Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem Oregon 97301-1266
(503) 986-0900
www.wrd.state.or.us

Application for a Permit to Store Water in a Reservoir

(Standard Review)

Standard Review Process (ORS 537): You must use this form for any reservoir storing more than 9.2 acre-feet *and* with a dam more than 10 feet high.

Use a separate form for each reservoir

Please type or print in dark ink. If your application is found to be incomplete or inaccurate, we will return it to you. If any requested information does not apply, insert "n/a". A summary of review criteria and procedures that are generally applicable to these applications is available at www.wrd.state.or.us/OWRD/PUBS/forms.shtml.

1. APPLICANT INFORMATION:

Applicant: 4 DSD, LLC (First) Casey Safreno, General Manager (Last)

Mailing Address: 175 Phillips Road

Woodside (City) California (State) 94062 (Zip)

Phone: (650) 529-1529 (Home) (650) 289-6015 (Work) N/A (Other)

*Fax: N/A *Email Address: dsafreno@yahoo.com

I(We) make application for a permit to construct a reservoir and store the following described waters of the State of Oregon. The name of the reservoir is Pond C (Existing Pond)

2. SOURCE OF WATER for the proposed use: Indian Cr. and drainage runoff,
a tributary of Squaw Creek.

Is the proposed use an enlargement of an existing dam/reservoir? ○ Yes ◉ No Existing Pond

If the reservoir is not in channel of a stream, state how it is to be filled:

Existing pond is filled with discharge from springs and surface runoff from a sub-watershed area of the Indian Creek watershed.

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For Department Use

App. No. R-87490 Permit No. _____ Date _____

R-87490

3. DAM HEIGHT AND COMPOSITION

The maximum height of the structure will be 14.0 feet above streambed or ground surface at the centerline of the crest of the dam. (Existing Dam - Side Hill Berm)

Note: If your dam height is greater than or equal to 10.0' above land surface AND your reservoir will store equal to or greater than 9.2 acre-feet, engineered plans and specifications must be approved prior to storage of water.

The dam will be (check one): ◉ Earthfill ○ Concrete ○ Flash board ○ Other

If "other" give description:

The existing pond was created by excavation into a gently sloping hillside on the upstream side and construction of earth fill embankments on the downstream side. The top width of embankment is 10 to 12 feet. Embankment slopes are generally 2 horizontal to 1 vertical or flatter downstream and 3 horizontal to 1 vertical upstream. No seepage from embankment was observed during a site visit on February 5, 2009.
SEE POND 'C' INSPECTION REPORT

4. PRIMARY OUTLET WORKS

Describe the location and the dimensions of the outlet conduit through the dam:

The primary outlet works is on the southwest side of the pond. The outlet is a pipe of unknown size extending from the pond beneath the fill embankment to a discharge point near the toe of the embankment. The outlet is controlled by a gate control handle on an elevated steel stem, located about 8 feet below the top of the fill embankment. The gate control valve could not be opened at time of inspection.

NOTE: Most dams across a natural stream channel will need an outlet conduit having a minimum diameter of 8 inches or greater.

5. EMERGENCY SPILLWAY

Describe the location and the dimensions of the spillway channel:

The spillway channel is located on the northeast corner of the pond roughly trapezoidal in cross-section, (see graphics) with an approximate bottom width of 8.0 feet near the inlet and 7.0 feet near the downstream location of the fishscreen. The depth of the channel is 2.6 feet on the northwest side and 3.0 feet on the southeast side. The channel was excavated into boulder, cobble, gravel, and clay material. No significant erosion was observed at the time of the site visit.
SEE POND 'C' INSPECTION REPORT

6. THE USE(s) of the impounded water will be:

Multipurpose Use - to include but not limited to irrigation, wildlife habitat, and fish habitat.

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7. THE AMOUNT OF WATER to be stored is: 24.0 acre-feet.
The area submerged by the reservoir, when filled, will be 2.14 acres.

8. PROJECT SCHEDULE (List Month and Year)

Proposed date construction will begin: Existing Reservoir, several years old

Proposed date construction will be completed: Existing Reservoir

Proposed date beneficial water use will begin: Existing Reservoir

9. PROPERTY OWNERSHIP

Do you own all the land where you propose to divert, transport, and use water?

◉ Yes *(Please check appropriate box below then skip to section 10)*

☒ There are no encumbrances

☐ This land is encumbered by easements, rights of way, roads or other encumbrances *(please provide a copy of the recorded deed(s))*

○ No *(Please check the appropriate box below)*

☐ I have a recorded easement or written authorization permitting access.

☐ I do not currently have written authorization or easement permitting access.

☐ Written authorization or an easement is not necessary, because the only affected lands I do not own are state-owned submersible lands, and this application is for irrigated and/or domestic use only (ORS 274.040).

You must provide the legal description of: (1) the property from which the water is to be diverted, (2) any property crossed by the proposed ditch, canal or other work, and (3) any property on which the water is to be used as depicted on the map.

List the names and mailing addresses of all affected landowners*

None other than owner/applicant.

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* *Attach additional sheet(s) if necessary.*

10. MAP REQUIREMENTS The Department cannot process your application without accurate information showing the source of water and location of water use. You must include a map with this application form that clearly indicates the township, range, section and quarter/quarter section of the proposed reservoir location and place of use. The map must provide tax lot numbers. See the map guidelines sheet for detailed map specifications.

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11. SIGNATURE

By my signature below I confirm that I understand:

- I am asking to use water specifically as described in this application.
- Evaluation of this application will be based on information provided in the application packet.
- I cannot legally use water until the Water Resources Department issues a permit to me.
- If I get a permit, I must not waste water.
- If development of the water use is not according to the terms of the permit, the permit can be canceled.
- The water use must be compatible with local comprehensive land use plans.
- Even if the Department issues a permit, I may have to stop using water to allow senior water right holders to get water to which they are entitled.

I certify that the information I have provided in this application is an accurate representation of the proposed water use and is true and correct to the best of my knowledge:

Applicant: _____ 4050 LLC 6/24/09
Signature *(If more than one applicant, all must sign.)* Date

Before you submit your application be sure to:

- Answer each question completely.
- Attach a legible map that includes township, range, section, quarter/quarter and tax lot.
- Include a Land Use Information Form or receipt stub signed by a local official.
- Include the legal description of all the property involved with this application. You may include a copy of your deed land sales contract or title insurance policy to meet this requirement.
- Include a check payable to the Oregon Water Resources Department for the appropriate amount. The Department's fee schedule can be found at www.wrd.state.or.us or call (503) 986-0900.

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Oregon Water Resources Department
Land Use Information Form

THIS FORM IS NOT REQUIRED IF: 1) water is to be diverted, conveyed, and/or used only on federal lands; or 2) the application is for a water-right transfer, allocation of conserved water, exchange, permit amendment, or ground water registration modification, and all of the following apply: a) only the place of use is proposed for change, b) there are no structural changes, c) the use of water is for irrigation, and d) the use is located in an irrigation district or exclusive farm-use zone.

Applicant Name: 4 DSD, LLC Casey Safreno, General Manager

Mailing Address: 175 Phillips Road

City: Woodside State: CA. Zip: 94062 Day Phone: (650) 529-1529

This application is related to a Measure 37 claim. ☐ Yes ☒ No

A. Land and Location

Please include the following information for all tax lots where water will be diverted (taken from its source), conveyed (transported), or used. Applicants for municipal use, or irrigation uses within irrigation districts may substitute existing and proposed service-area boundaries for the tax-lot information requested below.

	Township	Range	Section	¼ ¼	Tax Lot #	Plan Designation (e.g. Rural Residential/RR-5)	Water to be:			Proposed Land Use:
Pond C	11S	24E	13	NWSE	501	EFU	☒ Diverted	☒ Conveyed	☒ Used	multi-
Pond A	11S	24E	15	NENW	501	EFU	☒ Diverted	☒ Conveyed	☒ Used	purpose
Pond E	11S	24E	23	SWSW	501	EFU	☒ Diverted	☒ Conveyed	☒ Used	storage
Pond E	11S	24E	22	NESE	501	EFU	☒ Diverted	☒ Conveyed	☒ Used	reservoir
Pond E	11S	24E	22	SESE	501	EFU	X	X	X	

List all counties and cities where water is proposed to be diverted, conveyed, or used. Wheeler County

There is one existing pond (Pond C) and two proposed ponds (Ponds A and E).

