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## Memorandum

Date: September 16, 2021  
To: Board of Directors  
From: Kellyx Nelson  
Re: Recommendation to approve a Grading Permit Exemption for an agricultural access road at the Johnston Ranch property.

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RCD staff recommends the Board of Directors approve a grading permit exemption for relocation of an agricultural access road proposed by Peninsula Open Space Trust (POST) on the Johnston Ranch property along Higgins Canyon Road near Half Moon Bay. (See Location Map)

Relocation of the road is necessary to preserve access for the tenant farmer to his fields and an agricultural pond on the property. The current location of the road follows the previously mapped eastern boundary of POST's property, next to the City of Half Moon Bay's Johnston House property. A recent boundary survey showed that the property line was incorrectly mapped too far to the east (i.e. on City property). The project will realign 1,450 linear feet of existing road about 100-200 feet to the west such that it follows the actual eastern edge of POST's property and the farmer's fields. The City has granted POST a thirty-foot easement along the property line for the road so that the new road alignment will not affect the farming operation.

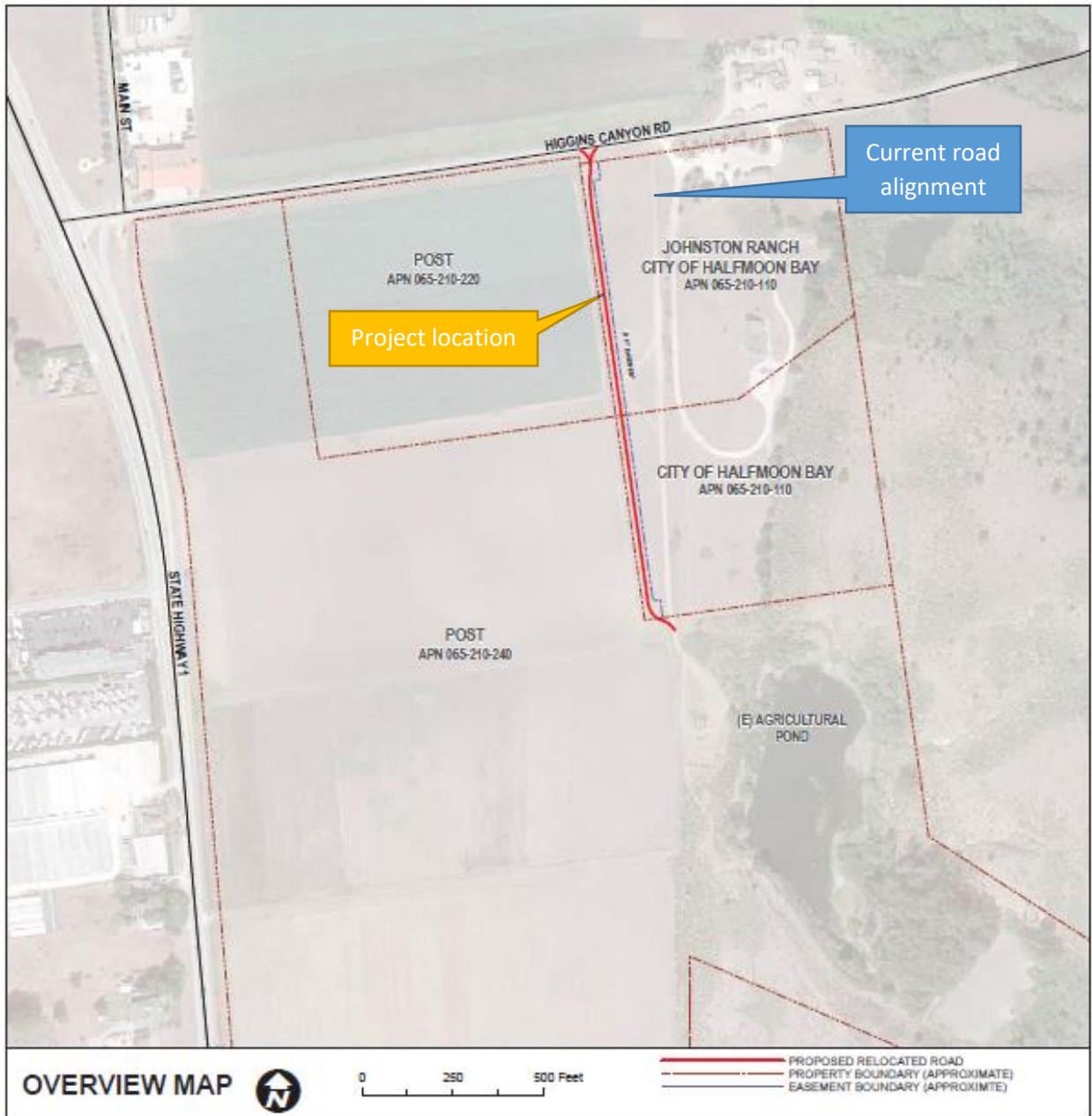
RCD staff has determined that the project is consistent with Section 9284 (N) of Chapter 5, Article 1 of the San Mateo County Ordinance Code for exemption from the regulations for excavating, grading, filling and clearing on lands in unincorporated San Mateo County for "Agricultural use of land that is operated in accordance with a conservation plan approved by and implemented according to the practices of the Resource Conservation District (RCD) or when it is determined by the RCD that such use will not cause excessive erosion or sediment losses, based on applicable soil loss tolerance values."

