo(b)fluoranthene	ND	5.0	0.79
Benzo(g,h,i)perylene	ND	5.0	1.0
Benzo(k)fluoranthene	ND	5.0	0.55
Chrysene	ND	5.0	0.60
Dibenz(a,h)anthracene	ND	5.0	1.1
Fluoranthene	ND	5.0	0.72
Fluorene	ND	5.0	0.76
Indeno(1,2,3-cd)pyrene	ND	5.0	1.3
Naphthalene	ND	5.0	0.95
Phenanthrene	ND	5.0	0.68
Pyrene	ND	5.0	0.69

<i>Surrogate: 1,2-Dichlorobenzene-d</i>	29.03			33.3333	87.1	26 - 107
<i>Surrogate: 2-Fluorobiphenyl</i>	32.89			33.3333	98.7	35 - 107
<i>Surrogate: Nitrobenzene-d5</i>	37.73			33.3333	113	2 - 129
<i>Surrogate: 4-Terphenyl-d14</i>	35.56			33.3333	107	48 - 123

LCS (B9C0386-BS1)

Prepared: 3/14/2019 Analyzed: 3/14/2019

2-Methylnaphthalene	25.5997	5.0	1.1	33.3333	76.8	36 - 84
Acenaphthene	25.2747	5.0	0.80	33.3333	75.8	48 - 87
Acenaphthylene	23.5400	5.0	0.90	33.3333	70.6	48 - 85
Anthracene	18.8640	5.0	0.68	33.3333	56.6	46 - 91
Benzo(a)anthracene	23.2600	5.0	0.64	33.3333	69.8	48 - 98
Benzo(a)pyrene	16.0973	5.0	0.82	33.3333	48.3	46 - 95
Benzo(b)fluoranthene	25.6560	5.0	0.79	33.3333	77.0	41 - 87
Benzo(g,h,i)perylene	33.7517	5.0	1.0	33.3333	101	39 - 109
Benzo(k)fluoranthene	26.9520	5.0	0.55	33.3333	80.9	43 - 140
Chrysene	26.3313	5.0	0.60	33.3333	79.0	52 - 103
Dibenz(a,h)anthracene	32.6523	5.0	1.1	33.3333	98.0	35 - 114
Fluoranthene	28.4820	5.0	0.72	33.3333	85.4	50 - 104
Fluorene	25.6833	5.0	0.76	33.3333	77.0	44 - 94
Indeno(1,2,3-cd)pyrene	35.0183	5.0	1.3	33.3333	105	54 - 115
Naphthalene	23.7383	5.0	0.95	33.3333	71.2	44 - 89
Phenanthrene	27.3583	5.0	0.68	33.3333	82.1	55 - 95
Pyrene	28.4207	5.0	0.69	33.3333	85.3	50 - 106

<i>Surrogate: 1,2-Dichlorobenzene-d</i>	20.69			33.3333	62.1	26 - 107
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Project Number : Greenhorn Sediment Removal Prject at R
 Report To : Mars Nelson Tredwell
 Reported : 03/18/2019

Semivolatile Organic Compounds by EPA 8270/SIM - Quality Control (cont'd)

Analyte	Result (ug/kg wet)	PQL (ug/kg wet)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
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Batch B9C0386 - MSSEMI_SED (continued)

LCS (B9C0386-BS1) - Continued

Prepared: 3/14/2019 Analyzed: 3/14/2019

Surrogate: 2-Fluorobiphenyl	23.31	33.3333	69.9	35 - 107
Surrogate: Nitrobenzene-d5	23.18	33.3333	69.5	2 - 129
Surrogate: 4-Terphenyl-d14	24.53	33.3333	73.6	48 - 123



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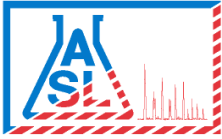
Project Number : Greenhorn Sediment Removal Prject at R
Report To : Mars Nelson Tredwell
Reported : 03/18/2019

Notes and Definitions

R	RPD value outside acceptance criteria. Calculation is based on raw values.
M2	Matrix spike recovery outside of acceptance limit due to possible matrix interference. The analytical batch was validated by the laboratory control sample.
M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
J	Analyte detected below the Practical Quantitation Limit but above or equal to the Method Detection Limit. Result is an estimated concentration.
D1	Sample required dilution due to possible matrix interference.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)

Notes:

- (1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
- (2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
- (3) Results are wet unless otherwise specified.



AMERICAN SCIENTIFIC LABORATORIES, LLC

Environmental Testing Services

2520 N. San Fernando Road, LA CA 90065 Tel: (323) 223-9700 • Fax: (323) 223-9500

18 March 2019

Carmen Aguila

Advanced Technology Laboratories

3275 Walnut Ave.

Signal Hill, CA 90755

Work Order #: 1903088

Project Name: Soil Sample

Project ID: 1900897

Site Address:

Enclosed are the results of analyses for samples received by the laboratory on March 08, 2019. If you have any questions concerning this report, please feel free to contact us.

Wendy Lu

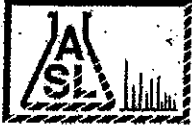
Laboratory Supervisor

Rojert G. Araghi

Laboratory Director

American Scientific Laboratories, LLC (ASL) accepts sample materials from clients for analysis with the assumption that all of the information provided to ASL verbally or in writing by our clients (and/or their agents), regarding samples being submitted to ASL, is complete and accurate. ASL accepts all samples subject to the following conditions:

- 1) ASL is not responsible for verifying any client-provided information regarding any samples submitted to the laboratory.
- 2) ASL is not responsible for any consequences resulting from any inaccuracies, omissions, or misrepresentations contained in client-provided information regarding samples submitted to the laboratory.