B. Description of Proposed Use

Type of application to be filed with the Water Resources Department:

☒ Permit to Use or Store Water ☐ Water-Right Transfer ☐ Exchange of Water
☐ Allocation of Conserved Water ☐ Limited Water Use License
☐ Permit Amendment or Ground Water Registration Modification

Source of water: Reservoir/Pond 24 Pond C ☐ Ground Water ☒ Surface Water (name) Indian Creek for Pond C; Un-named tributary for Pond A; Tubb Creek for Pond E

Estimated quantity of water needed: 200- Pond A; 105- Pond E ☐ cubic feet per second ☐ gallons per minute ☒ acre-feet

Intended use of water: ☐ Irrigation ☐ Commercial ☐ Industrial ☐ Domestic for _____ household(s)
☐ Municipal ☐ Quasi-municipal ☐ Instream ☒ Other Multipurpose Use

Briefly describe: Pond C is an existing reservoir, the water right application is intended to formally authorize the use under an Oregon Water Resources Department (OWRD) water right storage permit. Ponds A and E are proposed and will be designed to follow OWRD Dam Safety guidelines and specifications for storage reservoirs.

Note to applicant: *If the Land Use Information Form cannot be completed while you wait, please have a local government representative sign the receipt below and include it with the application filed with the Water Resources Department.*

Receipt for Request for Land Use Information

State of Oregon Water
Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301-1266

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For Local Government Use Only

The following section must be completed by a planning official from each county and city listed unless the project will be located entirely within the city limits. In that case, only the city planning agency must complete this form. This deals only with the local land-use plan. Do not include approval for activities such as building or grading permits.

Please check the appropriate box below and provide the requested information.

Land uses to be served by proposed water uses (including proposed construction) are allowed outright or are not regulated by your comprehensive plan. Cite applicable ordinance section(s): N/A

Land uses to be served by proposed water uses (including proposed construction) involve discretionary land-use approvals as listed in the table below. (Please attach documentation of applicable land-use approvals which have already been obtained. Record of Action/land-use decision and accompanying findings are sufficient.)
If approvals have been obtained but all appeal periods have not ended, check "Being pursued".

Type of Land Use Approval Needed (e.g. plan amendments, rezones, conditional use permits, etc.)	Cite Most Significant Applicable Plan Policies & Ordinance Section References	Land Use Approval	
		☐ Obtained ☐ Denied	☐ Being pursued ☐ Not being pursued
		☐ Obtained ☐ Denied	☐ Being pursued ☐ Not being pursued
		☐ Obtained ☐ Denied	☐ Being pursued ☐ Not being pursued
		☐ Obtained ☐ Denied	☐ Being pursued ☐ Not being pursued
		☐ Obtained ☐ Denied	☐ Being pursued ☐ Not being pursued

Local governments are invited to express special land-use concerns or make recommendations to the Water Resources Department regarding this proposed use of water below, or on a separate sheet.

Name: Robin Hunt-Palazo Title: Wheeler County Planning Director

Signature: [signature] Phone: 541-763-2126 Date: 06-25-09

Government Entity: Wheeler County

Note to local government representative: Please complete this form or sign the receipt below and return it to the applicant. If you sign the receipt, you will have 30 days from the Water Resources Department's notice date to return the completed Land Use Information Form or WRD may presume the land use associated with the proposed use of water is compatible with local comprehensive plans.

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SALEM, OREGON

Receipt for Request for Land Use Information

Applicant name: _____

City or County: _____ Staff contact: _____

Signature: _____ Phone: _____ Date: _____

AmeriTitle
Part Of The ELD-WEN Family

United Country Oregon Ranch Real Estate
PO Box 1708
Prineville, OR 97754

Attn: Scott Bruder

Date: August 21, 2006
Escrow Number: WC3303
Escrow Officer: Kali Taylor
Title Number: 0003303
Title Officer: Deborah Rauscher
Your Reference: --

PRELIMINARY TITLE REPORT FOR: **REPORT NO. 2**
Property Address:
Unknown
Mitchell, OR 97750

Policy or Policies to be issued:

	Liability	Premium
OWNER'S STANDARD COVERAGE	$4,000,000.00	$6,605.00

Proposed Insured: Casey Safreno

We are prepared to issue First American Title Insurance Company of Oregon policies, in the form and amounts above, insuring the title to the land described as follows:

Located in WHEELER COUNTY, OREGON:

See EXHIBIT "A" attached hereto

and dated as of July 12, 2006 at 8:00 A.M., title is vested in:

K & J RANCH, L. L. C. who aquired title as K & J RANCH, LLC

The estate or interest in the land described or referred to in this Commitment and covered herein is:

FEE SIMPLE

Schedule B of the policy(ies) to be issued will contain the following general and special exceptions unless removed prior to issuance:

GENERAL EXCEPTIONS:

1. *Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records; proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.*

2. *Facts, rights, interests or claims which are not shown by the public records but which could be ascertained by an inspection of the land or by making inquiry of persons in possession thereof.*

3. *Easements, or claims of easement, not shown by the public records; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.*

4. *Discrepancies, conflicts in boundary lines, shortage in area, encroachments or other facts which a correct survey would disclose.*

5. *Any lien, or right to a lien, for services, labor, material, equipment rental or workers compensation heretofore or hereafter furnished, imposed by law and not shown by the public records.*

6. *Unpatented mining claims whether or not shown by the public records.*

SPECIAL EXCEPTIONS:

7. Taxes for the 2006-2007 period which are a lien as of July 1, 2006 but not yet payable.

8. As disclosed by the tax roll, the premises herein described have been zoned or classified for farm use. At any time that said land is disqualified for such use, the property will be subject to additional taxes or penalties and interest.

9. Existing unrecorded rights of way for roads, highways, irrigation ditches, canals, and pole lines.

10. The rights of the public and of governmental bodies in and to any portion of described lands lying within the limits of roads.

11. Mineral reservations contained in patent including the terms and provisions thereof:
    Recorded: October 13, 1926 and April 29, 1931
    Book/Page No.: Book 19 Page 462 (Records of Wheeler County, Oregon)
    Reserved By: United States of America

    The interest excepted above has not been examined and subsequent transactions affecting said interest or taxes levied against same are not reflected in this title report.

12. Mineral reservation and mining easement, including the terms and provisions thereof, contained in that certain deed:
Recorded: November 27, 1943
Book/Page No.: Book 24 Page 85 (Records of Wheeler County, Oregon)
In Favor of: State of Oregon, its successors an/or assigns
(Affects Section 14)

The interest excepted above has not been examined and subsequent transactions affecting said interest or taxes levied against same are not reflected in this title report.

13. Non-exclusive easement and right-of –way, for existing roads or extensions thereof not to exceed 66 feet in width, created by instrument, including the terms and provisions thereof:
Recorded: March 20, 1956
Book/Page No.: Book 28 Page 637 (Records of Wheeler County, Oregon)
In Favor of: United States of America, its successors an/or assigns

14. Reservations contained in the Patent as referenced by that certain Warranty Deed:
Recorded: October 25, 1988
Microfilm No.: M-38-391 (Records of Wheeler County, Oregon)
In Favor of: United States of America

15. Any Claim based upon the precise location of the easement described in an agreement:
Dated: November 13, 2000
Recorded: January 3, 2001
Microfilm No.: 010005 (Records of Wheeler County, Oregon)
Grantor: Fopiano Ranch, Inc.
In Favor of: K & J Ranch, LLC
Purpose: Ingress and Egress
The precise location is not disclosed in this deed above.

16. A copy of the Articles of Organization of K & J Ranch, L.L.C. (a limited liability company) along with its Operating Agreement and a certification as to the identity and authority of the persons who will be consummating the proposed transaction on behalf of the company must be furnished to AmeriTitle for examination. Please do so at least 5 days before closing.

End of Exceptions

NOTE: Taxes for fiscal year 2005-06 are paid in full as follows:

Code	Map No.	Tax Lot	Ref. No.	Amount Paid
5	1124-0	301	2718	$58.85
5	1124-0	500	1405	$55.82
5	1124-0	501	1406	$3537.94
6	1124-0	501	1702	$4357.32
5	1124-0	2400	1408	100.33

NOTE: Per the Corporation Division of the State of Oregon the following is provided for informational purposes:

K & J Ranch, L.L.C. is an active Limited Liability Company filed March 15, 2001.
The Registered Agent is Ryan Klesko
Member is Ryan Klesko

NOTE: We found no judgments from our search on Casey Salfreno.

This report is for the exclusive use of the parties herein shown and is preliminary to the issuance of a title insurance policy and shall become void unless a policy is issued and the full premium paid.

NOTE: Any map or sketch enclosed as an attachment herewith is furnished for information purposes only to assist in property location with reference to streets and other parcels. No representation is made as to accuracy and the company assumes no liability for any loss occurring by reason of reliance thereon.