RCD staff reviewed the proposed project and conducted a site visit (on June 16, 2021) with the applicant and their project engineer Tim Best (Certified Engineering Geologist). The engineering designs were reviewed by Natural Resource Conservation Service (NRCS) staff Dillon Beatty (Agricultural Engineer). POST has worked with the RCD and NRCS on prior conservation projects and Tim Best has considerable experience with RCD projects.

In an email dated August 18, 2021 (attached) NRCS determined that Tim Best's road design for Johnston Ranch meets the following criteria NRCS Design Standard 560-Access Road (attached) and, as such, meets NRCS Conservation Practice Standard 560.

- Location – Realignment shall remove portions of an existing field road with drainage and erosion issues and increases connectivity of active fields (currently in hay production) and critical water infrastructure.
- Alignment - Realignment reduces road grade to 10% or less in all sections. CPS 560 states a maximum road grade not to exceed 15%, except in special cases.
- Width – Tread width of road is 12' with 1' shoulders on each side which is in accordance with the minimum of 10' tread width plus 2' shoulders on each side for one-way traffic, per CPS 560.
- Type of Road – Ingress-egress since road shall be used as the main travel route into and out of the surrounding fields. Road is considered all purpose, and intended for one-way traffic only, per CPS 560.
- Side Slopes – All side slopes (cuts and fills) are no steeper than 3:1 (H:V). CPS 560 states a maximum slope of 2:1 (H:V)
- Drainage – The road subgrade shall be outsloped 3% to 5% along its entire length, thereby eliminating the need for inboard ditches and/or drain relief culverts. Rolling dips will be placed at approximately 450' increments, or where existing drainageways intersect road.
- Surfacing – Entire roadway is scheduled to be surfaced with 8" minimum compacted 4" minus base, placed above 6" minimum compacted subgrade. Base rock and subgrade to be separated by geotextile fabric.
- Traffic Safety – Grade and drainage features are expected to provide adequate traffic safety.
- Erosion Control – Erosion control is as scheduled in the drawing and expected to meet NRCS CPS 342, Critical Area Planting, and/or CPS 484, Mulching.
- Operation and Maintenance of the road is expected follow the Operation and Maintenance Plan - Access Road code 560, available on the NRCS EFOTG website. Site specific criteria to be provided by Tim Best.

# Location Map



## Sara Polgar

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**From:** Beatty, Dillon - NRCS, Half Moon Bay, CA <dillon.beatty@usda.gov>  
**Sent:** Wednesday, August 18, 2021 3:07 PM  
**To:** Sara Polgar  
**Subject:** NRCS review GRX memo  
**Attachments:** 560\_CA\_OM\_Access\_Road\_2012.pdf

Hi Sara,

Here is the revised copy approved by both Desi (Area Engineer) and Jim (District Conservationist). Let me know if I can assist you any other way, or if another revision is needed. I've attached the 560 Access Road O&M for your reference—it is also available on the NRCS EFOTG website, as stated in the memo.

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### MEMO:

RCD staff recommends the Board of Directors approve a grading permit exemption for improvement to an agricultural access road proposed by Peninsula Open Space Trust (POST) on their Johnston Ranch property near Half Moon Bay.