Job# 1903088

ASL Sample Receipt Form

Client: Advanced Technology Laboratories

Date: 3-8-19

Sample Information:

Temperature: 5.0°C

Blank Sample

Custody Seal:

Yes No Not Available

Received Within Holding Time:

Yes No

Container:

Proper Containers and Sufficient Volume:

Yes No

Soil: 4oz 8oz Sleeve VOA 203-Jar

Water: 500AG 1AG 125PB 250PB 500PB VOA Other _____

Air: Tedlar®

Sample Containers Intact:

Yes No

Trip Blank:

Yes No

Chain-of-Custody (COC):

Received:

Yes No

Samplers Name:

Yes No

Container Labels match COC:

Yes No

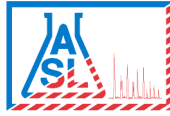
COC documents received complete:

Yes No

Proper Preservation Noted:

Yes No

Completed By: Janet Chin



AMERICAN SCIENTIFIC LABORATORIES, LLC

Environmental Testing Services

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Advanced Technology Laboratories
3275 Walnut Ave.
Signal Hill CA, 90755

Project: Soil Sample
Project Number: 1900897
Project Manager: Carmen Aguila

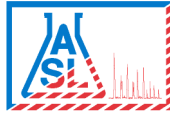
Work Order No: 1903088
Reported:
03/18/2019 10:47

ANALYTICAL SUMMARY REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1900897-01 / 19GHC-1	1903088-01	Solid	03/04/2019 15:30	03/08/2019 10:30
1900897-02 / 19GHC-2	1903088-02	Solid	03/04/2019 14:00	03/08/2019 10:30
1900897-03 / 19GHC-3	1903088-03	Solid	03/04/2019 12:00	03/08/2019 10:30

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Wendy Lu, Laboratory Supervisor



Advanced Technology Laboratories 3275 Walnut Ave. Signal Hill CA, 90755	Project: Soil Sample Project Number: 1900897 Project Manager: Carmen Aguila	Work Order No: 1903088 Reported: 03/18/2019 10:47
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Analytical Results

Client Sample ID: 1900897-01 / 19GHC-1

Laboratory Sample ID: 1903088-01 (Solid)

Analyte	Result	Notes	PQL	Units	Dilution	Prep Method	Analyzed	Analyst	Method
Chromium, Hexavalent By Ion Chromatography			Batch ID: BC90450		Prepared: 03/11/2019 10:26				
Chromium, Hexavalent	ND		0.50	mg/kg	1	3060A	03/11/2019 14:20	CBP	7199

Analytical Results

Client Sample ID: 1900897-02 / 19GHC-2

Laboratory Sample ID: 1903088-02 (Solid)

Analyte	Result	Notes	PQL	Units	Dilution	Prep Method	Analyzed	Analyst	Method
Chromium, Hexavalent By Ion Chromatography			Batch ID: BC90450		Prepared: 03/11/2019 10:26				
Chromium, Hexavalent	ND		0.50	mg/kg	1	3060A	03/11/2019 14:20	CBP	7199

Analytical Results

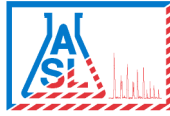
Client Sample ID: 1900897-03 / 19GHC-3

Laboratory Sample ID: 1903088-03 (Solid)

Analyte	Result	Notes	PQL	Units	Dilution	Prep Method	Analyzed	Analyst	Method
Chromium, Hexavalent By Ion Chromatography			Batch ID: BC90450		Prepared: 03/11/2019 10:26				
Chromium, Hexavalent	ND		0.50	mg/kg	1	3060A	03/11/2019 14:20	CBP	7199

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Wendy Lu, Laboratory Supervisor



Advanced Technology Laboratories
3275 Walnut Ave.
Signal Hill CA, 90755

Project: Soil Sample
Project Number: 1900897
Project Manager: Carmen Aguila

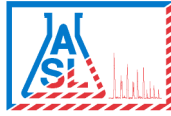
Work Order No: 1903088
Reported:
03/18/2019 10:47

Chromium, Hexavalent By Ion Chromatography - Quality Control Report

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BC90450 - 3060A - 7199										
Blank (BC90450-BLK1)										
Prepared & Analyzed: 03/11/201										
Chromium, Hexavalent	ND	0.50	mg/kg							
LCS (BC90450-BS1)										
Prepared & Analyzed: 03/11/201										
Chromium, Hexavalent	4.65	0.50	mg/kg	5.00		93.0	80-120			
LCS Dup (BC90450-BSD1)										
Prepared & Analyzed: 03/11/201										
Chromium, Hexavalent	4.92	0.50	mg/kg	5.00		98.4	80-120	5.64	20	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Wendy Lu, Laboratory Supervisor



AMERICAN SCIENTIFIC LABORATORIES, LLC

Environmental Testing Services

2520 N. San Fernando Road, LA CA 90065 Tel: (323) 223-9700 • Fax: (323) 223-9500

Advanced Technology Laboratories
3275 Walnut Ave.
Signal Hill CA, 90755

Project: Soil Sample
Project Number: 1900897
Project Manager: Carmen Aguila

Work Order No: 1903088
Reported:
03/18/2019 10:47

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the practical quantitation limit (PQL)
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

Carmen Aguila

From: Carmen Aguila
Sent: Friday, March 8, 2019 12:10 PM
To: Mars Nelson Tredwell
Cc: customer.relations@atlglobal.com; Marnellie Ramos
Subject: RE: PN19030, Greenhorn Sediment Removal Project Rollin
Attachments: 8310_soil PQL.xlsx

Good morning Mar,

Our PAHs 8270 SIM has a lower detection limit than our subcontract labs 8310, please see attached. We will proceed with 8270 SIM and TPHcc with our standard range.