AmeriTitle

By: Deborah Rauscher
Title Officer

NOTICE: Preliminary Title Report No. 1 has been supplemented to amend exceptions 9 and 11, remove exceptions 10, 13 and 18 and to correct the vesting therein.
dr:tj

cc: K & J Ranch LLC
PO Box 1926
La Jolla, CA 92038

cc: Casey Safreno
175 Phillip Road
Woodside, CA 94062

END

"Superior Service with Commitment and Respect for Customers and Employees"

R-87490

TO: DAVE NEWTON
FROM: CASEY SARRENO
2 PAGES
541 504 9961

Exhibit A

Located in WHEELER COUNTY, OREGON:

TRACT I:

IN TOWNSHIP 11 SOUTH, RANGE 24 EAST OF THE WILLAMETTE MERIDIAN:
Section 10: S ½
Section 11: S ½, S ½ N ½
Section 12: N ½ NW ¼, NE ¼ NE ¼, S ½ N ½, N ½ S ½, S ½ SE ¼, NW ¼ NE ¼.
Section 13: NW ¼ NE ¼, S ½ N ½, N ½ S ½, SE ¼ SW ¼, S ½ SE ¼.
Section 14: W ½ NW ¼, NE ¼ NW ¼, NW ¼ NE ¼, SW ¼ SE ¼, E ½ E ½.
Section 15: All, EXCEPT The SE ¼ SE ¼.
Section 16: All.
Section 17: E ½.
Section 21: E ½.
Section 22: All, EXCEPT The SW ¼ SW ¼.
Section 23: All
Section 24: W ½, W ½ E ½, SE ¼ SE ¼, E ½ NE ¼, NE ¼ SE ¼.
Section 25: All
Section 26: All, EXCEPT The SW ¼ SW ¼.
Section 27: E ½ NW ¼, NE ¼, N ½ SE ¼.
Section 35: NE ¼ NE ¼.
Section 36: All

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R-87490

NEWTON
CONSULTANTS INC.
Earth, Water and Rock Specialists

INSPECTION REPORT - POND C
4 DSD, LLC RANCH
Wheeler County, Oregon

Prepared for:

4 DSD, LLC Ranch
175 Phillip Road
Woodside, California
94062

June 24, 2009

Project No.: 1063-102

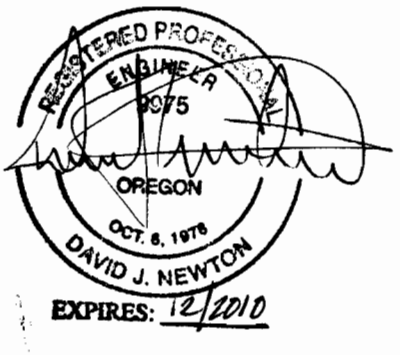
INSPECTION REPORT

POND C

4 DSD, LLC RANCH

WHEELER COUNTY, OREGON

June 24, 2009



Prepared for:

4 DSD, LLC Ranch
175 Phillip Road
Woodside, California 94062

Prepared by:

Newton Consultants, Inc.
521 SW 6th Street, Suite 100
Redmond, Oregon 97756

Project No. 1063-102

INSPECTION REPORT

POND C

4 DSD, LLC RANCH

WHEELER COUNTY, OREGON

June 24, 2009

INTRODUCTION AND BACKGROUND

The purpose of this inspection report is to satisfy requirements for obtaining a storage permit for an existing pond, designated Pond C, located on the 4 DSD, LLC Ranch (the Ranch) located northeast of Mitchell, Oregon, in Wheeler County. Other permit requirements include storage permit application and application map, which are submitted to the Oregon Water Resources Department (OWRD) in conjunction with this report.

This report describes an earthfill dam used to contain water in the pond, emergency spillway, outlet works, watershed and water source for Pond C. This report also describes the pond location relative to John Day River reaches subject to Oregon State Scenic Waterway and Federal Wild and Scenic River designations.

The Ranch is under new ownership as of the last 3 years and occupies land in the Waterman Flat area and in hill and ridge areas to the east. Access to the Ranch is off Waterman Road, near the old Waterman stage stop. The general location of the Ranch is shown on Figure 1 (Vicinity Map). The Ranch boundaries and general drainage and topographic conditions are shown on Figure 2.

Newton Consultants, Inc. (Newton) was asked by Ranch management to prepare a storage permit application for an existing pond located on the Ranch. The pond, identified by the Ranch as Pond C, is located near the eastern Ranch boundary as shown on Figure 2. The location is in the NW ¼ of the SE ¼ of Section 13, Township 11 South, Range 24 East, W.M.

Pond C was constructed several years ago and the water surface covers an area of approximately 2.14 acres. The need for a permit was discovered by Mr. Joel Clark, previous Oregon Water Resources Department (OWRD) District 21 Watermaster. Permit requirements for existing facilities include permit application and map, and an inspection report. This inspection report, together with the storage permit application and map prepared for Pond C, respond to these requirements. This report is based on inspection of the Pond C and the general pond area on February 5, 2009. The inspection was

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conducted by David Newton, registered civil engineer, water right examiner and engineering geologist.

THE WATERSHED

Pond C is located in the Indian Creek watershed. The sub-area of the Indian Creek watershed that drains to the pond area covers about 592 acres (0.93 square miles). The Pond C sub-area ultimately drains through a perennially-mapped route across cultivated land into Indian Creek at a location a few hundred feet south of the Pond C site. The approximate boundary of the watershed for Pond C is shown on Figure 2. The total Indian Creek watershed area is substantially larger than the sub-area that drains toward Pond C.

Indian Creek; Wild and Scenic Waterways – John Day River

Indian Creek is mapped by the USGS as a perennial stream. It is possible that this creek is also supplied by spring discharge. The creek carries runoff southward to about one mile south of Pond C, where it turns toward the east. The creek ultimately discharges into Squaw Creek, about 7 miles downstream from the Pond C. Squaw Creek discharges into the John Day River at river mile 195.24. The approximate distance between Pond C and the John Day River is 11.6 miles.

The upper most extent of the Oregon State Scenic Waterway on the John Day River begins at Parrish Creek, at river mile 168.7. The Federal Wild and Scenic River reach on the John Day River begins at Service Creek, at river mile 157.4. The mouth of Indian Creek is 26.5 miles above the Oregon State Scenic Waterway and 37.8 miles above the Federal Wild and Scenic reaches of the John Day River.

Existing Structures Relative to Dam Breach and Flood Hazard

The location of Pond C is remote from any man-made buildings, dwellings and public roads. Water released from the pond under breach conditions would flow through an area remote from any structures or human flood hazard areas for at least 2 miles below the pond. The remaining drainage path on Indian Creek, extending to Squaw Creek, is also very remote in this regard. An unpaved road follows Squaw Creek on its north side to the mouth. A bridge passes the road over Squaw Creek a short distance upstream from the mouth. Some buildings are visible on Google Earth imagery near the mouth of Squaw Creek at the John Day River.

Slope Aspect and Inclinations

The watershed slope aspect is oriented to face generally south to southeast. Watershed slopes are inclined generally in the range of 14 to 20 percent. with local, steeper areas inclined at roughly 40 percent.

Pond C and Watershed Elevations

Elevations within the watershed range from approximately 4,400 feet near the Pond C to approximately 5,120 feet at the highest watershed area. The Pond C is located in relatively open terrain, vegetated by scattered juniper, sagebrush and various grasses. Timber is more prevalent on the southerly and easterly facing slopes northwest, north and northeast of the pond, roughly between elevations of 4,520 feet and 5,000 feet. The uppermost area of the watershed, roughly between elevations of 5,000 and 5,120 feet, is relatively open and dominated with scattered juniper, sage and grasses.

Soils

Soils observed in the general vicinity of Pond C contain clays. It is probable that soils in the higher parts of the watershed also contain appreciable clay. The reasoning for this is observed soil conditions and geology. Geologic units in the area appear to be related to the John Day and/or Clarno Formations, which generate clay minerals upon weathering.

A photograph of the watershed looking over Pond C, generally toward the northeast is shown on Figure 3.

WATER SOURCE

The primary source of water for Pond C is discharge from springs located on the upslope side of the pond. The springs supplying the pond are mapped on the U.S. Geological Survey Johnson Heights quadrangle map. Spring discharge is conveyed from the area through a minor, somewhat poorly defined secondary drainage. The drainage is mapped by the USGS as a perennial stream. The main channel of Indian Creek passes about 150 feet east of the Pond C site and the springs supplying the pond. Figure 4 shows the general spring area.

Ground areas on the upstream side of the Pond C were wet, even saturated on the date of site inspection. The wetness reflects discharge of spring waters that drain into the Pond C. A 1-inch diameter PVC pipe extends about 50 to 60 feet from an upslope point in the spring area to the pond. The pipe conveys spring discharge directly to the pond. Figures 5 and 6 show the pipe supplying water from the spring area to the Pond C.

