

Sedro-Woolley City Council Meeting  
Wed, Jun 10, 2020 4:00 PM - 5:00 PM (PDT)

Please join the meeting from your computer, tablet or smartphone.

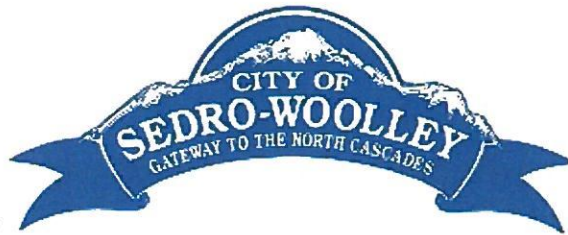
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United States: +1 (646) 749-3122  
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Next Ord: 1957-20  
Next Res: 1053-20

VISION STATEMENT

SEDRO-WOOLLEY IS A FRIENDLY CITY THAT IS CHARACTERIZED BY CITY GOVERNMENT AND CITIZENS WORKING TOGETHER TO ACHIEVE A PROSPEROUS, VIBRANT AND SAFE COMMUNITY

MISSION STATEMENT

TO PROVIDE SERVICES AND OPPORTUNITIES WHICH CREATE A COMMUNITY WHERE PEOPLE CHOOSE TO LIVE, WORK AND PLAY

**CITY COUNCIL AGENDA**

**June 10, 2020**

**4:00 PM**

**Sedro-Woolley Municipal Building**

**Council Chambers**

**325 Metcalf Street**

- a. Call to Order**
- b. Pledge of Allegiance**
- c. Roll Call**
- d. Approval of Agenda**
- e. Consent Agenda.....8-52**

Note: Items on the Consent Agenda are considered routine in nature and may be adopted by the Council by a single motion, unless any Councilmember wishes an item to be removed. The Council on the Regular Agenda will consider any item so removed after the Consent Agenda.

- 1. Minutes from Previous Meeting
- 2. Finance
  - Claim Checks #193184 to #193254 in the amount of \$207,681.42
  - Payroll Checks #60070 to #60083 plus EFT's in the amount of \$424,954.72
- 3. Possible Surplus of Units (Resolution 1052-20)
  - Unit No. 109 2000 Ford New Holland 60"
  - Unit No. 512 1994 Ford F-150 XL
  - Unit No. 513 1984 Ford Back Hoe with Grapple
  - White Ford Ranger Canopy
- 4. Grant Application: CARES COVID-19 Grant

- f. Introduction of Special Guests and Presentations (*none scheduled as of the date of this agenda*)**

- g. Staff Reports**

- h. Councilmember and Mayor's Reports**

- i. Proclamation(s) (*none scheduled as of the date of this agenda*)**

- j. Public Comments.....53**

*The public comment period will be closed. However, you may provide written questions or comments via email, or by letter. We are currently exploring options to host meetings remotely.*

- k. Public Hearing(s) (*none scheduled as of the date of this agenda*)**

- l. Unfinished Business (*none scheduled as of the date of this agenda*)**

- m. New Business**
  - 1. Preliminary Plat of Garden Meadows (*action requested - Resolution*).....54-232
  - 2. Preliminary Plat of Brickyard Park – A Planned Residential Development  
(*action requested - Resolution*).....233-806
- n. Information Only Items**
  - 1. Library Project Cost Summary.....807-809
  - 2. Fire Department Monthly Incident Data – May 2020.....810
- o. Good of the Order**
- p. Executive Session** (*none scheduled as of the date of this agenda*)
- q. Adjournment**

*There may be an Executive Session during or following the meeting.*

**Next Meeting(s)**

<b>June 24, 2020</b>	<b>Council Meeting</b>	<b>4:00 PM</b>	<b>Council Chambers</b>
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**COMMITTEE ASSIGNMENTS  
2020**

<b>Public Safety</b>	Chuck Owen, Chair Karl de Jong Brendan McGoffin <i>Staff liaison: Chief Tucker &amp; Chief Klinger</i>
<b>Utilities</b>	Karl de Jong, Chair Brenda Kinzer Jared Couch <i>Staff liaison: Mark Freiburger</i>
<b>Finance &amp; Personnel</b>	Glenn Allen, Chair Chuck Owen Germaine Kornegay <i>Staff liaison: Jill Scott</i>
<b>Parks &amp; Recreation</b>	Brenda Kinzer, Chair Germaine Kornegay Jared Couch <i>Staff liaison: Nathan Salseina</i>
<b>Planning</b>	Germaine Kornegay, Chair Glenn Allen Chuck Owen <i>Staff liaison: John Coleman</i>
<b>Business Development</b>	Jared Couch, Chair Glenn Allen Brendan McGoffin <i>Staff liaison: Doug Merriman</i>
<b>Technology</b>	Brendan McGoffin, Chair Karl de Jong Brenda Kinzer <i>Staff liaison: Bill Chambers</i>
<b>Mayor Pro-tem</b>	Jared Couch

## COUNCIL COMMITTEE ASSIGNMENTS

### II. Council Committees

A. Annually, at the first meeting of the year, the Mayor shall appoint two councilmembers and a council chairperson to each standing committee of the Council, subject to confirmation by the city council. In making the appointments, the Mayor shall consider councilmembers' expressed interests and shall attempt to match councilmembers to their committees of choice.

#### B. Standing Committees

1. **Public Safety:** To consider issues and make recommendations to the full Council related to the police department, fire department, municipal court and public policies relevant to those departments.

2. **Utilities:** To consider issues and make recommendations to the full Council related to the City's sewer, storm water and solid waste utilities including operational policies, rates and related policies.

3. **Finance & Personnel:** To consider issues and make recommendations to the full Council related to financial management policies, financial reports and personnel issues including personnel policies.

4. **Parks & Recreation:** To consider issues and make recommendations to the full Council related to the parks department and the provisioning of parks and recreation programming in the City.

5. **Business Development:** To consider issues and make recommendations to the full Council related to the attraction of new businesses and the retention of existing businesses within the City.

6. **Planning:** To consider issues and make recommendations to the full Council related to long-term planning and growth in the City.

#### C. The Role of City Council Committees

1. City Council Committees are intended to enhance communication between the Legislative Branch and the Executive Branch at the early phase of the development of significant items affecting public policy questions.

2. These Committees will enable City administration to obtain early feedback from representative members of the City Council on issues affecting public policy prior to their presentation, as necessary, to the full City Council.

3. City Council Committee members develop and maintain a deeper level of knowledge on matters of a technical nature which might affect public policy in order to increase the positive

exchange of information and discussions between City Council members, City staff, and the public.

4. When appropriate, items may be considered by a City Council Committee before a final recommendation from the appropriate City Board or Commission (i.e., Planning Commission, Parks Board).

5. City Council Committees do not replace the City Council as final decision makers on behalf of the full City Council. Council Committees make no staff direction on administrative matters, specific assignments, or work tasks. If Committee members seek additional information from an outside party or consultant resulting in additional cost to the City, approval to incur such cost must be approved by the full City Council.

6. Any discussion or feedback expressed or received at a Committee meeting should not be construed or understood to be a decision by or for the City Council. Further, any recommendation the Committee may make to the City Council is based on information possessed by the Committee at the time the recommendation is made and may be revised or amended upon receipt by the Committee of additional or newer information.

#### D. Operational Guidelines and Functional Structure

1. City Council Committees consist of three Council members one of whom is the committee chair. The Mayor may attend and participate in all Committee meetings.

2. No member of the City Council may serve on more than three Committees.

3. Council Committees will meet at least quarterly.

4. Council Committees have no delegated authority from the City Council and shall not take testimony from the public.

5. The Staff Liaison will coordinate with the Mayor and City Supervisor on the preparation of the agenda to determine whether items will be presented to a Committee or placed on the Council's regular agenda to be considered by the full City Council. Any item may be referred to the full Council by the Committee considering that item.

