Compliance Determination

SUBMIT TO COOS COUNTY PLANNING DEPT. AT 225 N. ADAMS STREET OR MAIL TO: COOS COUNTY PLANNING 250 N. BAXTER, COQUILLE OR 97423. EMAIL PLANNING@CO.COOS.OR.US PHONE: 541-396-7770

THIS APPLICATION WILL TAKE AT LEAST 30 DAYS TO PROCESS

Date Received: 6/8/20 *Receipt #:* 219279 *Received by:* A. Dibble

APPLICATIONS: ☒ **Compliance Determination** ☐ **Driveway/Parking** ☐ **Address**

FILE NUMBERS: CD-20-085 DR – 20-______ AD-20______

This application shall be filled out electronically. If you need assistance please contact staff.

Please be aware if the fees are not included the application will not be processed.

(If payment is received on line a file number is required prior to submittal)

LAND INFORMATION

Land Owner(s) (print name): Ray & Rhonda Durrer

Mailing address: ~~343 N Dean St. Coquille~~ P.O. Box 384, Coquille

Phone: 209-737-6817 Email: durrer69@yahoo.com

Applicant(s) (print name): Same as Above

Mailing address:

Phone: Email:

Type of Ownership: Please Select

Type of Use Requested: Please Select

PROPERTY - If multiple properties are part of this review please check here ☐ and attach a separate sheet with property information.

Township:	Range:	Section:	¼ Section:	1/16 Section:	Tax lot:
28S	13W	2	0	0	1100

Township:	Range:	Section:	¼ Section:	1/16 Section:	Tax lot:
Select	Select	Select	Select	Select	

Tax Account Number(s): 895600 Site Address: 96673 Hwy 42S. Coquille

CREMP

Zone: Exclusive Farm Use (EFU) Acreage: 14.00

Septic / City water

Any property information may be obtained from a tax statement or can be found on the County Assessor's webpage at the following links: Map Information Or Account Information

PROJECT DESCRIPTION:

Alter the existing dwelling by adding on an addition

An application for Compliance Determination (CD) is required to be submitted to the Planning Department with the elements described in §5.10.200. Once the application is received the Planning Staff will review the CD against the applicable zoning district to determine if additional reviews or notifications are required.

ACKNOWLEDGEMENT STATEMENT: PERTAINING TO THE SUBJECT PROPERTY DESCRIBED ABOVE, I HEREBY DECLARE THAT I AM THE LEGAL OWNER OF RECORD OR AN AGENT HAVING CONSENT OF THE LEGAL OWNER OF RECORD AND I AM AUTHORIZED TO OBTAIN THIS ZONING COMPLIANCE LETTER SO AS TO OBTAIN NECESSARY PERMITS FOR DEVELOPMENT FROM THE DEPARTMENT OF ENVIRONMENTAL QUALITY AND/OR THE BUILDING CODES AGENCY. THE STATEMENTS WITHIN THIS FORM ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I UNDERSTAND THAT ANY PERMITS AND/OR AUTHORIZATION FOR DEVELOPMENT ISSUED BY THE PLANNING DEPARTMENT MAY BE REVOKED IF IT IS DETERMINED THAT IT WAS ISSUED BASED ON FALSE STATEMENTS, MISREPRESENTATIONS OR IN ERROR. AS A CONDITION FOR THE ISSUANCE OF THIS ZONING COMPLIANCE LETTER THE UNDERSIGNED HEREBY AGREES TO HOLD COOS COUNTY HARMLESS FROM AND INDEMNIFY THE COUNTY FOR ANY LIABILITY FOR DAMAGE WHICH MAY OCCUR AS A RESULT OF THE FAILURE TO BUILD, IMPROVE OR MAINTAIN ROADS WHICH SERVE AS ACCESS TO THE SUBJECT PROPERTY.

RURAL RESIDENTIAL COMPATIBILITY WITH FARM/FOREST MANAGEMENT PRACTICES: I HEREBY ACKNOWLEDGE THAT THE NORMAL INTENSIVE MANAGEMENT PRACTICES OCCURRING ON ADJACENT RESOURCE LAND WILL NOT CONFLICT WITH THE RURAL RESIDENTIAL USE OR ENJOYMENT OF THE ABOVE DESCRIBED PROPERTY.