EXISTING DAM CONDITIONS

Pond Construction and Capacity

The Pond C is shown in plan view on Figure 7. The pond was constructed on a gently sloping hillside by excavation of the water impoundment area and construction of an earthfill dam on the downhill side of the impoundment area. The water surface area of

the pond is approximately 2.14 acres. The maximum pond water depth is reported by Ranch personnel at approximately 14 feet. The average depth is approximately 12 feet. Storage capacity is estimated at 24 acre-feet based on this average depth and a water surface area of 2.14 acres.

Earthfill Dam

The length of the earth dam is approximately 550 feet. The maximum height of the dam was measured at 13.8 feet. The dam crest is slightly rounded, with a width generally ranging from 10 feet to 12 feet. The upstream slope of the dam is inclined at approximately 3 horizontal to 1 vertical. The downstream slope is inclined at approximately 2 horizontal to 1 vertical. The top and slopes of the dam support grasses, thistles and sage brush. Figure 8 shows the top, upstream and downstream slopes of the dam, and elevation of pond water surface below the dam crest. The location of the photograph on this Figure is shown on Figure 7. Figure 9 shows the general location of the excavated pond area and the earth fill dam along the downslope side of the pond.
No obvious seepage or wet areas were noted on the downstream slope, or in the toe area of the downstream slope. Review of an aerial photograph apparently taken during summer indicates dark green color tones along the toe of the dam (Figure 7). These areas are conspicuous, reflecting moisture conditions, and suggesting that moisture could be from pond seepage through or beneath the earth dam. However, no active seeps with free-flowing water were observed during the site inspection. No areas of significant sloughing of slope materials were observed. The overall condition of the dam embankment is generally good based on site observations, reflecting no clear basis for remedial actions.

The elevation of the pond water surface was 1.8 to 2.3 feet below the dam crest on the inspection date of February 5, 2009. Field observations and evidence of water marks on the water edge indicate that the pond water surface generally does not exceed this elevation.

Soils with relatively high clay content were used to construct the dam embankment. Field examination revealed relatively high plasticity characteristics of the soils. Clayey soils are consistent with the bedrock geology of the site area, dominated by John Day and Clarno Formation rocks, which weather to clay materials. These materials can result in very low permeability embankments.

PRIMARY OUTLET WORKS

The primary outlet works consists of a pipe extending from the pond, beneath the earthfill dam, to a discharge point near the toe of the downstream slope of the dam embankment. The size and type of outlet pipe are unknown. Flow through the pipe is controlled by a valve. The valve is opened and closed by a turn-handle on a vertical steel shaft. The handle could not be turned during the site inspection. The pipe outlet is covered over

with soil and vegetation. Figure 7 shows the approximate location of the outlet pipe valve near the southwest corner of the pond. Figures 10 and 11 show the vertical valve stem rising above the dam embankment fill.

EMERGENCY SPILLWAY

The emergency spillway is located in the northeast corner of the pond as shown on Figure 7. The spillway consists of a roughly trapezoidal-shaped channel in natural ground materials that conveys flow from the pond to the main Indian Creek channel east of the pond as shown on Figure 7. The spillway inlet is approximately 8 feet wide at the bottom of the channel. The depth of the spillway channel below the lowest adjacent grade ranges between 2.6 and 3 feet based on hand level measurements. The 2.6-foot high sidewall on the northwest side of the channel is formed by excavation into natural ground. The 3-foot high sidewall on the southeast side of the channel appears to also be excavated into natural ground, near the transition to the dam embankment fill. A screen is positioned across the channel approximately 15 feet downstream from the inlet. Wood debris was observed on the screen and was probably impinged there during earlier flow events. The channel width at the screen location is approximately 7 feet. The spillway channel configuration is shown on Figure 12

Gravel and cobble-size rock material form the channel bottom. Figure 12 shows the general nature of materials on the channel bottom. No evidence of significant erosion was observed in the channel. The slope of the channel bottom in the flow direction is very modest (approximately 0.5 percent), such that flow velocities are resisted by the gravel-cobble materials observed on the channel bottom. Grasses and other vegetation growing on the channel sidewalls suggest historic flow depths in the channel could have been up to about 1 foot more or less.

Existing Flow Capacity

Cursory evaluation of spillway capacity indicates the channel is capable of passing water at an estimated rate of approximately 12 cubic feet per second (cfs). The capacity is based on an average flow gradient of 0.5 percent, manning coefficient of 0.030 and flow depth of 0.6 feet. This flow depth was selected to allow for 2 feet of freeboard between the water surface and the top of the sidewall on the northwest side of the spillway channel. Raising the water depth in the spillway channel would also raise the water surface elevation in the pond, decreasing the freeboard from a minimum of 1.8 observed feet to 1.2 feet. Judging from grasses and other vegetation on channel sidewalls, typical maximum historic flows could have been around 30 cfs.

Adequacy of Existing Spillway Flow Capacity

Observations of the spillway revealed no significant erosion other than some channeling at the downstream end where flows transition to the Indian Creek channel. Observations

of the dam revealed no evidence of prior overtopping. These conditions appear to reflect the effect of non-channelized and concentrated runoff that enters the pond. Runoff from the sub-area of the Indian Creek watershed that contributes water to the pond is largely dispersed overland flow. The main channel of Indian Creek, bypassing the pond to the east, concentrates flow by its well defined channel section. Based on these considerations, it is reasonable to expect that overland flow contributions to the pond have been dispersed and, historically, have been within the capacity of the spillway channel to prevent overtopping of the dam. However, the age of the pond is unknown to compare its performance with known large runoff events (1996-97; 1964), and whether the pond has experienced a rain on snow runoff event. The present owner purchased the Ranch in 2006. His communication with the prior owner indicates the pond was built before the prior owner took possession of the Ranch, which was many years ago. It appears likely that the pond has at least experienced the wet events of 1996-97.

WATER USE

The pond supports rainbow trout and provides water for wildlife use (including elk, deer and bison). The pond is beneficial to these fish and wildlife uses which will continue under Ranch water management practices. For the storage permit, water use is classified as "multiple purpose".

SUMMARY OF BASIC FINDINGS AND CONCLUSIONS

Consideration of site inspection findings resulted in the following basic conclusions:

1. The pond serves a beneficial purpose to rainbow trout, wildlife and other multiple purpose uses of the Ranch under its water management planning activities.

2. The pond is supplied with water from an un-named spring in the Indian Creek watershed. The pond is not located on the main Indian Creek Channel, which passes by the east side of the pond. Spring discharge naturally drained into Indian Creek at a location a few hundred feet downstream from the pond. Indian Creek would convey this water to Squaw Creek, then to the John Day River about 11.6 miles downstream from the pond. The mouth of Squaw Creek is 26.8 miles above the uppermost Oregon State Scenic Waterway on the John Day River.

3. Although the age of the pond is unknown (Ranch is under new ownership), it appears to have been functional for many years. The earthfill dam forming the downslope side of the pond is in reasonably good condition relative to slope stability and containment of water without significant seepage.

4. Obvious seepage was not observed from the earthfill dam, or the downstream toe area of the embankment during the February 5, 2009 site inspection; however,

color aerial photographs reveal dark green color tones along the dam toe, suggesting the presence of moisture, which also suggests some seepage beneath the embankment is occurring. It is concluded that some seepage occurs; however, seepage is not significant to the degree it threatens stability of the embankment through piping or through slope failure.

5. Drainage channeling from the Pond C watershed area to the pond is obscure and not well defined beyond a small ditch-like channel. Runoff directly to the pond has a significant overland flow component and a lesser component of concentrated channel flow. This condition reduces potential for concentrated flow surges into the pond.

6. The existing emergency spillway shows very little evidence of channel erosion on its bottom and sidewalls. Some erosion was noted at the downstream end, at the transition to the Indian Creek drainage. Vegetation on spillway sidewalls suggests typical historical flow depths could have been up to 1 foot more or less. No evidence of overtopping of the dam embankment was observed during the site inspection. Although freeboard between the pond water surface and the dam crest was 1.8 feet at one location, the historic performance of the spillway channel has been satisfactory to prevent dam overtopping.

7. The age of the pond is unknown; therefore, historic performance of the spillway has limited value in assessing adequacy of the spillway relative to dam safety considerations.

8. The observed valve stem and operating handle on the downstream slope of the dam embankment reveals an outlet works for the pond. Full details of the outlet system are not available for this report and need to be identified. Maintenance is required to open the outlet to free discharge, when needed, and the valve requires maintenance for proper operation, when needed.

RECOMMENDATIONS

1. The emergency spillway channel should be improved to increase discharge capacity and freeboard between the pond water surface and the dam crest. The improvements should be based on hydrologic analysis to determine the appropriate capacity requirement, and engineering to develop the appropriate spillway channel section considering freeboard needs and needs to avoid adverse impacts on fish and wildlife values of the pond. This improvement is recommended as a condition to meet prior to issuance of a water right certificate.