6. The full City Council by majority vote may refer any item on its agenda to an appropriate Committee for further review and recommendation.

7. Committee meetings are intended to allow regular attendance by City Council Committee members, as well as the Staff Liaison, staff, the Mayor and the City Supervisor, as necessary. In order to prevent inadvertent violations of the Open Public Meetings Act, attendance by non-member Council members that will result in a quorum of the full City Council is prohibited.

8. The regular Council meeting agenda shall include an opportunity for Committee reports at which time any appointed Committee member may report to the Mayor and City Council on pertinent and timely issues before a Committee.

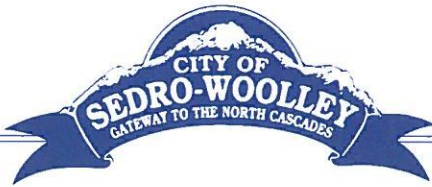
E. City Liaison Role

1. The City Supervisor serves as an advisor to each City Council Committee; however, each Committee has an identified staff liaison at the Director-level. The responsibilities of the Staff Liaison are as follows:

- a. Attend all meetings of the City Council Committee.
- b. Research information and prepare reports and correspondence as required for the Committee.
- c. Provide administrative support to the Committee, including distribution of documents to the Committee as required.
- d. Coordinate with the Committee chair to prepare agendas.
- e. Schedule meetings.
- f. Prepare Committee minutes within one week of the meeting and submit to the City Clerk for posting and distribution to the full City Council.
- g. Serve as the communication link between the Committee and City administration, City departments, and Council as appropriate.

JUN 10 2020

:00 P.M. COUNCIL CHAMBER.  
AGENDA NO. a-e



DATE: June 10, 2020  
TO: Mayor and City Council  
FROM: Jill Scott, Finance Manager  
SUBJECT: a) CALL TO ORDER; b) PLEDGE OF ALLEGIANCE; c) ROLL CALL;  
d) APPROVAL OF AGENDA; e) CONSENT AGENDA;

- a. CALL TO ORDER - The Mayor will call the June 10, 2020 Meeting to Order
- b. PLEDGE OF ALLEGIANCE - The Mayor will lead the City Council and citizens in the Pledge of Allegiance to the United States of America.
- c. ROLL CALL - The Recorder will note those in attendance and those absent.

_____ Ward 1	Councilmember Brendan McGoffin
_____ Ward 2	Councilmember Germaine Kornegay
_____ Ward 3	Councilmember Brenda Kinzer
_____ Ward 4	Councilmember Glenn Allen
_____ Ward 5	Councilmember Chuck Owen
_____ Ward 6	Councilmember Karl de Jong
_____ At-Large	Councilmember Jared Couch

- d. APPROVAL OF AGENDA
- e. CONSENT AGENDA - Mayor will ask for Council approval of Consent Agenda items.

JUN 10 2020

:00 P.M. COUNCIL CHAMBERS  
AGENDA NO. 0-7

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CITY OF SEDRO-WOOLLEY  
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Regular Meeting of the City Council  
May 27, 2020– 4:00 P.M. – Via Teleconference

**Call to Order**

Mayor Julia Johnson called the meeting to order at 4:00 P.M.

**Pledge of Allegiance**

**ROLL CALL:** Present: Mayor Julia Johnson, Councilmembers: Brenda Kinzer, Germaine Kornegay, Chuck Owen, Brendan McGoffin, Karl de Jong, Jared Couch and Glenn Allen. Staff: Recorder Brue, City Supervisor Merriman, Finance Manager Scott, Planning Director Coleman, Asst. Fire Chief Wagner, Police Chief Tucker and City Attorney Thompson.

**Approval of Agenda**

Councilmember Couch moved to approve the agenda. Seconded by Councilmember Kinzer. Motion carried (7-0).

**Consent Calendar**

- Minutes from Previous Meeting (Including May 6, 2020 Study Session)
- Finance
  - Claim Checks #193079 to #193183 plus EFT in the amount of \$898,631.93
  - Payroll Checks #60060 to #60069 plus EFT's in the amount of \$316,996.49
- Township St. (SR9) & Johns Liner/McGarigle Rd Intersection Improvements Project Grant Approval and Match Requirements
- Possible Contract Award – Contract 2020-PW-01, 2020 SR20 West Lane Widening and Safety Improvements Project – Allied Construction Associates, Inc.

Councilmember Kornegay moved to approve the consent calendar items 1 through 4. Councilmember Kinzer seconded. Motion carried (7-0).

Introduction of Special Guests and Presentations

**Staff Reports**

Finance Manager Scott – reported she has been working on the 2019 Annual Report, which had received a 60-day extension due to COVID 19. Another extension was anticipated however, no notification has been received so work continues towards completing for the first extension deadline of May 31, 2020. She also indicated the Finance staff continues to stagger staffing to get all essential tasks completed.

Councilmember de Jong questioned the 1<sup>st</sup> Quarter financial status. City Supervisor Merriman noted the 1<sup>st</sup> Quarter financials look good. He is waiting for the May reports, which will give a better indication of the impact from COVID 19.

IT Director Chambers – reported working on web updates, meetings and Facebook posts.

Police Chief Tucker – reported being in flux as to how to shift back to normal operations. He also reported Officer Whitt should complete the academy July 10, 2020 and they are hoping for a June date for the next officer to report to the academy. He noted he has been receiving many questions regarding the State plan for reopening. He gave an update on the park protester and noted the radar car has had windows broken out twice.

Asst. Fire Chief Wagner – noted the call volume has increased by 10% and they are still having PPE battles but the cooperative purchasing agreement seems to be working. The department is prepared and ready to move into Phase II. Other items reported were transports being down, training and a house fire on Orth Way.

Planning Director Coleman – stated things are moving along and the building community seems to be happy. He noted receiving many emails regarding long plat applications after the article in the Skagit Valley Herald regarding a proposed long plat.

City Supervisor Merriman – reported he has been working on a return to work policy and spending a lot of time on emergency funding programs. He explained each program. CARES funding (up to \$350,000 for Sedro-Woolley), FEMA (grant funding) and HERO'S funding (a federal program for premium pay for front line employees during COVID).

Councilmember de Jong noted he has been following the HERO'S program and asked what more can be done to help educate legislation.

### **Councilmember and Mayor's Reports**

Mayor Johnson – reported on the press conference by the Governor. She reported on joint letters being sent to the governor requesting Skagit County be allowed to move to Phase II, which was denied. She also reported on a small but meaningful Memorial Day Ceremony at the Cemetery. Mayor Johnson announced the parks will be working on a couple of \$500,000 grants for Olmstead Park, the flowers are up, and flags were up for Memorial Day.

Councilmember Owen – addressed the cancellation of the summer celebrations.

Mayor Johnson noted the Lions Club is looking into a virtual parade and the Wildcat Steelhead Club is sponsoring a World War II squadron fly over on July 4<sup>th</sup>.

Councilmember Kornegay – concurred with Councilmember Owen's comments regarding the cancellation of the summer celebrations. She also gave kudo's to Brent Frisbee for his continued mowing of a retention pond near her residence.

Councilmember Kinzer – requested on behalf of a resident within her ward to ask the railroad if the rail crossing at the intersection of Ferry and Hwy 20 could be a quiet zone at night.

Councilmember McGoffin – followed up on an email sent regarding a video dance competition for citizens. He encouraged residents to take part.

Councilmember Allen – thanked Mayor Johnson for her part in laying the wreath at the Memorial Day services.

Councilmember de Jong – commented on how nice the cemetery looked for Memorial Day. Noted people are being industrious in their back yards and gardens. He thanked Nathan Salseina for working with DNR on the native planting at Riverfront Park. De Jong reported that 1 in 5 people are now unemployed and spoke of the Safe Start program in moving from Phase I to Phase II and gave a reminder to continue physical distancing, wearing of masks and washing of hands.

Mayor Johnson – noted kudo's for the food bank.

