MALHEUR COUNTY PLANNING DEPARTMENT

251 B Street West, #12 Vale, Oregon 97918 Phone (541)473-5185 Fax (541)473-5140

File Number: _____
Application Fee: _____
Date Received: _____
Date Deemed Complete: _____

CONDITIONAL USE APPLICATION

LANDOWNER INFORMATION

Name: Dallas Head
Address: 5560 Hwy 201
City/State/Zip: Ontario, OR 97914
Phone: 208-941-0322
Email: dhead300@gmail.com

APPLICANT INFORMATION ☐ *Check box if same*

Name: Darren Lee
Address: 515 Noble Rd.
City/State/Zip: Ontario, OR 97914
Phone: 208-741-1104
Email: clown924@hotmail.com

PROPERTY INFORMATION

Township: 16S Range: 47E W.M. Section: 17; S 1/2 NW 1/4 Tax Lot: Ptn. 3200 Ref #: 16547 Acres: 80 +/- out of 308.42 Zoning: ERU
Address: Jasmine Rd. & Power Rd.
Current use: ERU
Proposed use: Quarry
Water source: None
Use of surrounding properties: ERU & Aggragate Mining
Permitted subject to section: _____
Sewage disposal method: NA
Are the wetlands/water waterways on your property? ☒ No ☐ Yes (description): _____
Do you own neighboring property? ☐ No ☒ Yes (description): Adjoining property to west & north
Name of road providing access: Mesquite

LEGAL PARCEL STATUS

Partition: _____ Subdivision: _____
or Most Recent Pre- 09/04/1974 Deed #: _____ Date Filed: _____
Current Deed #: _____ Date Filed: _____

**The deed and a map showing the property described in the deed(s) must accompany this application.*

**Additional descriptive maps and pictures may be attached.*

SIGNATURES:

Property Owner(s): _____ Date: 8-16-23

Property Owner(s): _____ Date: _____

Applicant(s): _____ Date: 8-16-23

Applicant(s): _____ Date: _____

PLEASE NOTE: Before this application will be processed, you must supply all requested information and forms, and address all listed or referenced criteria. Pursuant to ORS 215.428, this office will review the application for completeness and notify Applicant of any deficiencies within 30 days of submission. By signing this form, the property owner or property owner's agent is granting permission for Planning Staff to conduct site inspections on the property.

SHADED AREA TO BE COMPLETED BY PLANNING DEPARTMENT

Legal Parcel Deed/Land Use Action: _____ **Previous Map and Tax Lot:** _____	☐NO ☐YES
Past Land Use Actions: If yes, list file #(s) _____ _____ _____	☐NO ☐YES
Subject to previous conditions? **Assessor Property Class:** _____ **Zoning:** _____	☐NO ☐YES
Water Resources: Are there bodies of water or wetlands (seasonal or permanent) on property or adjacent properties? Describe (include setback distances): _____ ☐ Fish bearing ☐ Non fish bearing ☐ Seasonal Creek ☐ Irrigation ditch ☐ Wetland ☐ Pond/Lake ☐ Not identified *(Note: Check buffers. Different zones have different setback requirements that may require a more extensive permitting process.)*	☐NO ☐YES
Access: County or ODOT approach permit on file? ☐ NO ☐ YES, # _____	
Address: Address exists and has been verified to be correct? Address needs to be assigned after approval?	☐NO ☐YES ☐NO ☐YES
Fire District: _____	

MALHEUR COUNTY PLANNING DEPARTMENT

251 B Street West, #12 Vale, Oregon 97918 Phone (541)473-5185 Fax (541)473-5140

CONDITIONAL USE PERMIT

DETAILED SPECIFIC WRITTEN EQUEST

Rezone described property from ERU to Aggregate Mining

(Attach additional pages if necessary)

DETAILED STRUCTURAL INFORMATION

PROPOSED IMPROVEMENTS				
Structure/Development	**Length**	**Width**	**Height**	**Square Footage**
Dwelling				
Driveway				
Accessory Structure				
Agricultural Structure				
Other				
EXISTING				
Dwelling				
Accessory Structure				
Agricultural Structure				
Other				

CONDITIONAL USE CRITERIA – Malheur County Code (MCC) CHAPTER 6-6-7

1. The proposal must be consistent with the goals and objectives of the Comprehensive Plan and MCC.

2. Taking into account location, size, design and operational characteristics of the proposed use, describe how your proposal is compatible with the surrounding area and development of abutting properties by outright permitted uses:

The adjacent property to the west and north have historically been utilized as aggregate mining by county, state, and private entities.

Describe the operational characteristics (hours of operation, equipment used, etc.) of the proposed use:

7:00 AM to 5:00 PM Monday through Saturday
Equipment used: loaders, excavators, crushers, screen plants, elevators, trucks

Describe the number of people/employees/customers associated with the proposed use:

3 employees
Customer base is local farmers, contractors, and private citizens

3. What are the existing developments and viewpoints of property owners in the surrounding area?

Sporadic housing, aggregate mining, and range land

4. The proposed use cannot exceed or significantly burden public facilities and services available to the area. Please describe the impact the proposed use will have on the following public facilities and services and provide letters from the appropriate entities:

Roads: Private road to Mesquite utilizing old county quarry access road that has been improved

Fire & Police Protection:

Sewer & Water: NA

Electrical & Telephone: NA

Solid Waste Disposal: None produced

5. What effect will the proposed use have on the stability of the community's social and economic characteristics?
Continued availability and utilization of local gravel sources, decreased road impact and customer hauling costs, and local job opportunities.

6. Demonstrate that the proposed use will not interfere with traditional fish and wildlife use of habitats determined critical or sensitive in the fish and wildlife habitat protection plan for Malheur County.
No fish impact. Wildlife tend to use quarries for cover and protection.

7. How will the proposed use increase setbacks of structures to reduce possibilities of overshadowing adjoining property, noise, odor or night lighting nuisances during development and operation?
15 to 20 ft. berm for noise abatement and a visual barrier as necessary. No planned structures other than truck scales.

8. What are the proposed landscaping improvements for the visual benefit of the subject site and for the improved appearance of the neighborhood and County?
~~No planned structures other than truck scales.~~
Seed berms as necessary for erosion control and dust abatement.

9. The location and size of driveway access points and right of way widening and improvement for present and future traffic circulation consistent with the adopted County road standards or the standards of the appropriate road district and the access management standards of the Malheur County Transportation System Plan.
No new impact on public roads. Proposed quarry access point on Mesquite is also currently utilized as a haul road out of the Deltaven quarry.

10. What is the proposed visual screening of the outdoor waste and storage areas?

No waste generated.

11. What efforts will be in place to control and focus the outdoor lighting to avoid glare being directed beyond property limits?

Earth berms. Typically night operations are not conducted.

12. Demonstrate how the proposed use will not significantly increase the cost of, or force a significant change to, accepted farm or forest practices on surrounding lands devoted to or available for farm and forest use.

Describe the agricultural uses (orchards, wheat, grazing, etc.) that are within 0.25 miles of the proposed development. How will the proposed development interact with surrounding agriculture uses?

Proposed site has no water right and historically has been poor producing range property. There has been extensive quarry activity to the west and north. No identifiable conflict with farm ground to the east.

MINERAL, AGGREGATE OR GEOTHERMAL RESOURCE EXPLORATIO, MINING AND PROCESSING
Malheur County Code (MCC) 6-6-8-4

All submitted plans and specifications shall contain sufficient information to allow the planning commission to set standards pertaining to:

1. How will the noise screening be conducted? (See photos)
Natural earth berm

2. How will the dust screening be conducted?
Graveled roads, graveled quarry floor, and water trucks as necessary.

3. How will the visual screening be conducted?
Natural earth berm

4. How will the traffic screening be conducted?
Access gate and signage

5. Equipment and access roads shall be constructed, maintained and operated in such a manner as to eliminate, as far as practical, noise, vibration or dust that is injurious or substantially annoying to livestock being raised in the vicinity. What are the proposed locations of the vehicular access points?
Utilizing prior quarry activity access points

6. All processing shall be located no closer than 200 ft. from residential or commercial uses. What are the proposed setbacks from the property lines and from any residential or commercial uses in the area?

150 ft.

7. What are the fencing needs and how will they be addressed?

Natural earth berm is a sufficient barrier.

8. How will the collection and stagnation of water at all stages of production be prevented?

Do not utilize water in production of gravel products.

9. How will the property be rehabilitated and reclaimed upon the termination of the operation?

According to DOGAMI specifications and approvals

Operations Plan

Operation of the quarry will mirror current operations in the neighboring DeHaven quarry. There will be a transition period to the Head quarry as material is depleted in the DeHaven quarry. Traditionally 10,000 to 15,000 tons of gravel are processed and sold annually. The volume is dependent upon local customer's needs, economic conditions and construction or road projects in the area. The intent is to have a smooth transition back to utilizing the Head quarry and not disrupt local customers' needs as the DeHaven quarry is depleted. The Head property quarry traditionally filled the needs of the local population as well as state and road districts until I opened the DeHaven quarry approximately 14 years ago. With the DeHaven quarry depleted a transition is now needed back to the Head quarry.

Hours of operation will be from 7:00 A.M. to 6:00 P.M. Monday through Saturday. There is historical activity data that has been established through over a decade of prior experience operating the DeHaven quarry as to activity and volume demands. Spring and fall have the highest activity levels demands with the summer and winter having limited or no activity. Processing of gravel products also traditionally take place in the spring and fall. Typically there are also three weeks in the spring and three weeks in the fall for crushing and screening activity. This quarry would be classified as a small intermittent use quarry.

While the volume demand for aggregate products in this area is not high due to limited customer base it still has a very important role in the community. The quarry in Payette has been closed and Valley paving in Ontario has run out of base rock. This has created a situation where gravel is just not available in the area. This will create a huge burden economically for citizens in the area with increased trucking costs hauling from Fruitland or out of Weiser.

1500 Foot Impact

The area is sparsely populated and local residences will be insulated from quarry activity due to an earth berm being established and its natural ability as a sound barrier. The traditional old access road off Mesquite has been improved and its location also is on Head property. It traverses a narrow draw away from any other housing and creates a natural sound barrier. Fugitive dust mitigation will be addressed by having properly graveled roads as well as having a water truck onsite for use as necessary during any dry or high activity periods. Water is typically purchased from the city of Weiser. Truck traffic will be the same as before with the access point onto the public road Mesquite being the same one currently used from the DeHaven quarry. Road district 3 has requested that the approach onto Mesquite be paved to protect the shoulder of the road with no other concerns noted.

Referring to the quarry map there are three separate activity areas. The approximately 80 acre parcel designated as aggregate removal and processing we be for just that purpose. No gravel extraction will occur outside this boundary with the exception of the Head farm traditional private quarry section next to the concrete recycling area. This area will be exclusively for Dallas Heads use. According to DOGAMI rules Mr. Head has the right to extract no more than 5000 yards per year off of his property.

The concrete recycling area will be used to crush and stockpile concrete and asphalt for reuse. This activity falls under DEQ rules and is considered a go green initiative for the state of Oregon. A jaw crushing plant or impactor will be used to process the concrete and asphalt as needed.

The equipment yard and gravel product stockpile area will be for the storage of gravel hauling trucks and trailers as well as aggregate processing equipment such as loaders, elevators, and screen equipment. An earth berm will be constructed along Jasmine for a visual barrier and to protect the equipment from vandalism. This area will also be where the scales will be placed. Some aggregate stockpiles from onsite production will also be in this area as well as other rock products from other quarries in the area such as decorative rock products for landscaping, boulders and rip rap. The stockpiling of aggregate is considered mining activity under DOGAMI rules so it is included in this application for reclamation purposes.

As a note all maps presented in this application are for reference and orientation use only and no way reflect the actual ground conditions or property lines.

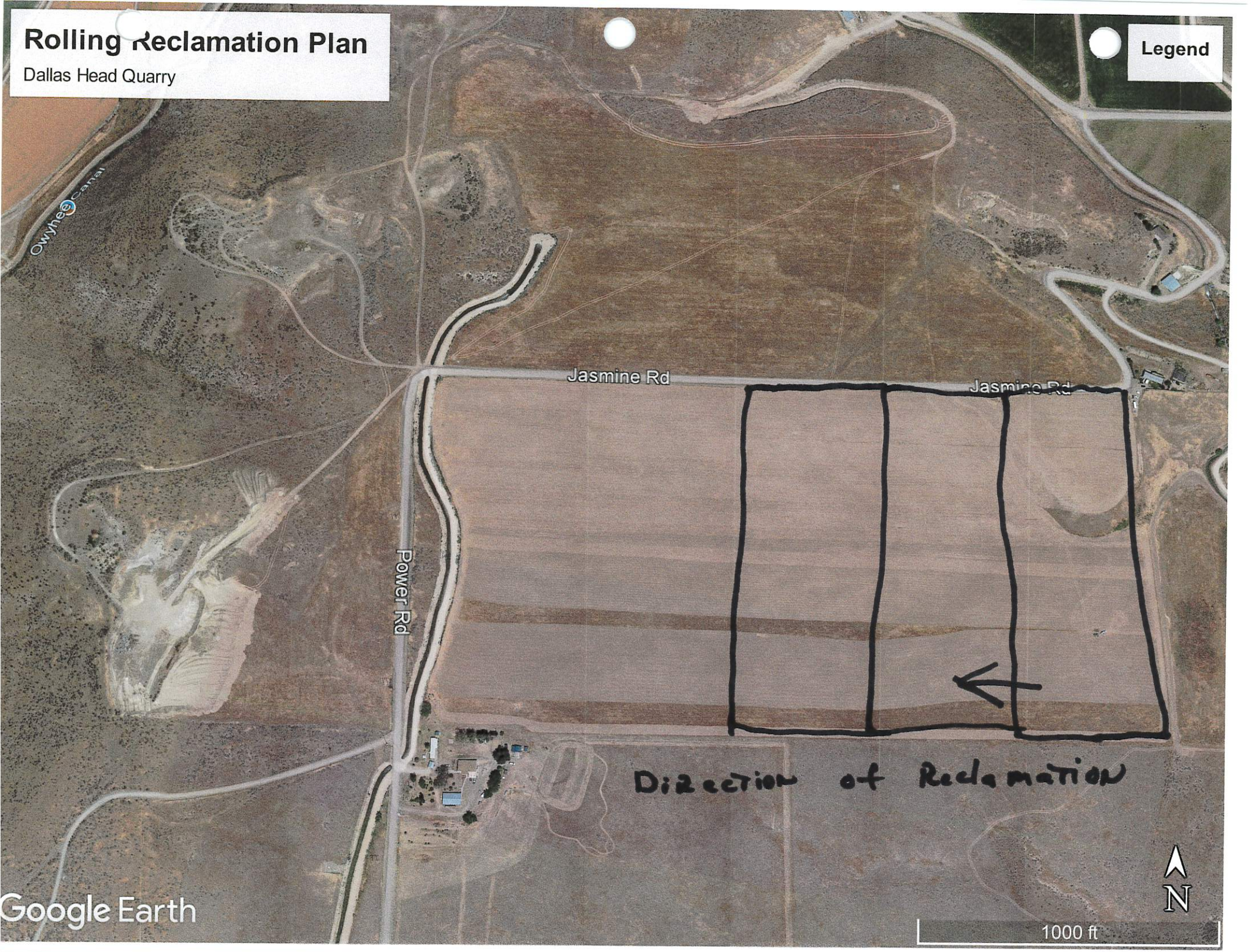
Reclamation Plan Dallas Head Quarry

There are no known wells on the proposed site and no ponds or other water impoundments. There will be the possibility to create an impoundment area to the East of the quarry due to an elevation drop and the creation of a berm. This area will have disturbed soil and overburden and any water collected will be absorbed by the soil or gravel and sand.

There is limited topsoil on the site and any encountered will be salvaged, stockpiled and eventually spread evenly over disturbed areas during the reclamation process. The caliche encountered under the topsoil will be stockpiled, used as a visual as well as sound barrier in the form of a berm. This material will then be used to fill the void created by the gravel extraction and level the site. Currently the condition of the property is a combination of exposed gravel and limited soil over hard caliche. This creates a very poor farming or range ground as any moisture either runs into the gravel or over the non-porous caliche. By removing the gravel and breaking down the caliche the ground will be able to absorb water and be much more suitable for range or farming activity in the future.

The reclamation process will be concurrent with the gravel extraction process and no more than 20 acres of disturbed ground is anticipated at any given time based on prior experience and practices. The process for reclamation will be a rolling reclamation with the mined area being reclaimed as new areas are disturbed. The berm will also be moved concurrently as the land is reclaimed. This land can then be used as range, dryland farming or open space.

Final reclamation will follow DOGAMI requirements and consist of slopes of no greater than 3H:1V, the application of any available topsoil, removal of berms and reseeding. Future land use possibilities include pasture land or dry land farming. There are no water rights with this property.


Rolling Reclamation Plan
Dallas Head Quarry
Legend
Owyhee Canal
Jasmine Rd
Jasmine Rd
Power Rd
Direction of Reclamation
N
1000 ft
Google Earth

Quarry Boundary and Activity Map

The quarry boundary map is for general orientation of the site and does not reflect the exact property lines. Refer to legal description map for exact property lines.

Area #1

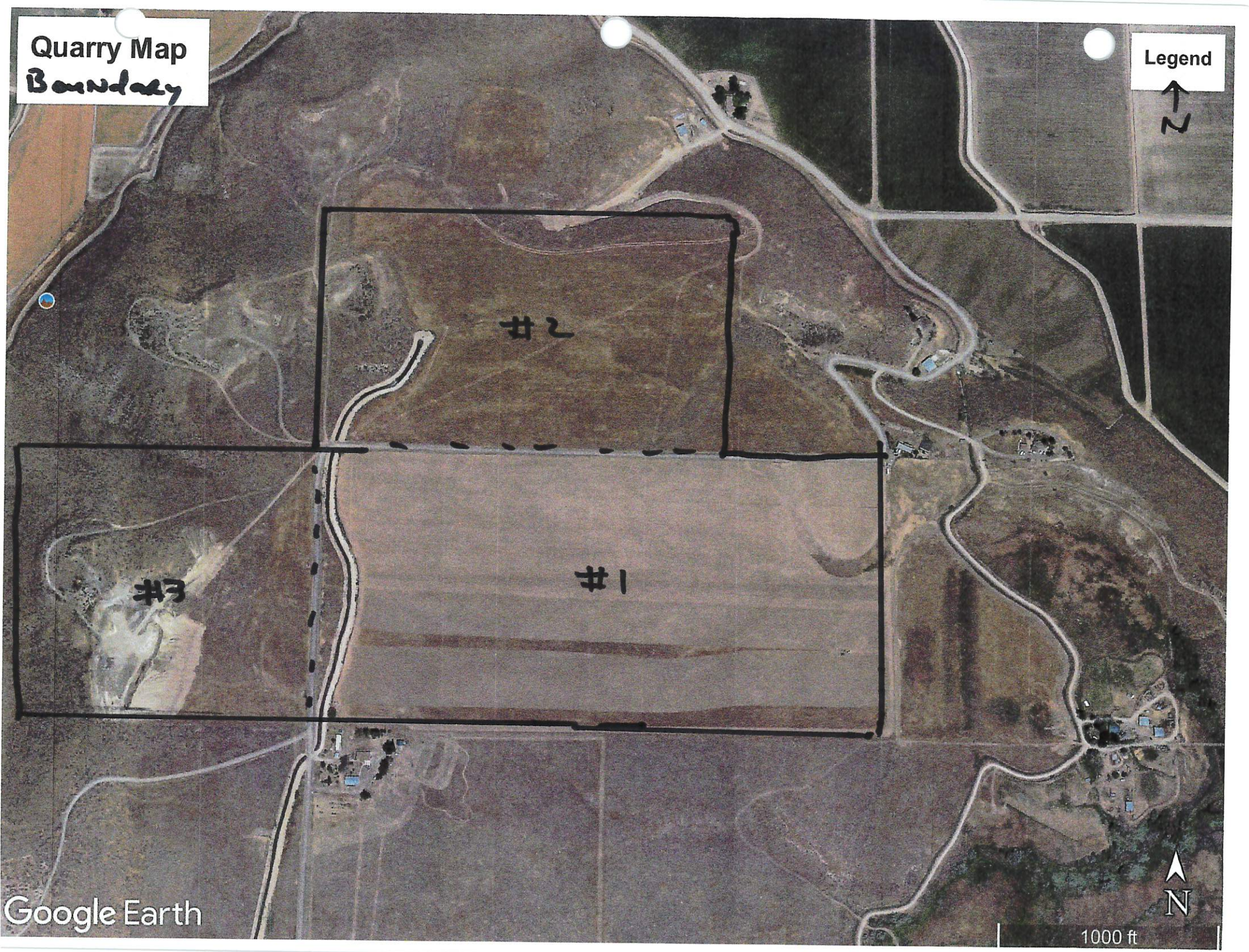
This is the approximately 80 acre site where gravel extraction and processing of aggregate will occur. An earth berm no less than 12 feet tall will surround the site for sound mitigation and as a visual barrier. Gravel extraction will begin at the Eastern edge of the property and move to the West. The reason for this is that exposed gravel is encountered in this area making extraction easy. As the quarry activity progressively moves West a deeper layer of very hard caliche is encountered. This caliche overburden can then be used in the void created by gravel removal. This process will aid in reclamation efforts and allow reclamation to be concurrent with extraction. This will keep the area disturbed to a minimum. By removing the gravel and breaking up the caliche the reclaimed property will have a much better chance of being productive dryland or grazing ground upon reclamation.

Area #2

This area will be utilized for gravel production equipment such as loaders, screen equipment trucks and other earthmoving equipment. This area will also be utilized for gravel product storage and truck scales. No other permanent structures will be affixed to this area. This area will also be utilized for the storage and stockpiling of landscape rock and other gravel products not produced or quarried onsite.

Area #3

Area #3 will be utilized as a concrete and asphalt recycling site as well as the private quarry site for the landowner. Utilizing the existing area quarried out by the county this area in the past will be utilized for the repurposing of concrete and asphalt into aggregate products. This is a go green initiative that takes pressure off of our landfills and reutilizes valuable resources back into aggregate resources. Tax credits and incentives are available to contractors and others participating in this activity.


Quarry Map
Boundary
Legend
N
#2
#1
#3
Google Earth
N
1000 ft

Traffic Plan

Dallas Head Quarry

The access to the quarry will be through the old farm off of Mesquite. This road was also used as an old haul road by the county in the past. It has been improved to be over two lanes wide and the grade is less than 10%. This improved road starts off of Mesquite through the old homestead and proceeds up the draw to the top off the hill. The draw provides sound abatement as well as a visual barrier. A berm has been established on the side slope portion of the road for safety. The road can accommodate over two lanes of traffic and is less than a 10% grade making it preferable to the steeper Mesquite access.