Thank you,
Carmen

From: Mars Nelson Tredwell <Mars.NelsonTredwell@nv5.com>
Sent: Friday, March 8, 2019 11:57 AM
To: Carmen Aguila <Carmen.Aguila@atlglobal.com>
Cc: customer.relations@atlglobal.com; Marnellie Ramos <Marnellie.Ramos@atlglobal.com>
Subject: RE: PN19030, Greenhorn Sediment Removal Project Rollin

Hi Carmen,

Thanks for the query. Standard carbon chain range is good.

How do the detection limits compare between 8270 SIM vs 8310 ? If they are comparable then the inhouse method is fine otherwise I am happy for the additional cost for lower detection limits.

Thanks,
Mars

Mars Nelson Tredwell | Staff Geologist | **NV5**
792 Searls Avenue | Nevada City, CA 95959 | O: 530.362.4097 | C: 530.269.9179

[Electronic Communications Disclaimer](#)

From: Carmen Aguila <Carmen.Aguila@atlglobal.com>
Sent: Thursday, March 7, 2019 4:03 PM
To: Mars Nelson Tredwell <Mars.NelsonTredwell@nv5.com>
Cc: customer.relations@atlglobal.com; Marnellie Ramos <Marnellie.Ramos@atlglobal.com>
Subject: PN19030, Greenhorn Sediment Removal Project Rollin

Good afternoon Mars,

We are processing the samples received for the above project and I would like to verify with you the following:

1. Do you have a specific range for the 8015 carbon chain? Our standard range is C8-C10,C10-C18, C18-C28,C28-C36,C36-C40.
2. Will it be okay to test the PAHs by 8270 sim which we do in-house, cost is \$93.46. Attached is our DL. We subcontract 8310 analysis and the cost is \$104.33.

Please advise.

Thank you,
Carmen



Carmen Aguila | Sample Control/Field Services Manager
ADVANCED TECHNOLOGY LABORATORIES
3275 Walnut Avenue, Signal Hill CA 90755
O: 562.989.4045 ext 245 | F: 562.989-6348 | M: 562.715.8770
<http://www.atlglobal.com>

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APPENDIX F
Noise Assessment

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Environmental Noise Assessment

Greenhorn Sediment Removal at Rollins Reservoir

Nevada County, California

BAC Job # 2017-139

Prepared For:

Janelle Nolan & Associates Environmental Consulting

Attn: Ms. Janelle Nolan
881 Cumorah Court
Placerville, CA 95667

Prepared By:

Bollard Acoustical Consultants, Inc.



Dario Gotchet, Consultant

March 7, 2019



Introduction

Bollard Acoustical Consultants, Inc. (BAC) has prepared noise-level predictions for the proposed Greenhorn Sediment Removal project in Nevada County, California. Specifically, these predictions were prepared to quantify the noise-generation of various aspects of the proposed project at the nearest noise-sensitive residential locations to the project work areas. Please refer to Attachment A for definitions of acoustical terminology used in this report.

Noise-Sensitive Receiver Locations

Based on the project area map, presented as Attachment B, twenty-six (26) residential receiver locations were identified in the immediate project vicinity. Each of the 26 receiver locations were assigned a site identification number. A summary of the identified receiver locations is provided in Table 1.

Noise-Generating Activities

The prediction of project noise levels at the nearest residences was separated into the following four distinct noise-generating activities: (1) installation of the sediment barrier, (2) operations occurring within the sediment removal area, (3) operations occurring within the stockpile area, and (4) operations occurring on the haul route. The following assessment also includes predictions of operational noise exposure at the nearest residences generated from the Valve Box/Pond area and Staging Area 2. The activity locations are identified in Attachment B.

In addition to the operational noise generation, construction of the project haul road and other aspects of the project would also generate noise, albeit for a shorter duration. Construction activities would utilize noise sources generally similar in magnitude to the ongoing operational noise sources. As a result, noise generated during project construction activities would be relatively similar to noise generated during project operations, but for a limited duration.

Distances from Noise-Generating Activities to Nearest Residences

The distances from the noise-generating activities to the nearest residences were scaled using aerial imagery and the project site plans. Table 2 shows the closest distances from each of the activity areas to each of the residential receptor locations identified in Table 1.

Reference Noise Levels for Various Project Operational Activities

The project description provides a list of heavy equipment, vehicles, and machinery that is anticipated to be used in each of the four noise-generating activities. Reference noise level data for the noise-generating aspects of the project were obtained from BAC file data, the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM), and from published acoustical literature.

Reference sound levels were adjusted based on either the estimated duration of the hour in which the equipment would be operating (for stationary noise sources), or the number of passbys per hour resulting from mobile equipment. The reference noise level data is provided in Table 3.

According to information obtained from the client, the project proposes to utilize two (2) diesel generators to supply power to equipment at the Valve Box/Pond area and Staging Area 2. Although the make and model of the project generators have not yet been determined, it is our understanding that the project will utilize a 10 HP diesel generator at the Valve Box/Pond area, and a 40 HP diesel generator at Staging Area 2. In lieu of having reference noise level data for the proposed generators, BAC utilized reference noise level data for job-site diesel generators of comparable capacity in the prediction of project equipment noise exposure at the nearest residences. Specifically, reference noise level data for a Kubota GL Series GL11000 12 kW (16 HP) diesel generator was used in the prediction of project generator noise levels at the Valve Box/Pond area. To predict project generator noise levels at Staging Area 2, reference noise level data from a Kohler Power Model 48REOZK4 48 kW (64 HP) diesel generator was used. The utilization of reference noise level data from the larger capacity 16 HP and 64 HP diesel generators in the analysis of project generator noise exposure at the nearest residences is considered to be conservative.