The current location of the road follows the previously mapped eastern boundary of POST's property, next to the City of Half Moon Bay's Johnston House property. A recent boundary survey showed that the property line was incorrectly mapped too far to the east (i.e. on City property). The project will realign approximately 1,400 linear feet of existing road about 200 feet to the west such that it follows the actual eastern edge of POST's property and the farmer's fields. The City has granted POST a thirty-foot easement along the property line for the road so that the new road alignment will not affect the farming operation.

RCD staff have reviewed the proposed project and conducted a site visit (on June 16, 2021) with the applicant and their project engineer Tim Best (Certified Engineering Geologist). The engineering designs have been reviewed by NRCS staff Dillon Beatty (Agricultural Engineer). POST has worked with the RCD and NRCS on prior conservation projects and Tim Best, has considerable experience with RCD projects.

Regarding NRCS Conservation Practice Standard (CPS) 560-Access Road (document attached), the road meets the following criteria:

- Location – Realignment shall remove portions of an existing field road with drainage and erosion issues and increases connectivity of active fields (currently in hay production) and critical water infrastructure.
- Alignment - Realignment reduces road grade to 10% or less in all sections. CPS 560 states a maximum road grade not to exceed 15%, except in special cases.
- Width – Tread width of road is 12' with 1' shoulders on each side which is in accordance with the minimum of 10' tread width plus 2' shoulders on each side for one-way traffic, per CPS 560.
- Type of Road – Ingress-egress since road shall be used as the main travel route into and out of the surrounding fields. Road is considered all purpose, and intended for one-way traffic only, per CPS 560.
- Side Slopes – All side slopes (cuts and fills) are no steeper than 3:1 (H:V). CPS 560 states a maximum slope of 2:1 (H:V)

- Drainage – The road subgrade shall be outsloped 3% to 5% along its entire length, thereby eliminating the need for inboard ditches and/or drain relief culverts. Rolling dips will be placed at approximately 450' increments, or where existing drainageways intersect road.
- Surfacing – Entire roadway is scheduled to be surfaced with 8" minimum compacted 4" minus base, placed above 6" minimum compacted subgrade. Base rock and subgrade to be separated by geotextile fabric.
- Traffic Safety – Grade and drainage features are expected to provide adequate traffic safety.
- Erosion Control – Erosion control is as scheduled in the drawing and expected to meet NRCS CPS 342, Critical Area Planting, and/or CPS 484, Mulching.
- Operation and Maintenance of the road is expected to follow the Operation and Maintenance Plan - Access Road code 560, available on the NRCS EFOTG website. Site specific criteria to be provided by Tim Best.

As such, Tim Best's design for Johnston Ranch meets NRCS Conservation Practice Standard 560.

Thank you,  
Dillon Beatty, Agricultural Engineer

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**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD**

**ACCESS ROAD**

(Ft)

**CODE 560**

**DEFINITION**

A travel-way for equipment and vehicles constructed as part of a conservation plan.

**PURPOSE**

To provide a fixed route for vehicular travel for resource activities involving the management of timber, livestock, agriculture, wildlife habitat, and other conservation enterprises while protecting the soil, water, air, fish, wildlife, and other adjacent natural resources.

**CONDITIONS WHERE PRACTICE APPLIES**

Where access is needed from a private or public road or highway to a land use enterprise or conservation measure, or where travel ways are needed in a planned land use area.

Access roads range from seasonal use roads, designed for low speed and rough driving conditions, to all-weather roads heavily used by the public and designed with safety as a high priority. Some roads are only constructed for a single purpose; i.e. control of forest fires, logging and forest management activities, access to remote recreation areas, or access for maintenance of facilities.

**CRITERIA**

Access roads shall be designed to serve the enterprise or planned use with the expected vehicular or equipment traffic. The type of vehicle or equipment, speed, loads, soil, climatic, and other conditions under which vehicles and equipment are expected to operate need to be considered. Planned work shall comply with all federal, state and local laws and regulations.

Visual resources and environmental values shall be considered in planning and designing the road system.

Where general public use is anticipated, roads shall be designed to meet applicable federal, state and local criteria.

Sound engineering practices shall be followed to ensure that the road meets the requirements of its intended use and that maintenance requirements are in line with operating budgets.

Clearing of land and disposal shall be carried out in accordance with state laws and county ordinances.

The cross-section shall be adequate to carry collected water to protected drop inlets or on protected waterways to appropriate release points. Roads may be out-sloped only where adequate provisions are made to collect the runoff water and to discharge the flow into stable watercourses.