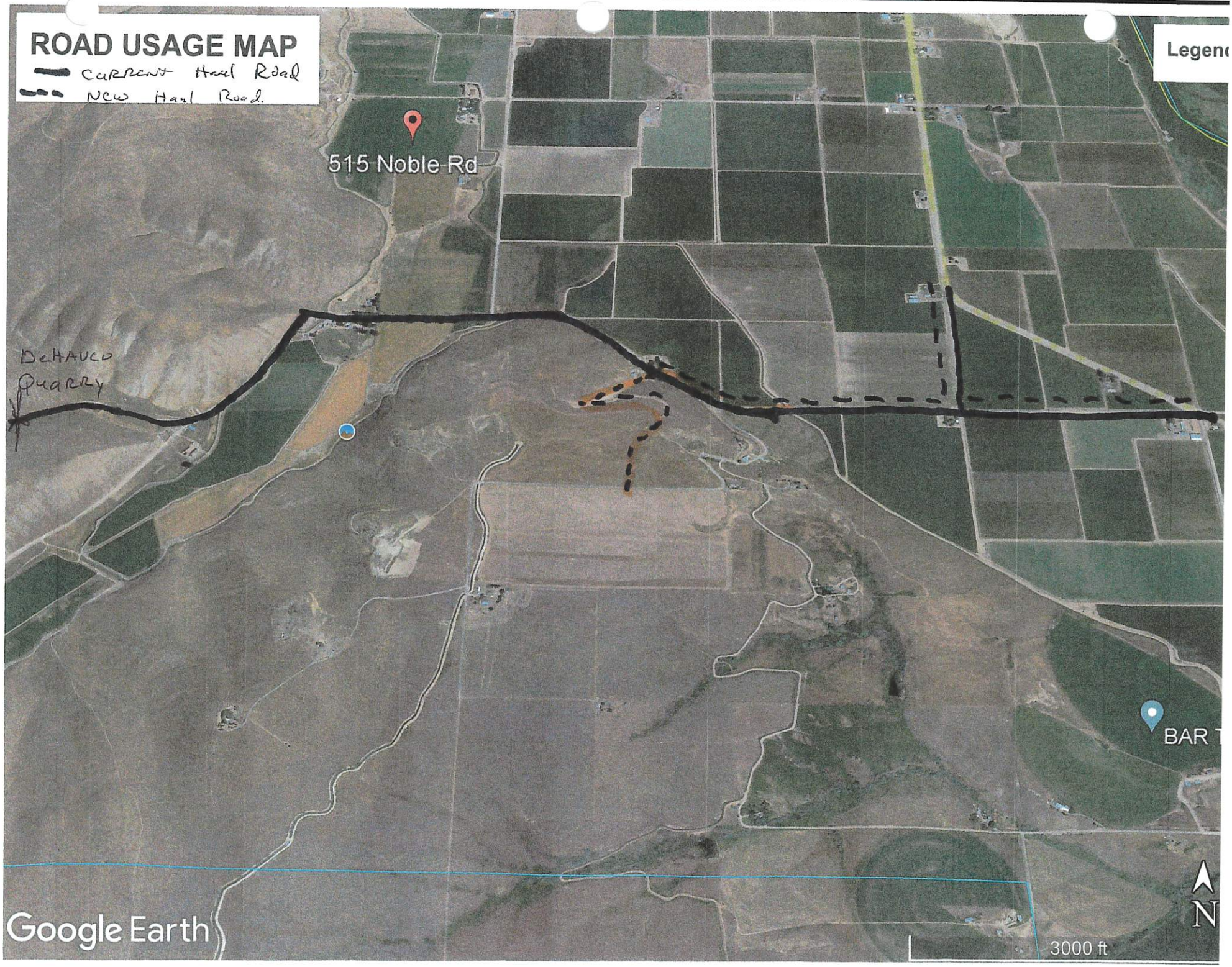
Road District #3 requested that the approach that intersects with the access road and Mesquite (see access photo) be asphalted to protect the shoulder of Mesquite. This will be accomplished by asphalting approximately 30 feet of the approach towards the canal. Road District #3 had no other concerns or requests.

There is an irrigation pipe that intersects the road at the top. A foot of aggregate has been placed over the top of the area to protect the pipe.

Referring to the Road Usage Map the solid line depicts the public road currently used to haul gravel from the DeHaven quarry that has been in operation for approximately 15 years. The dotted line depicts where the new haul path will be from the Dallas Head quarry. It should be noted that there will be no new impact on the public roadway from historical use as the DeHaven quarry will be phased out. From highway 201 Weiser is approximately 4 miles away and Ontario is approximately 13 miles away.

Signage: A stop sign will be placed at the exit to Mesquite as well as in both directions where Jasmine and the haul road intersect. Haul road speeds will be posted at 15M.P.H. for safety as well as sound and dust mitigation. All haul roads will be graveled.

In a typical year approximately 10,000 yards of aggregate are needed for local consumption. With mixed use trucks of between 12 and 20 yards per load this amounts to about 750 loads per year of trucking activity.


ROAD USAGE MAP
CURRENT Haul Road
NEW Haul Road
515 Noble Rd
DeHAUD QUARRY
Legend
BAR T
Google Earth
3000 ft
N

Access point off Mesquite Rd.

HISTORICAL PROPERTY USE

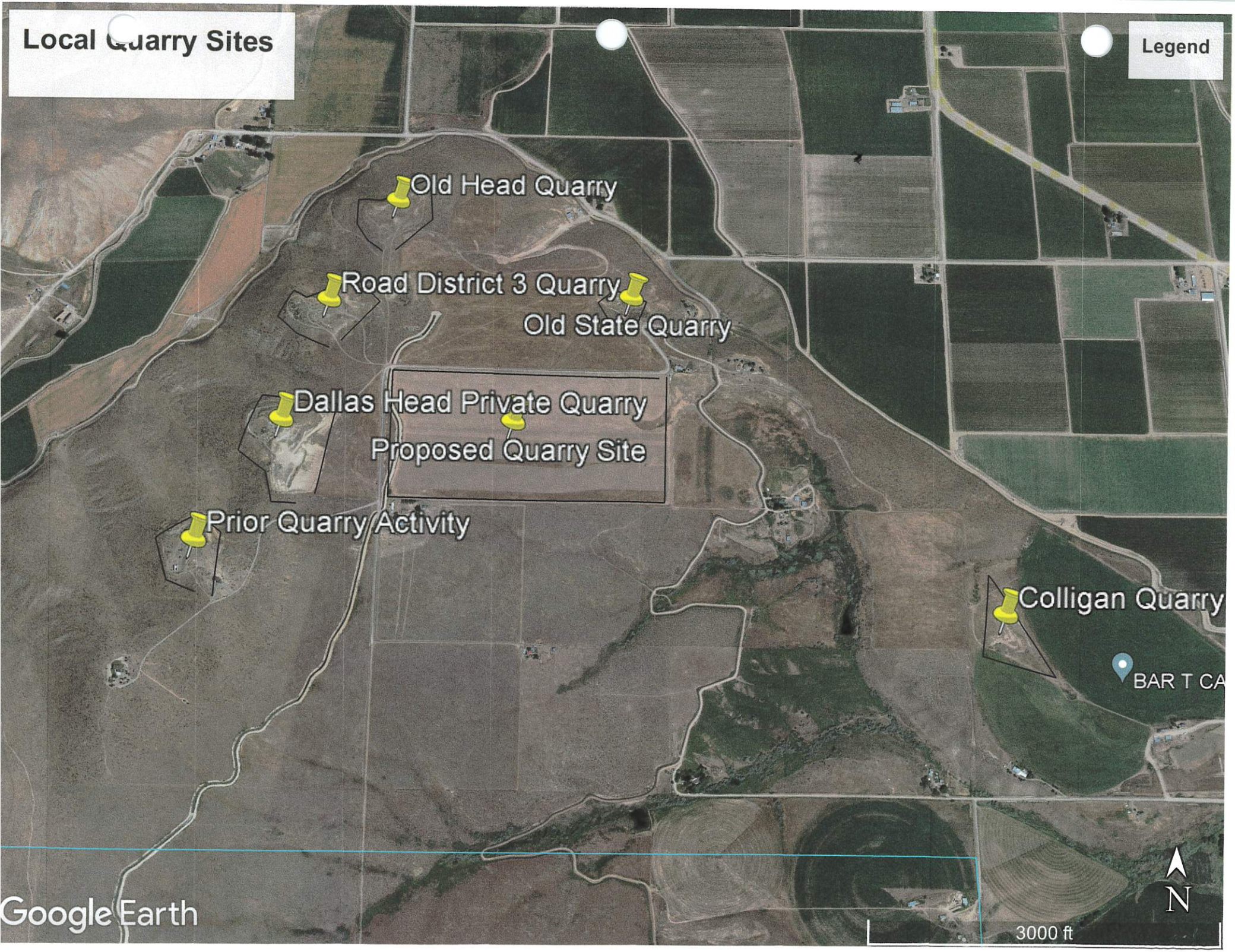
This parcel has been historically utilized as dry land farming as well as gravel mining. Several areas have already been mined and played out adjoining the parcel to be permitted. See map.

Gravel extraction has occurred since before 1930 as noted on the deed giving a right of way and access to a three acre parcel to the State of Oregon.

Road District 3 has two goal 5 inventory sites with the 1500 foot impact area and has been responsible for most of the gravel extraction and crushing activity on the Dallas Head property as well over the last several decades.

This particular property has also provided gravel to the majority of the farms in the area for nearly 90+ years.

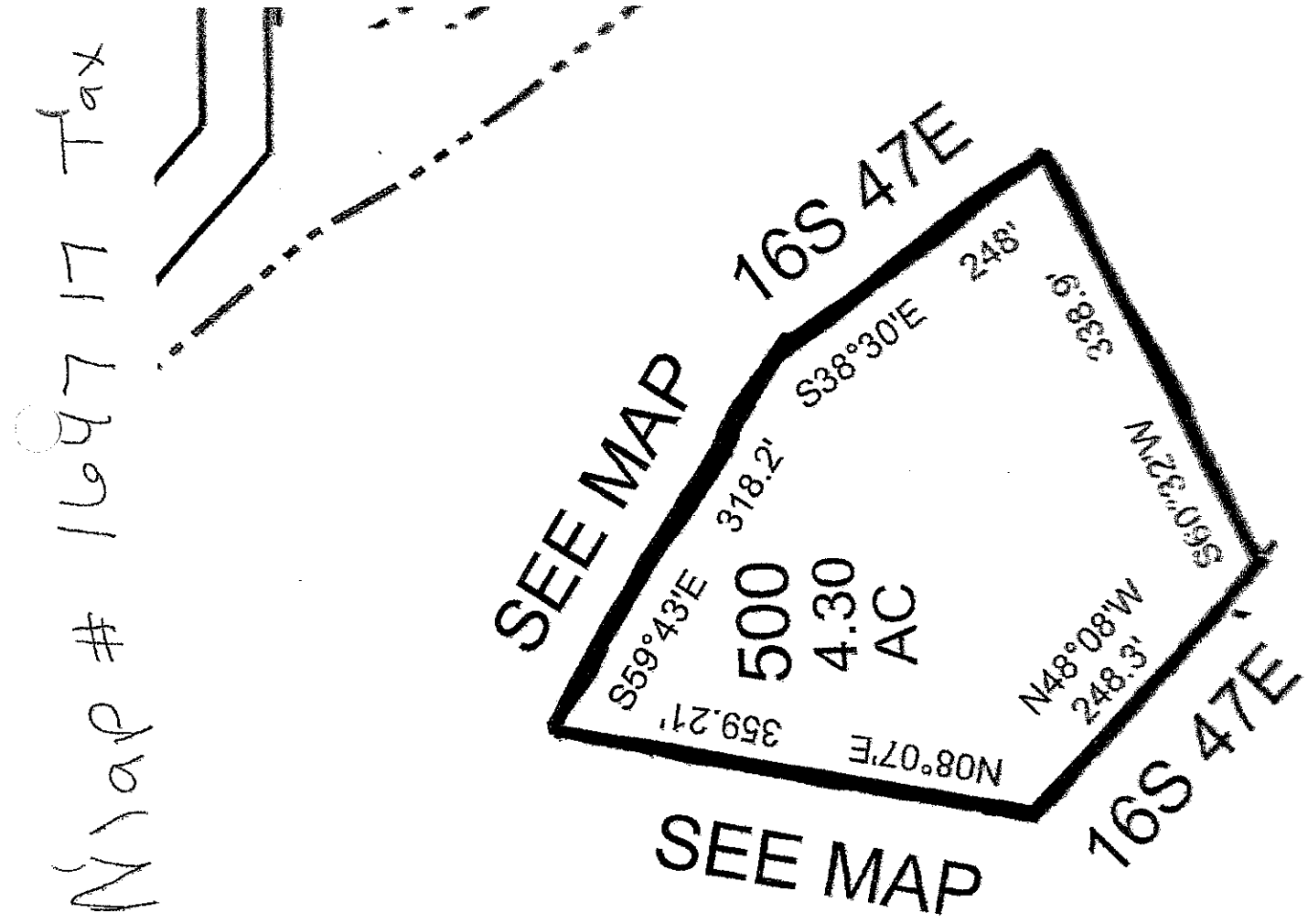
Dallas Head has stated that he has no interest in attempting to dry land farm the parcel anymore as it has been a poor performer. The main reason the parcel is a poor performer is a combination of hard caliche soil as well as exposed gravel encountered at the surface. Removing the gravel and breaking up the caliche will create more favorable conditions in the future to farm the land.


Local Quarry Sites
Legend
Old Head Quarry
Road District 3 Quarry
Old State Quarry
Dallas Head Private Quarry
Proposed Quarry Site
Prior Quarry Activity
Colligan Quarry
BAR T CA
Google Earth
N
3000 ft

PARCEL 2:

Land in Malheur County, Oregon, as follows:

The Southeast Quarter of the Southeast Quarter of Section Seven; The South Half of the Southwest Quarter of Section Eight, and the Northeast Quarter of the Northwest Quarter of Section Seventeen, Township Sixteen, South, Range Forty-seven East, Willamette Meridian, containing 160 acres, more or less, together with quit claim deed and abstract showing merchantable title, together with all ditch and water rights of every kind and nature belonging to said land. It being understood that this land is within the Owyhee Irrigation Project. Also, subject to an easement to Idaho Power Company for transmission line; also, subject to deed to State of Oregon for three acres of land on which there is located a gravel pit; also a right of way from gravel pit to the State Highway; all of which is described in a deed from C.H. Morehouse and wife to State of Oregon dated the 11th day of April 1930, which is duly recorded in the records of Malheur County, Oregon, subject to rights of way, if any, for ditches, lanes, roads, or other purposes now existing along, over or across any part of said lands.



"Conflicts with other Goal 5 resource sites within the impact area that are shown on an acknowledged list of significant resources and for which the requirements of Goal 5 have been completed at the time the PAPA is initiated;"

FINDING: There are two Goal 5 resource sites within the 1500' impact area. They are aggregate sites identified on the County's inventory list as:

	Goal 5 Designation	Section	Township	Range
Rural Road Assessment #3	**1C**	**NW1/4SE1/4 18**	**16S**	**47E**
Rural Road Assessment #3[1]	**1C**	**NE1/4 18**	**16S**	**47E**

These Goal 5 aggregate sites do not have a planning or zoning or DOGAMI permit for mining. There are no conflicts with these sites or other Goal 5 resources. There is wildlife and game as set out by Hastings Exhibit 10 A, however they are not protected as a Goal 5 resource (i.e. big game, sage grouse plans for State of Oregon Fish and Wildlife or Malheur County).

Dallas Head Quarry

Fugitive Dust Mitigation Plan

The purpose of this plan is to establish a fugitive dust plan in conjunction with Land Conservation and Development, DEQ and county dust mitigation requirements. Fugitive Dust from aggregate production can reduce visibility in the quarry as well as adjacent roadways and highways, resulting in accidents. It is also the goal of this plan to be a responsible neighbor and not unreasonably interfere with enjoyment of life and property.

Below are the standard practice and best management practices and methods for dust mitigation involved in the aggregate production process and comply with OAR 660-023-0180.

A) Conflicts due to noise, dust, or other discharges with regard to those existing and approved uses and associated activities (e.g., houses and schools) that are sensitive to such discharges;

1. Exposed quarry floors will be graveled not only for dust mitigation but for maintaining vehicle traction during wet or inclement weather.
2. Haul roads onsite will be graveled and vehicular traffic speeds will not exceed 15 mph.
3. Spray bars on screen plants and elevators will be utilized if dust is produced during processing operations.
4. Water is the primary solution for dust mitigation. A 5000 gallon water truck will be stationed onsite for roadway watering and site maintenance as necessary.
5. Water can be procured 24/7 from the city of Weiser for $6.00 a thousand gallons.
6. Operations will be suspended during high wind periods that would generate excessive dust.
7. The exit apron to Mesquite will be paved to limit dust.
8. Earth berms and stockpiles will limit some wind and air movement.
9. A sign at the entrance to the quarry will have contact info for local residents concerns and complaints in regards to dust or other discharges, eliminating the need to contact authorities.

Dallas Head Quarry

Sound Abatement and Visual Screening

A) Conflicts due to noise, dust, or other discharges with regard to those existing and approved uses and associated activities (e.g., houses and schools) that are sensitive to such discharges;

Sound abatement and visual screening will be accomplished with an earth berm 12 feet in height. See berm construction map and accompanying photo of berm onsite. With the removal of overburden and aggregate averaging 28 feet the quarry floor will be 40 feet from top of berm to quarry floor. Aggregate production typically takes place on the quarry floor. No aggregate production will take place closer than 500 feet from any dwelling and no aggregate removal will take place closer than 100 feet from the property boundary. Both Idaho Materials and Construction and IRVCO in Malheur County have residences within 150 feet of quarry activity and both do not have any berms for abatement.

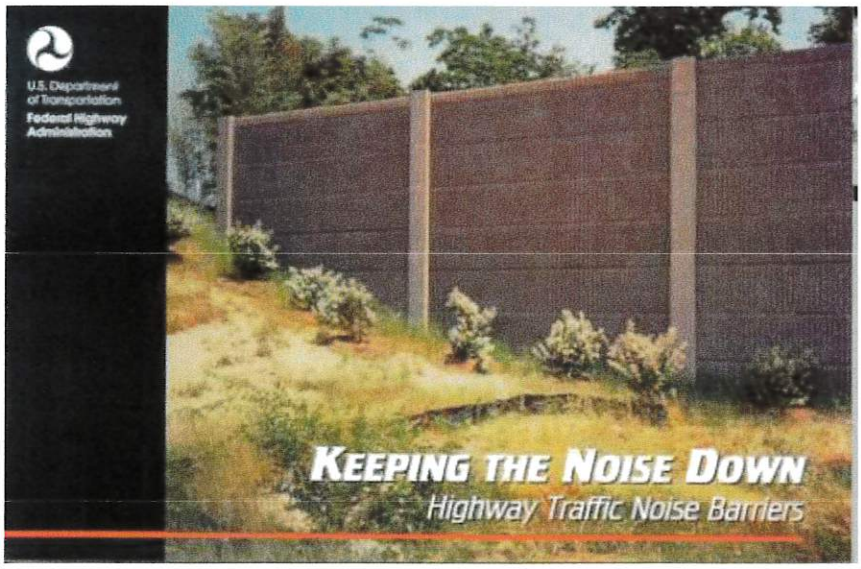
According to several State highway road districts, earth berms provide the most effective sound abatement with over 3db improvement over walls and other methods. See supporting documentation on the effectiveness of earth berms for sound mitigation.

A visual barrier in the form of a berm will also be established along a portion of Jasmine bordering area # 2 designated as a stockpile area and equipment support storage area. The reason for this is the 40 acre parcel that is a county quarry at the intersection of Jasmine and Power road is utilized as a shooting range by many in the community. The berm will also function to protect company equipment from damage.


Berm Map
Dallas Head Quarry
Legend
Jasmine Rd
Jasmine Rd
Power Rd
Google Earth
N
1000 ft


4X4

Highway Traffic Noise Barriers at a Glance



Highway traffic noise barriers:

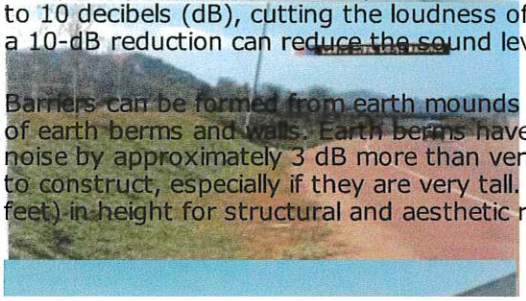
- can reduce the loudness of traffic noise by as much as half;
- do not completely block all traffic noise;
- can be effective, regardless of the material used;
- must be tall and long with no openings;
- are most effective within 61 meters (200 feet) of a highway (usually the first row of homes);
- must be designed to be visually appealing;
- must be designed to preserve aesthetic values and scenic vistas;
- do not increase noise levels perceptibly on the opposite side of a highway; and
- substantially reduce noise levels for people living next to highways.

Keeping the Noise Down

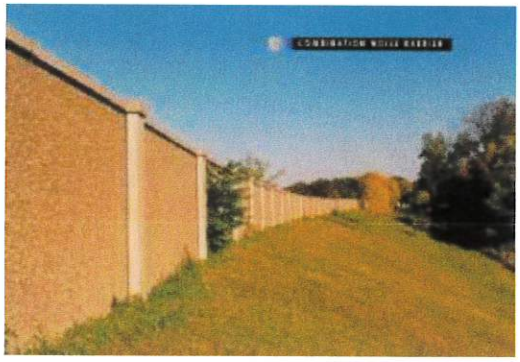
A sound occurs when an ear senses pressure variations or vibrations in the air. Noise is unwanted sound. The brain relates a subjective element to a sound, and an individual reaction is formed. Numerous studies have indicated that the most pervasive sources of noise in our environment today are those associated with transportation. Highway traffic noise tends to be a dominant noise source in our urban, as well as rural, environment.

What are Noise Barriers?

Noise barriers are solid obstructions built between the highway and the homes along a highway. They do not *completely* block all noise they only reduce overall noise levels. Effective noise barriers typically reduce noise levels by 5 to 10 decibels (dB), cutting the loudness of traffic noise by as much as one half. For example, a barrier which achieves a 10-dB reduction can reduce the sound level of a typical tractor trailer pass-by to that of an automobile.



Barriers can be formed from earth mounds or "berms" along the road, from high, vertical walls, or from a combination of earth berms and walls. Earth berms have a very natural appearance and are usually attractive. They also reduce noise by approximately 3 dB more than vertical walls of the same height. However, earth berms can require a lot of land to construct, especially if they are very tall. Walls require less space, but they are usually limited to eight meters (25 feet) in height for structural and aesthetic reasons.



When Are Noise Barriers Required?

Noise barriers are not always required at locations where an absolute threshold is met. There is no "number standard" which requires the construction of a noise barrier. Federal requirements for noise barriers may be found in Title 23 of the U.S. Code of Federal Regulations, Part 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise."

The Federal Highway Administration noise regulations apply only to projects where a State transportation department has requested Federal funding for participation in the improvements. The State transportation department must determine if there will be traffic noise impacts, when a project is proposed for (1) the construction of a highway on new location or (2) the reconstruction of an existing highway to either significantly change the horizontal or vertical alignment or increase the number of through-traffic lanes. If the State transportation department identifies potential impacts, it must implement abatement measures, possibly including the construction of noise barriers, where reasonable and feasible.

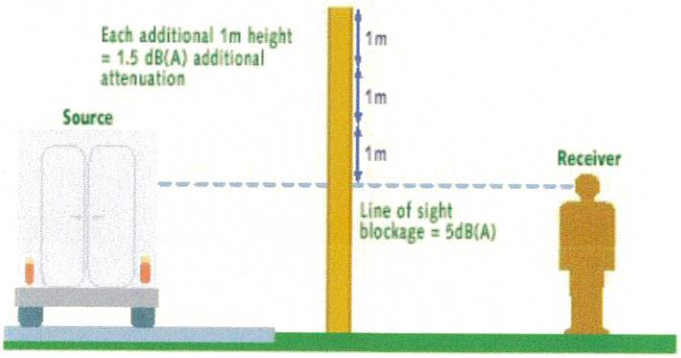
Federal law and Federal Highway Administration regulations do not require State transportation departments to build noise barriers along existing highways where no other highway improvements are planned. They may voluntarily do so, but they are solely responsible for making this decision.

How Is a Noise Barrier Funded?