BY SIGNING THIS APPLICATION I AM ACKNOWLEDGING THAT I CAN ONLY DEVELOP MY PROPERTY AS ALLOWED PURSUANT TO THE AUTHORIZATIONS GRANTED IN THE ZONING COMPLIANCE LETTER THAT WILL BE ISSUED. IF ADDITIONAL REVIEW IS REQUIRED I UNDERSTAND THAT IT IS MY RESPONSIBILITY TO COMPLETE THE REVIEW. ALL APPLICABLE FEDERAL, STATE, AND LOCAL PERMITS SHALL BE OBTAINED PRIOR TO THE COMMENCEMENT OF ANY DEVELOPMENT ACTIVITY. ALL COSTS ASSOCIATED WITH COMPLYING WITH THE CONDITIONS ARE THE RESPONSIBILITY OF THE APPLICANT AND THAT THE APPLICANT IS NOT ACTING AS AN AGENT OF THE COUNTY.

APPLICANTS SIGNATURE: Ray Dunn

Coos County / Official Use Only

☐ **Zoning Compliance Letter Issued** ☐ **Requires additional Review**

Planner: ______________________ **Date** ____________

JC Wilson Engineering & Consulting, LLC - PO Box 162, North Bend, OR 97459

JCW

JC Wilson Engineering & Consulting, LLC

Innovative · Practical · Strategic

LETTER

DATE: OCTOBER 9, 2019

Reference: 1905

Scott & Rhonda Durrer
96673 Hwy 42S
Coquille, OR 97423

Subject: Geologic Hazard Evaluation, 96673 Hwy 42S, Coquille, OR

Dear Scott & Rhonda:

JCW met with you at this property on 6-29-19 to assess any potential geologic hazards at this location. The property at the address listed in subject line is designated by Coos County to have very high liquefaction susceptibility throughout the region of this parcel, as shown on DOGAMI map images (Attachment 2).

JCW did not observe or witness any signs of soil failures or geologic hazards, on or near the proposed future building site. **It is our opinion, per criteria found under Section 5.11.100.2.c, that Liquefaction Hazards do not exist at this proposed roof addition location, over an existing concrete slab on this parcel.**

We are also including some site photos with Hazard Maps in (Attachment 2) and have included a generated USDA Soil Report that corresponds with this and neighboring properties as (Attachment 3). A project site map with proposed delineated roof addition site is shown as (Attachment 1).

Please feel free to contact me at 541-266-9890 if you have any questions.

Respectfully submitted,

JC Wilson Engineering & Consulting, LLC

Justin C. Wilson, PE
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
91633PE
10/9/19
OREGON
SEPT. 13, 2016
JUSTIN C. WILSON
EXPIRES: 6/20