**Location** - Roads shall be located to serve the purpose intended, to facilitate the control and disposal of surface and subsurface water, to control or reduce erosion, to make the best use of topographic features, and to include scenic vistas where possible. The roads should generally follow natural contours and slopes to minimize disturbance of drainage patterns. Roads shall be located where they can be maintained and where water management problems are not created. To reduce potential pollution, roads shall be located away from watercourses and utilize buffers where possible to protect water bodies.

**Alignment** - The gradient and horizontal alignment shall be adapted to the intensity of use, mode of travel, the type of equipment and load weights, and the level of development.

Grades normally should not exceed 10 percent except for short lengths. Maximum grades of 18 percent should only be exceeded if necessary for special uses such as logging roads, field access roads, fire protection roads or other roads not accessible for use by the general public.

For stream crossings, the road should be aligned so that it crosses perpendicular to the channel as much as possible.

**Width** - The minimum width of the roadbed is 14 ft for one-way traffic and 20 ft for two-way traffic. The roadbed width includes a tread-width of 10 feet for one-way traffic or 16 feet for two-way traffic. Each type of road also requires a minimum of 2 feet of shoulder width on each side of the tread width. Single-lane logging or special-purpose roads can have a minimum width of 10 feet, with greater widths at curves and turnouts. The two-way traffic width shall be increased approximately 4 feet for trailer traffic. The shoulder width may be either gravel or grass. The minimum width of a single lane field road is 10 feet.

Turnouts shall be used on single lane roads where vehicles travel in both directions on a limited basis. Where turnouts are used, road width shall be increased to a minimum of 20 feet for a distance of at least 30 feet.

### Types of Field Roads

1. Ingress-egress roads (commonly called connecting roads) are used as the main travel routes into and out of the field and may be constructed on grades as steep as loaded vehicles can travel safely, usually no steeper than 10 percent. These roads should be surfaced with either gravel or asphalt.
2. Diversion roads are placed around the hillside either on a contour or on a grade less than 2 percent. They have a cross-section sloped inward to collect and convey runoff water to a designed outlet. These roads are used mainly during harvest and

are usually surfaced with a vegetative cover.

3. Bench roads are constructed either on a contour or a grade less than 2 percent and have a cross-section sloped outward. However, on hillsides where bench roads are constructed, a diversion road is to be constructed to collect the runoff at intervals of 15 feet of vertical distance.
4. Ridge roads (sometimes called fire breaks) are constructed along ridges mainly to control the spread of fire. These roads are always maintained in a "bare" condition.
5. Logging roads are constructed in forested areas to provide management control of forest and removal of logs during timber harvesting.
6. Pasture or rangeland roads are constructed in rangeland to provide for pasture management.

**Side slopes** - All cuts and fills shall be designed to have stable slopes of a minimum of 2 horizontal to 1 vertical on heights of less than 4 feet. For short lengths, rock areas, or very steep hillsides, steeper slopes may be permitted, if soil conditions warrant and special stabilization measures are installed.

Areas with geological conditions and soils subject to slides shall be avoided or treated to prevent slides.

**Drainage** - The type of drainage structure used will depend on the intended use and runoff conditions. Culverts, bridges, fords, or grade dips for water management shall be provided at all natural drainage ways. The capacity and design shall be consistent with sound engineering principles and shall be adequate for the class of vehicle, type of road, development, or use. When a culvert or bridge is installed in a drainage way, its minimum capacity shall convey the design storm runoff without causing erosion or road overtopping. Table 1 lists minimum design storm frequencies for various road types.

**Table 1**

| Road Type  | Storm Frequency   |
|--|-------------------|
| Forest Access Roads,<br>Farm Field Access Roads        | 2 year - 24 Hour  |
| Farm Driveways,<br>Recreation Facility<br>Access Roads | 10 year - 24 Hour |
| Public Access Roads,<br>Camp grounds, Etc.             | 25 year - 24 Hour |

An erosion-resistant low point or overflow area may be constructed across the access road to supplement culvert capacity on non-public use roads. Culverts, bridges, fords and hardened overflow areas should be installed so the road crossing does not significantly impact fish migration.

Roadside ditches shall be adequate to provide surface drainage for the roadway and deep enough, as needed to serve as outlets for subsurface drainage. At a minimum, the roadside ditch shall be 1.0 foot below the top of road surface to provide internal drainage. Ditch channels shall be designed to be on stable grades or protected with structures or linings for stability.