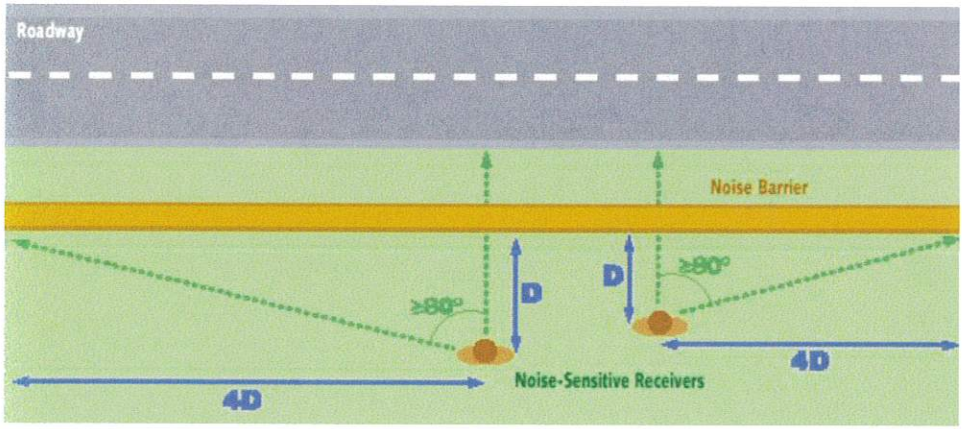
There are no special or separate Federal funds for highway traffic noise abatement. State transportation departments include the costs of noise barriers in their proposed Federal-aid highway projects. The Federal share is the same as that for the highway system on which the project is located. Noise barriers are sometimes constructed without using Federal funds - for example, using only State, local, or private funds. The costs of noise barriers are sometimes shared by governmental agencies and individual homeowners.

How Does a Noise Barrier Work?

Noise barriers reduce the sound which enters a community from a busy highway by either absorbing the sound, transmitting it, reflecting it back across the highway, or forcing it to take a longer path over and around the barrier. A noise barrier must be tall enough and long enough to block the view of a highway from the area that is to be protected, the "receiver." Noise barriers provide very little benefit for homes on a hillside overlooking a highway or for buildings which rise above the barrier. A noise barrier can achieve a 5 dB noise level reduction, when it is tall enough to break the line-of-sight from the highway to the home or receiver. After it breaks the line-of-sight, it can achieve approximately 1.5dB of additional noise level reduction for each meter of barrier height.



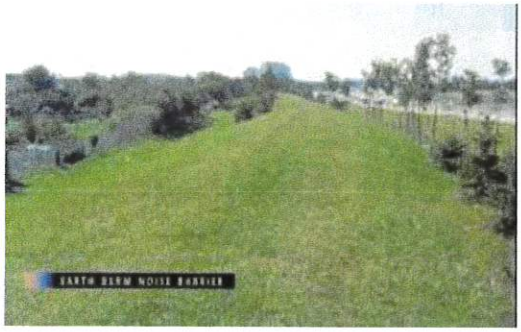
To effectively reduce the noise coming around its ends, a barrier should be at least eight times as long as the distance from the home or receiver to the barrier.

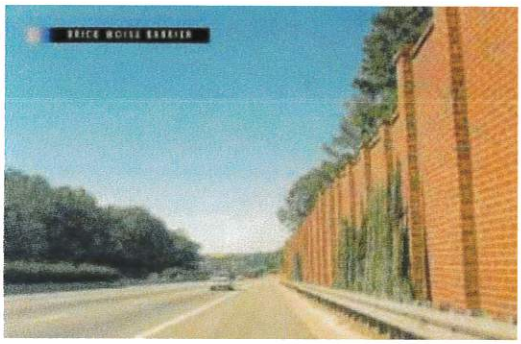


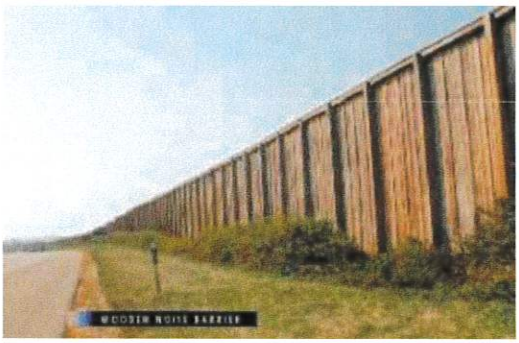
Openings in noise barriers for driveway connections or intersecting streets destroy their effectiveness. In some areas, homes are scattered too far apart to permit noise barriers to be built at a reasonable cost. Noise barriers are normally most effective in reducing noise for areas that are within approximately 61meters (200 feet) of a highway (usually the first row of homes).

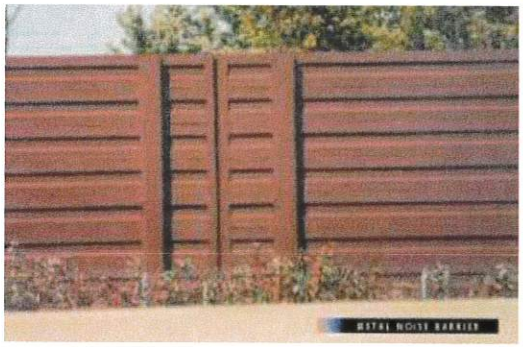
What Type of Material Is Best for a Noise Barrier?

Noise barriers can be constructed from earth, concrete, masonry, wood, metal, and other materials. To effectively reduce sound transmission through the barrier, the material chosen must be rigid and sufficiently dense (at least 20 kilograms/square meter). All noise barrier material types are equally effective, acoustically, if they have this density.









There are no Federal requirements specifying the materials to be used in the construction of highway traffic noise barriers. Individual State departments of transportation select the materials when building these barriers. The selection is normally made based on factors, such as aesthetics, durability, maintenance, cost, and the desires of the public.

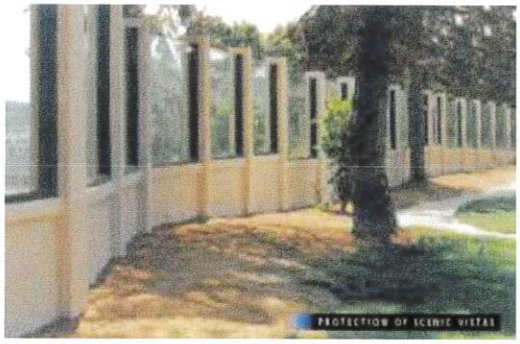
How Do People React to Noise Barriers?

Overall, public reaction to highway noise barriers appears to be positive. However, specific reactions vary widely. Residents adjacent to barriers say that conversations in households are easier, sleeping conditions are better, the environment is more relaxing, windows are opened more often, and yards are used more in the summer. Residents also perceive indirect benefits, such as increased privacy, cleaner air, improved views and a sense of ruralness, and healthier lawns and shrubs.

Negative reactions from residents have included a restriction of view, a feeling of confinement, a loss of air circulation, a loss of sunlight and lighting, and poor maintenance of the barrier. Motorists have sometimes complained of a loss of view or scenic vistas and a feeling of being "walled in" when traveling adjacent to barriers.

Are Residents' Views Considered?

A major consideration in the design of a noise barrier is its visual impact on the surrounding area. A tall barrier near a one-story, single family, detached residential area can have a negative visual effect. One solution to addressing the size relationship in visual quality is to provide staggered horizontal elements to a noise barrier to reduce the visual impact by planting landscaping in the foreground. Native plantings are preferable.

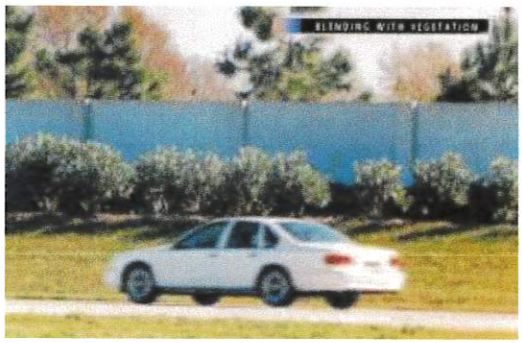


The visual character of noise barriers in relationship to their environmental setting should be carefully considered. In general, it is desirable to locate a noise barrier approximately four times its height from residences and to provide landscaping near the barrier to avoid visual dominance.

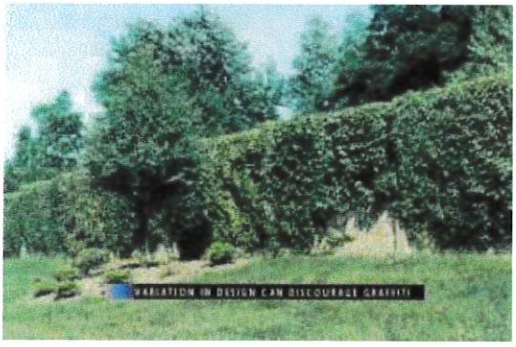
Noise barriers should reflect the character of their surroundings as much as possible. It is always desirable to preserve aesthetic views and scenic vistas, to the extent possible.

Are Motorists' Views Considered?

The psychological effect of noise barriers on the passing motorist should be a part of barrier design and construction. Noise barriers in dense, urban settings should be designed differently than barriers in more open suburban or rural areas, and they should be designed to avoid monotony for the motorist. At normal roadway speeds, motorists tend to notice noise barriers overall form, color, and surface texture. A primary objective of noise barrier design should be to avoid a tunnel effect for the motorist. This can be accomplished by varying the forms, materials, and surface treatments.



Graffiti on noise barriers can be a potential problem. One solution is to use materials that can be readily washed or repainted. Landscaping and plantings near barriers can also be used to discourage graffiti, as well as to add visual quality.



Does Construction of a Noise Barrier Increase Noise Levels on the Opposite Side of the Highway?

Residents adjacent to a highway sometimes feel that their noise levels have increased substantially, because of the construction of a noise barrier on the opposite side of the highway. However, field studies have shown that this is not true. If all the noise striking a noise barrier were reflected back to the other side of a highway, the increase would be theoretically limited to 3 dB. In practice, not all of the acoustical energy is reflected back to the other side. Some of the energy goes over the barrier, some is reflected to points other than the homes on the opposite side, some is scattered by ground coverings (for example, grass and shrubs), and some is blocked by the vehicles on the highway. Additionally, some of the reflected energy is lost due to the longer path that it must travel. Measurements made to quantify this reflective increase have never shown an increase of greater than 1-2 dB an increase that is not perceptible to the average human ear.

Does Construction of Noise Barriers on "Both" Sides of a Highway Increase Noise Levels?

Multiple reflections of noise between two parallel plane surfaces, such as noise barriers or retaining walls on both sides of a highway, can theoretically reduce the effectiveness of individual barriers. However, studies of this issue have found no problems associated with this type of reflective noise. Any measured increases in noise levels have been less than can be perceived by normal human hearing, that is, less than 3 dB. Studies have suggested that to avoid a reduction in the performance of parallel reflective noise barriers, the width-to-height ratio of the roadway section to the barriers should be at least 10:1. The width is the distance between the barriers, and the height is the average height of the barriers above the roadway. This means that two parallel barriers 3 meters (10 feet) tall should be at least 30 meters (100 feet) apart to avoid any reduction in effectiveness. These studies have also shown that any reduction in performance can be eliminated through the use of sound absorptive noise barriers.

Can Trees Be Planted to Act as Noise Barriers?

Vegetation, if it is high enough, wide enough, and dense enough that it cannot be seen over or through, can decrease highway traffic noise. A wide strip of trees with very thick undergrowth can lower noise levels. 30 meters of dense vegetation can reduce noise by five decibels. However, it is not feasible to plant enough trees and other vegetation along a highway to achieve such a reduction. Trees and other vegetation can be planted for psychological relief but not to physically lessen noise levels.

In Summary

Most residents near a barrier seem to feel that highway noise barriers effectively reduce traffic noise and that the benefits of barriers far outweigh the disadvantages of barriers. While noise barriers do not eliminate all highway traffic noise, they do reduce it substantially and improve the quality of life for people who live adjacent to busy highways.

For More Information...

For more information on Keeping the Noise Down: Highway Traffic Noise Barriers, write to us at our e-mail address: environment@fhwa.dot.gov.

Or send your questions to our mailing address:

Federal Highway Administration (HEPN)
400 Seventh St., SW
Washington, DC 20590

(https://www.nationalacademies.org/event/11-13-2023/trbs-transportation-resilience-2023)

NOISE CONTROL EARTH BERMS : GUIDELINES FOR THE USE OF EARTH BERMS TO CONTROL HIGHWAY NOISE

Since 1989, the Ministry of Transportation & Highways of British Columbia (MoTH) has had a noise impact mitigation policy which applies to all new or upgraded freeway and expressway projects. This policy is intended to prevent excessive noise impacts at residences and educational facilities and requires that mitigation measures be considered wherever project-related noise increases are predicted to exceed certain limits. Where such mitigation measures are warranted, cost-effective and widely supported by the directly affected community, they are to be carried out. Mitigation measures generally take the form of noise barriers constructed within MoTH right-of-way. Three basic configurations are employed: walls, earth berms or berm/wall combinations. The MoTH policy limits the height of walls to 3 m, but no such limit exists for earth berms or berm/walls. Given their natural appearance and potentially lower costs, earth berms have often been the preferred form of mitigation where space is available. Since the MoTH noise policy requires that mitigation measures achieve average noise reductions of 5 dBA or more, it is crucial that the relative noise reduction capabilities of the three forms of noise barriers be well understood. While experimental assessments to date have yielded mixed results, some highway noise prediction models assign a noise reduction bonus of 3 dBA to earth berms in recognition of their relatively broad and soft tops. To assess the validity of this "soft top correction" and to explore the effects of adding walls to the tops of earth berms, MoTH has funded research by the U.B.C. Mechanical Engineering Department (through the Professional Partnership Program) and Wakefield Accoustics Ltd. (A)

Availability:
Find a library where document is available. Order URL: http://worldcat.org/isbn/0772629641 (http://worldcat.org/isbn/0772629641)

Corporate Authors:
BRITISH COLUMBIA. MINISTRY OF TRANSPORTATION AND HIGHWAYS. HIGHWAY ENGINEERING BRANCH
940 BLANSHARD STREET
VICTORIA, BRITISH COLUMBIA Canada V8W 3E6
Authors:
WAKEFIELD, C W

Publication Date: 1997

Language

English

Subject/Index Terms

TRT Terms: Noise (/Results?q=&datein=all&index="Noise"); Noise barriers (/Results?q=&datein=all&index="Noise%20barriers"); Specifications (/Results?q=&datein=all&index="Specifications"); Traffic (/Results?q=&datein=all&index="Traffic")
ITRD Terms: *8018*: Canada (/Results?q=&datein=all&index="Canada"); *8525*: Conference (/Results?q=&datein=all&index="Conference"); *9009*: Decrease (/Results?q=&datein=all&index="Decrease"); *2442*: Emission (/Results?q=&datein=all&index="Emission"); *9102*: Method (/Results?q=&datein=all&index="Method"); *2492*: Noise (/Results?q=&datein=all&index="Noise"); *2886*: Noise barrier (/Results?q=&datein=all&index="Noise%20barrier"); *177*: Specifications (/Results?q=&datein=all&index="Specifications"); *755*: Traffic (/Results?q=&datein=all&index="Traffic"); *1155*: Transport (/Results?q=&datein=all&index="Transport"); *313*: Urban area (/Results?q=&datein=all&index="Urban%20area")
Subject Areas: Environment; Highways; Operations and Traffic Management;

Filing Info

Accession Number: 00792916

Landscaping, Earth Berms, and Sound Barrier Walls

Call Today at
866.985.0922

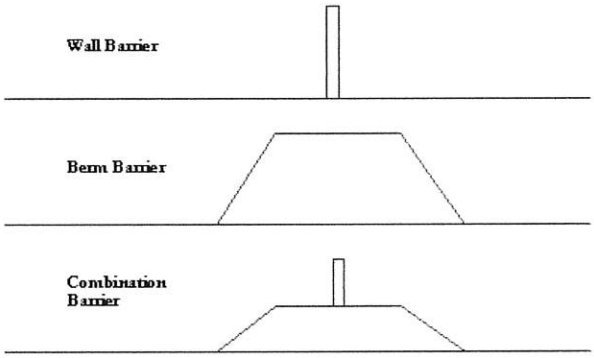
Contact Us

Should I build an earth berm, add landscaping, or erect a sound wall?

If you are experiencing outdoor noise problems, you may be wondering if one of the solutions below is right for you.

- Earth berm
- Landscaping features
- Sound Wall

Below we will answer some common questions on this topic.



Earth berms and sound walls

Does planting trees help with sound control to meet a local sound ordinance or property line noise dispute?

Answer: Planting landscaping, such as trees or shrubs, is typically just aesthetic rather than an effective means to block sound. Some studies should very thick vegetation can reduce noise by up to 5 dB over 200 lineal feet. There have been studies showing a "psychological benefit" to planting landscaping features between the sound sources and neighboring receiver.

What is the best sound wall for outdoor use?

Answer: Most studies show that a sound wall needs to meet some requirements in order to be effective.

- Weighing more than 5.0 lbs/square foot
- Effectively designed to block the line-of-sight
- Being engineered with little or no air gaps (sound leaks)
- Inside surface of the wall should be absorptive

eNoise Control can help you learn more about sound barrier wall effectiveness.

Can I build an earth berm to use as a sound barrier wall?

Answer: Earth berms can be an effective way to help lower sound levels from a neighboring property line. Clients that are not meeting a noise code or regulation have investigated the use of an earth berm. Studies have shown that an earth berm is about 2 dBA less effective at reducing noise than a sound wall erected at the same height. The foot print of the earth berm can become very large in width to support the berm itself. If space is limited and the client wishes to install the sound barrier close to the noisy source, we recommend installing a barrier wall instead of an earth berm.

For further information or discussion about your sound barrier wall application, please call us at 888.417.1903 or email us at info@enoisecontrol.com.

investigation. The selection of instrumentation requirements obviously depends on both the required complexity of the monitoring program and available funding. As part of the research program described in this paper, separate report volumes have been, or will be, prepared concerning procedural guidelines for water-quality impact assessment and detailed monitoring guides for conduct of field programs. These manuals are designed to serve the needs of highway department personnel by providing simple and straightforward procedures in design, planning, conduct, and evaluation of proposed sampling programs and water-quality investigations.

ACKNOWLEDGMENT

The research efforts described in this paper are being, or were, performed under the sponsorship of the Federal Highway Administration, U.S. Department of Transportation.

REFERENCES

1. D.M. Grant. Open Channel Flow Measurement Handbook. Instrument Specialties Co., Lincoln, NE, 1979.
2. Stevens Water Resources Data Book. Leupold and Stevens, Inc., Beaverton, OR, 1975.
3. C.E. Zobell. Apparatus for Collecting Water Samples from Different Depths for Bacteriological Analysis. Journal of Marine Research, Vol. 4, No. 173, 1941.
4. National Handbook of Recommended Methods for Water Data Acquisition: Chapter 3--Sediment. Office of Water Data Acquisition, U.S. Geological Survey, Reston, VA, 1978.
5. C.H. Mortimer. Chemical Exchanges Between Sediments and Water in the Great Lakes: Speculations on Probable Regulatory Mechanisms. Limnology and Oceanography, Vol. 16, No. 387, March 1971.
6. A.M. Lucas and N.A. Thomas. Sediment Oxygen Demand in Lake Erie's Central Basin 1970. Proc., 14th Conference on Great Lakes Research, Univ. of Toronto, Toronto, Ontario, April 1971.
7. M.K. Gupta and others. Sources and Migration of Highway Runoff Pollutants: Monitoring Plan (Phase II Study). FHWA, Revised Plan, Dec. 1978.

Publication of this paper sponsored by Committee on Instrumentation Principles and Applications.

Are Earth Berms Acoustically Better Than Thin-Wall Barriers?

J. J. HAJEK

The two most common highway noise barrier structures are earth berms and thin-walls. Yet the relative acoustical performance of these barriers is not well understood. Previous analytic, scale-model, and full-scale studies, comparing the acoustical effectiveness of thin-walls with that of berms and wedges, are reviewed. Additional data obtained by full-scale measurements, and in particular by a 1:16 scale-model study, are presented. The source-barrier-receiver geometry and model materials used were selected to simulate typical highway situations. Preliminary results indicate that, contrary to a recommendation in the Federal Highway Administration Highway Traffic Noise Prediction Model, thin-wall barriers and earth berms of the same height are about equally effective in reducing noise. In addition, the acoustical effectiveness of combining a wall with an earth berm was found to be quite similar to that of using thin-wall barriers alone. The practice of erecting relatively low walls on top of earth berms was found to be acoustically sound.

Reflective thin-walls, earth berms, and combinations of the two, are the most common highway noise barriers. Their relative nonacoustical aspects, such as cost, maintenance, right-of-way requirements, and aesthetics, are well understood (1), but their relative acoustical performance is not so clear. Whereas some highway noise prediction methods assume that they perform equally (2,3), the widely used Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (4) asserts that earth berms provide 3 dB(A) higher insertion loss than do thin-walls of the same height. This difference in acoustical performance has been attributed to absorption or edge effects.

The higher insertion loss assumed for earth berms could lead to an important consequence: If the shape of the earth berms (presumably the cause of the increase in the insertion loss) is changed by erecting a thin-wall on its top, the 3-dB(A) benefit provided by the berm top may be lost. Figures 1 and 2 show two wall-berm combinations. Such combinations are quite common in many states. Relatively low walls have been added to improve performance in comparison with earth berms alone. But do they?

This concern is illustrated in Figure 3, which is based on our results from scale-model testing. Details of the scale-model testing, such as instrumentation, methodology, and additional results, are discussed later in this paper. For now, Figure 3 is intended only to illustrate the effect of mounting a thin-wall atop a barrier with an absorptive top.

According to Figure 3, mounting a thin-wall atop a highly absorptive barrier can actually reduce insertion loss. Only after the thin-wall is raised to the height of 1.2 m is the reduction in the insertion loss--caused by violating the absorptive cylindrical shape--recovered by the increase in barrier height. The question arises, Can the same phenomenon occur if a thin-wall barrier is erected atop an earth berm?

This question has become acute in Ontario since a proposal was made to build a thin-wall, approximately 2 m in height, atop an existing 3-m-high earth berm. The berm is already providing some insertion loss [about 6 dB(A)], so the rate of increase in the insertion loss with additional barrier height would be about 1.5 dB(A)/m. However, the desired 3-dB(A) increase in the insertion loss expected from adding

Dallas Head Quarry

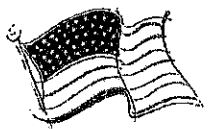
Fugitive Dust Mitigation Plan

The purpose of this plan is to establish a fugitive dust plan in conjunction with Land Conservation and Development, DEQ and county dust mitigation requirements. Fugitive Dust from aggregate production can reduce visibility in the quarry as well as adjacent roadways and highways, resulting in accidents. It is also the goal of this plan to be a responsible neighbor and not unreasonably interfere with enjoyment of life and property.

Below are the standard practice and best management practices and methods for dust mitigation involved in the aggregate production process and comply with OAR 660-023-0180.

A) Conflicts due to noise, dust, or other discharges with regard to those existing and approved uses and associated activities (e.g., houses and schools) that are sensitive to such discharges;

1. Exposed quarry floors will be graveled not only for dust mitigation but for maintaining vehicle traction during wet or inclement weather.
2. Haul roads onsite will be graveled and vehicular traffic speeds will not exceed 15 mph.
3. Spray bars on screen plants and elevators will be utilized if dust is produced during processing operations.
4. Water is the primary solution for dust mitigation. A 5000 gallon water truck will be stationed onsite for roadway watering and site maintenance as necessary.
5. Water can be procured 24/7 from the city of Weiser for $6.00 a thousand gallons.
6. Operations will be suspended during high wind periods that would generate excessive dust.
7. The exit apron to Mesquite will be paved to limit dust.
8. Earth berms and stockpiles will limit some wind and air movement.
9. A sign at the entrance to the quarry will have contact info for local residents concerns and complaints in regards to dust or other discharges, eliminating the need to contact authorities.