2. The pond outlet works should be defined and made operable through clearing to provide unobstructed discharge and through maintenance of the valve system.

This is recommended as a condition to meet prior to issuance of a water right certificate.

3. As-built drawings are required by the OWRD. This is recommended as a condition to meet prior to issuance of a water right certificate.

4. Large, relatively deep-rooted brush (including sage) should be removed from the dam embankment. Large brush and trees should not be allowed to grow on the dam embankment.

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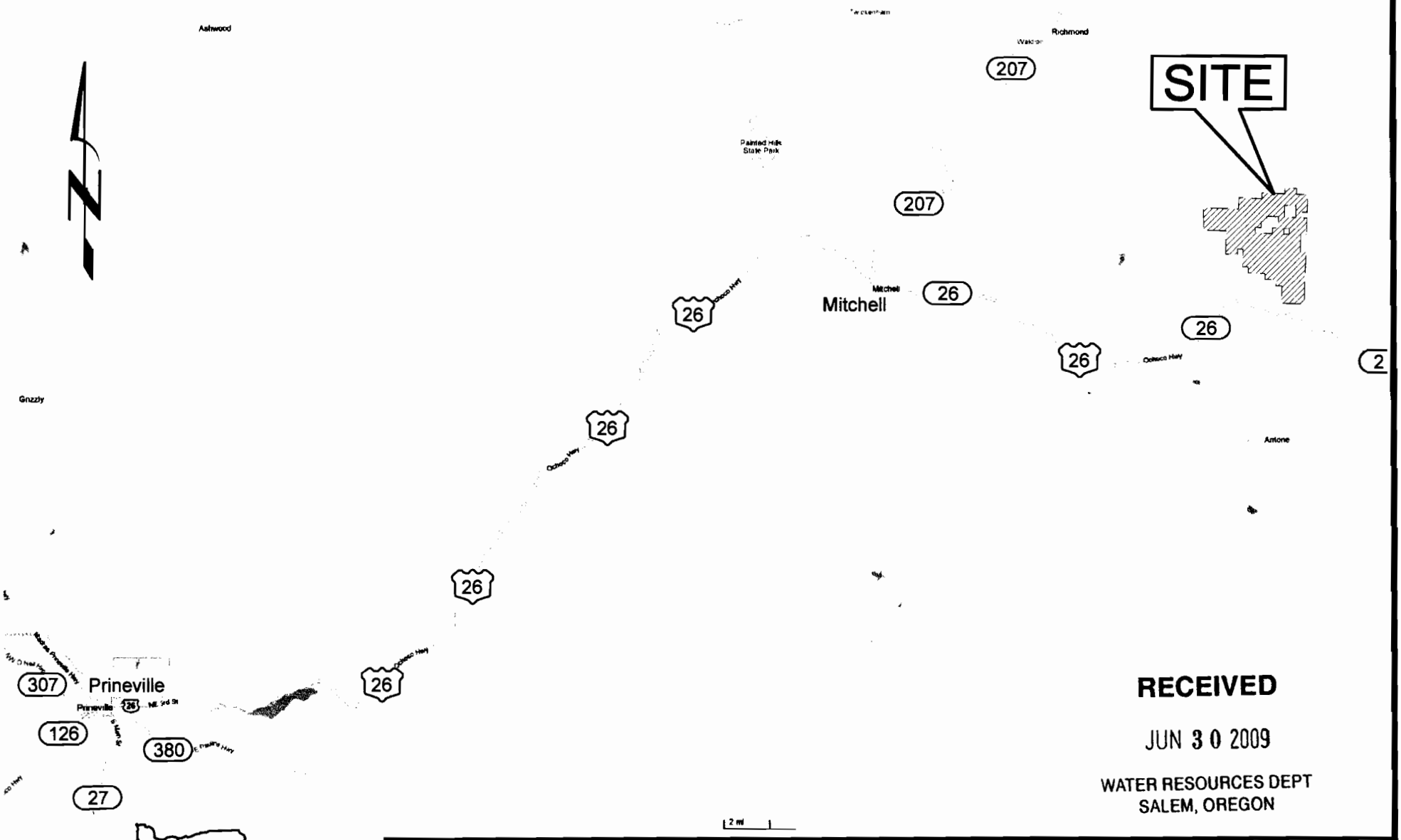

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Vicinity Map
4 DSD, LLC Ranch
Waterman Flat, Wheeler County, Oregon

DESIGNED BY:	DRAWN BY:	DATE:	PROJECT NO.	FIGURE
D.Newton	S.Schenck	June 2009	1063-102	1

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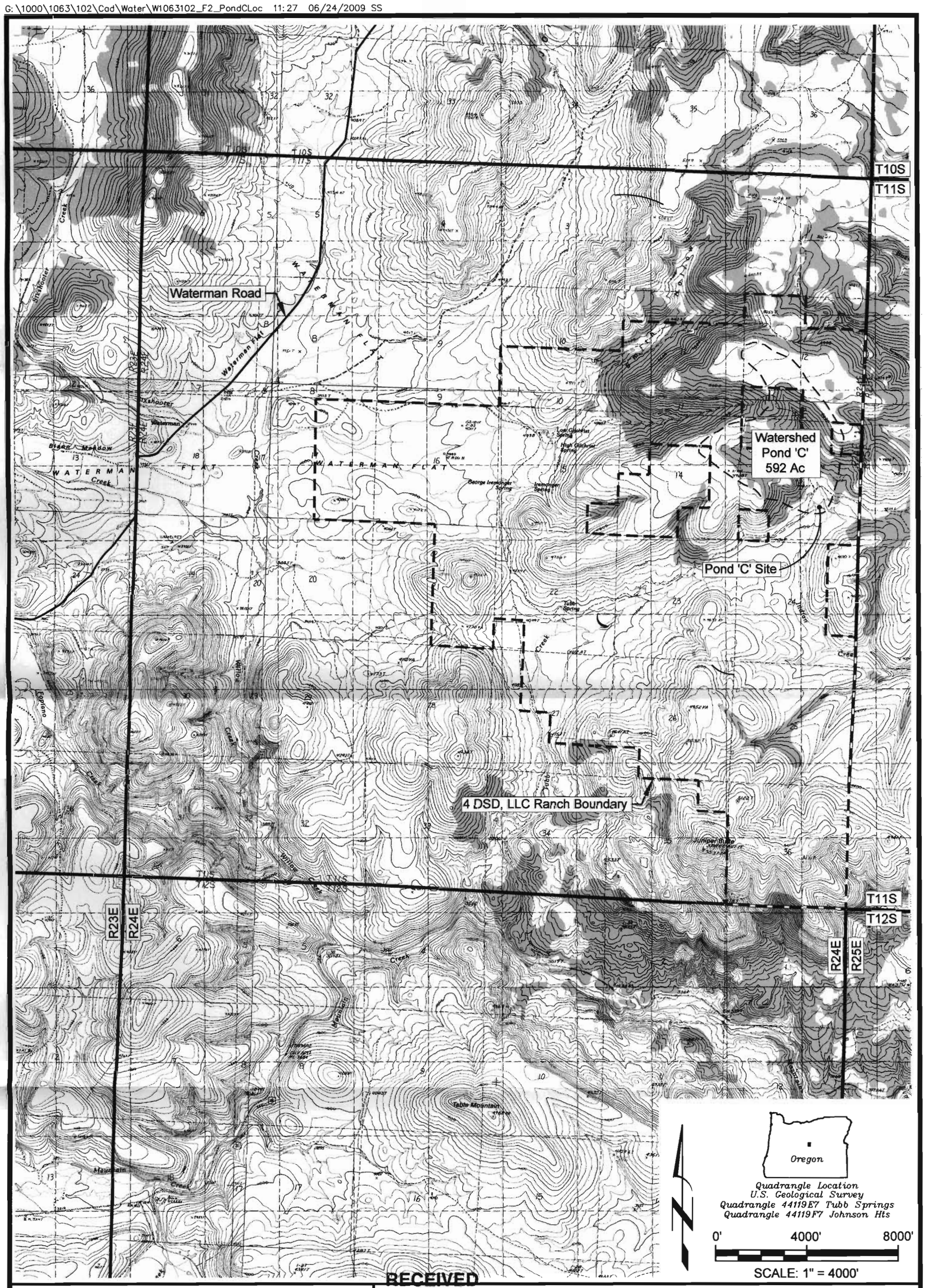

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4 DSD, LLC Ranch Boundary
Pond 'C' Site
Waterman Flat, Wheeler County, Oregon