Water-breaks or water-bars may be used to control surface runoff on low-intensity use forest, ranch or similar roads. On steep grades where runoff and erosion is anticipated down the road, water bars should be considered. When roads are at cross slope with the land, waterbars and drop inlets shall be installed across the roadway at intervals. Where water is to be conveyed along the road for more than 150 feet, a protected ditch should be considered. Water bars must be constructed of materials that are compatible with the use and maintenance of the road surface. Water bar discharge areas must be well vegetated or have other erosion resistant materials. See Figure 1 for Recommended Spacing of Relief Culverts and Water Bars Based on Soil Type.

Surface crowning can also help direct road runoff into the side drainage ditches. Unobstructed flow into the ditches must be maintained to prevent flows from causing

roadside erosion. Provide a turnaround at the end of dead end roads. In some areas, turnarounds may also be desirable for stream, lake, recreation, or other access purposes.

To convey water down a hillside, the installation of Grassed Waterway (412) or Underground Outlet (620) will be necessary. In order to reduce sediment pollution, it may be necessary to construct Sediment Basins (350). These measures are to be designed according to the applicable practice standards.

Provide parking space as needed to keep vehicles off the road or from being parked in undesirable locations.

**Surfacing** - Access roads shall be given a wearing course or surface treatment if required by traffic needs, soil, climate, erosion control, or dust control. The type of treatment, if needed, depends on local conditions, available materials, and the existing road base. If these factors or the volume of traffic is not a problem, no special treatment of the surface is required. On weak bearing capacity soils such as silts, organics, and clays, the surface treatment should be underlain with a geotextile material specifically designed for road stabilization applications when the road is used on a regular basis.

Unsurfaced roads may require controlled access to prevent damage or hazardous conditions during adverse climatic conditions.

Toxic and acid-forming materials shall not be used on roads. This should not be construed to prohibit use of chemicals for dust control and snow and ice removal after considering potential impacts on stabilizing vegetation.

Utilize additional conservation practices to reduce the potential for generation and transport of particulate matter emissions.

**Construction Operations** - Construction operations should be carried out in such a manner that erosion and air and water pollution are minimized and held within legal limits. Construction shall include the following requirements as necessary for the job:



1. Trees, stumps, roots, brush, weeds, and other objectionable material shall be removed from the work area.
2. Unsuitable material shall be removed from the roadbed area.
3. Grading, sub-grade preparation, and compaction shall be done as needed.
4. Surfacing shall be done as needed.

**Traffic safety** - Passing lanes, turnouts, guardrails, signs, and other facilities as needed for safe traffic flow shall be provided. Traffic safety shall be a prime factor in selecting the angle and grade of the intersection with public highways. Preferably, the angles shall be not less than 85 degrees. The public highway shall be entered either at the top of a hill or far enough from the top or a curve to provide visibility and a safe sight distance. The clear sight distance to each side shall not be less than 300 feet or as required by local regulations.

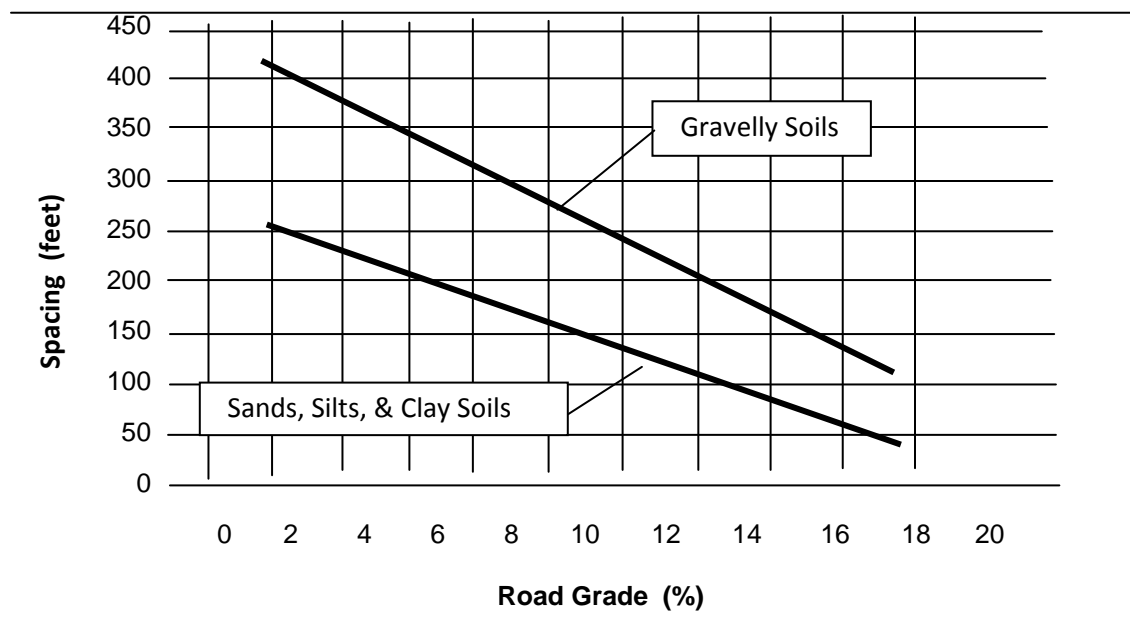
The turning radius of roads shall consider the minimum radius of the farm equipment or trucks that are expected to use the road.