PAYETTE RURAL FIRE DEPARTMENT
600 N 16th Street
Payette Id, 83661
208-642-6028
Fire Chief
Steve Castenada

January,27 2023

Re: Darren Lee for gravel pit.

Payette Rural Fire has no objection to a gravel pit on the site proposed by Darren Lee. This will have no impact on firefighting in the area.

Steve Castenada

Payette Rural Fire Chief

INSTRUMENT NO. 2008 -6598
Page 1 of 2 Pages

Inst. No. 2008-6598
I certify that the within Instrument of writing was received for record on the 12 day of Sept., 20 08 at 12:29 O'clock P M. FEE 26.-
STATE OF OREGON, County of Malheur
DEBORAH R. DeLONG
County Clerk
By: Sherri Childs Deputy

1647
3200

164717
500

FML4
1647B
3400
6500

(BARGAIN AND SALE DEED)

DENZIL HEAD, Grantor, grants, bargains, sells, and conveys to DALLAS HEAD, Grantee, all of his right, title, and interest in the following described real property, situated in Malheur County, Oregon, to-wit:

SEE ATTACHED EXHIBIT A

Except easements, reservations, encumbrances, and restrictions of record and any fact which could be ascertained by a physical inspection or correct survey of the above described real property.

The true consideration for this conveyance is a gift.

Until a change is requested, all tax statements shall be sent to and after recording return to:

Denzil Head
5560 Highway 201
Ontario, OR 97914

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, ORS 195.300, 195.301 AND 195.305 to 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007. THIS INSTRUMENT DOES NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY **THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL,** TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007.

DATED: August 6, 2008.

Denzil Head

Denzil Head

OFFICIAL SEAL
MARJORIE G. WALDRUPE
NOTARY PUBLIC – OREGON
COMMISSION NO. 409738
MY COMMISSION EXPIRES OCT. 16, 2010

STATE OF OREGON)
) ss.
County of Malheur)

Personally appeared the above-named Denzil Head and acknowledged the foregoing instrument to be his voluntary act and deed.

Marjorie G. Waldrupe
Notary Public for Oregon
My commission expires: _____

EXHIBIT "A"

INSTRUMENT NO. 2008 -6598
Page 2 of 2 Pages

PARCEL 1:

Land in Malheur County, State of Oregon, as follows:

The W1/2NW1/4 and SE1/4NW1/4 of Section 17, and the SE1/4NE1/4 of Section 18, all in Township 16 South, Range 47 EWM, Malheur County, Oregon.

PARCEL 2:

Land in Malheur County, Oregon, as follows:

The Southeast Quarter of the Southeast Quarter of Section Seven; The South Half of the Southwest Quarter of Section Eight, and the Northeast Quarter of the Northwest Quarter of Section Seventeen, Township Sixteen, South, Range Forty-seven East, Willamette Meridian, containing 160 acres, more or less, together with quit claim deed and abstract showing merchantable title, together with all ditch and water rights of every kind and nature belonging to said land. It being understood that this land is within the Owyhee Irrigation Project. Also, subject to an easement to Idaho Power Company for transmission line; also, subject to deed to State of Oregon for three acres of land on which there is located a gravel pit; also a right of way from gravel pit to the State Highway; all of which is described in a deed from C.H. Morehouse and wife to State of Oregon dated the 11th day of April 1930, which is duly recorded in the records of Malheur County, Oregon, subject to rights of way, if any, for ditches, lanes, roads, or other purposes now existing along, over or across any part of said lands.

PARCEL 3:

Land in Malheur County, State of Oregon, as follows:

A parcel of land lying in the N1/2 of Section 17, Township 16 South, Range 47 East, W.M., Malheur County, Oregon and being that property described in that quitclaim deed to MALHEUR COUNTY, recorded on May 13, 1971 in the Malheur County Record of Deeds as instrument number 120292; the said parcel being described as follows:

Beginning at a point which is 783.9 feet South, and 414.8 feet West of the North Quarter corner of Section 17, Township 16 South, Range 47 East of the Willamette Meridian; thence North 48 degrees 08' West a distance of 248.3 feet; thence North 8 degrees 07' East a distance of 359.2 feet; thence South 59 degrees 43' East a distance of 318.2 feet; thence South 38 degrees 30' East a distance of 248.0 feet; thence South 60 degrees 32' West a distance of 338.9 feet to the point of beginning, containing 3.20 acres, more or less.

ALSO all that portion of the following described strip of land lying and being within the Northeast Quarter of the Northwest Quarter of said Section 17; a strip of land thirty feet in width, being fifteen feet on each side of the following described survey line. Beginning at a point which is 30 feet South and 641.0 feet East of the North Quarter corner of Section 17, Township 16 South, Range 47 East of the Willamette Meridian; thence South 9 degrees 34' West a distance of 479.2 feet; thence South 33 degrees 13' West a distance of 267.2 feet; thence South 61 degrees 00' West a distance of 181.6 feet; thence South 74 degrees 17' West a distance fo 199.7 feet; thence North 78 degrees 15' West a distance of 468.8 feet to a point on the Southeast boundary of the first above described tract, which point is 772.6 feet South and 395.0 feet West of the North Quarter corner of Section 17, Township 16 South, Range 47 East of the Willamette Meridian.

Map No. 1647B Tax Lot No. 6500 Code 11 Computer No. 16385

PARCEL 1:

Land in Malheur County, State of Oregon, as follows:

The W1/2NW1/4 and SE1/4NW1/4 of Section 17, and the SE1/4NE1/4 of Section 18, all in Township 16 South, Range 47 EWM, Malheur County, Oregon.

PARCEL 2:

Land in Malheur County, Oregon, as follows:

The Southeast Quarter of the Southeast Quarter of Section Seven; The South Half of the Southwest Quarter of Section Eight, and the Northeast Quarter of the Northwest Quarter of Section Seventeen, Township Sixteen, South, Range Forty-seven East, Willamette Meridian, containing 160 acres, more or less, together with quit claim deed and abstract showing merchantable title, together with all ditch and water rights of every kind and nature belonging to said land. It being understood that this land is within the Owyhee Irrigation Project. Also, subject to an easement to Idaho Power Company for transmission line; also, subject to deed to State of Oregon for three acres of land on which there is located a gravel pit; also a right of way from gravel pit to the State Highway; all of which is described in a deed from C.H. Morehouse and wife to State of Oregon dated the 11th day of April 1930, which is duly recorded in the records of Malheur County, Oregon, subject to rights of way, if any, for ditches, lanes, roads, or other purposes now existing along, over or across any part of said lands.

PARCEL 3:

Land in Malheur County, State of Oregon, as follows:

A parcel of land lying in the N1/2 of Section 17, Township 16 South, Range 47 East, W.M., Malheur County, Oregon and being that property described in that quitclaim deed to MALHEUR COUNTY, recorded on May 13, 1971 in the Malheur County Record of Deeds as instrument number 120292; the said parcel being described as follows:

Beginning at a point which is 783.9 feet South, and 414.8 feet West of the North Quarter corner of Section 17, Township 16 South, Range 47 East of the Willamette Meridian; thence North 48 degrees 08' West a distance of 248.3 feet; thence North 8 degrees 07' East a distance of 359.2 feet; thence South 59 degrees 43' East a distance of 318.2 feet; thence South 38 degrees 30' East a distance of 248.0 feet; thence South 60 degrees 32' West a distance of 338.9 feet to the point of beginning, containing 3.20 acres, more or less.

ALSO all that portion of the following described strip of land lying and being within the Northeast Quarter of the Northwest Quarter of said Section 17; a strip of land thirty feet in width, being fifteen feet on each side of the following described survey line. Beginning at a point which is 30 feet South and 641.0 feet East of the North Quarter corner of Section 17, Township 16 South, Range 47 East of the Willamette Meridian; thence South 9 degrees 34' West a distance of 479.2 feet; thence South 33 degrees 13' West a distance of 267.2 feet; thence South 61 degrees 00' West a distance of 181.6 feet; thence South 74 degrees 17' West a distance fo 199.7 feet; thence North 78 degrees 15' West a distance of 468.8 feet to a point on the Southeast boundary of the first above described tract, which point is 772.6 feet South and 395.0 feet West of the North Quarter corner of Section 17, Township 16 South, Range 47 East of the Willamette Meridian.

Map No. 1647B Tax Lot No. 6500 Code 11 Computer No. 16385

Notice: The information provided here is for convenience ONLY. The records located at Malheur County Assessor's office are the one and only legal instruments for assessment purposes. Although reasonable attempts are made to maintain this information as accurate as possible, these documents are being provided as an informational convenience ONLY. Malheur County is not, in any way, liable for any inaccuracies, inconsistencies, errors, ommissions, or other deviations in these documents from the original copies maintained and filed at the Malheur County Assessor's Office, Vale, Oregon.

Date Web Site was last updated 6/18/2020

Value and tax information for tax year 2019

Ref#:16385 Type of Property : REAL PROPERTY

MAP#	TAX LOT#	A NUM	CODE	PROPERTY CLASS/DESC	ZONE
16S4717	500	0	11	550 FARM USE/ZONED/VAC	C-A2

OWNER:	HEAD, DALLAS
CONTRACT:	
ETAL(s):	
MAILING ADDRESS:	C/O DENZIL HEAD
	5560 201 HWY
CITY/ST:	ONTARIO, OR ,97914

PROPERTY ADDRESS: 0

NOTES:
***ZONED FARM USE-POTENTIAL ADD TAX**
PHOTO# 378-272L

	REAL MKT VALUE	ASSESSED(TAXABLE) VALUE
LAND	$1,720	
STRUCTURES	$0	
SUBTOT	$1,720	$47
TOTAL	$1,720	$47

PROPERTY TAX INFORMATION
Do not pay this amount! For current balance owing, contact our office.
Contact information may be found at this web page Tax Office

BASE TAX	$0.54
TOTAL BASE TAX & SPECIAL ASSESSMENTS	$0.54

LAND DESCRIPTIONS

LINE #	ACRES	LAND CODE	DESCRIPTION	DIMENSIONS	MARKET VALUE
1	4.30	07A	CLASS 7A	-	$1,720
TOTAL	4.30				

SALES

SEQ #	SALES DATE	SALES AMOUNT	#PARCELS SOLD	DOC TYPE	DOCUMENT NUMBER
1	2/28/2008	$125,000	3	BS	20082871
2	3/16/1999	$0	1		9901893

NEW SEARCH

Notice: The information provided here is for convenience ONLY. The records located at Malheur County Assessor's office are the one and only legal instruments for assessment purposes. Although reasonable attempts are made to maintain this information as accurate as possible, these documents are being provided as an informational convenience ONLY. Malheur County is not, in any way, liable for any inaccuracies, inconsistencies, errors, ommissions, or other deviations in these documents from the original copies maintained and filed at the Malheur County Assessor's Office, Vale, Oregon.

Date Web Site was last updated 6/18/2020

Value and tax information for tax year 2019

Ref#:15139 Type of Property : REAL PROPERTY

MAP#	TAX LOT#	A NUM	CODE	PROPERTY CLASS/DESC	ZONE
16S47	3200	0	52	551 FARM USE/ZONED/IMP	C-A1

OWNER:	HEAD, DALLAS
CONTRACT:	
ETAL(s):	
MAILING ADDRESS:	C/O DENZIL HEAD
	5560 201 HWY
CITY/ST:	ONTARIO, OR ,97914

PROPERTY ADDRESS: 460 MESQUITE RD ONTARIO

NOTES:
*ZONED FARM USE-POTENTIAL ADD TAX

	REAL MKT VALUE	ASSESSED(TAXABLE) VALUE
LAND	$263,400	
STRUCTURES	$81,810	
SUBTOT	$345,210	$114,758
TOTAL	$345,210	$114,758

PROPERTY TAX INFORMATION
Do not pay this amount! For current balance owing, contact our office.
Contact information may be found at this web page Tax Office

BASE TAX	$1,365.46
SPECIAL ASSESSMENTS	
AMBULNCE FEE	$16.00
TOTAL BASE TAX & SPECIAL ASSESSMENTS	$1,381.46

BUILDING DESCRIPTIONS

ROOM COUNT (For Structure #1 below)

NO OF FLOORS	LIV RM	KIT	DIN RM	FAM RM	BED RM	BATH	1/2 BATH	UTIL	OTHER	FP/ WS
1	1	1	1	0	3	2	0	1	0	1

STRUCTURES

#	BLDG CLASS	DESCRIPTION	MAIN SQ FT	UPPR SQ FT	BSMT SQ FT	YEAR BLT	YEAR APPR	MKT VALUE	RE-MDL
1	131	CLASS 3 SINGLE FAMILY DWELLING	1,556	0	0	1973	2018	$66,070	0
2	132	GARAGE ATTACHED	0	0	0	1973	2018	$15,300	0
3	300	DRC BUILDING	0	0	0	0	2018	$440	0

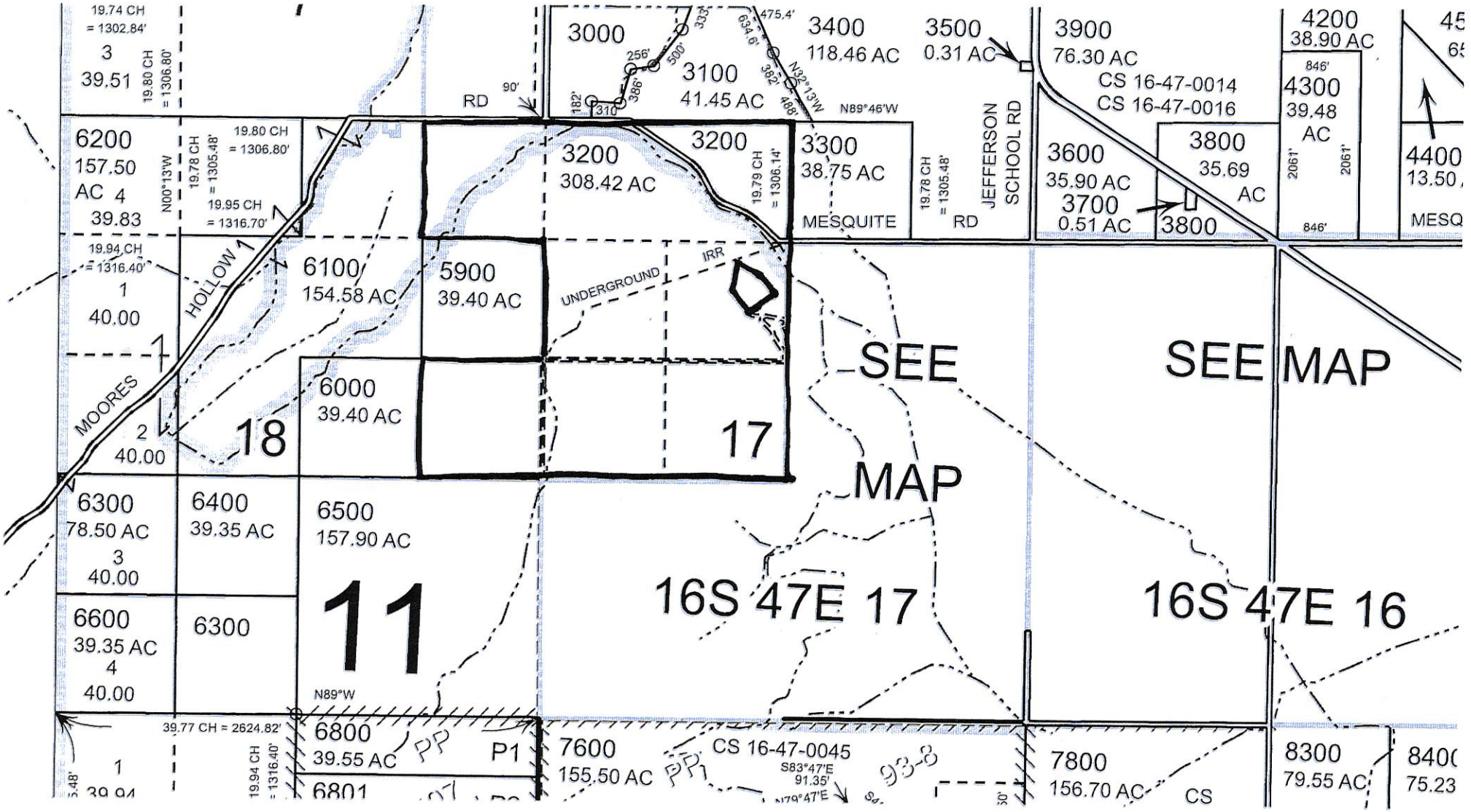
LAND DESCRIPTIONS

LINE #	ACRES	LAND CODE	DESCRIPTION	DIMENSIONS	MARKET VALUE
1	0.00	FSD	FARM SITE DEV	-	$13,500
2	0.50	FHS	FARM HOME SITE	-	$17,200
3	17.80	02	CLASS 2	-	$122,820
4	24.00	04	CLASS 4	-	$108,000
5	4.70	07A	CLASS 7A	-	$1,880
TOTAL	47.00				

SALES

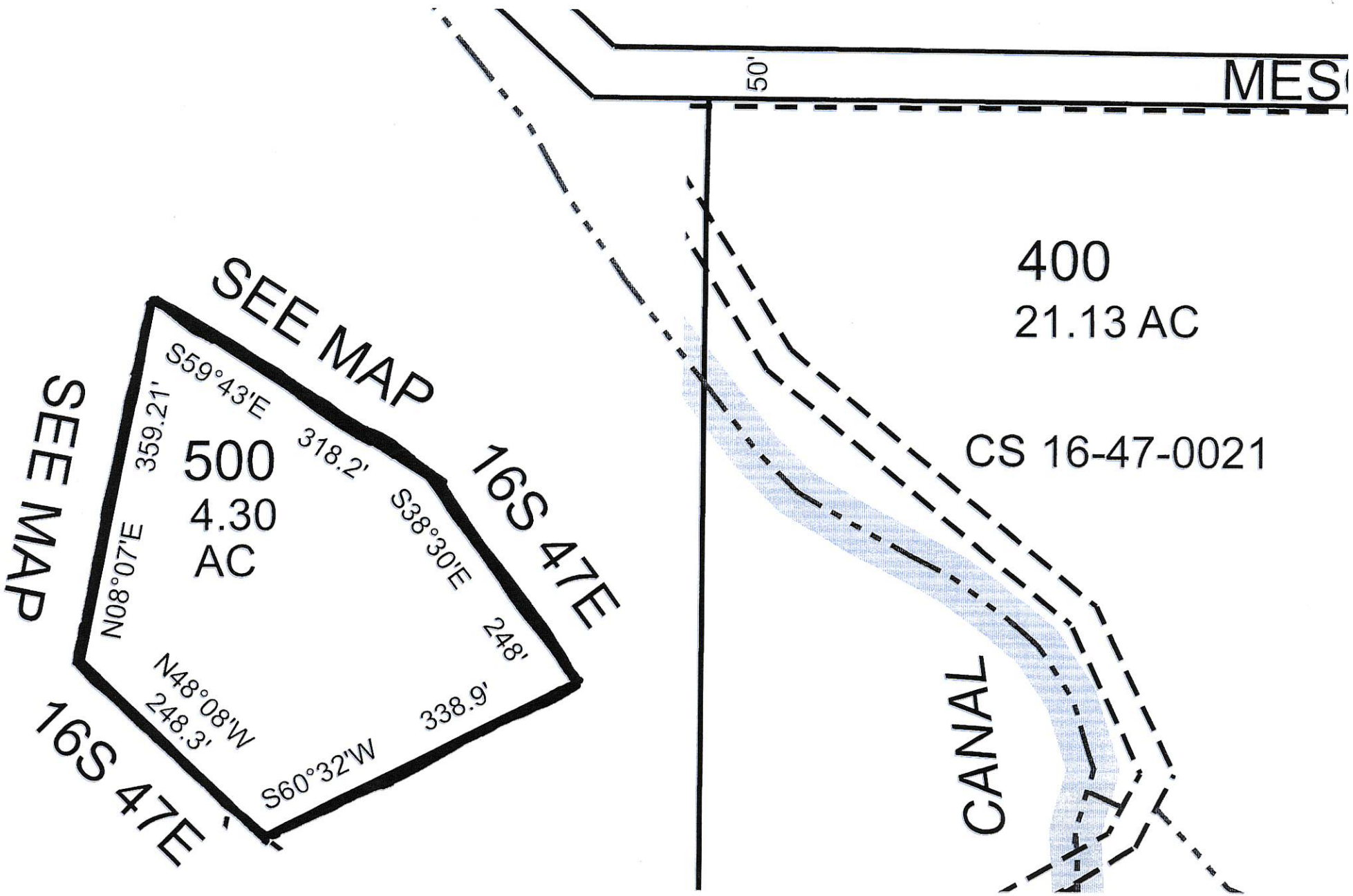
SEQ #	SALES DATE	SALES AMOUNT	#PARCELS SOLD	DOC TYPE	DOCUMENT NUMBER
1	2/28/2008	$125,000	3	BS	20082871

NEW SEARCH



MAP # 1647 Tax Lot 3200

Map # 164717 Tax Lot 500



Land in Malheur County, Oregon, as follows:

In Twp. 16 S., R. 47 E., W.M.:

Sec. 17: S1/2 NW1/4.

Map: 16S47 Tax Lot: Ptn. 3200 (80 Acres out of the 308.42) Tax Code: 52 Tax Account: 15139

GOAL 5 INVENTORY SUPPORTING DOCUMENTATION

1. SUMMARY

2. STRATA GOAL 5 GRAVEL QUALITY ANALYSIS

3. ATLAS GOAL 5 GRAVEL QUALITY ANALYSIS

4. PETRA GOAL 5 GRAVEL QUANTITY ANALYSIS

5. WHITE PROPERTY ROAD DISTRICT 3 GRAVEL QUALITY AND QUANTITY ANALYSIS EXAMPLE

6. LAND CONSERVATION AND DEVELOPMENT CHAPTER 660, PROCEDURES AND REQUIREMENTS FOR COMPLYING WITH GOAL 5

SUMMARY

Attached is a summary and supporting documentation to meet the requirements of Goal 5 OAR 660-023-0180(3) for aggregate.

The White property, Road District 3 quality and quantity analysis example was provided by the Malheur County planning and zoning department as a template for successful approval for goal 5 requirements. The areas for both sites are approximately 77 acres for aggregate removal activity.

1. A quality analysis by Strata was conducted by an engineer taking samples onsite utilizing 5 test holes. The results show that the material passed or exceeded all the criteria requirements for goal 5. The engineer stated that areas that did not pass do not have to do with goal 5 for quality but are specialty criteria for specific applications. These specifications can be remedied through typical processing. As an example the amount of 1 inch rock would exceed the specifications for ODOT road mix and a portion of that rock would have to be screened off to meet these specifications.

2. An additional individual quality test sample was taken by Atlas Engineering and it also passed the quality analysis for goal 5. The results of both Stata and Atlas are comparable in result to the test conducted for the White property example.

3. An onsite quantity analysis was conducted by Petra Drilling and Blasting of 14 test holes. Analysis estimates the total gravel quantity to be approximately 2.75 million tons. The criteria established for a significant source for aggregate for goal 5 is a minimum of 500,000 tons. This exceeds the requirement by at least a factor of 5.

4. The White example provided by planning and zoning was utilized as a template for success. Double the test holes for a total of 6 were utilized for quality testing with two separate engineering firms to establish quality test results. More than double test holes that the White example were excavated to more accurately determine the quantity of aggregate and confirm the presence of aggregate throughout the site. This was achieved with an excavator and was photographed to show the definitive layers of aggregate as well as overburden depths. Photos are available upon request.

