

# article 2: Five S's for landowners

This article discusses what we're calling *five S's for landowners*: safety, suitability, sustainability, satisfaction, and salmon friendly. Doing things in salmon friendly ways is the ultimate goal. The greater the number of landowners who (1) understand how their actions might affect salmon and (2) conduct their actions so as to protect salmon and their habitats, the healthier and more abundant our salmon populations will be. Thinking about the FIVE S's is a handy way to work towards being salmon friendly by doing the right thing at the right time in the right place in the right way so as to get and sustain the results you want, while keeping your lands and waters salmon friendly.

## The first S: SAFE

A good place to start when thinking about what to do on your land, and where and how to do it, is to ask: *How can I make my land uses and activities as safe as possible?*

We live in a landscape of earthquakes, volcanic eruptions, blizzards and heavy snowfalls, strong winds, big rainstorms, powerful flooding, and other potentially dangerous natural processes. These natural processes become “disasters” if we use our lands and waters in ways that don't take their force into consideration. As a result, it's prudent to do what we can to take these—and less dramatic processes like frost heaving and freeze-thaw effects—into account when developing land uses and activities. This helps keep us, our families, and our property safe.

Four considerations can help us do this (remember, words or phrases highlighted in blue have their own entry in the alphabetical watershedipedia):

- (1) Site land uses and activities where conditions are best suited for them (see the second S below: *Suitable*). For example, building in floodplains or meander belts exposes us to flood damage. Building on steep slopes or outside meander bends along rivers exposes us to accelerated erosion or slope failure. Building in wetlands exposes us to cracked foundations and failed septic system leach fields. Useful information about the suitability of different areas can be found in sources like the Western Kenai Peninsula Soil Survey and by going to the Kenai Peninsula Borough's GIS and using the interactive parcel viewer (see *introductory article 3: Exploring your watershed with online tools*). These sources can be used to find information about site conditions like shallow water tables, soils with poor weight-bearing capacities, slopes, and the presence of mapped wetlands.

- **SAFE** recognizing and avoiding potential hazards during development;
- **SUITABLE** – understanding how the terrain, soils, and other landscape features in your area affect how well or poorly suited that area is for particular land uses or activities;
- **SUSTAINABLE** – doing things so your kids and grandkids can do them too; and
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- **SALMON-FRIENDLY** – what a great goal!

- (2) Follow appropriate design standards and guidelines for your area, like the uniform building codes adopted for Alaska. (Alaskan building, mechanical, and fire codes are in Alaska Administrative Code, Title 13, Chapter 50 (13 AAC 50) at <http://www.touchngo.com/lglcntr/akstats/aac/title13/chapter050.htm>).
- (3) Take advantage of local information and programs about staying safe on the peninsula. We introduce many of these in the watershedipedia, including the state and borough's Firewise program and guidance from the Kenai Peninsula Borough's Office of Emergency Management (<http://www2.borough.kenai.ak.us/emergency/>) on preparing for tsunamis, earthquakes, and other natural hazards.
- (4) Incorporate Best Management Practices (BMPs) like buffers, raingardens, soil bioengineering, and Low Impact Development approaches into how you use and develop your lands and waters. This will help keep processes on your lands within natural ranges as much as possible, as opposed to changing them in ways that can lead to unforeseen (and extreme) consequences for you and your neighbors. For example, it's well established that communities with larger percentages of impervious surfaces are subject to “flashier” floods than areas with less, and each of us can reduce the impervious cover that we create. (Given the same storm intensity and duration, “flashy” floods rise faster and peak at higher water levels than natural floods.) Best management practices and other recommended approaches will help keep your lands and waters safe for salmon and for you.

## The second S: **SUITABLE**

Making the best choices about how to manage your lands and waters means understanding their *suitabilities* and *limitations*. These are two terms that pragmatic land managers get very familiar with. **Suitability** refers to how well or poorly **suit**ed a parcel is for a particular land use. Picture a steep hillside; it's obviously poorly suited for a ballfield that needs to be big and flat. For any land use, a parcel can be poorly suited for lots of reasons, called site *limitations*. In the ballfield example, “steep slope” is a site limitation.

