Wetland Documents

Langer Farms Phase 7 – Land Use Application

1. DSL Completeness Letter dated 5-2-12
2. Wetland Fill Permit Application – Schott & Associates April 2012
3. Sensitive Lands Report - Schott & Associates January 2012
4. DSL Concurrence Letter January 25, 2008
5. Wetland Delineation Report - Schott & Associates June 2007

Oregon
John A. Kitzhaber, MD, Governor

Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 986-5200
FAX (503) 378-4844
www.oregonstatelands.us

State Land Board

John A. Kitzhaber, MD
Governor

Kate Brown
Secretary of State

Ted Wheeler
State Treasurer

May 2, 2012

MMC600/50271
LANGER GRAMOR LLC
ATTN BARRY CAIN
19767 SW 72ND AVENUE SUITE 100
TUALATIN OR 97062

RECEIVED
MAY 04 2012
GRAMOR DEVELOPMENT INC.

Re: DSL Removal/Fill Permit Application No. 50271-RF
Storage Facility Project, Tualatin Sherwood Road
Sherwood, Washington County

Dear Mr. Cain:

We have received your application to conduct removal or fill activities in a water of the state. Based on the information provided, the activity is subject to our jurisdiction and a state removal/fill permit is required. The purpose of this letter is to inform you of the results of our initial completeness/eligibility review and explain the permit process.

Your application is complete and your fee has been received. We will initiate circulation of your application to natural resource agencies, adjoining property owners, the city or county planning department, and other interested parties on our mailing list. You may view the comments as they come in and check the status of your application on our website at http://www.statelandsonline.com. After a 30-day review period, the public comment period will close.

At the end of the comment period, comments received will be forwarded to you and you will have the opportunity to address any concerns that are raised during the public review process. At that time you may wish to submit additional information, as appropriate, to support your application. A permit decision will be rendered on your application within 60 days of the close of the public review period unless you otherwise request to extend that deadline.

Please call me at 503.986.5255 if you have any questions regarding this matter.

Sincerely,

Michael V. McCabe

Michael V. McCabe, MS
Natural Resource Coordinator
Wetlands and Waterways Conservation Division

Cc: Martin Schott, Schott & Associates

SCHOTT & ASSOCIATES
Ecologists & Wetlands Specialists

21018 NE Hwy 99E • P.O. Box 589 • Aurora, OR 97002 • (503) 678-6007 • FAX: (503) 678-6011

Wetland Fill Permit Application

For

Langer Farms

Part 1

Prepared for:
Langer Gramor LLC
19767 SW 72nd Ave, Suite 100
Tualatin, OR 97062

Project # : 1988

Submitted by: Juniper Tagliabue, Schott & Associates
April 2012

US Army Corps
Of Engineers (Portland District)

Joint Permit Application Form

DATE STAMP

AGENCIES WILL ASSIGN NUMBERS

Corps Action ID Number | Oregon Department of State Lands No

SEND ONE SIGNED COPY OF YOUR APPLICATION TO EACH AGENCY

US Army Corps of Engineers:
District Engineer
ATTN: CENWP-OD-GPPO
Box 2946
Portland, OR 97208-2946
503-808-4373

AND

DSL - West of the Cascades:
State of Oregon
Department of State Lands
775 Summer Street, Suite 100
Salem, OR 97301-1279
503-986-5200

OR

DSL - East of the Cascades:
State of Oregon
Department of State Lands
1645 NE Forbes Road, Suite 112
Bend, Oregon 97701
541-388-6112

AND

Send DSL Application Fees to:
State of Oregon
Department of State Lands
PO Box 4395, Unit 18
Portland, OR 97208-4395
(Attach a copy of the first page of the application)

(1) APPLICANT INFORMATION

Applicant Name and Address	Attn: Barry Cain Langer Gramor LLC 19767 SW 72nd Avenue, Suite 100 Tualatin, OR 97062	Business Phone # Home Phone # Fax # Email	503.783.1306 barry@gramor.com
Authorized Agent Name and Address Check one Consultant ☒ Contractor ☐	Martin Schott Schott and Associates PO Box 589 Aurora, OR 97002	Business Phone # Home Phone # Fax # Email	503.678.6007 503.678.6011 martin@schottandassociates.com
Property Owner Name and Address If different from above[1]	Matt Langer Langer Gramor LLC 19767 SW 72nd Avenue, Suite 100 Tualatin, OR 97062	Business Phone # Home Phone # Fax # Email	503.956.9220 matt.langer04@gmail.com

(2) PROJECT LOCATION

Street, Road or Other Descriptive Location		Legal Description (attach *tax lot map**)			
SE corner of Tualatin Sherwood Road and SW Langer Farms Parkway		Township	Range	Section	Quarter/Quarter
		2S	1W	29	SE
In or near (City or Town)	County	Tax Map #		Tax Lot #[2]	
Sherwood	Washington	2S1W29		300	
Wetland/Waterway (pick one)	River Mile (if known)	Latitude (in DD.DDDD format)		Longitude (in DD.DDDD format)	
Wetland	unknown	45.362		-122.8339	
Directions to the site	South on SW Langer Farms Parkway from Tualatin Sherwood Road				

[1] If applicant is not the property owner, permission to conduct the work must be attached.
[2] Attach a copy of all tax maps with the project area highlighted.

- ***Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.***

(3) PROPOSED PROJECT INFORMATION

Type: Fill ☒ Excavation (removal) ☒ In-Water Structure ☐ Maintain/Repair an Existing Structure ☐

Brief Description: Wetland fill for road access and placement of water/sewer infrastructure for regional WQ facility and large vehicle storage.

Fill

Riprap ☐ Rock ☒ Gravel ☒ Organics ☐ Sand ☒ Silt ☒ Clay ☒ Other: ☐

Wetlands	Permanent (cy)	Temporary (cy)						Total cubic yards for project (including outside OHW/wetlands)	17,500cy
	107cy	0.0							
	Impact Area in Acres	Dimensions (feet)							
	0.05ac	L'	Varies	W'	Varies	H'	Varies		
Waters below OHW	Permanent (cy)	Temporary (cy)						Total cubic yards for project (including outside OHW/wetlands)	17,500cy
	105cy	0.0							
	Impact Area in Acres	Dimensions (feet)							
	0.04ac	L'	175'	W'	Varies	H'	2.5'		

Removal

Wetlands	Permanent (cy)	Temporary (cy)						Total cubic yards for project (including outside OHW/wetlands)	17,000
	5cy	0.0							
	Impact Area in Acres	Dimensions (feet)							
	0.05	L'	Varies	W'	Varies	H'	Varies		
Waters below OHW	Permanent (cy)	Temporary (cy)						Total cubic yards for project (including outside OHW/wetlands)	17,000
	0.0	0.0							
	Impact Area in Acres	Dimensions (feet)							
	0.0	L'		W'		H'			

Total acres of construction related ground disturbance (If 1 acre or more a 1200-C permit may be required from DEQ) >1 acre

Is the disposal area upland? Yes ☒ No ☐ Impervious surface created? <1 acre ☐ >1 acre? ☒

	Yes	No
Are you aware of any state or federally listed species on the project site?		x
Are you aware of any Cultural/Historic Resources on the project site?		x
Is the project site within a national Wild & Scenic River?		x
*Is the project site within a State Scenic State Scenic Waterway?**		x

If yes, please explain in the project description (in block 4)

(4) PROPOSED PROJECT PURPOSE AND DESCRIPTION

Purpose and Need:

*Provide a description of the public, social, economic, or environmental benefits of the project along with any supporting formal actions of a public body (e.g. city or county government), as appropriate.**

One drainage with associated wetlands has been delineated on the subject property. The proposed project area is the portion of the site southeast of the onsite wetland/waterway with access from the southwest. The purpose of the project is to develop the project area into an RV storage facility. In the northeast portion of the project area a regional water quality facility is proposed which will serve all development onsite as well as several existing upstream developments. Access for the RV storage area and WQ facility is included in the development plan. The purpose of the impacts is to provide access to the proposed RV storage site and water quality facility. Proposed impacts to onsite jurisdictional waters results in the need for this permit application and provision of compensatory mitigation.

The east to west portion of the ditch was created when the Bilet Pallet Plant was constructed. Historically, the natural drainage ran from the St. Francis Property in a northeasterly direction and connected with the drainage where it currently turns to flow northeast. Langer Farms has been maintaining the west to east running ditch, and has kept it cleared of vegetation. The proposed development proposes to get rid of this ditch and restore the outlet to the location of the original drainage. Proposed activity will impact 0.09 acres of waters and wetlands. The need to impact jurisdictional waters and wetlands in this area is to maximize the development potential of the RV facility and to maximize the development potential of the southern portion of the site (See Alternatives Analysis).

- ***Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.***

The Langers own Centennial Self Storage located off Tualatin Sherwood Road. Currently the demand exceeds their capacity for both RV and boat storage indicating a need for an additional facility of this type.

There is an existing water quality facility onsite, which was created to serve the housing development located on the other side of SW Adams Avenue, with the plan for development of the proposed regional facility to replace it. The existing water quality facility was intended to be a temporary facility until the regional facility was built. Regional water quality facilities are more efficient and take up less space than local facilities which allows for maximum development potential of an area. The proposed facility will meet the needs of all onsite development as well existing upstream development. It was sized to include the pallet plant if it ever gets redeveloped. The pipeline leading to the Water Quality facility will cross over an existing culvert located on the northeast property line. This area will have to be raised to provide adequate cover of the line. Because of the need for the cover there will be a small wetland impact.

Project Description:

Please describe in detail the proposed removal and fill activities, including the following information:

- Volumes and acreages of all fill and removal activities in waterway or wetland separately
- Permanent and temporary impacts
- Types of materials (e.g., gravel, silt, clay, etc.)
- How the project will be accomplished (i.e., describe construction methods, equipment, site access)
- *Describe any changes that the project may make to the hydraulic and hydrologic characteristics (e.g., general direction of stream and surface water flow, estimated winter and summer flow volumes.) of the waters of the state, and an explanation of measures taken to avoid or minimize any adverse effects of those changes.*
- Is any of the work already complete? Yes ☐ No ☒ If yes, please describe the completed work.

Project Drawings

State the number of project drawing sheets included with this application: 16

A complete application must include a location map, site plan, cross-section drawings and recent aerial photo as follows and as applicable to the project:

- **Location map** (must be legible with street names)
  - Site plan including;
  - Entire project site and activity areas
  - Existing and proposed contours
  - Location of ordinary high water, wetland boundaries or other jurisdictional boundaries
  - Identification of temporary and permanent impact areas within waterways or wetlands
  - Map scale or dimensions and north arrow
  - Location of staging areas
  - Location of construction access
  - Loeation of cross section(s), as applicable
  - Location of mitigation area, if applicable
- **Cross section drawing**(s) including;
  - Existing and proposed elevations
  - Identification of temporary and permanent impact areas within waterways or wetlands
  - Ordinary high water and/or wetland boundary or other jurisdictional boundaries
  - Map scale or dimensions
- **Recent Aerial photo** (1:200, or if not available for your site, the highest resolution available)

Will any construction debris, runoff, etc., enter a wetland or waterway? Yes ☐ No ☒

If yes, describe the type of discharge and show the discharge location on the site plan.

- ***Italiclzed areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.***

The proposed development results in permanent impact to the existing wetland and drainage at the southern property boundary for road access to the proposed RV site and the Stormwater Quality Facility. Additional permanent wetland impacts would be incurred by placement of sanitary and stormwater lines at the northeast property boundary connecting to the proposed regional Stormwater Quality Facility.

The proposed access road crosses the wetland at the southwesterly corner of the property. It tracks along the south property boundary then adjusts over to connect to Langer Farms Parkway at a near perpendicular angle. The location of the access to Langer Farms Parkway is determined by a required 100 foot separation between the proposed access and the existing access to the south. Road construction will result in 1,797sf (0.04 acres) of permanent wetland impact with 5cy of removal and 72.9ey of fill. A total of 1,507sf (0.04 acres) of ephemeral drainage will be filled with 105cy of material. No removal is proposed within the drainage. No temporary impacts are proposed in this location.

Placement of the new water and sanitary sewer lines for the regional water quality facility will occur along the northeastern property boundary (where the drainage leaves the site). Due to the existing topography the storm drain pipe will have to be laid at or near existing ground surface and be covered. There will be a small wetland impact from this fill. Total permanent impacts in this area are 297sf with 0cy of removal and 34.1cy of fill. No temporary impacts are proposed.

Total permanent wetland impacts proposed from this development will be 5cy of removal and 107cy of fill in an area of 2,094sf (0.05 acres). Total permanent waterway impacts from this development will be 0cy of removal and 105cy of fill in 1,507sf (0.04 acres) of the ephemeral drainage. No temporary impacts are proposed.

Table 1. Wetland Impact Summary

	Impact Area	Fill Volume	Removal Volume
Western portion of Wetland	1,797sf	72.9cy	5cy
Eastern portion of Wetland	297sf	34.1cy	0cy
Total Wetland Impacts	**2,094sf**	**107cy**	**5cy**
Drainage	1,507sf	105cy	0cy
Total Impacts	**3,601sf**	**212cy**	**5cy**

Fill material may include rock, soil, sand and gravel as well as the new storm and water lines. Construction will be conducted as directed by the contractor onsite with clearing, excavation and grading. Equipment may include but not be limited to trackhoes and haulers. Site access will be via the new road as it is constructed. Access to the east side of the site will be via SW Century Drive. A stockpile/staging area will be located at the east end of the project area south of the wetland.

The portion of the wetland proposed to be filled consists primarily of an ephemeral to intermittent drainage ditch which has been continually maintained. The ditch enters the site through a culvert and is ditched until it turns to flow north in what appears to be its historical location as an intermittent stream. The removal of the temporary water quality facility will restore flows in the drainage to near historical conditions, which is closer to the intermittent conditions observed when Schott and Associates first did a wetland delineation on the site in the early 1990s.

Estimated project start date:	August 2012	Estimated project completion date:	September 2013

(5) PROJECT IMPACTS AND ALTERNATIVES

Alternatives Analysis:

Describe alternative sites and project designs that were considered to avoid or minimize impacts to the waterway or wetland. (Include alternative design(s) with less impact and reasons why the alternative(s) were not chosen. Reference OAR 141-085-0565 (1) through (6) for more information).*

- ***Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.***

Project Criteria
Project criteria are (1) appropriate zoning (commercial) (2) RV parks are located on commercial lands with restrictions limiting other types of development (site is restricted by access, limited visibility, making it undesirable for most commercial development) (3) develop a permanent regional stormwater quality facility in a portion of the site with the least amount of impact for the development potential, and located in a low enough topographic position to receive stormwater via gravity (4) Maximize efficiency for large vehicle traffic (circulation) (5) Maximize developable area (RV spaces) (6) meet required 100 foot separation between proposed and existing access (7) maintain maximum developable area on the remainder of the site (8) minimize environmental constraints such as wetlands,

Alternative Sites
Site development is proposed as a joint partnership with the property owner of the Langer Family LLC property. The family has owned the property since 1876, well before any wetland regulations had been adopted (See attached Chain of Title report and Chain of Title Documents). No alternative sites were considered or should be required, because of the long term ownership of the property by the Langer family. The proposed project consists of development of the defined projeet area only.

Alternative Designs
Access to the RV site and water quality facility is restricted to the west side because of the railroad track. The railroad defines the southeastern property boundary and will not allow access for private development. Four alternatives were considered which provide access from the west. The location of the southern access is determined by the required separation between access points. Through discussion with Tualatin Valley Fire and Rescue (TVFR) the road width was minimized as much as possible while meeting all reviewing agency standards. TVFR has agreed to a road width of 26 feet with one turn out point 30 feet in width for a distance of 30 to be installed approximately half way along the access road.

Alternative 1
In Alternative 1 the road extends straight from the access point and crosses the wetland and Vegetated Corridor at the southwesterly corner of site. It crosses at a perpendicular angle to minimize impact to the resources then continues to Langer Farms Parkway parallel to the southerly property boundary. The location of the access to Langer Farms Parkway is determined by a required 100 foot separation between the proposed access and the existing access to the south. Crossing at this location is within the natural portion of the drainage.

Connection to the southwesterly corner of the RV site is ideal as it creates a reasonable circulation pattern for the anticipated RVs, boats, trailers, and other large vehicle traffic for development of the site.

Crossing the wetland/waterway at a near perpendicular angle helps minimize impacts to the resources. However, the proposed crossing location is within the naturalized portion of the drainage with adjacent wetlands and is a higher quality resource than the ditched portion. Crossing at this location divides the onsite wetland and associated Vegetated Corridor in two and creates a short, isolated segment south of the access lane. Segmenting the resource in this manner would reduce the function of both resources and the isolated section south of the access road would provide minimal functions.

Additionally, locating the access lane away from the southerly property line creates a narrow (70 foot wide) strip of land south of the access lane that is essentially undevelopable for commercial use. In addition, this alternative would significantly impact the potential development of the remaining portion of the site by reducing the developable area to the north.

Alternative 2
In Alternative 2, the road crosses the wetland and Vegetated Corridor at a near perpendicular angle at a convenient intersection of drive aisles within the future development of the RV site. The location of the drive aisles and intersection was chosen to maximize efficient area use within the site. The access lane continues to Langer Farms Parkway by the most direct route.

Crossing the wetland/waterway at a near perpendicular angle helps minimize impacts. However, the proposed crossing location is within the naturalized portion of the wetland and waterway, where the Vegetated Corridor provides a buffer to a higher quality resource. Crossing at this location divides the onsite wetland and associated Vegetated Corridor in two and creates a short, isolated segment south of the access lane. Although the isolated segment is larger than in Alternative 1, segmenting the resource in this manner would still reduce the function of both resources and the isolated section south of the access road would provide minimal functions.

Locating the access lane through the middle of the southern portion of the site significantly impacts the future development of this parcel. It creates a substantial area of land south of the access lane which will not be allowed to take access from Langer Farms Parkway (due to the required 100 foot separation between accesses) and will have to take access from or across the proposed access lane. The large vehicle traffic of the RV site would be forced to merge with the future retail/commercial traffic the rest of the site, which is undesirable and would likely cause congestion.

Finally, not connecting to the RV site at the southwesterly corner will result in a far less efficient circulation pattern due to the large turning radii required for RVs, boats, and the other large vehicle traffic anticipated onsite. The circulation pattern largely controls the layout of the parcel and would therefore reduce the area available for RV pads and result in a less efficient use of the site.

Alternative 3

In Alternative 3, the access road crosses the wetland and the water quality facility and provides access from the northeast corner of the RV site. It skirts around the northeasterly end of the wetland to minimize impacts and tracks the easterly property line of the site to connect to the end of Century Drive stub along the eastern property boundary.

Crossing the wetland at the northeasterly end helps minimize impacts to the natural resources. Following the easterly property line to Century Drive results in less disturbance of the future development of the remainder of the subject property compared with Alternatives 1 and 2.

Attempting to skirt the northeasterly end of the wetland requires fill to occur in a steeper part of the wetland/waterway and Corridor than the other alternatives. This results in significantly more fill within the wetland and Vegetated Corridor than Alternatives 1 or 2, although the area of disturbance is less than in the other alternatives. This is because the wetland is deeper at this end and topography of the easterly side of the site is significantly more variable then along the westerly side of the site. This means substantially more grading will be required to build the access lane, making it more expensive than the other alternatives, and more diffieult to navigate with the large vehieles that will use the site.

Additionally, not connecting to the RV site at the southwesterly corner will result in a far less efficient circulation pattern due to the large turning radii required for RVs, boats, and the other large vehicle traffic anticipated onsite. The circulation pattern largely controls the layout of the parcel and would therefore result in a less efficient use of the site.

Proposed Design

In the Proposed Design, the access road crosses the wetland at the southwest corner of the RV site. It tracks along the southern property line then adjusts over to connect to Langer Farms Parkway at a near perpendicular angle. The location of the access to Langer Farms Parkway is determined by a required 100 foot separation between the proposed access and the existing access to the south.

The Proposed Design locates the road where it is primarily impacting the ditched upstream end of the drainage. This area is currently managed as a ditch, contains no native vegetation and provides fewer functions than the rest of the onsite drainage. Again, this ditch was created when the Bilet Pallet Plan was built and it is not in the historic drainage location. Unlike Alternatives 1 and 2, this alignment does not divide the wetland/drainage and its Vegetated Corridor in two. Instead it maintains a contiguous habitat eonsisting of the natural portion of the drainage, associated wetlands and high quality (enhanced) buffer onsite. Additionally, it is a shallower part of the waterway, resulting in proportionally far less cut and fill for the area disturbed. Further reduction of the road width would minimize impacts in this location even more, however as described above, the road width has already been reduced to the minimum allowable by the reviewing agencies.

Connection to the southwesterly corner of the RV site is preferred as it creates the most efficient circulation pattern for the anticipated RVs, boats, and other large vehicle traffic, thereby maximizing development of the site. Unlike the other alternatives, this alignment does not impact the natural portion of the wetland/waterway. Unlikc Alternatives 1 and 2 it does not divide the resource, allowing for contiguous natural habitat to be retained onsite. Locating the access lanc along the southern property line helps minimize impacts to the future dcvelopment of this site, more so than the other alternatives.

Conclusion

The Proposed Design was planned to balance devclopment needs with health and safety issues as well as natural resource requirements. The Proposed Design maximizes the efficient circulation of large vehicles within the RV site and allows for the most efficient development of the site. The road width has been minimized as much as possible and it is located where it is primarily impacting the ditched upstream end which currently is managed as a ditch. The Vegetated Corridor at this location is narrower than in the rest of the site and is eurrently in 'Degraded' condition. The Proposed Design minimally impacts the natural portion of the wetland/waterway and does not segment the resources, instead preserving a contiguous habitat that will be improved with mitigation and enhancement. It takes advantage of gentler topography to reduce the amount of necessary grading and minimizes impacts to the future development of Parcel 1.

As demonstrated in the functional analysis the value of the wetland to be impacted is very low. Maintaining and improving a contiguous wetland and Vegetated Corridor on the remainder of the site is believed to be preferable to thc alternatives minimizing initial impacts but impacting higher quality area and dividing the resource in two.

Measures to Minimize Impacts

Describe what measures you will use (before and after construction) to minimize impacts to the waterway or wetland. These may include but are not limited to the following:

- *For projects with ground disturbance include an erosion control plan or description of other best management practices (BMP's) as appropriate. (For more information on erosion control practices see DEQ's Oregon Sediment and Erosion Control Manual)*
- *For work in waterways where fish or flowing water are likely to be present, discuss how the work area will be isolated from the flowing water.*
- *If native migratory fish are present (or were historically present) and you are installing, replacing or abandoning a culvert or other potential obstruction to fish passage, complete and attach a statement of how the Fish Passage Requirements, set by the Oregon Department of Fish and Wildlife will be met.*

The proposed projeet proposes to fill the upstream portion of the onsite wetland/waterway which has been modified from historical conditions and is currently maintained as a ditch. The location of the access to Langer Farms Parkway is determined by a required 100 foot separation between the proposed access and the existing access to the south. Although the proposed design has a larger impact area than the other alternatives, impact to functionality is minimized by limiting the majority of impacts to the ditched upstream end which currently is managed as a ditch, contains no native vegetation and provides fewer functions than other portions of the onsite drainage. Impacting this area also avoids fragmentation of the onsite resource. Additionally, the ditch is in a portion of the site with gentler topography, resulting in proportionally far less cut and fill for the area disturbed.

Best management practices including placement of silt fencing and inlet protection will be followed during construction to avoid erosion and sedimentation (See Erosion Control Plan). The drainage is intermittent and no flow is expected to be present during in water work. No native migratory fish are present and no fish passage requirements will be necessary.

Description of resources in project area

Ocean ☐ Estuary ☐ River ☐ Lake ☐ Stream ☒ Freshwater Wetland ☒

Describe the existing **physical and biological characteristics** of the wetland/waterway site by area and type of resource (Use separate sheets and photos, if necessary).

For wetlands, include, as applieable:

- *Cowardin and Hydrogeomorphic(HGM) wetland class(s)**
- *Dominant plant species by layer (herb, shrub, tree)**
- Whether the wetland is freshwater or tidal
- *Assessment of the functional attributes of the wetland to be impacted**
- Identify any vernal pools, bogs, fens, mature forested wetland, seasonal mudflats, or native wet prairies in or near the project area.)

For waterways, include a description of, as applicable:

- *Channel and bank conditions**
- *Type and condition of riparian vegetation**
- *Channel morphology (i.e., structure and shape)**
- *Stream substrate**
- Fish and wildlife (type, abundance, period of use, significanee of site)
- *General hydrological conditions (e.g. stream flow, seasonal fluctuations)**

- ***Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.***

One on-site drainage with associated wetlands was located onsite. The drainage is an unnamed tributary of Rock Creek. The combined area of onsite drainage and wetland is 37,898sf or 0.87 acres of palustrine emergent, scrub-shrub and palustrine forested wetland.

The drainage enters the site from a culvert under the Bilet plant. It starts off as a ditch which follows the property line along the southwest corner of the property. Historically, the drainage was one contiguous channel that originated off-site to the southwest. At the time of the site visit, a remnant portion of the drainage remained off-site with a portion culverted under the pallet plant. The 8" culvert outfall ran into a ditched channel that flowed east onsite along the southern property boundary. The ditch was defined by the top of bank for approximately the first 200 feet. The channel was U-shaped with a predominately mud substrate. The depth of the channel from the top of bank to the bed substrate was approximately 2.5 feet deep. This portion of the drainage is ephemeral, and the drainage basin is approximately 20 acres

As the ditch curved to the northeast the channel broadened and the depth decreased almost matching the surrounding grade. Small fringe wetlands classified as palustrine emergent were identified on the west side of the channel. A palustrine scrub-shrub wetland community was identified adjacent to and within a portion of the drainage. Wetland plants included Nootka rose (*Rosa nutkana*) and slough sedge (*Carex obnupta*). Willows (*Salix sp.*) lined the drainage as it extended to the north. Hawthorn (*Crataegus douglasii*) was scattered throughout the willow community. A large water quality facility was located west of this portion of the drainage. The water quality facility drained into the creek through a 36-inch culvert where the drainage turned to the east. Large black cottonwood (*Populus trichocarpa*) was the dominant tree cover in this portion of the drainage. The drainage broadened further in this corner and developed into small braided channels with mud and small cobble substrate. It transitioned into a single channel and flowed through a dense scrub-shrub community comprised of large, impenetrable thicket of Nootka rose. Scattered hawthorn was observed as well. After several hundred feet, the rose community transitioned to an established willow community.

As the drainage flowed east, it dropped through a ravine with a forested community on the adjacent slopes and an emergent community on the wetland terrace. The drainage channel was braided and flowed through a broad terrace that extended between the adjacent slopes. Vegetation along the creek terrace included skunk cabbage (*Lysichiton americanum*), lady fern (*Athyrium filix-femina*), and slough sedge as the dominant vegetation.

The channels joined together to form a single channel for a few feet before exiting east off site through a 24 inch culvert. The channel had a depth of approximately 1.5 to two feet deep and a mud substrate. Vegetation along this portion of the drainage consisted of reed canary grass (*Phalaris arundinacea*).

Vegetation along the north side of the drainage as well as near the eastern edge of the property was dominated by dense thickets of Himalayan blackberry (*Rubus discolor*). Where the drainage flowed east, it dropped through a ravine with a forested community on the adjacent slopes. The forested community was comprised of a mix of English walnut (*Juglans regia*), choke cherry (*Prunus virginiana*), hazelnut (*Corylus cornuta*) and vine maple (*Acer circinatum*) along the slopes. Himalayan blackberry was also prominent in this portion of the site.

The ditched portion of the drainage is believed to be ephemeral/intermittent. It is a man-made ditch, which was created when the Billet Pallet plant was constructed. Billet installed a culvert that redirected the water further to the west. Since that time there have been numerous development activities within the drainage basin which diverted water away from, or further down-slope from the basin. The Channel along this ditch is U shaped, and is devoid of vegetation. Down-slope of this ditched portion the channel is narrow, about a foot deep, and has nearly vertical sides until it reaches the outfall of the temporary water quality facility, where the channel bottom widens out and the banks become gradual.

A functional assessment using the Hydrogeomorphic (HGM) method was conducted. Wetland impacts are less than 2/10ths of an acre so the judgmental method was used.

The wetland is a mix of emergent, shrub and forested wetland communities with an ephemeral to intermittent drainage. The drainage is located in a very small basin. Water quality and storage functions were low. Vegetation is a mix of native and non-native species and includes a variety of forms. Support of characteristic vegetation and habitat functions were low to moderate. The majority of the impacted portion of the resource was a ditched ephemeral waterway with no wetland vegetation.

Because the drainage is at best intermittent there is no fish use and limited wildlife use of this resource.

There are no vernal pools, bogs, fens, mature forested wetland, seasonal mudflats, or native wet prairies in or near the project area

*Describe the existing **navigation, fishing and recreational** use of the waterway or wetland.* *

The wetland/waterway is located on private property. There is no navigation, fishing or recreational use.

- ***Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.***

Site Restoration/Rehabilitation

- *For temporary disturbance of soils and/or vegetation in waterways, wetlands or riparian areas, please discuss how you will restore the site after construction including any monitoring, if necessary**

No temporary impacts are proposed.

Mitigation

*Describe the reasonably expected adverse effects of the development of this project and how the effects will be mitigated.**

- *For permanent impact to wetlands, complete and attach a Compensatory Wetland Mitigation (CWM) Plan. (See OAR 141-085-0705 for plan requirements)**
- *For permanent impact to waters other than wetlands, complete and attach a Compensatory Non-Wetland Mitigation (CNWM) plan (See OAR 141-085-0765 for plan requirements)**
- *For permanent impact to estuarine wetlands, you must submit a CWM plan.**

Purchase of mitigation bank credits from the **Tualatin Valley Environmental Bank.** Project involves less than 0.20 acres of permanent wetland impact and is using a mitigation bank. A CWM plan addressing the principle objectives set forth in OAR **141-085-0680** (2) is not required.

Mitigation Location Information (Fill out only when mitigation is proposed or required)

Proposed mitigation (Check all that apply):

- ☐ *Onsite Mitigation*
- ☐ *Offsite Mitigation*
- ☒ *Mitigation Bank*
- ☐ *Payment to Provide*

Type of mitigation:

- ☒ *Wetland Mitigation*
- ☒ *Mitigation for impacts to other waters*
- ☐ *Mitigation for impacts to navigation, fishing, or recreation*

Street, Road or Other Descriptive Location	*Legal Description (attach tax lot map*)*			
	Quarter/Quarter	*Section*	*Township*	*Range*

In or near (City or Town)	*County*	*Tax Map #*	*Tax Lot #*[3]
Wetland/Waterway (pick one)	*River Mile (if known)*	*Latitude (in DD.DDDD format)*	*Longitude (in DD.DDDD format)*

Name of waterway/watershed/HUC	*Name of mitigation bank (if applicable)*
	Tualatin Valley Environmental Bank

[3] Attach a copy of all tax maps with the project area highlighted.

- ***Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.***

(6) ADDITIONAL INFORMATION

Adjacent to R-F Site and Physical Mitigation Site Property Owners and Their Address *(if more than 5, attach printed labels*)*

Bilet Products Co
PO Box 1227
Sherwood, OR 97140

Orwa Sherwood LLC
8320 NE Highway 99
Vancouver, WA 98665

Flrf LLC
1601 NW Expressway #59
Oklahoma City OK 73118

St Francis Parish
400 Oregon Street
Sherwood, OR 97140

Portland & Western Railroad, Inc.
Willamette & Pacific Railroad, Inc.
200 Hawthorne Ave. SE
Suite C-320
Salem, OR 97301

Has the proposed activity or any related activity received the attention of the Corps of Engineers or the Department of State Lands in the past, e.g., wetland delineation, violation, permit, lease request, etc.?

Yes ☒ No ☐

If yes, what identification number(s) were assigned by the respective agencies:

Corps #		State of Oregon #	WD#07-0466

Has a wetland delineation been completed for this site? *Yes* ☒ *No* ☐

*If yes by whom?**	*Schott and Associates*

Has the wetland delineation been approved by DSL or the COE? *Yes* ☒ *No* ☐
*If yes, attach a concurrence letter. **

Attached.

- *Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.*

(7) CITY/COUNTY PLANNING DEPARTMENT AFFIDAVIT
*(TO BE COMPLETED BY LOCAL PLANNING OFFICIAL) **

I have reviewed the project outlined in this application and have determined that:

- ☐ This project is not regulated by the comprehensive plan and land use regulations.
- ☐ This project is consistent with the comprehensive plan and land use regulations.
- ☒ This project will be consistent with the comprehensive plan and land use regulations when the following local approval(s) are obtained.
- ☐ Conditional Use Approval
- ☒ Development Permit
- ☐ Other

This project is not consistent with the comprehensive plan. Consistency requires a

- ☐ Plan Amendment
- ☐ Zone Change
- ☐ Other

An application has ☒ has ☐ not been filed for local approvals checked above.

Local planning official name (print)	Signature	Title	City / County	Date
Brad Kilby	Brad Kilby	Senior Planner	City of Sherwood	4/13/2012

Comments:

Application for a subdivision on this site was submitted on 4/12/2012

(8) *COASTAL ZONE CERTIFICATION* *

If the proposed activity described in your permit application is within the Oregon coastal zone, the following certification is required before your application can be processed. A public notice will be issued with the certification statement, which will be forwarded to the Oregon Department of Land Conservation and Development for its concurrence or objection. For additional information on the Oregon Coastal Zone Management Program, contact the department at 635 Capitol Street NE, Suite 150, Salem, Oregon 97301 or call 503-373-0050.

CERTIFICATION STATEMENT

I certify that, to the best of my knowledge and belief, the proposed activity described in this application complies with the approved Oregon Coastal Zone Management Program and will be completed in a manner consistent with the program.

Print /Type Name	Title
N/A	
Applicant Signature	Date

- ***Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.***

(9) SIGNATURES FOR JOINT APPLICATION

Application is hereby made for the activities described herein. I certify that I am familiar with the information contained in the application, and, to the best of my knowledge and belief, this information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities. By signing this application I consent to allow Corps or Dept. of State Lands staff to enter into the above-described property to inspect the project location and to determine compliance with an authorization, if granted. I hereby authorize the person identified in the authorized agent block below to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

I understand that the granting of other permits by local, county, state or federal agencies does not release me from the requirement of obtaining the permits requested before commencing the project. *I understand that payment of the required state processing fee does not guarantee permit issuance. The fee for the state application must accompany the application for completeness.*

Amount enclosed	$ 670.00

Print /Type Name	Title	Print /Type Name	Title
BARRY A. CAIN	PRESIDENT	Martin R. Schott	Consultant
Applicant Signature	Date	**Authorized Agent Signature**	Date
	3/29/12		3/29/12

Landowner signatures: *For projects and /or mitigation work proposed on land not owned by the applicant, including state-owned submerged and submersible lands, please provide signatures below. A signature by the Department of State Lands for activities proposed on state-owned submerged/submersible lands only grants the applicant consent to apply for authorization to conduct removal/fill activities on such lands. This signature for activities on state-owned submerged and submersible lands grants no other authority, express or implied.*

Print /Type Name	Title	Print /Type Name	Title
Property Owner Signature	Date	***Mitigation Property Owner Signature***	Date

- ***Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.***

(9) SIGNATURES FOR JOINT APPLICATION

Application is hereby made for the activities described herein. I certify that I am familiar with the information contained in the application, and, to the best of my knowledge and belief, this information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities. By signing this application I consent to allow Corps or Dept. of State Lands staff to enter into the above-described property to inspect the project location and to determine compliance with an authorization, if granted. I hereby authorize the person identified in the authorized agent block below to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

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Amount enclosed	$ 670.00

Print /Type Name	Title	Print /Type Name	Title
Charlene Langer	Manager	Martin R. Schatt	Consultant
Applicant Signature	Date	**Authorized Agent Signature**	Date
Charlene D. Langer	3-29-12	[signature]	3/29/12

Landowner signatures: *For projects and /or mitigation work proposed on land not owned by the applicant, including state-owned submerged and submersible lands, please provide signatures below. A signature by the Department of State Lands for activities proposed on state-owned submerged/submersible lands only grants the applicant consent to apply for authorization to conduct removal/fill activities on such lands. This signature for activities on state-owned submerged and submersible lands grants no other authority, express or implied.*

Print /Type Name	Title	Print /Type Name	Title
Property Owner Signature	Date	***Mitigation Property Owner Signature***	Date

- ***Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.***

INCUMBENCY CERTIFICATE FOR CORPORATIONS AND PARTNERSHIPS

Langer Family, LLC, (business entity name as recorded with the Secretary of State, Oregon)

I, Clarence Langer, do hereby certify that:

1. I am the duly elected and acting Manager (position) of Langer Family, LLC (business entity name as recorded with the Secretary of State, Oregon), a DLLC (business entity type) organized and existing in good standing under the laws of the State of Oregon (the "Company").
2. I certify that I have the authority to submit, on behalf of the Company, this application for a permit to conduct removal fill within waters of the state (as evidenced by my signature on the application) and to commit the Company to comply with all resulting permit conditions, including any mitigation obligations, resulting from the issuance of the permit.

Witness, my signature and the seal of the Company this 29 day of March, 2012.

Clarence D. Langer Jr.
Signature

Name:

Title:

Company Seal

INCUMBENCY CERTIFICATE FOR CORPORATIONS AND PARTNERSHIPS

Langer Gramor LLC, by Gramor Sherwood Langer LLC (manager), by Gramor Investments, Inc. (manager) (business entity name as recorded with the Secretary of State, Oregon)

I, Barry A. Cain, President, do hereby certify that:

1. I am the duly elected and acting Manager of Langer Gramor LLC (business entity name as recorded with the Secretary of State, Oregon), an Oregon limited liability company, organized and existing in good standing under the laws of the State of Oregon (the "Company").
2. I certify that I have the authority to submit, on behalf of the Company, this application for a permit to conduct removal fill within waters of the state (as evidenced by my signature on the application) and to commit the Company to comply with all resulting permit conditions, including any mitigation obligations, resulting from the issuance of the permit.