5. Chapter 632-033-0025

   The exploration activity described above did not meet the criteria requirements for a DOGAMI exploration permit.
   3). Exploration or drilling an exploration hole greater than 50' is subject to these rules. See test hole log.
   No greater than 1 acre of disturbance allowed for exploration and testing. A total of.80 acres were disturbed and reclaimed during exploration and testing activity.

The Dallas Head property explored and tested is designated C-A2 Zone (Exclusive Range Use or ERU Zone). One of the approved activities for ERU Zone land is the exploration for aggregate resources. This does not require a permit as long as the above criteria on depth and area are not exceeded.

Note: all maps and examples are for general orientation purposes and are not intended reflect actual property lines or locations. Refer to legal property profile maps and geolocations for more accurate locations if necessary.

STRATA

July 19, 2023
File: BO23051A

Mr. Darren Lee
4 Lee's Excavation
515 Noble Rd
Ontario, OR 97914
(208) 741-1104
Clown924@hotmail.com

RE: **Gravel Quality Analysis**
Dallas Head Quarry
Malheur County, Oregon

Dear Mr. Lee:

STRATA is pleased to present the results of our Gravel Quality Analysis for the proposed expansion of the Dallas Head Quarry located near the intersection of Power Road and Jasmine Road in Malheur County, Oregon. This report has been developed in accordance with our proposal dated March 27, 2023. We received authorization to perform our services on June 14, 2023. The purpose of our services was to sample the gravel stockpiles from exploratory test pits that had been completed by others, and to perform laboratory suitability testing in accordance with Sections 8.8.1 and 8.8.2 of the 2023 *Oregon Department of Transportation (ODOT) Geotechnical Design Manual*.

PROJECT UNDERSTANDING

We understand that the owner of the area is seeking to develop Dallas Head Quarry which will include an approximately 80-acre area at the southeast corner of the intersection of Power Road and Jasmin Road in Malheur County, Oregon. The development area is located within the southwest and southeast quarters of the northwest quarter of Section 17, Township 16S, Range 47E of the Willamette Principal Meridian. Our understanding is that nearby areas have historically been used as aggregate sources. Prior to STRATA's involvement in this project, the owner excavated 5 test pits. The gravel from the test pits was stockpiled adjacent to the test pits. STRATA has been retained to sample the gravel stockpiles and perform laboratory testing in accordance with Sections 8.8.1 and 8.8.2 of the 2023 *Oregon Department of Transportation (ODOT) Geotechnical Design Manual*. We understand that the objective is to meet the Oregon Goal 5 standards for the new borrow source for Special Filter Material, Base Aggregate. The approximate location of the development area is shown on the Reference Map, included on the *Exploration Location Plan*, Plate 1.

GEOLOGY

The Geologic Map of the Oregon Part of the Baker 1° by 2° Quadrangle by Brooks, H.C., McIntyre, J.R., and Walker G.W. (1976) identifies rock in the area being comprised of ash-flow tuffs and tuffaceous sedimentary rocks. However, the soil observed in the on-site stockpiles and in the sidewalls of the previously excavated test pits appeared to contained alluvial gravel with silt, sand, and cobbles.

FIELD EXPLORATION

On June 21, 2023, we visited the project site and sampled from existing gravel stockpiles adjacent to the previously excavated 5 test pits throughout the project site. The test pit and sample locations are shown on the attached *Exploration Location Plan*, Plate 1. The stockpile material classified as gravel with silt, sand, and cobbles.

LABORATORY TESTING

Bulk samples for testing were gathered from each gravel stockpile adjacent to the test pit location. The bulk samples obtained from the site were combined into one composite sample, and all laboratory testing was performed on the combined sample.

STRATA performed laboratory testing on a composite sample to evaluate their engineering properties in accordance with *ODOT Geotechnical Design Manual* specifications. The laboratory testing included:

- Specific Gravity of Coarse Aggregate (AASHTO T-85)
- Specific Gravity of Fine Aggregate (AASHTO T-84)
- Sodium Sulfate Soundness (AASHTO T-104)
- Los Angeles Abrasion (AASHTO T-96)
- Oregon Air Degradation (ODOT TM 208)
- Sieve Analysis (AASHTO T-27)
- Sand Equivalent (AASHTO T-176)
- Lightweight Particles (AASHTO T-113)

The laboratory test results are included in Appendix A

EVALUATION

The results of the laboratory tests are provided in Appendix A. The alluvial gravel with silt, sand, and cobbles met the requirements for Sodium Sulfate Soundness, Los Angeles Abrasion, Oregon Air Degradation, Sand Equivalent (for Special Filter, Base Aggregate and Shoulder Aggregate) and Lightweight Particles. The gravel failed to meet the gradation criteria for Special Filter Material (02610), Base Aggregate (02630), Shoulder Aggregates (02640), and PCC Aggregates (02690), and also failed to meet the sand equivalent specification for PCC Aggregates.

It is our opinion that the specifications for gradation may be satisfied with normal processing through a typical crushing and/or screening operation. Also, when the specific crushing procedure is determined, a sample of crushed material should be obtained and tested for the sand equivalent compliance for PCC aggregates. Should changes in the suitability of the aggregates from this source be observed or suspected, additional testing should be performed to confirm compliance with ODOT specifications.

CLOSING

This Gravel Quality Assessment was prepared for 4 Lee's Excavation for the Dallas Head Quarry in Malheur County, Oregon. Our services consist of professional opinions based on generally accepted geotechnical engineering sampling and laboratory testing practices. This acknowledgement is in lieu of all express or implied warranties. Our scope of services was limited to sampling of stockpiles and aggregate testing and did not include subsurface exploration or aggregate volume calculations. As such, conditions can change between exploration locations which may impact the viability of this site as a potential borrow source. If this potential for variability is unacceptable to you, please contact us to discuss the scope and associated fee for additional exploration and testing.

 © 2023 by STRATA. All rights reserved.

We appreciate the opportunity to assist you in evaluating your potential borrow source. If you have any questions or additional requirements, please contact our office.

Sincerely,
STRATA, Inc.

Jacob A. Helms, E.I.
Staff Engineer

Barry Miller, P.E., P.G. (ID)
Project Engineer / Geologist

Daniel P. Gado, P.E.
Senior Engineer

JAH/BCM/DPG/

The following plate and appendix accompany this report:

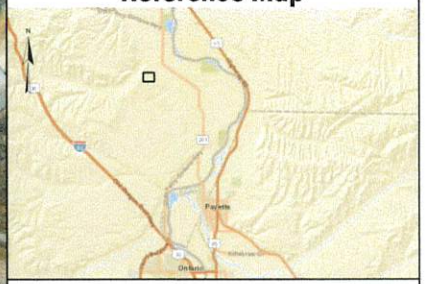
Plate 1:	Exploration Location Plan
Appendix A:	Laboratory Test Results

 © 2023 by STRATA. All rights reserved.

Maxar, Microsoft, Bureau of Land Management, State of Oregon GEO, State of Oregon, Esri, HERE, Garmin, NGA, USGS, NPS, U.S. Forest Service

Path: F:\Boise\Main\CLIENTS\00 Numerical\4\4 Lee's Excavation\BO23051A - Oregon Gravel Quality Analysis\CAD & GIS\BO23051A - ELP\BO23051A - ELP.aprx

Reference Map



Legend

23-STR-TP1 — Approximate location of aggregate sample obtained by STRATA on June 21, 2023

Approximate area of proposed development

0 125 250 500 Feet

Scale: 1" = 250'

STRATA

EXPLORATION LOCATION PLAN

Dallas Head Quarry
Malheur County, Idaho

Client: 4 Lee's Excavation	
Client File No.: N/A	File No.: BO23051A
Drawn By: G. Morlan	Checked By: B. Miller
Date: 6/26/2023	Plate 1

Appendix A
Laboratory Test Results

Project:	Gravel Quality Analysis	Report Date:	7/14/2023
Report To:	Jacob Helms, E.I.	Lab Number:	45625
Project No:	BO23051A	Tested By:	JB, VB, KW

Material Source:	Test Pit Composite
Date Sampled:	6/21/2023
Sampled By:	J. Helms
Date Received:	6/22/2023
Classification:	Poorly Graded Gravel with Sand and Cobbles (GP)
Sample Condition:	Good

		ODOT Spec Limits Section 02610 Special Filter Material	ODOT Spec Limits Section 02630 Base Aggregate	ODOT Spec Limits Section 02640 Shoulder Aggregates	ODOT Spec Limits Section 02690 PCC Aggregates
Coarse Specific Gravity: *Standards: AASHTO T-85*					
Bulk Dry=	2.521				
Bulk SSD=	2.579				
Apparent=	2.677				
Absorption=	2.3				
Fine Specific Gravity: *Standards: AASHTO T-84*					
Bulk Dry=	2.432				
Bulk SSD=	2.515				
Apparent=	2.652				
Absorption=	3.4				
Sodium Sulfate Soundness *Standards: AASHTO T-104*					
Coarse Agg, Loss, % =	1.9				**12 % Max**
Fine Agg, Loss, % =	5.7				**10 % Max**
Total Sample, Loss, % =	7.6				
Los Angeles Abrasion *Standards: AASHTO T-96 Grade B*					
Loss, % =	20.5		**35.0 % Max**	**35.0 % Max**	**30.0 % Max**
Oregon Air Degradation *Standards: ODOT TM 208*					
Passing #20 Sieve, % =	2.4		**30.0 % Max**	**30.0 % Max**	
Sediment Height, Inches =	0.2		**3.0 Max**	**3.0 Max**	

As mutual protection to our clients and STRATA, all reports are submitted as the confidential property of our clients and authorization for publication of statements, conclusions or extracts from or regarding our reports are reserved pending our written approval. This report shall not be reproduced, except in full without the prior written approval of STRATA. These results relate to only items STRATA has inspected or tested. Samples will be disposed of after testing is completed unless prior arrangements are agreed to in writing.

8653 West Hackamore Drive, Boise, Idaho 83709 Phone 208.376.8200 Fax 208.376.8201
www.stratageotech.com

Project:	Gravel Quality Analysis	Report Date:	7/14/2023
Report To:	Jacob Helms, E.I.	Lab Number:	45625
Project No:	BO23051A	Tested By:	JB, VB, KW

Material Source:	Test Pit Composite
Date Sampled:	6/21/2023
Sampled By:	J. Helms
Date Received:	6/22/2023
Classification:	Poorly Graded Gravel with Sand and Cobbles (GP)
Sample Condition:	Good

Sieve Analysis:
Standards: AASHTO T-27

Sieve Size		Percent Passing	ODOT Spec Limits Section 02610 Special Filter Material	ODOT Spec Limits Section 02630 Base Aggregate	ODOT Spec Limits Section 02640 Shoulder Aggregates	ODOT Spec Limits Section 02690 PCC Aggregates
4"	100 mm	100				
3"	75 mm	97				
2 1/2"	64 mm	95				
2"	53 mm	87				
1 1/2"	37.5 mm	80				
1"	25 mm	68	Specification varies	Specification varies	Specification varies	Specification varies
3/4"	19 mm	60				
1/2"	12.5 mm	51				
3/8"	9.5 mm	46				
1/4"	6.35 mm	40				
No. 4	4.75 mm	35				
No. 8	2.36 mm	29				
No. 10	2 mm	28				
No. 40	0.425 mm	12				
No. 50	0.3 mm	7				
No. 100	0.15 mm	3				
No. 200	0.075 mm	1.3				

Sand Equivalent Test:
Standards: AASHTO T-176

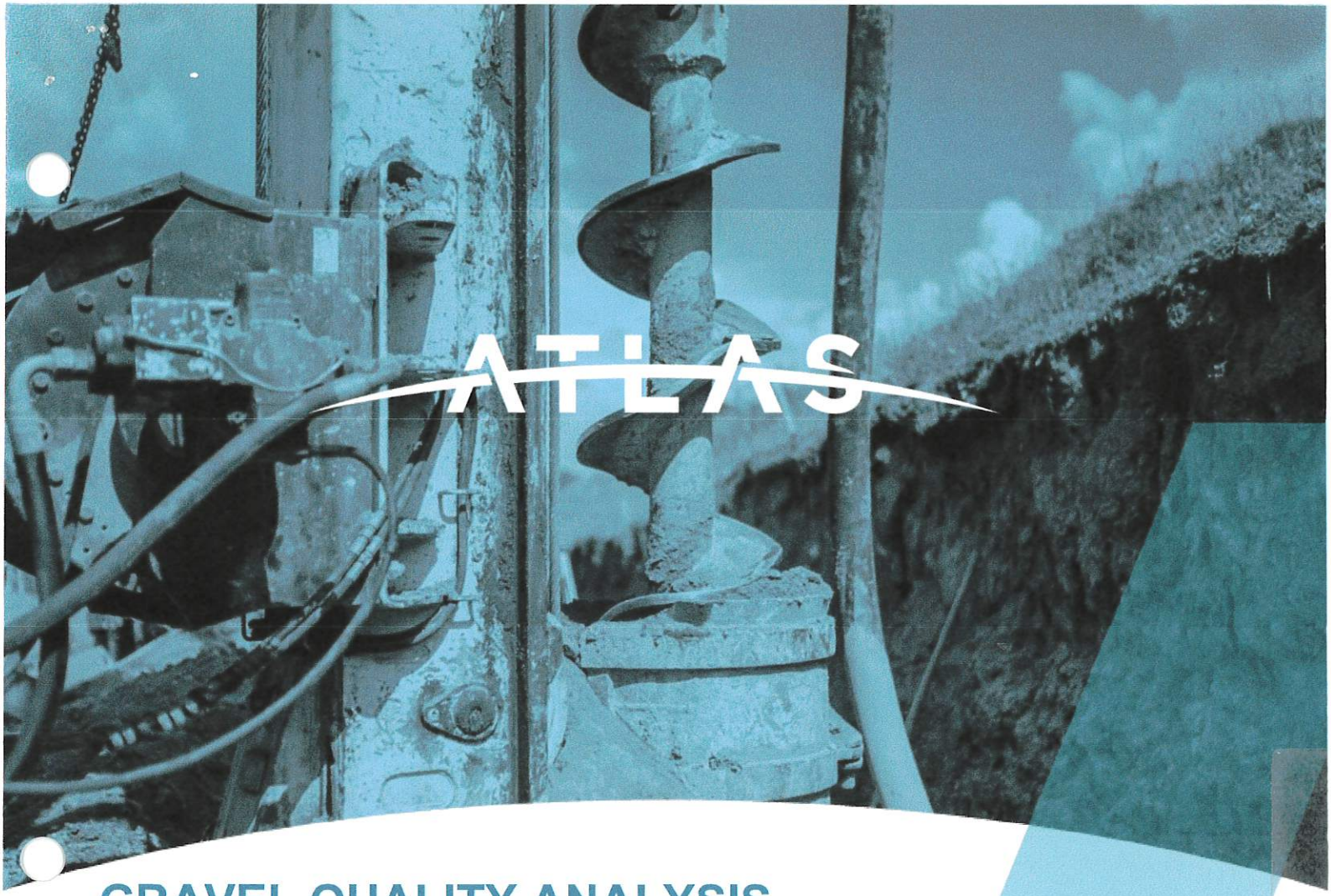
SE=	35	25 Min.	30 Min.	25 Min.	75 Min.

Lightweight Particles
Standards: AASHTO T-113

Coarse, % =	0.2	1.0 Max
Fine, % =	1.5	2.0 Max

Reviewed By: Jacob A. Helms
Jacob Helms - Staff Engineer, E.I.

As mutual protection to our clients and STRATA, all reports are submitted as the confidential property of our clients and authorization for publication of statements, conclusions or extracts from or regarding our reports are reserved pending our written approval. This report shall not be reproduced, except in full without the prior written approval of STRATA. These results relate to only items STRATA has inspected or tested. Samples will be disposed of after testing is completed unless prior arrangements are agreed to in writing.



GRAVEL QUALITY ANALYSIS

PROPOSED GRAVEL PIT

Power Road

Ontario, OR

PREPARED FOR:

Mr. Darren Lee
4 Lee's Excavation
515 Noble Road
Ontario, OR 97914

PREPARED BY:

Atlas Technical Consultants, LLC
2791 South Victory View Way
Boise, ID 83709

February 16, 2023
B201982g

February 16, 2023

Atlas No. B201982g

Mr. Darren Lee
4 Lee's Excavation
515 Noble Road
Ontario, OR 97914

Subject: Gravel Quality Analysis - Revised
Proposed Gravel Pit
Power Road
Ontario, OR

Dear Mr. Lee:

In compliance with your instructions, Atlas has conducted a gravel quality analysis for the above referenced development. Mr. Darren Lee with 4 Lee's Excavation requested rock quality testing to achieve Goal 5 Inventory per the Oregon Department of Land Conservation and Development. To achieve this, it was requested that three tests be conducted. The tests conducted include Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine – AASHTO T 96, Soundness of Aggregate by Use of Sodium Sulfate – AASHTO T 104, and Oregon Air Aggregate Degradation – ODOT TM 208. The results of these tests are presented in the **Appendix**. Atlas met Mr. Darren Lee onsite on December 3, 2020 to collect the samples from the requested area. This report does not include gravel quantity calculations.

If you have any questions, please call us at (208) 376-4748.

Respectfully submitted,

Jacob Schlador, PE (ID)
Geotechnical Engineer

Elizabeth Brown, PE (ID)
Geotechnical Services Manager

Appendix I WARRANTY AND LIMITING CONDITIONS

Exclusive Use

This report was prepared for exclusive use of the property owner(s), at the time of the report, and their retained design consultants ("Client"). Results presented in this report are based on the agreed-upon scope of work outlined in this report together with the Contract for Professional Services between the Client and Materials Testing and Inspection ("Consultant"). Use or misuse of this report, or reliance upon findings hereof, by parties other than the Client is at their own risk. Neither Client nor Consultant make representation of warranty to such other parties as to accuracy or completeness of this report or suitability of its use by such other parties for purposes whatsoever, known or unknown, to Client or Consultant. Neither Client nor Consultant shall have liability to indemnify or hold harmless third parties for losses incurred by actual or purported use or misuse of this report. No other warranties are implied or expressed.

This report is also limited to information available at the time it was prepared. In the event additional information is provided to Atlas following publication of our report, it will be forwarded to the client for evaluation in the form received.

Appendix II LA ABRASION TEST RESULTS – AASHTO T96

Source:	Power Road, Ontario, 3-inch-minus Poorly Graded Gravel with Sand							
Date Obtained:	December 3, 2020							
Sample ID:	20-5245							
Sampling and Preparation:	ASTM D75:		AASHTO T2:	X	ASTM D421:		AASHTO T87:	X
Test Standard:	ASTM C131:		AASHTO T96:	X				

Nominal Maximum Size of Aggregate	3"
Grading Designation	A
Loss by Abrasion (%)	20

Specification: 35% Maximum

Appendix IV OREGON AIR AGGREGATE DEGRADATION – ODOT TM 208

Source:	Power Road, Ontario, 3-inch-minus Poorly Graded Gravel with Sand							
Date Obtained:	December 3, 2020							
Sample ID:	20-5245							
Sampling and Preparation:	ASTM D75:		AASHTO T2:	X	ASTM D421:		AASHTO T87:	X
Test Standard:	ASTM C131:		ODOT TM208:	X				

No. 20 Sieve	Percent Passing	2.6
Sand Equivalent	Sediment Height	0.1"

Specification: 30% maximum passing, and 3" maximum

Petra
Drilling & Blasting

P.O. Box 2655 I Camarillo, CA 93011 I FAX 805-388-2844 I Estimating 805-890-0276 I Dispatch 805-390-9505

To whom it may concern:

The proposed borrow site near GPS Coords: 44°10'40.97"N, 116°59'47.60"W exists currently as a gently to steeply sloping across the majority of the property. Prior to this field investigation, the eastern hillside portion of the property had been stripped of organics and topsoil. Several test pits and trenches have been excavated to expose underlying materials. This quantity estimate is based on the excavations and depth to aggregate data gathered.

The borrow pit as depicted in appendix A, extends 1,200 ft East to West and 2,500 ft North to South, the test pits revealed 18 feet average depth of overburden on the top of the aggregate as depicted in exhibit B, with an average depth of 10 feet from top of aggregate to bottom of aggregate as depicted in exhibit C, with a total depth from original ground to bottom of borrow of 28 feet as depicted in exhibit D.

The net borrow equating to 2.75 million tons using a conversion of 160 lbs./ft^3.

Through the borrow process it can be expected for a variance of ~25% of the actual quantity.