DESIGNED BY:	DRAWN BY:	DATE:	PROJECT NO.	
D.Newton	S.Schenck	JUNE 2009	1063-102	FIGURE 2

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Western Part of Pond 'C' with View Toward Northeast Watershed Area
4 DSD, LLC Ranch
Waterman Flat, Wheeler County, Oregon

DESIGNED BY:	DRAWN BY:	DATE:	PROJECT NO.	FIGURE
D.Newton	S.Schenck	June 2009	1063-102	3

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Pond 'C' Spring Area
4 DSD, LLC Ranch
Waterman Flat, Wheeler County, Oregon

DESIGNED BY:	DRAWN BY:	DATE:	PROJECT NO.	FIGURE
D.Newton	S.Schenck	June 2009	1063-102	4

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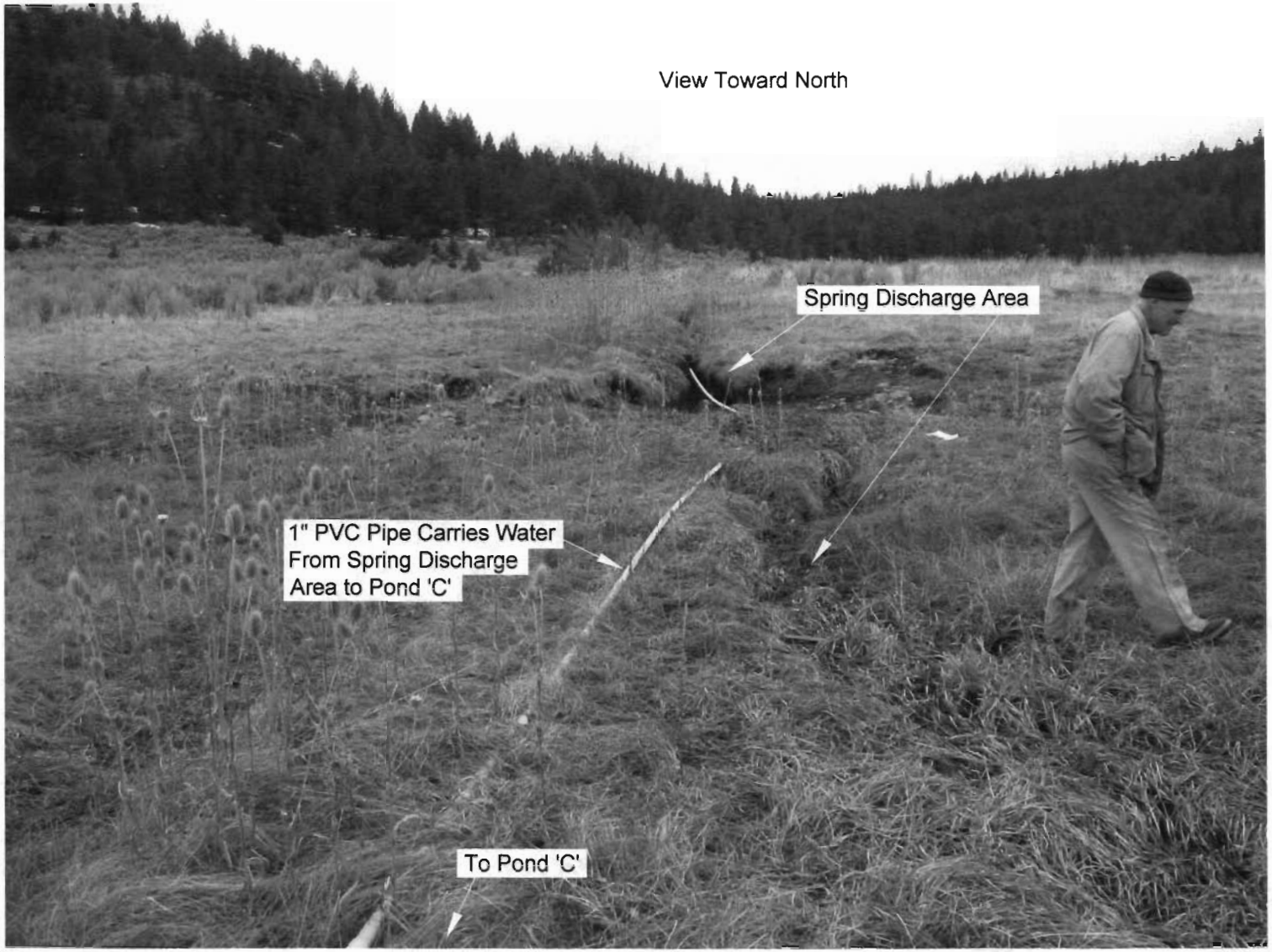
View Toward North



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Pond 'C' Water Source
4 DSD, LLC Ranch
Waterman Flat, Wheeler County, Oregon

DESIGNED BY:	DRAWN BY:	DATE:	PROJECT NO.	FIGURE
D.Newton	S.Schenck	June 2009	1063-102	5

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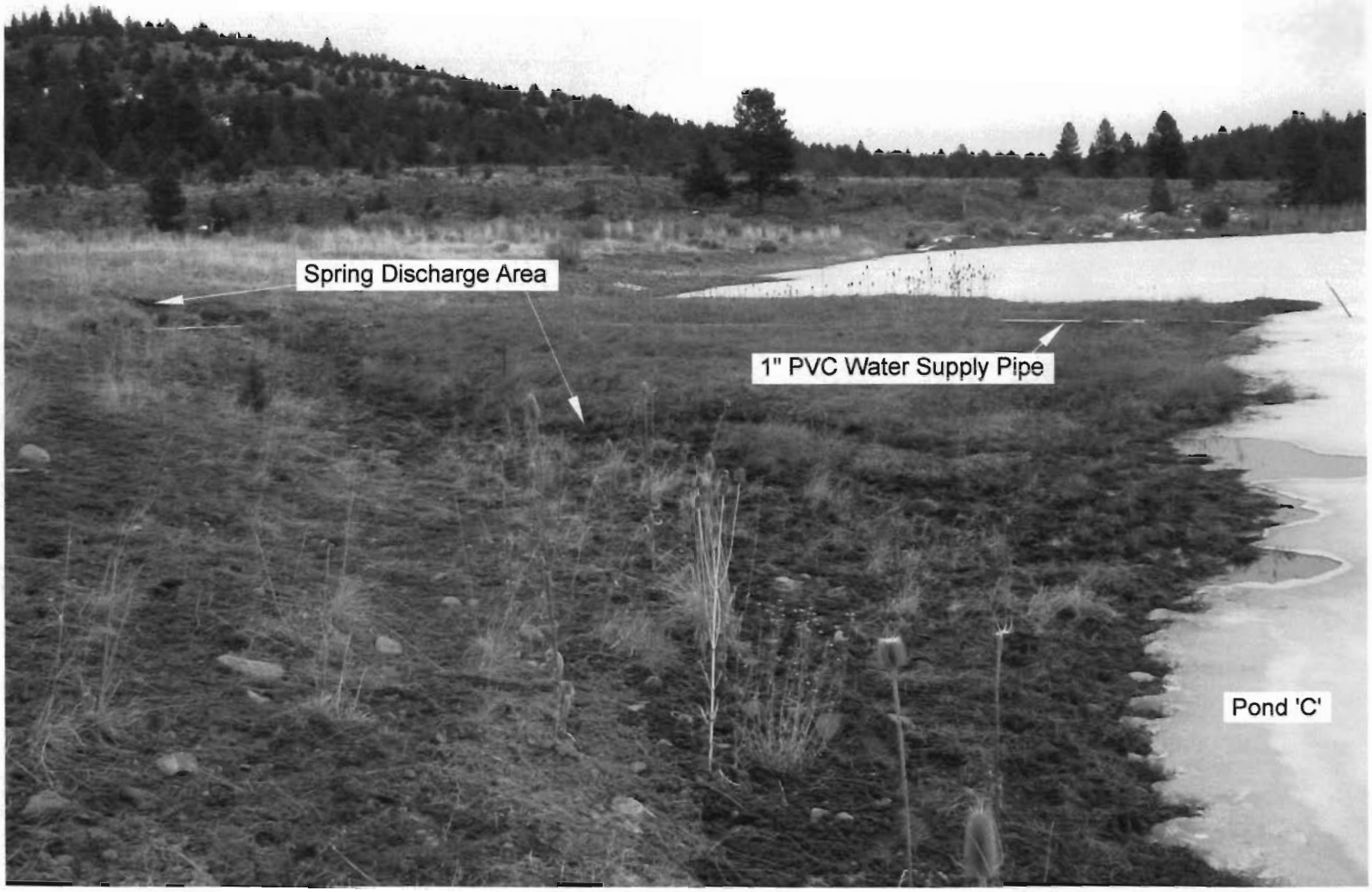
View Toward East