### **Public Comments**

Mayor Johnson reported public comments are closed at this time during the meeting however, if anyone would like to email or mail in comments they will be read into the record. She also noted the City is exploring options for meetings.

Public Hearings

### **Unfinished Business**

#### Ordinance #1956-20: Imposition of Affordable Housing Sales Tax

City Supervisor Merriman reported on the affordable housing sales tax. He noted it is not a new tax but the State will be giving up a portion of their tax.

Councilmember de Jong moved to adopt Ordinance #1956-20.

Councilmember Kinzer questioned setting up a rental assistance fund with other discussion on joining with the County.

Councilmember Couch seconded the motion and called for the question.

Motion carried (7-0).

New Business

Information Only Items

Good of the Order

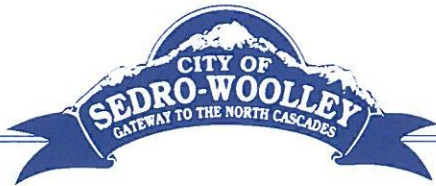
Executive Session

**Adjournment**

There being no other business the meeting was adjourned at 4:38 P.M.

JUN 10 2020

5:00 P.M. COUNCIL CHAMBERS  
AGENDA NO. e-2



DATE: June 10, 2020  
TO: Mayor and City Council  
FROM: Jill Scott, Finance Manager  
SUBJECT: FINANCE - CLAIMS

Attached you will find the Claim Checks register proposed for payment for the period ending June 10, 2020.

Motion to approve Claim Checks #193184 to #193254 in the amount of \$207,681.42.

Motion to approve Payroll Checks #60070 to #60083 plus EFT's in the amount of \$424,954.72.

If you have any comments, questions or concerns, please contact me for information during the working day at 360-855-1661. This will allow me to look up the invoices that are stored in our office.

# CHECK REGISTER

City Of Sedro-Woolley

Time: 12:55:51 Date: 06/04/2020

MCAG #: 0647

06/01/2020 To: 06/30/2020

Page: 1

Trans	Date	Type	Acct #	Chk #	Claimant	Amount	Memo
4200	06/10/2020	Claims	2	193184	ATV Sign	41.23	
					001 - 595 10 31 001 - Address & Street Signs-Reiml	41.23	
4201	06/10/2020	Claims	2	193185	Ackermann Electric Co.	1,137.54	
					401 - 535 50 48 050 - Maint Of General Equip	-21.70	
					401 - 535 50 48 050 - Maint Of General Equip	1,159.24	
4202	06/10/2020	Claims	2	193186	Alpine Fire & Safety	151.90	
					101 - 576 80 48 005 - Senior Center	151.90	
4203	06/10/2020	Claims	2	193187	American Fleet Main LLC	271.25	
					001 - 522 20 48 000 - Repairs/Maint-Equip	271.25	
4204	06/10/2020	Claims	2	193188	Cole Anderson	236.86	
					425 - 343 10 00 000 - Stormwater Fees	-8.99	
					401 - 343 50 00 000 - Sewer Service Charges	-146.16	
					412 - 343 70 00 000 - Garbage/Solid Waste Fees	-69.71	
					001 - 514 23 41 010 - Bank Fees	12.00	
4205	06/10/2020	Claims	2	193189	Aramark Uniform Services	61.21	
					401 - 535 80 49 000 - Laundry	19.44	
					401 - 535 80 49 000 - Laundry	14.17	
					102 - 536 20 49 030 - Misc-laundry	1.04	
					102 - 536 20 49 030 - Misc-laundry	1.04	
					412 - 537 80 49 000 - Misc-Laundry	3.97	
					412 - 537 80 49 000 - Misc-Laundry	3.97	
					103 - 542 30 49 000 - Misc-Laundry	8.79	
					103 - 542 30 49 000 - Misc-Laundry	8.79	
4206	06/10/2020	Claims	2	193190	Assoc Petroleum Products	5,606.82	
					001 - 518 20 32 000 - Auto Fuel	53.34	
					001 - 518 20 32 000 - Auto Fuel	46.93	
					001 - 518 20 32 000 - Auto Fuel	50.82	
					001 - 521 20 32 000 - Auto Fuel	673.87	
					001 - 522 20 32 000 - Auto Fuel/Diesel	839.09	
					001 - 522 20 32 000 - Auto Fuel/Diesel	754.20	
					425 - 531 50 32 000 - Vehicle Fuel	55.79	
					425 - 531 50 32 000 - Vehicle Fuel	100.05	
					425 - 531 50 32 000 - Vehicle Fuel	52.97	
					401 - 535 80 32 000 - Auto Fuel/Diesel	79.84	
					401 - 535 80 32 000 - Auto Fuel/Diesel	115.24	
					401 - 535 80 32 000 - Auto Fuel/Diesel	14.00	
					412 - 537 80 32 000 - Auto Fuel/Diesel	768.28	
					412 - 537 80 32 000 - Auto Fuel/Diesel	73.89	
					412 - 537 80 32 000 - Auto Fuel/Diesel	840.49	
					412 - 537 80 32 000 - Auto Fuel/Diesel	571.09	
					103 - 542 30 32 000 - Auto Fuel/Diesel	140.47	
					103 - 542 30 32 000 - Auto Fuel/Diesel	97.89	
					103 - 542 30 32 000 - Auto Fuel/Diesel	133.65	
					103 - 542 30 32 000 - Auto Fuel/Diesel	60.97	
					101 - 576 80 32 000 - Auto Fuel/Diesel	83.95	
4207	06/10/2020	Claims	2	193191	Baker Septic Tank Pumping Inc.	130.00	
					001 - 514 23 41 010 - Bank Fees	35.00	
					101 - 576 80 47 090 - Portable Toilets	95.00	
4208	06/10/2020	Claims	2	193192	Bay City Supply	6,073.44	
					401 - 535 80 31 010 - Operating Supplies	29.30	
					412 - 537 80 31 000 - Operating Supplies	39.06	
					412 - 537 80 31 000 - Operating Supplies	215.52	
					412 - 537 80 31 000 - Operating Supplies	153.42	
					101 - 576 80 31 001 - Operating Sup - Riverfront	981.93	