Along with environmental site limitations, there are also political site limitations, like zoning restrictions or permitting requirements. For example, the Kenai Peninsula Borough restricts land uses within 50 feet of anadromous streams identified by the Alaska Department of Fish and Game in its **Anadromous Waters Catalog**. (The borough also provides tax incentives for activities that protect these important riparian areas so that adjacent salmon habitats are protected.) Similarly, the US Army Corps of Engineers regulates what we can do in **jurisdictional wetlands** because of the ecological services these areas provide, and the Alaska Department of Fish and Game does the same thing for anadromous streams below **ordinary high water**, primarily to protect salmon habitats and salmon living or spawning in those streams.

As mentioned above, a wealth of information about the suitability of your lands can be found in sources like the Western Kenai Peninsula Soil Survey (see **Soil survey**) and by going to the **Kenai Peninsula Borough's GIS** and using the interactive parcel viewer. These sources of information are discussed in more detail in *introductory article 3: Exploring you watershed with online tools*.

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Thinking about land suitability involves four basic steps:

1. Figure out what you want to do on your land (the example used above was, create a ballfield, but you'll probably be more interested in land uses like those shown in the table below and on the next page).
2. Identify what kinds of site conditions are best suited for that land use and what conditions work against it (for example, steep slopes work against putting in a ballfield; poorly drained soils or a high water table work against putting in a foundation or a septic system drainfield). [TheNatural Resources Conservation Service](#) and local builders and engineers can help identify what conditions should be considered for particular land uses.
3. Find out what site conditions exist on your land (that's where tools like the *Western Kenai Peninsula Soil Survey* or the tools discussed in introductory article 3 come in).

4. Given what you want to do and the conditions on your property, identify where it makes the most sense to locate your land use. The **tables on this page and the next** show how the Western Kenai Peninsula soil survey identifies suitabilities for different land uses. Names of peninsula soil types are listed in the left-hand column, then each soil is rated for land uses shown at the top of the table. If a soil has limitations for a land use, the kinds of limitations are identified under the suitability rating. For example soil 577 (Kachemak) is “Very limited” for “Camp and Picnic Areas” because of “Slope” and “Silty surface layer.” Once you know what limitations you're dealing with, you can consider which (if any) might be overcome cost effectively. The manuscript and maps for the Western Kenai Peninsula soil survey can be downloaded at [http://soildatamart.nrcs.usda.gov/Manuscripts/AK654/0/WIR\\_Manuscript.pdf](http://soildatamart.nrcs.usda.gov/Manuscripts/AK654/0/WIR_Manuscript.pdf).

Introductory article 3 offers more guidance on ways to accomplish step 3. [Watershedpedia](#) articles on [Soils](#), [Soil Survey](#), and [Soil texture](#) can help you

Western Kenai Peninsula Area, Alaska							415
Table 15. Recreation: Camp and Picnic Areas, Primitive Camp Areas, Foot and ATV Trails—Continued							
Map symbol and soil name	Pot. of map unit	Camp and Picnic Areas (Alaska criteria)		Primitive camp areas (Alaska criteria)		Foot and ATV trails (Alaska criteria)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
577: Kachemak -----	90	Very limited: Slope Silty surface layer dusty when dry and slippery when wet	1.00 0.50	Very limited: Slope Silty surface layer dusty when dry and slippery when wet	1.00 0.50	Somewhat limited: Silty surface layer dusty when dry and slippery when wet	0.50
578: Kachemak, cool -----	80	Somewhat limited: Silty surface layer dusty when dry and slippery when wet	0.50	Somewhat limited: Silty surface layer dusty when dry and slippery when wet	0.50	Somewhat limited: Silty surface layer dusty when dry and slippery when wet	0.50
579: Kachemak, cool -----	80	Somewhat limited: Silty surface layer dusty when dry and slippery when wet Slope	0.50 0.37	Somewhat limited: Silty surface layer dusty when dry and slippery when wet Slope	0.50 0.37	Somewhat limited: Silty surface layer dusty when dry and slippery when wet	0.50
580: Kachemak, cool -----	80	Very limited: Slope Silty surface layer dusty when dry and slippery when wet	1.00 0.50	Very limited: Slope Silty surface layer dusty when dry and slippery when wet	1.00 0.50	Somewhat limited: Silty surface layer dusty when dry and slippery when wet	0.50