Predicted Operational Noise Levels at Nearest Residences

The reference noise levels shown in Table 3 were projected to the nearest residences shown in Table 2 assuming spherical spreading of sound from the source to the receiver (i.e., 6 decibel decrease for each doubling of distance from the noise source). In addition, an additional offset for atmospheric absorption of -1.5 dB per thousand feet was applied to the computations. Finally, adjustments for shielding of the sensitive receptors from view of the noise sources by intervening topography were also applied where applicable. No offsets were applied in cases where the sensitive receptor would have an unimpeded view of the noise-generating activities. In cases where intervening topography would provide moderate shielding of the project noise sources, a -5 dB offset was applied, and a -10 dB offset was applied in cases where substantial shielding by intervening topography would result between the noise source and sensitive receptor.

The noise level predictions were prepared for all of the identified activity areas relative to each of the 26 receptor locations. For the sediment barrier installation and removal activities, noise levels were calculated for initial, intermediate, and ultimate barrier locations.

Tables 4 - 6 contain the noise level prediction results for the three sediment barrier locations. Table 7 contains the predicted noise levels for the stockpile area activities. Table 8 contains the predicted noise levels for the sediment removal activities. Tables 9 and 10 contain the predicted noise levels resulting from project generator usage at the Valve Box/Pond area and Staging Area 2. Table 11 contains the predicted noise levels for the receptors exposed to haul-route activity noise generation. These tables also show the shielding offsets for intervening topography.

Table 12 shows the worst-case combined noise exposure from all activities at each receptor location. For the calculation of the combined levels, the highest noise levels from each of the three sediment barrier installation/removal activities were used.

Table 1
Nearest Noise-Sensitive Receiver Locations
Greenhorn Sediment Removal Project

Res.¹	APN	Address
1	12-710-53	16148 You Bet Road
2	12-730-23	14000 Arrowhead Mine Road
3	12-740-48	16169 You Bet Road
4	12-740-40	14101 Fifield Road
5	12-730-48	14300 Dandee Hill Lane
6	12-730-21	16447 You Bet Road
7	12-750-50	14377 Fifield Road
8	12-750-51	14455 Fifield Road
9	28-150-65	15300 You Win Court
10	12-750-52	14641 Fifield Road
11	12-641-24	15586 Frolic Meadow
12	28-410-20	13822 Marie Lane
13	28-410-23	13801 Marie Lane
14	28-410-25	14000 Frederick Way
15	28-410-27	14097 Frederick Way
16	28-150-64	15111 You Win Court
17	28-150-65	15300 You Win Court
18	28-410-28	14203 Frederick Way
19	28-410-37	14278 Frederick Way
20	28-410-33	14325 Frederick Way
21	28-150-44	15263 You Win Court
22	28-150-35	21119 You Bet Road
23	28-440-02	17615 Rollins View Drive
24	28-440-03	17720 Rollins View Drive
25	28-440-12	17841 Rollins View Drive
26	28-440-14	17915 Rollins View Drive

Notes:

¹ Receiver (residence) locations identified on Attachment B.

**Table 2
Distances from Nearest Residences to Noise-Generating Activity Areas
Greenhorn Sediment Removal Project**

Res.	Distance (feet)									
	Sediment Barrier			Sediment Removal Area	Stockpile Area	Valve Box/Pond Area	Staging Area			Haul Route
	Initial (1)	Intermediate (2)	Final (3)				1	2	3	
1	9,500	8,830	8,000	5,900	3,300	5,700	550	3,800	7,800	850
2	9,300	8,740	7,775	5,600	2,800	5,500	800	3,350	7,900	400
3	8,840	8,250	7,350	5,200	2,600	5,100	800	3,000	7,300	400
4	8,400	7,850	7,000	4,850	2,450	4,800	1,400	2,800	6,800	800
5	8,450	7,830	6,900	4,800	2,000	4,600	1,300	2,500	7,150	500
6	7,800	7,200	6,300	4,200	1,480	4,000	1,850	1,900	6,500	100
7	7,100	6,500	5,650	3,550	1,500	3,400	2,600	1,700	5,500	600
8	6,850	6,300	5,400	3,300	1,330	3,200	2,800	1,450	5,200	550
9	6,950	6,500	5,500	3,350	600	3,300	2,800	1,000	5,800	700
10	6,000	5,600	4,700	2,550	1,050	2,500	3,550	1,000	4,600	750
11	5,250	4,800	3,900	1,950	1,750	1,900	4,500	1,400	3,750	n/a
12	4,000	3,400	2,700	1,000	2,500	1,200	5,700	2,000	2,500	n/a
13	4,050	3,450	2,750	700	2,100	800	5,600	1,650	2,700	n/a
14	3,450	2,850	2,150	600	3,000	1,200	6,250	2,500	2,000	n/a
15	3,000	2,500	1,700	450	3,250	1,500	6,600	2,700	1,700	n/a
16	3,050	2,550	1,750	400	2,950	700	6,600	2,500	2,300	n/a
17	3,200	2,750	1,800	500	3,000	900	6,700	2,600	2,700	n/a
18	2,500	2,000	1,200	450	3,650	1,400	7,000	3,150	1,200	n/a
19	2,150	1,600	1,150	850	4,200	2,000	7,600	3,750	650	n/a
20	1,900	1,300	750	700	4,300	2,000	7,700	3,800	750	n/a
21	2,800	2,600	1,500	850	3,650	1,600	7,500	3,300	2,700	n/a
22	2,200	2,000	1,250	700	4,800	2,700	8,500	4,300	2,800	n/a
23	1,100	1,350	2,000	1,400	6,000	3,700	9,300	5,500	950	n/a
24	700	1,100	2,000	1,200	6,200	3,900	9,500	5,800	1,200	n/a
25	300	950	1,900	900	6,300	4,000	9,800	5,800	1,300	n/a
26	550	1,200	2,250	1,000	6,800	4,500	10,300	6,300	1,800	n/a

Source: Bollard Acoustical Consultants, Inc. with Google Earth aerial imagery and project site plans.