# CHECK REGISTER

City Of Sedro-Woolley

Time: 12:55:51 Date: 06/04/2020

MCAG #: 0647

06/01/2020 To: 06/30/2020

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Trans	Date	Type	Acct #	Chk #	Claimant	Amount	Memo
			101 - 576 80 31 003 - Operating Sup - Parks Shop			17.90	
			101 - 576 80 31 005 - Operating Sup - Senior Ctr			396.05	
			101 - 576 80 31 006 - Operating Sup - City Hall			307.88	
			101 - 576 80 31 006 - Operating Sup - City Hall			151.25	
			101 - 576 80 31 006 - Operating Sup - City Hall			3,404.35	
			101 - 576 80 31 012 - Operating Sup - Hammer			376.78	
4209	06/10/2020	Claims	2	193193	Brown & Caldwell	2,693.00	
			401 - 594 35 63 000 - Engineering Services			2,693.00	
4210	06/10/2020	Claims	2	193194	Cardinal Health 112 LLC	406.58	
			001 - 522 21 31 000 - Operating Supplies - Medical			406.58	
4211	06/10/2020	Claims	2	193195	Carletti Architects Ps	667.70	
			401 - 594 35 63 000 - Engineering Services			667.70	
4212	06/10/2020	Claims	2	193196	Carrot-Top Industries Inc	311.71	
			101 - 576 80 31 006 - Operating Sup - City Hall			311.71	
4213	06/10/2020	Claims	2	193197	Comcast	243.29	
			001 - 518 80 42 021 - Internet Services			243.29	
4214	06/10/2020	Claims	2	193198	Databar	2,453.04	
			425 - 531 50 42 010 - Postage			98.12	
			401 - 535 80 42 015 - Postage			1,594.48	
			412 - 537 80 42 010 - Postage			760.44	
4215	06/10/2020	Claims	2	193199	E & E Lumber	178.23	
			401 - 535 50 48 010 - Maintenance Of Lines			21.81	
			401 - 535 80 31 010 - Operating Supplies			27.07	
			102 - 536 20 48 040 - Repair/Maint-Equip & Bldg			18.88	
			412 - 537 80 31 000 - Operating Supplies			60.68	
			103 - 542 30 31 000 - Operating Supplies			37.33	
			101 - 576 80 31 001 - Operating Sup - Riverfront			12.46	
4216	06/10/2020	Claims	2	193200	Edge Analytical Inc	52.00	
			401 - 535 80 41 000 - Professional Services			52.00	
4217	06/10/2020	Claims	2	193201	FEI	11.72	
			101 - 594 76 61 002 - Houser Park			11.72	
4218	06/10/2020	Claims	2	193202	Fastenal Company	209.71	
			103 - 542 30 31 000 - Operating Supplies			209.71	
4219	06/10/2020	Claims	2	193203	Keith Ford	108.49	
			001 - 522 20 26 000 - Uniforms			108.49	
4220	06/10/2020	Claims	2	193204	Frontier Building Supply	6.43	
			401 - 535 50 48 010 - Maintenance Of Lines			6.43	
4221	06/10/2020	Claims	2	193205	Terri Gunderson	12.50	
			001 - 514 23 41 010 - Bank Fees			12.50	
4222	06/10/2020	Claims	2	193206	Glenn Hoff	119.00	
			001 - 515 93 41 001 - Indigent Defense Conflict Coi			119.00	
4223	06/10/2020	Claims	2	193207	Holaday-Parks, Inc.	1,792.42	
			001 - 522 20 48 000 - Repairs/Maint-Equip			260.40	
			401 - 535 50 48 000 - Maintenance Contracts			147.56	
			101 - 576 80 48 003 - Bingham Caretaker			108.50	
			101 - 576 80 48 004 - Community Center			173.60	
			101 - 576 80 48 005 - Senior Center			631.47	
			101 - 576 80 48 009 - Hammer Square			41.23	
			101 - 576 80 48 015 - Library			334.18	
			101 - 576 80 48 022 - Evidence Garage			95.48	

# CHECK REGISTER

City Of Sedro-Woolley

MCAG #: 0647

06/01/2020 To: 06/30/2020

Time: 12:55:51 Date: 06/04/2020

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Trans	Date	Type	Acct #	Chk #	Claimant	Amount	Memo
4224	06/10/2020	Claims	2	193208	KarMart USA Superstores	1,131.63	
					001 - 522 20 48 000 - Repairs/Maint-Equip	1,131.63	
4225	06/10/2020	Claims	2	193209	Keithly Barber Associates	1,567.90	
					305 - 594 72 63 003 - Capital Expenditures/Expense	1,567.90	
4226	06/10/2020	Claims	2	193210	Les Schwab Tire Center	1,447.00	
					001 - 522 20 48 000 - Repairs/Maint-Equip	688.58	
					401 - 535 50 48 040 - Maintenance Of Vehicles	625.06	
					102 - 536 20 48 040 - Repair/Maint-Equip & Bldg	133.36	
4227	06/10/2020	Claims	2	193211	Lisser & Associates PLLC	928.75	
					401 - 535 80 41 000 - Professional Services	928.75	
4228	06/10/2020	Claims	2	193212	McKesson Medical Surgical	425.62	
					001 - 522 21 31 000 - Operating Supplies - Medical	330.15	
					001 - 522 21 31 000 - Operating Supplies - Medical	95.47	
4229	06/10/2020	Claims	2	193213	Mid-American Research Chem	367.87	
					412 - 537 80 31 000 - Operating Supplies	209.46	
					412 - 537 80 31 000 - Operating Supplies	158.41	
4230	06/10/2020	Claims	2	193214	Monera Technologies Corp.	1,150.00	
					401 - 535 50 48 010 - Maintenance Of Lines	1,150.00	
4231	06/10/2020	Claims	2	193215	Municipal Emergency Services Inc	112.16	
					001 - 522 20 31 000 - Operating Supplies	112.16	
4232	06/10/2020	Claims	2	193216	NC Machinery	6,190.83	
					103 - 542 30 48 010 - Repair/Maintenance-Equip	6,190.83	
4233	06/10/2020	Claims	2	193217	North Hill Resources Inc	341.78	
					401 - 535 80 31 010 - Operating Supplies	341.78	
4234	06/10/2020	Claims	2	193218	Oasys	1,082.72	
					001 - 595 10 48 000 - Repair & Maintenance	1,082.72	
4235	06/10/2020	Claims	2	193219	Office Depot Inc.	51.31	
					001 - 524 20 31 000 - Off/Oper Supps & Books	17.10	
					001 - 558 60 31 000 - Supplies/Books	17.11	
					001 - 595 10 31 000 - Supplies	17.10	
4236	06/10/2020	Claims	2	193220	Owen Equipment Company	2,588.91	
					425 - 531 50 48 000 - Repairs/Maintenance	2,588.91	
4237	06/10/2020	Claims	2	193221	P & P Excavating LLC	16,683.04	
					401 - 535 50 48 010 - Maintenance Of Lines	13,902.53	
					425 - 594 31 63 000 - Collection System	2,780.51	
4238	06/10/2020	Claims	2	193222	Pacific Landscape Architecture	3,450.75	
					101 - 594 76 61 002 - Houser Park	1,377.00	
					101 - 594 76 63 025 - Olmsted Park	2,073.75	
4239	06/10/2020	Claims	2	193223	Pape Machinery	304.65	
					401 - 535 50 48 040 - Maintenance Of Vehicles	304.65	
4240	06/10/2020	Claims	2	193224	Protech Automotive	319.43	
					001 - 522 20 48 000 - Repairs/Maint-Equip	138.95	
					001 - 522 20 48 000 - Repairs/Maint-Equip	60.48	
					001 - 522 20 48 000 - Repairs/Maint-Equip	120.00	
4241	06/10/2020	Claims	2	193225	Public Utility Dis No1	132.16	
					401 - 535 80 47 000 - Public Utilities	132.16	
4242	06/10/2020	Claims	2	193226	Puget Sound Energy	23,924.71	