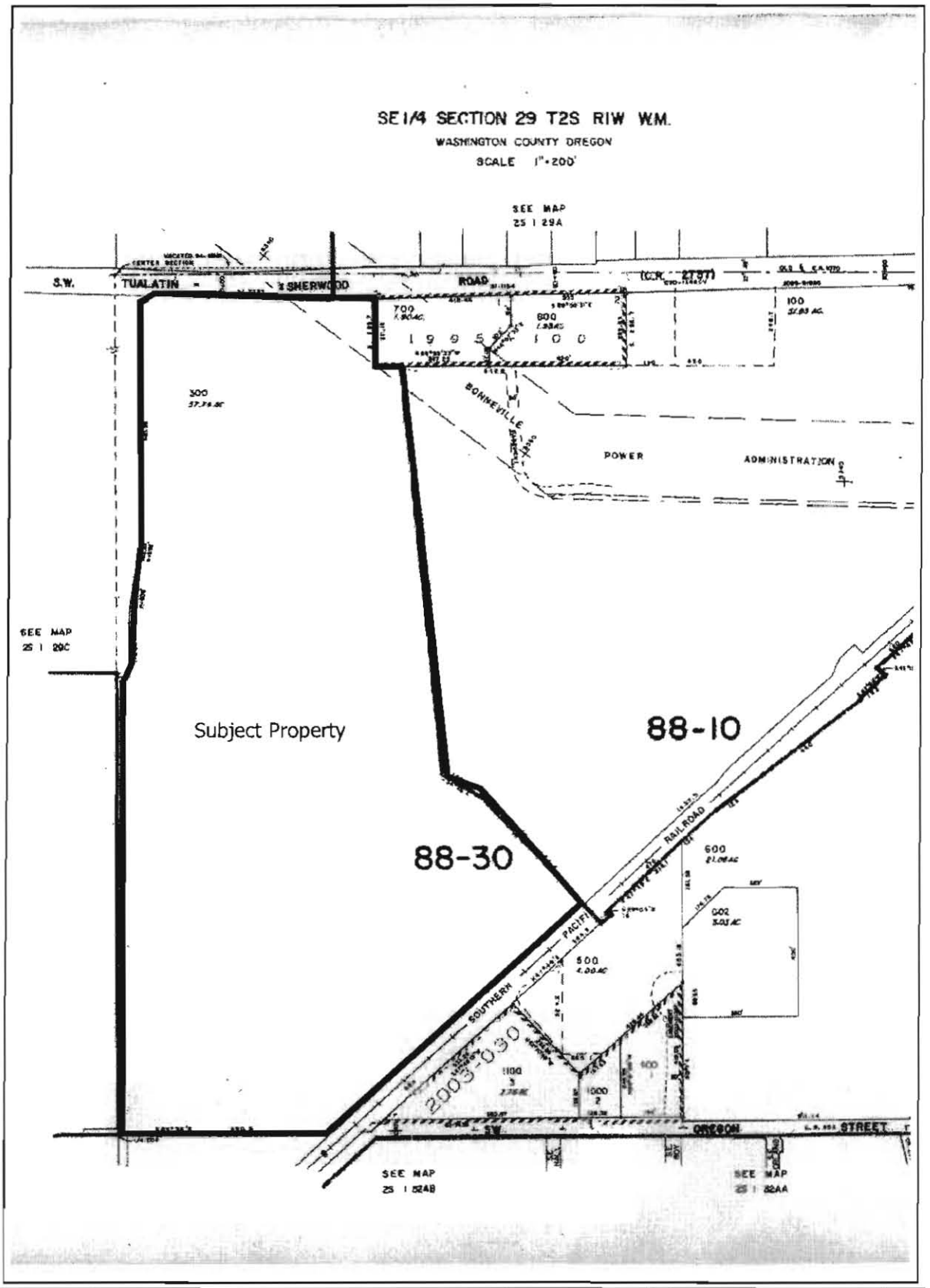
Witness my signature and the seal of the Company this 29 day of March, 2012

Signature

Name: BARRY A. CAIN

Title: PRESIDENT

Company Seal: (NO SEAL)

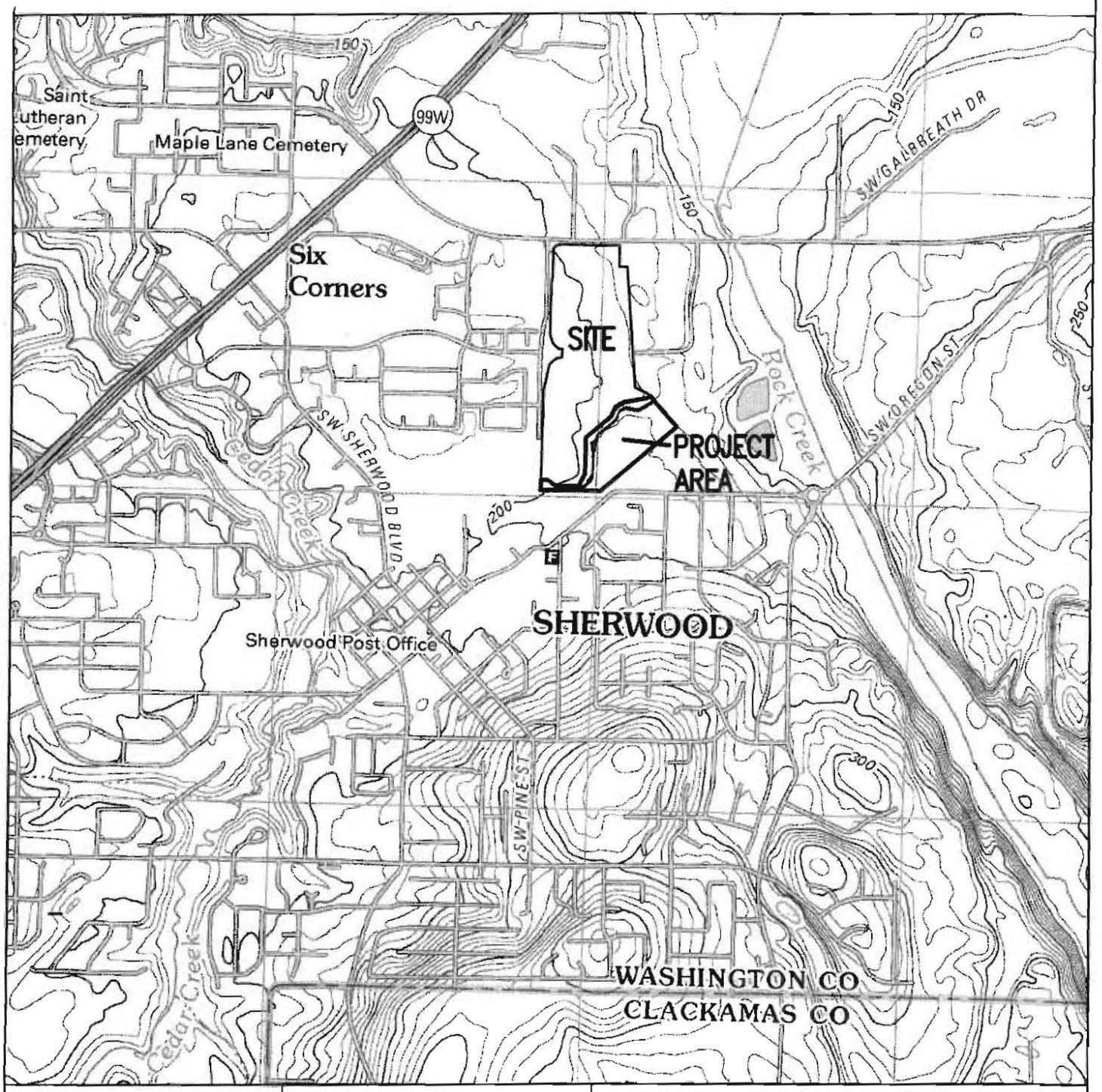


Tax Map T2S R1W 29
Langer Farms
S&A#2216

Schott & Associates
P.O. Box 589
Aurora, OR. 97002
503.678.6007

VICINITY MAP

USGS SHERWOOD QUAD, OREGON, 2011



JOB NAME: LANGER FARMS	
JOB NUMBER: 2929	
DRAWN BY: QMP	
CHECKED BY: AHH	
DWG NO.: 2929DSL 1/12	

ENGINEERING • PLANNING • LANDSCAPE ARCHITECTURE
FORESTRY • SURVEYING

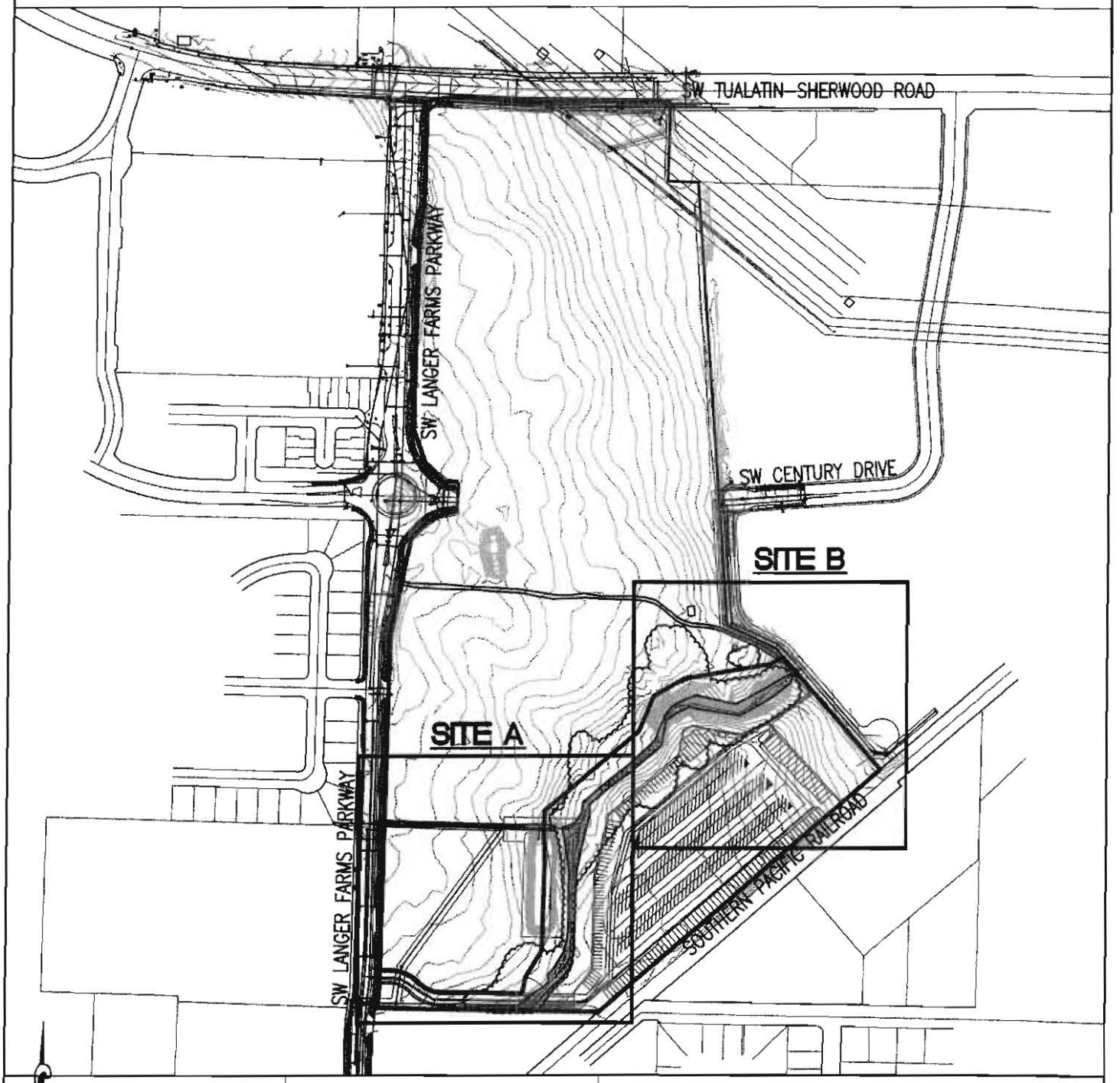
AKS ENGINEERING & FORESTRY

LICENSED IN OR & WA

13910 SW GALBREATH
DRIVE, SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

OFFICES LOCATED IN SALEM, OR & VANCOUVER, WA

SITE OVERVIEW AND INDEX MAP



SCALE 1" = 400 FEET

400 0 160 240

JOB NAME: LANGER FARMS

JOB NUMBER: 2929

DRAWN BY: QMP

CHECKED BY: AHH

DWG NO.: 2929DSL 2/12

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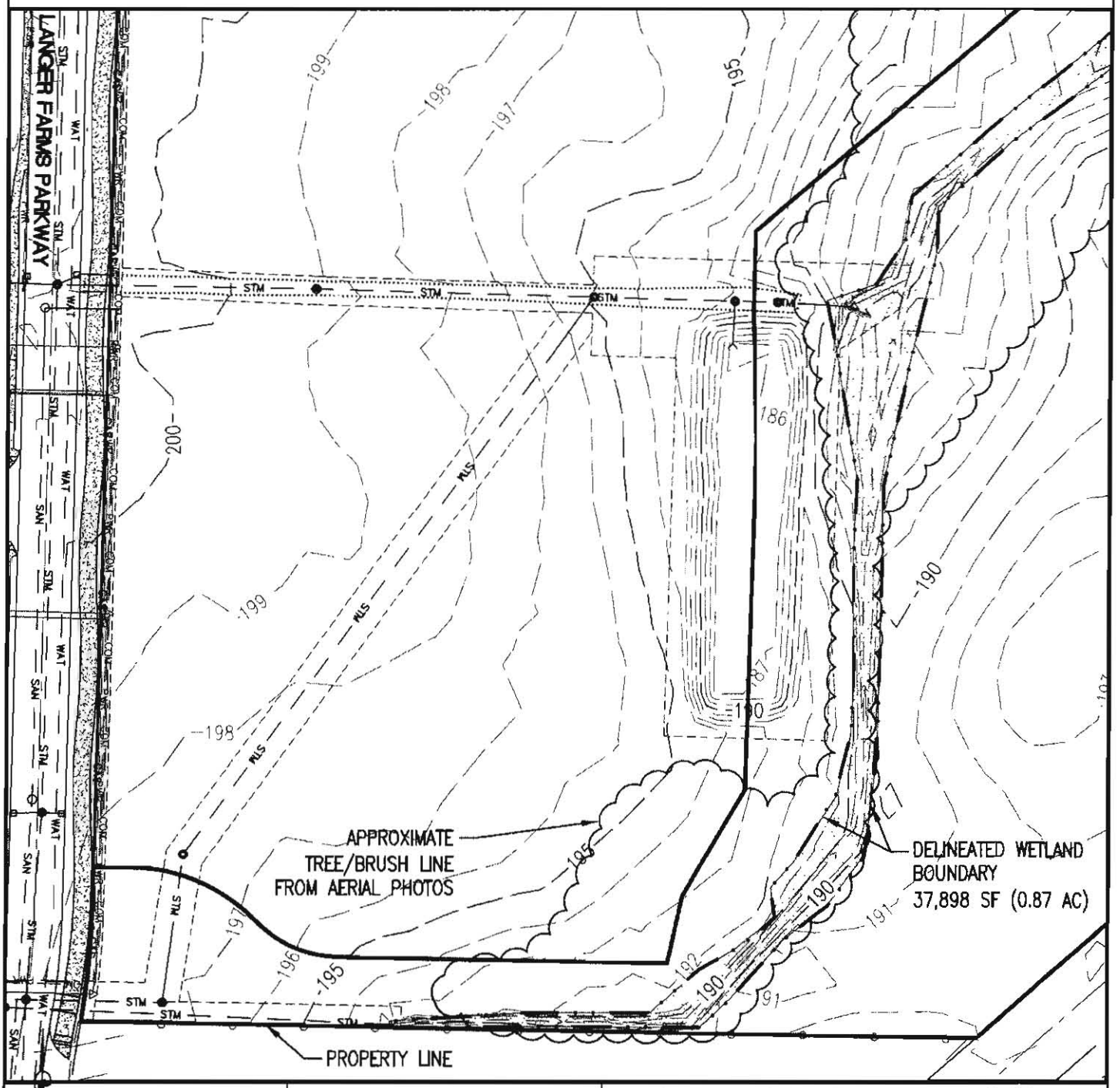
SITE 'A' EXISTING CONDITIONS MAP



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JOB NAME: LANGER FARMS

JOB NUMBER: 2929

DRAWN BY: QMP

CHECKED BY: AHH

DWG NO.: 2929DSL 3/12

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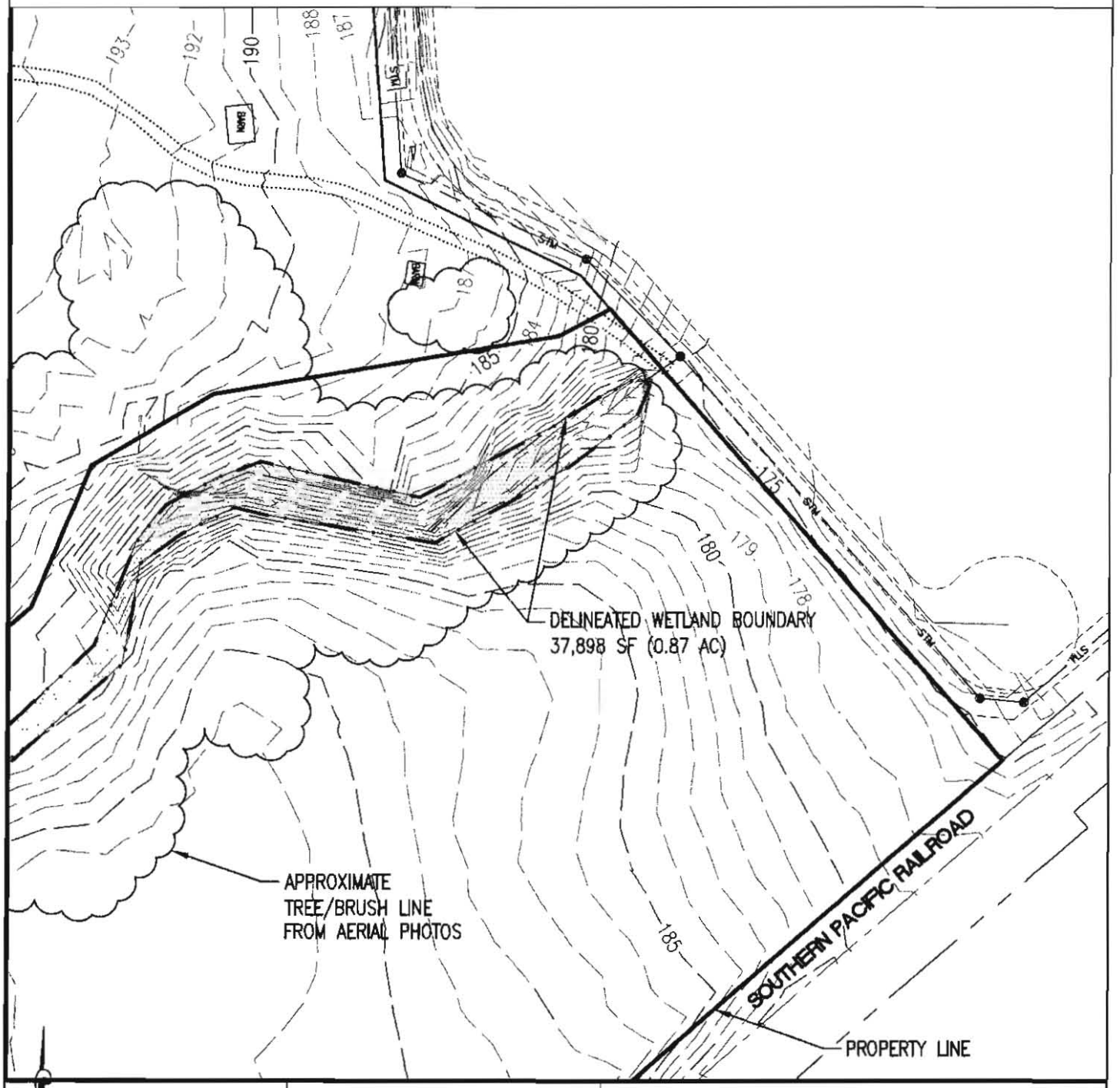
SITE 'B' EXISTING CONDITIONS MAP



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JOB NUMBER: 2929

DRAWN BY: QMP

CHECKED BY: AHH

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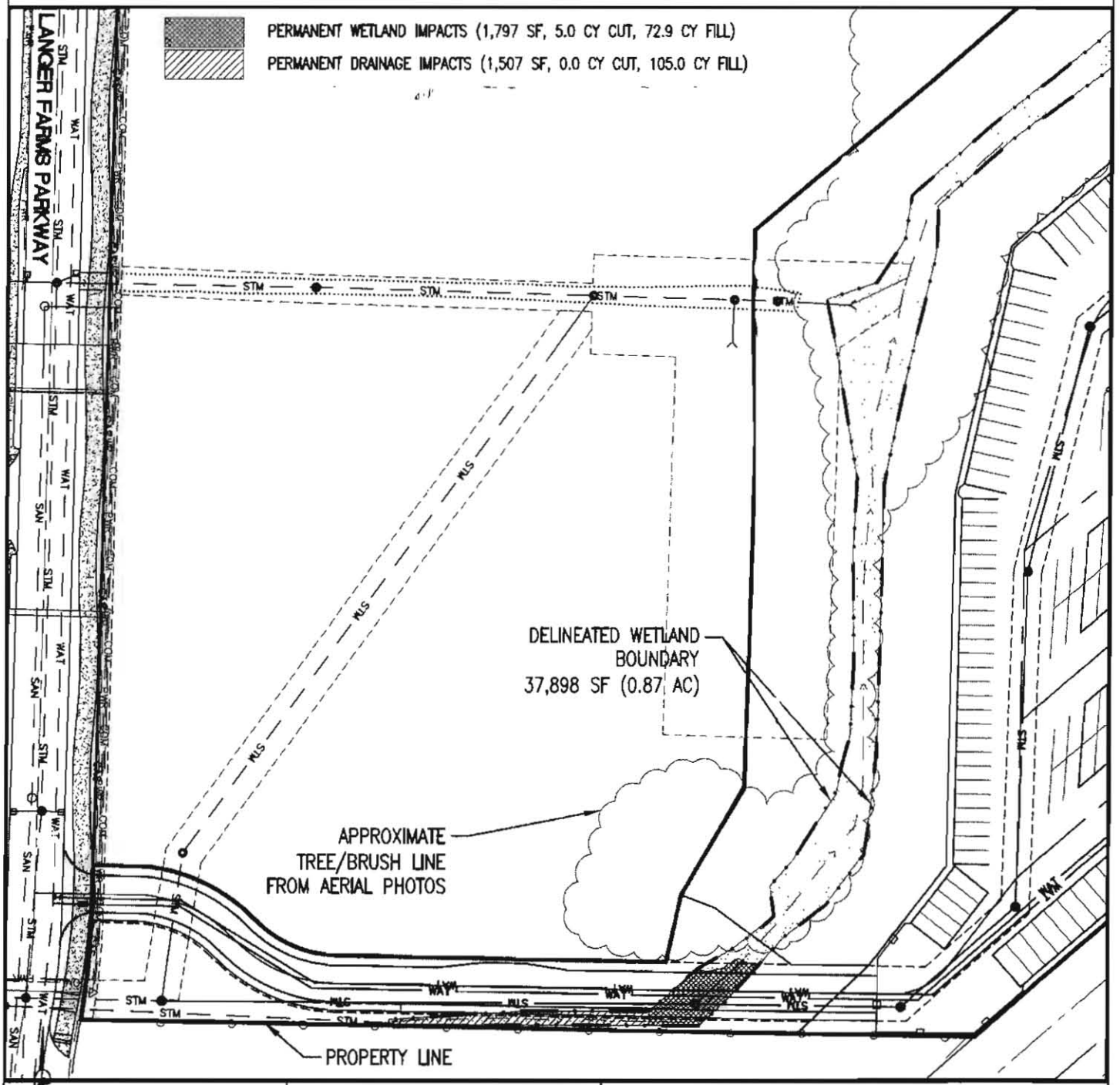
SITE 'A' DEVELOPMENT PLAN



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JOB NAME: LANGER FARMS

JOB NUMBER: 2929

DRAWN BY: QMP

CHECKED BY: AHH

DWG NO.: 2929DSL 5/12

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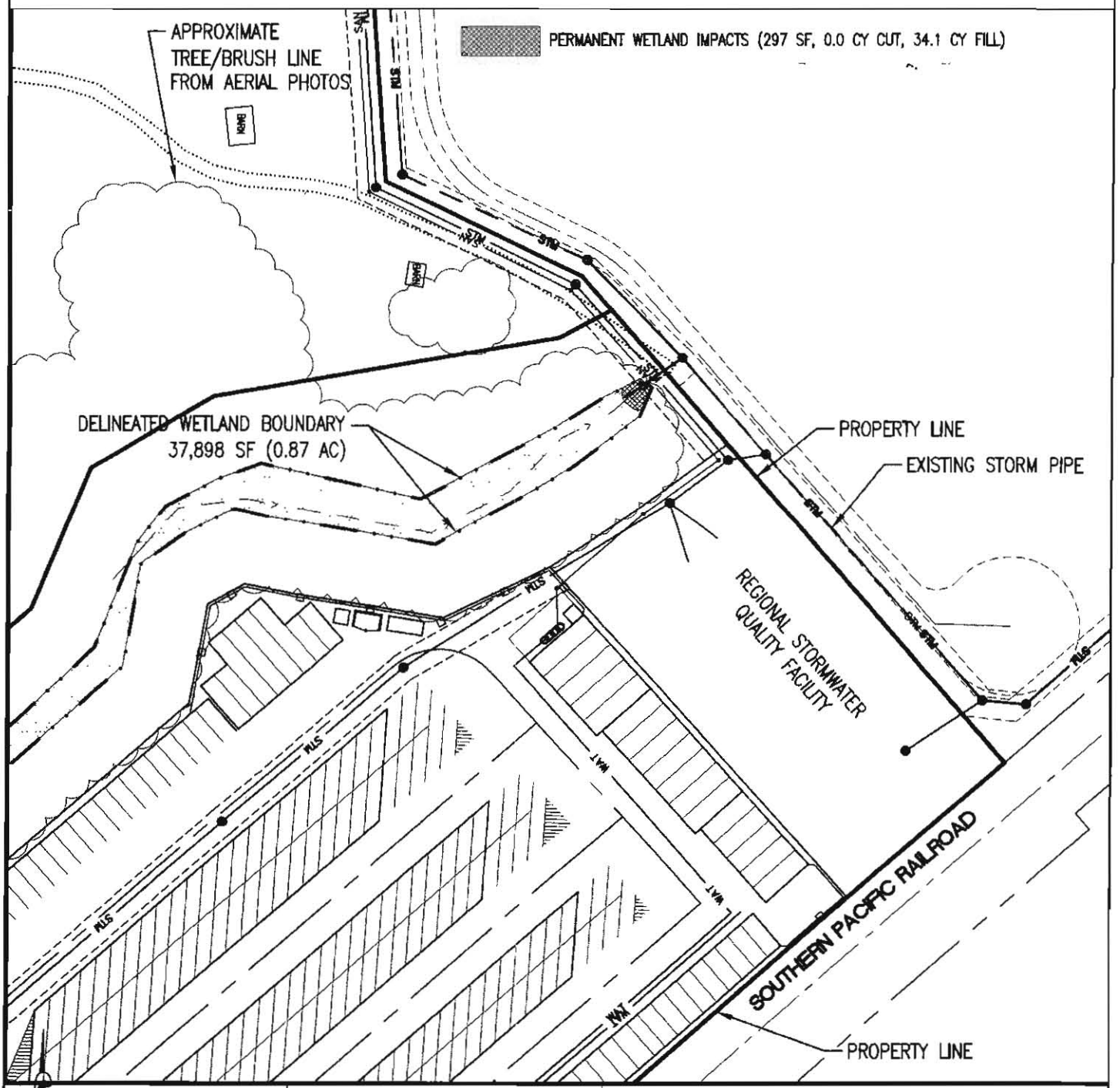
SITE 'B' DEVELOPMENT PLAN



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JOB NAME: LANGER FARMS

JOB NUMBER: 2929

DRAWN BY: QMP

CHECKED BY: AHH

DWG NO.: 2929DSL 6/12

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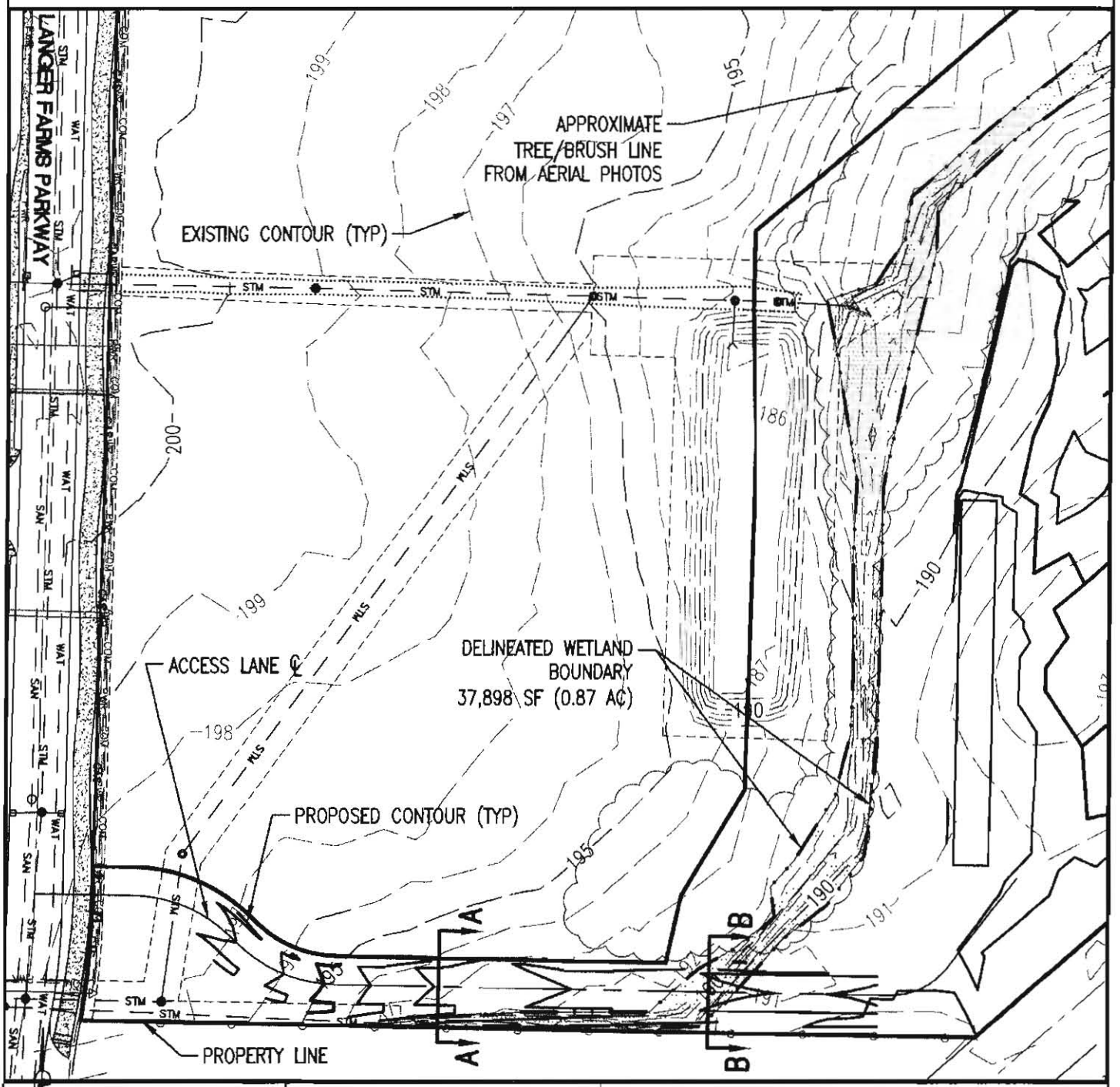
SITE 'A' GRADING PLAN



SCALE 1" = 100 FEET

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JOB NAME: LANGER FARMS

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DRAWN BY: QMP

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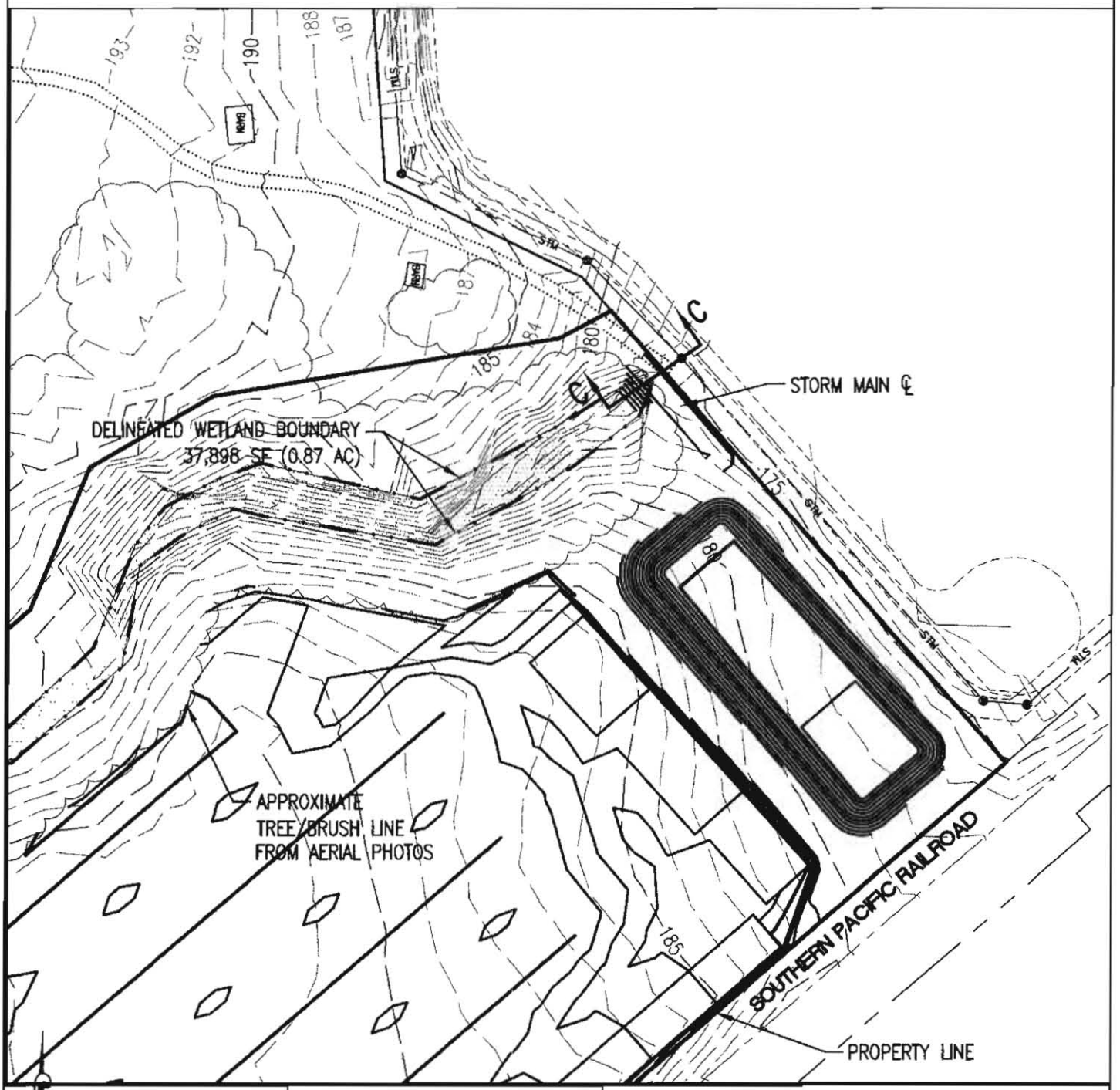
SITE 'B' GRADING PLAN



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JOB NAME: LANGER FARMS

JOB NUMBER: 2929

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DWG NO.: 2929DSL 8/12

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AERIAL PHOTOGRAPH

SCALE 1" = 400 FEET

400 0 160 240

JOB NAME: LANGER FARMS

JOB NUMBER: 2929

DRAWN BY: QMP

CHECKED BY: AHH

DWG NO.: 2929DSL 9/12

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AERIAL PHOTOGRAPH DETAIL

SCALE 1" = 200 FEET

200 0 80 120

JOB NAME: LANGER FARMS

JOB NUMBER: 2929

DRAWN BY: QMP

CHECKED BY: AHH

DWG NO.: 2929DSL 10/12

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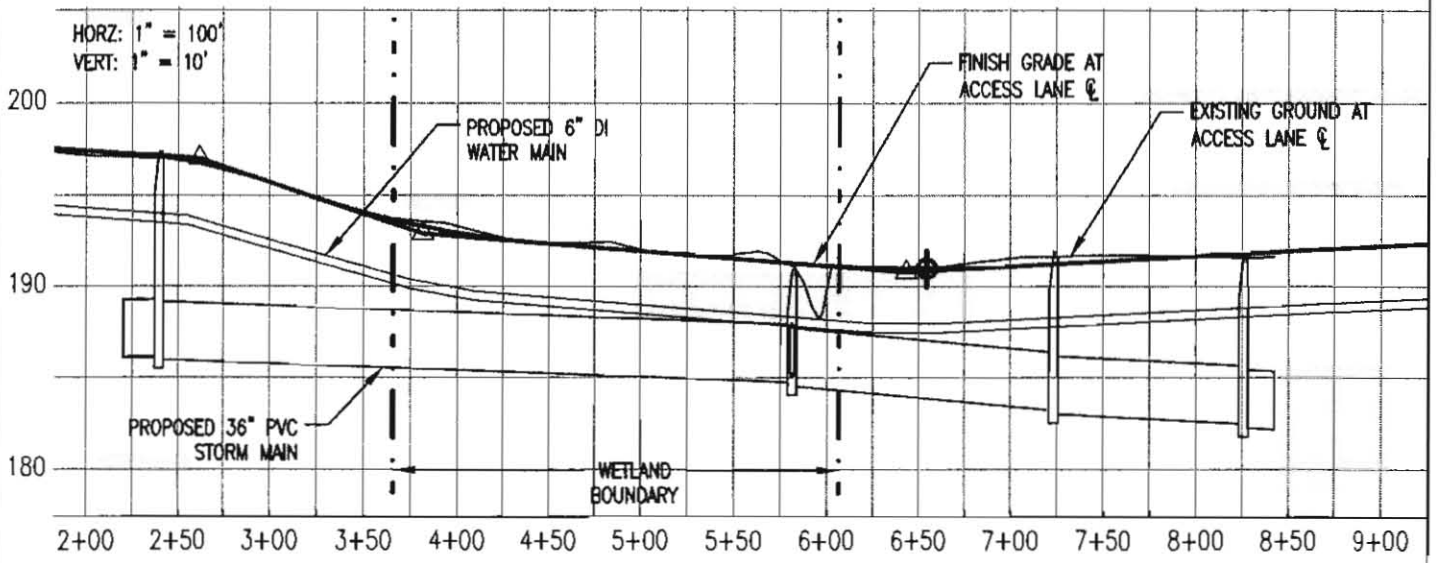
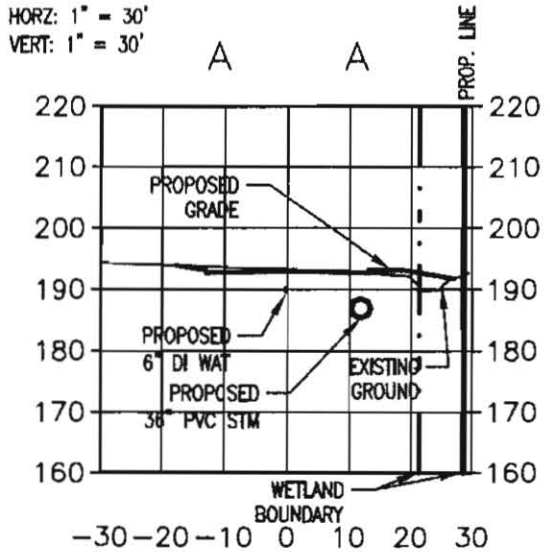
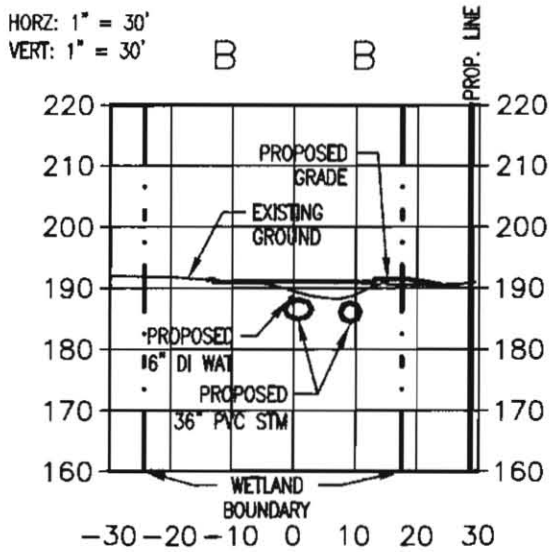
OFFICES LOCATED IN SALEM, OR & VANCOUVER, WA

SITE 'A' PROFILE AND CROSS SECTIONS

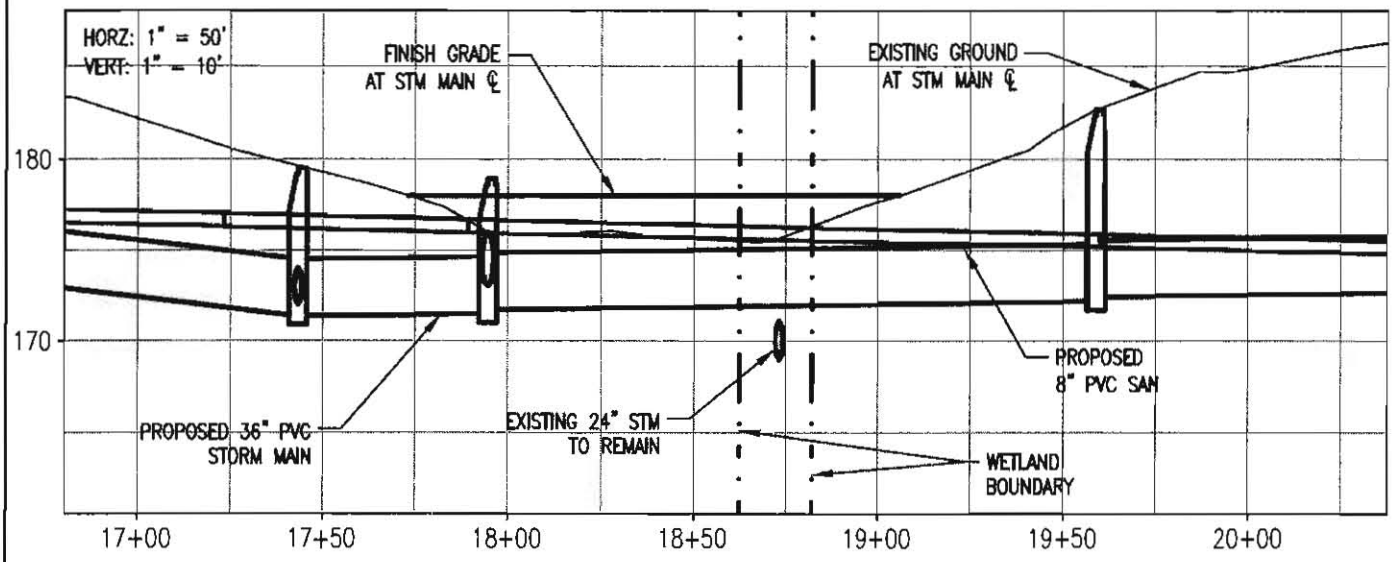


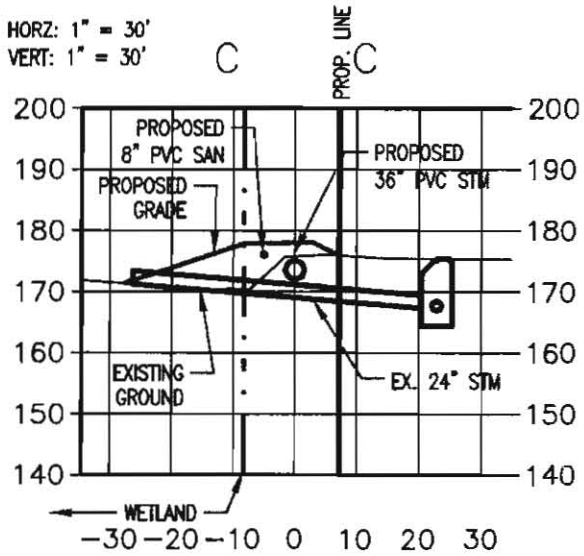




JOB NAME: LANGER FARMS	ENGINEERING • PLANNING • LANDSCAPE ARCHITECTURE FORESTRY • SURVEYING
JOB NUMBER: 2929	LICENSED IN OR & WA
DRAWN BY: QMP	AKS ENGINEERING & FORESTRY 13910 SW GALBREATH DRIVE, SUITE 100 SHERWOOD, OR 97140 PHONE: (503) 925-8799 FAX: (503) 925-8969
CHECKED BY: AHH	
DWG NO.: 2929DSL 11/12	OFFICES LOCATED IN SALEM, OR & VANCOUVER, WA

SITE 'B' PROFILE AND CROSS SECTION

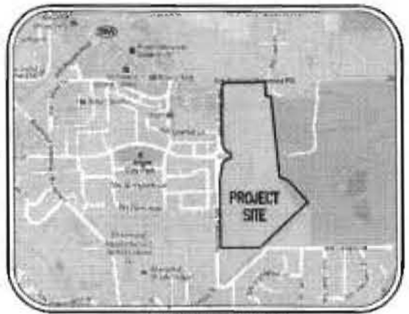




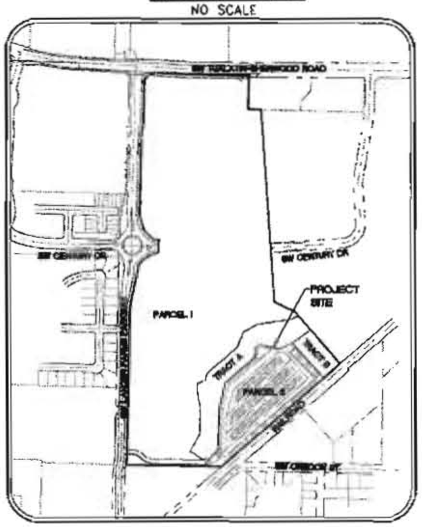
JOB NAME: LANGER FARMS	ENGINEERING • PLANNING • LANDSCAPE ARCHITECTURE FORESTRY • SURVEYING
JOB NUMBER: 2929	AKS ENGINEERING & FORESTRY LICENSED IN OR & WA
DRAWN BY: QMP	13910 SW GALBREATH DRIVE, SUITE 100 SHERWOOD, OR 97140
CHECKED BY: AHH	PHONE: (503) 925-8799 FAX: (503) 925-8969
DWG NO.: 2929DSL 12/12	OFFICES LOCATED IN SALEM, OR & VANCOUVER, WA

EROSION AND SEDIMENT CONTROL PLANS

SENTINEL SELF STORAGE ANNEX



VICINITY MAP
NO SCALE



SITE MAP
1" = 400'

PROPERTY DESCRIPTION:
WASHINGTON COUNTY ASSESSOR'S MAP 2S 1 29D, TAX LOT 300

PROJECT LOCATION:
EAST OF SW LANGER FARMS PARKWAY, SOUTH OF TUALATIN-SHERWOOD ROAD, NORTH OF SW OREGON STREET

ATTENTION EXCAVATORS:
OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THESE RULES FROM THE CENTER BY CALLING 503-232-1987. IF YOU HAVE ANY QUESTIONS ABOUT THE RULES, YOU MAY CONTACT THE CENTER. YOU MUST NOTIFY THE CENTER AT LEAST TWO BUSINESS DAYS, BEFORE COMMENCING AN EXCAVATION. CALL 503-246-6699.