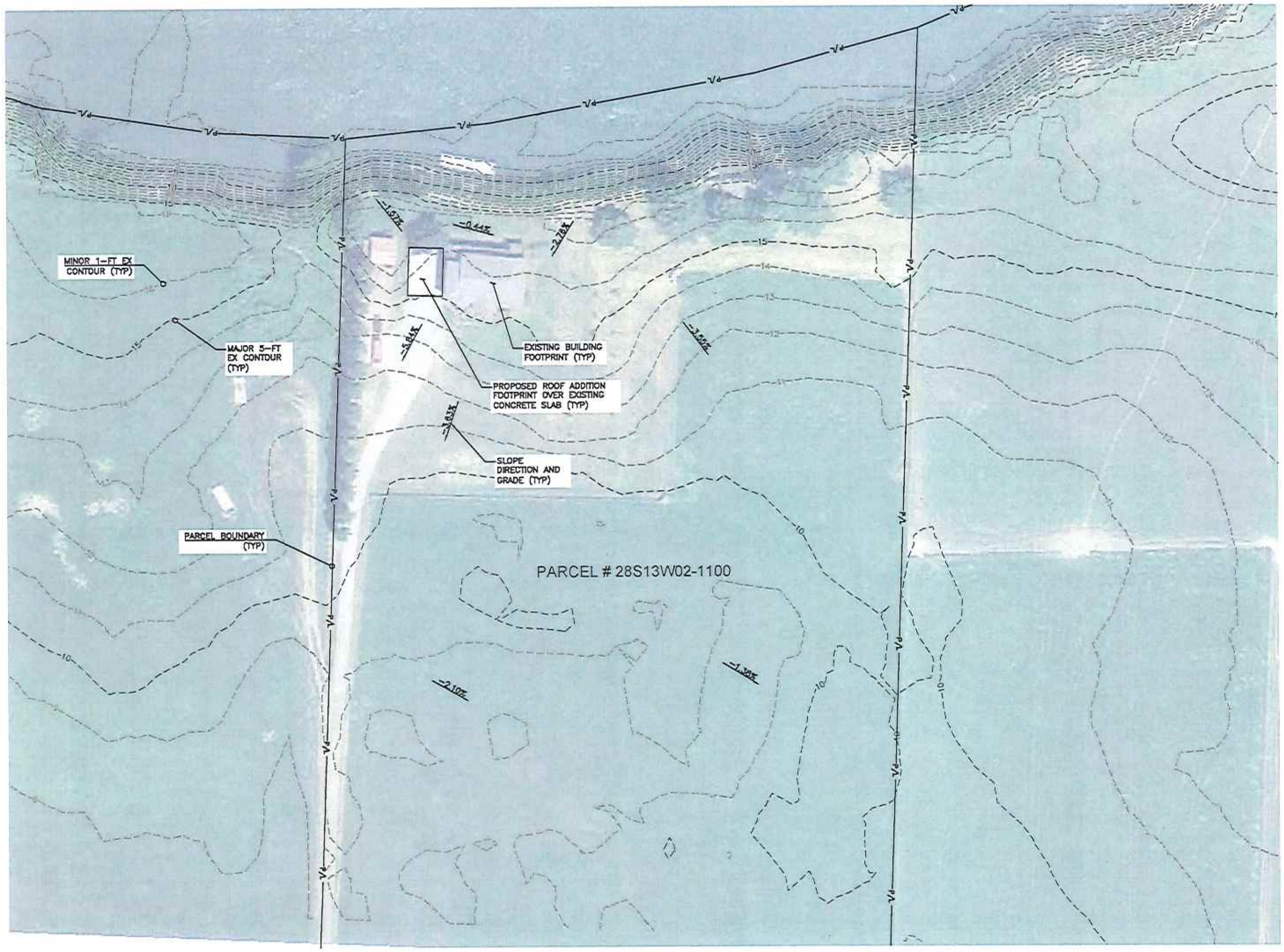
JCW:jcw

Attachments:
1. Site Plan
2. Site Photos
3. USDA Soils Report

Site Plan 1

GEOLOGIC ASSESSMENT

PARCEL #28S13W02-1100



N

0 40 80

SCALE IN FEET

TOPOGRAPHIC NOTES:

1. EXISTING TOPOGRAPHIC SURFACE MODEL IS GENERATED FROM GEOSPATIAL DATA AND IS USED IN THIS PROJECT TO MODEL GENERAL SLOPES AND DRAINAGE PATTERNS TO DETERMINE THE BEST STRATEGY FOR MITIGATING STORMWATER RUNOFF. THESE ELEVATIONS MAY DIFFER SLIGHTLY FROM ACTUAL TOPOGRAPHY
2. PROPOSED SURFACE, CONTOURS, AND ELEVATIONS WERE GENERATED OFF OF TOPOGRAPHIC ELEVATIONS AS DESCRIBED ABOVE IN NOTE #1.

C:\PROJECTS\1905-Durrer Addition\DWG\1905-Durrer Site Plan.dwg

SYM	REVISION	DATE	
			DATE: 10/1/19
			SCALE: AS SHOWN
			DESIGNED BY: JCW
			DRAWN BY: JCW
			CHECKED: JCW
			REVIEW: COOS COUNTY