Signed,

Nicholas Cunningham

Petra Drilling and Blasting

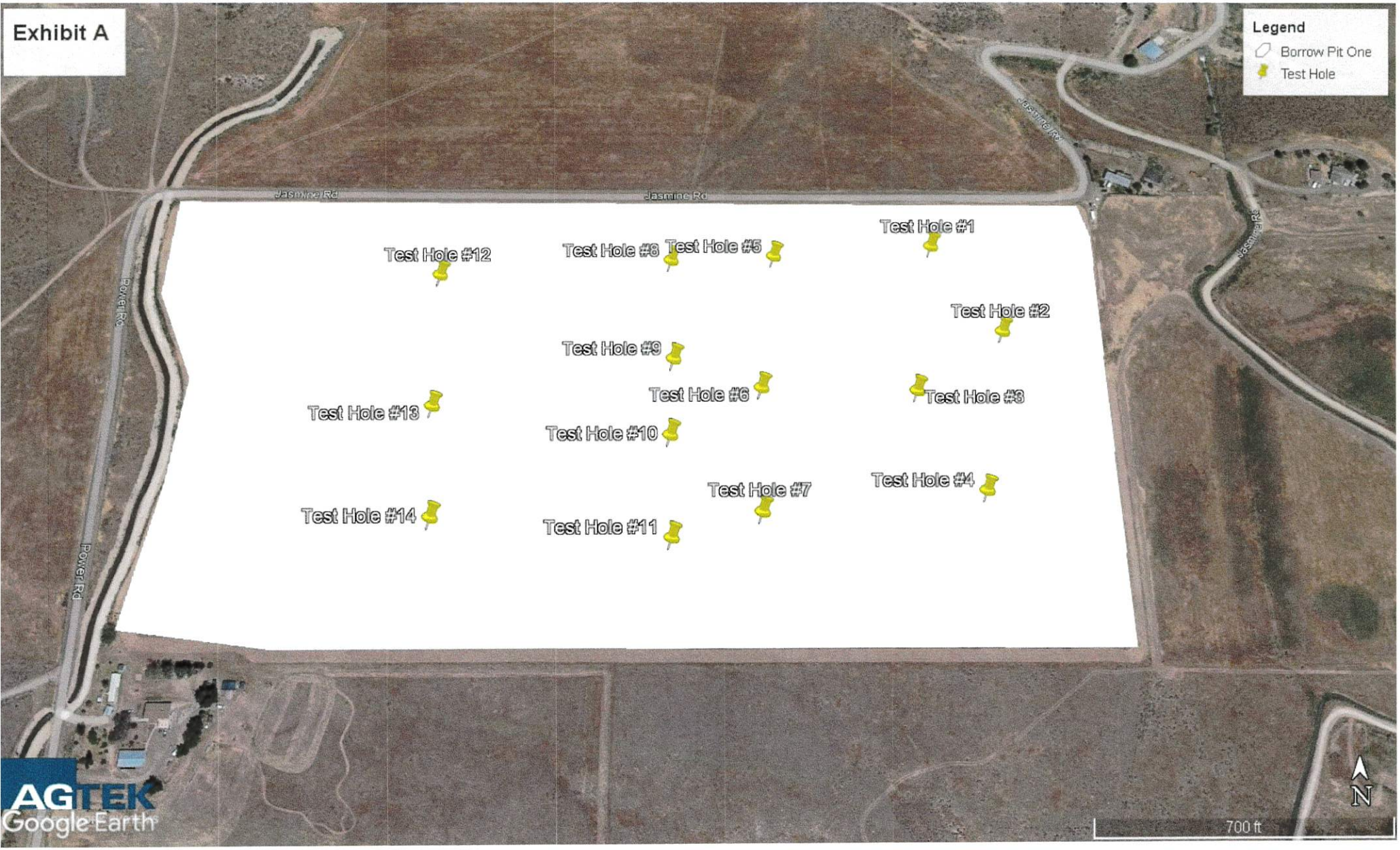
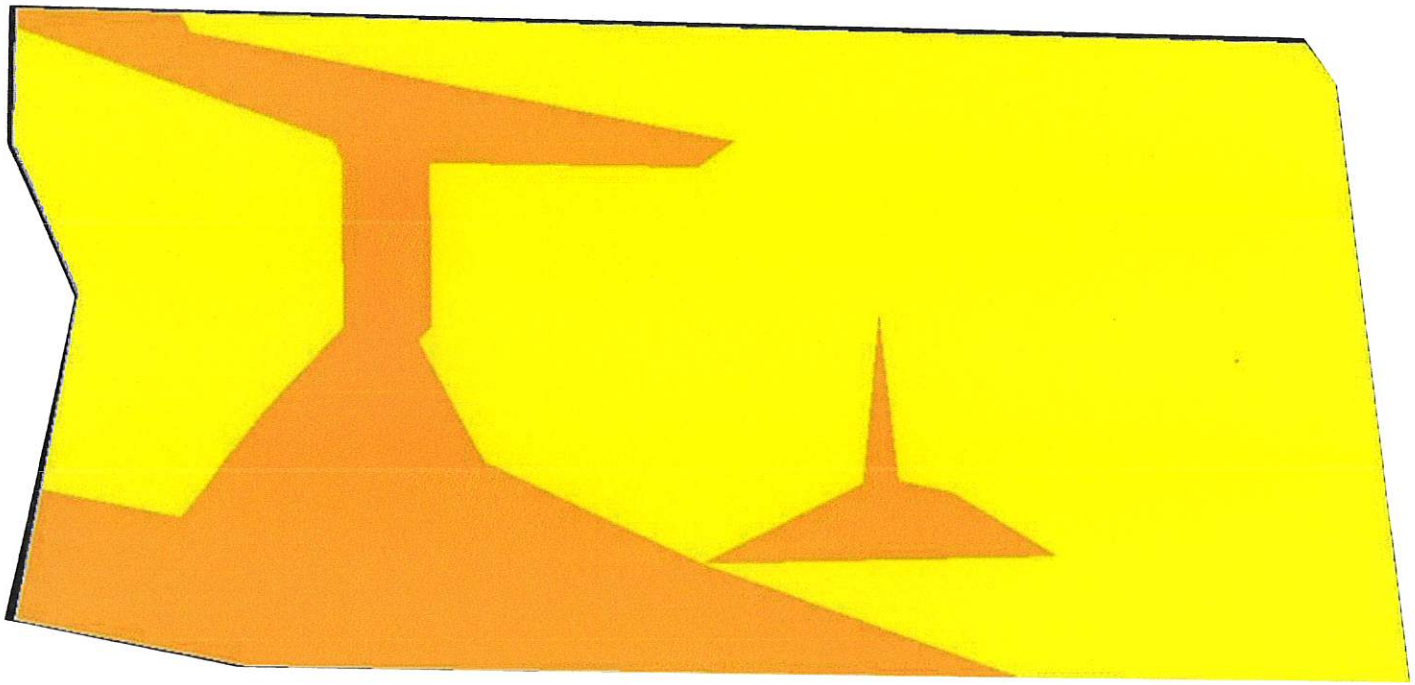


Exhibit A
Legend
Borrow Pit One
Test Hole
Jasmine Rd
Jasmine Rd
Jasmine Rd
Power Rd
Power Rd
Test Hole #1
Test Hole #2
Test Hole #3
Test Hole #4
Test Hole #5
Test Hole #6
Test Hole #7
Test Hole #8
Test Hole #9
Test Hole #10
Test Hole #11
Test Hole #12
Test Hole #13
Test Hole #14
AGTEK
Google Earth
700 ft
N

Total balanced volume : 2255793.707yd³ (Cut)
Total cut volume : 2255793.707yd³
Total fill volume : 0.000yd³
Total area : 3386348.187ft²
Cut/fill min/max : 8.000' (Cut) - 24.000' (Cut)
Effective cut-fill ratio : 0.00

Exhibit B
Original Ground to Top of Aggregate
AKA Overburden

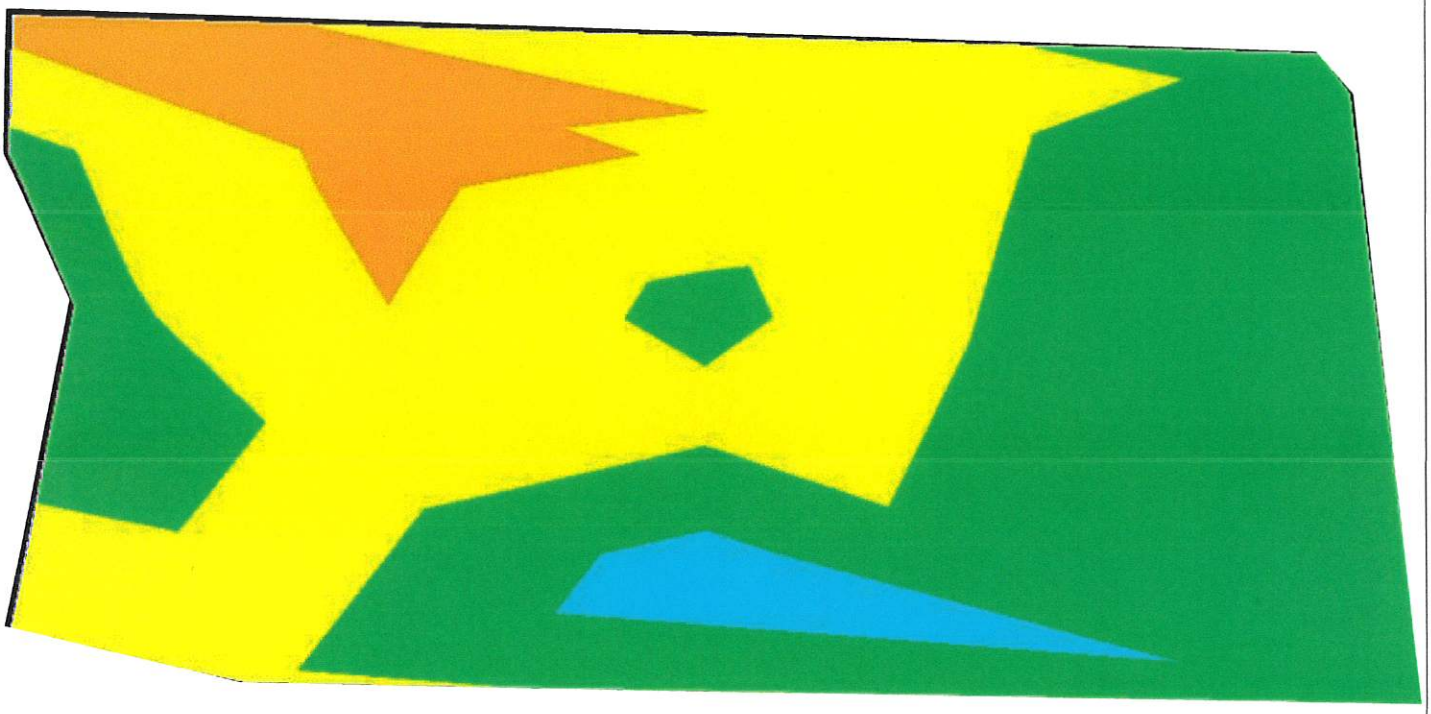


Comment :

08/27/2023

Total balanced volume : 1271077.609yd³ (Cut)
Total cut volume : 1280219.051yd³
Total fill volume : 9141.442yd³
Total area : 3386348.187ft²
Cut/fill min/max : 6.000' (Fill) - 24.000' (Cut)
Effective cut-fill ratio : 140.05

Exhibit C
Aggregate for borrow



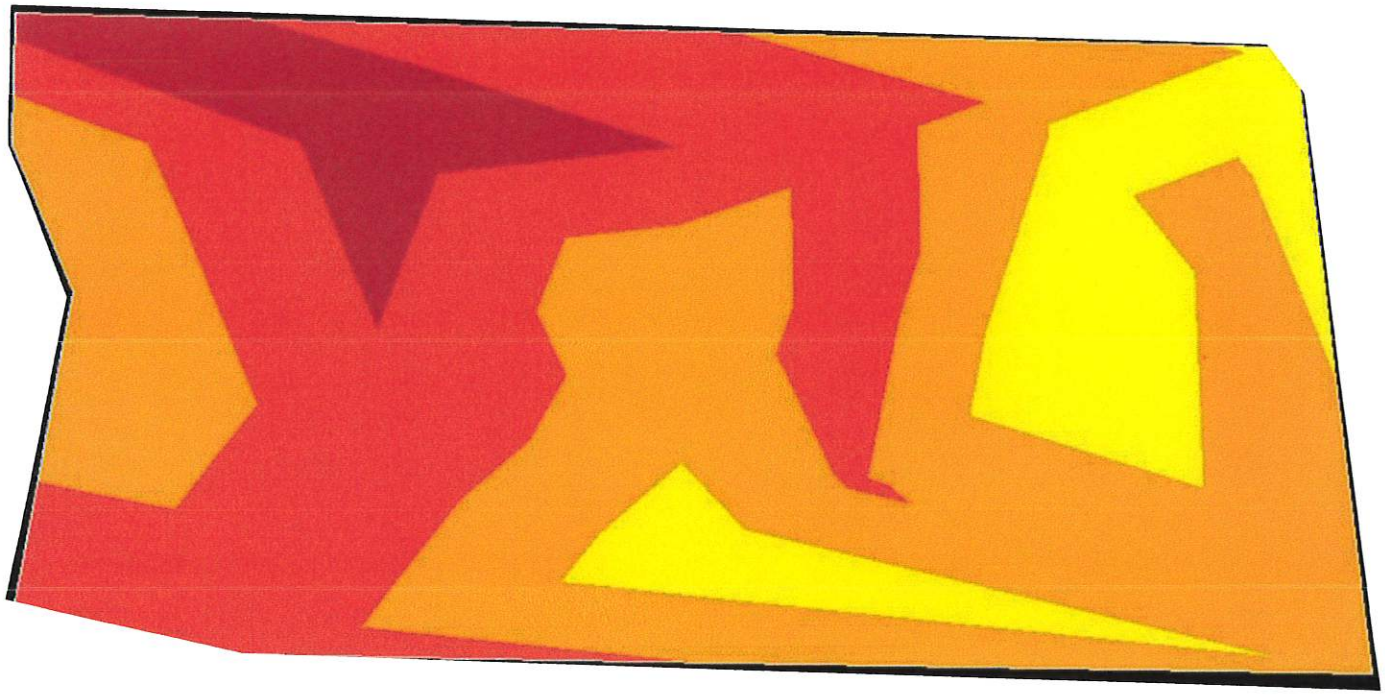
Comment :

08/27/2023

Total balanced volume : 3526871.329yd³ (Cut)
Total cut volume : 3526871.329yd³
Total fill volume : 0.000yd³
Total area : 3386348.187ft²
Cut/fill min/max : 9.000' (Cut) - 45.000' (Cut)
Effective cut-fill ratio : 0.00

Exhibit D

Original Ground to Bottom of Excavation



Comment :

08/27/2023

DALLAS HEAD EXCAVATED TEST HOLES

QUANTITY QUALITY ASSESSMENT

Test Hole # 1

Location 44 degrees 10' 44.71" N 116 degrees 59' 47.49" W

Elevation 2391

Clay/ Silt surface to 5 feet.

Poorly graded gravel from 6 feet to 19 feet.

Silt at 20 feet

Test Hole # 2

Location 44 Degrees 10'42.57 N 116 degrees 59' 45.09" W

Elevation 2393

Clay silt surface to 1 foot

Poorly graded gravel from 1 foot to 19 feet

Silt at 20 feet

Test Hole # 3

Location 44 Degrees 10'40.91"N 116 Degrees 59'48.36"W

Elevation 2382

Poorly graded gravel from surface to 8 feet

Silt at 9 feet

Test Hole # 4

Location 44 Degrees 10'38.20N 116 Degrees 59'46.15"W

Elevation 2393

Clay/Silt surface to 4 feet

Poorly graded gravel 5 feet to 21 feet

Silt at 22 feet

Test Hole # 5

Location 44 Degrees 10'44.82"N 116 Degrees 59'53.42" W

Elevation 2402

Clay/Silt/Carbonate from surface to 18 Feet

Poorly graded gravel from 19 feet to 35 feet

Silt at 36 feet

Test Hole # 6

Location 44 Degrees 10'41.00"N 116 Degrees 59'53.97"W

Elevation 2392

Clay/Silt from surface to 13 feet

Poorly graded gravel from 14 feet to 34 feet

Silt at 35 feet

Ground water encountered at 22 feet

Test Hole # 7

Location 44 Degrees 10'37.66"N 116 Degrees 59'54.03"W

Elevation 2393

Silt/Clay from surface to 9 feet

Poorly graded gravel from 10 to 31 feet

Silt at 32 feet

Test Hole # 8

Location 44 Degrees 10'44.70"W 116 Degrees 59'57.26"W

Elevation 2408

Silt/Clay from surface to 19 feet

Poorly graded gravel from 19 to 40 feet

Silt at 41 feet

Test Hole # 9

Location 44 Degrees 10'41.81"N 116 Degrees 59'57.14W

Elevation 2399

Silt/Clay from surface to 6 feet

Poorly graded gravel from 7 to 21 feet

Silt at 22 feet

Test Hole # 10

Location 44 Degrees 10'39.70"N 116 Degrees 59'57.25W

Elevation 2404

Silt/Clay from surface to 13 feet

Poorly graded gravel from 14 to 25 feet

Silt at 26 feet

Test Hole #11

Location 44 Degrees 10'37.01"N 116 Degrees 59'57.19"W

Elevation 2401

Silt/Clay surface to 14 feet

Poorly Graded gravel 15 to 35 feet

Silt at 36 feet

Test Hole # 12

Location 44 Degrees 10'44.28"N 117 Degrees 0'5.86"W

Elevation 2425

Silt/Clay surface to 24 feet

Poorly Graded gravel 24 feet to 45 feet

Silt at 46 feet

Test Hole # 13

Location 44 Degrees 10'40.51"N 117 Degrees 0'5.79"W

Elevation 2421

Clay/Silt from surface to 18 feet

Poorly graded gravel 19 feet to 40 feet

Silt at 41 feet

Test Hole #14

Location 44 Degrees 10'37.55"N 117 Degrees 0.5'57"W

Elevation 2420

Clay/Silt from surface to 18 feet

Poorly graded gravel 19 feet to 43 feet

Silt at 44 Feet

MATERIALS TESTING & INSPECTION
AN ATLAS COMPANY

❑ Environmental Services ❑ Geotechnical Engineering ❑ Construction Materials Testing ❑ Special Inspections

Mr. Karl Shrum
Rural Road Assessment No. 3
44400 Baker Road
Ontario, OR 97914
208-739-8761

Re: Limited Borrow Source Investigation Report
White Property Gravel Quantity Assessment
533 Ontario Heights Road
Ontario, OR

Dear Mr. Shrum:

In compliance with your instructions, MTI has conducted a limited soils exploration and gravel quantity assessment for the above referenced development. Fieldwork for this investigation was conducted on 17 and 18 June 2019. The proposed development is northwest of the City of Ontario, Malheur County, OR, and occupies a portion of the S½SW¼ and NW¼SW¼ of Section 19, Township 17 South, Range 47 East, Willamette Meridian. The project will consist of a gravel borrow source roughly 77.9 acres in size. It is MTI's understanding that the maximum excavation depth for the proposed borrow source will be roughly 45 feet below existing ground surface. This investigation is limited to assessment of the quantity of gravel on the site. Quality assessment of the gravel for source approval is outside of MTI's scope of work. If source approval testing on the onsite gravel is needed, additional exploration and laboratory analysis will be required.

Authorization

Authorization to perform this exploration and analysis was given in the form of a written authorization to proceed from Mr. Karl Shrum of Rural Road Assessment No. 3 to Jacob Schlador of Materials Testing and Inspection (MTI), on 28 May 2019. Said authorization is subject to terms, conditions, and limitations described in the Professional Services Contract entered into between Rural Road Assessment No. 3 and MTI. Our scope of services for the proposed development has been provided in our proposal dated 16 May 2019 and repeated below.

Scope of Investigation

The scope of this investigation included review of geologic literature and existing available geotechnical studies of the area, visual site reconnaissance of the immediate site, subsurface exploration of the site, field and laboratory testing of materials collected, and assessment of gravel quantity on the site. Our scope of work did not include laboratory testing of material for suitability to Oregon Department of Transportation and/or other standards.

Copyright © 2019 Materials Testing & Inspection

EXHIBIT # 3

Regional Geology

The subject site is located within the Western Snake River Flood Plain. Within this region, this geomorphological feature consists of a broad, deeply floored, thick sequence of alluvial silts, clays, sands and gravel. These sediments typically have been deposited on Miocene (24 to 5 million years ago) basalt flows and tuffaceous sediments of the eastern region of the Columbia Plateau. This thick sequence of generally fine-grained sediments, predominately derived from the Idaho Batholith, contains minor intercalated tuffs and basalt flows within the earliest deposits. Most of these sediments were placed during the latter part of the Miocene and are predominately of lacustrine origin. Lakes were created within this area as a result of basalt flow impoundments formed to the west along the ancestral Columbia River. Many of the fossil leaf forms uncovered in these lacustrine plain sediments indicate the presence of a wet tropical climate that prevailed at this time. Early Quaternary age (1.6 million years ago to present) sediments deposited on top of the lacustrine plain were apparently deposited during a time of extremely dry climatic conditions in which little water was present for removal, sorting, and deposition of the debris. With a gradual return to a wetter climate, the surrounding hills again began to erode to their present form. Locally within the City of Ontario, soils generally consist of interbedded clay, silt, sand and gravel. Geologic data for the area indicates bedrock may be encountered at depths of 750 feet or more beneath the soil surface.

General Site Characteristics

This proposed development consists of approximately 77.9 acres of gently sloping and hilly terrain. The site is bounded to the north by Canyon No 1. A gently east-west trending grade break is present in the northern portion of the site. On the north side of the grade break, the surface slopes gently downwards towards Canyon No 1. To the south of the grade break, the surface slopes gently downwards. In the central portion of the site there is an abrupt east-west trending grade break where the surface slopes downwards to the south at roughly 2 feet horizontal to 1 foot vertical (2:1). In the southern portion of the site, the surface slopes gently downwards to the north. Throughout the majority of the site, surficial soils consist of lean clays. Vegetation primarily consists of agricultural crops with some mature trees and brush along the northern and eastern perimeter.

Local drainage is north and east toward the Malheur and Snake Rivers via Canyon No 1. Stormwater drainage for the site is achieved by both sheet runoff and percolation through surficial soils. Runoff predominates for the steeper slopes while percolation prevails across the gently sloping and near level areas. The site is situated so that it is unlikely that it will receive any stormwater drainage from off-site sources. Stormwater drainage collection and retention systems are not in place on the project site and do not currently exist within the vicinity of the project site.

Exploration and Sampling Procedures

Field exploration conducted to determine engineering characteristics of subsurface materials included a reconnaissance of the project site and investigation by soil boring. Boring locations were selected by Mr. Karl Shrum of Rural Road Assessment No. 3 and provided to MTI via a site map. Actual borings were located in the field by means of a Global Positioning System (GPS) device and are reportedly accurate to within fifteen feet. Borings were advanced by means of a truck-mounted drilling rig equipped with continuous flight hollow-stem augers.

Copyright © 2019 Materials Testing & Inspection

At specified depths, samples were obtained using a standard split-spoon sampler, and Standard Penetration Test (SPT) blow counts were recorded. Uncorrected SPT blow counts are provided on logs, which can be found in the **Appendix**. Delayed water level observations were made in open borings to evaluate groundwater levels. At completion of exploration, borings were backfilled with loose excavated materials and bentonite holeplug.

Samples have been visually classified in the field by professional staff, identified according to boring number and depth, placed in sealed containers, and transported to our laboratory for additional testing. Subsurface materials have been described in detail on logs provided in the **Enclosures** section. Results of field and laboratory tests are also presented in the **Enclosures** section. MTI recommends that these logs **not** be used to estimate fill material quantities.

Laboratory Testing Program

Along with our field investigation, a supplemental laboratory testing program was conducted to determine additional pertinent engineering characteristics of subsurface materials necessary in an analysis of anticipated behavior of the proposed structures. Laboratory tests were conducted in accordance with current applicable American Society for Testing and Materials (ASTM) specifications, and results of these tests are to be found on the accompanying logs located in the **Enclosures** section. The laboratory testing program for this report included: Atterberg Limits Testing – ASTM D4318 and Grain Size Analysis – ASTM C117/C136.

Soil and Sediment Profile

The profile below represents a generalized interpretation for the project site. Note that on site soils strata, encountered between boring locations, may vary from the individual soil profiles presented in the logs, which can be found in the **Enclosures** section.

Lean clay soils were found at ground surface. These soils were brown, dry to slightly moist, and soft to medium stiff. Silt soils were observed beneath lean clays. These soils were brown to light brown, dry to slightly moist, and very stiff to hard. Intermittent weak to strong calcium carbonate cementation was encountered within the lower portion of this horizon. Silty sand sediments were observed beneath silt soils in boring 5. These sediments were brown, slightly moist, and medium dense, with fine to medium-grained sand.

Poorly graded gravel with silt and sand sediments were found within the silt soils in boring 1 from 7 to 12.5 feet bgs and underlying silt/silty sand soils in borings 2 and 5. These sediments were grayish-light brown or brown, dry to slightly moist, and very dense, with fine to coarse-grained sand and fine to coarse gravel. Varying layers of poorly graded gravel with sand and poorly graded sand with gravel sediments were encountered beneath the silts/poorly graded gravels with silt and sand. These sediments were gray-brown, brown, or light brown, dry to saturated, and very dense, with fine to coarse-grained sand, fine to coarse gravel, and 5-inch-minus cobbles. A second layer of silt soils were encountered at depth in borings 1, 5, and 6. These soils were brown, saturated, and hard, with fine to medium-grained sand.

Boring sidewalls were generally stable. However, moisture contents will affect wall competency with saturated soils having a tendency to readily slough when under load and unsupported.

Copyright © 2019 Materials Testing & Inspection

Groundwater

During this field investigation, groundwater was encountered in borings at depths ranging from 25.8 to 36.2 feet bgs. Soil moistures in the borings were generally dry to slightly moist within surficial soils. Within the poorly graded gravels with sand and poorly graded sands with gravel, soil moistures graded from dry to saturated as the water table was approached and penetrated. In the vicinity of the project site, groundwater levels are controlled in large part by agricultural irrigation activity and leakage from nearby canals. Maximum groundwater elevations likely occur during the later portion of the irrigation season. According to Oregon Department of Water Resources well reports within approximately ½-mile of the project site, groundwater was measured at depths ranging from 30 to 54 feet bgs.

Based on evidence of this investigation and background knowledge of the area, MTI estimates groundwater depths to remain greater than approximately 25 feet bgs throughout the year. This depth can be confirmed through long-term groundwater monitoring.

Gravel Quantity Assessment

MTI obtained surface elevations for the boring locations using Light Detection and Ranging (LiDAR) data from the Oregon Department of Geology and Mineral Industries. The depths where gravels were encountered was converted to elevations for analysis of the volume of gravel on the site. The subsurface soil data from the borings were imported into the Rockworks 17 software by Rockware to create a 3-dimensional model of the subsurface stratigraphy. Based on the model that was created, a bank volume of 1,984,930 cubic yards of gravel present on the site from existing ground surface to the maximum excavation depth of 45 feet bgs. However, approximately 908,200 cubic yards of the gravel present is below the groundwater elevation at the time of the borings. These volumes are estimates as variations within the subsurface soil layers may be present.