OWNER/APPLICANT
LANGER FAMILY, LLC.
CONTACT: MATT LANGER
14958 SW TUALATIN-SHERWOOD RD
SHERWOOD, OR 97140

PLANNING / ENGINEERING / SURVEYING FIRM
AKS ENGINEERING & FORESTRY, LLC.
CONTACT: ALEX HURLEY
13910 SW GALBREATH DRIVE, SUITE 100
SHERWOOD, OR 97140
PH: 503-925-8799
FAX: 503-925-8969

NARRATIVE DESCRIPTIONS

EXISTING SITE CONDITIONS

- VACANT

DEVELOPED CONDITIONS

- RV STORAGE FACILITY, ACCESS, AND REGIONAL STORMWATER FACILITY

NATURE OF CONSTRUCTION ACTIVITY AND TIME TABLE FOR MAJOR ACTIVITIES

- CLEARING AND TREE REMOVAL (JULY 1, 2013 – SEPTEMBER 1)
- GRADING (EXCAVATION AND FILL) (JULY 1, 2013 – SEPTEMBER 1)
- INSTALLATION OF UTILITY (JULY 1, 2013 – SEPTEMBER 1)
- FINAL STABILIZATION (SEPTEMBER 1, 2013 – SEPTEMBER 15)

TOTAL SITE AREA = 2,399,720 SF = 55.09 ACRES

TOTAL DISTURBED AREA = 434,823 SF = 9.98 ACRES

SITE SOIL CLASSIFICATION:

1 – ALOHA SILT LOAM
21A – HILLSBORO LOAM, 0 TO 3 PERCENT SLOPES
37A – QUATAMA LOAM, 0 TO 3 PERCENT SLOPES
37B – QUATAMA LOAM, 3 TO 7 PERCENT SLOPES
42 – VERBOORT SILTY CLAY LOAM

ON-SITE SOILS HAVE A SLIGHT EROSION POTENTIAL. ALL FILL MATERIAL SHALL BE GENERATED ON-SITE FROM GRADING EXCAVATION AND UTILITY TRENCH SPOILS.

RECEIVING WATER BODIES:

ROCK CREEK

PERMITTEE'S SITE INSPECTOR: ALEX HURLEY, PE
COMPANY/AGENCY: AKS ENGINEERING & FORESTRY, LLC
PHONE: (503) 925-8799
FAX: (503) 925-8969
E-MAIL: ALEX@AKS-ENG.COM
DESCRIPTION OF EXPERIENCE: 10 YEARS OF EXPERIENCE IN THE ENGINEERING, CONSTRUCTION, AND EROSION CONTROL INSPECTION IN THE PACIFIC NORTHWEST

INSPECTION FREQUENCY

	SITE CONDITION	MINIMUM FREQUENCY
1	ACTIVE PERIOD	DAILY WHEN STORMWATER RUNOFF, INCLUDING RUNOFF FROM SNOWMELT, IS OCCURRING. AT LEAST ONCE EVERY TWO (2) WEEKS REGARDLESS OF WETHER STORMWATER RUNOFF IS OCCURRING.
2	PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY	ONCE TO ENSURE THAT EROSION AND SEDIMENT CONTROL MEASURES ARE IN WORKING ORDER. ANY NECESSARY MAINTENANCE AND REPAIR MUST BE MADE PRIOR TO LEAVING THE SITE.
3	INACTIVE PERIODS GREATER THAN FOURTEEN (14) CONSECUTIVE CALENDAR DAYS	ONCE EVERY TWO (2) WEEKS.
4	PERIODS DURING WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER	IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION.

- HOLD A PRE-CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS. (Schedule A.8.c.i.(3))
- ALL INSPECTIONS MUST BE MADE IN ACCORDANCE WITH DEQ 1200-C PERMIT REQUIREMENTS.
- INSPECTION LOGS MUST BE KEPT IN ACCORDANCE WITH DEQ'S 1200-C PERMIT REQUIREMENTS.
- RETAIN A COPY OF THE ESCP AND ALL REVISIONS ON SITE AND MAKE IT AVAILABLE ON REQUEST TO DEQ, AGENT, OR THE LOCAL MUNICIPALITY. DURING INACTIVE PERIODS OF GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS, RETAIN THE ESCP AT THE CONSTRUCTION SITE OR AT ANOTHER LOCATION. (Schedule B.1.a)

STANDARD EROSION AND SEDIMENT CONTROL PLAN DRAWING NOTES:

1. ALL PERMIT REGISTRANTS MUST IMPLEMENT THE ESCP. FAILURE TO IMPLEMENT ANY OF THE CONTROL MEASURES OR PRACTICES DESCRIBED IN THE ESCP IS A VIOLATION OF THE PERMIT. (SCHEDULE A 8.A)
2. THE ESCP MEASURES SHOWN ON THIS PLAN ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, UPGRADE THESE MEASURES AS NEEDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS. (SCHEDULE A.8.C.ii.(1)(C))
3. SUBMISSION OF ALL ESCP REVISIONS IS NOT REQUIRED. SUBMITTAL OF THE ESCP REVISIONS IS ONLY UNDER SPECIFIC CONDITIONS. SUBMIT ALL NECESSARY REVISION TO DEQ OR AGENT. (SCHEDULE A.1.E.C.iii)
4. PHASE CLEARING AND GRADING TO THE MAXIMUM EXTENT PRACTICAL TO PREVENT EXPOSED INACTIVE AREAS FROM BECOMING A SOURCE OF EROSION. (SCHEDULE A 8.C.ii.(1)(D))
5. IDENTIFY, MARK, AND PROTECT (BY FENCING OFF OR OTHER MEANS) CRITICAL RIPARIAN AREAS AND VEGETATION INCLUDING IMPORTANT TREES AND ASSOCIATED ROOTING ZONES, AND VEGETATION AREAS TO BE PRESERVED. IDENTIFY VEGETATIVE BUFFER ZONES BETWEEN THE SITE AND SENSITIVE AREAS (E.G., WETLANDS), AND OTHER AREAS TO BE PRESERVED, ESPECIALLY IN PERIMETER AREAS. (SCHEDULE A.8.C.ii.(1) & (2))
6. PRESERVE EXISTING VEGETATION WHEN PRACTICAL AND RE-VEGETATE OPEN AREAS. RE-VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER GRADING OR CONSTRUCTION. IDENTIFY THE TYPE OF VEGETATIVE SEED MIX USED. (SCHEDULE A.7.B.iii(1) AND A.7.B.iii(2))
7. EROSION AND SEDIMENT CONTROL MEASURES INCLUDING PERIMETER SEDIMENT CONTROL MUST BE IN PLACE BEFORE VEGETATION IS DISTURBED AND MUST REMAIN IN PLACE AND BE MAINTAINED, REPAIRED, AND PROMPTLY IMPLEMENTED FOLLOWING PROCEDURES ESTABLISHED FOR THE DURATION OF CONSTRUCTION, INCLUDING PROTECTION FOR ACTIVE STORM DRAIN INLETS AND CATCH BASINS AND APPROPRIATE NON-STORMWATER POLLUTION CONTROLS. (SCHEDULE A.7.D.I AND A.8.C)
8. ESTABLISH CONCRETE TRUCK AND OTHER CONCRETE EQUIPMENT WASH-OUT AREAS BEFORE BEGINNING CONCRETE WORK. (SCHEDULE A.8.C.I.(6))
9. APPLY TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS AS GRADING PROGRESSES AND FOR ALL ROADWAYS INCLUDING GRAVEL ROADWAYS. (SCHEDULE A.8.C.II.(2))
10. ESTABLISH MATERIAL AND WASTE STORAGE AREAS, AND OTHER NON-STORMWATER CONTROLS. (SCHEDULE A.8.C.I.(7))
11. PREVENT TRACKING OF SEDIMENT ONTO PUBLIC OR PRIVATE ROADS USING BMP'S SUCH AS GRAVELED (OR PAVED) EXITS AND PARKING AREAS, GRAVEL ALL UNPAVED ROADS LOCATED ONSITE, OR USE AN EXIT TIRE WASH. THESE BMP'S MUST BE IN PLACE PRIOR TO LAND-DISTURBING ACTIVITIES. (SCHEDULE A 7.D.II.(1) AND A.8.C.I.(4))
12. WHEN TRUCKING SATURATED SOILS FROM THE SITE, EITHER USE WATER-TIGHT TRUCKS OR DRAIN LOADS ON SITE. (SCHEDULE A.7.D.II.(3))
13. USE BMPS TO PREVENT OR MINIMIZE STORMWATER EXPOSURE TO POLLUTANTS FROM SPILLS, VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE; OTHER CLEANING AND MAINTENANCE ACTIVITIES, AND WASTE HANDLING ACTIVITIES. THESE POLLUTANTS INCLUDE FUEL, HYDRAULIC FLUID AND OTHER OILS FROM VEHICLES AND MACHINERY, AS WELL AS DEBRIS, LEFTOVER PAINTS, SOLVENTS, AND GLUES FROM CONSTRUCTION OPERATIONS. (SCHEDULE A.7.E.I.(1))
14. IMPLEMENT THE FOLLOWING BMPS WHEN APPLICABLE: WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURES, EMPLOYEE TRAINING ON SPILL PREVENTION AND PROPER DISPOSAL PROCEDURES, SPILL KITS IN ALL VEHICLES, REGULAR MAINTENANCE SCHEDULE FOR VEHICLES AND MACHINERY, MATERIAL DELIVERY AND STORAGE CONTROLS, TRAINING AND SIGNAGE, AND COVERED STORAGE AREAS FOR WASTE AND SUPPLIES. (SCH A 7.E.III)
15. USE WATER, SOIL-BINDING AGENT OR OTHER DUST CONTROL TECHNIQUE AS NEEDED TO AVOID WIND-BLOWN SOIL. (SCHEDULE A 7.B.II)
16. THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS TO MINIMIZE NUTRIENT RELEASES TO SURFACE WATERS. EXERCISE CAUTION WHEN USING TIME-RELEASE FERTILIZERS WITHIN ANY WATERWAY RIPARIAN ZONE. (SCHEDULE A.9.B.II)
17. IF A STORMWATER TREATMENT SYSTEM (FOR EXAMPLE, ELECTRO-COAGULATION, FLOCCULATION, FILTRATION, ETC.) FOR SEDIMENT OR OTHER POLLUTANT REMOVAL IS EMPLOYED, SUBMIT AN OPERATION AND MAINTENANCE PLAN (INCLUDING SYSTEM SCHEMATIC, LOCATION OF SYSTEM, LOCATION OF INLET, LOCATION OF DISCHARGE, DISCHARGE DISPERSION DEVICE DESIGN, AND A SAMPLING PLAN AND FREQUENCY) BEFORE OPERATING THE TREATMENT SYSTEM. OBTAIN PLAN APPROVAL BEFORE OPERATING THE TREATMENT SYSTEM. OPERATE AND MAINTAIN THE TREATMENT SYSTEM ACCORDING TO MANUFACTURER'S SPECIFICATIONS. (SCHEDULE A.9.D)
18. TEMPORARILY STABILIZE SOILS AT THE END OF THE SHIFT BEFORE HOLIDAYS AND WEEKENDS, IF NEEDED. THE REGISTRANT IS RESPONSIBLE FOR ENSURING THAT SOILS ARE STABLE DURING RAIN EVENTS AT ALL TIMES OF THE YEAR. (SCHEDULE A 7.E)
19. AT THE END OF EACH WORKDAY SOIL STOCKPILES MUST BE STABILIZED OR COVERED, OR OTHER BMPS MUST BE IMPLEMENTED TO PREVENT DISCHARGES TO SURFACE WATERS OR CONVEYANCE SYSTEMS LEADING TO SURFACE WATERS. (SCHEDULE A 7.E.II.(2))
20. CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND CREATION OF BARE GROUND DURING WET WEATHER. (SCHEDULE A.7.A.I)
21. SEDIMENT FENCE: REMOVE TRAPPED SEDIMENT BEFORE IT REACHES ONE THIRD OF THE ABOVE GROUND FENCE HEIGHT AND BEFORE FENCE REMOVAL. (SCHEDULE A.9.C.I)
22. OTHER SEDIMENT BARRIERS (SUCH AS BIOBAGS): REMOVE SEDIMENT BEFORE IT REACHES TWO INCHES DEPTH ABOVE GROUND HEIGHT, AND BEFORE BMP REMOVAL. (SCHEDULE A.9.C.II)
23. CATCH BASINS: CLEAN BEFORE RETENTION CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT. SEDIMENT BASINS AND SEDIMENT TRAPS: REMOVE TRAPPED SEDIMENTS BEFORE DESIGN CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT AND AT COMPLETION OF PROJECT. (SCHEDULE A.9.C.III & IV)
24. WITHIN 24 HOURS, SIGNIFICANT SEDIMENT THAT HAS LEFT THE CONSTRUCTION SITE, MUST BE REMEDIATED. INVESTIGATE THE CAUSE OF THE SEDIMENT RELEASE AND IMPLEMENT STEPS TO PREVENT A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DIVISION OF STATE LANDS REQUIRED TIMEFRAME. (SCHEDULE A.9.B.I)
25. THE INTENTIONAL WASHING OF SEDIMENT INTO STORM SEWERS OR DRAINAGE WAYS MUST NOT OCCUR. VACUUMING OR DRY SWEEPING AND MATERIAL PICKUP MUST BE USED TO CLEANUP RELEASED SEDIMENTS. (SCHEDULE A.9.B.II)
26. THE ENTIRE SITE MUST BE TEMPORARILY STABILIZED USING VEGETATION OR A HEAVY MULCH LAYER, TEMPORARY SEEDING, OR OTHER METHOD SHOULD ALL CONSTRUCTION ACTIVITIES CEASE FOR 30 DAYS OR MORE. (SCHEDULE A.7.F.I)
27. PROVIDE TEMPORARY STABILIZATION FOR THAT PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES CEASE FOR 14 DAYS OR MORE WITH A COVERING OF BLOWN STRAW AND A TACKIFIER, LOOSE STRAW, OR AN ADEQUATE COVERING OF COMPOST MULCH UNTIL WORK RESUMES ON THAT PORTION OF THE SITE. (SCHEDULE A.7.F.II)
28. PROVIDE PERMANENT EROSION CONTROL MEASURES ON ALL EXPOSED AREAS. DO NOT REMOVE TEMPORARY SEDIMENT CONTROL PRACTICES UNTIL PERMANENT VEGETATION OR OTHER COVER OF EXPOSED AREAS IS ESTABLISHED. HOWEVER, DO REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AS EXPOSED AREAS BECOME STABILIZED, UNLESS DOING SO CONFLICTS WITH LOCAL REQUIREMENTS. PROPERLY DISPOSE OF CONSTRUCTION MATERIALS AND WASTE, INCLUDING SEDIMENT RETAINED BY TEMPORARY BMPS. (SCHEDULE A.7.B.III(2) AND A.8.C.II)

THE PERMITTEE IS REQUIRED TO MEET ALL THE CONDITIONS OF THE 1200C PERMIT. THIS ESCP AND GENERAL CONDITIONS HAVE BEEN DEVELOPED TO FACILITATE COMPLIANCE WITH THE 1200C PERMIT REQUIREMENTS. IN CASES OF DISCREPANCIES OR OMISSIONS, THE 1200C PERMIT REQUIREMENTS SUPERCEDE REQUIREMENTS OF THIS PLAN.

BMP MATRIX FOR CONSTRUCTION PHASES
REFER TO DEQ GUIDANCE MANUAL FOR A COMPREHENSIVE LIST OF AVAILABLE BMP'S.

	CLEARING	MASS GRADING	UTILITY INSTALLATION	STREET CONSTRUCTION	FINAL STABILIZATION	WET WEATHER (OCT. 1 - MAY 31ST)
EROSION PREVENTION						
PRESERVE NATURAL VEGETATION	*X	X	X	X	X	X
GROUND COVER					X	X
HYDRAULIC APPLICATIONS						
PLASTIC SHEETING						X
MATTING					X	X
DUST CONTROL	X	X	X	X	X	X
TEMPORARY/PERMANENT SEEDING			X	X	X	X
BUFFER ZONE	*X		X		X	X
OTHER						
SEDIMENT CONTROL						
SEDIMENT FENCE (PERIMETER)	*X	X	X	X	X	X
SEDIMENT FENCE (INTERIOR)	X	X	X	X	X	X
STRAW WATTLES						
FILTER BERM						
INLET PROTECTION	*X	X	X	X	X	X
DEWATERING						
SEDIMENT TRAP						
OTHER						
RUN OFF CONTROL						
CONSTRUCTION ENTRANCE	*X	X	X	X	X	X
PIPE SLOPE DRAIN						
OUTLET PROTECTION						
SURFACE ROUGHENING		X	X	X	X	X
CHECK DAMS	*X	X	X	X	X	X
OTHER						
POLLUTION PREVENTION						
PROPER SIGNAGE						
HAZ WASTE MGMT						
SPILL KIT ONSITE	X	X	X	X	X	X
CONCRETE WASHOUT AREA	X	X	X	X	X	X
OTHER						

** SIGNIFIES BMP THAT WILL BE INSTALLED PRIOR TO ANY GROUND DISTURBING ACTIVITY.

RATIONALE STATEMENT

A COMPREHENSIVE LIST OF AVAILABLE BEST MANAGEMENT PRACTICES (BMP) OPTIONS BASED ON DEQ'S GUIDANCE MANUAL HAS BEEN REVIEWED TO COMPLETE THIS EROSION AND SEDIMENT CONTROL PLAN. SOME OF THE ABOVE LISTED BMP'S WERE NOT CHOSEN BECAUSE THEY WERE DETERMINED TO NOT EFFECTIVELY MANAGE EROSION PREVENTION AND SEDIMENT CONTROL FOR THIS PROJECT BASED ON SPECIFIC SITE CONDITIONS, INCLUDING SOIL CONDITIONS, TOPOGRAPHIC CONSTRAINTS, ACCESSIBILITY TO THE SITE, AND OTHER RELATED CONDITIONS. AS THE PROJECT PROGRESSES AND THERE IS A NEED TO REVISE THE ESC PLAN, AN ACTION PLAN WILL BE SUBMITTED.

INITIAL

SHEET INDEX

EROSION AND SEDIMENT CONTROL PLANS

C050 EROSION AND SEDIMENT CONTROL COVER SHEET
C051 CLEARING SEDIMENT AND EROSION CONTROL PLAN
C052 GRADING EROSION AND SEDIMENT CONTROL PLAN
C053 EROSION AND SEDIMENT CONTROL DETAILS

ENGINEERING · PLANNING
SURVEYING · FORESTRY
AKS ENGINEERING & FORESTRY
13910 SW GALBREATH DR.
SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

SENTINEL SELF STORAGE ANNEX
SHERWOOD OREGON
TAX LOT 300 WASHINGTON COUNTY TAX MAP 2S 1 29D

EROSION AND SEDIMENT CONTROL COVER SHEET

DESIGNED BY: AKH
DRAWN BY: CMP
CHECKED BY: AKH
DRAWING NO: E1-C050
SCALE: AS NOTED

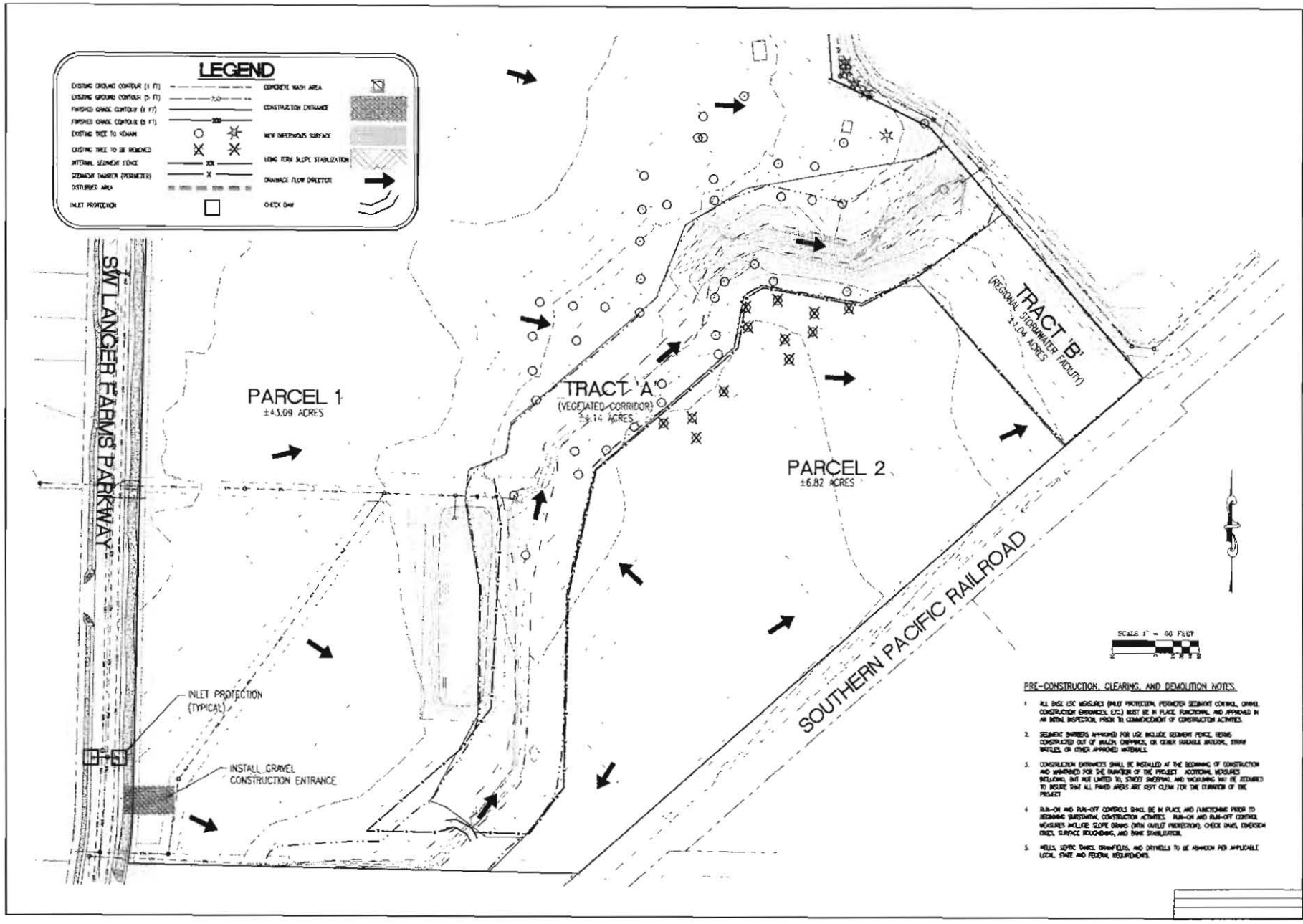
PREPARED FOR:
LANGER FAMILY, LLC
14958 SW TUALATIN-SHERWOOD RD
SHERWOOD, OR 97140

DATE: 3/13/12

REGISTERED PROFESSIONAL ENGINEER — NOT FOR CONSTRUCTION — ALEXANDER H. HURLEY — RENEWAL DATE 6/30/13

JOB NUMBER 2929

SHEET C050



CLEARING EROSION AND SEDIMENT CONTROL PLAN

SENTINEL SELF STORAGE ANNEX

SHERWOOD OREGON

WASHINGTON COUNTY 1S1 WM 23 1 250

1S1 1DT 300

AKS ENGINEERING & FORESTRY
ENGINEERING · PLANNING
SURVEYING · FORESTRY
12965 SW GARDEN PL.
TIGARD, OR 97223
SHERWOOD, OR 97140
PHONE: (503) 223-5799
FAX: (503) 526-1960

DESIGNED BY	AMH
DRAWN BY	DAP
CHECKED BY	AMH
DRAWING NO.	(1-C050)
SCALE	AS NOTED

PREPARED FOR:
LANGER FAMILY, LLC
14950 SW TUALATIN-SHERWOOD RD
SHERWOOD, OR 97140

DATE: 3/13/13

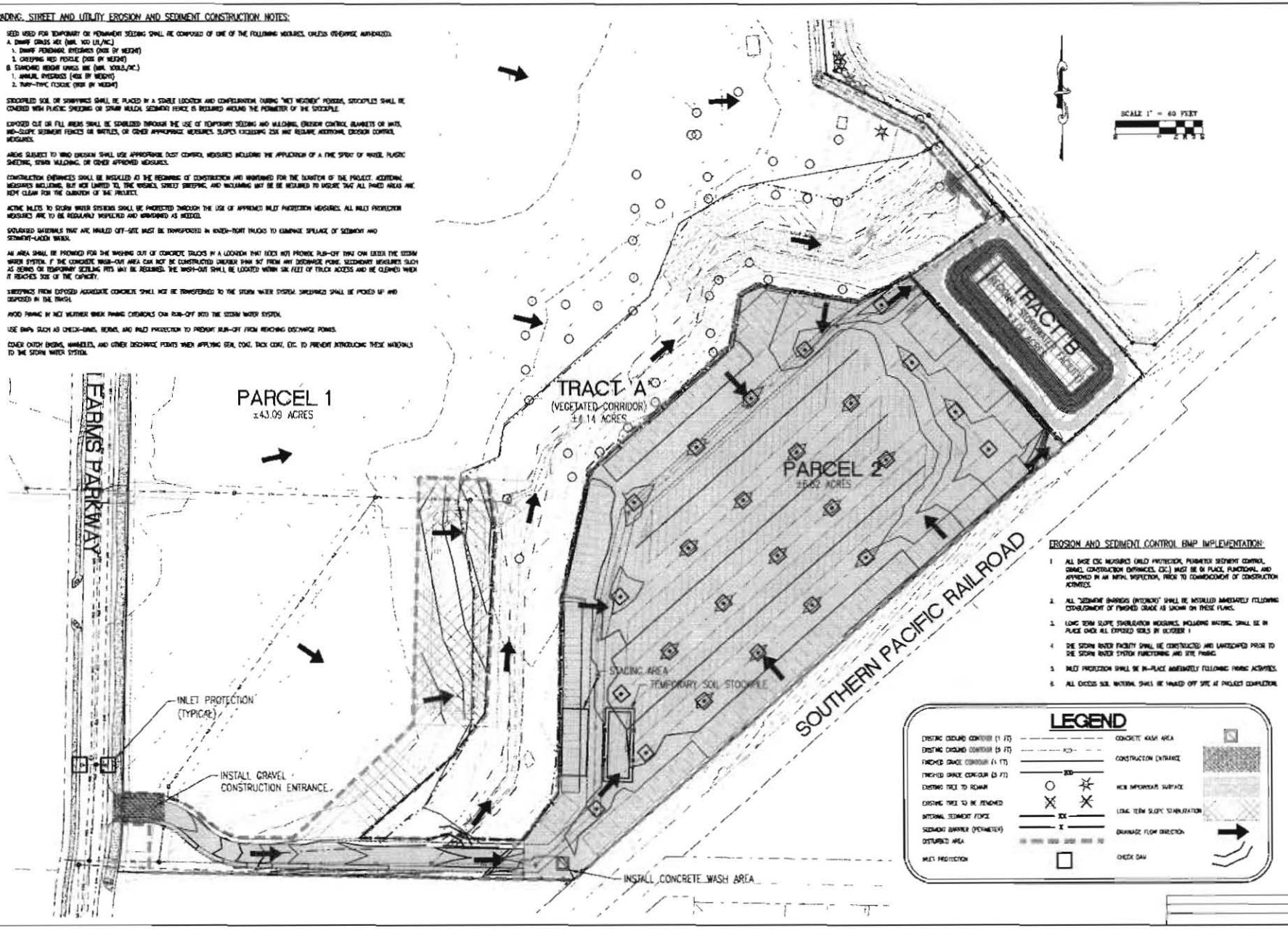
NOT FOR CONSTRUCTION
AS CONDITIONED BY
REVISED DATED 6/20/13

JOB NUMBER
2929

SHEET
C051

GRADING, STREET AND UTILITY EROSION AND SEDIMENT CONSTRUCTION NOTES:

1. SEED USED FOR TEMPORARY OR PERMANENT SEEDING SHALL BE COMPOSED OF ONE OF THE FOLLOWING MIXTURES, UNLESS OTHERWISE AUTHORIZED.
   A. DWARF GRASS MIX (MIN. 100 LB/AC.)
      1. DWARF PERENNIAL RYEGRASS (MIX BY WEIGHT)
      2. CREEPING RED FESCUE (MIX BY WEIGHT)
   B. STANDARD HEIGHT GRASS MIX (MIN. 100LB/AC.)
      1. ANNUAL RYEGRASS (40% BY WEIGHT)
      2. TURF-TYPE FESCUE (60% BY WEIGHT)
2. STOCKPILED SOIL OR SUBSTRATES SHALL BE PLACED IN A STABLE LOCATION AND CONFIGURATION. DURING "WET WEATHER" PERIODS, STOCKPILES SHALL BE COVERED WITH PLASTIC SHEETING OR STRAW MULCH. SEDIMENT FENCE IS REQUIRED AROUND THE PERIMETER OF THE STOCKPILE.
3. EXPOSED CUT OR FILL AREAS SHALL BE STABILIZED THROUGH THE USE OF TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS OR MATS, MID-SLOPE SEDIMENT FENCES OR BATTLES, OR OTHER APPROPRIATE MEASURES. SLOPES EXCEEDING 25% MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES.
4. AREAS SUBJECT TO WIND EROSION SHALL USE APPROPRIATE DUST CONTROL MEASURES INCLUDING THE APPLICATION OF A FINE SPRAY OF WATER, PLASTIC SHEETING, STRAW MULCHING, OR OTHER APPROVED MEASURES.
5. CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, TIRE WASHES, STREET SWEEPING, AND INCLEANING MAY BE BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
6. ACTIVE INLETS TO STORM WATER SYSTEMS SHALL BE PROTECTED THROUGH THE USE OF APPROVED INLET PROTECTION MEASURES. ALL INLET PROTECTION MEASURES ARE TO BE REGULARLY INSPECTED AND MAINTAINED AS NEEDED.
7. SATURATED MATERIALS THAT ARE HAULED OFF-SITE MUST BE TRANSPORTED IN WATER-TIGHT TRUCKS TO ELIMINATE SPILLAGE OF SEDIMENT AND SEDIMENT-LADEN WATER.
8. AN AREA SHALL BE PROVIDED FOR THE WASHING OUT OF CONCRETE TRUCKS IN A LOCATION THAT DOES NOT PROVIDE RUN-OFF THAT CAN ENTER THE STORM WATER SYSTEM. IF THE CONCRETE WASH-OUT AREA CAN NOT BE CONSTRUCTED GREATER THAN 50' FROM ANY DISCHARGE POINT, SEDIMENT MEASURES SUCH AS BERMS OR TEMPORARY SETTLING PITS MAY BE REQUIRED. THE WASH-OUT SHALL BE LOCATED WITHIN SIX FEET OF TRUCK ACCESS AND BE CLEANED WHEN IT REACHES 50% OF THE CAPACITY.
9. SLIPPAGE FROM EXPOSED AGGREGATE CONCRETE SHALL NOT BE TRANSFERRED TO THE STORM WATER SYSTEM. SLIPPAGE SHALL BE PICKED UP AND DISPOSED IN THE TRASH.
10. AVOID PAVING IN WET WEATHER WHEN PAVING CHEMICALS CAN RUN-OFF INTO THE STORM WATER SYSTEM.
11. USE BMPs SUCH AS CHECK-DAMS, BERMS, AND INLET PROTECTION TO PREVENT RUN-OFF FROM REACHING DISCHARGE POINTS.
12. COVER CATCH BASINS, MANHOLES, AND OTHER DISCHARGE POINTS WHEN APPLYING SEAL COAT, TACK COAT, ETC. TO PREVENT INTRODUCING THESE MATERIALS TO THE STORM WATER SYSTEM.



EROSION AND SEDIMENT CONTROL BMP IMPLEMENTATION:

1. ALL BASIC ESC MEASURES (INLET PROTECTION, PERIMETER SEDIMENT CONTROL, GRAVEL CONSTRUCTION ENTRANCES, ETC.) MUST BE IN PLACE, FUNCTIONAL AND APPROVED IN AN INITIAL INSPECTION, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
2. ALL "SEDIMENT BARRIERS (INTERIOR)" SHALL BE INSTALLED IMMEDIATELY FOLLOWING ESTABLISHMENT OF FINISHED GRADE AS SHOWN ON THESE PLANS.
3. LONG TERM SLOPE STABILIZATION MEASURES, INCLUDING MATERIAL, SHALL BE IN PLACE ONCE ALL EXPOSED SOILS BY OCTOBER 1
4. THE STORM WATER FACILITY SHALL BE CONSTRUCTED AND LANDSCAPED PRIOR TO THE STORM WATER SYSTEM FUNCTIONING AND SITE PAVING.
5. INLET PROTECTION SHALL BE IN-PLACE IMMEDIATELY FOLLOWING PAVING ACTIVITIES.
6. ALL EXCESS SOIL MATERIAL SHALL BE HAULED OFF SITE AT PROJECT COMPLETION.

GRADING EROSION AND SEDIMENT CONTROL PLAN

SENTINEL SELF STORAGE ANNEX

SHERWOOD, OREGON

WASHINGTON COUNTY TAX MAP 2S 1 30

TAX LOT 300

AKS ENGINEERING & FORESTRY
ENGINEERING · PLANNING
SURVEYING · FORESTRY
12965 SW HERMAN RD.
SUITE 100
TUALATIN, OR 97062
PHONE: (503) 563-3050
FAX: (503) 563-3051

DESIGNED BY	AKR
DRAWN BY	DMP
CHECKED BY	AKR
DRAWING NO.	E1-C052
SCALE	AS NOTED

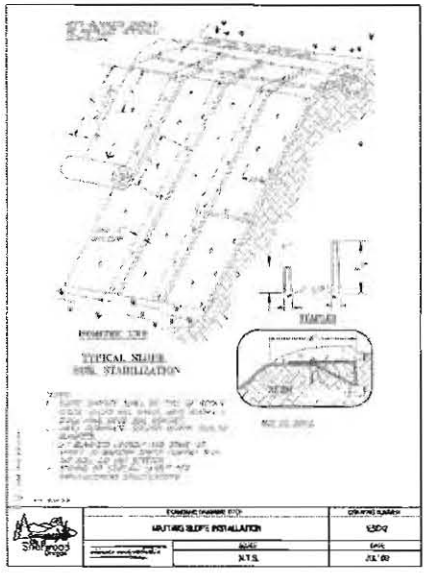
PREPARED FOR:
LANGER FAMILY, LLC
14996 SW TUALATIN-SHERWOOD RD
SHERWOOD, OR 97140

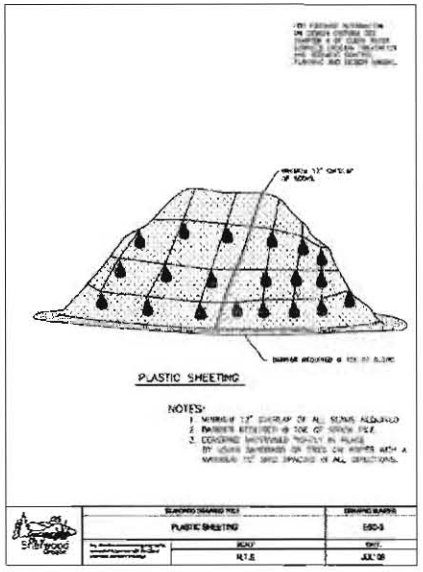
DATE: 3/13/13

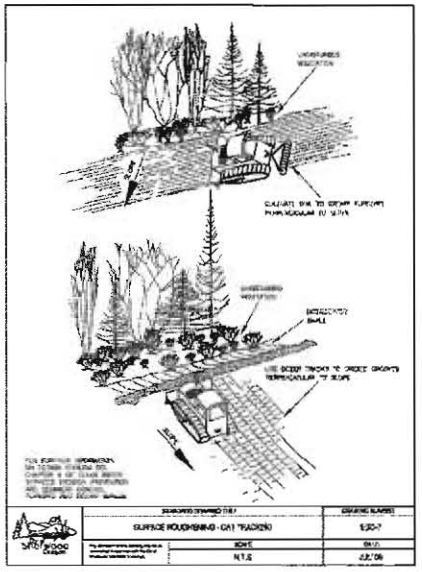
PROFESSIONAL ENGINEER
OREGON
NOT FOR CONSTRUCTION
ALEXANDER R. KNOLL
RENEWAL DATE 6/30/13