# CHECK REGISTER

City Of Sedro-Woolley

MCAG #: 0647

06/01/2020 To: 06/30/2020

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Trans	Date	Type	Acct #	Chk #	Claimant	Amount	Memo
					001 - 521 20 47 000 - Public Utilities	110.14	
					001 - 522 50 47 000 - Public Utilities	98.98	
					425 - 531 50 47 000 - Public Utilities	121.43	
					401 - 535 80 47 000 - Public Utilities	10,636.21	
					102 - 536 20 47 000 - Public Utilities	44.45	
					412 - 537 80 47 000 - Public Utilities	112.07	
					103 - 542 63 47 000 - Public Utilities	5.69	
					103 - 542 63 47 000 - Public Utilities	122.10	
					103 - 542 63 47 000 - Public Utilities	9,386.59	
					103 - 542 63 47 000 - Public Utilities	54.22	
					101 - 576 80 47 000 - Riverfront	319.78	
					101 - 576 80 47 010 - Community Center	139.27	
					101 - 576 80 47 020 - Senior Center	219.76	
					101 - 576 80 47 030 - Museum Apartments	31.35	
					101 - 576 80 47 040 - Train	13.45	
					101 - 576 80 47 050 - Hammer Square	132.34	
					101 - 576 80 47 051 - Bingham / Memorial	84.27	
					101 - 576 80 47 052 - Bingham Caretaker	117.32	
					101 - 576 80 47 052 - Bingham Caretaker	13.29	
					101 - 576 80 47 053 - Other Utilities	10.43	
					101 - 576 80 47 070 - City Hall	2,151.57	
4243	06/10/2020	Claims	2	193227	Quiring Monuments Inc	150.00	
					102 - 536 20 34 000 - Liners	150.00	
4244	06/10/2020	Claims	2	193228	Red's Mobile 24-Hour Truck & Equip Repai	423.15	
					401 - 535 50 48 040 - Maintenance Of Vehicles	423.15	
4245	06/10/2020	Claims	2	193229	Sedro-Woolley Auto Parts	721.54	
					001 - 522 20 48 000 - Repairs/Maint-Equip	43.33	
					401 - 535 50 48 040 - Maintenance Of Vehicles	57.31	
					401 - 535 50 48 040 - Maintenance Of Vehicles	68.32	
					401 - 535 50 48 040 - Maintenance Of Vehicles	67.56	
					401 - 535 50 48 040 - Maintenance Of Vehicles	5.03	
					401 - 535 50 48 050 - Maint Of General Equip	2.66	
					102 - 536 20 31 010 - Operating Supplies	7.55	
					102 - 536 20 48 040 - Repair/Maint-Equip & Bldg	19.03	
					412 - 537 80 31 000 - Operating Supplies	11.14	
					412 - 537 80 31 000 - Operating Supplies	2.12	
					412 - 537 80 31 000 - Operating Supplies	12.52	
					412 - 537 80 31 000 - Operating Supplies	16.96	
					103 - 542 30 31 000 - Operating Supplies	93.09	
					103 - 542 30 48 010 - Repair/Maintenance-Equip	79.83	
					103 - 542 30 48 010 - Repair/Maintenance-Equip	31.93	
					101 - 576 80 35 000 - Small Tools & Minor Equip	5.96	
					101 - 576 80 48 021 - Equipment	40.56	
					101 - 576 80 48 021 - Equipment	44.84	
					101 - 576 80 48 021 - Equipment	90.47	
					101 - 576 80 48 021 - Equipment	21.33	
4246	06/10/2020	Claims	2	193230	Sedro-Woolley School Dist	15,118.00	
					631 - 589 30 00 621 - School GMA Impact Fees	15,118.00	
4247	06/10/2020	Claims	2	193231	Sedro-Woolley Volunteer	16,420.00	
					001 - 522 20 11 010 - Salaries-Volunteers	16,420.00	
4248	06/10/2020	Claims	2	193232	Skagit 911	1,646.33	
					001 - 522 20 41 020 - Central Dispatch	1,646.33	
4249	06/10/2020	Claims	2	193233	Skagit Co Public Works	4,465.85	
					103 - 542 30 41 000 - Professional Services	2,232.00	
					104 - 595 30 48 001 - Arterial Maintenance	2,233.85	

# CHECK REGISTER

City Of Sedro-Woolley

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Time: 12:55:51 Date: 06/04/2020

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Trans	Date	Type	Acct #	Chk #	Claimant	Amount	Memo
4250	06/10/2020	Claims	2	193234	Skagit County Auditor	6,785.91	
					001 - 514 40 41 000 - Election Costs	3,586.28	
					001 - 514 40 41 000 - Election Costs	3,199.63	
4251	06/10/2020	Claims	2	193235	Skagit County Treasurer	36,049.39	
					114 - 523 60 41 022 - Jail Sales Tax Pass Through 2	35,964.80	
					001 - 589 30 00 001 - Crime Victim & Witness	84.59	
4252	06/10/2020	Claims	2	193236	Skagit Farmers Supply	1,335.98	
					001 - 522 20 48 000 - Repairs/Maint-Equip	14.09	
					401 - 535 50 48 010 - Maintenance Of Lines	13.96	
					401 - 535 50 48 060 - Maintenance Of Buildings	80.33	
					401 - 535 80 31 010 - Operating Supplies	68.32	
					401 - 535 80 31 010 - Operating Supplies	77.94	
					401 - 535 80 31 010 - Operating Supplies	28.20	
					412 - 537 80 31 000 - Operating Supplies	17.12	
					412 - 537 80 31 000 - Operating Supplies	75.94	
					412 - 537 80 31 000 - Operating Supplies	47.71	
					501 - 548 30 31 000 - Operating Supplies	38.00	
					101 - 576 80 31 001 - Operating Sup - Riverfront	65.08	
					101 - 576 80 31 100 - Fertilizer/Herbicide	699.75	
					101 - 576 80 31 100 - Fertilizer/Herbicide	56.40	
					101 - 576 80 48 021 - Equipment	53.14	
4253	06/10/2020	Claims	2	193237	Skagit Powder Coating, Inc.	596.75	
					412 - 537 80 34 001 - Containers - Recycling	596.75	
4254	06/10/2020	Claims	2	193238	Skagit Publishing	161.40	
					103 - 543 30 41 000 - Advertising	75.32	
					001 - 558 60 41 010 - Advertising	86.08	
4255	06/10/2020	Claims	2	193239	Skagit Soils	3,356.77	
					412 - 537 60 47 021 - Curbside Yard Waste Dispos	3,356.77	
4256	06/10/2020	Claims	2	193240	Smarsh Inc.	122.34	
					001 - 518 80 41 000 - Professional Services	122.34	
4257	06/10/2020	Claims	2	193241	Staples Business Credit	307.96	
					401 - 535 80 31 000 - Office Supplies	21.69	
					401 - 535 80 31 000 - Office Supplies	76.80	
					401 - 535 80 31 000 - Office Supplies	35.87	
					401 - 535 80 31 000 - Office Supplies	32.56	
					401 - 594 35 64 001 - Portable Equipment	141.04	
4258	06/10/2020	Claims	2	193242	Systems Design	2,747.20	
					001 - 522 21 41 000 - EMS Professional Services-S	2,747.20	
4259	06/10/2020	Claims	2	193243	Thermo Fluids Inc.	867.15	
					501 - 548 30 31 000 - Operating Supplies	867.15	
4260	06/10/2020	Claims	2	193244	Todhunter Brothers Glass Inc.	888.22	
					101 - 576 80 48 016 - City Hall	888.22	
4261	06/10/2020	Claims	2	193245	Transportation Solutions, Inc.	16,288.55	
					001 - 595 10 41 000 - Professional Services	1,864.26	
					001 - 595 10 41 000 - Professional Services	563.01	
					104 - 595 10 63 076 - Eng-SR20/SR9-Township Int	13,861.28	
4262	06/10/2020	Claims	2	193246	Treatment Equipment Co	917.36	
					401 - 535 50 48 050 - Maint Of General Equip	917.36	
4263	06/10/2020	Claims	2	193247	Uline	640.89	
					412 - 537 80 31 000 - Operating Supplies	511.59	
					412 - 537 80 31 000 - Operating Supplies	129.30	