Table 3
Reference Noise Levels for Construction and Processing Equipment
Greenhorn Sediment Removal Project

Proposed Equipment	Activity / Area Used	Lmax, dB @ 50 ft.	Leq, dB @ 50 ft.
Loaders	Sediment Removal	82	76
Excavators	Sediment Removal	81	78
Backhoes	Sediment Removal	81	78
Scrapers	Sediment Removal	89	86
Bulldozers	Construction	85	80
Rollers	Construction	80	75
Delivery Truck	Haul Road	79	57
Dump Truck/Yukes	Sediment Removal	82	73
Sweeper Truck	Haul Road	74	55
Water Truck	Haul Road	86	62
Grizzly	Stockpile Area	90	94
Barge	Sediment Barrier	66	65
Pile Driver	Sediment Barrier	96	91
Chainsaw	Construction	89	80
Diesel Generator – 10 HP	Valve Box/Pond Area	61	61
Diesel Generator – 40 HP	Staging Area 2	62	62

Table 4
Predicted Noise Levels at Nearest Residences
Sediment Barrier Installation/Removal – Initial Location (1)
Greenhorn Sediment Removal Project

Res.	Address	Nearest Distance (feet)	Shielding by Intervening Topography, dB	Predicted Noise Level, dB	
				Leq	Lmax
1	16148 You Bet Rd.	8,830	-10	21	26
2	14000 Arrowhead Mine Rd.	8,740	-10	22	27
3	16169 You Bet Rd.	8,250	-10	23	28
4	14101 Fifield Rd.	7,850	-10	24	29
5	14300 Dandee Hill Lane	7,830	-10	24	29
6	16447 You Bet Rd.	7,200	-10	26	30
7	14377 Fifield Rd.	6,500	-10	28	32
8	14455 Fifield Rd.	6,300	-10	28	33
9	15300 You Win Court	6,500	-10	28	33
10	14641 Fifield Rd.	5,600	-10	31	35
11	15586 Frolic Meadow	4,800	-10	33	38
12	13822 Marie Lane	3,400	-10	37	42
13	13801 Marie Lane	3,450	-10	37	42
14	14000 Frederick Way	2,850	-10	39	44
15	14097 Frederick Way	2,500	-10	41	46
16	15111 You Win Court	2,550	-5	46	51
17	15300 You Win Court	2,750	0	50	55
18	14203 Frederick Way	2,000	-5	49	53
19	14278 Frederick Way	1,600	-5	55	60
20	14325 Frederick Way	1,300	0	57	62
21	15263 You Win Court	2,600	-5	47	52
22	21119 You Bet Rd.	2,000	-5	50	55
23	17615 Rollins View Drive	1,350	0	63	68
24	17720 Rollins View Drive	1,100	0	67	72
25	17841 Rollins View Drive	950	0	75	80
26	17915 Rollins View Drive	1,200	0	70	74

Source: Bollard Acoustical Consultants, Inc. (2019)

Table 5
Predicted Noise Levels at Nearest Residences
Sediment Barrier Installation/Removal – Intermediate Location (2)
Greenhorn Sediment Removal Project

Res.	Address	Nearest Distance (feet)	Shielding by Intervening Topography, dB	Predicted Noise Level, dB	
				Leq	Lmax
1	16148 You Bet Rd.	8,830	-10	23	28
2	14000 Arrowhead Mine Rd.	8,740	-10	23	28
3	16169 You Bet Rd.	8,250	-10	25	29
4	14101 Fifield Rd.	7,850	-10	26	30
5	14300 Dandee Hill Lane	7,830	-10	26	30
6	16447 You Bet Rd.	7,200	-10	27	32
7	14377 Fifield Rd.	6,500	-10	29	34
8	14455 Fifield Rd.	6,300	-10	30	35
9	15300 You Win Court	6,500	-10	29	34
10	14641 Fifield Rd.	5,600	-10	32	37
11	15586 Frolic Meadow	4,800	-10	34	39
12	13822 Marie Lane	3,400	-10	39	44
13	13801 Marie Lane	3,450	-10	39	44
14	14000 Frederick Way	2,850	-10	42	47
15	14097 Frederick Way	2,500	-10	44	48
16	15111 You Win Court	2,550	-5	48	53
17	15300 You Win Court	2,750	0	52	57
18	14203 Frederick Way	2,000	-5	51	56
19	14278 Frederick Way	1,600	-5	54	58
20	14325 Frederick Way	1,300	0	61	66
21	15263 You Win Court	2,600	-5	48	53
22	21119 You Bet Rd.	2,000	-5	51	56
23	17615 Rollins View Drive	1,350	0	61	65
24	17720 Rollins View Drive	1,100	0	63	68
25	17841 Rollins View Drive	950	0	64	69
26	17915 Rollins View Drive	1,200	0	62	67