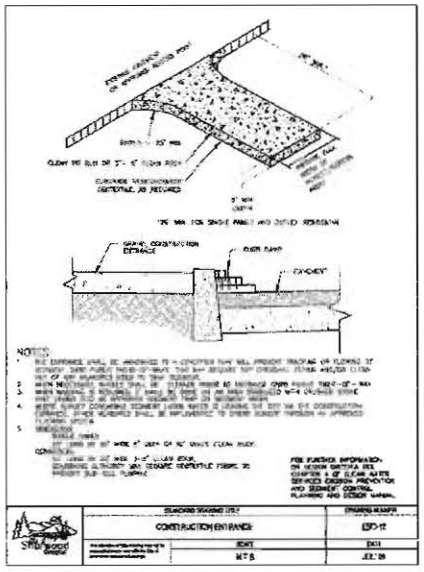
JOB NUMBER
2929

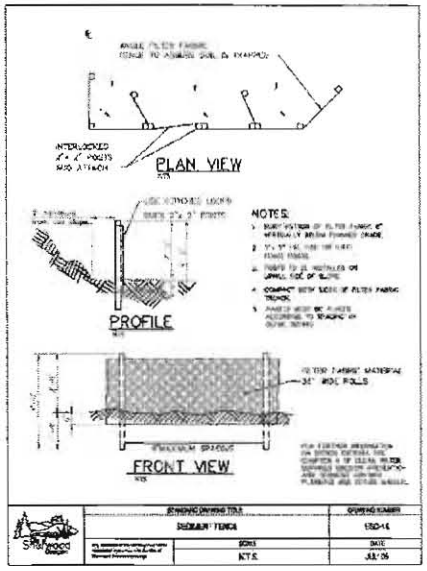
SHEET
C052

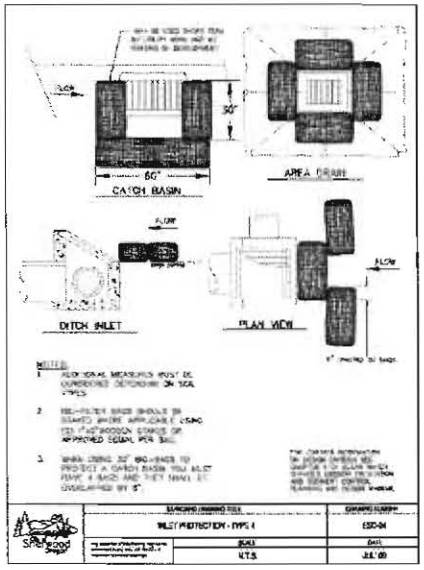


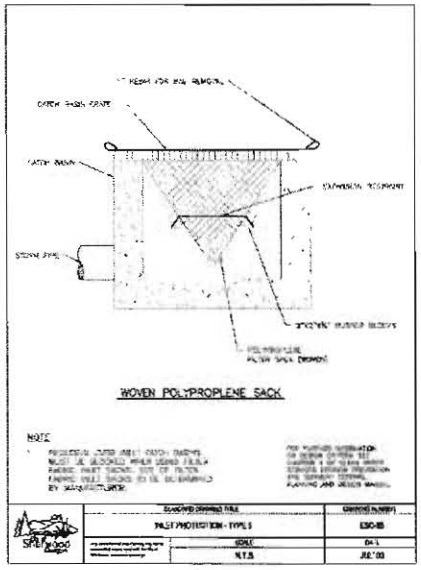


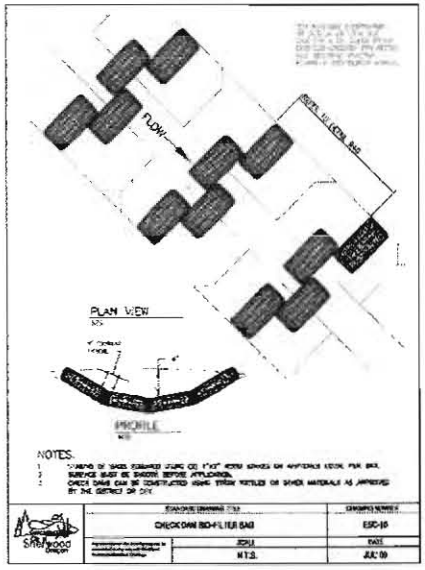












EROSION AND SEDIMENT CONTROL DETAILS

SENTINEL SELF STORAGE ANNEX

SHERWOOD OREGON

WASHINGTON COUNTY FOR MAP 2S 1 30D TAX LOT 300

AKS ENGINEERING & FORESTRY

ENGINEERING · PLANNING
SURVEYING · FORESTRY

12965 SW GALBREATH DR.
SUITE 100
SHERWOOD, OR 97140
(503) 563-3900
FAX: (503) 625-8575

DESIGNED BY	AHH
DRAWN BY	DRP
CHECKED BY	AHH
DRAWING NO.	11-0260
SCALE	AS NOTED

PREPARED FOR:
LANDER FAMILY, LLC.
14968 SW BALLIN-SHERWOOD RD
SHERWOOD, OR 97140

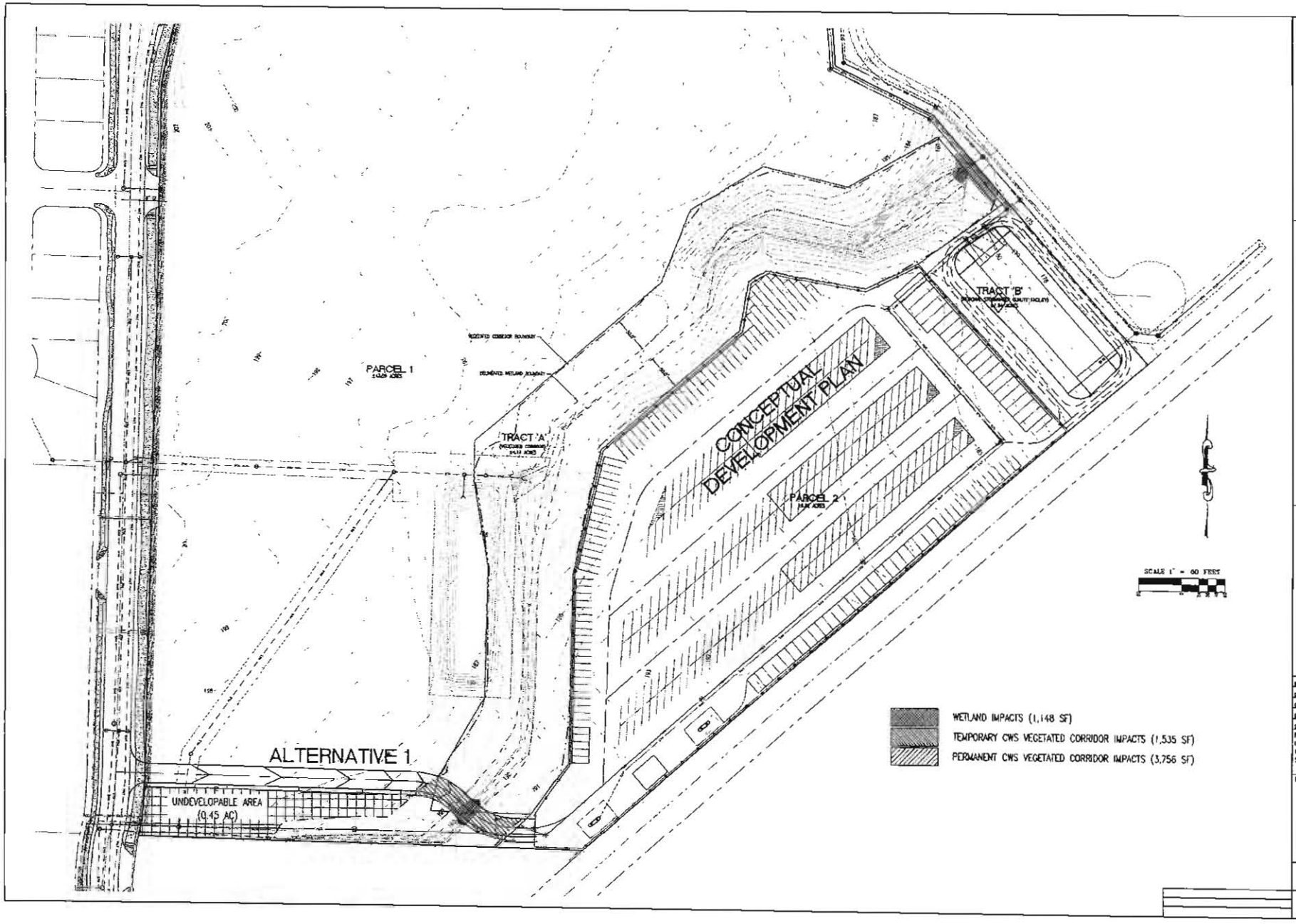
DATE 3/12/12

REGISTERED PROFESSIONAL ENGINEER
OREGON
NOT FOR CONSTRUCTION
AMANDA H. HOBSON

RENEWAL DATE 6/30/12

JOB NUMBER
2929

SHEET
C053



SITE ACCESS
ALTERNATIVE 1

LANGER FARMS
PARTITION

SHERWOOD OREGON

AKS ENGINEERING & FORESTRY

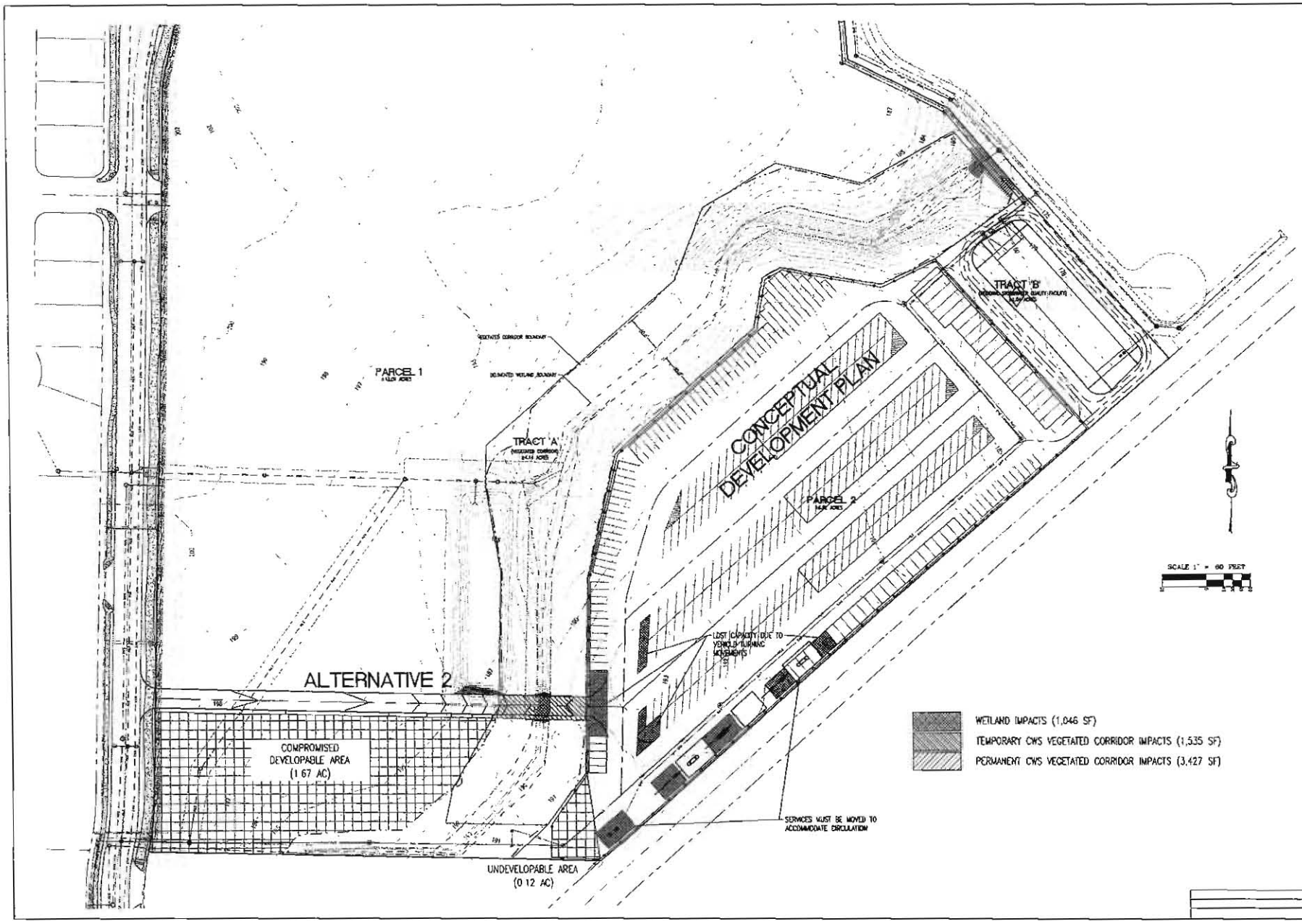
ENGINEERING · PLANNING
SURVEYING · FORESTRY
9755 SW BARNES RD.,
SUITE 150
PORTLAND, OR 97225
PHONE: (503) 563-3900
FAX: (503) 563-3848

DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING NO. 2929
SCALE: AS NO
PREPARED FOR:
LANGER FAMILY, LLC
14608 SW TUALATIN-SHERWOOD
SHERWOOD, OR 97140

DATE: 1/6/12

JOB NUMBER
2929

SHEET
2 OF 4



SITE ACCESS
ALTERNATIVE 2

LANGER FARMS
PARTITION

SHERWOOD, OREGON

ENGINEERING · PLANNING
SURVEYING · FORESTRY
12965 SW HERMAN RD.,
SUITE 100
TUALATIN, OR 97062
PHONE: (503) 563-6151
FAX: (503) 563-6152

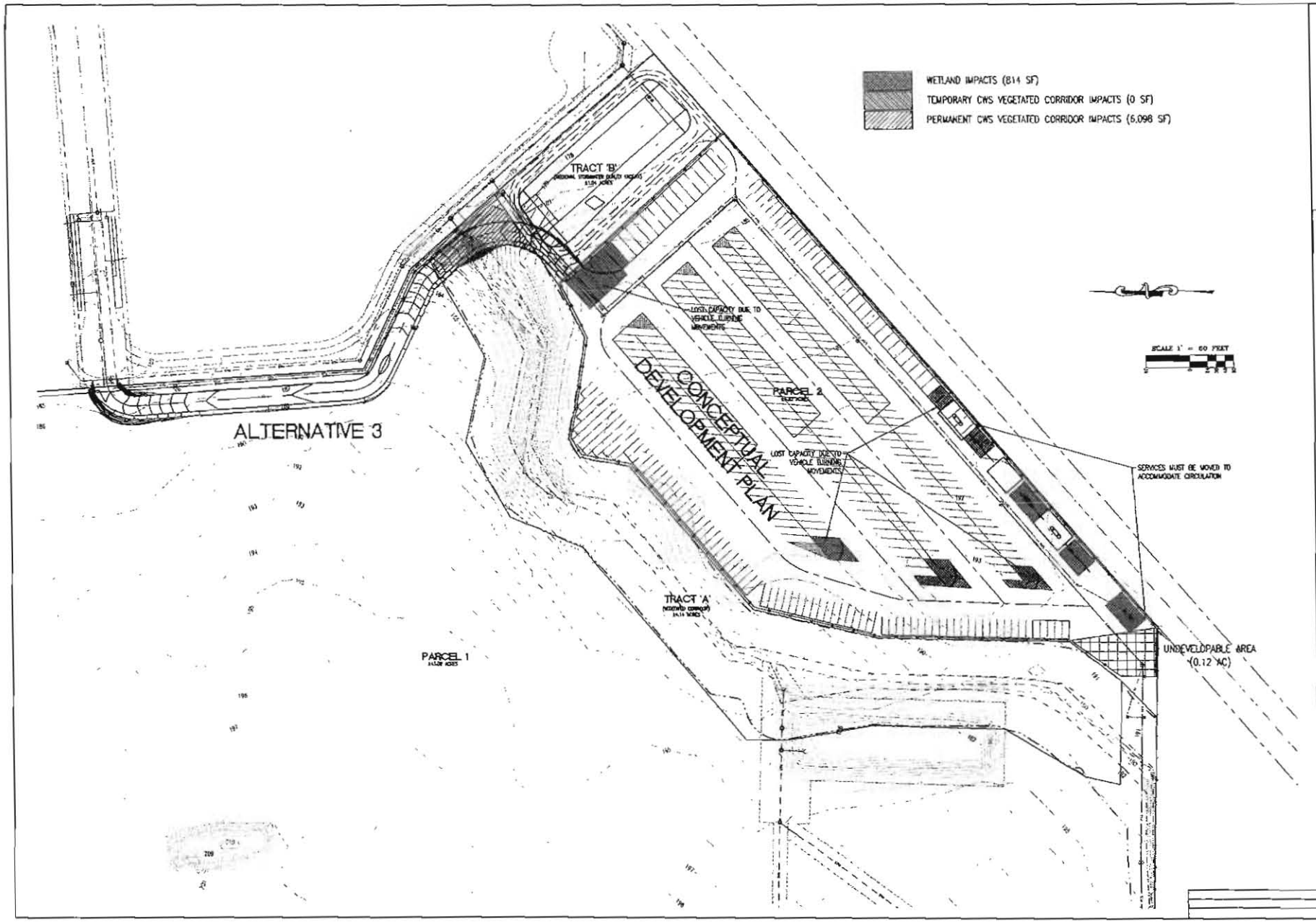
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING NO.: 2929
SCALE: AS NOTED

PREPARED FOR
LANGER FAMILY, LLC.
14908 SW BUCKLEY-SHERWOOD
SHERWOOD, OR 97140

DATE: 1/16/12

JOB NUMBER
2929

SHEET
3 OF 4



SITE ACCESS
ALTERNATIVE 3

LANGER FARMS
PARTITION

SHERWOOD OREGON

AKS ENGINEERING & FORESTRY

ENGINEERING - PLANNING
SURVEYING - FORESTRY
13910 SW GALBRAITH DR.
SUITE 100 OR 97140
SHERWOOD, OR 97140
PHONE: (503) 232-5200
FAX: (503) 192-0643

DESIGNED BY:	A
DRAWN BY:	G
CHECKED BY:	A
DRAWING NO.	2929
SCALE:	AS NOTED

PREPARED FOR:
LANGER FAMILY, LLC.
14935 SW BALSAM-SHERWOOD
SHERWOOD, OR 97140

DATE: 1/8/12

JOB NUMBER
2929

SHEET
4 OF 4

Assessment Summary Form

(page 1 of 2)

Site Name: Langer Impact Area
County: Washington
Assessed by: MRS/JJT
Date:
Area of Site: 0.08 *acres*
Mapped Soil Series: Verboort SiCL, Quatama L
HGM subclass(es)*: RFT

* if site contains multiple subclasses, estimate percent of each

Complete column 2 ("score" – Present Time) of the table below. All other columns are *optional*. Do not mathematically combine scores from different functions, or functions and values.

Functions	**Function Capacity Score** (standardized)				**Value Score** (standardized)
	Present Time		Time 2 (optional)		
	score	acres	score	acres	
Water Storage & Delay	(p.21) 0.1				(p. 47)
Sediment Stabilization & Phosphorus Retention	0.1 (p. 23)				(p.48)
Nitrogen Removal	0.1 (p.Error! Bookmark not defined.)				(p.50)
Thermoregulation	N/A (p. 26)				(p.51)
Primary Production	0.1 (p.28)				(p.52)
Resident Fish Habitat Support	N/A (p.29)				(p.54)
Anadromous Fish Habitat Support	N/A (p.31)				(p.54)
Invertebrate Habitat Support	0.1 (p.33)				(p.53)
Amphibian & Turtle Habitat	0.1 (p.36)				(p.55)
Breeding Waterbird Support	N/A (p.38)				(p.55)
Wintering & Migratory Waterbird Support	0.1 (p.40)				(p.56)
Songbird Habitat Support	0.1 (p.43)				(p.57)
Support of Characteristic Vegetation	0.1 (p.46)				(p.57)

Assessment Summary Form

(page 2 of 2)

In the preceding table, were the column-2 scores for Function Capacity from (**check one**):

___ the Reference-based Method, standardized to "highest functioning"?
___ the Reference-based Method, standardized to "least altered"?
✓ the Judgmental Method (Appendix B)?

Do you consider the site to historically have been mostly wooded? ✓ yes ___ no

Is the site part of a larger contiguous wetland or riparian area? ✓ Yes ___ No
If yes, describe how it is connected (permanent/ seasonal channel, etc.): seasonal channel

Describe the basis for boundaries you used to define the "site": proposed impact area.

Elaborate, if you wish, on assumptions you made when estimating particular indicators, and additional factors related to this site's importance (see p. 5 of guidebook for listing of these). Use additional pages if necessary.

The following 3 items are optional, but you are encouraged to complete these in order to provide a fuller context for understanding the assessment scores.

1. Make your best estimate of relative dominance of the direct **sources of water inputs** to this site during each of the two seasonal periods during an average year:

	April 1 – October 31 (dry)	**November 1- March 30 (wet)**
Channel flow (including overbank flooding)	%	%
Overland runoff (not in channels)	%	%
Subsurface flow & groundwater	%	%
Direct precipitation	%	%
Artificial water imports (stormwater pipes, etc.)	%	%
TOTAL	100 %	100 %

2. How much of the site is upland inclusions? _____%

3. Exact coordinates of the site, from GPS reading or digital map:
latitude: _____N longitude: _____W

Other Comments: _____

Impact Area

Appendix B. Assessment of Function Capacity: Judgmental Method

Complete the following "qualitative assessments" of function only if you chose not to complete the reference-based assessments" that began on page 20.

Instructions: In each row, indicate with a checkmark if your site looks more like the "highest capacity" condition or the "minimal capacity" condition. Then circle a number on the scoring line below this table, based on your overall impression of the site's capacity to support this function. Alternatively, instead of checkmarks, you can assign a score to each row by placing a number in the center column of each row, e.g., 0 (minimal capacity) -to- 1.0 (highest capacity), and then combine the row scores in a manner of your choosing, perhaps weighting some rows more than others if you believe those indicators to have greater influence on a function. Whether based on mathematical operations or another way of synthesizing, be sure to circle your final score for the function on either or both of the shaded "Judgment Lines" at the bottom. Definitions of many of the terms are provided in Appendix A.

Function Capacity (Judgmental Assessment of): **Water Storage and Delay**

Highest Functioning	Suggested Score:	Minimal Functioning
___ The proportion of the site that is inundated only seasonally is large. The seasonally-inundated parts are defined by flood marks on trees and shrubs, stunted plants, and/or distinctive assemblages of plant species.		___ None of the site is inundated only seasonally. The site is always comprised only of permanent water or a high water table without surface water.
___ Most of the surface water in the seasonally-inundated zone remains for a few days after each rain event, but not less or more.		✓ Water added from rain events empties quickly from all of the site, via outlets or percolation. This often is evidenced by: ___ lack of flood marks on trees and shrubs ___ scarcity of wetland plants (few FAC or wetter) ___ little or no mottling of soils throughout the seasonally-inundated zone. ___ site is located on slope ___ site is flat (few or no puddles, etc.) ___ presence of outlet channels

Your Judgments:

Function Capacity score = 0.1 , or circle one of the following:

1.0 .8 .6 .4 .2 0

Highest Lowest

Function Capacity (Judgmental Assessment of):
Sediment Stabilization and Phosphorus Retention

Highest Functioning	Suggested Score:	Minimal Functioning
___ High score was assigned to Water Storage & Delay function (inundation is long, frequent, deep, extensive).		✓ Low score was assigned to Water Storage & Delay function (water levels barely fluctuate).
___ Texture of the predominant substrate in the upper 12 inches of the seasonal zone is mostly clay, silty clay, sandy clay, clay loam, or native organic. See p. 83 for key to soil textures.	✓	___ Upper 12 inches of the predominant substrate in the seasonal zone is mostly sand or gravel.
___ Herbs, shrubs, and/or vines together always occupy a large percent of the ground cover in the seasonal zone. Very little soil is bare.		✓ All or nearly all of the substrate in the seasonal zone is unvegetated.
___ Shallow pools and puddles are present and well-interspersed with herbaceous vegetation		✓ ___ Shallow pools are absent at all times of the year
___ Substrates have never been recontoured or otherwise subjected to compaction, excavation, plowing, disking, leveling. No evidence of severe erosion within the site.	✓	___ Substrates throughout the entire site have recently been recontoured or otherwise subjected to compaction, excavation, plowing, disking, leveling. Extensive evidence of severe scour or erosion may be present within the site. No sediment marks on trees or other plants.
___ Most of the site has complex microtopography (hummocks, puddles, etc.)	✓	___ The substrate is uniformly flat, with no noticeable microtopography (no hummocks, etc.)

Your Judgments:
Function Capacity score = 0.1 , or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

Function Capacity (Judgmental Assessment of):
Nitrogen Removal

Highest Functioning	Suggested Score:	Minimal Functioning
Note: Proceed with assessing this function only if mottling and/or other features that indicate oxygen deficits in soils/ sediments are found in at least part of the site.		
___ High score was assigned to Water Storage & Delay function (inundation is long, frequent, extensive)		✓ Low score was assigned to Water Storage & Delay function (water levels barely fluctuate)
___ Some surface water or saturation remains year-round or nearly so, and is dispersed around the site such that water flow paths and residence times are long.		✓ No surface water or saturation remains year-round. If seasonal flooding occurs, the surface water is concentrated in one part of the site, e.g., channel or pond, and does not remain for long.
___ Soil microbial processes are fairly mature, as possibly suggested by abundance of dead wood, thick and extensive soil organic layer, and many large-diameter trees		✓ Soil microbial processes are not well-developed, as possibly suggested by lack of dead wood, thick soil organic layer, and/or large-diameter trees

Highest Functioning	Suggested Score:	Minimal Functioning
___ Substrates have never been recontoured or otherwise subjected to compaction, excavation, or leveling. No evidence of severe erosion within the site. None of the site was constructed from upland.		✓ ___ Substrates throughout the entire site have recently been recontoured or otherwise subjected to compaction, excavation, or leveling.
___ Most of the site has complex microtopography (hummocks, puddles, etc.)		✓ ___ Most of the site has no noticeable microtopography (no hummocks, puddles, etc.)
Site is burned annually or biennially		✓ ___ Site has not been burned in recent years

Your Judgments:
Function Capacity score = 0.1 , or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

Function Capacity (Judgmental Assessment of):
Primary Production

Highest Functioning	Suggested Score:	Minimal Functioning
___ All of the site has vascular plants and/or water with algae.		✓ ___ Much of the site is devoid of vascular plants and/or algae.
___ A variety of plant forms is present in about equal proportions (trees, shrubs, and herbs) and is well-distributed throughout the site		___ Whatever plants are present are mainly of a single form (trees, shrubs, or herbs)
___ Some shallow (<3 ft) surface water remains year-round or nearly so, and in summer is dispersed around the site, e.g., many puddles		✓ ___ The site is entirely dry during much of the year.
___ Substrates have never been recontoured or otherwise subjected to compaction, excavation, or leveling. No evidence of severe erosion within the site.		✓ ___ Substrates throughout the entire site have recently been recontoured or otherwise subjected to compaction, excavation, or leveling. Severe erosion may be evident within the site.
___ The site's contributing watershed contains no cropland, paved surface, buildings, or lawns – especially in the parts closest to the site.		✓ ___ The site's contributing watershed is almost entirely cropland, paved surface, buildings, and lawns – especially the parts closest to the site.

Your Judgments:
Function Capacity score = 0.1 , or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

Function Capacity (Judgmental Assessment of):
Thermoregulation N/A

Highest Functioning	Suggested Score:	Minimal Functioning
Note: This function should be assessed only for riverine sites at which part of the site is permanently inundated and connected by surface water during summer to other water bodies.		
___ Entire water surface in summer is shaded by a closed tree canopy or by topography.		___ None of the water is shaded by vegetation or topography, and all of the water is shallower than 2m during summer.
___ Almost the entire site consists of water deeper than 6 ft.		___ Very little of the site contains permanent water, and it never is deeper than a few inches.

Your Judgments:
Function Capacity score = _____, or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

Function Capacity (Judgmental Assessment of):
Resident Fish Habitat Support N/A

Highest Functioning	Suggested Score:	Minimal Functioning
Note: This function may be assessed only if part of the site is permanently inundated and the subclass is Riverine Impounding.		
___ Permanent water is extensive, and the site is connected only briefly with associated channels		___ Permanent water is very limited
___ Non-native fish species are absent		___ Non-native species dominate the resident fish component, although some natives are present
___ Shallow water area and proportion of the site that is inundated only seasonally is of sufficient extent and quality to support spawning by most species, and supports high densities of aquatic invertebrates		___ If present, shorelines are steep, dropping sharply into water deeper than 6 ft., with little or no seasonal zone being present
___ Cover (aquatic plants, logs, boulders, overhanging trees, deep water spots, etc.) that provides year-round shelter from predation is abundant		___ Where water is present seasonally, cover that could shelter fish from predation is scarce or lacking.
___ Water quality (especially dissolved oxygen) is excellent		___ Water is heavily contaminated with pollutants, and/or experiences severe and prolonged oxygen deficits

Your Judgments:
Function Capacity score = _____, or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

Function Capacity (Judgmental Assessment of):
Anadromous Fish Habitat Support N/A

Highest Functioning	Suggested Score:	Minimal Functioning
Note: Proceed with assessing this function only if part of the site is accessible to anadromous fish during seasonal inundation		
___ Floodwaters spill into the site across a broad bank or through a wide (unconstricted) mouth		___ Floodwaters spill into the site across a broad bank or through a wide (unconstricted) mouth
___ Floodwaters remain in the site for more than a few days		___ No surface water remains in the site for more than a few days
___Non-native fish species are generally absent		Non-native fish species predominate
___Substrates suitable for spawning or feeding are extensively present		___ Substrates suitable for spawning or feeding are scarce or absent
___Cover (aquatic plants, logs, boulders, overhanging trees, deep water spots, etc.) that provides shelter from currents and predators is abundant, at least in the seasonal zone		___Cover that provides shelter from currents and predators is scarce or lacking from all parts of the site
___Water quality (especially dissolved oxygen) is excellent		___ Water is heavily contaminated with pollutants, and/or experiences severe and prolonged oxygen deficits
___Summertime temperature maxima do not exceed preferred range of anadromous fish		___Summertime temperature maxima exceed limits lethal to anadromous fish

Your Judgments:
Function Capacity score = _____, or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

Function Capacity (Judgmental Assessment of):
Invertebrate Habitat Support

Highest Functioning	Suggested Score:	Minimal Functioning
___ Surface water is permanent or nearly permanent, AND all of the water is shallower than 2 feet during May-September*		✓ ___ Surface water is present only briefly (RI sites) or not at all (SF sites), OR nearly all of the water remains deeper than 6 ft during May-September
___Cover (especially aquatic plants, woody debris) that supports algae and provides shelter from currents and predators is abundant in both the seasonal and permanent zone		✓ ___Cover (aquatic plants, woody debris.) that could support algae and provide shelter from currents and predators is lacking
___Plant forms and species are highly diverse		___Only one plant form is present, and plant species richness is very low
___ Vegetation is well-interspersed with pools		___ Vegetation and pools (if any) are in 2 separate areas or zones
___Water quality (especially dissolved oxygen) is excellent	✓	___ Water is heavily contaminated with pollutants, and/or experiences severe and prolonged oxygen deficits

Highest Functioning	Suggested Score:	Minimal Functioning
___ Substrates have never been recontoured or otherwise subjected to compaction, excavation, or leveling. No evidence of severe erosion within the site.		✓ Substrates throughout the entire site have recently been recontoured or otherwise subjected to compaction, excavation, or leveling, or the site was entirely constructed from upland.
___ Surrounding landscape contains large acreage of wetlands, including some with a different water regime than the assessed site.	✓	___ Surrounding landscape contains no wetlands or ponds

* Areas likely to retain water well into the growing season may have many of these characteristics:

___ prevalence of wetland plants (FAC or wetter, and especially OBL)
___ intensive mottling & gleying of soils throughout most of the seasonally-inundated zone.
___ site is located in flatland terrain (not on slopes)
___ site is large relative to its contributing watershed (>4% of total area)
___ extensive microtopographic variation (many hummocks, puddles, etc.)
___ absence of outlet channels, and/or site is managed for water storage.

Your Judgments:
Function Capacity score = 0.1, or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

Function Capacity (Judgmental Assessment of):
Amphibian & Turtle Habitat

Highest Functioning	Suggested Score:	Minimal Functioning
___ Permanent water is absent, but shallow surface water that contains extensive partly-submerged fine-stemmed herbs[1] is extensive, and recedes very gradually during the months of January – May [2] (i.e., during this period, there are at least 30 days when water levels are stable or have a vertical fluctuation of <2 inches). OR: ___ Permanent water is extensive and contains (a) abundant underwater cover (aquatic plants, logs, boulders, overhanging trees, deep water spots, etc.) that provides shelter from predation, and (b) partly-submerged fine-stemmed herbs[1]	✓	___ Site never contains surface water OR ___ Site is entirely surface water, which either (a) never fluctuates vertically (i.e., no seasonal zone is present), or (b) fluctuates too much – more than 2 inches during all 10-day periods, or (c) is devoid of any emergent herbs that are partly-submerged during the springtime, or (d) flows faster than 4 inches/second during the entire springtime, everywhere in the site, or (e) is mostly deeper than 40 inches and is bordered by a shoreline with a very steep slope
___ Bullfrogs and other non-native predators are absent	✓	___ Bullfrogs and other non-native predators are abundant
___ If surface water everywhere in the site is flowing during springtime, there are at least 30 days when current velocities are slow (<4 inches/second)	✓	___ If surface water everywhere in the site is flowing during springtime, there are never more than 30 days when current velocities are slow (<4 inches/second)
___ There is extensive and varied woody debris in the seasonal zone		✓ There is no woody debris in the seasonal zone

Highest Functioning	Suggested Score:	Minimal Functioning
___ Either vegetation and pools are well-interspersed during high water level, or any woody vegetation bordering the larger pools is located mostly on their north end.[3] Microtopography is quite varied.		✓ Vegetation and pools are in separate areas of the site during high water level, and any woody vegetation bordering the larger pools is located mostly on their south end. Microtopography is too flat to allow many puddles to form (no hummocks, etc.)
___ Suitable basking sites for turtles and calling sites for frogs are present		✓ There are no basking sites for turtles or calling sites for frogs
___ Land cover in adjoining uplands is a mix of natural grassland and woodland; woodlands have extensive and varied woody debris		✓ Land cover in adjoining uplands largely contains impervious surface, bare ground, lawns, and row crops
Shorelines are gently sloping		✓ Shorelines, if present, are mostly steep
Busy roads are distant from the site	✓	___ Busy roads adjoin the site
___ Many other wetlands (excluding flowing water) are present nearby	✓	___ There are no other wetlands (excluding flowing water) nearby
___ Water quality is excellent	✓	___ Water is heavily contaminated with pollutants, and/or experiences severe and prolonged oxygen deficits
___ Substrates have never been recontoured or otherwise subjected to compaction, excavation, or leveling. No evidence of severe erosion within the site.		✓ Substrates throughout the entire site have recently been recontoured or otherwise subjected to compaction, excavation, or leveling, or the entire site was constructed from upland.
___ Soils and submerged sediments contain a moderately thick organic layer (leaf litter, peat, decomposed organics, etc.)	✓	___ Soils and submerged sediments contain no organic layer, and are mostly hard-packed clay; or organic layer is so thick that water is chronically anoxic.

[1] Emergent herbs with stem diameter of <3 mm (measured 2 inches below springtime water surface); this includes nearly all perennial herbs except cattail.

[2] Areas likely to retain water well into the growing season may have many of these characteristics:

___ prevalence of wetland plants (FAC or wetter, and especially OBL)
___ intensive mottling & gleying of soils throughout most of the seasonally-inundated zone.
___ site is located in flatland terrain (not on slopes)
___ extensive microtopographic variation (many hummocks, puddles, etc.)
___ absence of outlet channels, and/or site is managed for water storage.

During the January-May period, 30 days of stable water levels are required for some aquatic amphibian eggs to mature, and during this time fluctuations of greater than 2 inches are lethal (Richter 1997).

[3] Vegetation located north of pools is less likely to block sunlight important to developing aquatic amphibians (Richter 1997).

Your Judgments:

Function Capacity score = 0.1 , or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

Function Capacity (Judgmental Assessment of):
Breeding Waterbird Support N/A

Highest Functioning	Suggested Score:	Minimal Functioning
___ The site contains many acres of permanent or nearly permanent surface water, or a large permanent wetland (excluding streams) is located nearby AND ___ Water depths are predominantly shallow (2 to 24 inches) in April-August*		___ Surface water is present for only a few weeks during April-June, OR ___ Nearly all of the water remains deeper than 6 ft during May-September AND ___ No permanent wetlands are located nearby.
___ Most of the shoreline is not steep		___ Most of the shoreline is steep
___ Larger pools of water are bordered by a wide, dense band of tall herbs and/or shrubs in April-August.		___ Larger pools, if present, are bordered by only a narrow band of sparse vegetation
___ About equal proportions of water and vegetation are present, and are well-interspersed during the April – August period		___ Vegetation and pools (if any) are in 2 separate areas or zones, not interspersed
___ Water levels do not abruptly rise a foot or more during April-June		___ Water levels are prone to quickly rise at least 1 foot during April-June
___ A large variety of herbs is present; the site is actively managed to control the spread of non-native or invasive species		___ Vegetation cover is mostly comprised of one or a few non-native or highly invasive native species
___ Land cover in surrounding buffer zones is mainly a mix of natural grassland, woodland, and water		___ Land cover in surrounding buffer zones largely contains impervious surface, bare ground, lawns, and row crops.
___ Busy roads are distant from the site		___ Busy roads border the site
___ Water quality is excellent		___ Water is heavily contaminated with pollutants
___ Substrates have never been recontoured or otherwise subjected to compaction, excavation, or leveling.		___ Substrates have recently been recontoured or otherwise subjected to compaction, excavation, or leveling (unless such activities were done in connection with restoring a site to its historical condition)
___ Surrounding landscape contains large acreage of wetlands, including some with a different water regime than the assessed site.		___ Surrounding landscape contains no wetlands or ponds
___ Nest boxes, nest platforms, and other artificial structures intended to assist waterbird nesting are extensive and are regularly maintained.		___ No nest boxes, nest platforms, or other artificial structures intended to assist waterbird nesting are present, or they aren't well-maintained.
___ Part of the site is visited infrequently in April-June by humans on foot		___ None of the site is visited frequently by humans on foot during April-June

* Areas likely to retain water well into the waterbird breeding season may have many of these characteristics:

___ prevalence of wetland plants (FAC or wetter, and especially OBL)
___ intensive mottling & gleying of soils throughout most of the seasonally-inundated zone.
___ site is located in flatland terrain (not on slopes)
___ extensive microtopographic variation (many hummocks, puddles, etc.)
___ absence of outlet channels, and/or site is managed for water storage.

Your Judgments:

Function Capacity score = _____, or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

Function Capacity (Judgmental Assessment of):
Wintering & Migratory Waterbird Support

Highest Functioning	Suggested Score:	Minimal Functioning
___ The site contains extensive surface water during all or most of the fall-winter-spring period	✓	___ The site contains very little surface water during all or most of the fall-winter-spring period
___ Water depths in most of the site during most of the fall-winter-spring period are shallow (<24 inches)	✓	___ If forested, water depths during the fall-winter-spring period are always shallower than 24 inches in all of the site (shallower depths are permissible then in unforested wetlands).
___ A large portion of the site is inundated only seasonally	✓	___ Of the water that is present, nearly all is present year-round.
___ The acreage of various depth categories is about equal during peak annual inundation		✓ A single water depth category predominates.
___ Microtopographic variation (hummocks, puddles, etc.) is extensive		✓ The substrate is very flat, essentially prohibiting the formation of puddles.
___ None of the site is visited frequently by humans on foot during September-April.	✓	___ Water is heavily contaminated with pollutants
___ A large variety of herbs is present. The site is actively managed to control the spread of non-native or invasive species		✓ Vegetation cover (except in farmed wetlands) is mostly comprised of one or a few non-native or highly invasive native species
___Water quality is excellent	✓	___ Virtually all of the site is visited frequently by humans on foot during April-June
___ Substrates have never been recontoured or otherwise subjected to compaction, excavation, or leveling.		✓ Substrates have recently been recontoured or otherwise subjected to compaction, excavation, or leveling (unless such activities were done in connection with restoring a site to its historical condition)
___ Land cover in surrounding buffer zones is mainly a mix of natural grassland, woodland, agricultural lands, and water		✓ Land cover in surrounding buffer zones largely contains impervious surface, bare ground, lawns, and row crops.
___ Surrounding landscape contains large acreage of hydric soil, wetlands, and water, including some with a different water regime than the assessed site.	✓	___ Surrounding landscape contains no wetlands, ponds, or hydric soil.

Your Judgments:

Function Capacity score = 0.1 , or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

Function Capacity (Judgmental Assessment of):
Songbird Habitat Support

Highest Functioning	Suggested Score:	Minimal Functioning
___ Some part of the site contains surface water during all (or nearly all) of the year.	✓	___ Surface water is never present at any time of the year.
___ The site contains a large acreage of closed-canopy forest, native shrubland, wet prairie, and/or emergent wetland.		✓ Acreage of these is very small.
___ If the site is mostly native shrubland and/or forest, then (a) large-diameter trees are numerous, (b) snags of various sizes are abundant, (c) under-canopy shrub cover is extensive, and (d) a large variety of trees, shrubs and vines is present.		___ If the site is mostly shrubland and/or forest, then (a) trees are very small, (b) snags are absent, (c) under-canopy shrub cover is lacking, and (d) the variety of trees, shrubs, and vines is small, and comprised almost entirely of non-native species.
___ If the site is mostly wet prairie and/or emergent wetland, then (a) a large variety of herbs is present, (b) the site is actively managed to control the spread of non-native or invasive herb species, (c) trees and shrubs, if present, are concentrated in one or a few parts of the site.		✓ If the site is mostly prairie and/or emergent wetland, then (a) the variety of herbs is small, (b) the site is not actively managed to control the spread of non-native or invasive herb species, (c) trees and shrubs, if present, are scattered widely throughout the site.
___ Land cover in surrounding buffer zones is predominantly a mix of natural grassland, native shrubland, woodland, wetlands, and water		✓ Land cover in surrounding buffer zones largely contains impervious surface, bare ground, lawns, and row crops.
___ None of the site is visited frequently by humans on foot	✓	___ Every part of the site is visited frequently by humans on foot
___ Busy roads are distant from the site	✓	Busy roads adjoin the site.

Your Judgments:
Function Capacity score = 0.1 , or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

Function Capacity (Judgmental Assessment of):
Support of Characteristic Vegetation

Highest Functioning	Suggested Score:	Minimal Functioning
___Trees, shrubs, and herbs are all present, and are well-interspersed throughout the site		✓ Only one plant form (tree, shrub, herb) is present
___ If trees are present, many are very old and large, with abundant evidence of regeneration		___ If trees are present, all are young
___ If shrubs are present, all of the significantly present shrub species are natives		___ If shrubs are present, they are comprised of just one species, and it is non-native
___ If herbs are present, all of the significantly present herb species are natives		✓ If herbs are present, they are comprised of just one species, and it is non-native
___ Microtopographic relief is great (hummocks, puddles, etc.)		✓ The substrate is very flat, essentially prohibiting the formation of puddles.
___ Springtime surface water levels drop very slowly (< 2 vertical inches per 30 days, average)	✓	___ Springtime water levels fluctuate or drop rapidly (>2 inches per 10 days, average)

Highest Functioning	Suggested Score:	Minimal Functioning
___ None of the site is visited frequently by humans on foot	✓	___ Every part of the site is visited frequently by humans on foot
___ Busy roads are distant from the site	✓	___ Busy roads adjoin the site.
___ Land cover in the contributing watershed is predominantly "natural"		✓ Land cover in the contributing watershed largely contains impervious surface, bare ground, lawns, and row crops.
___ Land cover in surrounding buffer zones is predominantly a mix of natural grassland, native shrubland, woodland, wetlands, and water	✓	___ Land cover in surrounding buffer largely contains impervious surface, bare ground, lawns, and row crops.

Your Judgments:

Function Capacity score = 0.1, or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

Now, summarize your function capacity assessments by recording them on the Assessment Summary Form (p. 59). Be sure to indicate that you used the Judgmental Method.

SCHOTT & ASSOCIATES
Ecologists & Wetlands Specialists
11977 S. Toliver Rd. • Molalla, OR 97038 • (503) 829-6318 • FAX: (503) 829-3874

SENSITIVE LANDS REPORT

FOR

SHERWOOD TOWN CENTER

Prepared for:
Matt Grady
Gramor Langer LLC
19767 SW 72nd Avenue, Suite 100
Tualatin, OR 97062

Prepared by:
Martin Schott, PhD
&
Juniper Tagliabue

January 2012
Project #: 2216

INTRODUCTION

Site Location

Schott and Associates was contracted to conduct a wetland delineation and natural resource assessment on the approximately 55 acre project area located in Sherwood, Oregon (Washington County, T2S, R1W, SE1/4 Sec. 29 TL300). Tualatin Sherwood Road defined the northern project boundary and SW Langer Farms Parkway defined the western property boundary. The Sherwood shopping center was located northwest of the site with residential properties located to the south of the shopping center. A pallet plant was located along the southern boundary of the subject property and the Southern Pacific Railroad ran along the southeast property boundary.

Site Description

There is a drainage on-site that enters from the southwest corner of the site and exits near the mid-section of the parcel on the northeast side of the property. The topography of the northern and mid section of the site slopes gently to the east. The southern portion slopes to the southeast.

Portions of the site were planted to wheat. There was a remnant walnut (*Juglans sp.*) grove near the center of the property. The eastern mid-section of the property had two existing buildings with some ornamental species, scattered walnut trees and Pacific madrone (*Arbutus menziesii*) colonizing the area. The walnut orchard was decadent and is in the process of being removed. Native vegetation such as willow (*Salix sp*), Nootka rose (*Rosa nutkana*) and hawthorn (*Crataegus douglasii*) was found along the drainage way.

Project Objectives

Contingent upon approval from the City of Sherwood, the subject property will be partitioned into 2 parcels and 2 tracts. Tract 'A' will contain the Vegetated Corridor and the existing wetland. Tract 'B' will be located in the southeast corner of the property and contain a regional water quality facility which will serve all development onsite as well as several upstream basins. Parcel 1 is located south of the existing wetland and southwest of the water quality facility. It is proposed to be developed into a personal storage annex for the purpose of storing RVs, boats, trailers and other large vehicles. Parcel 1 includes all remaining land north of the existing wetland and Vegetated Corridor and is not proposed for development at this time although the land is zoned for retail/commercial use and will likely be developed in the future. Access for the RV storage area is included in the partition application

The proposed development results in permanent impact to the existing wetland and Vegetated Corridor at the southern property boundary for road access to Parcel 2. Additional temporary Corridor impacts would be incurred by placement of sanitary and stormwater lines connecting to the proposed Stormwater Quality Facility.

A total of 8,737sf of permanent impacts and 1,535sf of temporary impacts are proposed within the 145,618sf (3.3 acre) Vegetated Corridor.

The purposes of this report are to describe the impacts of the development plan to the onsite Vegetated Corridors and to determine an appropriate mitigation plan.

METHODS

The analysis of the sensitive areas on the project site was conducted using the Standard Site Assessment method outlined in Clean Water Services (CWS) Manual Chapter 3 and Appendix C.

SENSITIVE AREAS

Wetland

A wetland delineation and site assessment were conducted by Schott and Associates in the spring of 2007. Based on soil, vegetation and hydrology data taken in the field there is a drainage on-site with wetlands associated with it. The drainage is an unnamed tributary of Rock Creek. The combined area of onsite drainage and wetland is 37,898sf or 0.87 acres of palustrine emergent, scrub-shrub and palustrine forested wetland.

The drainage enters the site from a culvert under the Bilet plant. It starts off as a ditch which follows the property line along the southwest corner of the property. Historically, the drainage was one contiguous channel that originated off-site to the southwest. At the time of the site visit, a remnant portion of the drainage remained off-site with a portion culverted under the pallet plant. The 8" culvert outfall ran into a ditched channel that flowed east onsite along the southern property boundary. The ditch was defined by the top of bank for approximately the first 200 feet. The channel was U-shaped with a predominately mud substrate. The depth of the channel from the top of bank to the bed substrate was approximately 2.5 feet deep. This portion of the drainage is ephemeral, and the drainage basin is approximately 20 acres

As the ditch curved to the northeast the channel broadened and the depth decreased almost matching the surrounding grade. Small fringe wetlands classified as palustrine emergent were identified on the west side of the channel. A palustrine scrub-shrub wetland community was identified adjacent to and within a portion of the drainage.