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City Of Sedro-Woolley

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Trans	Date	Type	Acct #	Chk #	Claimant	Amount	Memo
4264	06/10/2020	Claims	2	193248	Util Underground Loc Ctr	72.38	
					401 - 535 80 31 010 - Operating Supplies	72.38	
4265	06/10/2020	Claims	2	193249	Verizon Wireless	4,076.15	
					001 - 511 60 31 000 - Supplies	73.44	
					001 - 513 10 42 020 - Telephone	73.44	
					001 - 513 10 42 020 - Telephone	24.22	
					001 - 514 23 42 020 - Telephone	113.46	
					001 - 515 31 42 001 - Telephone	24.22	
					001 - 518 80 42 020 - Telephone	60.72	
					001 - 518 80 42 020 - Telephone	48.44	
					001 - 521 20 42 020 - Telephone	1,264.77	
					001 - 521 20 42 020 - Telephone	595.39	
					001 - 522 20 42 020 - Telephone	56.73	
					001 - 522 20 42 020 - Telephone	314.96	
					001 - 522 20 42 020 - Telephone	38.72	
					001 - 524 20 42 020 - Telephone	36.72	
					001 - 524 20 42 020 - Telephone	9.66	
					401 - 535 80 42 030 - Cell Phones	263.64	
					401 - 535 80 42 030 - Cell Phones	48.44	
					401 - 535 80 42 030 - Cell Phones	91.98	
					102 - 536 20 42 020 - Telephone	36.09	
					102 - 536 20 42 020 - Telephone	9.80	
					412 - 537 80 42 025 - Cell Phones	257.04	
					103 - 542 30 42 020 - Telephone	243.63	
					103 - 542 30 42 020 - Telephone	24.22	
					001 - 558 60 42 020 - Telephone	56.73	
					101 - 576 80 42 020 - Telephone	130.43	
					101 - 576 80 42 020 - Telephone	49.09	
					001 - 595 10 42 025 - Cell Phones	130.17	
4266	06/10/2020	Claims	2	193250	WA St Off Of Treasurer	5,180.56	
					001 - 586 00 00 000 - State Court Fees Remittance	5,180.56	
4267	06/10/2020	Claims	2	193251	Washington Tractor	1,604.07	
					103 - 542 30 48 010 - Repair/Maintenance-Equip	342.29	
					103 - 542 30 48 010 - Repair/Maintenance-Equip	-54.35	
					103 - 542 30 48 010 - Repair/Maintenance-Equip	225.02	
					101 - 576 80 48 021 - Equipment	24.85	
					101 - 576 80 48 021 - Equipment	413.46	
					101 - 576 80 48 021 - Equipment	575.21	
					101 - 576 80 48 021 - Equipment	77.59	
4268	06/10/2020	Claims	2	193252	Whatcom Electric Co. Inc.	1,191.13	
					412 - 537 60 47 011 - Site Recycling Disposal	-131.96	
					501 - 548 30 31 000 - Operating Supplies	882.06	
					501 - 548 30 31 000 - Operating Supplies	441.03	
4269	06/10/2020	Claims	2	193253	Windermere Property Mgmt.	206.84	
					425 - 343 10 00 000 - Stormwater Fees	-8.27	
					401 - 343 50 00 000 - Sewer Service Charges	-134.45	
					412 - 343 70 00 000 - Garbage/Solid Waste Fees	-64.12	
4270	06/10/2020	Claims	2	193254	Woods Acquisition Corp	162.26	
					102 - 536 20 35 000 - Small Tools/Minor Equip	40.76	
					412 - 537 80 31 000 - Operating Supplies	5.43	
					101 - 576 80 48 021 - Equipment	116.07	
						001 Current Expense Fund	46,428.05
						101 Parks & Facilities Fund	17,723.37
						102 Cemetery Fund	462.00
						103 Street Fund	19,750.01
						104 Arterial Street Fund	16,095.13

# CHECK REGISTER

City Of Sedro-Woolley

MCAG #: 0647

06/01/2020 To: 06/30/2020

Time: 12:55:51 Date: 06/04/2020

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Trans	Date	Type	Acct #	Chk #	Claimant	Amount	Memo
			114		Law Enforcement Sales Tax	35,964.80	
			305		Library Construction Fund	1,567.90	
			401		Sewer Operations Fund	37,515.87	
			412		Solid Waste Operations Fund	9,013.01	
			425		Stormwater Operations	5,815.04	
			501		Equipment Replacement Fund	2,228.24	
			631		Suspense Fund	15,118.00	
							Claims: 207,681.42
					* Transaction Has Mixed Revenue And Expense Accounts	207,681.42	

CERTIFICATION: I, the undersigned, do hereby certify under penalty of perjury that the materials have been furnished, the services rendered or the labor performed as described, or that any advance payment is due and payable pursuant to a contract or is available as an option for full or partial fulfillment of a contractual obligation, and that the claim is a just, due and unpaid obligation against the City of Sedro Woolley, and that I am authorized to authenticate and certify to said claim.

\_\_\_\_\_  
Finance Director

\_\_\_\_\_  
Date

\_\_\_\_\_  
Finance Committee Member

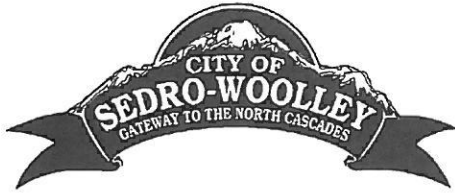
\_\_\_\_\_  
Date

\_\_\_\_\_  
Finance Committee Member

\_\_\_\_\_  
Date

\_\_\_\_\_  
Finance Committee Member

\_\_\_\_\_  
Date



CITY COUNCIL AGENDA  
REGULAR MEETING

JUN 10 2020

:00 P.M. COUNCIL CHAMBER  
AGENDA NO. e-3

CITY OF SEDRO-WOOLLEY  
Sedro-Woolley Municipal Building  
325 Metcalf Street  
Sedro-Woolley, WA 98284  
Phone (360) 855-0771  
Fax (360) 855-0733

Mark A. Freiburger, PE  
Director of Public Works

MEMO TO: City Council and Mayor Julia Johnson

FROM: Mark A. Freiburger, PE

RE: **Possible Surplus of Units**  
**Unit No, 109 200 Ford New Holland 60"**  
**Unit No, 512 1994 ford F-150 XL**  
**Unit No, 513 1984 ford back hoe with grapple**  
**White ford ranger canopy**

DATE: May 28, 2020 (for Council review June 10, 2020)

**ISSUE**

Shall City Council authorize Mayor Johnson to declare as surplus Unit No. 109, 2000 Ford New Holland 60"; Unit No. 512, 1994 Ford F-150 XL; Unit No. 513, 1984 Ford back hoe with grapple; and white Ford ranger canopy as noted on the attached Resolution \_\_\_\_-20 and offer the item for sale to the highest bidder?

**BACKGROUND/RECOMMENDATION:**

All these units were hand me downs from various depts. to solid waste department and have been used as frontline equipment even thou they were worn out when we got them.

Unit 109 is plagued with more and more maintenance and repairs for a limited amount of use at our dept. we use this mower 12 times or less per year. We will be seeking a newer more practical mower for our use at Solid Waste.

Unit 512 is our ford fuel truck that has been in back up status for many years and has finally making some significant noise in the engine and it is suspected to be a bearing or engine rod going out.

Unit 513 is our Yard waste loading back hoe and will be replaced by the old street dept. loader that is being purchased this year with the ERR fund. The transmission is or has likely gone out and it is not worth fixing.

The white ford ranger canopy is off of the solid waste ford ranger and is not of use any further, for our use of the truck.

**MOTION**

**Authorize Mayor Johnson to declare as surplus Unit No. 109, 2000 Ford New Holland 60"; Unit No. 512, 1994 Ford F-150 XL; Unit No. 513, 1984 Ford back hoe with grapple; and white Ford ranger canopy as noted on the attached Resolution \_\_\_\_-20 and offer the item for sale to the highest bidder.**

RESOLUTION NO. \_\_\_\_-20

**A RESOLUTION OF THE CITY OF SEDRO-WOOLLEY DECLARING  
CERTAIN PROPERTY AS SURPLUS AND AUTHORIZING ITS DISPOSITION**

**WHEREAS**, the City has purchased the property and/or equipment identified herein; and

**WHEREAS**, the property and/or equipment identified is surplus to the needs of the City; now, therefore,

**BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SEDRO-WOOLLEY AS FOLLOWS:**

**Section 1.** The City Council does hereby declare the following to be surplus:

**PUBLIC WORKS DEPARTMENT:**

Equipment:

Item	VIN/Serial #	Description	Prop #
Unit 109	TD00034	2000 Ford front mount mower 60"	
Unit 512	1FTEX14N1RK00481	1994 Ford F-150 XL	
Unit 513	C721123-G828169	1984 Ford loader back hoe with grapple attachment	
White canopy	N/A	1984 ford Ranger canopy	

**Section 2.** The Mayor is directed to sell or trade-in the surplus property for additional property or for the best available price in any manner he determines to be in the best interest of the City and execute any necessary paperwork to effectuate the transfer. For surplus property with little or no value, the Mayor is authorized to recycle or dispose of the property in an environmentally responsible manner with the least cost to the City.