JC WILSON ENGINEERING & CONSULTING, LLC
PO BOX 182
NORTH BEND, OR 97459
WWW.JCWILSONENGINEERING.COM
P. (208) 553-6742

SITE PLAN
GEOLOGIC ASSESSMENT
COQUILLE, OR
GEORGE MONTGOMERY

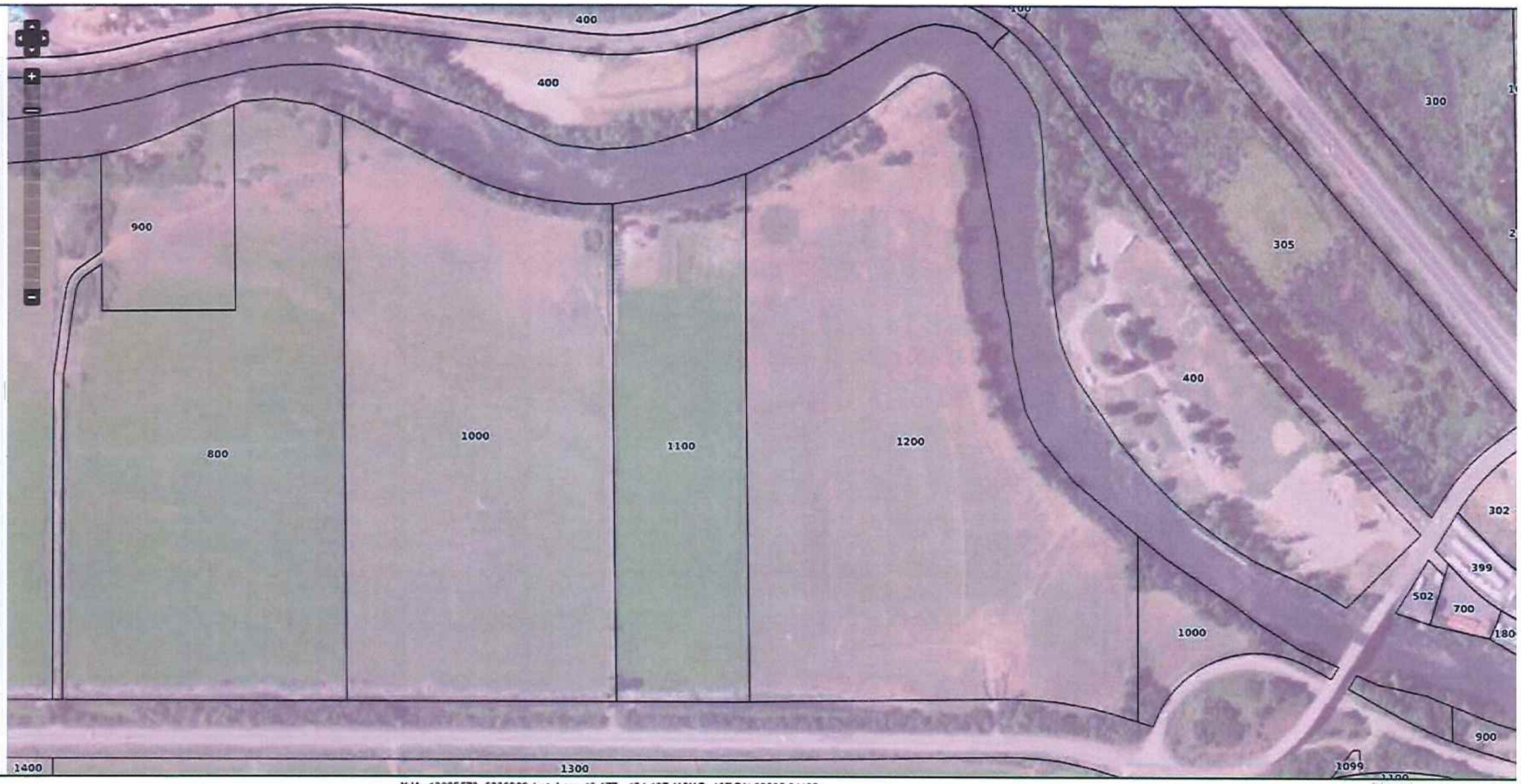
SHEET: SP

Site Photos & Geo Maps 2

Jump To:

Catalog

- Map Extras
- Coastal Inventory Data
  - [ ] Beachfront Protective Structures Inventory, OPRD, 2015
  - [ ] Goal 18 Eligibility Inventory, OCMP, 2015
  - [ ] Dune Classifications, USDA, 1975
- Beaches and Dunes - Goal 18
  - Coos County
- Natural Hazards
  - Flood
  - Sea Level Rise
  - Tsunami
  - Landslide
    - [ ] Landslide Susceptibility, DOGAMI, 2013
  - Liquefaction
    - [x] Liquefaction Susceptibility, DOGAMI
      - None
      - Very Low
      - Low
      - Moderate
      - High
      - Very High
  - Active Earthquake Faults
    - [ ] Active Earthquake Faults, USGS, 2003
- Estuary Maps
  - [ ] Estuary Mgmt Units, 1987
  - [ ] Coos Coastal Shorelands Boundary
  - [ ] Coos County LWI, 2014
  - National Wetland Inventory
  - Soils
- Administrative Boundaries
  - [ ] Statutory Vegetation Line, OPRD, 1967
  - [x] Coos Tax lots
  - [ ] City Limits
  - [ ] Urban Growth Boundaries
  - [x] County Boundaries
  - [ ] State Parks
  - [ ] Coos County Zoning, 2019
- Base Maps and Photos
  - Printable Base Maps
    - Modern Ortho Photos
      - (•) NAIP Color Aerials 2016
      - ( ) NAIP Color Aerials 2014
      - ( ) NAIP Color Aerials 2011
      - ( ) None
    - Lidar Hillshades
  - Non-Printable Base Maps
    - ( ) ESRI World Imagery