Wetland plants included Nootka rose and slough sedge (*Carex obnupta*). Willows (*Salix sp.*) lined the drainage as it extended to the north. Hawthorn was scattered throughout the willow community. A large water quality facility was located west of this portion of the drainage. The water quality facility drained into the creek through a 36-inch culvert where the drainage turned to the east. Large black cottonwood (*Populus trichocarpa*) was the dominant tree cover in this portion of the drainage. The drainage broadened further in this corner and developed into small braided channels with mud and small cobble substrate. It transitioned into a single channel and flowed through a dense scrub-shrub community comprised of large, impenetrable thicket of Nootka rose. Scattered

hawthorn was observed as well. After several hundred feet, the rose community transitioned to an established willow community.

As the drainage flowed east, it dropped through a ravine with a forested community on the adjacent slopes and an emergent community on the wetland terrace. The drainage channel was braided and flowed through a broad terrace that extended between the adjacent slopes. Vegetation along the creek terrace included skunk cabbage (*Lysichiton americanum*), lady fern (*Athyrium filix-femina*), and slough sedge as the dominant vegetation.

The channels joined together to form a single channel for a few feet before exiting east off site through two 24 inch culverts. The channel had a depth of approximately 1.5 to two feet deep and a mud substrate. Vegetation along this portion of the drainage consisted of reed canary grass (*Phalaris arundinacea*).

VEGETATED CORRIDORS

As required by CWS regulations, a sensitive area site assessment was performed for the vegetated corridors adjacent to the wetland and waterways. Slopes were varied but ranged from flat up to 22%.

Vegetated Corridor

The onsite wetland consists of an ephemeral to intermittent stream and associated wetlands. Total area is greater than 0.5 acres and is not isolated. As required per 3.03.1c of CWS regulations, a 50 foot Vegetated Corridor is required for the portion of the drainage with associated wetlands and a 15' Corridor is required for the first approximately 175 feet of drainage where no wetlands are present, the drainage is ephemeral, and the drainage basin is approximately 20 acres.

Vegetation along the north side of the drainage as well as near the eastern edge of the property was dominated by dense thickets of Himalayan blackberry (*Rubus discolor*). Native species and tree canopy were not present and the Vegetated Corridor was determined to be in 'Degraded' condition.

TABLE 1: SAMPLE PLOT 1 - VEGETATED CORRIDOR PLANT COVER DATA

Scientific Name	Common Name	Layer	% Cover
Alopecurus pratensis	Meadow foxtail	Herb	80
Festuca arundinacea	Tall fescue	Herb	25
Rosa nutkana	Nootka rose	Shrub	15
Rubus discolor	Himalayan blackberry	Shrub	30
% cover by natives			15
% tree canopy			0
% invasive/noxious			30
Corridor conditions			**Degraded**

TABLE 2: SAMPLE PLOT 2 - VEGETATED CORRIDOR PLANT COVER DATA

Scientific Name	Common Name	Layer	% Cover
Anthoxanthum odoratum	Sweet vernal grass	Herb	40
Agrostis stolonifera	Creeping bentgrass	Herb	45
Juncus effusus	Soft rush	Herb	15
Salix sp.	Willow sp.	Shrub	15
Rubus discolor	Himalayan blackberry	Shrub	30
% cover by natives			30
% tree canopy			0
% invasive/noxious			30
Corridor conditions			**Degraded**

Where the drainage flowed east, it dropped through a ravine with a forested community on the adjacent slopes. The forested community was comprised of a mix of English walnut (Juglans regia), choke cherry (*Prunus virginiana*), hazelnut (*Corylus cornuta*) and vine maple (*Acer circinatum*) along the slopes. Himalayan blackberry was also prominent. A significant portion of the vegetation in this portion of the corridor was native and tree canopy was 30%. The Vegetated Corridor was determined to be in "Marginal" condition at this location.

TABLE 3: SAMPLE PLOT 3 - VEGETATED CORRIDOR PLANT COVER DATA

Scientific Name	Common Name	Layer	% Cover
Polystichum munitum	Sword fern	Herb	10
Carex deweyana	Dewey's sedge	Herb	20
Tellima grandiflora	Fringecup	Herb	15
Rubus discolor	Himalayan blackberry	Shrub	25
Acer circinatum	Vine maple	Shrub	10
Corylus cornuta	Beaked hazelnut	Shrub	5
Oemleria cerasiformis	Indian plum	Shrub	5
Prunus virginiana	Chokecherry	Tree	15
Juglans regia	English walnut	Tree	15
% cover by natives			80
% tree canopy			30
% invasive/noxious			25
Corridor conditions			**Marginal**

Sensitive Areas Requirements and Conditions

As per 3.03.1c and Table 3-1 the onsite vegetated corridors shall extend 50 feet from the delineated wetland boundary or 15 feet from the top of bank of the ephemeral stream. A slope analysis was conducted. Slopes varied from flat to 22% at the steepest point.

According to CWS regulations Vegetated Corridors that are 'Degraded' or 'Marginal' require enhancement to 'Good' corridor conditions. Removal of invasive species is required for the Vegetated Corridor followed by replacement of native species per CWS standards. Enhancement is required for the entire corridor which will not be impacted.

As per 3.05.7 road crossings are permitted if impacts are minimized and replacement mitigation is provided in accordance with CWS section 3.08. Mitigation for impacts to Sensitive Areas shall be required per DSL or the Corps of Engineers rules and regulations or as determined by the Clean Water Services for areas or activities not regulated by the Corps or DSL.

IMPACTS

Impacts to Sensitive Areas

A total of 3,460sf (0.08 acres) of permanent wetland impact and 362sf of temporary wetland impact is proposed from this development. Wetlands are regulated by the Department of State Lands and US Army Corps of Engineers and any permits for impacts proposed within onsite sensitive areas shall be managed with the appropriate agencies. Mitigation for wetland impacts will be provided onsite.

Permanent Impacts to the Vegetated Corridor

A total of 8,737sf (0.2 acres) of permanent impact is proposed within the Vegetated Corridor in the southwest portion of the subject property for a road crossing. This portion of the Corridor primarily consists of the 15 foot Corridor north of the ditched portion of the drainage from where the drainage enters the site to where it turns and flows north, widening and forming associated wetlands. The Vegetated Corridor in this location is dominated by non-native grasses and thickets of Himalayan blackberry and is in 'Degraded' condition. Mitigation for permanent impacts will be onsite adjacent to the existing Corridor north of the wetland near the east property boundary.

Proposed impacts are greater than 30% of the depth of the Corridor in this area and this project requires a Tier 2 Analysis.

Temporary Impacts to the Vegetated Corridor

A total of 1,535sf (0.04 acres) of temporary impact is proposed within the Vegetated Corridor at the eastern property boundary for placement of sanitary and stormwater pipes. This area will be excavated for placement of the pipes and restored to natural conditions in the same location. Topsoil will be stockpiled and replaced where possible. Corridor conditions in this area are 'Degraded' so invasive plants will be removed and replaced with native species per CWS requirements. Because it is over a pipeline and future maintenance may be required no trees will be planted in this restored area.

TIER 2 ANALYSIS

Purpose and Need

The purpose of this project is to partition the subject property into 2 parcels and 2 tracts to meet a variety of demonstrated needs for the region.

Tract 'B', to be located in the southeast corner of the site, will contain a proposed regional water quality facility which will serve all development of the subject site in addition to several upstream basins. There is an existing water quality facility onsite which was constructed as a temporary facility. There was always the intention by the City and the developer to replace this one with the proposed facility, providing a regional water quality facility for the entire area.

Parcel 2, to be located southeast of the existing wetland, is proposed to be developed into a personal storage annex for the purpose of storing RVs, boats, trailers, and other large vehicles. The access to the parcel is included in the partition. There is consistent demand for this type of storage which this development will help fulfill.

Parcel 1 includes all remaining land north of the existing wetland and is not proposed for development at this time, though the land is zoned for retail/commercial development, which will likely happen at some point in the future. Tract 'A' will contain the Vegetated Corridor and existing wetland to be retained and protected onsite.

Alternatives Analysis

Access to the parcel is restricted to the west side because of the railroad. The railroad will not allow access for private development. Four alternatives were considered which provide access from the west. The location of the southern access is determined by the required separation between access points.

Alternative 1

Alternative 1 crosses the wetland and Vegetated Corridor (Tract 'A') at the southwesterly corner of Parcel 2. It crosses at a perpendicular angle to minimize impact to the resources then continues to Langer Farms Parkway parallel to the southerly property line of Parcel 1. The location of the access to Langer Farms Parkway is determined by a required 100 foot separation between the proposed access and the existing access to the south.

Connection to the southwesterly corner of Parcel 2 is ideal as it creates a reasonable circulation pattern for the anticipated RVs, boats, trailers, and other large vehicle traffic for the future development of Parcel 2. Crossing Tract 'A' at a near perpendicular angle helps minimize impacts to the wetland and vegetated corridor.

However, locating the access lane away from the southerly property line creates a narrow (70 foot wide) strip of land south of the access lane that is undevelopable. Additionally, Alternative 1 divides the existing wetland and associated Vegetated Corridor and creates a short, isolated segment south of the access lane which would reduce the function of both resources.

Alternative 2

Alternative 2 crosses Tract 'A' at a near perpendicular angle at a convenient intersection of drive aisles within the future development of Parcel 2. The location of the drive aisles

and intersection was chosen to maximize efficient area use within Parcel 2. The access lane continues to Langer Farms Parkway by the most direct route.

Crossing Tract 'A' at a near perpendicular angle helps minimize impacts to the wetland and vegetated corridor.

Locating the access lane through the middle of Parcel 1 significantly impacts the future development of this parcel. It creates a substantial area of land south of the access lane which will not be allowed to take access from Langer Farms Parkway (due to the required 100 foot separation between accesses) and will have to take access from or across the proposed access lane. The large vehicle traffic of Parcel 2 would be forced to merge with the future retail/commercial traffic of Parcel 1, which is undesirable and would likely cause congestion.

This alternative is less desirable from a natural resource perspective as well. Alternative 2 crosses a portion of the wetland which is higher quality than Alternative 1 or the Proposed Alternative and divides the existing wetland, isolating a short segment south of the access lane, further reducing it functions.

Lastly, not connecting to Parcel 2 at the southwesterly corner will result in a far less efficient circulation pattern due to the large turning radii required for RVs, boats, and the other large vehicle traffic anticipated onsite. The circulation pattern largely controls the layout of the parcel and would therefore result in a less efficient use of the site.

Alternative 3

Alternative 3 crosses Tract 'A' and 'B' at the northerly corner of Parcel 2. It skirts around the northeasterly end of the wetland to minimize impacts and tracks the easterly property line of Parcel 1 to connect to the end of Century Drive stub halfway up the Parcel's easterly boundary.

Crossing Tract 'A' at the northeasterly end helps minimize impacts to the natural resources. Following the easterly property line of Parcel 1 to Century Drive results in less disturbance of the future development of this parcel compared with Alternatives 1 and 2.

While attempting to skirt the northeasterly end of the wetland results in less disturbed wetland area than the other alternatives, it results in significantly more fill within the wetland and Vegetated Corridor than Alternatives 1 or 2, due to the wetland being deeper at this end. Additionally, not connecting to Parcel 2 at the southwesterly corner will result in a far less efficient circulation pattern due to the large turning radii required for RVs, boats, and the other large vehicle traffic anticipated onsite. The circulation pattern largely controls the layout of the parcel and would therefore result in a less efficient use of the site. Lastly, the topography of the easterly side of the site is significantly more variable then along the westerly side of the site, meaning substantially more grading will be required to build the access lane, making it more expensive than the other alternatives, and more difficult to navigate with the large vehicles that will use the site.

Proposed Design

The Proposed Design crosses Tract 'A' at the southwesterly corner of Parcel 2. It tracks along the southerly property line of Parcel 1 then adjusts over to connect to Langer Farms Parkway at a near perpendicular angle. The location of the access to Langer Farms Parkway is determined by a required 100 foot separation between the proposed access and the existing access to the south.

Connection to the southwesterly corner of Parcel 2 is preferred as it creates the most efficient circulation pattern for the anticipated RVs, boats, and other large vehicle traffic, thereby maximizing future development of Parcel 2. Unlike Alternatives 1 and 2, this alignment does not divide the wetland, allowing for contiguous natural habitat. Locating the access lane along the southerly property line of Parcel 1 helps minimize impacts to the future development of this site, more so than the other alternatives.

The Proposed Design does have a larger impact on the wetland and vegetated corridor than the other alternatives. However, it is only impacting the ditched upstream end which currently is managed as a ditch, contains no native vegetation and provides fewer functions than other portions of the onsite drainage. Additionally, it is a shallower part of the waterway, resulting in proportionally far less cut and fill for the area disturbed, and does not result in segmentation of the wetland corridor.

Conclusion

The Proposed Design maximizes the efficient circulation of large vehicles within Parcel 2, and thus allows for the most efficient development of the site. Though it does have a larger impact on the wetland and Vegetated Corridor, it does not segment the resources and instead preserves a contiguous habitat that will be improved with mitigation and enhancement. It takes advantage of gentler topography to reduce the amount of necessary grading and minimizes impacts to the future development of Parcel 1.

As demonstrated in the functional analysis below the value of the wetland to be impacted is low to moderate, as is its Vegetated Corridor. Maintaining and improving a contiguous Vegetated Corridor on the remainder of the site is believed to be preferable to the alternatives minimizing impacts but dividing the resource in two.

Functional Analysis

As per 3.07.4.b.2 a functional assessment of the wetland using the Hydrogeomorphic Methodology was prepared (Appendix). The drainage is an unnamed tributary of Rock Creek. The combined area of onsite drainage and wetland is 0.87 acres of palustrine emergent, scrub-shrub and palustrine forested wetland.

The wetland is a mix of emergent, shrub and forested wetland communities with an ephemeral to intermittent drainage. The drainage is located in a very small basin. Water quality and storage functions were low. Vegetation is a mix of native and non-native species and includes a variety of forms. Support of characteristic vegetation and habitat functions were low to moderate.

As determined by the site assessment, the adjacent Vegetated Corridor is in 'Degraded' to 'Marginal' condition, vegetated by primarily non-native grasses and Himalayan blackberry especially in the area proposed for impact. Where the Corridor is forested vegetation is a mix of native and non-native species with approximately 30% canopy cover.

Proposed mitigation for impacts to the Vegetated Corridor is onsite, and will directly replace the area lost from the proposed development. The remaining Corridor will be enhanced per CWS requirements resulting in an overall improved Corridor with significantly higher native diversity and habitat functions.

ENHANCEMENT

As per CWS regulations, enhancement of the portions of the Vegetated Corridor not already in 'Good' condition is required. Per 3.06.2 Required Vegetative Corridor Enhancement, the entire 135,345sf of Vegetated Corridor not being impacted should be enhanced to 'Good' conditions.

Enhancement will consist of the removal and control of Himalayan blackberry as well as any other non-native species present. The control method will be compatible with CWS requirements. The invasive species will be replaced by a native scrub-shrub forested community which will bring the existing low quality Vegetated Corridor to 'Good' condition. Big leaf maple (*Acer macrophyllum*), Ponderosa pine (*Pinus ponderosa*), bitter cherry (*Prunus emarginata*) and Douglas fir (*Pseudotsuga menziesii*) will be planted for the overstory. Beaked hazelnut, Douglas hawthorn (*Crataegus douglasii*) and Indian plum will provide the sub-canopy. Native shrubs will include snowberry (*Symphoricarpos albus*) and Wood's rose (*Rosa woodsii*). Native grasses such as California brome (*Bromus carinatus*) and blue wildrye (*Elymus glaucus*) will be scattered in the understory to fill in any areas that remain bare.

The enhancement plan was designed to meet CWS landscape requirements. Maintenance and monitoring of the Vegetated Corridor mitigation will be in accordance with CWS regulations.

MITIGATION

Mitigation for the 8,737sf of permanent impacts will be provided at the required 1:1 ratio and will be located directly adjacent to the northeast portion of the existing Vegetated Corridor (Enhancement Area) adjacent to the eastern property boundary.

Mitigation for the 1,535sf of temporary impacts will be conducted in place at a 1:1 ratio.

Mitigation will include removal of Himalayan blackberry and other non-native species in a manner compatible with CWS regulations. Areas will be re-planted with native trees and shrubs as described in the enhancement plan (Table 4).

TABLE 4. ENHANCEMENT/MITIGATION PLANTING PLAN (145,620SF)

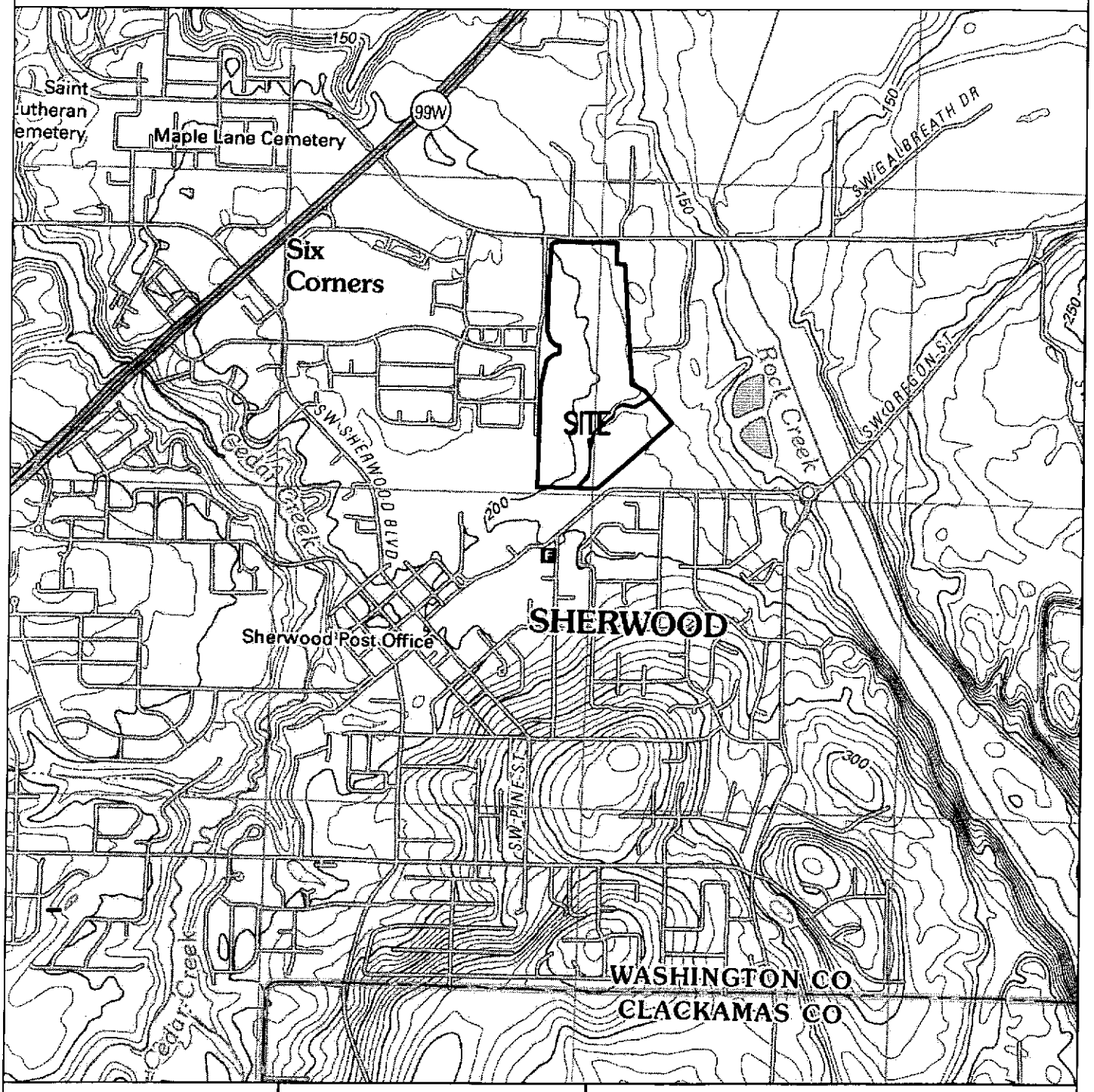
	Plant Type	Water Require-ments	Light Require-ments	Min. Size	Min. Height	On-center Rate	Spacing	Qty
Douglas fir (*Pseudotsuga menziesii*)	Tree	Dry	Sun	2 gal.	3'	10'	Single	350
Ponderosa pine (*Pinus ponderosa*)	Tree	Moist	Sun	1 gal.	3'	10'	Single	340
Bitter cherry (*Prunus emarginata*)	Tree	Moist	Part	2 gal.	2'	10'	Single	350
Beaked hazelnut (*Corylus cornuta*)	Tree	Dry	Part	2 gal.	2'	10'	Single	200
Douglas hawthorn (*Crataegus douglasii*)	Tree	Moist	Part	2 gal.	2'	10'	Cluster	200
Tall Oregon grape (*Mahonia aquifolium*)	Shrub	Dry	Sun	1 gal.	6"	4'	Single	1800
Indian Plum (*Oemleria cerasiformis*)	Shrub	Moist	Shade	2 gal.	2'	4'	Cluster	1450
Snowberry (*Symphoricarpos albus*)	Shrub	Dry	Part	1 gal.	1.5'	4'	Cluster	2086
Woods rose (*Rosa woodsii*)	Shrub	Dry	Part	1 gal.	1.5'	4'	Cluster	1943
Native California brome (*Bromus carinatus*)	Grass	Dry	Part	Seed	n/a	Variable	10lbs. pls	
Blue Wildrye (*Elymus glaucus*)	Grass	Dry	Part	Seed	n/a	Variable	10lbs. pls	

APPENDICES

Site Vicinity Map
Wetland Delineation Map w/ Wetland/Upland Plots
Existing Conditions Map w/ Photo Points and Corridor Conditions
Development Plan/Mitigation Plan
Alternative Development Plans
Vegetated Corridor Photographs
Functional Assessment – Summary and Data sheets
Wetland/Upland Data sheets

VICINITY MAP

USGS SHERWOOD QUAD, OREGON, 2011



JOB NAME: LANGER FARMS	
JOB NUMBER: 2929	
DRAWN BY: QMP	
CHECKED BY: AHH	
DWG NO.: 2929DSL 1/14	

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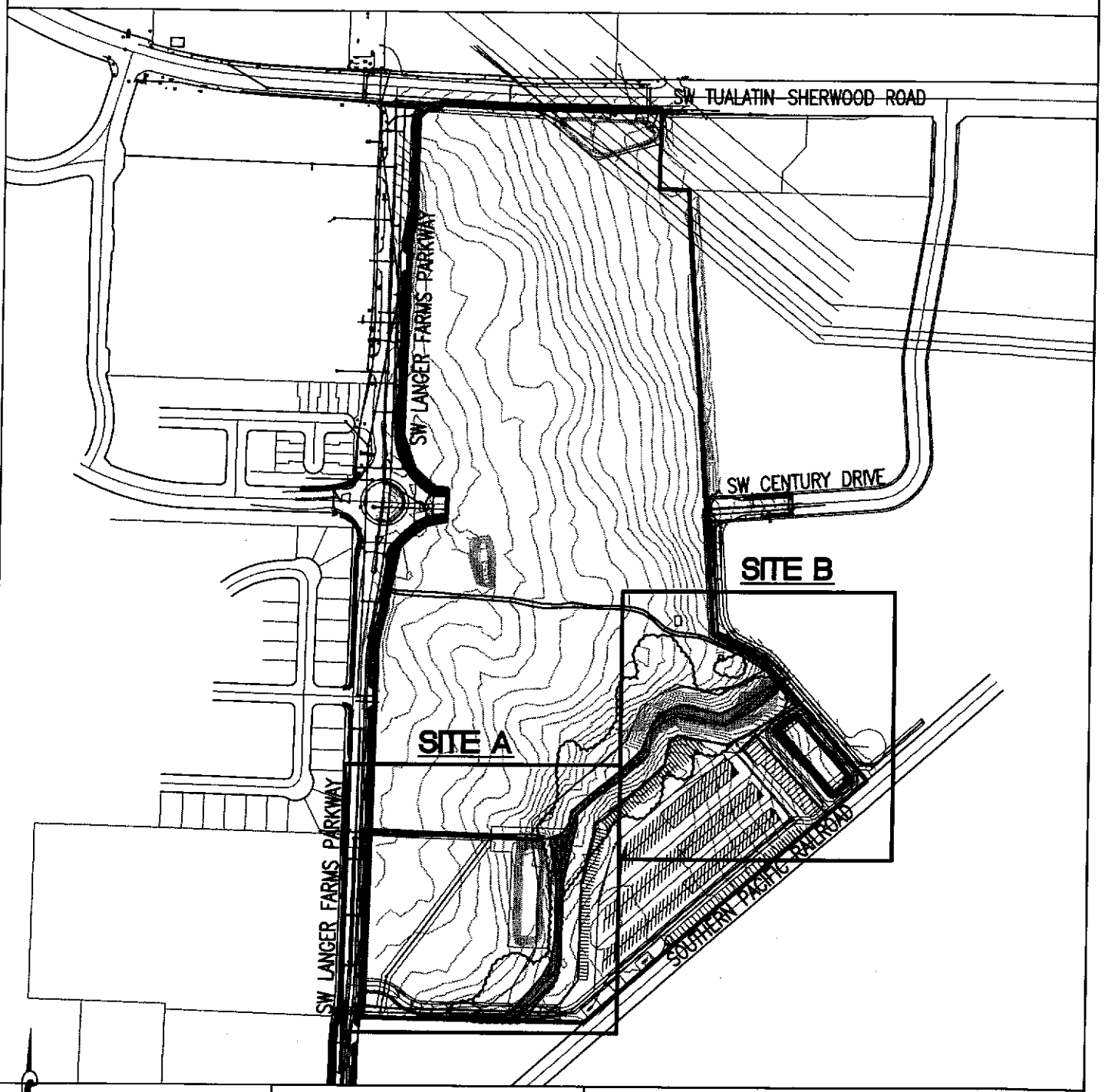
13910 SW GALBREATH
DRIVE, SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

OFFICES LOCATED IN SALEM, OR & VANCOUVER, WA

SITE OVERVIEW AND INDEX MAP



SCALE 1" = 400 FEET

400 0 160 240

JOB NAME: LANGER FARMS

JOB NUMBER: 2929

DRAWN BY: QMP

CHECKED BY: AHH

DWG NO.: 2929DSL 2/14

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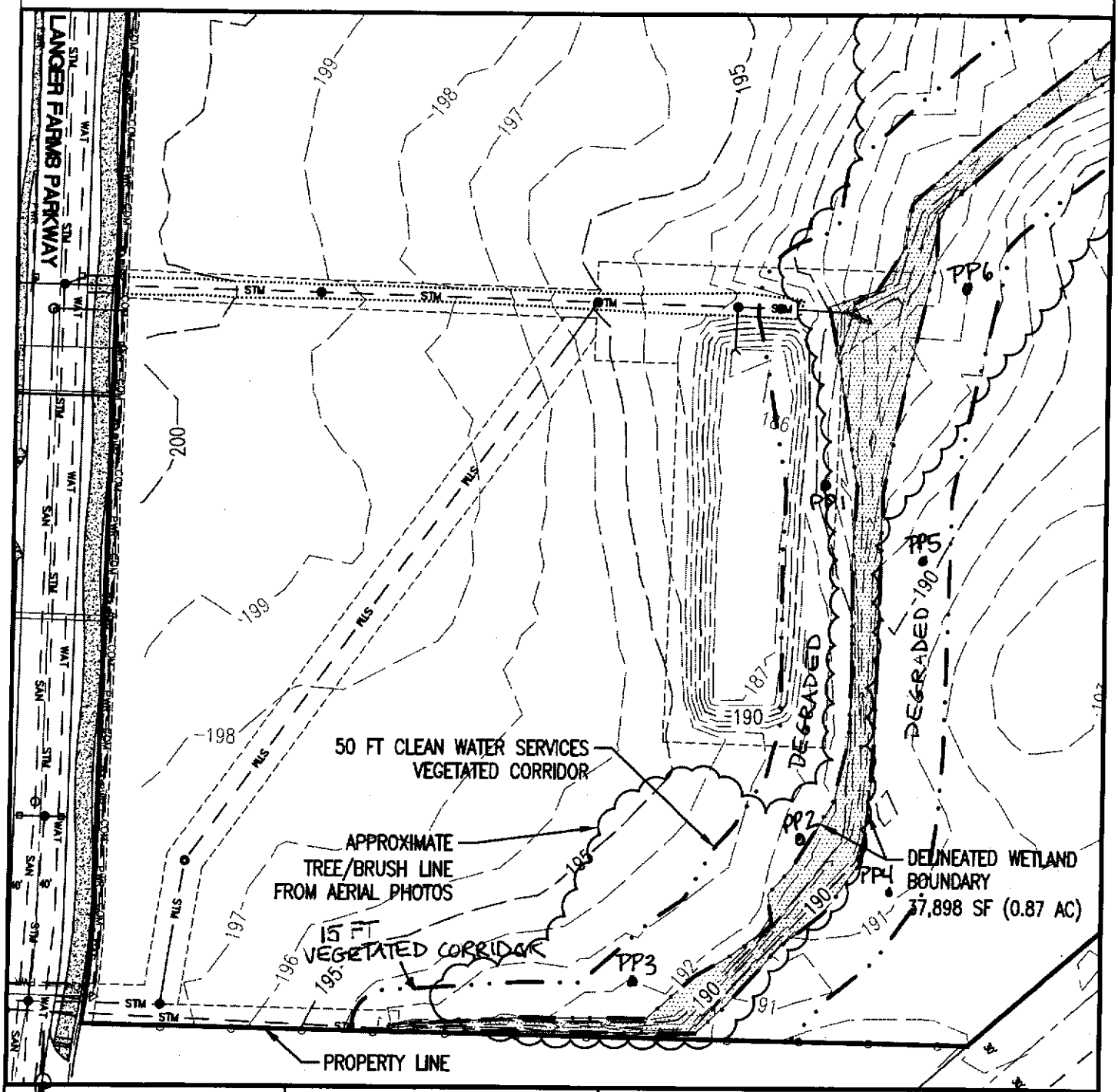
SITE 'A' EXISTING CONDITIONS MAP



SCALE 1" = 100 FEET

100 0 40 80

JOB NAME: LANGER FARMS

JOB NUMBER: 2929

DRAWN BY: QMP

CHECKED BY: AHH

DWG NO.: 2929DSL 3/13

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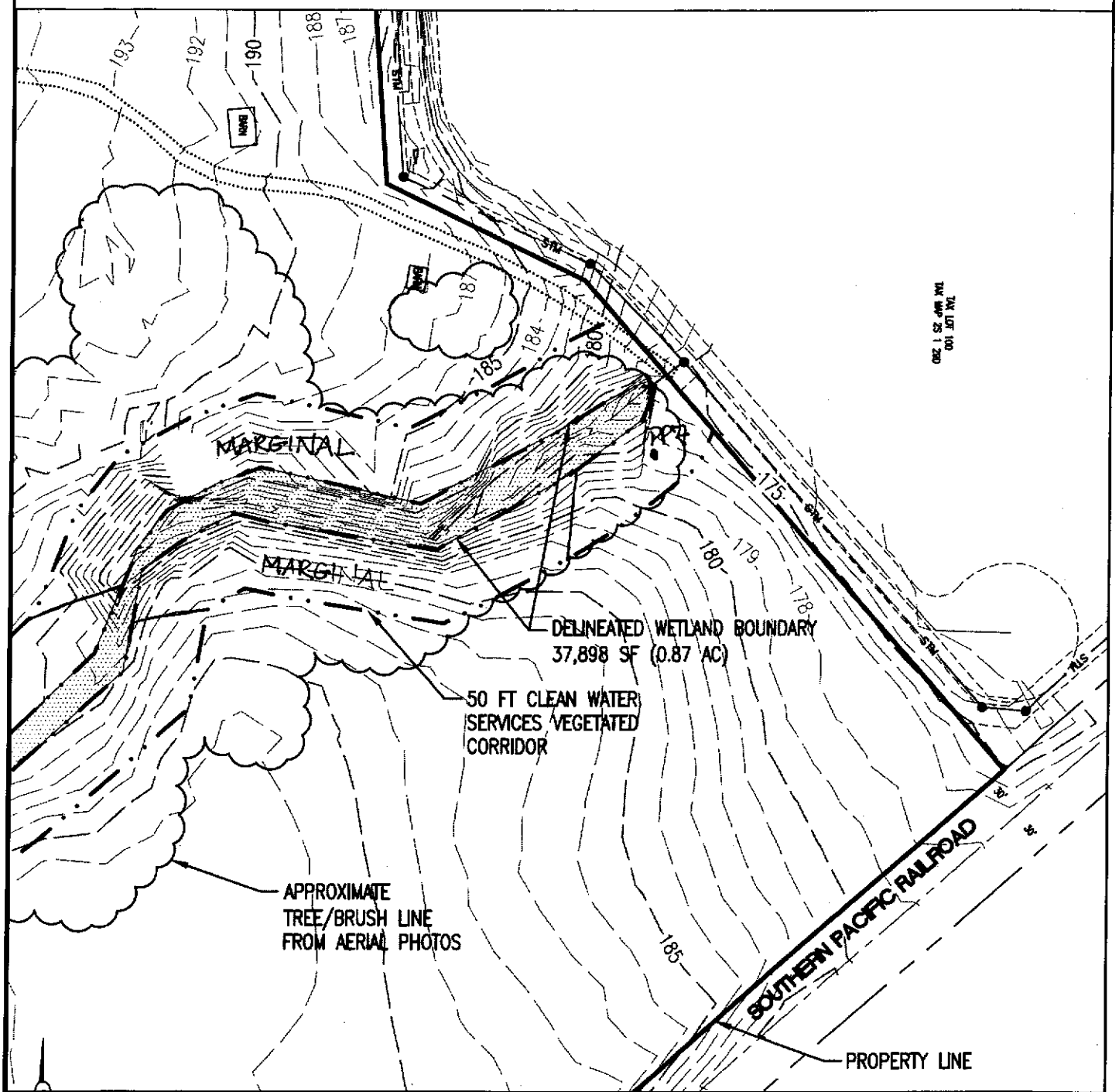
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

OFFICES LOCATED IN SALEM, OR & VANCOUVER, WA

SITE 'B' EXISTING CONDITIONS MAP



SCALE 1" = 100 FEET

100 0 40 80

JOB NAME: LANGER FARMS

JOB NUMBER: 2929

DRAWN BY: QMP

CHECKED BY: AHH

DWG NO.: 2929DSL 4/13

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DRIVE, SUITE 100
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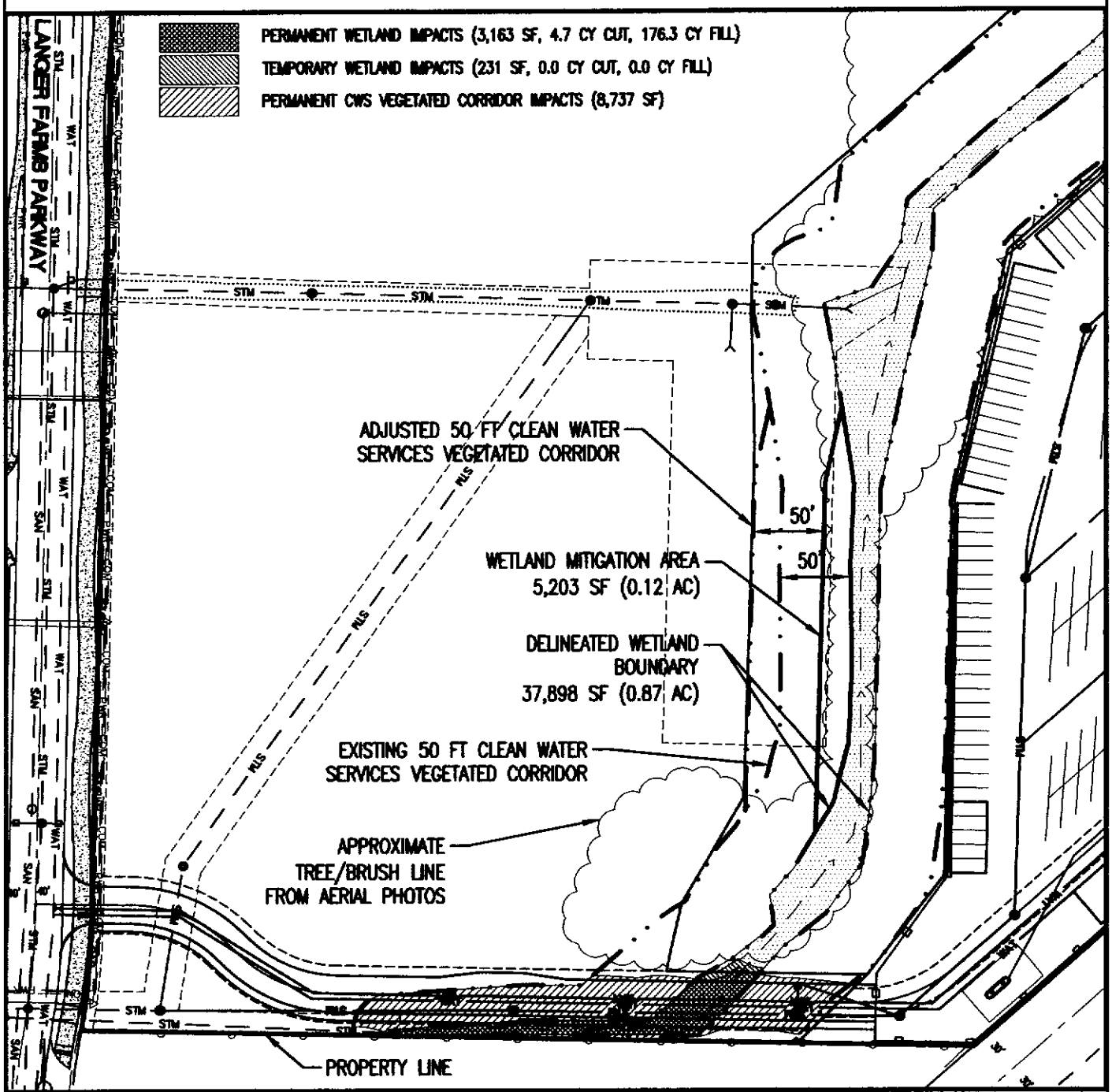
PHONE: (503) 925-8799
FAX: (503) 925-8969

OFFICES LOCATED IN SALEM, OR & VANCOUVER, WA

SITE 'A' DEVELOPMENT PLAN



SCALE 1" = 100 FEET

0 40 80 100

JOB NAME: LANGER FARMS	
JOB NUMBER: 2929	
DRAWN BY: QMP	
CHECKED BY: AHH	
DWG NO.: 2929DSL 5/13	

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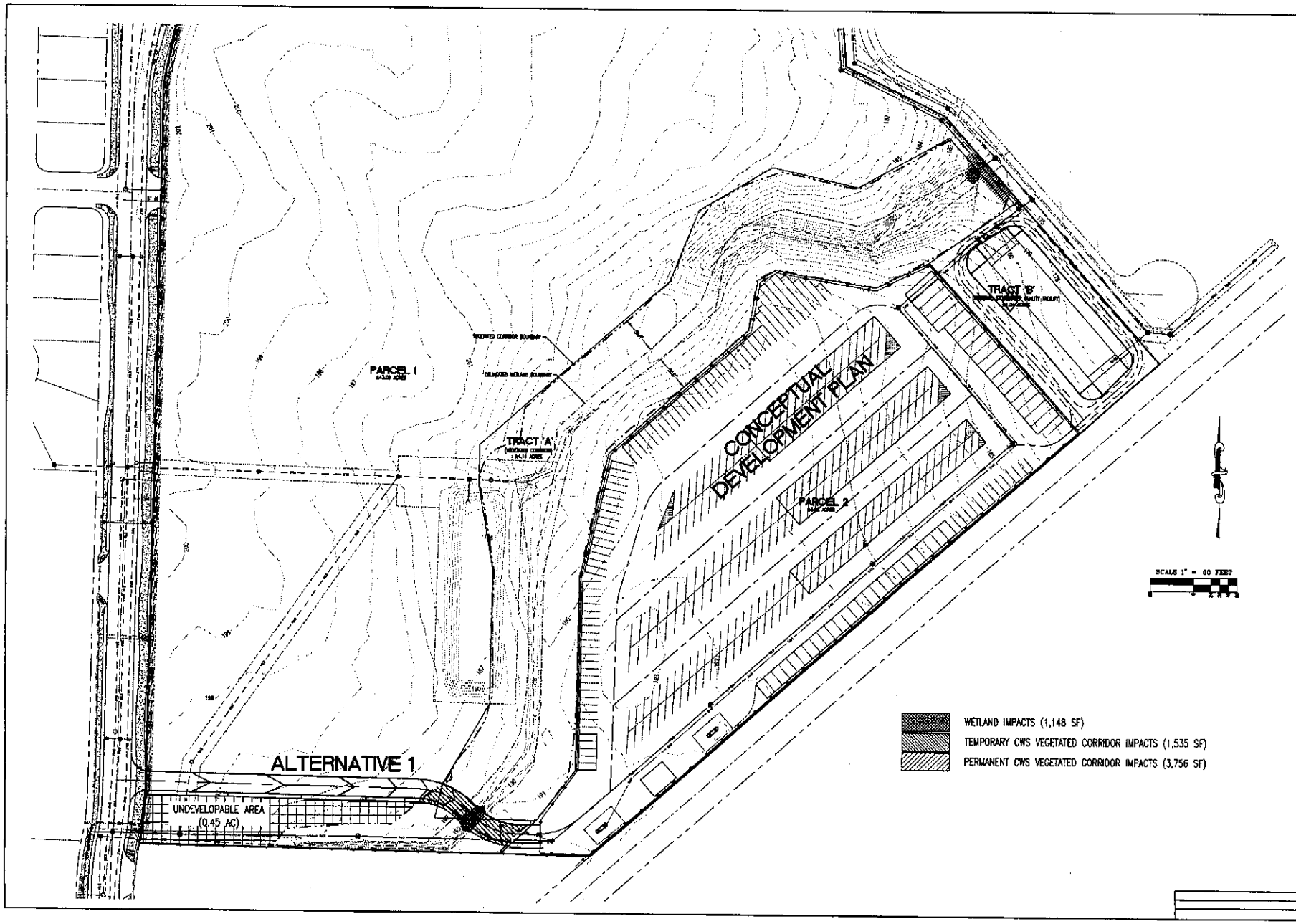
PHONE: (503) 925-8799
FAX: (503) 925-8969