Source: Bollard Acoustical Consultants, Inc. (2019)

Table 6
Predicted Noise Levels at Nearest Residences
Sediment Barrier Installation/Removal – Final Location (3)
Greenhorn Sediment Removal Project

Res.	Address	Nearest Distance (feet)	Shielding by Intervening Topography, dB	Predicted Noise Level, dB	
				Leq	Lmax
1	16148 You Bet Rd.	8,000	-10	25	30
2	14000 Arrowhead Mine Rd.	7,775	-10	26	31
3	16169 You Bet Rd.	7,350	-10	27	32
4	14101 Fifield Rd.	7,000	-10	28	33
5	14300 Dandee Hill Lane	6,900	-10	28	33
6	16447 You Bet Rd.	6,300	-10	30	35
7	14377 Fifield Rd.	5,650	-10	32	36
8	14455 Fifield Rd.	5,400	-10	32	37
9	15300 You Win Court	5,500	-10	32	37
10	14641 Fifield Rd.	4,700	-10	35	39
11	15586 Frolic Meadow	3,900	-10	38	42
12	13822 Marie Lane	2,700	-10	43	47
13	13801 Marie Lane	2,750	-10	42	47
14	14000 Frederick Way	2,150	-10	45	50
15	14097 Frederick Way	1,700	-10	48	53
16	15111 You Win Court	1,750	-5	53	57
17	15300 You Win Court	1,800	0	57	62
18	14203 Frederick Way	1,200	-5	57	62
19	14278 Frederick Way	1,150	-10	52	57
20	14325 Frederick Way	750	0	67	71
21	15263 You Win Court	1,500	-5	54	59
22	21119 You Bet Rd.	1,250	-5	56	61
23	17615 Rollins View Drive	2,000	-5	51	56
24	17720 Rollins View Drive	2,000	-5	51	56
25	17841 Rollins View Drive	1,900	0	57	62
26	17915 Rollins View Drive	2,250	0	55	60

Source: Bollard Acoustical Consultants, Inc. (2019)

Table 7
Predicted Noise Levels at Nearest Residences
Stockpile Area Activities
Greenhorn Sediment Removal Project

Res.	Address	Nearest Distance (feet)	Shielding by Intervening Topography, dB	Predicted Noise Level, dB	
				Leq	Lmax
1	16148 You Bet Rd.	3,300	-10	33	39
2	14000 Arrowhead Mine Rd.	2,800	-10	35	41
3	16169 You Bet Rd.	2,600	-10	36	42
4	14101 Fifield Rd.	2,450	-10	37	43
5	14300 Dandee Hill Lane	2,000	-10	40	45
6	16447 You Bet Rd.	1,480	-10	43	48
7	14377 Fifield Rd.	1,500	0	53	58
8	14455 Fifield Rd.	1,330	0	54	60
9	15300 You Win Court	600	0	62	68
10	14641 Fifield Rd.	1,050	0	57	62
11	15586 Frolic Meadow	1,750	-5	46	51
12	13822 Marie Lane	2,500	-10	37	42
13	13801 Marie Lane	2,100	0	49	54
14	14000 Frederick Way	3,000	-10	35	40
15	14097 Frederick Way	3,250	-10	33	39
16	15111 You Win Court	2,950	-10	35	40
17	15300 You Win Court	3,000	-10	35	40
18	14203 Frederick Way	3,650	-10	32	37
19	14278 Frederick Way	4,200	-10	30	35
20	14325 Frederick Way	4,300	-10	29	35
21	15263 You Win Court	3,650	-10	32	37
22	21119 You Bet Rd.	4,800	-10	28	33
23	17615 Rollins View Drive	6,000	-10	24	29
24	17720 Rollins View Drive	6,200	-10	23	29
25	17841 Rollins View Drive	6,300	-10	23	29
26	17915 Rollins View Drive	6,800	-10	22	27

Source: Bollard Acoustical Consultants, Inc. (2019)

Table 8
Predicted Noise Levels at Nearest Residences
Sediment Removal Activities
Greenhorn Sediment Removal Project

Res.	Address	Nearest Distance (feet)	Shielding by Intervening Topography, dB	Predicted Noise Level, dB	
				Leq	Lmax
1	16148 You Bet Rd.	5,900	-10	28	24
2	14000 Arrowhead Mine Rd.	5,600	-10	29	25
3	16169 You Bet Rd.	5,200	-10	30	26
4	14101 Fifield Rd.	4,850	-10	31	27
5	14300 Dandee Hill Lane	4,800	-10	32	27
6	16447 You Bet Rd.	4,200	-10	34	29
7	14377 Fifield Rd.	3,550	-10	36	32
8	14455 Fifield Rd.	3,300	-10	37	33
9	15300 You Win Court	3,350	-10	37	32
10	14641 Fifield Rd.	2,550	-10	40	36
11	15586 Frolic Meadow	1,950	-10	44	39
12	13822 Marie Lane	1,000	-5	56	51
13	13801 Marie Lane	700	0	64	60
14	14000 Frederick Way	600	0	66	62
15	14097 Frederick Way	450	0	69	64
16	15111 You Win Court	400	0	70	65
17	15300 You Win Court	500	0	68	63
18	14203 Frederick Way	450	0	69	64
19	14278 Frederick Way	850	-10	52	48
20	14325 Frederick Way	700	0	64	60
21	15263 You Win Court	850	0	62	58
22	21119 You Bet Rd.	700	0	64	60
23	17615 Rollins View Drive	1,400	0	57	53
24	17720 Rollins View Drive	1,200	0	59	55
25	17841 Rollins View Drive	900	0	62	58
26	17915 Rollins View Drive	1,000	0	61	56