GeoMOOSE 2.9.3

X,Y: -13825573, 5338988 Lat, Lon: 43.177, -124.197 USNG: 10T DN 02695 81192

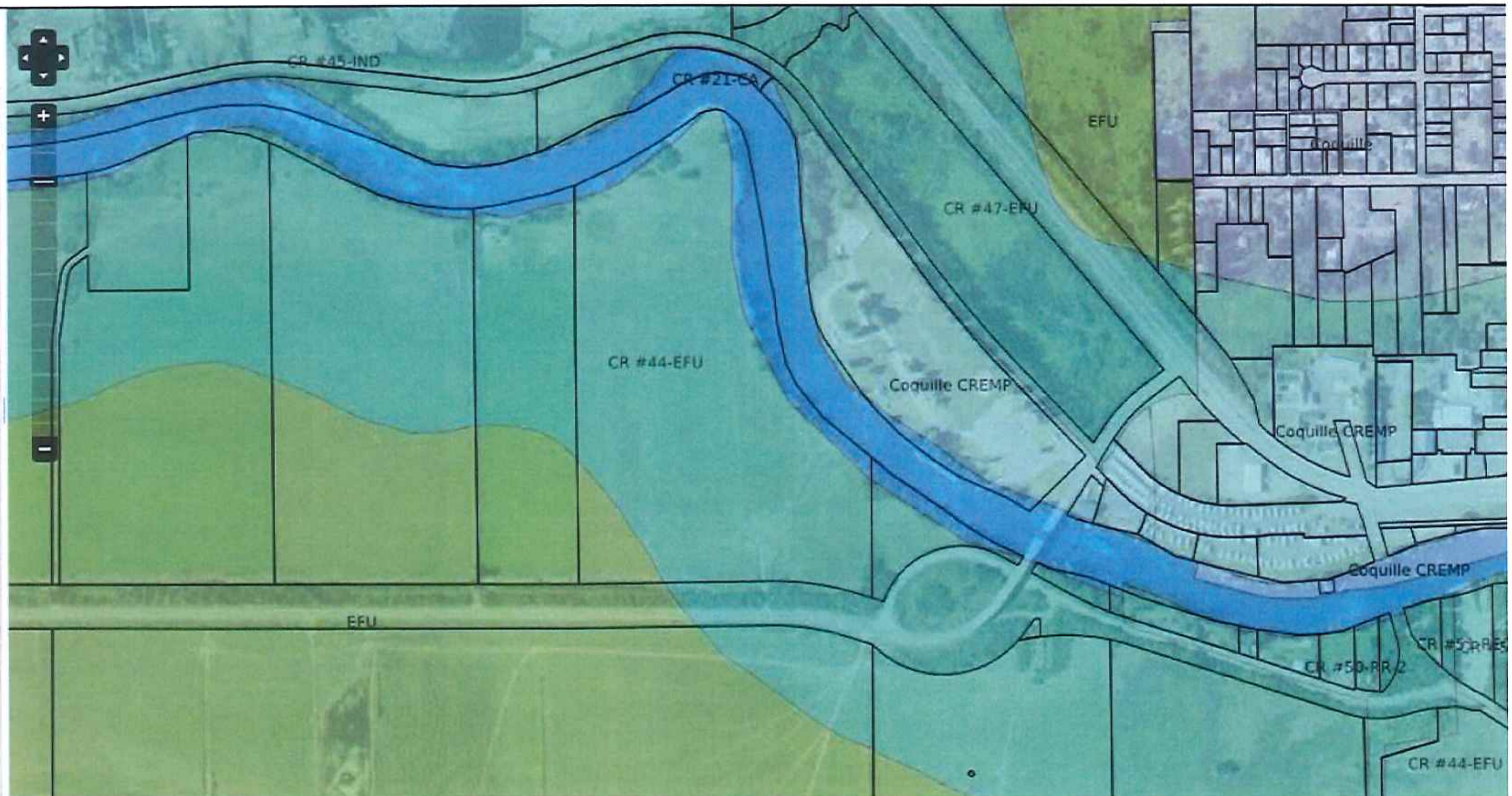
1:3386

Jump To:

Catalog

- [ ] Statutory Vegetation Line, OPRD, 1967
- [x] Coos Tax lots
- [ ] City Limits
- [ ] Urban Growth Boundaries
- [x] County Boundaries
- [ ] State Parks
- [x] Coos County Zoning, 2019
  - Commercial
  - Controlled Development 10
  - Controlled Development 5
  - City Zoning
  - City Estuary Plan - Aquatic
  - City Estuary Plan - Shoreland
  - Coos Bay Estuary Plan - Aquatic
  - Coos Bay Estuary Plan - Shoreland
  - Coquille River Estuary Plan - Aquatic
  - Coquille River Estuary Plan - Shoreland
  - Exclusive Farm Use
  - Forest
  - Industrial
  - Minor Estuary and Shorelands
  - Rural Center
  - Recreation
  - Rural Residential 2
  - Rural Residential 5
  - South Slough
  - Urban Residential 1
  - Urban Residential 2
  - Urban Residential M

Base Maps and Photos
- Printable Base Maps
  - Modern Ortho Photos
    - (•) NAIP Color Aerials 2016