**Erosion control** - If soil and climatic conditions are favorable, roadbanks and disturbed areas shall be vegetated as soon as possible and skid trails, landings, logging, and similar roads shall be vegetated after harvesting or seasonal use is completed (see Critical Area Planting). If the use of vegetation is precluded and protection against erosion is needed, protection shall be provided by non-vegetative materials, such as gravel or other organic or inorganic material (see Mulching), or in accordance with local regulations.

Roadside channels, cross drains, and drainage structure inlets and outlets shall be designed to be stable (see Structure for Water Control). If protection is needed, riprap or other similar materials shall be used.

Watercourses and water quality shall be protected during and after construction by erosion-control facilities and maintenance. Filter strips, water and sediment control basins, and other conservation practices shall be used and maintained as needed.

**Figure 1. Recommended Spacing of Relief Culverts and Water Bars Based on Soil Types**



## CONSIDERATIONS

Consider visual resources and environmental values during the planning and designing of the road system.

Access roads should be located where minimal adverse impacts will affect wetlands, water bodies, air quality, and wildlife habitat. Consideration should be given to the following:

### Air Quality Considerations

To reduce impaired air quality from dust from access roads, consideration should be given to the following:

- Effects from untreated, unpaved roads during harvest or heavy use periods;
- Effects from excessive speed and uncontrolled access on unpaved access roads;
- Effects from lack of dust control during construction of roads.

### Water Quantity

- Effects on downstream flows or aquifers that would affect other water uses or users.
- Effects on the volume and timing of downstream flow to prohibit undesirable environmental, social, or economic effects.
- Effects on snowcatch and melt on water budget components.

### Water Quality

The type of construction, maintenance, and the road's location determine the road's effect on water quality. When the access road is located across the slope, the runoff from the area upslope of the road may be retarded in the roadside ditches. This may cause sediment to be deposited in the ditch and along the roadside, reducing sediment delivery to the receiving waters. Runoff from the area downslope of the road may not be affected except where the road culverts or low water crossings may concentrate the discharge of the runoff from an uphill area. This may result in a higher carrying capacity of the outlet channel resulting in increased bank and channel erosion and direct transport of this detached sediment, de-icing salts and related pollutants.

There may be a concentration of pollutants in the roadside ditches, increased infiltration, and an increase in soluble chemicals being percolated into the soil water and into the ground water. Watch for:

- Short-term and construction-related effects of this practice on the quality of on-site downstream water courses;
- Overall effects on erosion and the movement of sediment, pathogens, and soluble and sediment-attached substances that would be carried by runoff from construction activities;
- Effects on the visual quality of water resources.

## PLANS AND SPECIFICATIONS

Plans and specifications for constructing access roads shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

## OPERATION AND MAINTENANCE

An operation and maintenance plan will be developed and carried out for the life of the practice:

1. Inspect culverts, roadside ditches, water bars, and outlets after each major runoff event and restore flow capacity as needed.
2. Minimize the damage to vegetative buffers adjacent to the road when it is necessary to chemically treat the road surface to maintain erosion protection.
3. Maintain vegetated areas in adequate cover. Re-seed and mow as needed.
4. Fill low areas in travel treads and re-grade, as needed, to maintain road cross section.
5. Inspect roads with water-bars periodically to insure proper cross section is available and outlets are stable.
6. Conservation practices that limit particulate matter emissions should be incorporated into long-term maintenance plans.