Source: Bollard Acoustical Consultants, Inc. (2019)

Table 9
Predicted Noise Levels at Nearest Residences
Project Diesel Generator at Valve Box/Pond Area
Greenhorn Sediment Removal Project

Res.	Address	Nearest Distance (feet)	Shielding by Intervening Topography, dB	Predicted Noise Level, Leq/Lmax (dB)
1	16148 You Bet Rd.	5,700	-10	<10
2	14000 Arrowhead Mine Rd.	5,500	-10	<10
3	16169 You Bet Rd.	5,100	-10	<10
4	14101 Fifield Rd.	4,800	-10	<10
5	14300 Dandee Hill Lane	4,600	-10	<10
6	16447 You Bet Rd.	4,000	-10	<10
7	14377 Fifield Rd.	3,400	-10	<10
8	14455 Fifield Rd.	3,200	-10	<10
9	15300 You Win Court	3,300	-10	<10
10	14641 Fifield Rd.	2,500	-10	13
11	15586 Frolic Meadow	1,900	-10	17
12	13822 Marie Lane	1,200	-10	22
13	13801 Marie Lane	800	-5	31
14	14000 Frederick Way	1,200	-5	27
15	14097 Frederick Way	1,500	-5	24
16	15111 You Win Court	700	-10	27
17	15300 You Win Court	900	-10	25
18	14203 Frederick Way	1,400	-5	25
19	14278 Frederick Way	2,000	-10	16
20	14325 Frederick Way	2,000	-10	16
21	15263 You Win Court	1,600	-10	18
22	21119 You Bet Rd.	2,700	-10	12
23	17615 Rollins View Drive	3,700	-10	<10
24	17720 Rollins View Drive	3,900	-10	<10
25	17841 Rollins View Drive	4,000	-10	<10
26	17915 Rollins View Drive	4,500	-10	<10

Source: Bollard Acoustical Consultants, Inc. (2019)

Table 10
Predicted Noise Levels at Nearest Residences
Project Diesel Generator at Staging Area 2
Greenhorn Sediment Removal Project

Res.	Address	Nearest Distance (feet)	Shielding by Intervening Topography, dB	Predicted Noise Level, Leq/Lmax (dB)
1	16148 You Bet Rd.	3,800	-10	<10
2	14000 Arrowhead Mine Rd.	3,350	-10	<10
3	16169 You Bet Rd.	3,000	-10	12
4	14101 Fifield Rd.	2,800	0	23
5	14300 Dandee Hill Lane	2,500	-10	14
6	16447 You Bet Rd.	1,900	-10	18
7	14377 Fifield Rd.	1,700	0	29
8	14455 Fifield Rd.	1,450	0	31
9	15300 You Win Court	1,000	0	34
10	14641 Fifield Rd.	1,000	-10	24
11	15586 Frolic Meadow	1,400	-5	26
12	13822 Marie Lane	2,000	-10	17
13	13801 Marie Lane	1,650	0	29
14	14000 Frederick Way	2,500	-10	14
15	14097 Frederick Way	2,700	-10	13
16	15111 You Win Court	2,500	-10	14
17	15300 You Win Court	2,600	-10	14
18	14203 Frederick Way	3,150	-10	11
19	14278 Frederick Way	3,750	-10	<10
20	14325 Frederick Way	3,800	-10	<10
21	15263 You Win Court	3,300	-10	11
22	21119 You Bet Rd.	4,300	-10	<10
23	17615 Rollins View Drive	5,500	-10	<10
24	17720 Rollins View Drive	5,800	-10	<10
25	17841 Rollins View Drive	5,800	-10	<10
26	17915 Rollins View Drive	6,300	-10	<10

Source: Bollard Acoustical Consultants, Inc. (2019)

Table 11
Predicted Noise Levels at Nearest Residences
Haul Route (Between Stockpile Area and You Bet Road)
Greenhorn Sediment Removal Project

Res.	Address	Nearest Distance (feet)	Shielding by Intervening Topography, dB	Predicted Noise Levels, dB	
				Leq	Lmax
1	16148 You Bet Rd.	850	0	38	60
2	14000 Arrowhead Mine Rd.	400	0	45	67
3	16169 You Bet Rd.	400	0	45	67
4	14101 Fifield Rd.	800	0	39	61
5	14300 Dandee Hill Lane	500	-5	38	60
6	16447 You Bet Rd.	100	0	58	80
7	14377 Fifield Rd.	600	0	41	64
8	14455 Fifield Rd.	550	0	42	64
9	15300 You Win Court	700	0	40	62
10	14641 Fifield Rd.	750	0	39	61

Source: Bollard Acoustical Consultants, Inc. (2019)