Warranty and Limiting Conditions

MTI warrants that findings and conclusions contained herein have been formulated in accordance with generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics, and engineering geology only for the site and project described in this report. These engineering methods have been developed to provide the client with information regarding apparent or potential engineering conditions relating to the site within the scope cited above and are necessarily limited to conditions observed at the time of the site visit and research. Field observations and research reported herein are considered sufficient in detail and scope to form a reasonable basis for the purposes cited above.

Copyright © 2019 Materials Testing & Inspection

Exclusive Use

This report was prepared for exclusive use of the property owner(s), at the time of the report, and their retained design consultants ("Client"). Conclusions and recommendations presented in this report are based on the agreed-upon scope of work outlined in this report together with the Contract for Professional Services between the Client and Materials Testing and Inspection ("Consultant"). Use or misuse of this report, or reliance upon findings hereof, by parties other than the Client is at their own risk. Neither Client nor Consultant make representation of warranty to such other parties as to accuracy or completeness of this report or suitability of its use by such other parties for purposes whatsoever, known or unknown, to Client or Consultant. Neither Client nor Consultant shall have liability to indemnify or hold harmless third parties for losses incurred by actual or purported use or misuse of this report. No other warranties are implied or expressed.

Report Recommendations are Limited and Subject to Misinterpretation

There is a distinct possibility that conditions may exist that could not be identified within the scope of the investigation or that were not apparent during our site investigation. Findings of this report are limited to data collected from noted explorations advanced and do not account for unidentified fill zones, unsuitable soil types or conditions, and variability in soil moisture and groundwater conditions. To avoid possible misinterpretations of findings, conclusions, and implications of this report, MTI should be retained to explain the report contents to other design professionals as well as construction professionals.

Since actual subsurface conditions on the site can only be verified by earthwork, note that construction recommendations are based on general assumptions from selective observations and selective field exploratory sampling. Upon commencement of construction, such conditions may be identified that require corrective actions, and these required corrective actions may impact the project budget. Therefore, construction recommendations in this report should be considered preliminary, and MTI should be retained to observe actual subsurface conditions during earthwork construction activities to provide additional construction recommendations as needed.

Since geotechnical reports are subject to misinterpretation, **do not** separate the soil logs from the report. Rather, provide a copy of, or authorize for their use, the complete report to other design professionals or contractors. Locations of exploratory sites referenced within this report should be considered approximate locations only. For more accurate locations, services of a professional land surveyor are recommended.

This report is also limited to information available at the time it was prepared. In the event additional information is provided to MTI following publication of our report, it will be forwarded to the client for evaluation in the form received.

Environmental Concerns

Comments in this report concerning either onsite conditions or observations, including soil appearances and odors, are provided as general information. These comments are not intended to describe, quantify, or evaluate environmental concerns or situations. Since personnel, skills, procedures, standards, and equipment differ, a geotechnical investigation report is not intended to substitute for a geoenvironmental investigation or a Phase II/III Environmental Site Assessment. If environmental services are needed, MTI can provide, via a separate contract, those personnel who are trained to investigate and delineate soil and water contamination.

Copyright © 2019 Materials Testing & Inspection

GEOTECHNICAL GENERAL NOTES

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION			
Coarse-Grained Soils	**SPT Blow Counts (N)**	**Fine-Grained Soils**	**SPT Blow Counts (N)**
Very Loose:	< 4	Very Soft:	< 2
Loose:	4-10	Soft:	2-4
Medium Dense:	10-30	Medium Stiff:	4-8
Dense:	30-50	Stiff:	8-15
Very Dense:	>50	Very Stiff:	15-30
		Hard:	>30

Moisture Content	
Description	**Field Test**
Dry	Absence of moisture, dusty, dry to touch
Moist	Damp but not visible moisture
Wet	Visible free water, usually soil is below water table

Cementation	
Description	**Field Test**
Weakly	Crumbles or breaks with handling or slight finger pressure
Moderately	Crumbles or beaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

PARTICLE SIZE					
Boulders:	>12 in.	Coarse-Grained Sand:	5 to 0.6 mm	Silts:	0.075 to 0.005 mm
Cobbles:	12 to 3 in.	Medium-Grained Sand:	0.6 to 0.2 mm	Clays:	<0.005 mm
Gravel:	3 in. to 5 mm	Fine-Grained Sand:	0.2 to 0.075 mm		

UNIFIED SOIL CLASSIFICATION SYSTEM			
Major Divisions		**Symbol**	**Soil Descriptions**
Coarse-Grained Soils <50% passes No.200 sieve	Gravel & Gravelly Soils <50% coarse fraction passes No.4 sieve	GW	Well-graded gravels; gravel/sand mixtures with little or no fines
		GP	Poorly-graded gravels; gravel/sand mixtures with little or no fines
		GM	Silty gravels; poorly-graded gravel/sand/silt mixtures
		GC	Clayey gravels; poorly-graded gravel/sand/clay mixtures
	Sand & Sandy Soils >50% coarse fraction passes No.4 sieve	SW	Well-graded sands; gravelly sands with little or no fines
		SP	Poorly-graded sands; gravelly sands with little or no fines
		SM	Silty sands; poorly-graded sand/gravel/silt mixtures
		SC	Clayey sands; poorly-graded sand/gravel/clay mixtures
Fine Grained Soils >50% passes No.200 sieve	Silts & Clays LL < 50	ML	Inorganic silts; sandy, gravelly or clayey silts
		CL	Lean clays; inorganic, gravelly, sandy, or silty, low to medium-plasticity clays
		OL	Organic, low-plasticity clays and silts
	Silts & Clays LL > 50	MH	Inorganic, elastic silts; sandy, gravelly or clayey elastic silts
		CH	Fat clays; high-plasticity, inorganic clays
		OH	Organic, medium to high-plasticity clays and silts
Highly Organic Soils		PT	Peat, humus, hydric soils with high organic content

Copyright © 2019 Materials Testing & Inspection

MATERIALS TESTING & INSPECTION

FIELD BOREHOLE LOG

BOREHOLE NO.: B-1

TOTAL DEPTH: 46.5'

PROJECT INFORMATION

PROJECT:	White Property Gravel Assessment
LOCATION:	533 Ontario Heights Road
	Ontario, OR
JOB NO.:	B190984g
LOGGED BY:	Nick Stevens, G.I.T.

DRILLING INFORMATION

DRILLING CO.:	Haztech Drilling, Inc.
METHOD OF DRILLING:	6" Hollow Stem Auger
SAMPLING METHODS:	Split Spoon
DATES DRILLED:	18 June 2019
LATITUDE/LONGITUDE:	44.07249, -117.02413

▼ Water level during drilling | Standard Split Spoon | Auger Sample | California Sampler

DEPTH	SOIL TYPE	DESCRIPTION	MOISTURE (%)	LL/PI	% < #4	% < #200	SAMPLE	BLOWS	BLOWS PER FOOT (N)
0		LEAN CLAY (CL): Brown, dry to slightly moist, medium stiff.							
5		SILT (ML): Light brown, dry to slightly moist, hard. --Intermittent weak to moderate calcium carbonate cementation noted from 5.5 to 7.0 feet bgs.						6,15,39	0 30 60
10								17,40,31	0 30 60
15		POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM): Grayish-light brown, dry to slightly moist, very dense, with fine to coarse-grained sand and fine to coarse gravel.						10,50 for 5"	0 30 60
20		SILT (ML): Brown, slightly moist, hard.						20,43,46	0 30 60
25		POORLY GRADED GRAVEL WITH SAND (GP): Grayish-brown, dry to saturated, very dense, with fine to coarse-grained sand and fine to coarse gravel.	2.7	NP	52	5.7		15,40,50 for 2"	0 30 60
30								35,50 for 3"	0 30 60
▼		Groundwater encountered at 32.4 feet bgs.							
35								12,50 for 3"	0 30 60
40		SILT (ML): Brown, saturated, hard.						12,22,35	0 30 60
45								10,19,37	0 30 60

2791 S. Victory View Way • Boise, ID 83709 • (208) 376-4748 • Fax (208) 322-6515
E-Mail mti@mti-id.com • www.mti-id.com

MATERIALS TESTING & INSPECTION

FIELD BOREHOLE LOG

BOREHOLE NO.: B-2

TOTAL DEPTH: 46.5'

PROJECT INFORMATION

PROJECT:	White Gravel Quantity Assessment
LOCATION:	533 Ontario Heights Road
	Ontario, OR
JOB NO.:	B190984g
LOGGED BY:	Maren Tanberg, E.I.T., G.I.T.

DRILLING INFORMATION

DRILLING CO.:	Haztech Drilling, Inc.
METHOD OF DRILLING:	6" Hollow Stem Auger
SAMPLING METHODS:	Split Spoon
DATES DRILLED:	17 June 2016
LATITUDE/LONGITUDE:	44.071093, -117.018755

▼ Water level during drilling | Standard Split Spoon | Auger Sample | California Sampler

DEPTH	SOIL TYPE	DESCRIPTION	MOISTURE (%)	LL/PI	% < #4	% < #200	SAMPLE	BLOWS	BLOWS PER FOOT (N)
0		LEAN CLAY (CL): Brown, dry to slightly moist, soft.						1, 2, 2	
								10, 16, 15	
5		SILT (ML): Brown, slightly moist, very stiff to hard. --Intermittent weak to moderate calcium carbonate cementation noted from 5.0 to 11.0 feet bgs.						7, 10, 11	0 30 60
								8, 10, 18	
10								18, 28, 50 for 4"	0 30 60
15		POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM): Brown, dry to moist, very dense, with fine to coarse-grained sand and fine to coarse gravel.						50 for 5.5"	0 30 60
20								50 for 5.5"	0 30 60
▼ 25		POORLY GRADED SAND WITH GRAVEL (SP): Brown, slightly moist to saturated, very dense, with fine to coarse-grained sand and fine to coarse gravel. Groundwater encountered at 25.8 feet bgs.						14, 38, 36	0 30 60
30								45, 50 for 2"	0 30 60
35								15, 50 for 4"	0 30 60
40								15, 34, 50 for 5"	0 30 60
45								48, 50 for 4"	0 30 60

2791 S. Victory View Way • Boise, ID 83709 • (208) 376-4748 • Fax (208) 322-6515
E-Mail mti@mti-id.com • www.mti-id.com

MATERIALS TESTING & INSPECTION

FIELD BOREHOLE LOG

BOREHOLE NO.: B-3

TOTAL DEPTH: 46.5'

PROJECT INFORMATION

PROJECT:	White Property Gravel Assessment
LOCATION:	533 Ontario Heights Road
	Ontario, OR
JOB NO.:	B190984g
LOGGED BY:	Nick Stevens, G.I.T.

DRILLING INFORMATION

DRILLING CO.:	Haztech Drilling, Inc.
METHOD OF DRILLING:	6" Hollow Stem Auger
SAMPLING METHODS:	Split Spoon
DATES DRILLED:	18 June 2019
LATITUDE/LONGITUDE:	44.07241, -117.02109

▼ Water level during drilling | Standard Split Spoon | Auger Sample | California Sampler

DEPTH	SOIL TYPE	DESCRIPTION	MOISTURE (%)	LL/PI	% < #4	% < #200	SAMPLE	BLOWS	BLOWS PER FOOT (N)
0		LEAN CLAY (CL): Brown, dry to slightly moist, medium stiff.							
5		SILT (ML): Light brown, dry to slightly moist, hard. --Intermittent weak calcium carbonate cementation noted from 6.2 to 10.0 feet bgs.						12,16,19	0 30 60
10								7,18,29	0 30 60
15		POORLY GRADED GRAVEL WITH SAND (GP): Grayish-brown, dry to saturated, very dense, with fine to coarse-grained sand and 5-inch minus cobbles.						24,50 for 5.5"	0 30 60
20								24,50 for 4"	0 30 60
25								50 for 5"	0 30 60
30								43,50 for 3"	0 30 60
▼ 35		Groundwater encountered at 34.6 feet bgs.						10,50 for 5"	0 30 60
40								25,50 for 5.5"	0 30 60
45		SILT (ML): Brown, saturated, hard.						12,27,50 for 5"	0 30 60

2791 S. Victory View Way • Boise, ID 83709 • (208) 376-4748 • Fax (208) 322-6515
E-Mail mti@mti-id.com • www.mti-id.com

MTI appreciates this opportunity to be of service to you and looks forward to working with you in the future. If you have questions, please call (208) 376-4748.

Respectfully Submitted,
Materials Testing & Inspection

Clint Wyllie, G.I.T.
Staff Geologist

Reviewed by: Elizabeth Brown, P.E.
Geotechnical Services Manager

Reviewed by: David O. Cram, P.E.
General Manager

REGISTERED PROFESSIONAL ENGINEER
OREGON
MAY 15, 1991
DAVID O. CRAM

7-3-19
EXP. 12-31-19

Enclosures:
Geotechnical General Notes
Geotechnical Investigation Boring Logs
Vicinity Map
Site Map

SOUNDNESS TEST RESULTS – AASHTO T 104

Source:	Test Pit #2 - Vicinity of Boring 6							
Date Obtained:	The Sample was Obtained and Delivered by the Client on July 31, 2019.							
Sample ID:	19-5241							
Sampling and Preparation:	ASTM D75:		AASHTO T2:		ASTM D421:		AASHTO T87:	X
Test Standard:	ASTM C88:		AASHTO T104:	X				
Solution:	Sodium:	X	Magnesium:		Fresh Prepared:	X	Previously Used:	

Coarse Aggregate

Sieve Size		Weight of Test Fraction Before Test	% Passing Designated Sieve After Test	Weighted % Loss
Passing	Retained			
2.5"	2.0"	2876.9	0.3	0.1
2.0"	1.5"	1848.0		
1.5"	1.0"	983.4	0.2	0.1
1.0"	¾"	500.3		
¾"	½"	670.2	2.6	0.5
½"	3/8"	330.7		
3/8"	#4	329.8	3.5	0.4
			Total	1.1

Specification: 12% maximum

Coarse Aggregate Examination

Sieve Size		Splitting		Crumbling		Cracking		Flaking		No. of Particles Before Test
Passing	Retained	No.	%	No.	%	No.	%	No.	%	
2.5"	1.5"					2	10.5			19
1.5"	¾"									40

Copyright © 2019 Materials Testing & Inspection

MATERIALS TESTING & INSPECTION

FIELD BOREHOLE LOG

BOREHOLE NO.: B-5

TOTAL DEPTH: 46.5'

PROJECT INFORMATION

PROJECT:	White Property Gravel Assessment
LOCATION:	533 Ontario Heights Road
	Ontario, OR
JOB NO.:	B190984g
LOGGED BY:	Maren Tanberg, E.I.T., G.I.T.

DRILLING INFORMATION

DRILLING CO.:	Haztech Drilling, Inc.
METHOD OF DRILLING:	6" Hollow Stem Auger
SAMPLING METHODS:	Split Spoon
DATES DRILLED:	17 June 2016
LATITUDE/LONGITUDE:	44.069237, -117.021610

▼ Water level during drilling | Standard Split Spoon | Auger Sample | California Sampler

DEPTH	SOIL TYPE	DESCRIPTION	MOISTURE (%)	LL/PI	% < #4	% < #200	SAMPLE	BLOWS	BLOWS PER FOOT (N)
0		LEAN CLAY (CL): Brown, dry to slightly moist, medium stiff.						3, 2, 3	
								10, 15, 18	
5		SILT (ML): Brown, dry to slighly moist, very stiff to hard. --Intermittent weak to moderate calcium carbonate cementation noted from 7.5 to 11.5 feet bgs.						7, 11, 14	0 30 60
								50 for 2.5"	
10								20, 13, 6	0 30 60
15		SILTY SAND (SM): Brown, slightly moist, medium dense, with fine to medium-grained sand.						10, 13, 14	0 30 60
20		POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM): Brown to gray-brown, dry to slightly moist, very dense, with fine to coarse-grained sand and fine to coarse gravel.						16, 42, 50 for 3.5"	0 30 60
25								20, 43, 50 for 3"	0 30 60
		POORLY GRADED GRAVEL WITH SAND (GP): Gray-brown, dry to saturated, very dense, with fine to coarse-grained sand and fine to coarse gravel.						26, 50 for 5.5"	0 30 60
30									
▼ 35		Groundwater encountered at 34.1 feet bgs.						13, 42, 50 for 5"	0 30 60
		SILT (ML): Brown, saturated, hard, with fine to medium-grained sand.						15, 28, 50 for 4"	0 30 60
40									
45								17, 31, 50	0 30 60

2791 S. Victory View Way • Boise, ID 83709 • (208) 376-4748 • Fax (208) 322-6515
E-Mail mti@mti-id.com • www.mti-id.com

MATERIALS TESTING & INSPECTION

FIELD BOREHOLE LOG

BOREHOLE NO.: B-6

TOTAL DEPTH: 46.5'

PROJECT INFORMATION

PROJECT:	White Property Gravel Assessment
LOCATION:	533 Ontario Heights Road
	Ontario, OR
JOB NO.:	BI90984g
LOGGED BY:	Maren Tanberg, E.I.T., G.I.T.

DRILLING INFORMATION

DRILLING CO.:	Haztech Drilling, Inc.
METHOD OF DRILLING:	6" Hollow Stem Auger
SAMPLING METHODS:	Split Spoon
DATES DRILLED:	17 June 2016
LATITUDE/LONGITUDE:	44.068968, -117.018726

▼ Water level during drilling | Standard Split Spoon | Auger Sample | California Sampler

DEPTH	SOIL TYPE	DESCRIPTION	MOISTURE (%)	LL/PI	% < #4	% < #200	SAMPLE	BLOWS	BLOWS PER FOOT (N)
0		LEAN CLAY (CL): Brown, dry to slightly moist, medium stiff.						4, 4, 3	
								3, 8, 15	
5		SILT (ML): Brown, dry to slightly moist, very stiff to hard. --Intermittent weak calcium carbonate cementation noted from 7.5 to 15.0 feet bgs.						10, 12, 12	0 30 60
								14, 11, 8	
10								6, 7, 14	0 30 60
15		POORLY GRADED SAND WITH GRAVEL (SP): Brown, dry to slightly moist, very dense, with fine to medium-grained sand and fine to coarse gravel.						24, 35, 24	0 30 60
20								15, 32, 50 for 2"	0 30 60
25								38, 50 for 3"	0 30 60
30								43, 50 for 3"	0 30 60
▼									
35		POORLY GRADED GRAVEL WITH SAND (GP): Gray-brown to light brown, slightly moist to saturated, very dense, with fine to coarse-grained sand. Groundwater encountered at 32.8 feet bgs.						10, 24, 40	0 30 60
40								8, 50 for 4"	0 30 60
45		SILT (ML): Brown, slightly moist, hard, with fine to medium-grained sand.						17, 32, 50	0 30 60

2791 S. Victory View Way • Boise, ID 83709 • (208) 376-4748 • Fax (208) 322-6515
E-Mail mti@mti-id.com • www.mti-id.com

Mr. Karl Shrum
Rural Road Assessment No. 3
44400 Baker Road
Ontario, OR 97914
208-739-8761

Re: Addendum #1 – Additional Laboratory Testing
White Property Gravel Quantity Assessment
533 Ontario Heights Road
Ontario, OR

Dear Mr. Shrum:

This addendum report presents laboratory test results not requested at the time of the previously issued MTI Geotechnical Engineering Report (B190984g). Descriptions of general site characteristics and the proposed project are available in the previous report. Unless otherwise noted in this addendum, all initial recommendations, limitations, and warranties expressed in the previous report must be adhered to.

Additional Testing

It was requested by Mr. Karl Shrum that additional laboratory testing be conducted for the development of the project site as a gravel pit. The test samples were reportedly obtained by Mr. Karl Shrum from three different locations on the site. Samples were obtained from the vicinity of boring 1, boring 2, and boring 6, via test pits advanced 5 plus feet into the gravel deposits (see Site Map for boring locations). Laboratory tests were conducted in accordance with current applicable Oregon Department of Transportation (ODOT) and American Association of State Highway and Transportation Officials (AASHTO) specifications, and results of these tests are located in the **Enclosures** section of this report. The laboratory testing program for this report included: Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine Testing – AASHTO T 96, Soundness of Aggregate by Use of Sodium Sulfate – AASHTO T 104, and Oregon Air Aggregate Degradation – ODOT TM 208.

Based on the reported test pit/sample locations, the test samples can be expected to be generally representative of the aggregates at the overall site and associated subsurface conditions. Test results, included with this report, of the samples indicate that the materials appear to meet the requirements of Oregon Standard Specifications for Construction, 2018, Base Aggregate, 02630.1 (c) Durability section.

Copyright © 2019 Materials Testing & Inspection

Resized Aggregate Area

MTI was informed by Mr. Karl Shrum, that at this time a smaller area was planned on being mined for aggregate base. This area can be seen on the **Site Map** that can be seen in the **Enclosures** section of this report. MTI obtained surface elevations for the boring locations using Light Detection and Ranging (LiDAR) data from the Oregon Department of Geology and Mineral Industries. The subsurface soil data from the borings were imported into the Rockworks 17 software by Rockware to create a 3-dimensional model of the subsurface stratigraphy. Based on the model that was created, a bank volume of approximately 390,597 bank cubic yards of poorly graded gravel sediments are within this area to the maximum excavation depth of 45 feet bgs. Based on laboratory analysis on the poorly graded gravel sediments, MTI determined that this material had a unit weight of 121 pounds per cubic foot. Using this information, MTI was able to calculate that there was approximately 638,000 tons of poorly graded gravel sediments in the area of interest.

The findings, test data, and opinions within this report limited to the conditions described, samples submitted, and test results. Additional and/or alternate information may require revisions to this report, and therefore must be brought to the immediate attention of this engineer. At that time, revisions to this report may be required.

MTI appreciates this opportunity to be of service to you and looks forward to working with you in the future. If you have questions, please call (208) 376-4748.