GeoMOOSE 2.9.3

X,Y: -13827415, 5339183 Lat, Lon: 43.179, -124.214 USNG: 10T DN 01352 81353

1:6771


Dicksie Garrett
290-5044

USDA Soils Report 3

USDA United States Department of Agriculture

NRCS Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for
Coos County, Oregon

October 8, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

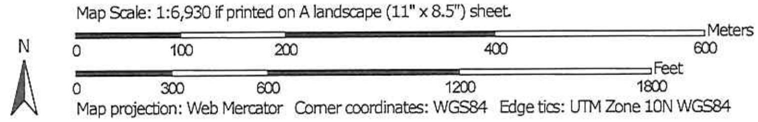
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map (Durrer Addition)

Map Scale: 1:6,930 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Coos County, Oregon
Survey Area Data: Version 14, Sep 11, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Sep 15, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (Durrer Addition)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
12	Coquille silt loam	93.1	36.7%
34	Langlois silty clay loam	8.9	3.5%
40	Nehalem silt loam	59.0	23.2%
41	Nestucca silt loam	37.9	15.0%
57	Udorthents, level	12.0	4.7%
62	Willanch fine sandy loam	14.1	5.6%
W	Water	28.6	11.3%
Totals for Area of Interest		**253.7**	**100.0%**

Map Unit Descriptions (Durrer Addition)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Coos County, Oregon

12—Coquille silt loam

Map Unit Setting

National map unit symbol: 21m5
Elevation: 0 to 40 feet
Mean annual precipitation: 50 to 80 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 200 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Coquille and similar soils: 75 percent
Minor components: 19 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Coquille

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 14 inches: silt loam
H2 - 14 to 36 inches: silty clay loam
H3 - 36 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Rare
Frequency of ponding: Frequent
Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Available water storage in profile: High (about 11.0 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Forage suitability group: Very Poorly Drained (G004AY019OR)
Hydric soil rating: Yes

Minor Components

Langlois

Percent of map unit: 7 percent
Landform: Flood plains

Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Chetco
Percent of map unit: 6 percent
Landform: Flood plains, deltas
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Clatsop
Percent of map unit: 6 percent
Landform: Tidal flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

34—Langlois silty clay loam

Map Unit Setting
National map unit symbol: 21nm
Elevation: 0 to 40 feet
Mean annual precipitation: 50 to 80 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 200 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Langlois and similar soils: 80 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Langlois

Setting
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile
H1 - 0 to 10 inches: silty clay loam
H2 - 10 to 28 inches: silty clay
H3 - 28 to 60 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Forage suitability group: Very Poorly Drained (G004AY019OR)
Hydric soil rating: Yes

Minor Components

Chetco

Percent of map unit: 7 percent
Landform: Flood plains, deltas
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Coquille

Percent of map unit: 6 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

40—Nehalem silt loam

Map Unit Setting

National map unit symbol: 21p0
Elevation: 0 to 40 feet
Mean annual precipitation: 50 to 80 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 200 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Nehalem and similar soils: 80 percent
Minor components: 13 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nehalem

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

H1 - 0 to 12 inches: silt loam
H2 - 12 to 29 inches: silt loam
H3 - 29 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water storage in profile: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B
Forage suitability group: Well Drained <15% Slopes (G004AY014OR)
Hydric soil rating: No

Minor Components

Coquille

Percent of map unit: 7 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Langlois

Percent of map unit: 6 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

41—Nestucca silt loam

Map Unit Setting

National map unit symbol: 21p1
Elevation: 0 to 40 feet
Mean annual precipitation: 50 to 80 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 200 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Nestucca and similar soils: 80 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nestucca

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

H1 - 0 to 14 inches: silt loam
H2 - 14 to 40 inches: silty clay loam
H3 - 40 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.57 in/hr)
Depth to water table: About 12 to 18 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water storage in profile: High (about 11.2 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Forage suitability group: Somewhat Poorly Drained (G004AY017OR)
Hydric soil rating: No

Minor Components

Chetco

Percent of map unit: 4 percent
Landform: Flood plains, deltas
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Coquille

Percent of map unit: 4 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Langlois

Percent of map unit: 4 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

57—Udorthents, level

Map Unit Composition

Udorthents and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Landform: Flood plains, tidal flats, marshes
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium, dredging spoil, dune sand, and wood chips

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

62—Willanch fine sandy loam

Map Unit Setting

National map unit symbol: 21qg
Elevation: 10 to 40 feet
Mean annual precipitation: 50 to 80 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 200 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Willanch and similar soils: 75 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Willanch

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

H1 - 0 to 13 inches: fine sandy loam
H2 - 13 to 35 inches: sandy loam
H3 - 35 to 60 inches: loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Available water storage in profile: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Forage suitability group: Poorly Drained (G004AY018OR)
Hydric soil rating: Yes

W—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

AOI Inventory

This folder contains a collection of tabular reports that present a variety of soil information. Included are various map unit description reports, special soil interpretation reports, and data summary reports.