OFFICES LOCATED IN SALEM, OR & VANCOUVER, WA



SITE ACCESS ALTERNATIVE 1

LANGER FARMS PARTITION

SHERWOOD OREGON

TAX LOT 300

WASHINGTON COUNTY TAX MAP 2S 1 29D

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SURVEYING · FORESTRY

13910 SW GALBRAITH DR.
SUITE 100
BEAVERTON, OR 97005
PH: (503) 526-2181
FAX: (503) 526-2469

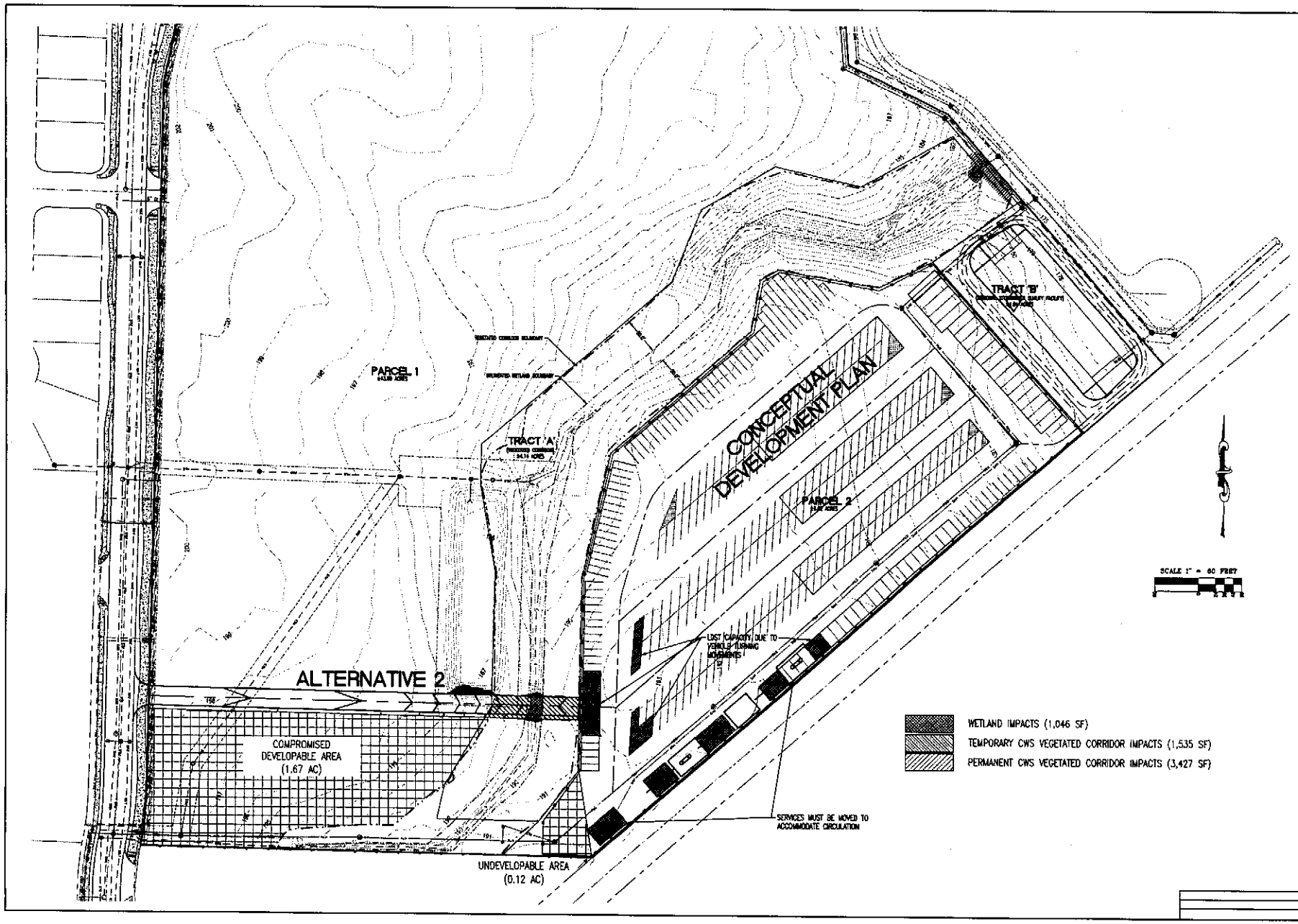
DESIGNED BY: ASH
DRAWN BY: DMP
CHECKED BY: AHH
DRAWING NO: 2929ALT
SCALE: AS NOTED

PREPARED FOR:
LANGER FAMILY, LLC.
14005 SW TUALATIN - SHERWOOD RD
SHERWOOD, OR 97140

DATE: 1/6/12

JOB NUMBER
2929

SHEET
2 OF 4



SITE ACCESS
ALTERNATIVE 2

LANGER FARMS
PARTITION

SHERWOOD OREGON

TAX LOT 300 WASHINGTON COUNTY TAX MAP 2S 1 29

AKS ENGINEERING & FORESTRY

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SURVEYING • FORESTRY

13910 SW GALBRAITH RD.
SUITE 100
BEAVERTON, OR 97005
PH: (503) 526-2181
FAX: (503) 526-2469

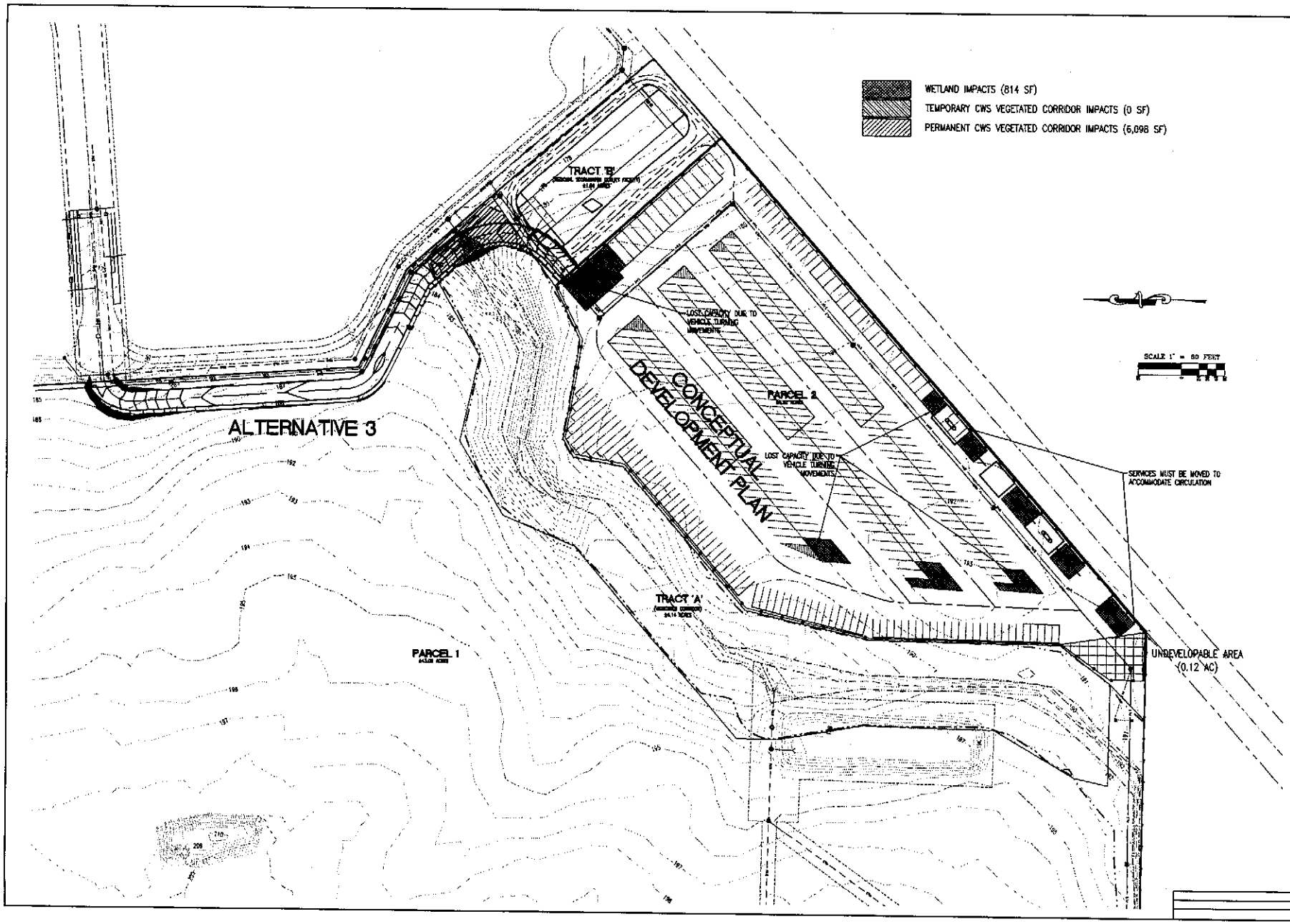
DESIGNED BY: AHH
DRAWN BY: GMP
CHECKED BY: AHH
DRAWING NO.: 2929ALT
SCALE: AS NOTED

PREPARED FOR
LANGER FAMILY, LLC.
14005 SW BURARTH-SHERWOOD RD
SHERWOOD, OR 97140

DATE: 1/6/12

JOB NUMBER
2929

SHEET
3 OF 4



SITE ACCESS ALTERNATIVE 3

LANGER FARMS PARTITION

SHERWOOD OREGON

WASHINGTON COUNTY TAX MAP 2S 1 29B TAX LOT 300

AKS ENGINEERING & FORESTRY

ENGINEERING · PLANNING
SURVEYING · FORESTRY

13910 SW GALBRAITH RD.
BEAVERTON, OR 97005
PHONE: (503) 526-2096
FAX: (503) 526-1270

DESIGNED BY:	AHH
DRAWN BY:	GMP
CHECKED BY:	AHH
DRAWING NO:	2929ALT
SCALE:	AS NOTED

PREPARED FOR:
LANGER FAMILY, LLC.
14905 SW TUALATIN-SHERWOOD RD
SHERWOOD, OR 97140

DATE: 1/6/12

JOB NUMBER
2929

SHEET
4 OF 4

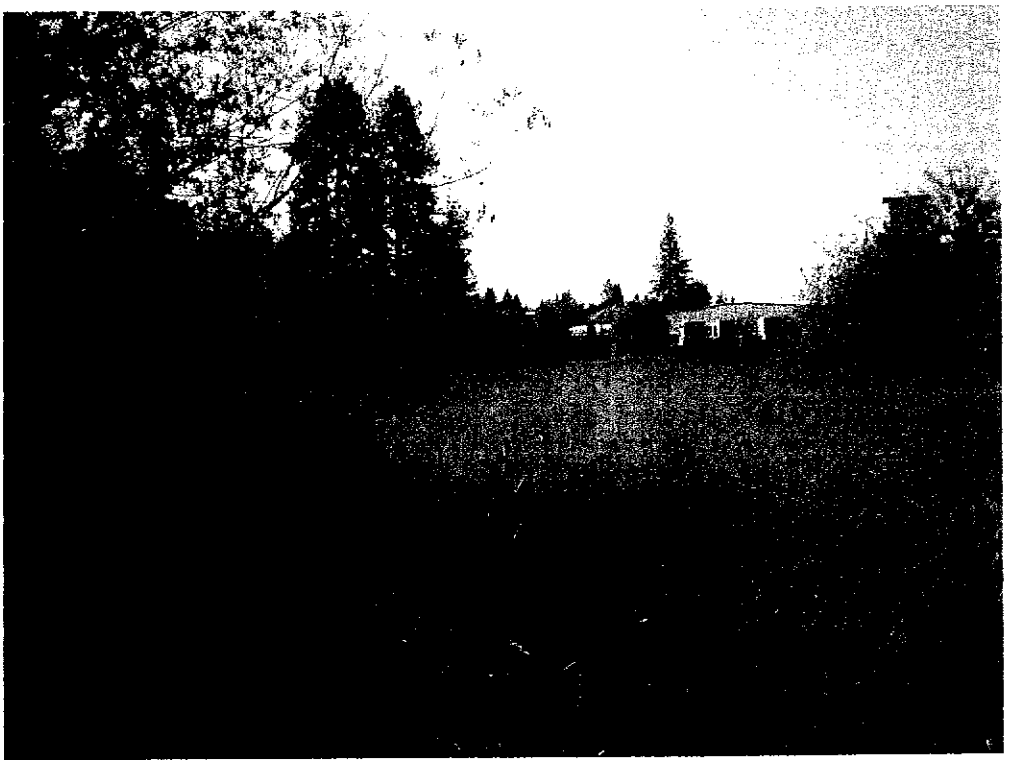


Photo Point 1. Facing South

Photo Point 1. Facing North

Sherwood Town Center
Site Photographs
S&A#2216

Schott & Associates
P.O. Box 589
Aurora, OR. 97002
503.678.6007

Photo Point 2. Facing Southwest

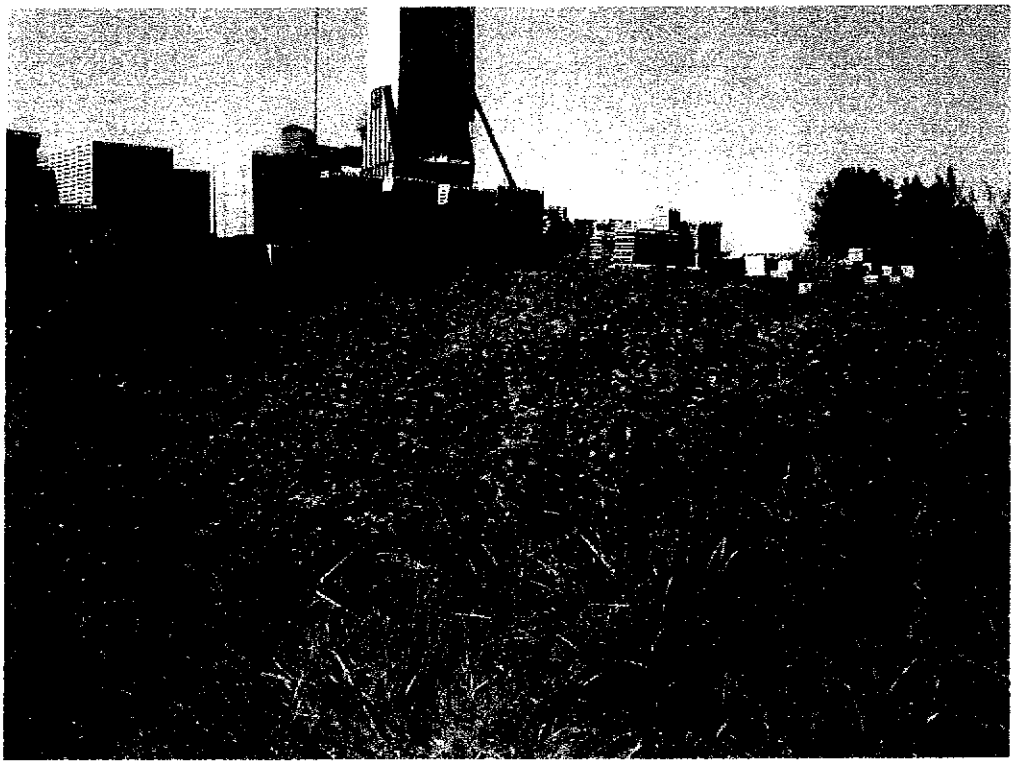


Photo Point 3. Facing South

Sherwood Town Center
Site Photographs
S&A#2216

Schott & Associates
P.O. Box 589
Aurora, OR. 97002
503.678.6007

Photo Point 4. Facing Southwest

Photo Point 4. Facing North

Sherwood Town Center
Site Photographs
S&A#2216

Schott & Associates
P.O. Box 589
Aurora, OR. 97002
503.678.6007

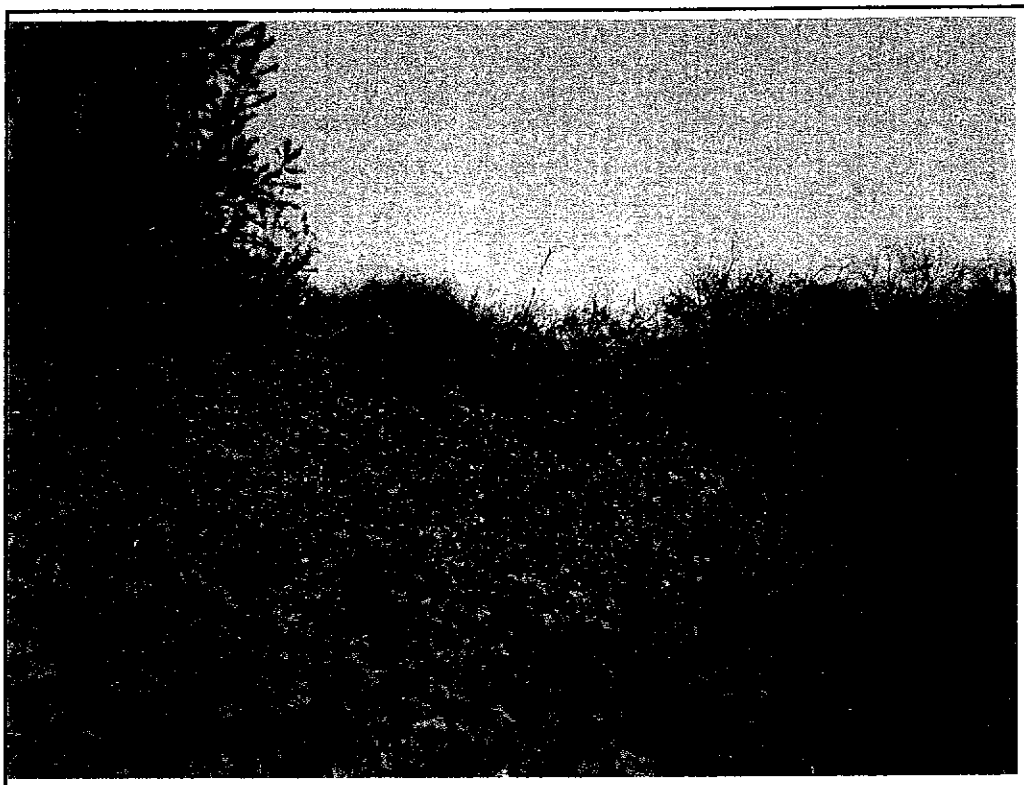


Photo Point 5. Facing North

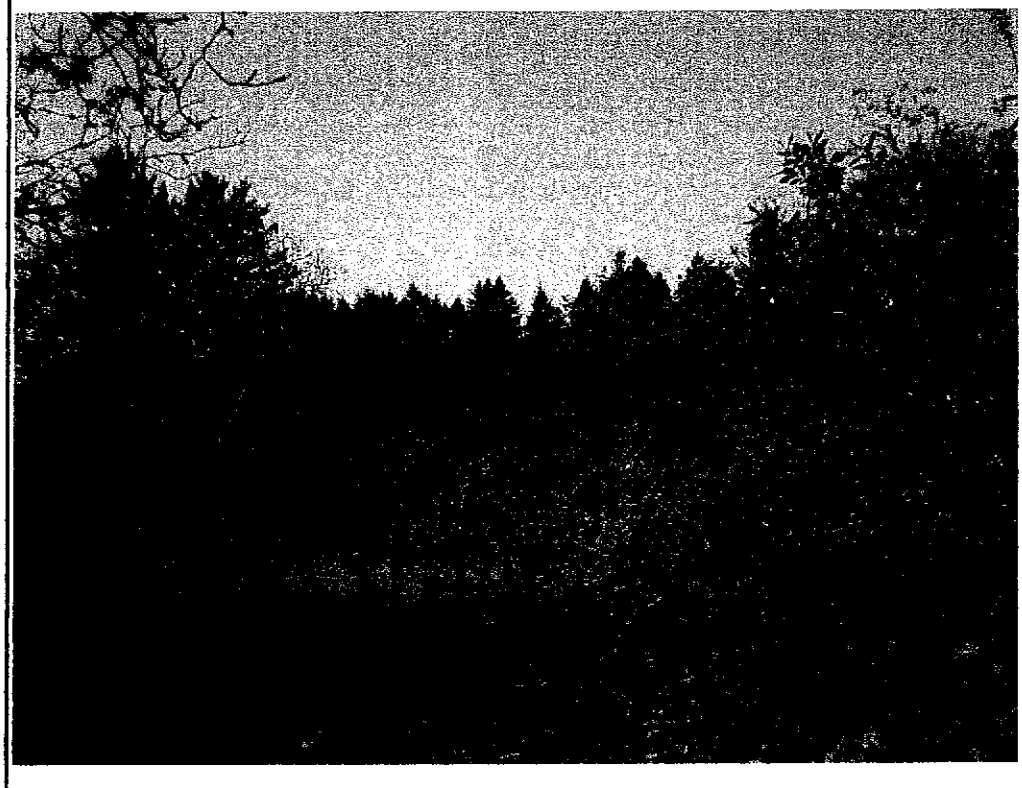


Photo Point 6. Facing North

Sherwood Town Center
Site Photographs
S&A#2216

Schott & Associates
P.O. Box 589
Aurora, OR. 97002
503.678.6007

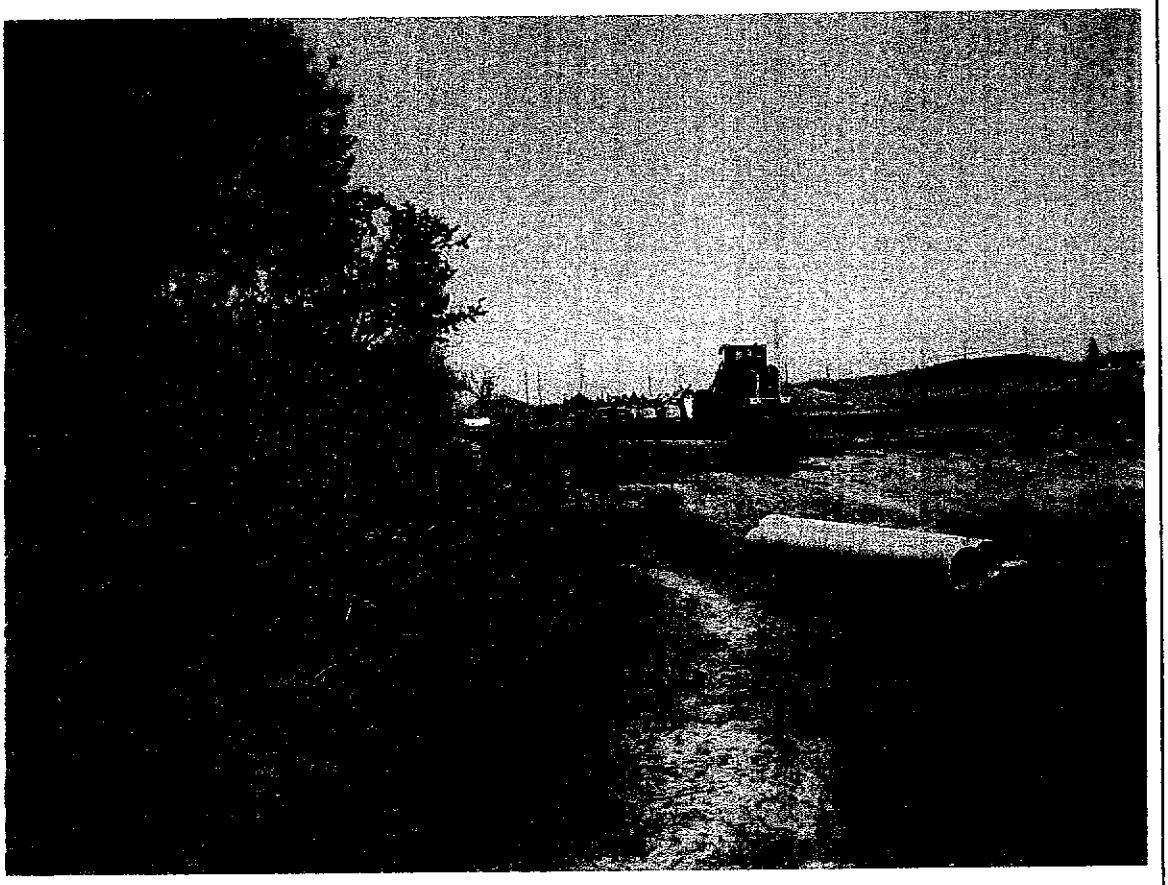


Photo Point 7, Facing North

Sherwood Town Center
Site Photographs
S&A#2216

Schott & Associates
P.O. Box 589
Aurora, OR. 97002
503.678.6007

Larger Wetland

Appendix B. Assessment of Function Capacity: Judgmental Method

Complete the following "qualitative assessments" of function only if you chose not to complete the reference-based assessments" that began on page 20.

Instructions: In each row, indicate with a checkmark if your site looks more like the "highest capacity" condition or the "minimal capacity" condition. Then circle a number on the scoring line below this table, based on your overall impression of the site's capacity to support this function. Alternatively, instead of checkmarks, you can assign a score to each row by placing a number in the center column of each row, e.g., 0 (minimal capacity) -to- 1.0 (highest capacity), and then combine the row scores in a manner of your choosing, perhaps weighting some rows more than others if you believe those indicators to have greater influence on a function. Whether based on mathematical operations or another way of synthesizing, be sure to circle your final score for the function on either or both of the shaded "Judgment Lines" at the bottom. Definitions of many of the terms are provided in Appendix A.

Function Capacity (Judgmental Assessment of): **Water Storage and Delay**

Highest Functioning	Suggested Score:	Minimal Functioning
___ The proportion of the site that is inundated only seasonally is large. The seasonally-inundated parts are defined by flood marks on trees and shrubs, stunted plants, and/or distinctive assemblages of plant species.	✓	___ None of the site is inundated only seasonally. The site is always comprised only of permanent water or a high water table without surface water.
___ Most of the surface water in the seasonally-inundated zone remains for a few days after each rain event, but not less or more.	✓	___ Water added from rain events empties quickly from all of the site, via outlets or percolation. This often is evidenced by: ___ lack of flood marks on trees and shrubs ___ scarcity of wetland plants (few FAC or wetter) ___ little or no mottling of soils throughout the seasonally-inundated zone. ___ site is located on slope ___ site is flat (few or no puddles, etc.) ___ presence of outlet channels

Your Judgments:

Function Capacity score = 0.2 , or circle one of the following:

1.0 .8 .6 .4 .2 0

Highest Lowest

Highest Functioning	Suggested Score:	Minimal Functioning
___ Substrates have never been recontoured or otherwise subjected to compaction, excavation, or leveling. No evidence of severe erosion within the site. None of the site was constructed from upland.	✓	___ Substrates throughout the entire site have recently been recontoured or otherwise subjected to compaction, excavation, or leveling.
___ Most of the site has complex microtopography (hummocks, puddles, etc.)	✓	___ Most of the site has no noticeable microtopography (no hummocks, puddles, etc.)
___ Site is burned annually or biennially		___ Site has not been burned in recent years

Your Judgments:

Function Capacity score = 0.1 , or circle one of the following:

1.0 .8 .6 .4 .2 0

Highest Lowest

Function Capacity (Judgmental Assessment of):
Primary Production

Highest Functioning	Suggested Score:	Minimal Functioning
___ All of the site has vascular plants and/or water with algae.	✓	___ Much of the site is devoid of vascular plants and/or algae.
___ A variety of plant forms is present in about equal proportions (trees, shrubs, and herbs) and is well-distributed throughout the site	✓	___ Whatever plants are present are mainly of a single form (trees, shrubs, or herbs)
___ Some shallow (<3 ft) surface water remains year-round or nearly so, and in summer is dispersed around the site, e.g., many puddles		✓ The site is entirely dry during much of the year.
___ Substrates have never been recontoured or otherwise subjected to compaction, excavation, or leveling. No evidence of severe erosion within the site.	✓	___ Substrates throughout the entire site have recently been recontoured or otherwise subjected to compaction, excavation, or leveling. Severe erosion may be evident within the site.
___ The site's contributing watershed contains no cropland, paved surface, buildings, or lawns – especially in the parts closest to the site.		✓ The site's contributing watershed is almost entirely cropland, paved surface, buildings, and lawns – especially the parts closest to the site.

Your Judgments:

Function Capacity score = 0.2 , or circle one of the following:

1.0 .8 .6 .4 .2 0

Highest Lowest

Function Capacity (Judgmental Assessment of): **Anadromous Fish Habitat Support** N/A

Highest Functioning	Suggested Score:	Minimal Functioning
Note: Proceed with assessing this function only if part of the site is accessible to anadromous fish during seasonal inundation		
___ Floodwaters spill into the site across a broad bank or through a wide (unconstricted) mouth		___ Floodwaters spill into the site across a broad bank or through a wide (unconstricted) mouth
___ Floodwaters remain in the site for more than a few days		___ No surface water remains in the site for more than a few days
___Non-native fish species are generally absent		___Non-native fish species predominate
___Substrates suitable for spawning or feeding are extensively present		___ Substrates suitable for spawning or feeding are scarce or absent
___Cover (aquatic plants, logs, boulders, overhanging trees, deep water spots, etc.) that provides shelter from currents and predators is abundant, at least in the seasonal zone		___Cover that provides shelter from currents and predators is scarce or lacking from all parts of the site
___Water quality (especially dissolved oxygen) is excellent		___ Water is heavily contaminated with pollutants, and/or experiences severe and prolonged oxygen deficits
___Summertime temperature maxima do not exceed preferred range of anadromous fish		___Summertime temperature maxima exceed limits lethal to anadromous fish

Your Judgments:

Function Capacity score = _____, or circle one of the following:

1.0	.8	.6	.4	.2	0
Highest					Lowest

Function Capacity (Judgmental Assessment of): **Invertebrate Habitat Support**

Highest Functioning	Suggested Score:	Minimal Functioning
___ Surface water is permanent or nearly permanent, AND all of the water is shallower than 2 feet during May-September*	✓	___ Surface water is present only briefly (RI sites) or not at all (SF sites), OR nearly all of the water remains deeper than 6 ft during May-September
___Cover (especially aquatic plants, woody debris) that supports algae and provides shelter from currents and predators is abundant in both the seasonal and permanent zone		✓ ___Cover (aquatic plants, woody debris.) that could support algae and provide shelter from currents and predators is lacking
___Plant forms and species are highly diverse	✓	___Only one plant form is present, and plant species richness is very low
___ Vegetation is well-interspersed with pools		✓ ___ Vegetation and pools (if any) are in 2 separate areas or zones
___Water quality (especially dissolved oxygen) is excellent	✓	___ Water is heavily contaminated with pollutants, and/or experiences severe and prolonged oxygen deficits

Highest Functioning	Suggested Score:	Minimal Functioning
___ Either vegetation and pools are well-interspersed during high water level, or any woody vegetation bordering the larger pools is located mostly on their north end.[3] Microtopography is quite varied.		✓ ___ Vegetation and pools are in separate areas of the site during high water level, and any woody vegetation bordering the larger pools is located mostly on their south end. Microtopography is too flat to allow many puddles to form (no hummocks, etc.)
___ Suitable basking sites for turtles and calling sites for frogs are present	✓	___ There are no basking sites for turtles or calling sites for frogs
___ Land cover in adjoining uplands is a mix of natural grassland and woodland; woodlands have extensive and varied woody debris		✓ ___ Land cover in adjoining uplands largely contains impervious surface, bare ground, lawns, and row crops
___ Shorelines are gently sloping	✓	___ Shorelines, if present, are mostly steep
___ Busy roads are distant from the site	✓	___ Busy roads adjoin the site
___ Many other wetlands (excluding flowing water) are present nearby	✓	___ There are no other wetlands (excluding flowing water) nearby
___ Water quality is excellent	✓	___ Water is heavily contaminated with pollutants, and/or experiences severe and prolonged oxygen deficits
___ Substrates have never been recontoured or otherwise subjected to compaction, excavation, or leveling. No evidence of severe erosion within the site.	✓	___ Substrates throughout the entire site have recently been recontoured or otherwise subjected to compaction, excavation, or leveling, or the entire site was constructed from upland.
___ Soils and submerged sediments contain a moderately thick organic layer (leaf litter, peat, decomposed organics, etc.)	✓	___ Soils and submerged sediments contain no organic layer, and are mostly hard-packed clay; or organic layer is so thick that water is chronically anoxic.

[1] Emergent herbs with stem diameter of <3 mm (measured 2 inches below springtime water surface); this includes nearly all perennial herbs except cattail.

[2] Areas likely to retain water well into the growing season may have many of these characteristics:

___ prevalence of wetland plants (FAC or wetter, and especially OBL)
___ intensive mottling & gleying of soils throughout most of the seasonally-inundated zone.
___ site is located in flatland terrain (not on slopes)
___ extensive microtopographic variation (many hummocks, puddles, etc.)
___ absence of outlet channels, and/or site is managed for water storage.

During the January-May period, 30 days of stable water levels are required for some aquatic amphibian eggs to mature, and during this time fluctuations of greater than 2 inches are lethal (Richter 1997).

[3] Vegetation located north of pools is less likely to block sunlight important to developing aquatic amphibians (Richter 1997).

Your Judgments:

Function Capacity score = 0.4 , or circle one of the following:

1.0 .8 .6 .4 .2 0

Highest Lowest

Function Capacity (Judgmental Assessment of):
Wintering & Migratory Waterbird Support

Highest Functioning	Suggested Score:	Minimal Functioning
___ The site contains extensive surface water during all or most of the fall-winter-spring period		✓ The site contains very little surface water during all or most of the fall-winter-spring period
___ Water depths in most of the site during most of the fall-winter-spring period are shallow (<24 inches)		___ If forested, water depths during the fall-winter-spring period are always shallower than 24 inches in all of the site (shallower depths are permissible then in unforested wetlands).
___ A large portion of the site is inundated only seasonally		___ Of the water that is present, nearly all is present year-round.
___ The acreage of various depth categories is about equal during peak annual inundation		✓ A single water depth category predominates.
___ Microtopographic variation (hummocks, puddles, etc.) is extensive	✓	___ The substrate is very flat, essentially prohibiting the formation of puddles.
___ None of the site is visited frequently by humans on foot during September-April.	✓	___ Water is heavily contaminated with pollutants
___ A large variety of herbs is present. The site is actively managed to control the spread of non-native or invasive species	✓	___ Vegetation cover (except in farmed wetlands) is mostly comprised of one or a few non-native or highly invasive native species
___Water quality is excellent	✓	___ Virtually all of the site is visited frequently by humans on foot during April-June
___ Substrates have never been recontoured or otherwise subjected to compaction, excavation, or leveling.	✓	___ Substrates have recently been recontoured or otherwise subjected to compaction, excavation, or leveling (unless such activities were done in connection with restoring a site to its historical condition)
___ Land cover in surrounding buffer zones is mainly a mix of natural grassland, woodland, agricultural lands, and water	✓	___ Land cover in surrounding buffer zones largely contains impervious surface, bare ground, lawns, and row crops.
___ Surrounding landscape contains large acreage of hydric soil, wetlands, and water, including some with a different water regime than the assessed site.	✓	___ Surrounding landscape contains no wetlands, ponds, or hydric soil.

Your Judgments:

Function Capacity score = 0.4 or circle one of the following:

1.0 .8 .6 .4 .2 0

Highest Lowest

Highest Functioning	Suggested Score:	Minimal Functioning
___ None of the site is visited frequently by humans on foot	✓	___ Every part of the site is visited frequently by humans on foot
___ Busy roads are distant from the site	✓	___ Busy roads adjoin the site.
___ Land cover in the contributing watershed is predominantly "natural"	✓	___ Land cover in the contributing watershed largely contains impervious surface, bare ground, lawns, and row crops.
___ Land cover in surrounding buffer zones is predominantly a mix of natural grassland, native shrubland, woodland, wetlands, and water	✓	___ Land cover in surrounding buffer largely contains impervious surface, bare ground, lawns, and row crops.

Your Judgments:

Function Capacity score = 0.4 , or circle one of the following:

1.0 .8 .6 .4 .2 0

Highest Lowest

Now, summarize your function capacity assessments by recording them on the Assessment Summary Form (p. 59). Be sure to indicate that you used the Judgmental Method.

Assessment Summary Form

(page 2 of 2)

In the preceding table, were the column-2 scores for Function Capacity from (**check one**):

___ the Reference-based Method, standardized to "highest functioning"?

___ the Reference-based Method, standardized to "least altered"?

✓ the Judgmental Method (Appendix B)?

Do you consider the site to historically have been mostly wooded? ✓ yes ___ no

Is the site part of a larger contiguous wetland or riparian area? ✓ Yes ___ No

If yes, describe how it is connected (permanent/ seasonal channel, etc.): seasonal channel

Describe the basis for boundaries you used to define the "site": delineated onsite wetland

Elaborate, if you wish, on assumptions you made when estimating particular indicators, and additional factors related to this site's importance (see p. 5 of guidebook for listing of these). Use additional pages if necessary.

The following 3 items are optional, but you are encouraged to complete these in order to provide a fuller context for understanding the assessment scores.

1. Make your best estimate of relative dominance of the direct **sources of water inputs** to this site during each of the two seasonal periods during an average year:

	April 1 – October 31 (dry)	**November 1- March 30 (wet)**
Channel flow (including overbank flooding)	%	%
Overland runoff (not in channels)	%	%
Subsurface flow & groundwater	%	%
Direct precipitation	%	%
Artificial water imports (stormwater pipes, etc.)	%	%
TOTAL	100 %	100 %

2. How much of the site is upland inclusions? _____%

3. Exact coordinates of the site, from GPS reading or digital map:

latitude: _____N longitude: _____W

Other Comments: _____

DEPARTMENT OF STATE LANDS WETLAND DETERMINATION DATA FORM – Quick Method

County: Washington	Date: 3/26/07	City: Sherwood	File #:1988

Project/Contact: Schott & Associates
Det. By: C. Steinkoenig
Plant Community: Scrub-shrub/grass
Plot #:1
Plot Location: South end of drainage
Recent Weather: rain
Do normal environmental conditions exist? Y☒ N☐ If no, explain:
Has Vegetation ☐ Soil☐ Hydrology ☐ been significantly disturbed?
Explain:

VEGETATION

Tree Stratum				Herb Stratum		
Total Plot Cover:0	0 = 50%	0 = 20%		Total Plot Cover:100	50 = 50%	20 = 20%
		Status/Raw % Cover				Status/Raw % Cover
1.				1.*Carex obnupta*		OBL 75%*
2.				2.*Festuca arundinacea*		FAC- 25*
3.				3.*Rumex crispus*		FAC+ Trace
4.				4.		
5.				5.		
Sapling/Shrub Stratum				6.		
Total Plot Cover:70	35= 50%	14= 20%	Status/Raw % Cover	7.		
1.*Rosa nutkana*			FAC 70%*	8.		
2.				9.		
3.				10.		
4.				11.		
5.				12.		

Hydrophytic Vegetation Indicators:
☒ > 50% of dominants are OBL, FACW or FAC Percent of Dominant **Species** that are OBL, FACW, FAC (not FAC-):100
Other hydrophytic vegetation indicators:
Criteria Met? ☒**Yes** ☐ **No** **Comments:** tall fescue treated as hydrophytic species

SOILS

Map Unit Name: Verboort silty clay loam Drainage Class: Poorly drained
On Hydric Soil List? ☒ Yes ☐ No Has Hydric Inclusions? ☒ Yes ☐ No

Depth Range of Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture
0-6	10YR2/1	10YR3/6 CFD		SiCL
6-18	10YR2/2	10YR3/6 MFP		Cl

Hydric Soil Indicators:
☐Histosol
☐Histic Epipedon
☐Sulfidic Odor
☐Reducing Conditions (tests positive)
☒Gleyed or low chroma colors
☐Redox features within 10" (e.g., concentrations)
☐Concretions/Nodules (w/in 3", > 2mm)
☐High organic content in surface (in Sandy Soils)
☐Organic streaking (in Sandy Soils)
☐Organic pan (in Sandy Soils)
☒ Listed on Hydric Soils List (and soil profile matches)
☐ Meets hydric soil criteria 3 or 4 (ponded or flooded for long duration)
☐ Supplemental indicator (e.g., NRCS field indicator)

Criteria Met? ☒ **Yes** ☐ **No**

HYDROLOGY

Recorded Data:
☐Recorded Data Available ☐Aerial Photos ☐Stream Gauge ☐ Other ☐ No Recorded Data Available
Field Data
Depth of inundation: Depth to Saturation:6" Depth to Free Water:
Primary Hydrology Indicators:
☐Inundated
☒Saturated in upper 12 inches
☐Water Marks
☐Drift Lines
☐Sediment Deposits
Secondary Hydrology Indicators (2 or more required):
☐Oxidized Root Channels (upper 12")
☐Water-stained leaves
☐Local Soil Survey Data
☐FAC – Neutral Test
☐Other:
Criteria Met? ☒**Yes** ☐ **No**
Comments: Hydrology criterion is met.

DETERMINATION

WETLAND? ☒**YES** ☐**NO** **Comments: Wetland criteria are met.**

DEPARTMENT OF STATE LANDS WETLAND DETERMINATION DATA FORM – Quick Method

County: Washington	Date: 3/26/07	City: Sherwood	File #:1988

Project/Contact: Schott & Associates
Det. By: C. Steinkoenig
Plant Community: Scrub-shrub/grass
Plot #:2
Plot Location: paired w/sample plot 1
Recent Weather: rain
Do normal environmental conditions exist? Y☒ N☐ If no, explain:
Has Vegetation ☐ Soil☐ Hydrology ☐ been significantly disturbed?
Explain:

VEGETATION

Tree Stratum				Herb Stratum		
Total Plot Cover:0	0 = 50%	0 = 20%		Total Plot Cover:100	50 = 50%	20 = 20%
		Status/Raw % Cover				Status/Raw % Cover
1.				1.*Alopecursus pratensis*		FACW 80*
2.				2.*Festuca arundinacea*		FAC- 25*
3.				3.		
4.				4.		
5.				5.		
Sapling/Shrub Stratum				6.		
Total Plot Cover:45	22.5= 50%	9= 20%	Status/Raw % Cover	7.		
1.*Rosa nutkana*			FAC 15%*	8.		
2.*Rubus discolor*			FACU- 30*	9.		
3.				10.		
4.				11.		
5.				12.		