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Pond 'C' Water Source
4 DSD, LLC Ranch
Waterman Flat, Wheeler County, Oregon

DESIGNED BY:	DRAWN BY:	DATE:	PROJECT NO.	FIGURE
D.Newton	S.Schenck	June 2009	1063-102	6

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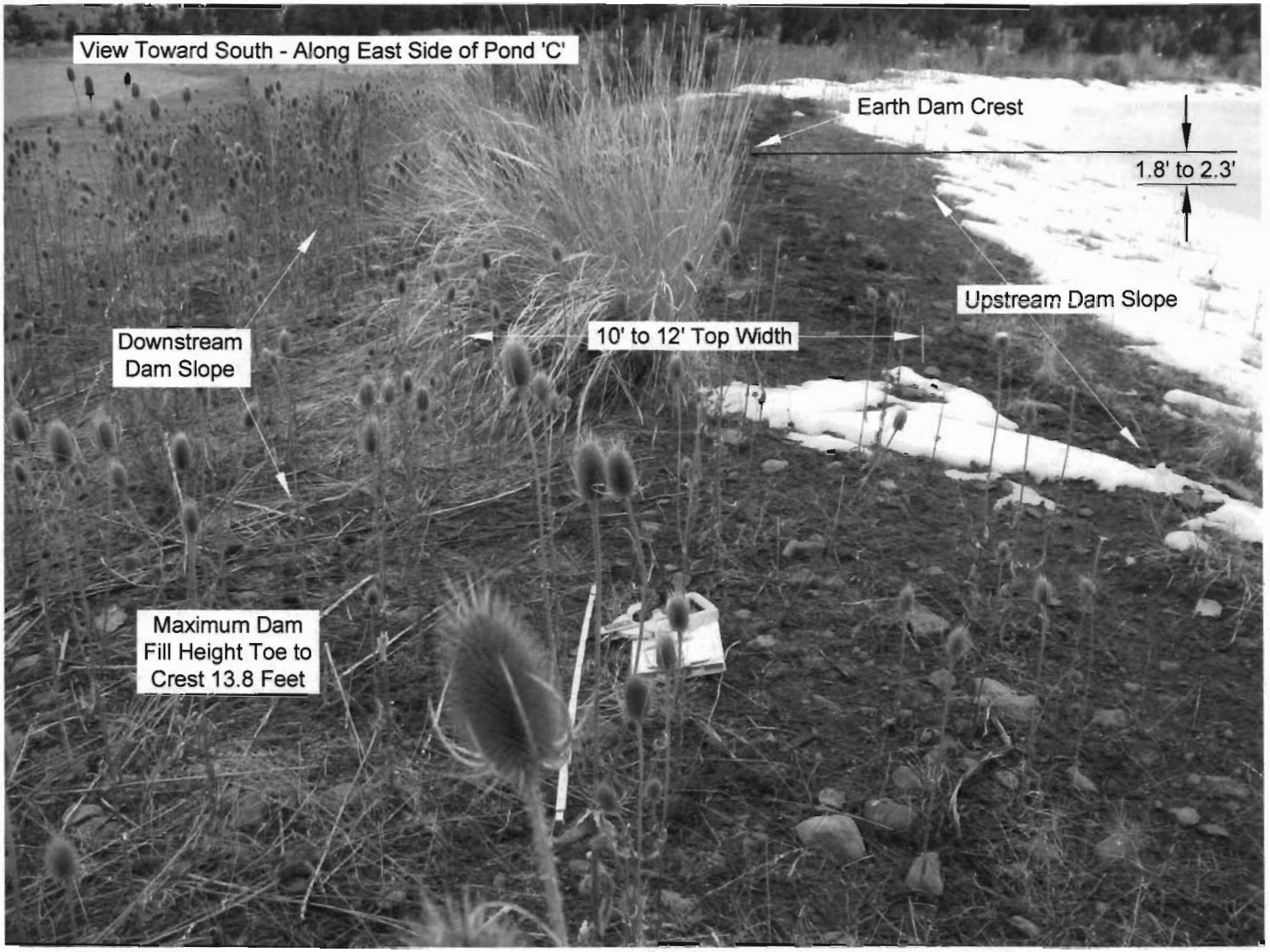

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Pond 'C' Earth Dam
4 DSD, LLC Ranch
Waterman Flat, Wheeler County, Oregon

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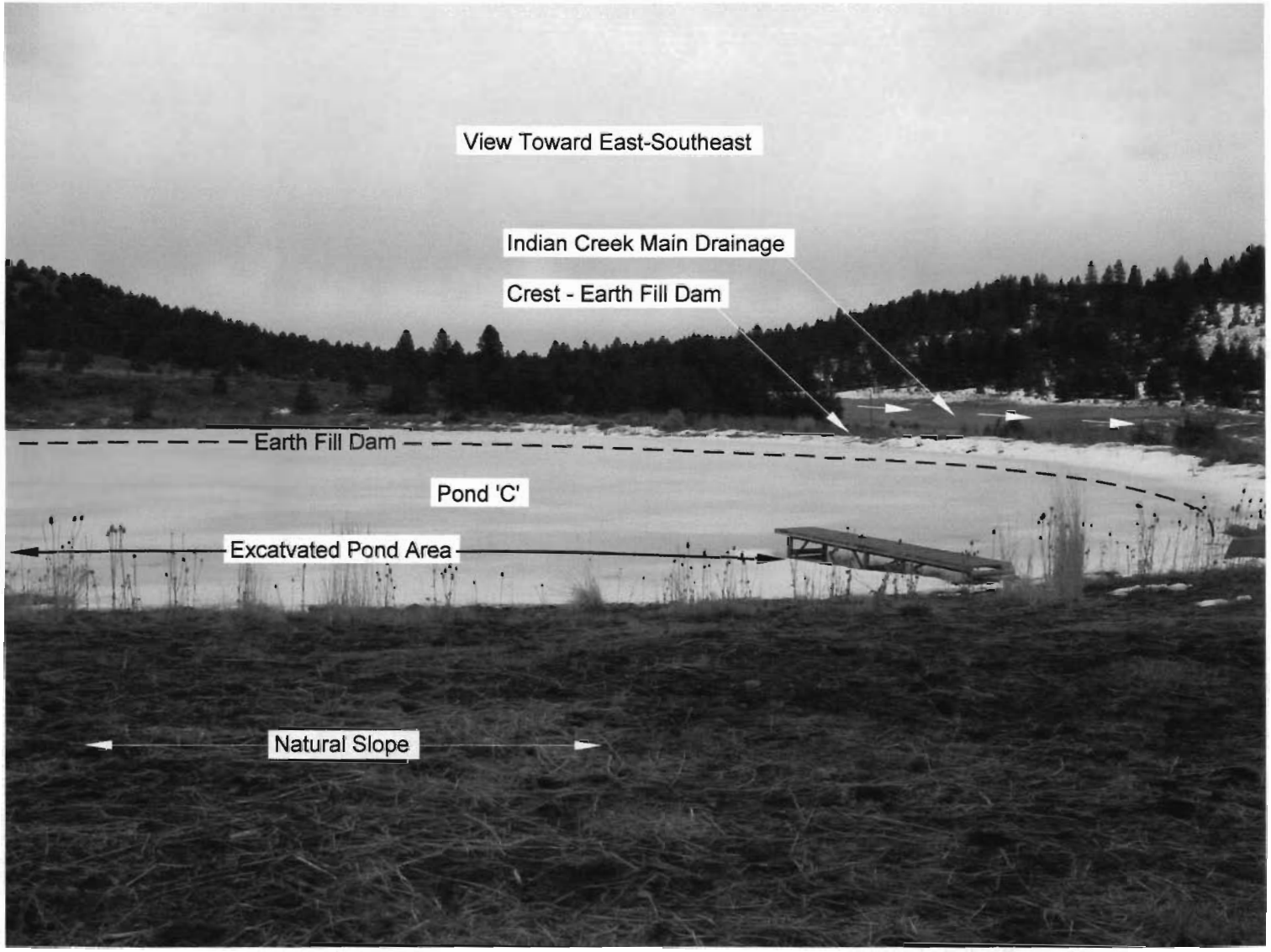
D.Newton	S.Schenck	June 2009	1063-102	8



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Pond 'C' Water Source
4 DSD, LLC Ranch
Waterman Flat, Wheeler County, Oregon

DESIGNED BY:	DRAWN BY:	DATE:	PROJECT NO.	FIGURE
D.Newton	S.Schenck	June 2009	1063-102	9