Water Quality Index (WQIag) Soil Factors (Durrer Addition)

This table shows the soil factors used in the *Water Quality Index for Runoff Water from Agricultural Fields (WQIag)*. The WQIag web interface is at http://wqiag.sc.egov.usda.gov/.

Slope gradient is the difference in elevation between two points and is expressed as a percentage of the distance between those points. For example, a difference in elevation of 1 meter over a horizontal distance of 100 meters is a slope of 1 percent.

Hydrologic group is a group of soils having similar runoff potential under similar storm and cover conditions. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate.

Kw factor is an erosion factor for the surface mineral horizon that indicates the susceptibility of the soil to sheet and rill erosion by water. Factor Kw is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity. Values of Kw range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter in the surface mineral horizon.

Water Quality Index (WQIag) Soil Factors–Coos County, Oregon

Map symbol and soil name	Pct. of map unit	Slope gradient	Hydrologic group	Kw factor (surface horizon)	Organic matter (surface horizon)
		Pct			*Pct*
12—Coquille silt loam					
Coquille	75	0 - 1 - 1	C/D	.32	4.0 - 7.0 - 10.0
34—Langlois silty clay loam					
Langlois	80	0 - 1 - 1	C/D	.32	5.0 - 6.5 - 8.0
40—Nehalem silt loam					
Nehalem	80	0 - 2 - 3	B	.37	5.0 - 7.5 - 10.0
41—Nestucca silt loam					
Nestucca	80	0 - 2 - 3	C/D	.37	4.0 - 6.0 - 8.0
62—Willanch fine sandy loam					
Willanch	75	0 - 2 - 3	A/D	.20	2.0 - 3.5 - 5.0

Soil Physical Properties

This folder contains a collection of tabular reports that present soil physical properties. The reports (tables) include all selected map units and components for each map unit. Soil physical properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

Engineering Properties (Durrer Addition)

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties–Coos County, Oregon

Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
12—Coquille silt loam														
Coquille	75	C/D	0-14	Silt loam	ML	A-4	0- 0- 0	0- 0- 0	100-100-100	100-100-100	95-98-100	75-83-90	30-33-35	NP-3 -5
			14-36	Silty clay loam, silt loam	ML	A-4	0- 0- 0	0- 0- 0	100-100-100	100-100-100	95-98-100	85-90-95	35-38-40	5-7 -10
			36-60	Silty clay, silty clay loam	MH, ML	A-7	0- 0- 0	0- 0- 0	100-100-100	100-100-100	95-98-100	90-93-95	45-50-55	15-18-20
34—Langlois silty clay loam														
Langlois	80	C/D	0-10	Silty clay loam	CL	A-6	0- 0- 0	0- 0- 0	100-100-100	100-100-100	95-98-100	85-90-95	35-38-40	15-18-20
			10-28	Silty clay loam, silty clay	CL	A-6, A-7	0- 0- 0	0- 0- 0	100-100-100	100-100-100	95-98-100	85-90-95	35-40-45	15-20-25
			28-60	Clay, silty clay	CH	A-7	0- 0- 0	0- 0- 0	100-100-100	100-100-100	90-95-100	75-85-95	50-55-60	25-28-30
40—Nehalem silt loam														
Nehalem	80	B	0-12	Silt loam	CL-ML, ML	A-4	0- 0- 0	0- 0- 0	100-100-100	100-100-100	90-95-100	70-80-90	25-30-35	5-7 -10
			12-29	Silt loam, silty clay loam	CL	A-6, A-7	0- 0- 0	0- 0- 0	100-100-100	100-100-100	90-95-100	75-85-95	30-38-45	10-15-20
			29-60	Silty clay loam, silt loam, loam	CL, CL-ML	A-4, A-6	0- 0- 0	0- 3- 5	85-93-100	80-90-100	75-85-95	55-73-90	25-33-40	5-10-15

Engineering Properties–Coos County, Oregon														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
41—Nestucca silt loam														
Nestucca	80	C/D	0-14	Silt loam	CL, CL-ML	A-4	0- 0- 0	0- 0- 0	100-100-100	100-100-100	90-95-100	75-85-95	20-25-30	5-8 -10
			14-40	Silty clay loam, silt loam	CL	A-6, A-7	0- 0- 0	0- 0- 0	100-100-100	100-100-100	95-98-100	85-90-95	35-40-45	15-18-20
			40-60	Silty clay, clay loam, loam	CL	A-6, A-7	0- 0- 0	0- 0- 0	100-100-100	95-98-100	85-93-100	65-80-95	30-40-50	10-18-25
62—Willanch fine sandy loam														
Willanch	75	A/D	0-13	Fine sandy loam	SM	A-4	0- 0- 0	0- 0- 0	100-100-100	100-100-100	65-75-85	35-43-50	0-5 -10	NP
			13-35	Sandy loam, loamy sand, loamy fine sand	SM	A-2, A-4	0- 0- 0	0- 0- 0	90-95-100	85-93-100	55-70-85	30-40-50	0-5 -10	NP
			35-60	Loamy fine sand, loamy sand, sandy loam	SM	A-2	0- 0- 0	0- 0- 0	90-95-100	85-93-100	55-68-80	25-30-35	0-5 -10	NP