Hydrophytic Vegetation Indicators:
☒ > 50% of dominants are OBL, FACW or FAC Percent of Dominant **Species** that are OBL, FACW, FAC (not FAC-):75
Other hydrophytic vegetation indicators:
Criteria Met? ☒**Yes** ☐ **No** **Comments:** tall fescue treated as hydrophytic species

SOILS

Map Unit Name: Verboort silty clay loam Drainage Class: Poorly drained
On Hydric Soil List? ☒ Yes ☐ No Has Hydric Inclusions? ☒ Yes ☐ No

Depth Range of Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture
0-3	10YR2/2	10YR3/6 FMD		SiCL
3-16	10YR4/4	none		Cl

Hydric Soil Indicators:
☐Histosol
☐Histic Epipedon
☐Sulfidic Odor
☐Reducing Conditions (tests positive)
☐Gleyed or low chroma colors
☐Redox features within 10" (e.g., concentrations)
☐Concretions/Nodules (w/in 3", > 2mm)
☐High organic content in surface (in Sandy Soils)
☐Organic streaking (in Sandy Soils)
☐Organic pan (in Sandy Soils)
☐ Listed on Hydric Soils List (and soil profile matches)
☐ Meets hydric soil criteria 3 or 4 (ponded or flooded for long duration)
☐ Supplemental indicator (e.g., NRCS field indicator)

Criteria Met? ☐ **Yes** ☒ **No**

HYDROLOGY

Recorded Data:
☐Recorded Data Available ☐Aerial Photos ☐Stream Gauge ☐ Other ☐ No Recorded Data Available
Field Data
Depth of inundation: Depth to Saturation: Depth to Free Water:
Primary Hydrology Indicators:
☐Inundated
☐Saturated in upper 12 inches
☐Water Marks
☐Drift Lines
☐Sediment Deposits
Secondary Hydrology Indicators (2 or more required):
☐Oxidized Root Channels (upper 12")
☐Water-stained leaves
☐Local Soil Survey Data
☐FAC – Neutral Test
☐Other:
Criteria Met? ☐**Yes** ☒ **No** **Comments: No evidence of wetland hydrology observed.**

DETERMINATION

WETLAND? ☐**YES** ☒**NO** **Comments: Hydrology and soil criterion is not met.**

DEPARTMENT OF STATE LANDS WETLAND DETERMINATION DATA FORM – Quick Method

County: Washington	Date: 3/26/07	City: Sherwood	File #:1988

Project/Contact: Schott & Associates
Det. By: C. Steinkoenig
Plant Community: Scrub-shrub/grass
Plot #:3
Plot Location: south side of drainage where it turns east
Recent Weather: rain
Do normal environmental conditions exist? Y☒ N☐ If no, explain:
Has Vegetation ☐ Soil☐ Hydrology ☐ been significantly disturbed?
Explain:

VEGETATION

Tree Stratum				Herb Stratum		
Total Plot Cover:30	15 = 50%	6 = 20%		Total Plot Cover:10	5 = 50%	2 = 20%
		Status/Raw % Cover				Status/Raw % Cover
1.*Salix lasiandra.*		FACW+ 15%*		1.*Phalaris arundinacea*		FACW 5%*
2.*Prunus virginiana*		FACU 15+%*		2.*Equsetum arvense*		FAC 5%*
3.				3.		
4.				4.		
5.				5.		
Sapling/Shrub Stratum				6.		
Total Plot Cover:80	40= 50%	16= 20%	Status/Raw % Cover	7.		
1.*Rosa nutkana*			FAC 80%*	8.		
2.				9.		
3.				10.		
4.				11.		
5.				12.		

Hydrophytic Vegetation Indicators:
☒ > 50% of dominants are OBL, FACW or FAC Percent of Dominant **Species** that are OBL, FACW, FAC (not FAC-):80
Other hydrophytic vegetation indicators:
Criteria Met? ☒**Yes** ☐ **No** **Comments:** Hyrophytic vegetation exceeds 50%..

SOILS

Map Unit Name: Verboort silty clay loam Drainage Class: Poorly drained
On Hydric Soil List? ☒ Yes ☐ No Has Hydric Inclusions? ☒ Yes ☐ No

Depth Range of Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture
0-10	10YR3/1-3/2	10YR4/1 FLD		SiCL
10-16	10YR3/2	10YR4/1 CFD		Cl

Hydric Soil Indicators:
☐Histosol
☐Histic Epipedon
☐Sulfidic Odor
☐Reducing Conditions (tests positive)
☒Gleyed or low chroma colors
☐Redox features within 10" (e.g., concentrations)
☐Concretions/Nodules (w/in 3", > 2mm)
☐High organic content in surface (in Sandy Soils)
☐Organic streaking (in Sandy Soils)
☐Organic pan (in Sandy Soils)
☐ Listed on Hydric Soils List (and soil profile matches)
☐ Meets hydric soil criteria 3 or 4 (ponded or flooded for long duration)
☐ Supplemental indicator (e.g., NRCS field indicator)

Criteria Met? ☒ **Yes** ☐ **No**

HYDROLOGY

Recorded Data:
☐Recorded Data Available ☐Aerial Photos ☐Stream Gauge ☐ Other ☐ No Recorded Data Available
Field Data
Depth of inundation: portions w/.5"-1" Depth to Saturation:to surface Depth to Free Water:
Primary Hydrology Indicators:
☒Inundated
☒Saturated in upper 12 inches
☐Water Marks
☐Drift Lines
☐Sediment Deposits
Secondary Hydrology Indicators (2 or more required):
☐Oxidized Root Channels (upper 12")
☐Water-stained leaves
☐Local Soil Survey Data
☐FAC – Neutral Test
☐Other:
Criteria Met? ☒**Yes** ☐ **No** **Comments: Hydrology criterion is met.**

DETERMINATION

WETLAND? ☒**YES** ☐**NO** **Comments: Wetland characteristics are met.**

DEPARTMENT OF STATE LANDS WETLAND DETERMINATION DATA FORM – Quick Method

County: Washington	Date: 3/26/07	City: Sherwood	File #:1988

Project/Contact: Schott & Associates
Det. By: C. Steinkoenig
Plant Community: Scrub-shrub
Plot #:4
Plot Location: paired with sample plot 3
Recent Weather: rain
Do normal environmental conditions exist? Y☒ N☐ If no, explain:
Has Vegetation ☐ Soil☐ Hydrology ☐ been significantly disturbed?
Explain:

VEGETATION

Tree Stratum			Herb Stratum		
Total Plot Cover:15	7.5 = 50%	3 = 20%	Total Plot Cover:30	15 = 50%	6 = 20%
		Status/Raw % Cover			Status/Raw % Cover
1.*Juglans sp.*		NOL 10	1.*Agrostis stolonifera*		FAC 20*
2.*Salix sp.*		FACW+ 5*	2.*Hypochoeris radicata*		FACU 10*
3.			3.		
4.			4.		
5.			5.		
Sapling/Shrub Stratum			6.		
Total Plot Cover:80	40= 50%	16= 20%	7.		
1.*Corylus cornuta*		trace	8.		
2.*Rubus discolor*		FACU- 80*	9.		
3.			10.		
4.			11.		
5.			12.		

Hydrophytic Vegetation Indicators:
☐ > 50% of dominants are OBL, FACW or FAC Percent of Dominant **Species** that are OBL, FACW, FAC (not FAC-):50
Other hydrophytic vegetation indicators:
Criteria Met? ☐**Yes** ☒ **No** **Comments:** Does not exceed fifty percent.

SOILS

Map Unit Name: Verboort silty clay loam Drainage Class: Poorly drained
On Hydric Soil List? ☒ Yes ☐ No Has Hydric Inclusions? ☒ Yes ☐ No

Depth Range of Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture
0-8	10YR3/4	None		Sil
8-16	10YR3/6	None		Cl

Hydric Soil Indicators:
☐Histosol
☐Histic Epipedon
☐Sulfidic Odor
☐Reducing Conditions (tests positive)
☐Gleyed or low chroma colors
☐Redox features within 10" (e.g., concentrations)
☐Concretions/Nodules (w/in 3", > 2mm)
☐High organic content in surface (in Sandy Soils)
☐Organic streaking (in Sandy Soils)
☐Organic pan (in Sandy Soils)
☐ Listed on Hydric Soils List (and soil profile matches)
☐ Meets hydric soil criteria 3 or 4 (ponded or flooded for long duration)
☐ Supplemental indicator (e.g., NRCS field indicator)

Criteria Met? ☐ **Yes** ☒ **No**

HYDROLOGY

Recorded Data:
☐Recorded Data Available ☐Aerial Photos ☐Stream Gauge ☐ Other ☐ No Recorded Data Available
Field Data
Depth of inundation: Depth to Saturation: Depth to Free Water:
Primary Hydrology Indicators:
☐Inundated
☐Saturated in upper 12 inches
☐Water Marks
☐Drift Lines
☐Sediment Deposits
Secondary Hydrology Indicators (2 or more required):
☐Oxidized Root Channels (upper 12")
☐Water-stained leaves
☐Local Soil Survey Data
☐FAC – Neutral Test
☐Other:
Criteria Met? ☐**Yes** ☒ **No** **Comments: Hydrology criteia are not met.**

DETERMINATION

WETLAND? ☐**YES** ☒**NO** **Comments: Wetland criteria is not met.**

DEPARTMENT OF STATE LANDS WETLAND DETERMINATION DATA FORM – Quick Method

County: Washington	Date: 3/26/07	City: Sherwood	File #:1988

Project/Contact: Schott & Associates
Det. By: C. Steinkoenig
Plant Community: Scrub-shrub
Plot #:5
Plot Location: east end of drainage
Recent Weather: rain
Do normal environmental conditions exist? Y☒ N☐ If no, explain:
Has Vegetation ☐ Soil☐ Hydrology ☐ been significantly disturbed?
Explain:

VEGETATION

Tree Stratum				Herb Stratum		
Total Plot Cover:45	22.5 = 50%	9 = 20%		Total Plot Cover:100	50 = 50%	20 = 20%
		Status/Raw % Cover				Status/Raw % Cover
1.*Salix lasiandra*		FACW+ 45*		1.*Lysichiton americanum*		OBL 35*
2.				2.*Athyrium filix-femina*		FAC 30*
3.				3.*Equisteum arvense*		FAC 5
4.				4.*Carex obnupta*		OBL 15
5.				5.*Oenanthe sarmentosa*		OBL 15
Sapling/Shrub Stratum				6.		
Total Plot Cover:	= 50%	= 20%	Status/Raw % Cover	7.		
1.				8.		
2.				9.		
3.				10.		
4.				11.		
5.				12.		

Hydrophytic Vegetation Indicators:
☒ > 50% of dominants are OBL, FACW or FAC Percent of Dominant **Species** that are OBL, FACW, FAC (not FAC-):100
Other hydrophytic vegetation indicators:
Criteria Met? ☒**Yes** ☐ **No** **Comments:** Criteria are met.

SOILS

Map Unit Name: Quatama loam 3-7%slope Drainage Class: moderately well drained
On Hydric Soil List? ☒ Yes ☐ No Has Hydric Inclusions? ☒ Yes ☐ No

Depth Range of Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture
0-10	10YR3/1	None		sicl
10-16	10YR3/1	None		Cl

Hydric Soil Indicators:
☐Histosol
☐Histic Epipedon
☐Sulfidic Odor
☐Reducing Conditions (tests positive)
☒Gleyed or low chroma colors
☐Redox features within 10" (e.g., concentrations)
☐Concretions/Nodules (w/in 3", > 2mm)
☐High organic content in surface (in Sandy Soils)
☐Organic streaking (in Sandy Soils)
☐Organic pan (in Sandy Soils)
☐ Listed on Hydric Soils List (and soil profile matches)
☐ Meets hydric soil criteria 3 or 4 (ponded or flooded for long duration)
☐ Supplemental indicator (e.g., NRCS field indicator)

Criteria Met? ☒ **Yes** ☐ **No**

HYDROLOGY

Recorded Data:
☐Recorded Data Available ☐Aerial Photos ☐Stream Gauge ☐ Other ☐ No Recorded Data Available
Field Data
Depth of inundation: Depth to Saturation:to surface Depth to Free Water:
Primary Hydrology Indicators:
☐Inundated
☒Saturated in upper 12 inches
☐Water Marks
☐Drift Lines
☐Sediment Deposits
Secondary Hydrology Indicators (2 or more required):
☐Oxidized Root Channels (upper 12")
☐Water-stained leaves
☐Local Soil Survey Data
☐FAC – Neutral Test
☐Other:
Criteria Met? ☒**Yes** ☐ **No** **Comments: Hydrology criteria are met.**

DETERMINATION

WETLAND? ☒YES ☐NO **Comments: Wetland criteria are met.**

DEPARTMENT OF STATE LANDS WETLAND DETERMINATION DATA FORM – Quick Method

County: Washington	Date: 3/26/07	City: Sherwood	File #:1988

Project/Contact: Schott & Associates
Det. By: C. Steinkoenig
Plant Community: Scrub-shrub
Plot #:6
Plot Location: Paired w/ sp5 on slope
Recent Weather: rain
Do normal environmental conditions exist? Y☒ N☐ If no, explain:
Has Vegetation ☐ Soil☐ Hydrology ☐ been significantly disturbed?
Explain:

VEGETATION

Tree Stratum				Herb Stratum		
Total Plot Cover:35	17.5 = 50%	7 = 20%		Total Plot Cover:75	37.5 = 50%	15 = 20%
		Status/Raw % Cover				Status/Raw % Cover
1.*Prunus virginiana*		FACU 35*		1.*Polystichum munitum*		FACU 15*
2.				2.*Carex deweyana*		FACU 30*
3.				3.*Tellima grandiflora*		NOL 30
4.				4.		
5.				5.		
Sapling/Shrub Stratum				6.		
Total Plot Cover:35	17.5= 50%	7= 20%	Status/Raw % Cover	7.		
1.*Acer circinatum*			FAC- 15*	8.		
2.*Corylus cornuta*			FACU 15*	9.		
3.*Oemleria cerasiformis*			FACU 5	10.		
4.				11.		
5.				12.		

Hydrophytic Vegetation Indicators:
☐ > 50% of dominants are OBL, FACW or FAC Percent of Dominant **Species** that are OBL, FACW, FAC (not FAC-):0
Other hydrophytic vegetation indicators:
Criteria Met? ☐**Yes** ☒ **No** **Comments:** No hydrophytic vegetation..

SOILS

Map Unit Name: Quatama loam 3-7% Drainage Class: moderately well drained
On Hydric Soil List? ☐ Yes ☒ No Has Hydric Inclusions? ☒ Yes ☐ No

Depth Range of Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture
0-10	10YR3/3	None		L
10-16	10YR3/4	None		L

Hydric Soil Indicators:
☐Histosol
☐Histic Epipedon
☐Sulfidic Odor
☐Reducing Conditions (tests positive)
☐Gleyed or low chroma colors
☐Redox features within 10" (e.g., concentrations)
☐Concretions/Nodules (w/in 3", > 2mm)
☐High organic content in surface (in Sandy Soils)
☐Organic streaking (in Sandy Soils)
☐Organic pan (in Sandy Soils)
☐ Listed on Hydric Soils List (and soil profile matches)
☐ Meets hydric soil criteria 3 or 4 (ponded or flooded for long duration)
☐ Supplemental indicator (e.g., NRCS field indicator)

Criteria Met? ☐ **Yes** ☒ **No**

HYDROLOGY

Recorded Data:
☐Recorded Data Available ☐Aerial Photos ☐Stream Gauge ☐ Other ☐ No Recorded Data Available
Field Data
Depth of inundation: Depth to Saturation: Depth to Free Water:
Primary Hydrology Indicators:
☐Inundated
☐Saturated in upper 12 inches
☐Water Marks
☐Drift Lines
☐Sediment Deposits
Secondary Hydrology Indicators (2 or more required):
☐Oxidized Root Channels (upper 12")
☐Water-stained leaves
☐Local Soil Survey Data
☐FAC – Neutral Test
☐Other:
Criteria Met? ☐**Yes** ☒ **No** **Comments: No evidence of wetland hydrology.**

DETERMINATION

WETLAND? ☐**YES** ☒**NO** **Comments: Wetland criteria are not met.**

DEPARTMENT OF STATE LANDS WETLAND DETERMINATION DATA FORM – Quick Method

County: Washington	Date: 3/26/07	City: Sherwood	File #:1988

Project/Contact: Schott & Associates
Det. By: C. Steinkoenig
Plant Community: grass/scrub-shrub
Plot #:7
Plot Location: west side of drainage near WQF
Recent Weather: rain
Do normal environmental conditions exist? Y☒ N☐ If no, explain:
Has Vegetation ☐ Soil☐ Hydrology ☐ been significantly disturbed?
Explain:

VEGETATION

Tree Stratum				Herb Stratum		
Total Plot Cover:0	0 = 50%	0 = 20%		Total Plot Cover:100	50 = 50%	20 = 20%
		Status/Raw % Cover				Status/Raw % Cover
1.				1.*Anthoxanthum odoratum*		FACU 40*
2.				2.*Agrostis stolonifera*		FAC 45*
3.				3.*Juncus effusus*		FACW 15
4.				4.		
5.				5.		
Sapling/Shrub Stratum				6.		
Total Plot Cover:45	22.5= 50%	9= 20%	Status/Raw % Cover	7.		
1.*Salix sp*			FACW 15*	8.		
2.*Rubus discolor*			FACU- 30*	9.		
3.				10.		
4.				11.		
5.				12.		

Hydrophytic Vegetation Indicators:
☐ > 50% of dominants are OBL, FACW or FAC Percent of Dominant **Species** that are OBL, FACW, FAC (not FAC-):50
Other hydrophytic vegetation indicators:
Criteria Met? ☐**Yes** ☒ **No** **Comments:** .

SOILS

Map Unit Name: Verboort silty clay loam Drainage Class: poorly drained
On Hydric Soil List? ☒ Yes ☐ No Has Hydric Inclusions? ☒ Yes ☐ No

Depth Range of Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture
0-6	10YR3/2	10YR3/6 FFD		Sicl
6-16	10YR3/2	None		L

Hydric Soil Indicators:
☐Histosol
☐Histic Epipedon
☐Sulfidic Odor
☐Reducing Conditions (tests positive)
☐Gleyed or low chroma colors
☐Redox features within 10" (e.g., concentrations)
☐Concretions/Nodules (w/in 3", > 2mm)
☐High organic content in surface (in Sandy Soils)
☐Organic streaking (in Sandy Soils)
☐Organic pan (in Sandy Soils)
☐ Listed on Hydric Soils List (and soil profile matches)
☐ Meets hydric soil criteria 3 or 4 (ponded or flooded for long duration)
☐ Supplemental indicator (e.g., NRCS field indicator)

Criteria Met? ☐ **Yes** ☒ **No**

HYDROLOGY

Recorded Data:
☐Recorded Data Available ☐Aerial Photos ☐Stream Gauge ☐ Other ☐ No Recorded Data Available
Field Data
Depth of inundation: Depth to Saturation: Depth to Free Water:
Primary Hydrology Indicators:
☐Inundated
☐Saturated in upper 12 inches
☐Water Marks
☐Drift Lines
☐Sediment Deposits
Secondary Hydrology Indicators (2 or more required):
☐Oxidized Root Channels (upper 12")
☐Water-stained leaves
☐Local Soil Survey Data
☐FAC – Neutral Test
☐Other:
Criteria Met? ☐**Yes** ☒ **No**
Comments: No evidence of wetland hydrology.

DETERMINATION

WETLAND? ☐**YES** ☒**NO** **Comments: Wetland criteria are not met.**

1988

Oregon

Theodore R. Kulongoski, Governor

Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 378-3805
FAX (503) 378-4844
www.oregonstatelands.us.

State Land Board

Theodore R. Kulongoski
Governor

Bill Bradbury
Secretary of State

Randall Edwards
State Treasurer

January 25, 2008

Clarence Langer
15585 SW Tualatin Sherwood Road
Sherwood, OR 97140

Re: Wetland Delineation Report for the Langer Property, Washington County, T2S R1W Sec. 29D,Tax Lot 300; WD #07-0466; City of Sherwood Local Wetlands Inventory, Wetland R-18

Dear Mr. Langer:

The Department of State Lands has reviewed the wetland delineation report prepared by Schott and Associates for the site referenced above. Based upon our review and a site visit on January 24, 2008, we concur with their delineation and conclusions. Within the study area, 1 wetland and 1 waterway were identified, totaling 0.87 acres. This wetland and waterway are subject to the permit requirements of the state Removal-Fill Law. A state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in the wetlands or below the ordinary high water line of a waterway (or the 2 year recurrence interval flood elevation if OHWL cannot be determined).

This concurrence is for purposes of the state Removal-Fill Law only. Federal or local permit requirements may apply as well. The Army Corps of Engineers will review the report and make a determination of jurisdiction for purposes of the Clean Water Act at the time that a permit application is submitted. We recommend that you attach a copy of this concurrence letter to both copies of any subsequent joint permit application to speed application review.

Please be advised that state law establishes a preference for avoidance of wetland impacts. Because measures to avoid and minimize wetland impacts may include reconfiguring parcel layout and size or development design, we recommend that you work with Department staff on appropriate site design before completing the city or county land use approval process.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter, unless new information necessitates a revision. Circumstances under which the Department may change a determination and procedures for renewal of an expired determination are found in OAR 141-090-0045 (available on our web site or upon request). The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within 60 calendar days of the date of this letter.

Thank you for having the site evaluated. Please phone me at 503-986-5232 if you have any questions.

Sincerely,

Peter Ryan, PWS
Wetland Specialist

Approved by Janet C. Morlan
Janet C. Morlan, PWS
Wetlands Program Manager

Enclosures

cc: Dale Gulliford, Schott and Associates
City of Sherwood Planning Department (Map enclosed for updating LWI)
Tina Teed, Corps of Engineers
Damon Reische, Clean Water Services
Carrie Landrum, DSL

SCHOTT & ASSOCIATES
Ecologists & Wetlands Specialists

21018 NE Hwy 99E • P.O. Box 589 • Aurora, OR 97002 • (503) 678-6007 • FAX: (503) 678-6011

JURISDICTIONAL WETLAND DETERMINATION AND DELINEATION OF THE Langer Property

Prepared for:
Clarence Langer
15585 SW Tualatin Sherwood Road
Sherwood, Oregon 97140
503.625.7070

Prepared by:
C. Steinkoenig

Project #: 1988
June 2007

Site Data Sheet

Project Name:	Langer Property
Project Number:	1988
Date of Site Visit:	3/26/07, 3/28/07, 5/14/07
Applicant:	Clarence Langer
Applicant's Address:	15585 SW Tualatin Sherwood Road Sherwood, Oregon 97140
Owner(s):	Same As Above
Owner(s) Address:	
State:	Oregon
County:	Washington
Site Location:	South of Tualatin Sherwood Road/ East of SW Adams Avenue
USGS Quadrangle:	Sherwood
Latitude/Longitude:	45°21.275'N /122°49.813'W
Tax Map Information:	2S129D TL300
Watershed:	Rock Creek
Adjacent Waterbody:	Unnamed tributary
In the Floodplain:	No
Topography:	Moderate/Gentle slopes
Site Zoning:	light industrial/commercial
Proposed Use:	Commercial
Present/Past Use:	Farmed
Surrounding Usage:	residential/commercial/industrial
Determination:	0.87 acre PSS/PFO/RFT
Days Since Last Rain:	0
Mapping accuracy:	G & L Surveying, Inc. PLS

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(A) Site Description

The project area is 15.74 acres and located in Sherwood, Oregon (Washington County, T2S, R1W, SE1/4 Sec. 29 TL300). Tualatin Sherwood Road defines the northern project boundary and SW Adams Avenue is located along the majority of the western property boundary. The Sherwood shopping center is located northwest of the site with residential properties located to the south of the shopping center. A pallet plant is located along the southern boundary of the subject property.

There is one drainage on-site that enters from the southwest corner of the site and exits near the mid-section of the parcel on the northeast side of the property. The topography of the northern and mid section of the site slopes gently to the east. The southern portion slopes to the southeast.

Portions of the site were planted to perennial rye grass (*Lolium perenne*) and crimson clover (*Trifolium incarnatum*). There was a remnant walnut (*Juglans sp.*) grove near the center of the property. The eastern mid-section of the property had two existing barns with some ornamental species, scattered walnut trees and Pacific madrone (*Arbutus menziesii*) colonizing the area. Native vegetation such as willow (*Salix sp*) and nootka rose (*Rosa nutkana*) and hawthorn (*Crataegus douglasii*) was found along the drainage way.

Project purpose

The property is zoned light industrial/commercial use. The site is proposed for commercial development to service the surrounding area.

(B) Wetland Description

There is one drainage on-site with wetlands associated with it. The drainage is an unnamed tributary of Rock Creek. The combined area of the drainage and wetland consists of 37,898 sf or 0.87 acres of palustrine emergent ,scrub-shrub and palustrine forested (PEM/PSS/PFO/RFT) wetland.

The drainage enters as a ditch onto the southwest corner of the property. Historically, the drainage was one contiguous channel that originated off-site to the southwest. At the time of the site visit, a remnant portion of the drainage remained off-site with a portion culverted around the pallet plant. The 8" culvert outfall ran into a ditched channel that flowed east along the southern property boundary of the subject site. The ditch was defined by the top of bank for approximately the first 200 feet. The channel was U-shaped with a predominately mud substrate. The depth of the channel from the top of bank to the bed substrate was approximately 2.5 feet deep. Adjacent to the north side of the drainage was a dense thicket of Himalayan blackberry (*Rubus discolor*). A fence ran

along the south side of the drainage separating the subject property and the adjacent pallet plant.

As the ditch curved to the northeast the channel broadened and the depth decreased almost matching the surrounding grade. Small fringe wetlands classified as palustrine emergent (PEM) were identified on the west side of the channel. A palustrine scrub-shrub (PSS) wetland community was identified adjacent to and within a portion of the drainage.

Plant species transitioned into native species that included Nootka rose and slough sedge (*Carex obnupta*). Willow lined the drainage as it extended to the north. Hawthorn was scattered throughout the willow community. A large water quality facility was located west of this portion of the drainage. The water quality facility drained into the creek through a 36-inch culvert where the drainage turned to the east. Large black cottonwood (*Populus trichocarpa*) was the dominant tree cover in this portion of the drainage. The drainage broadened further in this corner and developed into small braided channels with mud and small cobble substrate. It transitioned into a single channel and flowed through a dense scrub-shrub community comprised of large, impenetrable thicket of Nootka rose. Scattered hawthorn was observed as well. Himalayan blackberry was located directly adjacent to the rose community. After several hundred feet, the rose community transitioned to an established willow community.

As the drainage flowed east, it dropped through a ravine with a forested community on the adjacent slopes and an emergent community on the wetland terrace. The drainage channel was braided and flowed through a broad terrace that extended between the adjacent slopes. The forested community was comprised of willow with choke cherry (*Prunus virginiana*) and vine maple (*Acer circinatum*) along the slopes. Vegetation along the creek terrace included skunk cabbage (*Lysichiton americanum*), lady fern (*Athyrium filix-femina*), and slough sedge (*Carex obnupta*) as the dominant vegetation.

The channels joined together to form a single channel for a few feet before exiting east off site through two 24 inch culverts. The channel had a depth of approximately 1.5 to two feet deep and a mud substrate. Vegetation along this portion of the drainage consisted of reed canary grass (*Phalaris arundinacea*) with dense thickets of Himalayan blackberry on the adjacent slopes.

The analysis of wetlands conducted on this site was based on published methods for implementing Section 404 of the Clean Water Act. The 1987 manual was used to satisfy the requirements of the COE on non-agricultural land. The manual requires three parameters to be examined: vegetation, soils, and hydrology. According to the 1987 manual, independent evidence of hydrophytic vegetation, hydric soils, and wetland hydrology must be present for an area to be declared a wetland. The analysis of wetlands

on the project site was conducted by reviewing and analyzing existing site-specific literature and by field investigation.

(C) Site Analysis

The drainage entered on the southwest corner of the subject property. Historically, the drainage was one contiguous channel that originated off-site to the southwest. At the time of the site visit, a remnant portion of the drainage remained off-site with a portion culverted around the pallet plant. The 8" culvert outfall ran into a ditched channel that flowed east along the southern property boundary of the subject site. The ditch was defined by the top of bank for approximately the first 200 feet. It appears that this alteration has been in place for as long as the pallet plant has been in operation.

A large water quality facility drains into the drainage just as the drainage turns east. From this point on, no significant alterations were observed along the drainage. The remaining portion of the drainage appears to be remnant of historical conditions.

(D) Site Specific Methods

The Routine Onsite Determination Method (1987 manual, pp. 52-69) was used to determine the State of Oregon wetland boundaries and the Federal jurisdictional wetlands.

The majority of the drainage is surrounded by a dense scrub-shrub community with species that include Himalayan blackberry, Nootka rose and willow. The very east end of the drainage flows through a forested community.

The southwest side of the property was looked at first. The top of bank was identified and transect plots were taken perpendicular to the drainage channel to determine the wetland boundary adjacent to the drainage. From the southwest end of the property, the drainage flows east in a ditched channel. As it turns north, native vegetation appears and small fringe wetlands were identified along the west side of the drainage. Sample plot 1 was taken on the south end of property, west side of the drainage. A shrub community consisting of Nootka rose was identified. Grass and emergent species included tall fescue and slough sedge. The soil matrix color was 10YR2/1 from 0 to 6 inches and 10YR2/2 with 10YR3/6 mottles from 6 to 18 inches. Hydrology indicators included saturation at 6 inches. The 6 to 18 profile matched the mapped Verboort soil series.

Sample plot 2 represented the adjacent upland area. Meadow foxtail and tall fescue were the dominant grasses observed. Himalayan blackberry and Nootka rose comprised the shrub community. The soil matrix color was 10YR2/2 with 10YR3/6 mottling from 0 to 3 inches and a soil matrix color of 10YR4/4 from 3 to 6 inches. There was no evidence of hydrology.

The drainage turns east and flows through a ravine. The drainage channel becomes braided in this area. A wetland associated with the channels extended just above the toe of the adjacent slopes. The vegetation in this terrace area consists of emergent species that include skunk cabbage, water parsley, lady fern, slough sedge and common horsetail. The soil (sample plot 5) had a soil matrix color of 10YR3/1 from 0 to 16 inches. Soil saturation was observed to the surface. The depth of the various channels varied between 2 to 6 inches. The soil matrix color observed did not match the mapped soil series.

The upland area was clearly defined by the topography. The wetland stopped just above the toe of the slope. Vegetation in the upland included choke cherry, vine maple, Indian plum and beaked hazelnut. The herbaceous layer included sword fern, Dewey's sedge and fringecup. The soil had a matrix color of 10YR3/3 from 0 to 10 inches and 10YR3/4 from 10 to 16 inches (sample plot 6). The top 10 inches of the soil profile matched the soil matrix color mapped for this area. There was no evidence of hydrology.

(E) Deviation

No deviations were observed. The Local Wetland Inventory (LWI) for Sherwood showed a portion of the drainage onsite.

(F) Methods of Determining Other Waters of the State

The top of bank was flagged for the ditched portion of the drainage.

(G) Additional Info

None

(H) Statement of Mapping Accuracy

The wetland boundaries were flagged and the flags were surveyed by G & L Surveying, Inc. a professional Land Surveyor (PLS).

(I) Date of Investigation

The site visit for the fieldwork was conducted on March 26, 28 and May 14, 2007.

(J) Weather

The weather on the day of the March 26 site visit was cloudy with a total 0.09 inches of rain recorded at the Portland Station. There was a trace of rain recorded on March 28. In the two weeks prior, 2.06 inches of rain was recorded. A total of 28.62 inches of rain were recorded since October 1, 2007. This is 88 percent of the water year average.

On May 14 there was no precipitation recorded at the Portland Station. In the past two weeks 1.98 inches of rain was recorded. A total of 31.66 inches of rain were recorded since October 1, 2007. This is approximately 92 percent of the water year average.

(K) Results and Conclusions

The Local Wetland Inventory (NWI) map for Sherwood showed a wetland on the southern portion of the site. The Washington County Soil Survey mapped four soil series on the subject property: Quatama loam 0 to 3 percent slopes and 3 to 7 percent slopes, Aloha silt loam, Hillsboro loam, and Verboort silty clay loam. The Verboort soil series is listed as hydric soil.

Based on soil, hydrology and vegetation data taken there is one drainage on-site with wetlands associated with it. The drainage is an unnamed tributary of Rock Creek. The combined area of the drainage and wetland consists of 37,898 sf or 0.87 acres of palustrine scrub-shrub and palustrine forested (PSS/PFO/RFT) wetland.

(L) Required Disclaimer

This report documents the investigation, best professional judgment and the conclusions of the investigator. It is correct and complete to the best of my knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the Oregon Department of State lands in accordance with OAR 141-090-0005 through 141-090-0055.