understand steps 2, 3, and 4 better. If you're in the market for a piece of land, it makes sense to look at site conditions and suitabilities on parcels you might buy. No site will be perfect for every land use, so thinking about which limitations can be overcome or minimized most safely and cost effectively is often necessary.

The **table below** provides another example of peninsula soils rated for several land uses, all of which involve “Building Site Development: Structures” (source: [http://soildatamart.nrcs.usda.gov/Manuscripts/AK652/0/WesternKenai\\_manu.pdf](http://soildatamart.nrcs.usda.gov/Manuscripts/AK652/0/WesternKenai_manu.pdf)).

Western Kenai Peninsula Area, Alaska							481
Table 18. Building Site Development: Structures—Continued							
Map symbol and soil name	Pct. of map unit	Dwellings without basements (Standard criteria)		Dwellings with basements (Standard criteria)		Small commercial buildings (Standard criteria)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
668: Soldotna, sandy substratum	55	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Kenai	40	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50
669: Soldotna, sandy substratum	55	Not limited		Not limited		Somewhat limited Slope	0.50
Kenai	40	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Slope Shrink-swell	0.50 0.50
670: Soldotna	50	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
Kichatna	40	Somewhat limited Slope	0.63	Somewhat limited Slope	0.63	Very limited Slope	1.00
671: Soldotna	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

## The third S: **SUSTAINABLE**

The watershedpedia includes two definitions of sustainable development:

- Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
- Using lands and waters in ways that maintain their productivity, biodiversity, and healthy functioning indefinitely. This also maintains the usefulness of these lands and waters to society indefinitely.

Basically, doing things sustainably means doing them so that future generations can do them too. Throughout the watershedpedia, we present many suggestions for making your land uses and activities more sustainable (see, for example, Best Management Practices, Buffers, Low Impact Development, and Soil bioengineering).

The **table below** summarizes various strategies for encouraging sustainability of land uses and activities, both at the watershed scale and the homeowner scale.

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Examples of general practices that help maintain land use sustainability and natural environmental functions, particular when applied to larger areas
Modified from <i>Best Development Practices</i> (R. Ewing, 1996)
<ul style="list-style-type: none"> <li>➤ Guide development into areas that are already disturbed.</li> <li>➤ Preserve patches of high-quality habitat, as large and circular as possible, feathered at the edges, and connected by greenways and wildlife corridors.</li> <li>➤ Design around significant wetlands so as to protect their functions and values.</li> <li>➤ Establish upland buffers around all retained wetlands and natural water bodies.</li> <li>➤ Preserve significant uplands too.</li> <li>➤ Detain runoff with open, natural drainage systems.</li> </ul>
Modified from <i>The Practice of Sustainable Development</i> (D. Porter et al., 2000)
<ul style="list-style-type: none"> <li>➤ Take advantage of a site's natural assets by preserving existing landforms and vegetation that define its natural structure and character.</li> <li>➤ Instead of spreading relatively low-density development evenly over the landscape, cluster development within a conserved natural environment [open space].</li> <li>➤ Understand natural processes and the stresses that adjacent developments may place on them.</li> <li>➤ Set development back from watercourses, erodible banks, and wetland edges.</li> <li>➤ Create landscapes that can be sustained as a permanent, ongoing natural environment—use native plant species that require as little water and maintenance as possible for those portions of the site that will remain undeveloped or be designed as natural open space.</li> <li>➤ Refrain from breaking up or promoting intrusion into contiguous expanses of sensitive habitats and wildlife management corridors.</li> </ul>

- Retain stormwater onsite to recharge aquifers and reduce peak streamflows downstream; use natural and constructed ponds and wetlands for stormwater management.