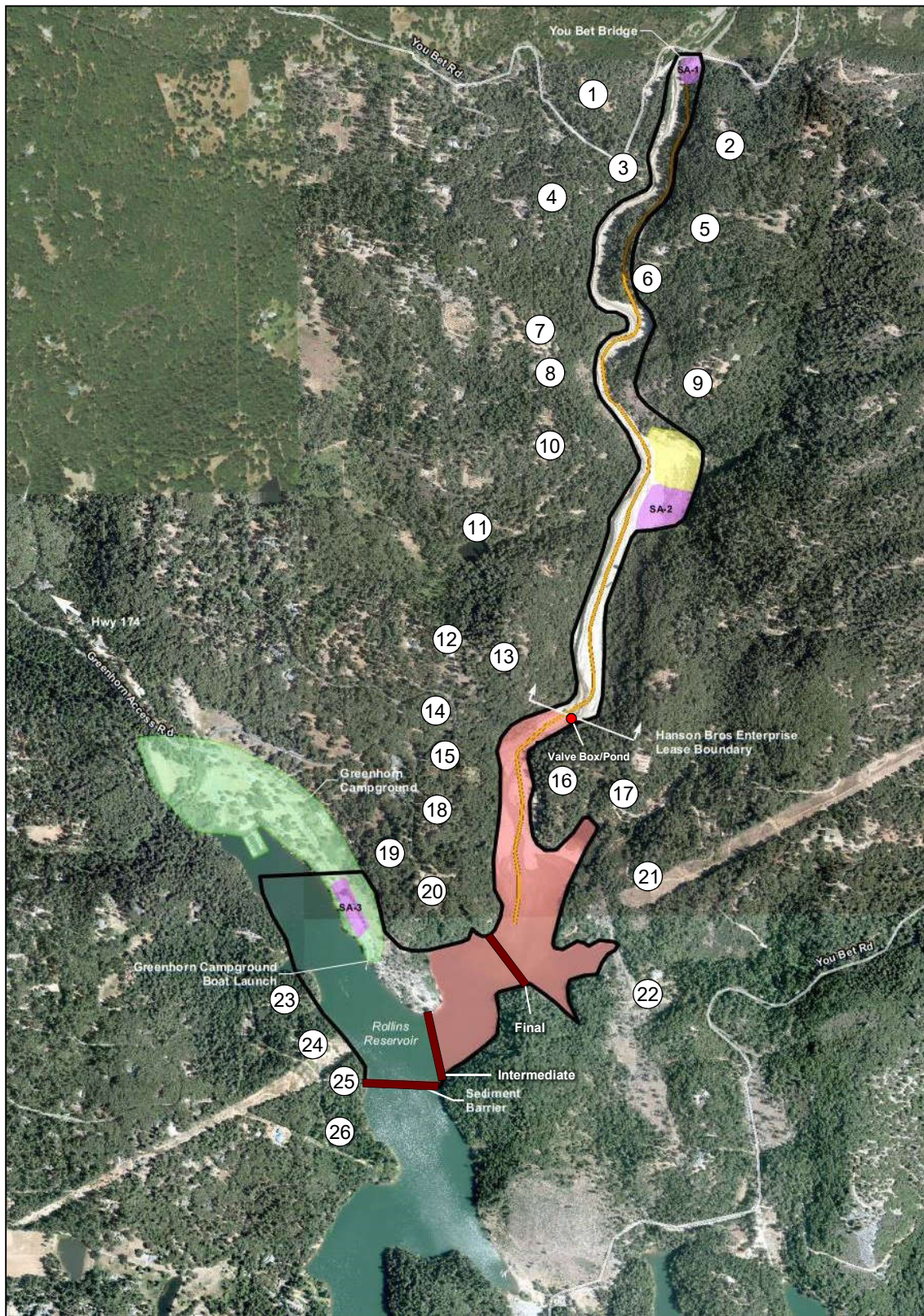
Table 12
Predicted Noise Levels at Nearest Residences
Worst-Case Noise Generation of All Sources Combined
Greenhorn Sediment Removal Project

Res.	Address	Predicted Noise Levels, dB	
		Leq	Lmax
1	16148 You Bet Rd.	40	60
2	14000 Arrowhead Mine Rd.	46	67
3	16169 You Bet Rd.	46	67
4	14101 Fifield Rd.	42	61
5	14300 Dandee Hill Lane	42	60
6	16447 You Bet Rd.	58	80
7	14377 Fifield Rd.	53	64
8	14455 Fifield Rd.	55	64
9	15300 You Win Court	62	68
10	14641 Fifield Rd.	57	62
11	15586 Frolic Meadow	48	51
12	13822 Marie Lane	56	51
13	13801 Marie Lane	65	60
14	14000 Frederick Way	66	62
15	14097 Frederick Way	69	64
16	15111 You Win Court	70	65
17	15300 You Win Court	68	63
18	14203 Frederick Way	69	64
19	14278 Frederick Way	57	60
20	14325 Frederick Way	69	71
21	15263 You Win Court	63	59
22	21119 You Bet Rd.	65	61
23	17615 Rollins View Drive	64	68
24	17720 Rollins View Drive	68	72
25	17841 Rollins View Drive	75	80
26	17915 Rollins View Drive	70	74

Source: Bollard Acoustical Consultants, Inc. (2019)

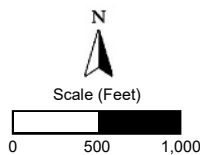
Attachment A Acoustical Terminology

Acoustics	The physics of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human auditory response.
Decibel or dB	Fundamental unit of sound. A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 – 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
Impulsive Noise	Sound of short duration, usually less than one second with an abrupt onset and rapid decay.
L_{dn}	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
L_{eq}	Equivalent or energy-averaged sound level.
L_{max}	The highest root-mean square (RMS) sound level measured over a given period of time.
Loudness Ratio	A subjective term for the sensation of the magnitude of perceived sound.
Masking	The amount (or the process) by which the threshold of audibility for one sound is raised by the presence of another (masking) sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the Maximum level, which is the highest RMS level.
RT₆₀	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
SEL	A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy of the event into a 1-s time period.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.



Legend

- Project Site Boundary
- Existing Haul Road
- New Haul Road
- Campground
- Work Area
- Staging Area
- Stockpile Area



Greenhorn Sediment Removal Project
Nevada County, California

Project Area & Nearest Residential
Receiver Locations

Attachment B