**PASSED** by majority vote of the members of the Sedro-Woolley City Council this 27th day of May, 2020.

\_\_\_\_\_  
MAYOR

ATTEST:

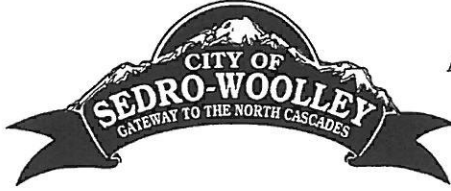
\_\_\_\_\_  
FINANCE DIRECTOR

APPROVED AS TO FORM:

\_\_\_\_\_  
CITY ATTORNEY

CITY COUNCIL AGENDA  
REGULAR MEETING

JUN 10 2020




:00 P.M. COUNCIL CHAMBER  
AGENDA NO. e-4

**CITY OF SEDRO-WOOLLEY**  
Sedro-Woolley Municipal Building  
325 Metcalf Street  
Sedro-Woolley, WA 98284  
Phone (360) 855-9922  
Fax (360) 855-9923

Doug Merriman, Ph.D  
City Supervisor

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MEMO TO: City Council  
FROM: Doug Merriman, Ph.D, City Supervisor   
RE: Grant Application: CARES COVID-19 Grant  
DATE: June 10, 2020

CONSENT AGENDA

ISSUE: Should the city apply for CARES Act federal funding for COVID-19 related cost reimbursements?

BACKGROUND: Federal funding has been made available to the City of Sedro-Woolley through the CARES Act, in the amount of \$350,700. There are strict rules as to what expenditures may be reimbursed, but the primary focus is on cost attributable to effects of the COVID-19 virus on operations. The Department of Commerce (DOC) is the assigned State agency assigned the disbursement logistics for the State of Washington. DOC is executing grant agreements with each City for the total estimate award.

FISCAL ANALYSIS: The possible grant reimbursement for costs is up to but not greater than \$350,700.

RECOMMENDATION: Authorize staff to sign the grant application with the Department of Commerce for CARES Act grant program.

# Coronavirus Relief Funds (CRF) for Local Governments thru CARES Act Washington State Funding Distribution

County	Jurisdiction	2019 Population Estimate	PerCap Amount in Dollars
Adams	Adams County	20,150	\$1,108,250
Adams	Hatton	115	\$25,000
Adams	Lind	550	\$25,000
Adams	Othello	8,345	\$250,350
Adams	Ritzville	1,660	\$49,800
Adams	Washtucna	210	\$25,000
Asotin	Asotin County	22,520	\$1,238,600
Asotin	Asotin	1,280	\$38,400
Asotin	Clarkston	7,205	\$216,150
Benton	Benton County	201,800	\$11,099,000
Benton	Benton City	3,520	\$105,600
Benton	Kennewick	83,670	\$2,510,100
Benton	Prosser	6,145	\$184,350
Benton	Richland	56,850	\$1,705,500
Benton	West Richland	15,340	\$460,200
Chelan	Chelan County	78,420	\$4,313,100
Chelan	Cashmere	3,100	\$93,000
Chelan	Chelan	4,265	\$127,950
Chelan	Entiat	1,255	\$37,650
Chelan	Leavenworth	2,040	\$61,200
Chelan	Wenatchee	34,650	\$1,039,500
Clallam	Clallam County	76,010	\$4,180,550
Clallam	Forks	3,635	\$109,050
Clallam	Port Angeles	19,620	\$588,600
Clallam	Sequim	7,695	\$230,850
Clark	Clark County	488,500	\$26,867,500
Clark	Battle Ground	21,520	\$645,600
Clark	Camas	24,090	\$722,700
Clark	La Center	3,405	\$102,150
Clark	Ridgefield	8,895	\$266,850
Clark	Vancouver	185,300	\$5,559,000
Clark	Washougal	16,500	\$495,000
Clark	Woodland (part)	95	\$2,850
Clark	Yacolt	1,805	\$54,150
Columbia	Columbia County	4,160	\$250,000
Columbia	Dayton	2,560	\$76,800
Columbia	Starbuck	130	\$25,000
Cowlitz	Cowlitz County	108,950	\$5,992,250
Cowlitz	Castle Rock	2,215	\$66,450
Cowlitz	Kalama	2,900	\$87,000
Cowlitz	Kelso	12,220	\$366,600

# Coronavirus Relief Funds (CRF) for Local Governments thru CARES Act Washington State Funding Distribution

County	Jurisdiction	2019 Population Estimate	PerCap Amount in Dollars
Cowlitz	Longview	38,100	\$1,143,000
Cowlitz	Woodland (part)	6,220	\$186,600
Douglas	Douglas County	42,820	\$2,355,100
Douglas	Bridgeport	2,500	\$75,000
Douglas	Coulee Dam (part)	185	\$5,550
Douglas	East Wenatchee	13,710	\$411,300
Douglas	Mansfield	330	\$25,000
Douglas	Rock Island	1,130	\$33,900
Douglas	Waterville	1,185	\$35,550
Ferry	Ferry County	7,830	\$430,650
Ferry	Republic	1,100	\$33,000
Franklin	Franklin County	94,680	\$5,207,400
Franklin	Connell	5,500	\$165,000
Franklin	Kahlotus	165	\$25,000
Franklin	Mesa	495	\$25,000
Franklin	Pasco	75,290	\$2,258,700
Garfield	Garfield County	2,200	\$250,000
Garfield	Pomeroy	1,400	\$42,000
Grant	Grant County	98,740	\$5,430,700
Grant	Coulee City	570	\$25,000
Grant	Coulee Dam (part)	0	
Grant	Electric City	1,030	\$30,900
Grant	Ephrata	8,180	\$245,400
Grant	George	725	\$25,000
Grant	Grand Coulee	1,055	\$31,650
Grant	Hartline	155	\$25,000
Grant	Krupp	50	\$25,000
Grant	Mattawa	4,920	\$147,600
Grant	Moses Lake	24,220	\$726,600
Grant	Quincy	7,720	\$231,600
Grant	Royal City	2,295	\$68,850
Grant	Soap Lake	1,585	\$47,550
Grant	Warden	2,765	\$82,950
Grant	Wilson Creek	215	\$25,000
Grays Harbor	Grays Harbor County	74,160	\$4,078,800
Grays Harbor	Aberdeen	16,880	\$506,400
Grays Harbor	Cosmopolis	1,680	\$50,400
Grays Harbor	Elma	3,375	\$101,250
Grays Harbor	Hoquiam	8,540	\$256,200
Grays Harbor	McCleary	1,790	\$53,700
Grays Harbor	Montesano	4,175	\$125,250
Grays Harbor	Oakville	695	\$25,000
Grays Harbor	Ocean Shores	6,490	\$194,700