Incorporate Best Management Practices and Low Impact Development techniques wherever needed to minimize stormwater runoff and prevent erosion (see watershedpedia entries on Best Management Practices, Low Impact Development, Raingardens, Impervious surfaces, Stormwater runoff, etc.)

Examples:

- To the maximum extent possible, maintain natural vegetation and drainage patterns on your property and avoid clearing or disturbing soils.
- Minimize the amount of impervious surfaces created (for example, cleared and compacted areas, roofs, driveways, close-mowed lawns); this can be accomplished by minimizing both the footprints of structures and the disturbance of surrounding areas.
- If developing a land use that requires vegetation to be cleared (for example, a driveway or a parking area), lay it out perpendicular to, rather than parallel to, stream corridors or lakeshores.
- Install a raingarden to filter and store runoff from impervious surfaces.
- Surround areas that are disturbed, cleared, or have impervious surfaces (including close-mowed lawns) with naturally vegetated buffers.
- Avoid siting any clearings, structures, or impervious surfaces within 50 ft of the top of a streambank (consider this a minimum distance).
- Handle paint, gas, oil, and other pollutants so as to prevent any spillage, and dispose of cans, buckets, and other containers properly (for example, at local landfills during hazardous disposal events).

## The fourth S: **SATISFYING**

As mentioned earlier, thinking about the FIVE S's is a way to work towards doing the right thing at the right time in the right place in the right way so as to get the results you want. Getting the results you want, particularly when you know they're sustainable, is SATISFYING!

Doing things right the first time almost always means saving time and money in the long run. It also means winding up with land uses and activities that...

- best meet your goals,
- look good,
- function well,
- are sustainable
- minimize ongoing maintenance costs, and
- increase property values.

By thinking in terms of safety, suitability, and sustainability, we increase the likelihood that outcomes will be satisfying, both in the short term and the long run.

Below are a few more suggestions for helping you do the right thing at the right time in the right place in the right way.

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### 1. Learn from others' successes and failures

Whatever you've chosen to do, and whatever conditions you're dealing with, somebody in your watershed has probably tried to do something similar. To take advantage of their hard won experience, talk to neighbors and other locals about your goals and the conditions you're encountering. After all, learning from someone else's mistakes is almost always more pleasant than learning by making your own. In most cases, others will be happy to share their knowledge and experience, or at least steer you to sources of useful information.

### 2. Take advantage of available assistance

Many kinds of assistance and guidance are listed in the watershedpedia. For starters, look at entries for Partners for fish and wildlife, Raingardens, the Natural Resources Conservation Service, and Soil bioengineering. This assistance and guidance tends to be focused on helping landowners improve or restore salmon habitats.

### 3. Use how to guidelines

In addition to taking advantage of local expertise, you can learn from "how to" guidelines published for a wide number of land use activities. Many of such guidelines are included in the watershedpedia.

Entities like the NRCS, Homer Soil and Water, and the Cooperative Extension Service work to develop such guidelines, as do many non-profits and other organizations. Published "how to" guidelines go by a number of names, including "job sheets," "approved conservation practices," "best development practices," "best management practices," "best practices" and the like. By following such guidelines, you'll be taking care of conditions on your land in ways that sustain their functions and promote their productivity. You'll also be helping your neighborhood and watershed to function in ways that can benefit you and those around you for the long haul, including salmon. That brings us to the fifth S.

## The fifth S: Salmon friendly

The goal of the four S's discussed above is to keep watershed lands and waters salmon friendly. In the end, we all benefit if salmon habitats in our streams and rivers are protected and if the salmon using those habitats are abundant and healthy.

The poster on the right of salmon friendly lands and waters is by Vanessa Stark  
[http://www.thinksalmon.com/salmon\\_art/item/stewardship\\_pemberton\\_society/](http://www.thinksalmon.com/salmon_art/item/stewardship_pemberton_society/)