Physical Soil Properties (Durrer Addition)

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Physical Soil Properties–Coos County, Oregon														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
12—Coquille silt loam														
Coquille	0-14	- 9-	-66-	20-25- 30	1.00-1.10-1.20	4.00-9.00-14.00	0.19-0.20-0.21	0.0- 1.5- 2.9	4.0-7.0-10.0	.32	.32	5	6	48
	14-36	- 7-	-63-	25-30- 35	1.20-1.25-1.30	1.40-3.00-4.00	0.19-0.20-0.21	0.0- 1.5- 2.9	1.0- 2.5-4.0	.37	.37			
	36-60	- 8-	-56-	35-36- 60	1.25-1.30-1.35	0.42-0.91-1.40	0.15-0.16-0.17	3.0- 4.5- 5.9	0.5- 0.8-1.0	.43	.43			
34—Langlois silty clay loam														
Langlois	0-10	-19-	-48-	27-34- 40	1.20-1.25-1.30	1.40-3.00-4.00	0.19-0.20-0.21	3.0- 4.5- 5.9	5.0- 6.5-8.0	.32	.32	5	6	48
	10-28	- 8-	-51-	35-41- 45	1.10-1.18-1.25	1.40-3.00-4.00	0.19-0.20-0.21	6.0- 7.5- 8.9	0.5- 3.3-6.0	.28	.28			
	28-60	-23-	-29-	40-48- 55	1.25-1.30-1.35	0.42-0.91-1.40	0.07-0.08-0.09	6.0- 7.5- 8.9	0.5- 3.3-6.0	.20	.20			
40—Nehalem silt loam														
Nehalem	0-12	-11-	-69-	15-20- 25	1.10-1.15-1.20	4.00-9.00-14.00	0.19-0.20-0.21	0.0- 1.5- 2.9	5.0-7.5-10.0	.37	.37	5	6	48
	12-29	- 9-	-66-	20-25- 35	1.20-1.25-1.30	4.00-9.00-14.00	0.19-0.20-0.21	3.0- 4.5- 5.9	1.0- 2.5-4.0	.43	.43			
	29-60	- 7-	-65-	20-28- 35	1.25-1.30-1.35	4.00-9.00-14.00	0.19-0.20-0.21	0.0- 1.5- 2.9	0.1- 0.6-1.0	.43	.43			

Physical Soil Properties–Coos County, Oregon														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
41—Nestucca silt loam														
Nestucca	0-14	-10-	-68-	18-23- 27	1.10-1.18-1.25	4.00-9.00-14.00	0.19-0.20-0.21	0.0- 1.5- 2.9	4.0- 6.0-8.0	.37	.37	5	6	48
	14-40	- 7-	-63-	25-30- 35	1.25-1.33-1.40	1.40-3.00-4.00	0.19-0.20-0.21	3.0- 4.5- 5.9	1.0- 1.5-2.0	.43	.43			
	40-60	- 8-	-51-	20-41- 45	1.35-1.40-1.45	0.00-2.00-4.00	0.15-0.16-0.17	3.0- 4.5- 5.9	0.0- 0.3-0.5	.32	.32			
57—Udorthents, level														
Udorthents	—	—	—	—	—	—	—	—	—					
62—Willanch fine sandy loam														
Willanch	0-13	-65-	-27-	5- 8- 10	1.30-1.35-1.40	14.00-28.00-42.00	0.13-0.14-0.15	0.0- 1.5- 2.9	2.0- 3.5-5.0	.20	.20	5	3	86
	13-35	-69-	-24-	5- 8- 10	1.30-1.35-1.40	14.00-28.00-42.00	0.12-0.13-0.14	0.0- 1.5- 2.9	0.5- 1.3-2.0	.28	.28			
	35-60	-81-	-16-	0- 3- 5	1.40-1.43-1.45	14.00-28.00-42.00	0.09-0.11-0.12	0.0- 1.5- 2.9	0.0- 0.3-0.5	.28	.28			
W—Water														
Water	—	—	—	—	—	—	—	—	—					

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