Respectfully Submitted,
Materials Testing & Inspection

Jacob Schlador, P.E. (ID)
Geotechnical Engineer

Reviewed by: David O. Cram, P.E.
General Services Manager

REGISTERED PROFESSIONAL ENGINEER 19083PE OREGON MAY 15, 1987 DAVID O. CRAM

9-17-19
Exp. 12-31-19

Enclosures:
Abrasion Test Results – AASHTO T 96
Soundness Test Results – AASHTO T 108
Oregon Air Aggregate Degradation – ODOT TM 208
Site Map

ABRASION TEST RESULTS – AASHTO T 96

Source:	Test Pit #1 – Vicinity of Boring 2											
Date Obtained:	The Sample was Obtained and Delivered by the Client on July 31, 2019.											
Sample ID:	19-5241											
Sampling and Preparation:	ASTM D75:		AASHTO T2:		ASTM D421:		AASHTO T87:	X				
Test Standard:	ASTM C535:		AASHTO T96:	X								

Nominal Maximum Size of Aggregate	2.5"
Grading Designation	2
Loss by Abrasion (%)	24

Specification: 35% maximum

Source:	Test Pit #2 - Vicinity of Boring 6											
Date Obtained:	The Sample was Obtained and Delivered by the Client on July 31, 2019.											
Sample ID:	19-5241											
Sampling and Preparation:	ASTM D75:		AASHTO T2:		ASTM D421:		AASHTO T87:	X				
Test Standard:	ASTM C535:		AASHTO T96:	X								

Nominal Maximum Size of Aggregate	2.5"
Grading Designation	2
Loss by Abrasion (%)	20

Specification: 35% maximum

Source:	Test Pit #3 - Vicinity of Boring 1											
Date Obtained:	The Sample was Obtained and Delivered by the Client on July 31, 2019.											
Sample ID:	19-5241											
Sampling and Preparation:	ASTM D75:		AASHTO T2:		ASTM D421:		AASHTO T87:	X				
Test Standard:	ASTM C535:		AASHTO T96:	X								

Nominal Maximum Size of Aggregate	2.5"
Grading Designation	2
Loss by Abrasion (%)	24

Specification: 35% maximum

Copyright © 2019 Materials Testing & Inspection

❑ Environmental Services ❑ Geotechnical Engineering ❑ Construction Materials Testing ❑ Special Inspections

SOUNDNESS TEST RESULTS – AASHTO T 104

Source:	Test Pit #1 - Vicinity of Boring 2							
Date Obtained:	The Sample was Obtained and Delivered by the Client on July 31, 2019.							
Sampling and Preparation:	ASTM D75:		AASHTO T2:		ASTM D421:		AASHTO T87:	X
Test Standard:	ASTM C88:		AASHTO T104:	X				
Solution:	Sodium:	X	Magnesium:		Fresh Prepared:	X	Previously Used:	

Coarse Aggregate

Sieve Size		Weight of Test Fraction Before Test	% Passing Designated Sieve After Test	Weighted % Loss
Passing	Retained			
2.5"	2.0"	2842.7	0.3	0.1
2.0"	1.5"	1831.1		
1.5"	1.0"	966.0	1.0	0.3
1.0"	¾"	492.7		
¾"	½"	669.8	3.2	0.5
½"	3/8"	331.9		
3/8"	#4	300.8	5.5	0.6
			Total	1.5

Specification: 12% maximum

Coarse Aggregate Examination

Sieve Size		Splitting		Crumbling		Cracking		Flaking		No. of Particles Before Test
Passing	Retained	No.	%	No.	%	No.	%	No.	%	
2.5"	1.5"	1	4.5							22
1.5"	¾"	1	2.7							37

Copyright © 2019 Materials Testing & Inspection

SOUNDNESS TEST RESULTS – AASHTO T 104

Source:	Test Pit #2 - Vicinity of Boring 6							
Date Obtained:	The Sample was Obtained and Delivered by the Client on July 31, 2019.							
Sample ID:	19-5241							
Sampling and Preparation:	ASTM D75:		AASHTO T2:		ASTM D421:		AASHTO T87:	X
Test Standard:	ASTM C88:		AASHTO T104:	X				
Solution:	Sodium:	X	Magnesium:		Fresh Prepared:	X	Previously Used:	

Coarse Aggregate

Sieve Size		Weight of Test Fraction Before Test	% Passing Designated Sieve After Test	Weighted % Loss
Passing	Retained			
2.5"	2.0"	2876.9	0.3	0.1
2.0"	1.5"	1848.0		
1.5"	1.0"	983.4	0.2	0.1
1.0"	¾"	500.3		
¾"	½"	670.2	2.6	0.5
½"	3/8"	330.7		
3/8"	#4	329.8	3.5	0.4
			Total	1.1

Specification: 12% maximum

Coarse Aggregate Examination

Sieve Size		Splitting		Crumbling		Cracking		Flaking		No. of Particles Before Test
Passing	Retained	No.	%	No.	%	No.	%	No.	%	
2.5"	1.5"					2	10.5			19
1.5"	¾"									40

Copyright © 2019 Materials Testing & Inspection

SOUNDNESS TEST RESULTS – AASHTO T 104

Source:	Test Pit #3 - Vicinity of Boring 1							
Date Obtained:	The Sample was Obtained and Delivered by the Client on July 31, 2019.							
Sample ID:	19-5241							
Sampling and Preparation:	ASTM D75:		AASHTO T2:		ASTM D421:		AASHTO T87:	X
Test Standard:	ASTM C88:		AASHTO T104:	X				
Solution:	Sodium:	X	Magnesium:		Fresh Prepared:	X	Previously Used:	

Coarse Aggregate

Sieve Size		Weight of Test Fraction Before Test	% Passing Designated Sieve After Test	Weighted % Loss
Passing	Retained			
2.5"	2.0"	2943.9	0.5	0.3
2.0"	1.5"	1964.0		
1.5"	1.0"	970.1	2.8	0.8
1.0"	¾"	484.6		
¾"	½"	660.2	8.2	1.0
½"	3/8"	325.9		
3/8"	#4	299.4	8.0	0.8
			Total	2.9

Specification: 12% maximum

Coarse Aggregate Examination

Sieve Size		Splitting		Crumbling		Cracking		Flaking		No. of Particles Before Test
Passing	Retained	No.	%	No.	%	No.	%	No.	%	
2.5"	1.5"	1	4.2							24
1.5"	¾"	2	4.9							41

Copyright © 2019 Materials Testing & Inspection

OREGON AIR AGGREGATE DEGRADATION – ODOT TM 208

Source:	Test Pit #1 - Vicinity of Boring 2							
Date Obtained:	The Sample was Obtained and Delivered by the Client on July 31, 2019.							
Sample ID:	19-5241							
Sampling and Preparation:	ASTM D75:		AASHTO T2:		ASTM D421:		AASHTO T87:	X
Test Standard:	ODOT TM 208-15:	X						

No. 20 Sieve	Percent Passing	2.9
Sand Equivalent	Sediment Height	0.2"

Specification: 30% maximum passing, and 3" maximum

Source:	Test Pit #2 - Vicinity of Boring 6							
Date Obtained:	The Sample was Obtained and Delivered by the Client on July 31, 2019.							
Sample ID:	19-5241							
Sampling and Preparation:	ASTM D75:		AASHTO T2:		ASTM D421:		AASHTO T87:	X
Test Standard:	ODOT TM 208-15:	X						

No. 20 Sieve	Percent Passing	1.9
Sand Equivalent	Sediment Height	0.1"

Specification: 30% maximum passing, and 3" maximum

Source:	Test Pit #3 - Vicinity of Boring 1							
Date Obtained:	The Sample was Obtained and Delivered by the Client on July 31, 2019.							
Sample ID:	19-5241							
Sampling and Preparation:	ASTM D75:		AASHTO T2:		ASTM D421:		AASHTO T87:	X
Test Standard:	ODOT TM 208-15:	X						

No. 20 Sieve	Percent Passing	2.1
Sand Equivalent	Sediment Height	0.2"

Specification: 30% maximum passing, and 3" maximum

Copyright © 2019 Materials Testing & Inspection

Site Map

Plate 2

NOTES:

- Not to Scale
- Photo by ESRI World Imagery Service

LEGEND

Approximate Site Boundary

Approximate Revised Boundary of Mining Operations

Approximate MTI Boring Location

N

White Property Gravel Quantity Assessment

533 Ontario Heights Road
Ontario, OR

Modified by: JBS
17 September 2019
Drawing: B190984g

MATERIALS TESTING & INSPECTION

AN ATLAS COMPANY

2791 S. Victory View Way
Boise, ID 83709-2835

Phone: 208 376-4748
Fax: 208 322-6515
E-mail: mti@mti-id.com

Land Conservation and Development Department

Chapter 660

Division 23
PROCEDURES AND REQUIREMENTS FOR COMPLYING WITH GOAL 5

660-023-0180
Mineral and Aggregate Resources

(1) For purposes of this rule, the following definitions apply:

(a) "Aggregate resources" are naturally occurring concentrations of stone, rock, sand gravel, decomposed granite, limestone, pumice, cinders, and other naturally occurring solid materials commonly used in road building or other construction.

(b) "Conflicting use" is a use or activity that is subject to land use regulations and that would interfere with, or be adversely affected by, mining or processing activities at a significant mineral or aggregate resource site (as specified in subsection (5)(b) and section (7) of this rule).

(c) "Existing site" is an aggregate site that meets the requirements of subsection (3)(a) of this rule and was lawfully operating, or was included on an inventory of significant aggregate sites in an acknowledged plan, on September 1, 1996.

(d) "Expansion area" is an aggregate mining area contiguous to an existing site.

(e) "Farmland" means land planned and zoned for exclusive farm use pursuant to Goal 3 and OAR chapter 660, division 033.

(f) "Mineral resources" are those materials and substances described in ORS 517.750(7) but excluding materials and substances described as "aggregate resources" under subsection (a) of this section.

(g) "Minimize a conflict" means to reduce an identified conflict to a level that is no longer significant. For those types of conflicts addressed by local, state, or federal standards (such as the Department of Environmental Quality standards for noise and dust levels), to "minimize a conflict" means to ensure conformance to the applicable standard.

(h) "Mining" is the extraction and processing of mineral or aggregate resources, as defined in ORS 215.298(1)(b) for farmland, and in ORS 517.750 for land other than farmland.

(i) "Mining area" is the area of a site within which mining is permitted or proposed, excluding undisturbed buffer areas or areas on a parcel where mining is not authorized.

(j) "Processing" means the activities described in ORS 517.750(10).

(k) "Protect" means to adopt land use regulations for a significant mineral or aggregate site in order to authorize mining of the site. For purposes of subsection (2)(d) of this rule, "protect" also means to limit or prohibit new conflicting uses within the impact area of the site.

(l) "Thickness of the aggregate layer" means the depth of the water-lain deposit of sand, stones, and pebbles of sand-sized fraction or larger, minus the depth of the topsoil and nonaggregate overburden.

(m) "Willamette Valley" means Clackamas, Columbia, Linn, Marion, Multnomah, Polk, Washington, and Yamhill counties and the portions of Lane and Benton Counties east of the summit of the Coast Range.

Department of Geology and Mineral Industries

Chapter 632

Division 33
OREGON MINED LAND RECLAMATION ACT — APPLICABLE TO EXPLORATION ACTIVITIES OBTAINING PERMITS AFTER JULY 31, 1990

632-033-0025
Exploration Permit Requirements

(1) Applicants seeking Exploration Permits from the department should be aware that other state, federal and local agencies may require the applicant to obtain approval prior to operation. For example, the United States Forest Service (USFS) requires a notice of intent or plan of operations. Where feasible, the department shall coordinate with other agencies to avoid duplication on the part of applicants. An Exploration Permit from the department does not constitute authorization to proceed without approval of other agencies if required. It is the applicant's responsibility to obtain other necessary permits.

(2) Information Requirements. The department may require any information reasonably necessary to assess impacts of the proposed exploration and determine the status of any exploration. Any production records, mineral assessments or trade secrets submitted as part of an application shall be confidential.

(3) Exploration or drilling an exploration drill hole greater than 50' is subject to these rules.

(4) Exploration must be conducted to prevent a decrease in quality or loss of quantity to an existing or potential water supply to the greatest practicable extent.

(5) Exploration shall be conducted so as to minimize adverse effect upon wildlife.

(6) An applicant for an exploration permit is encouraged to contact the department at the Albany office at least 90 days prior to initiation of the proposed drilling activities.

(7) Information required in written form shall include but not be limited to:

(a) Contact Information:

(A) Name, address and telephone number of the applicant;

(B) Name, address, telephone number and verification of consent of the surface owner(s);

(C) Name, address, and telephone number of the project contact person;

(D) Name and address of the drilling contractor(s);

(E) Name, address, and telephone number of the mineral estate owner(s) and lessor if applicable;

(F) Name and address of any designated agent.

(b) Project Description:

(A) Legal description of the project area;

(B) Permit area map(s) of a suitable scale including but not limited to the following information:

(i) Proposed permit area boundary;

(ii) Locations of surface disturbance resulting from exploration activities;

(iii) Proposed location and identification of drill sites, trenches and bulk sampling sites; and

(2) Local governments are not required to amend acknowledged inventories or plans with regard to mineral and aggregate resources except in response to an application for a post acknowledgement plan amendment (PAPA) or at periodic review as specified in section (9) of this rule. The requirements of this rule modify, supplement, or supersede the requirements of the standard Goal 5 process in OAR 660-023-0030 through 660-023-0050, as follows:

(a) A local government may inventory mineral and aggregate resources throughout its jurisdiction, or in a portion of its jurisdiction. When a local government conducts an inventory of mineral and aggregate sites in all or a portion of its jurisdiction, it shall follow the requirements of OAR 660-023-0030 except as modified by subsection (b) of this section with respect to aggregate sites. When a local government is following the inventory process for a mineral or aggregate resource site under a PAPA, it shall follow the applicable requirements of OAR 660-023-0030, except where those requirements are expanded or superceded for aggregate resources as provided in subsections (b) through (d) of this section and sections (3), (4) and (8) of this rule;

(b) Local governments shall apply the criteria in section (3) or (4) of this rule, whichever is applicable, rather than OAR 660-023-0030(4), in determining whether an aggregate resource site is significant;

(c) Local governments shall follow the requirements of section (5) or (6) of this rule, whichever is applicable, in deciding whether to authorize the mining of a significant aggregate resource site, and OAR 660-023-0040 through 660-023-0050 in deciding whether to authorize mining of a significant mineral resource; and

(d) For significant mineral and aggregate sites where mining is allowed, except for aggregate sites that have been determined to be significant under section (4) of this rule, local governments shall decide on a program to protect the site from new off-site conflicting uses by following the standard ESEE process in OAR 660-023-0040 and 660-023-0050 with regard to such uses.

(3) An aggregate resource site shall be considered significant if adequate information regarding the quantity, quality, and location of the resource demonstrates that the site meets any one of the criteria in subsections (a) through (c) of this section, except as provided in subsection (d) of this section:

(a) A representative set of samples of aggregate material in the deposit on the site meets applicable Oregon Department of Transportation (ODOT) specifications for base rock for air degradation, abrasion, and soundness, and the estimated amount of material is more than 2,000,000 tons in the Willamette Valley, or more than 500,000 tons outside the Willamette Valley;

(b) The material meets local government standards establishing a lower threshold for significance than subsection (a) of this section; or

(c) The aggregate site was on an inventory of significant aggregate sites in an acknowledged plan on September 1, 1996.

(d) Notwithstanding subsections (a) and (b) of this section, except for an expansion area of an existing site if the operator of the existing site on March 1, 1996, had an enforceable property interest in the expansion area on that date, an aggregate site is not significant if the criteria in either paragraphs (A) or (B) of this subsection apply:

(A) More than 35 percent of the proposed mining area consists of soil classified as Class I on Natural Resource and Conservation Service (NRCS) maps on June 11, 2004; or

(B) More than 35 percent of the proposed mining area consists of soil classified as Class II, or of a combination of Class II and Class I or Unique soil, on NRCS maps available on June 11, 2004, unless the average thickness of the aggregate layer within the mining area exceeds:

(i) 60 feet in Washington, Multnomah, Marion, Columbia, and Lane counties;

(ii) 25 feet in Polk, Yamhill, and Clackamas counties; or

(iii) 17 feet in Linn and Benton counties.

(4) Notwithstanding section (3) of this rule, a local government may also determine that an aggregate resource site on farmland is significant if subsections (a) and (b) of this section apply or if subsection (c) of this section applies:

(a) The quantity of material proposed to be mined from the site is estimated to be 2,000,000 tons of aggregate material or less for a site in the Willamette Valley, or 500,000 tons or less for a site outside the Willamette Valley; and

(b) Not more than 35 percent of the proposed mining area consists of soil:

(A) Classified as Class I on Natural Resource and Conservation Service (NRCS) maps available on June 11, 2004; or

(B) Classified as Class II, or of a combination of Class II and Class I or Unique soil, on NRCS maps on June 11, 2004, unless the average thickness of the aggregate layer within the mining area exceeds the amounts specified in paragraph (B) of subsection (3)(d) of this rule.

(c) A local land use permit that allows mining on the site was issued prior to April 3, 2003, and the permit is in effect at the time of the significance determination.

(5) For significant mineral and aggregate sites, local governments shall decide whether mining is permitted. For a PAPA application involving an aggregate site determined to be significant under section (3) of this rule, the process for this decision is set out in subsections (a) through (g) of this section. A local government must complete the process within 180 days after receipt of a complete application that is consistent with section (8) of this rule, or by the earliest date after 180 days allowed by local charter.

(a) The local government shall determine an impact area for the purpose of identifying conflicts with proposed mining and processing activities. The impact area shall be large enough to include uses listed in subsection (b) of this section and shall be limited to 1,500 feet from the boundaries of the mining area, except where factual information indicates significant potential conflicts beyond this distance. For a proposed expansion of an existing aggregate site, the impact area shall be measured from the perimeter of the proposed expansion area rather than the boundaries of the existing aggregate site and shall not include the existing aggregate site.

(b) The local government shall determine existing or approved land uses within the impact area that will be adversely affected by proposed mining operations and shall specify the predicted conflicts. For purposes of this section, "approved land uses" are dwellings allowed by a residential zone on existing platted lots and other uses for which conditional or final approvals have been granted by the local government. For determination of conflicts from proposed mining of a significant aggregate site, the local government shall limit its consideration to the following:

(A) Conflicts due to noise, dust, or other discharges with regard to those existing and approved uses and associated activities (e.g., houses and schools) that are sensitive to such discharges;

(B) Potential conflicts to local roads used for access and egress to the mining site within one mile of the entrance to the mining site unless a greater distance is necessary in order to include the intersection with the nearest arterial identified in the local transportation plan. Conflicts shall be determined based on clear and objective standards regarding sight distances, road capacity, cross section elements, horizontal and vertical alignment, and similar items in the transportation plan and implementing ordinances. Such standards for trucks associated with the mining operation shall be equivalent to standards for other trucks of equivalent size, weight, and capacity that haul other materials;

(C) Safety conflicts with existing public airports due to bird attractants, i.e., open water impoundments as specified under OAR chapter 660, division 013;

(D) Conflicts with other Goal 5 resource sites within the impact area that are shown on an acknowledged list of significant resources and for which the requirements of Goal 5 have been completed at the time the PAPA is initiated;

(E) Conflicts with agricultural practices; and

(F) Other conflicts for which consideration is necessary in order to carry out ordinances that supersede Oregon Department of Geology and Mineral Industries (DOGAMI) regulations pursuant to ORS 517.780.

(c) The local government shall determine reasonable and practicable measures that would minimize the conflicts identified under subsection (b) of this section. To determine whether proposed measures would minimize conflicts to agricultural practices, the requirements of ORS 215.296 shall be followed rather than the requirements of this section. If reasonable and practicable measures are identified to minimize all identified conflicts, mining shall be allowed at the site and subsection (d) of this section is not applicable. If identified conflicts cannot be minimized, subsection (d) of this section applies.

(d) The local government shall determine any significant conflicts identified under the requirements of subsection (c) of this section that cannot be minimized. Based on these conflicts only, local government shall determine the ESEE consequences of either allowing, limiting, or not allowing mining at the site. Local governments shall reach this decision by weighing these ESEE consequences, with consideration of the following:

(A) The degree of adverse effect on existing land uses within the impact area;

(B) Reasonable and practicable measures that could be taken to reduce the identified adverse effects; and

(C) The probable duration of the mining operation and the proposed post-mining use of the site.

(e) Where mining is allowed, the plan and implementing ordinances shall be amended to allow such mining. Any required measures to minimize conflicts, including special conditions and procedures regulating mining, shall be clear and objective. Additional land use review (e.g., site plan review), if required by the local government, shall not exceed the minimum review necessary to assure compliance with these requirements and shall not provide opportunities to deny mining for reasons unrelated to these requirements, or to attach additional approval requirements, except with regard to mining or processing activities:

(A) For which the PAPA application does not provide information sufficient to determine clear and objective measures to resolve identified conflicts;

(B) Not requested in the PAPA application; or

(C) For which a significant change to the type, location, or duration of the activity shown on the PAPA application is proposed by the operator.

(f) Where mining is allowed, the local government shall determine the post-mining use and provide for this use in the comprehensive plan and land use regulations. For significant aggregate sites on Class I, II and Unique farmland, local governments shall adopt plan and land use regulations to limit post-mining use to farm uses under ORS 215.203, uses listed under ORS 215.213(1) or 215.283(1), and fish and wildlife habitat uses, including wetland mitigation banking. Local governments shall coordinate with DOGAMI regarding the regulation and reclamation of mineral and aggregate sites, except where exempt under ORS 517.780.

(g) Local governments shall allow a currently approved aggregate processing operation at an existing site to process material from a new or expansion site without requiring a reauthorization of the existing processing operation unless limits on such processing were established at the time it was approved by the local government.

(6) For an aggregate site on farmland that is determined to be significant under section (4) of this rule, the requirements of section (5) of this rule are not applicable, except for subsection (5)(f), and the requirements of OAR 660-023-0040 though 660-023-0050 are not applicable. Instead, local governments shall decide whether mining is permitted by applying subsections (a) through (d) of this section:

(a) The proposed aggregate mine shall satisfy discretionary conditional use permit approval standards adopted by the local government pursuant to applicable requirements of ORS 215.213(2) or 215.283(2), and the requirements of ORS 215.296 and 215.402 through 215.416;

(b) The local government shall determine the post-mining use in accordance with subsection (5)(f) of this rule;

(c) The local government shall issue a permit for mining aggregate only for a site included on an inventory of significant aggregate sites in the comprehensive plan in accordance with ORS 215.298(2); and

(d) The conditional use permit shall not allow mining of more than the maximum amount of aggregate material specified under subsection (4)(a) of this rule.

(7) Except for aggregate resource sites determined to be significant under section (4) of this rule, local governments shall follow the standard ESEE process in OAR 660-023-0040 and 660-023-0050 to determine whether to allow, limit, or prevent new conflicting uses within the impact area of a significant mineral and aggregate site. (This requirement does not apply if, under section (5) of this rule, the local government decides that mining will not be authorized at the site.)

(8) In order to determine whether information in a PAPA submittal concerning an aggregate site is adequate, local government shall follow the requirements of this section rather than OAR 660-023-0030(3). An application for approval of an aggregate site following sections (4) and (6) of this rule shall be adequate if it provides sufficient information to determine whether the requirements in those sections are satisfied. An application for a PAPA concerning a significant aggregate site following sections (3) and (5) of this rule shall be adequate if it includes:

(a) Information regarding quantity, quality, and location sufficient to determine whether the standards and conditions in section (3) of this rule are satisfied;

(b) A conceptual site reclamation plan;

NOTE: Final approval of reclamation plans resides with DOGAMI rather than local governments, except as provided in ORS 517.780

(c) A traffic impact assessment within one mile of the entrance to the mining area pursuant to section (5)(b)(B) of this rule;

(d) Proposals to minimize any conflicts with existing uses preliminarily identified by the applicant within a 1,500 foot impact area; and

(e) A site plan indicating the location, hours of operation, and other pertinent information for all proposed mining and associated uses.

(9) Local governments shall amend the comprehensive plan and land use regulations to include procedures and requirements consistent with this rule for the consideration of PAPAs concerning aggregate resources. Until such local regulations are adopted, the procedures and requirements of this rule shall be directly applied to local government consideration of a PAPA concerning mining authorization, unless the local plan contains specific criteria regarding the consideration of a PAPA proposing to add a site to the list of significant aggregate sites, provided:

(a) Such regulations were acknowledged subsequent to 1989; and

(b) Such regulations shall be amended to conform to the requirements of this rule at the next scheduled periodic review after September 1, 1996, except as provided under OAR 660-023-0250(7).

Statutory/Other Authority: ORS 183 & ORS 197
Statutes/Other Implemented: ORS 197.040 & ORS 197.225 - 197.245
History:
LCDD 7-2018, minor correction filed 08/13/2018, effective 08/13/2018
LCDD 5-2004, f. & cert. ef. 6-25-04
LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

Please use this link to bookmark or link to this rule.

v2.0.10

System Requirements Privacy Policy Accessibility Policy Oregon Veterans Oregon.gov

Oregon State Archives • 800 Summer Street NE • Salem, OR 97310
Phone: 503-373-0701 • Fax: 503-373-0953 • Adminrules.Archives@sos.oregon.gov

© 2022 Oregon Secretary of State
All Rights Reserved