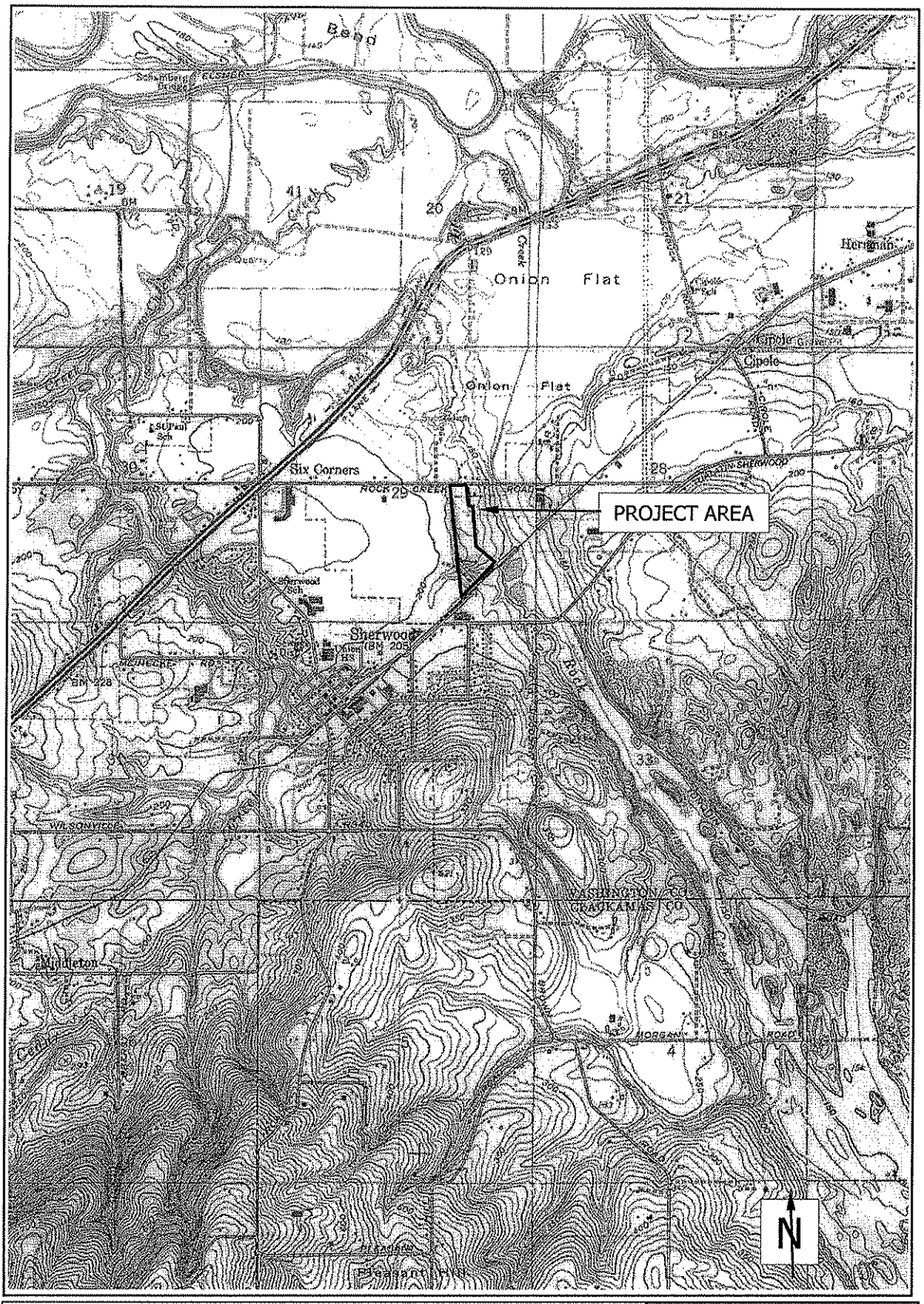


FIGURE 1. SITE VICINITY MAP –TOPOGRAPHIC MAP
LANGER PUD
S&A #1988

Schott & Associates
P.O. Box 589
Aurora, OR. 97002
503.678.6007

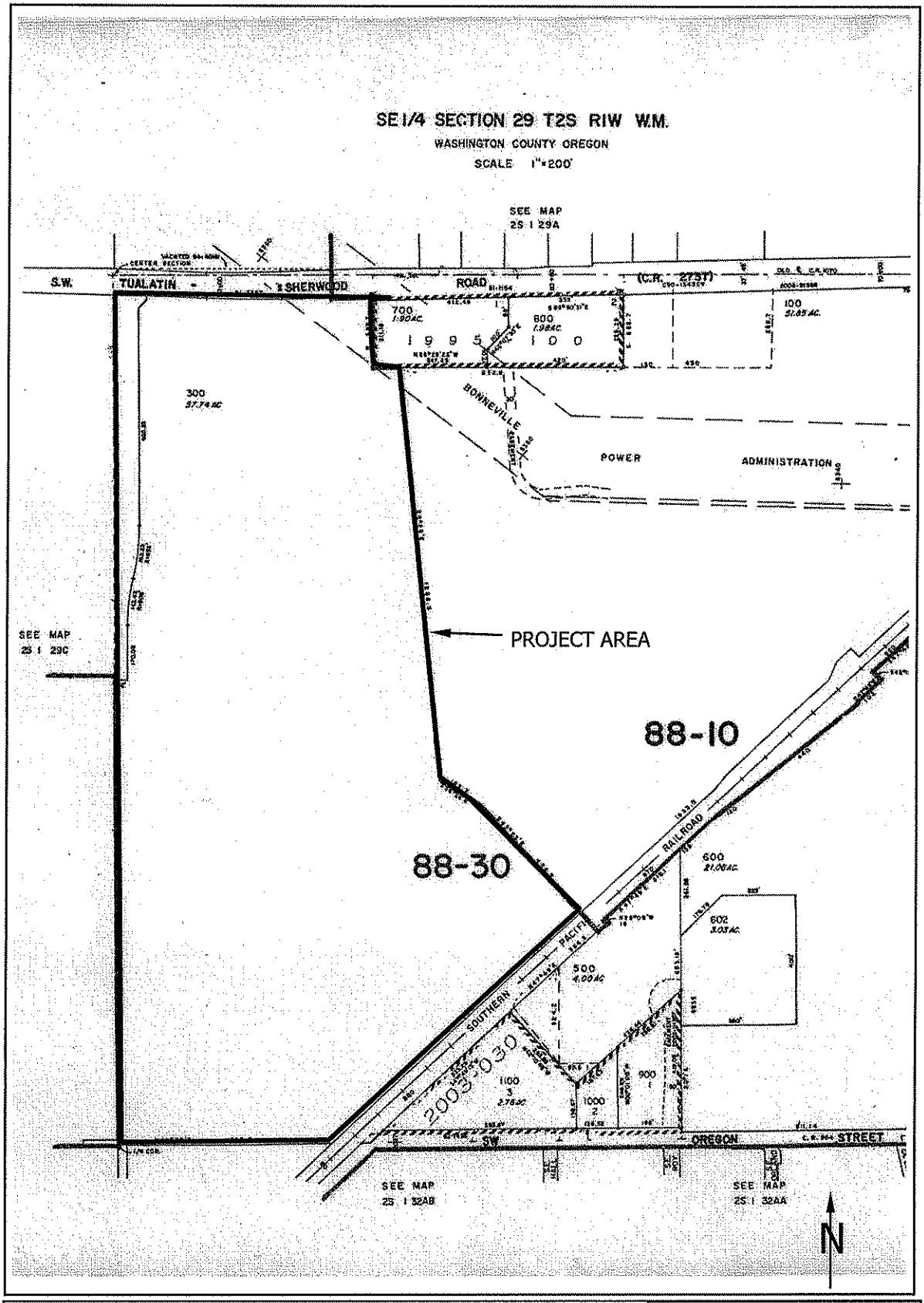


FIGURE 2. TAX MAP 2S 1 29D, TAX LOT 300
LANGER PUD
S&A #1988

Schott & Associates
P.O. Box 589
Aurora, OR. 97002
503.678.6007

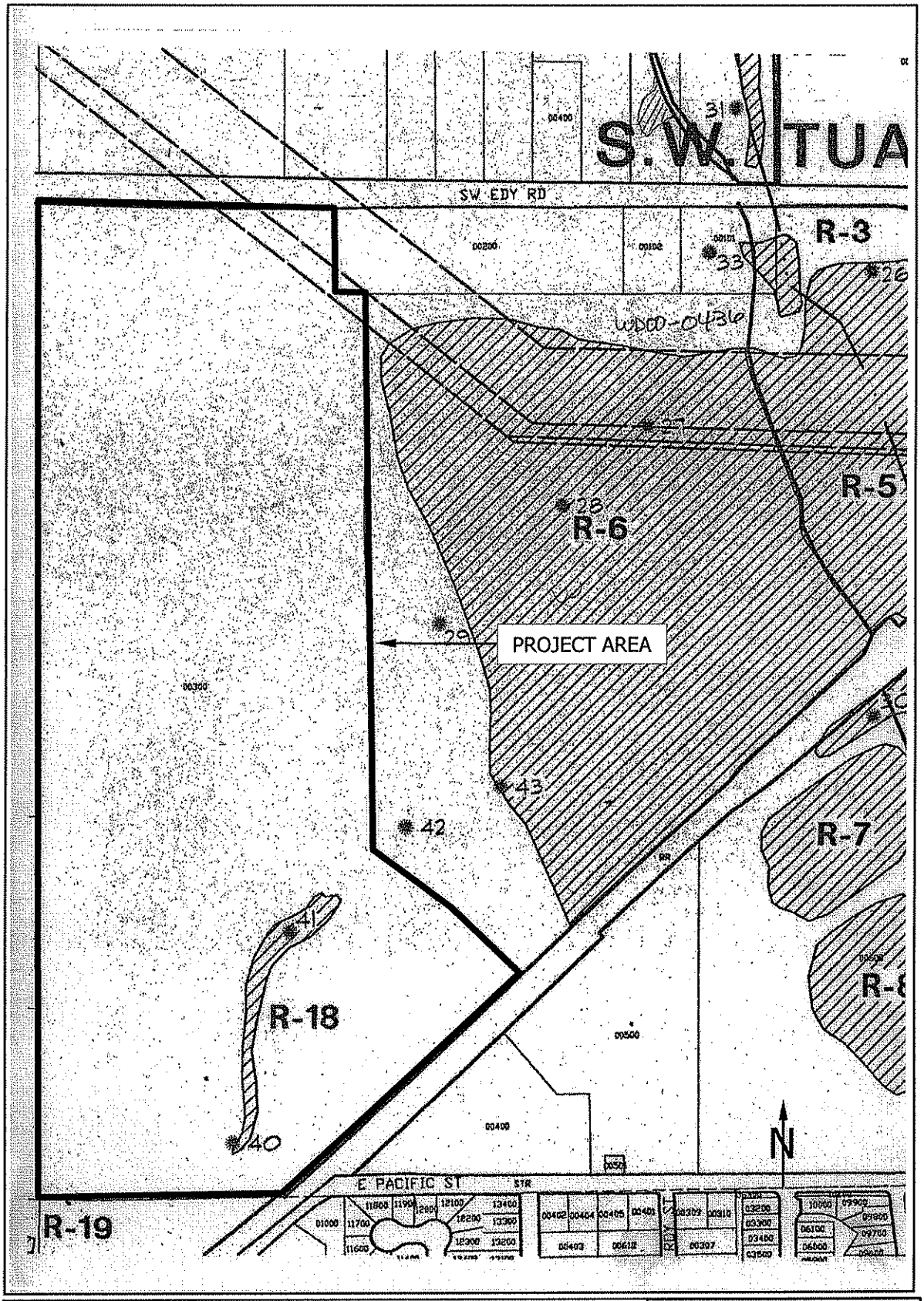


FIGURE 3. SHERWOOD LWI
LANGER PUD
S&A #1988

Schott & Associates
P.O. Box 589
Aurora, OR. 97002
503.678.6007

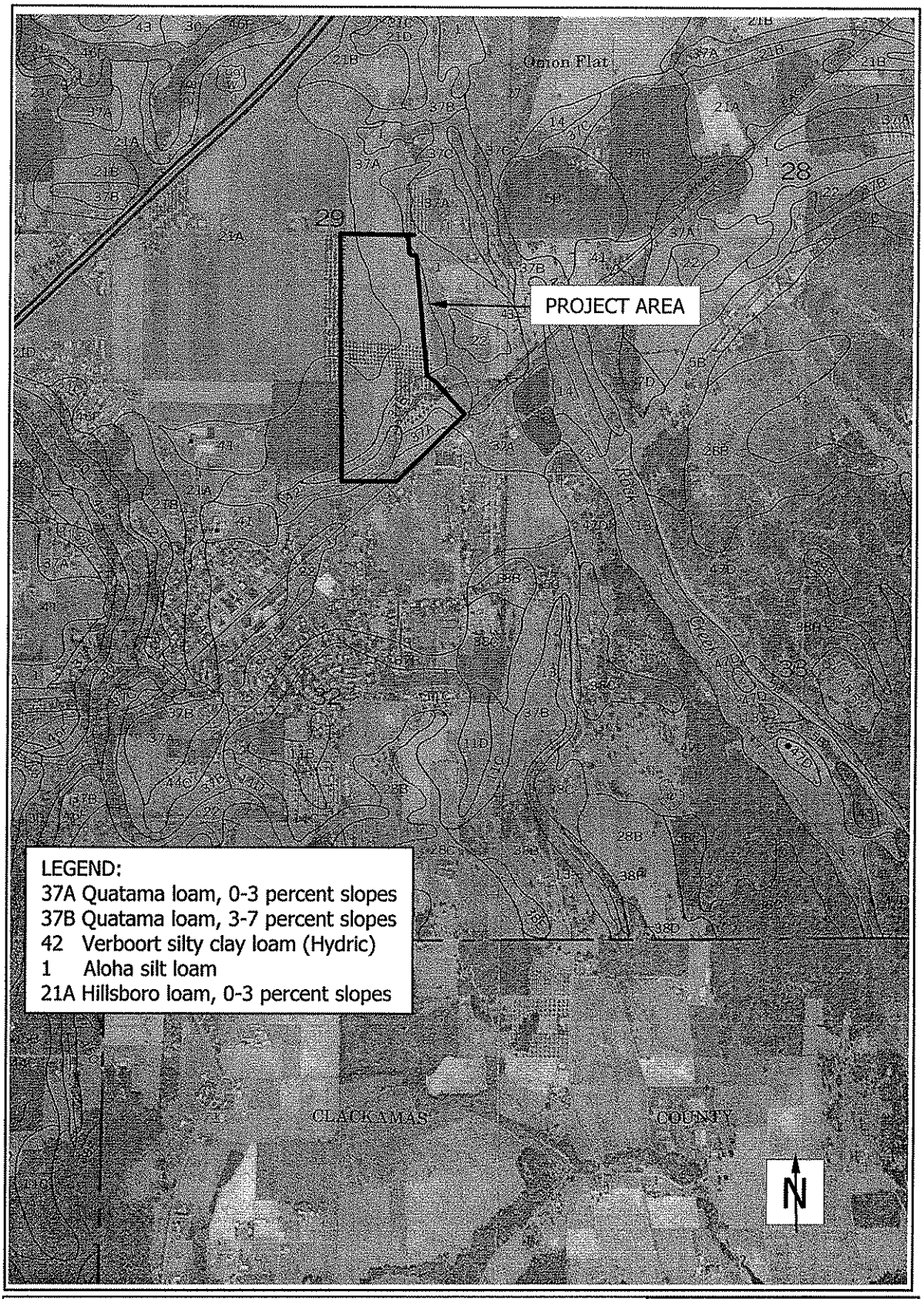
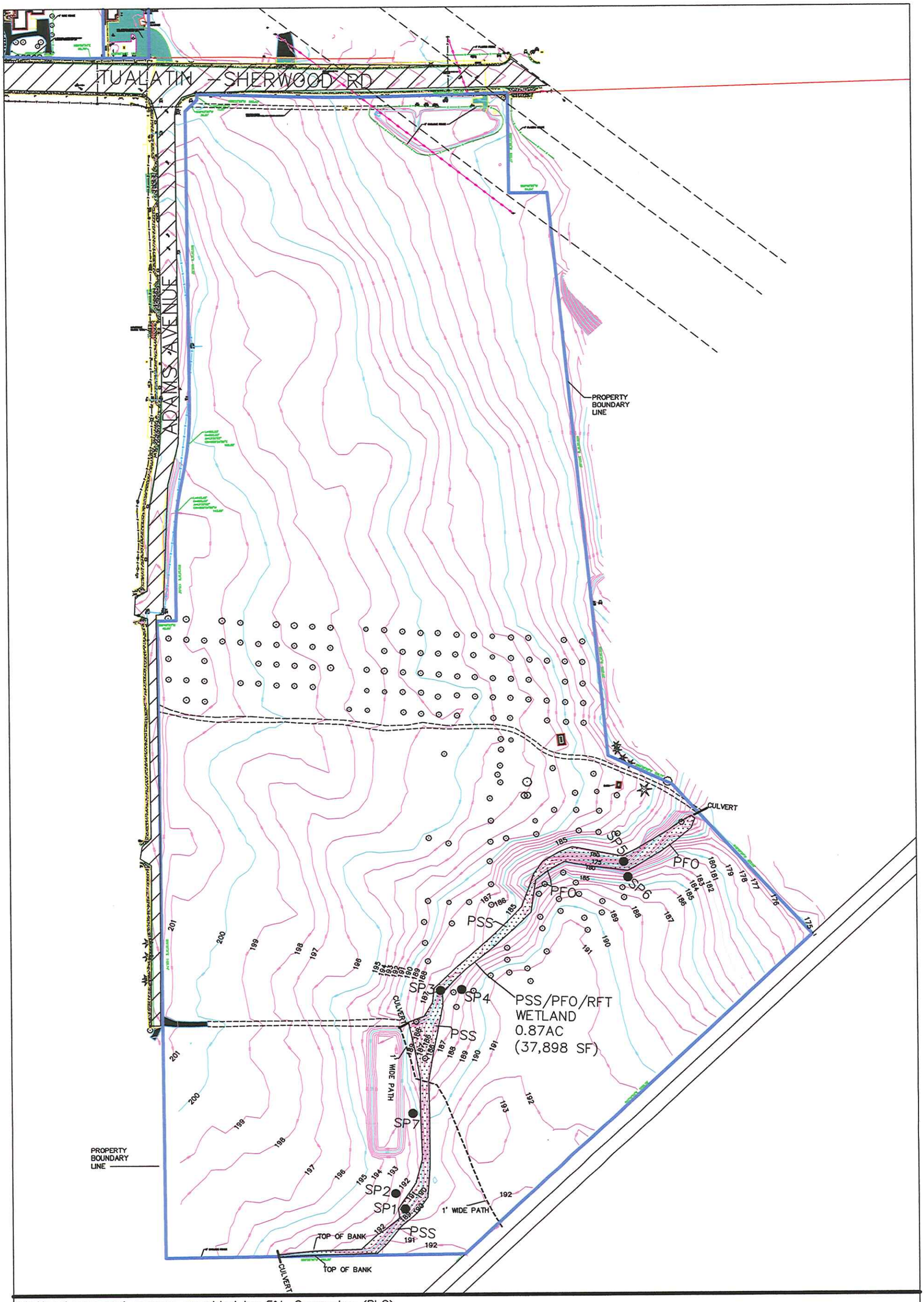


FIGURE 4. WASHINGTON COUNTY SOIL SURVEY, SHEET 49
LANGER PUD
S&A #1988

Schott & Associates
P.O. Box 589
Aurora, OR. 97002
503.678.6007



Wetland map and survey provided by G&L Surveying (PLS).

LANGER PUD
S&A #1988

WETLAND BOUNDARIES AND SAMPLE PLOT LOCATIONS

SCALE
1" = 200'

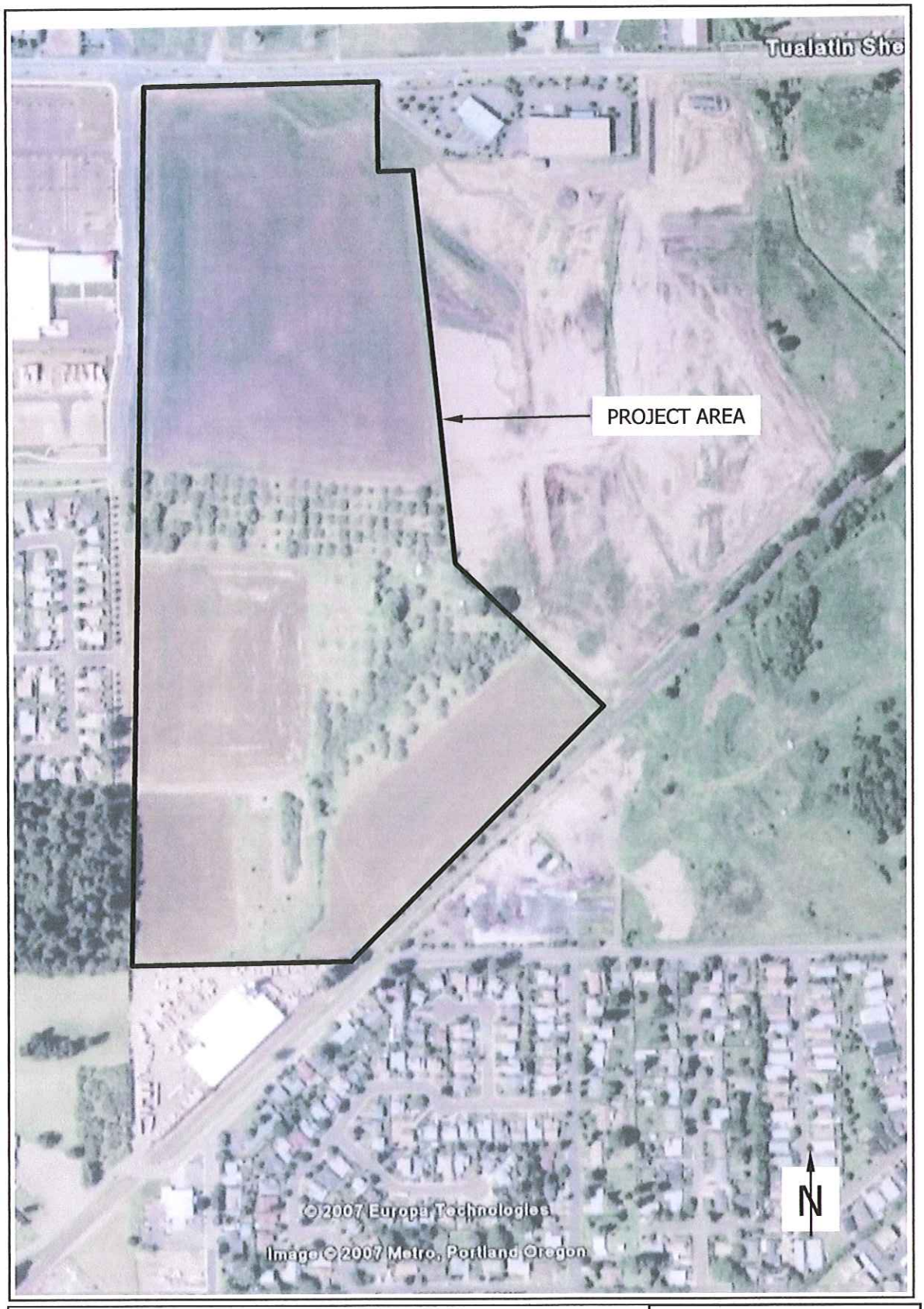


FIGURE 6. AERIAL
LANGER PUD
S&A #1988

Schott & Associates
P.O. Box 589
Aurora, OR. 97002
503.678.6007

Data Forms

DEPARTMENT OF STATE LANDS WETLAND DETERMINATION DATA FORM – Quick Method

County: Washington	Date: 3/26/07	City: Sherwood	File #:1988

Project/Contact: Schott & Associates
Det. By: C. Steinkoenig
Plant Community: Scrub-shrub/grass
Plot #:1
Plot Location: South end of drainage
Recent Weather: rain
Do normal environmental conditions exist? Y☒ N☐ If no, explain:
Has Vegetation ☐ Soil☐ Hydrology ☐ been significantly disturbed?
Explain:

VEGETATION

Tree Stratum				Herb Stratum		
Total Plot Cover:0	0 = 50%	0 = 20%		Total Plot Cover:100	50 = 50%	20 = 20%
		Status/Raw % Cover				Status/Raw % Cover
1.				1.*Carex obnupta*		OBL 75%*
2.				2.*Festuca arundinacea*		FAC- 25*
3.				3.*Rumex crispus*		FAC+ Trace
4.				4.		
5.				5.		
Sapling/Shrub Stratum				6.		
Total Plot Cover:70	35= 50%	14= 20%	Status/Raw % Cover	7.		
1.*Rosa nutkana*			FAC 70%*	8.		
2.				9.		
3.				10.		
4.				11.		
5.				12.		

Hydrophytic Vegetation Indicators:
☒ > 50% of dominants are OBL, FACW or FAC Percent of Dominant **Species** that are OBL, FACW, FAC (not FAC-):100
Other hydrophytic vegetation indicators:
Criteria Met? ☒**Yes** ☐ **No** **Comments:** tall fescue treated as hydrophytic species

SOILS

Map Unit Name: Verboort silty clay loam Drainage Class: Poorly drained
On Hydric Soil List? ☒ Yes ☐ No Has Hydric Inclusions? ☒ Yes ☐ No

Depth Range of Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture
0-6	10YR2/1	10YR3/6 CFD		SiCL
6-18	10YR2/2	10YR3/6 MFP		Cl

Hydric Soil Indicators:
☐Histosol
☐Histic Epipedon
☐Sulfidic Odor
☐Reducing Conditions (tests positive)
☒Gleyed or low chroma colors
☐Redox features within 10" (e.g., concentrations)
☐Concretions/Nodules (w/in 3", > 2mm)
☐High organic content in surface (in Sandy Soils)
☐Organic streaking (in Sandy Soils)
☐Organic pan (in Sandy Soils)
☒ Listed on Hydric Soils List (and soil profile matches)
☐ Meets hydric soil criteria 3 or 4 (ponded or flooded for long duration)
☐ Supplemental indicator (e.g., NRCS field indicator)

Criteria Met? ☒ **Yes** ☐ **No**

HYDROLOGY

Recorded Data:
☐Recorded Data Available ☐Aerial Photos ☐Stream Gauge ☐ Other ☐ No Recorded Data Available
Field Data
Depth of inundation: Depth to Saturation:6" Depth to Free Water:
Primary Hydrology Indicators:
☐Inundated
☒Saturated in upper 12 inches
☐Water Marks
☐Drift Lines
☐Sediment Deposits
Secondary Hydrology Indicators (2 or more required):
☐Oxidized Root Channels (upper 12")
☐Water-stained leaves
☐Local Soil Survey Data
☐FAC – Neutral Test
☐Other:
Criteria Met? ☒**Yes** ☐ **No** **Comments: Hydrology criterion is met.**

DETERMINATION

WETLAND? ☒**YES** ☐**NO** **Comments: Wetland criteria are met.**

DEPARTMENT OF STATE LANDS WETLAND DETERMINATION DATA FORM – Quick Method

County: Washington	Date: 3/26/07	City: Sherwood	File #:1988

Project/Contact: Schott & Associates
Det. By: C. Steinkoenig
Plant Community: Scrub-shrub/grass
Plot #:2
Plot Location: paired w/sample plot 1
Recent Weather: rain
Do normal environmental conditions exist? Y☒ N☐ If no, explain:
Has Vegetation ☐ Soil☐ Hydrology ☐ been significantly disturbed?
Explain:

VEGETATION

Tree Stratum				Herb Stratum		
Total Plot Cover:0	0 = 50%	0 = 20%		Total Plot Cover:100	50 = 50%	20 = 20%
		Status/Raw % Cover				Status/Raw % Cover
1.				1.*Alopecursus pratensis*		FACW 80*
2.				2.*Festuca arundinacea*		FAC- 25*
3.				3.		
4.				4.		
5.				5.		
Sapling/Shrub Stratum				6.		
Total Plot Cover:45	22.5= 50%	9= 20%	Status/Raw % Cover	7.		
1.*Rosa nutkana*			FAC 15%*	8.		
2.*Rubus discolor*			FACU- 30*	9.		
3.				10.		
4.				11.		
5.				12.		

Hydrophytic Vegetation Indicators:
☒ > 50% of dominants are OBL, FACW or FAC Percent of Dominant **Species** that are OBL, FACW, FAC (not FAC-):75
Other hydrophytic vegetation indicators:
Criteria Met? ☒**Yes** ☐ **No** **Comments:** tall fescue treated as hydrophytic species

SOILS

Map Unit Name: Verboort silty clay loam Drainage Class: Poorly drained
On Hydric Soil List? ☒ Yes ☐ No Has Hydric Inclusions? ☒ Yes ☐ No

Depth Range of Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture
0-3	10YR2/2	10YR3/6 FMD		SiCL
3-16	10YR4/4	none		Cl

Hydric Soil Indicators:
☐Histosol
☐Histic Epipedon
☐Sulfidic Odor
☐Reducing Conditions (tests positive)
☐Gleyed or low chroma colors
☐Redox features within 10" (e.g., concentrations)
☐Concretions/Nodules (w/in 3", > 2mm)
☐High organic content in surface (in Sandy Soils)
☐Organic streaking (in Sandy Soils)
☐Organic pan (in Sandy Soils)
☐ Listed on Hydric Soils List (and soil profile matches)
☐ Meets hydric soil criteria 3 or 4 (ponded or flooded for long duration)
☐ Supplemental indicator (e.g., NRCS field indicator)

Criteria Met? ☐ **Yes** ☒ **No**

HYDROLOGY

Recorded Data:
☐Recorded Data Available ☐Aerial Photos ☐Stream Gauge ☐ Other ☐ No Recorded Data Available
Field Data
Depth of inundation: Depth to Saturation: Depth to Free Water:
Primary Hydrology Indicators:
☐Inundated
☐Saturated in upper 12 inches
☐Water Marks
☐Drift Lines
☐Sediment Deposits
Secondary Hydrology Indicators (2 or more required):
☐Oxidized Root Channels (upper 12")
☐Water-stained leaves
☐Local Soil Survey Data
☐FAC – Neutral Test
☐Other:
Criteria Met? ☐**Yes** ☒ **No** **Comments: No evidence of wetland hydrology observed.**

DETERMINATION

WETLAND? ☐**YES** ☒**NO** **Comments: Hydrology and soil criterion is not met.**

DEPARTMENT OF STATE LANDS WETLAND DETERMINATION DATA FORM – Quick Method

County: Washington	Date: 3/26/07	City: Sherwood	File #:1988

Project/Contact: Schott & Associates
Det. By: C. Steinkoenig
Plant Community: Scrub-shrub/grass
Plot #:3
Plot Location: south side of drainage where it turns east
Recent Weather: rain
Do normal environmental conditions exist? Y☒ N☐ If no, explain:
Has Vegetation ☐ Soil☐ Hydrology ☐ been significantly disturbed?
Explain:

VEGETATION

Tree Stratum				Herb Stratum		
Total Plot Cover:30	15 = 50%	6 = 20%		Total Plot Cover:10	5 = 50%	2 = 20%
		Status/Raw % Cover				Status/Raw % Cover
1.*Salix lasiandra.*		FACW+ 15%*		1.*Phalaris arundinacea*		FACW 5%*
2.*Prunus virginiana*		FACU 15+%*		2.*Equsetum arvense*		FAC 5%*
3.				3.		
4.				4.		
5.				5.		
Sapling/Shrub Stratum				6.		
Total Plot Cover:80	40= 50%	16= 20%	Status/Raw % Cover	7.		
1.*Rosa nutkana*			FAC 80%*	8.		
2.				9.		
3.				10.		
4.				11.		
5.				12.		

Hydrophytic Vegetation Indicators:
☒ > 50% of dominants are OBL, FACW or FAC Percent of Dominant **Species** that are OBL, FACW, FAC (not FAC-):80
Other hydrophytic vegetation indicators:
Criteria Met? ☒**Yes** ☐ **No** **Comments:** Hyrophytic vegetation exceeds 50%..

SOILS

Map Unit Name: Verboort silty clay loam Drainage Class: Poorly drained
On Hydric Soil List? ☒ Yes ☐ No Has Hydric Inclusions? ☒ Yes ☐ No

Depth Range of Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture
0-10	10YR3/1-3/2	10YR4/1 FLD		SiCL
10-16	10YR3/2	10YR4/1 CFD		Cl

Hydric Soil Indicators:
☐Histosol
☐Histic Epipedon
☐Sulfidic Odor
☐Reducing Conditions (tests positive)
☒Gleyed or low chroma colors
☐Redox features within 10" (e.g., concentrations)
☐Concretions/Nodules (w/in 3", > 2mm)
☐High organic content in surface (in Sandy Soils)
☐Organic streaking (in Sandy Soils)
☐Organic pan (in Sandy Soils)
☐ Listed on Hydric Soils List (and soil profile matches)
☐ Meets hydric soil criteria 3 or 4 (ponded or flooded for long duration)
☐ Supplemental indicator (e.g., NRCS field indicator)

Criteria Met? ☒ **Yes** ☐ **No**

HYDROLOGY

Recorded Data:
☐Recorded Data Available ☐Aerial Photos ☐Stream Gauge ☐ Other ☐ No Recorded Data Available
Field Data
Depth of inundation: portions w/.5"-1" Depth to Saturation:to surface Depth to Free Water:
Primary Hydrology Indicators:
☒Inundated
☒Saturated in upper 12 inches
☐Water Marks
☐Drift Lines
☐Sediment Deposits
Secondary Hydrology Indicators (2 or more required):
☐Oxidized Root Channels (upper 12")
☐Water-stained leaves
☐Local Soil Survey Data
☐FAC – Neutral Test
☐Other:
Criteria Met? ☒**Yes** ☐ **No** **Comments: Hydrology criterion is met.**

DETERMINATION

WETLAND? ☒**YES** ☐**NO** **Comments: Wetland characteristics are met.**

DEPARTMENT OF STATE LANDS WETLAND DETERMINATION DATA FORM – Quick Method

County: Washington	Date: 3/26/07	City: Sherwood	File #:1988

Project/Contact: Schott & Associates
Det. By: C. Steinkoenig
Plant Community: Scrub-shrub
Plot #:4
Plot Location: paired with sample plot 3
Recent Weather: rain
Do normal environmental conditions exist? Y☒ N☐ If no, explain:
Has Vegetation ☐ Soil☐ Hydrology ☐ been significantly disturbed?
Explain:

VEGETATION

Tree Stratum				Herb Stratum		
Total Plot Cover:15	7.5 = 50%	3 = 20%		Total Plot Cover:30	15 = 50%	6 = 20%
		Status/Raw % Cover				Status/Raw % Cover
1.*Juglans sp.*		NOL 10		1.*Agrostis stolonifera*		FAC 20*
2.*Salix sp.*		FACW+ 5*		2.*Hypochoeris radicata*		FACU 10*
3.				3.		
4.				4.		
5.				5.		
Sapling/Shrub Stratum				6.		
Total Plot Cover:80	40= 50%	16= 20%	Status/Raw % Cover	7.		
1.*Corylus cornuta*			trace	8.		
2.*Rubus discolor*			FACU- 80*	9.		
3.				10.		
4.				11.		
5.				12.		

Hydrophytic Vegetation Indicators:
☐ > 50% of dominants are OBL, FACW or FAC Percent of Dominant **Species** that are OBL, FACW, FAC (not FAC-):50
Other hydrophytic vegetation indicators:
Criteria Met? ☐**Yes** ☒ **No** **Comments:** Does not exceed fifty percent.

SOILS

Map Unit Name: Verboort silty clay loam Drainage Class: Poorly drained
On Hydric Soil List? ☒ Yes ☐ No Has Hydric Inclusions? ☒ Yes ☐ No

Depth Range of Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture
0-8	10YR3/4	None		Sil
8-16	10YR3/6	None		Cl

Hydric Soil Indicators:
☐Histosol
☐Histic Epipedon
☐Sulfidic Odor
☐Reducing Conditions (tests positive)
☐Gleyed or low chroma colors
☐Redox features within 10" (e.g., concentrations)
☐Concretions/Nodules (w/in 3", > 2mm)
☐High organic content in surface (in Sandy Soils)
☐Organic streaking (in Sandy Soils)
☐Organic pan (in Sandy Soils)
☐ Listed on Hydric Soils List (and soil profile matches)
☐ Meets hydric soil criteria 3 or 4 (ponded or flooded for long duration)
☐ Supplemental indicator (e.g., NRCS field indicator)

Criteria Met? ☐ **Yes** ☒ **No**

HYDROLOGY

Recorded Data:
☐Recorded Data Available ☐Aerial Photos ☐Stream Gauge ☐ Other ☐ No Recorded Data Available
Field Data
Depth of inundation: Depth to Saturation: Depth to Free Water:
Primary Hydrology Indicators:
☐Inundated
☐Saturated in upper 12 inches
☐Water Marks
☐Drift Lines
☐Sediment Deposits
Secondary Hydrology Indicators (2 or more required):
☐Oxidized Root Channels (upper 12")
☐Water-stained leaves
☐Local Soil Survey Data
☐FAC – Neutral Test
☐Other:
Criteria Met? ☐**Yes** ☒ **No** **Comments: Hydrology criteia are not met.**

DETERMINATION

WETLAND? ☐**YES** ☒**NO** **Comments: Wetland criteria is not met.**

DEPARTMENT OF STATE LANDS WETLAND DETERMINATION DATA FORM – Quick Method

County: Washington	Date: 3/26/07	City: Sherwood	File #:1988

Project/Contact: Schott & Associates
Det. By: C. Steinkoenig
Plant Community: Scrub-shrub
Plot #:5
Plot Location: east end of drainage
Recent Weather: rain
Do normal environmental conditions exist? Y☒ N☐ If no, explain:
Has Vegetation ☐ Soil☐ Hydrology ☐ been significantly disturbed?
Explain:

VEGETATION

Tree Stratum				Herb Stratum		
Total Plot Cover:45	22.5 = 50%	9 = 20%		Total Plot Cover:100	50 = 50%	20 = 20%
		Status/Raw % Cover				Status/Raw % Cover
1.*Salix lasiandra*		FACW+ 45*		1.*Lysichiton americanum*		OBL 35*
2.				2.*Athyrium filix-femina*		FAC 30*
3.				3.*Equisteum arvense*		FAC 5
4.				4.*Carex obnupta*		OBL 15
5.				5.*Oenanthe sarmentosa*		OBL 15
Sapling/Shrub Stratum				6.		
Total Plot Cover:	= 50%	= 20%	Status/Raw % Cover	7.		
1.				8.		
2.				9.		
3.				10.		
4.				11.		
5.				12.		

Hydrophytic Vegetation Indicators:
☒ > 50% of dominants are OBL, FACW or FAC Percent of Dominant **Species** that are OBL, FACW, FAC (not FAC-):100
Other hydrophytic vegetation indicators:
Criteria Met? ☒**Yes** ☐ **No** **Comments:** Criteria are met.

SOILS

Map Unit Name: Quatama loam 3-7%slope Drainage Class: moderately well drained
On Hydric Soil List? ☒ Yes ☐ No Has Hydric Inclusions? ☒ Yes ☐ No

Depth Range of Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture
0-10	10YR3/1	None		sicl
10-16	10YR3/1	None		Cl

Hydric Soil Indicators:
☐Histosol
☐Histic Epipedon
☐Sulfidic Odor
☐Reducing Conditions (tests positive)
☒Gleyed or low chroma colors
☐Redox features within 10" (e.g., concentrations)
☐Concretions/Nodules (w/in 3", > 2mm)
☐High organic content in surface (in Sandy Soils)
☐Organic streaking (in Sandy Soils)
☐Organic pan (in Sandy Soils)
☐ Listed on Hydric Soils List (and soil profile matches)
☐ Meets hydric soil criteria 3 or 4 (ponded or flooded for long duration)
☐ Supplemental indicator (e.g., NRCS field indicator)

Criteria Met? ☒ **Yes** ☐ **No**

HYDROLOGY

Recorded Data:
☐Recorded Data Available ☐Aerial Photos ☐Stream Gauge ☐ Other ☐ No Recorded Data Available
Field Data
Depth of inundation: Depth to Saturation:to surface Depth to Free Water:
Primary Hydrology Indicators:
☐Inundated
☒Saturated in upper 12 inches
☐Water Marks
☐Drift Lines
☐Sediment Deposits
Secondary Hydrology Indicators (2 or more required):
☐Oxidized Root Channels (upper 12")
☐Water-stained leaves
☐Local Soil Survey Data
☐FAC – Neutral Test
☐Other:
Criteria Met? ☒**Yes** ☐ **No** **Comments: Hydrology criteria are met.**

DETERMINATION

WETLAND? ☒**YES** ☐**NO** **Comments: Wetland criteria are met.**

DEPARTMENT OF STATE LANDS WETLAND DETERMINATION DATA FORM – Quick Method

County: Washington	Date: 3/26/07	City: Sherwood	File #:1988

Project/Contact: Schott & Associates
Det. By: C. Steinkoenig
Plant Community: Scrub-shrub
Plot #:6
Plot Location: Paired w/ sp5 on slope
Recent Weather: rain
Do normal environmental conditions exist? Y☒ N☐ If no, explain:
Has Vegetation ☐ Soil☐ Hydrology ☐ been significantly disturbed?
Explain:

VEGETATION

Tree Stratum				Herb Stratum		
Total Plot Cover:35	17.5 = 50%	7 = 20%		Total Plot Cover:75	37.5 = 50%	15 = 20%
		Status/Raw % Cover				Status/Raw % Cover
1.*Prunus virginiana*		FACU 35*		1.*Polystichum munitum*		FACU 15*
2.				2.*Carex deweyana*		FACU 30*
3.				3.*Tellima grandiflora*		NOL 30
4.				4.		
5.				5.		
Sapling/Shrub Stratum				6.		
Total Plot Cover:35	17.5= 50%	7= 20%	Status/Raw % Cover	7.		
1.*Acer circinatum*			FAC- 15*	8.		
2.*Corylus cornuta*			FACU 15*	9.		
3.*Oemleria cerasiformis*			FACU 5	10.		
4.				11.		
5.				12.		

Hydrophytic Vegetation Indicators:
☐ > 50% of dominants are OBL, FACW or FAC Percent of Dominant **Species** that are OBL, FACW, FAC (not FAC-):0
Other hydrophytic vegetation indicators:
Criteria Met? ☐**Yes** ☒ **No** **Comments:** No hydrophytic vegetation..

SOILS

Map Unit Name: Quatama loam 3-7% Drainage Class: moderately well drained
On Hydric Soil List? ☐ Yes ☒ No Has Hydric Inclusions? ☒ Yes ☐ No

Depth Range of Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture
0-10	10YR3/3	None		L
10-16	10YR3/4	None		L

Hydric Soil Indicators:
☐Histosol
☐Histic Epipedon
☐Sulfidic Odor
☐Reducing Conditions (tests positive)
☐Gleyed or low chroma colors
☐Redox features within 10" (e.g., concentrations)
☐Concretions/Nodules (w/in 3", > 2mm)
☐High organic content in surface (in Sandy Soils)
☐Organic streaking (in Sandy Soils)
☐Organic pan (in Sandy Soils)
☐ Listed on Hydric Soils List (and soil profile matches)
☐ Meets hydric soil criteria 3 or 4 (ponded or flooded for long duration)
☐ Supplemental indicator (e.g., NRCS field indicator)

Criteria Met? ☐ **Yes** ☒ **No**

HYDROLOGY

Recorded Data:
☐Recorded Data Available ☐Aerial Photos ☐Stream Gauge ☐ Other ☐ No Recorded Data Available
Field Data
Depth of inundation: Depth to Saturation: Depth to Free Water:
Primary Hydrology Indicators:
☐Inundated
☐Saturated in upper 12 inches
☐Water Marks
☐Drift Lines
☐Sediment Deposits
Secondary Hydrology Indicators (2 or more required):
☐Oxidized Root Channels (upper 12")
☐Water-stained leaves
☐Local Soil Survey Data
☐FAC – Neutral Test
☐Other:
Criteria Met? ☐**Yes** ☒ **No** **Comments: No evidence of wetland hydrology.**

DETERMINATION

WETLAND? ☐**YES** ☒**NO** **Comments: Wetland criteria are not met.**

DEPARTMENT OF STATE LANDS WETLAND DETERMINATION DATA FORM – Quick Method

County: Washington	Date: 3/26/07	City: Sherwood	File #:1988

Project/Contact: Schott & Associates
Det. By: C. Steinkoenig
Plant Community: grass/scrub-shrub
Plot #:7
Plot Location: west side of drainage near WQF
Recent Weather: rain
Do normal environmental conditions exist? Y☒ N☐ If no, explain:
Has Vegetation ☐ Soil☐ Hydrology ☐ been significantly disturbed?
Explain:

VEGETATION

Tree Stratum				Herb Stratum		
Total Plot Cover:0	0 = 50%	0 = 20%		Total Plot Cover:100	50 = 50%	20 = 20%
		Status/Raw % Cover				Status/Raw % Cover
1.				1.*Anthoxanthum odoratum*		FACU 40*
2.				2.*Agrostis stolonifera*		FAC 45*
3.				3.*Juncus effusus*		FACW 15
4.				4.		
5.				5.		
Sapling/Shrub Stratum				6.		
Total Plot Cover:45	22.5= 50%	9= 20%	Status/Raw % Cover	7.		
1.*Salix sp*			FACW 15*	8.		
2.*Rubus discolor*			FACU- 30*	9.		
3.				10.		
4.				11.		
5.				12.		

Hydrophytic Vegetation Indicators:
☐ > 50% of dominants are OBL, FACW or FAC Percent of Dominant **Species** that are OBL, FACW, FAC (not FAC-):50
Other hydrophytic vegetation indicators:
Criteria Met? ☐**Yes** ☒ **No** **Comments:** .

SOILS

Map Unit Name: Verboort silty clay loam Drainage Class: poorly drained
On Hydric Soil List? ☒ Yes ☐ No Has Hydric Inclusions? ☒ Yes ☐ No

Depth Range of Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture
0-6	10YR3/2	10YR3/6 FFD		Sicl
6-16	10YR3/2	None		L

Hydric Soil Indicators:
☐Histosol
☐Histic Epipedon
☐Sulfidic Odor
☐Reducing Conditions (tests positive)
☐Gleyed or low chroma colors
☐Redox features within 10" (e.g., concentrations)
☐Concretions/Nodules (w/in 3", > 2mm)
☐High organic content in surface (in Sandy Soils)
☐Organic streaking (in Sandy Soils)
☐Organic pan (in Sandy Soils)
☐ Listed on Hydric Soils List (and soil profile matches)
☐ Meets hydric soil criteria 3 or 4 (ponded or flooded for long duration)
☐ Supplemental indicator (e.g., NRCS field indicator)

Criteria Met? ☐ **Yes** ☒ **No**

HYDROLOGY

Recorded Data:
☐Recorded Data Available ☐Aerial Photos ☐Stream Gauge ☐ Other ☐ No Recorded Data Available
Field Data
Depth of inundation: Depth to Saturation: Depth to Free Water:
Primary Hydrology Indicators:
☐Inundated
☐Saturated in upper 12 inches
☐Water Marks
☐Drift Lines
☐Sediment Deposits
Secondary Hydrology Indicators (2 or more required):
☐Oxidized Root Channels (upper 12")
☐Water-stained leaves
☐Local Soil Survey Data
☐FAC – Neutral Test
☐Other:
Criteria Met? ☐**Yes** ☒ **No** **Comments: No evidence of wetland hydrology.**

DETERMINATION

WETLAND? ☐**YES** ☒**NO** **Comments: Wetland criteria are not met.**

Appendices

Boiler Plate Information
References

Boiler Plate Information

Wetland Definition and Authority

The U.S. Army Corps of Engineers (COE) regulates the discharge of dredged or fill materials into waters and adjacent wetlands of the United States under authority of Section 404 of the Clean Water Act (*Federal Register,* 1986). For purposes of the Section 404 permitting program, the COE and other federal agencies define wetlands as follows (*Federal Register,* 1980, 1982):

> "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

In Oregon, the Department of State Lands (DSL) regulates removal/fill permitting in wetlands under ORS 196.800 to 196.990, and OAR 141-85-005 to OAR 141-85-090, and uses the same definition.

Regulatory Context

In 1987, the COE published a manual (Corps of Engineers Wetlands Delineation Manual or 1987 manual), which describes methods for determining the extent of jurisdictional wetlands under Section 404 of the Clean Water Act (Environmental Laboratory, 1987). *The Federal Manual for Identifying and Delineating Jurisdictional Wetlands* was published two years later as a collaborative effort by the COE, U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency (EPA), and U.S. Soil Conservation Service (SCS), revised the 1987 manual (Federal Interagency Committee for Wetland Delineation, or 1989 manual).

Both the COE and DSL used the 1989 manual until 1992 when the 1992 Energy and Water Development Appropriation Act went into effect. The Act limited the COE (federal permitting agency) to using the 1987 manual for determining the extent of wetlands under federal jurisdiction. Oregon continued to use the 1989 manual until March 23, 1993, when the Director of DSL signed a policy statement requiring the agency to use the 1987 manual. The policy statement was the result of the EPA agreement to use the 1987 manual.

Vegetation

Plants growing in wetlands must be specifically adapted for life under saturated or anaerobic conditions and are commonly referred to as hydrophytic vegetation. The U.S.F.W.S. in cooperation with the National and Regional Interagency Review Panels publishes regional lists estimating the probability of plant species' occurrence in wetlands (e.g., Fish and Wildlife Service, 1988). Each species is given an *indicator status*, which represents the likelihood that it will be found in a wetland. Categories defined in Table 1

are obligate (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), or upland (UPL). Plants with an indicator status of OBL, FACW, or FAC are considered adapted for life in saturated or anaerobic soil conditions.

The percent coverage of each plant species within the herb, shrub, and tree layers was estimated at each sample plot. Shrubs within a five-foot radius and trees within a 30-foot radius of the center of each plot were identified and recorded. Within the plot, all species were recorded in descending order of coverage, and dominant species were determined. The presence of wetland vegetation was determined according to the indicator status of the dominant species within each vegetative stratum. According to the manual, a sample plot is considered to have wetland vegetation if more than 50% of the number of dominant species present has an indicator status of OBL, FACW, and/or FAC. By 1987 standards, dominant species are chosen by selecting the three most dominant species from each of the four strata (herbs, saplings/shrubs, woody vines, trees). If only one or two strata are represented, then the five most dominant species from each stratum are selected.

TABLE 1: DEFINITIONS OF INDICATOR STATUS

Indicator Symbol	Definition
OBL	Obligate. Species that occur in wetlands under natural conditions with an estimated probability of greater than 99%
FACW	Facultative wetland. Species that usually occur in wetlands (estimated probability 67 to 99%), but occasionally are found in non-wetlands.
FAC	Facultative. Species that are equally likely to occur in wetlands or non-wetlands (estimated probability 34 to 66%).
FACU	Facultative upland. Species that usually occur in non-wetlands (estimated probability 67 to 99%), but occasionally are found in wetlands.
UPL	Upland. Species that occur in non-wetlands under natural conditions with an estimated probability of greater than 99%
NI	No indicator. Species for which insufficient information was available to determine an indicator status.

Sources: Federal Interagency Committee for Wetland Delineation, 1989. Environmental Laboratory, 1987. Reed, 1988.

Soils

Hydric soils, defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile, are one characteristic of wetlands (USDA Soil Conservation Service, 1987). A list of hydric soils of the United States was compiled by the Soil Conservation Service (SCS), in cooperation with the National Technical Committee for Hydric Soils (NTCHS). All soils are mapped in county soil surveys. However, the mapped boundaries of SCS soil types are not at a fine enough resolution for delineating boundaries of jurisdictional wetlands. Errors of omission can occur on SCS maps. Inclusions of upland (non-wetland) soil may exist in hydric soils and uplands may have inclusions of hydric soil. Therefore, field examination of soils is important for accurately delineating the extent of hydric soils. Hydric soils exhibit certain characteristics that can be observed in the field. Field indicators include: high organic content, accumulation of sulfidic material (rotten egg odor), greenish or bluish gray color (gley formation), iron and manganese concretions, spots or blotches of color (mottling), and/or dark soil colors (low soil chroma).

A shovel, excavating down to a depth of at least 16 inches, was used to sample soil along the wetland boundary. Soil samples were checked for presence of sulfide gases; organic content was estimated visually and texturally; and soil colors were determined by using a Munsell soil color chart (Kollmorgen 1975). The Munsell soil color chart provides the standard for three attributes of color: hue, value, and chroma.

According to the 1987 manual, hydric soils are required to be inundated or saturated for seven or more consecutive days during the growing season. Soil color is examined in the horizon immediately below the A-horizon, or within 10 inches of the surface, whichever is shallower.

Hydrology

Wetlands, by their very name, must have water. Jurisdictional wetlands are characterized as having permanent or periodic inundation, or soil saturation for five percent or more of the growing season. Saturation occurs when the capillary fringe is within the major portion of the root zone (usually within 12 inches of the surface). Areas meeting one of these criteria are considered to have wetland hydrology.

Ponding or soil saturation for five percent or more of the growing season during the growing season is direct evidence of wetland hydrology. Bare soil and dried algae are evidence that a site was previously inundated. Oxidized rhizospheres along live root channels also indicate soil saturation for five percent or more of the growing season. At each sample plot, wetland hydrology was assumed if positive indicators were present.

Wetland Determination

Presence or absence of wetlands was based on soil, vegetation, and hydrology data collected at sample plots. Following procedures outlined in the 1987 manual, sample plots with homogeneous vegetation were determined to be wetlands if wetland characteristics were present or judged to be normally present (barring human or unusual natural events) for all three parameters.

Difficulties in wetland determination can arise because of disturbance or in problem areas. Both human (e.g., clearing vegetation, agriculture, filling, and excavation) and natural (e.g., mudslides, fire, and beaver dams) events have potential for obliterating field indicators of the three wetland parameters. In disturbed sites, both field and offsite data may be used to determine the presence of a wetland. Offsite information such as historical records, aerial photographs, previous soil, and vegetation surveys may indicate the presence of a jurisdictional wetland.

Some sites are difficult to evaluate because field indicators may not be present throughout the year. Field indicators may vary because of changing environmental conditions that occur seasonally and not necessarily the result of human or natural disturbance.

According to the 1987 manual, all three parameters (hydric soils, hydrophytic vegetation, and wetland hydrology) must be present for an area to be determined as wetland. Drumlins, seasonal wetlands, prairie potholes, and vegetated flats exemplify areas that are difficult to evaluate.

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