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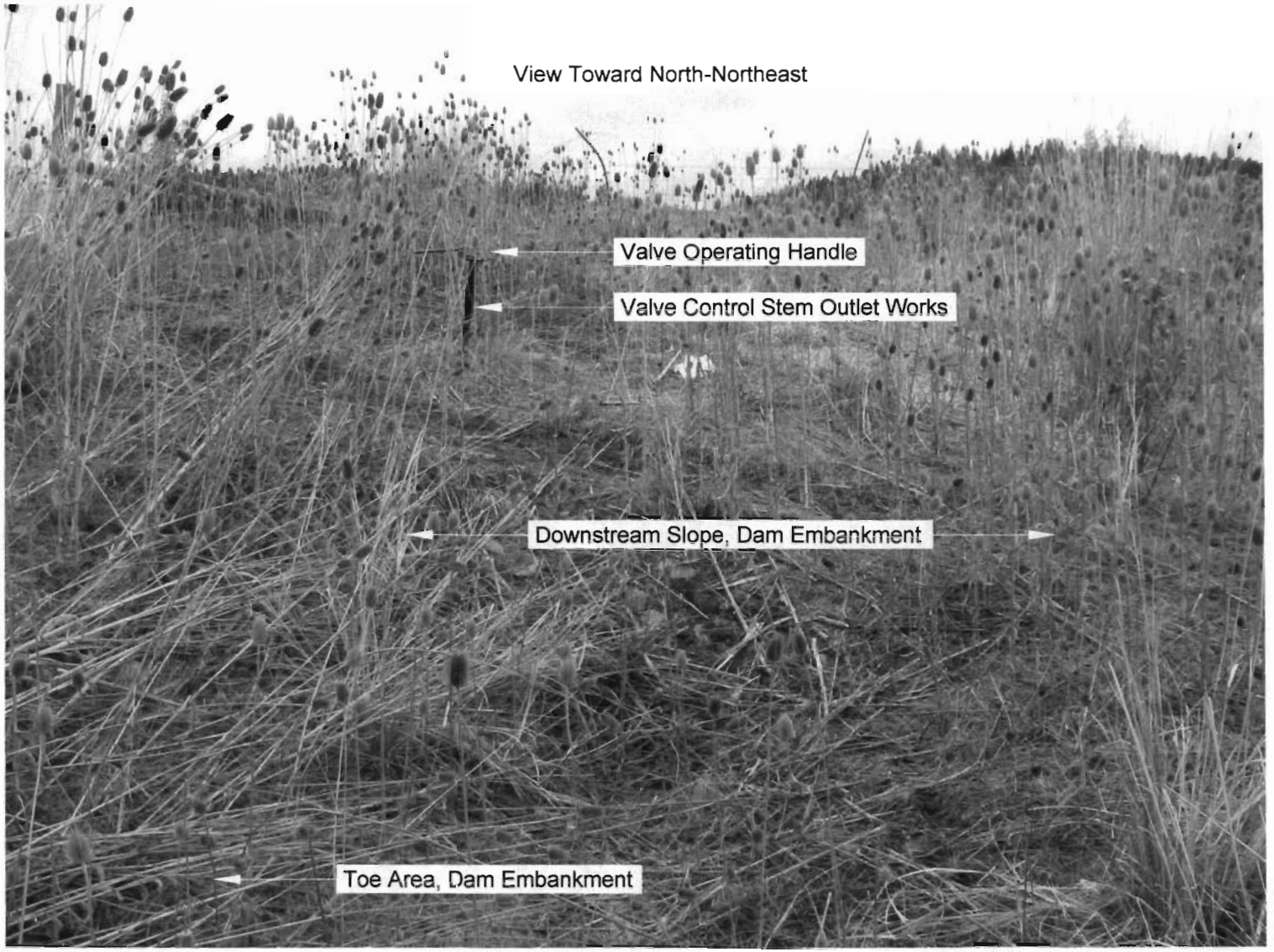

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Outlet Works - Pond 'C'
4 DSD, LLC Ranch
Waterman Flat, Wheeler County, Oregon

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D.Newton	S.Schenck	June 2009	1063-102	10

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Aerial View - Pond 'C'

4-DSD, LLC

Waterman Flat, Wheeler County, Oregon

DESIGNED BY:	DRAWN BY:	DATE:	PROJECT NO.	FIGURE
D.Newton	S.Schenck	JUNE 2009	1063-102	7

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Outlet Works, Operating Handle & Valve Stem - Pond 'C'
4 DSD, LLC Ranch
Waterman Flat, Wheeler County, Oregon

DESIGNED BY:	DRAWN BY:	DATE:	PROJECT NO.	FIGURE
D.Newton	S.Schenck	June 2009	1063-102	11

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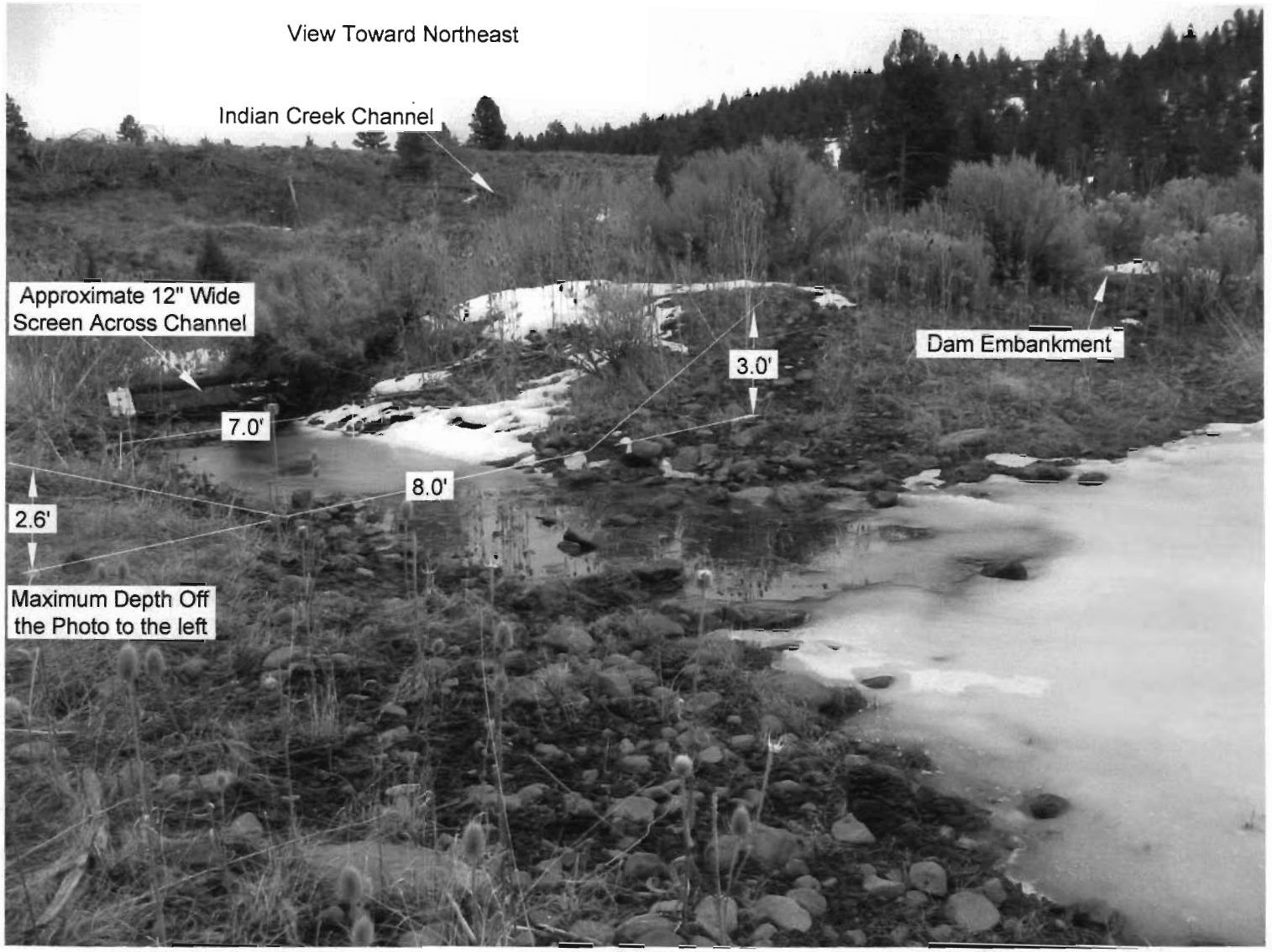

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Emergency Spillway Channel - Pond 'C'
4 DSD, LLC Ranch
Waterman Flat, Wheeler County, Oregon

DESIGNED BY:	DRAWN BY:	DATE:	PROJECT NO.	FIGURE
D.Newton	S.Schenck	June 2009	1063-102	12