# Coronavirus Relief Funds (CRF) for Local Governments thru CARES Act Washington State Funding Distribution

County	Jurisdiction	2019 Population Estimate	PerCap Amount in Dollars
Grays Harbor	Westport	2,125	\$63,750
Island	Island County	84,820	\$4,665,100
Island	Coupeville	1,925	\$57,750
Island	Langley	1,195	\$35,850
Island	Oak Harbor	22,970	\$689,100
Jefferson	Jefferson County	31,900	\$1,754,500
Jefferson	Port Townsend	9,610	\$288,300
King	Algona	3,190	\$95,700
King	Auburn (part)	71,740	\$2,152,200
King	Beaux Arts Village	300	\$25,000
King	Bellevue	145,300	\$4,359,000
King	Black Diamond	4,525	\$135,750
King	Bothell (part)	28,570	\$857,100
King	Burien	52,000	\$1,560,000
King	Carnation	2,220	\$66,600
King	Clyde Hill	3,055	\$91,650
King	Covington	20,280	\$608,400
King	Des Moines	31,580	\$947,400
King	Duvall	7,840	\$235,200
King	Enumclaw (part)	12,200	\$366,000
King	Federal Way	97,840	\$2,935,200
King	Hunts Point	420	\$25,000
King	Issaquah	37,590	\$1,127,700
King	Kenmore	23,320	\$699,600
King	Kent	129,800	\$3,894,000
King	Kirkland	88,940	\$2,668,200
King	Lake Forest Park	13,250	\$397,500
King	Maple Valley	26,180	\$785,400
King	Medina	3,245	\$97,350
King	Mercer Island	24,470	\$734,100
King	Milton (part)	1,195	\$35,850
King	Newcastle	12,450	\$373,500
King	Normandy Park	6,610	\$198,300
King	North Bend	6,965	\$208,950
King	Pacific (part)	6,875	\$206,250
King	Redmond	65,860	\$1,975,800
King	Renton	104,700	\$3,141,000
King	Sammamish	64,410	\$1,932,300
King	SeaTac	29,180	\$875,400
King	Shoreline	56,370	\$1,691,100
King	Skykomish	205	\$25,000
King	Snoqualmie	13,670	\$410,100
King	Tukwila	20,930	\$627,900
King	Woodinville	12,410	\$372,300
King	Yarrow Point	1,040	\$31,200

# Coronavirus Relief Funds (CRF) for Local Governments thru CARES Act Washington State Funding Distribution

County	Jurisdiction	2019 Population Estimate	PerCap Amount in Dollars
Kitsap	Kitsap County	270,100	\$14,855,500
Kitsap	Bainbridge Island	24,520	\$735,600
Kitsap	Bremerton	42,080	\$1,262,400
Kitsap	Port Orchard	14,390	\$431,700
Kitsap	Poulsbo	11,180	\$335,400
Kittitas	Kittitas County	45,470	\$2,500,850
Kittitas	Cle Elum	1,915	\$57,450
Kittitas	Ellensburg	19,960	\$598,800
Kittitas	Kittitas	1,530	\$45,900
Kittitas	Roslyn	900	\$27,000
Kittitas	South Cle Elum	535	\$25,000
Klickitat	Klickitat County	22,430	\$1,233,650
Klickitat	Bingen	750	\$25,000
Klickitat	Goldendale	3,545	\$106,350
Klickitat	White Salmon	2,610	\$78,300
Lewis	Lewis County	79,480	\$4,371,400
Lewis	Centralia	17,170	\$515,100
Lewis	Chehalis	7,535	\$226,050
Lewis	Morton	1,125	\$33,750
Lewis	Mossyrock	770	\$25,000
Lewis	Napavine	1,980	\$59,400
Lewis	Pe Ell	655	\$25,000
Lewis	Toledo	720	\$25,000
Lewis	Vader	625	\$25,000
Lewis	Winlock	1,340	\$40,200
Lincoln	Lincoln County	10,960	\$602,800
Lincoln	Almira	275	\$25,000
Lincoln	Creston	225	\$25,000
Lincoln	Davenport	1,730	\$51,900
Lincoln	Harrington	415	\$25,000
Lincoln	Odessa	910	\$27,300
Lincoln	Reardan	580	\$25,000
Lincoln	Sprague	440	\$25,000
Lincoln	Wilbur	890	\$26,700
Mason	Mason County	69,480	\$3,821,400
Mason	Shelton	10,220	\$306,600
Okanogan	Okanogan County	42,730	\$2,350,150
Okanogan	Brewster	2,405	\$72,150
Okanogan	Conconully	235	\$25,000
Okanogan	Coulee Dam (part)	915	\$27,450
Okanogan	Elmer City	290	\$25,000
Okanogan	Nespelem	245	\$25,000
Okanogan	Okanogan	2,640	\$79,200

# Coronavirus Relief Funds (CRF) for Local Governments thru CARES Act Washington State Funding Distribution

County	Jurisdiction	2019 Population Estimate	PerCap Amount in Dollars
Okanogan	Omak	4,940	\$148,200
Okanogan	Oroville	1,700	\$51,000
Okanogan	Pateros	585	\$25,000
Okanogan	Riverside	285	\$25,000
Okanogan	Tonasket	1,110	\$33,300
Okanogan	Twisp	980	\$29,400
Okanogan	Winthrop	480	\$25,000
Pacific	Pacific County	21,640	\$1,190,200
Pacific	Ilwaco	965	\$28,950
Pacific	Long Beach	1,455	\$43,650
Pacific	Raymond	2,885	\$86,550
Pacific	South Bend	1,625	\$48,750
Pend Oreille	Pend Oreille County	13,740	\$755,700
Pend Oreille	Cusick	205	\$25,000
Pend Oreille	Ione	450	\$25,000
Pend Oreille	Metaline	170	\$25,000
Pend Oreille	Metaline Falls	240	\$25,000
Pend Oreille	Newport	2,190	\$65,700
Pierce	Auburn (part)	9,980	\$299,400
Pierce	Bonney Lake	21,060	\$631,800
Pierce	Buckley	4,885	\$146,550
Pierce	Carbonado	665	\$25,000
Pierce	DuPont	9,425	\$282,750
Pierce	Eatonville	2,970	\$89,100
Pierce	Edgewood	11,390	\$341,700
Pierce	Enumclaw (part)	0	
Pierce	Fife	10,140	\$304,200
Pierce	Fircrest	6,770	\$203,100
Pierce	Gig Harbor	10,770	\$323,100
Pierce	Lakewood	59,670	\$1,790,100
Pierce	Milton (part)	6,735	\$202,050
Pierce	Orting	8,380	\$251,400
Pierce	Pacific (part)	35	\$1,050
Pierce	Puyallup	41,570	\$1,247,100
Pierce	Roy	820	\$25,000
Pierce	Ruston	1,005	\$30,150
Pierce	South Prairie	480	\$25,000
Pierce	Steilacoom	6,450	\$193,500
Pierce	Sumner	10,120	\$303,600
Pierce	Tacoma	211,400	\$6,342,000
Pierce	University Place	33,090	\$992,700
Pierce	Wilkeson	490	\$25,000
San Juan	San Juan County	17,150	\$943,250
San Juan	Friday Harbor	2,420	\$72,600

# Coronavirus Relief Funds (CRF) for Local Governments thru CARES Act Washington State Funding Distribution

County	Jurisdiction	2019 Population Estimate	PerCap Amount in Dollars
Skagit	Skagit County	129,200	\$7,106,000
Skagit	Anacortes	17,610	\$528,300
Skagit	Burlington	9,140	\$274,200
Skagit	Concrete	745	\$25,000
Skagit	Hamilton	300	\$25,000
Skagit	La Conner	960	\$28,800
Skagit	Lyman	450	\$25,000
Skagit	Mount Vernon	35,740	\$1,072,200
Skagit	Sedro-Woolley	11,690	\$350,700
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Skamania	Skamania County	12,060	\$663,300
Skamania	North Bonneville	1,030	\$30,900
Skamania	Stevenson	1,620	\$48,600
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Snohomish	Arlington	19,740	\$592,200
Snohomish	Bothell (part)	18,180	\$545,400
Snohomish	Brier	6,665	\$199,950
Snohomish	Darrington	1,410	\$42,300
Snohomish	Edmonds	42,170	\$1,265,100
Snohomish	Everett	111,800	\$3,354,000
Snohomish	Gold Bar	2,150	\$64,500
Snohomish	Granite Falls	3,900	\$117,000
Snohomish	Index	175	\$25,000
Snohomish	Lake Stevens	33,080	\$992,400
Snohomish	Lynnwood	39,600	\$1,188,000
Snohomish	Marysville	67,820	\$2,034,600
Snohomish	Mill Creek	20,590	\$617,700
Snohomish	Monroe	19,250	\$577,500
Snohomish	Mountlake Terrace	21,590	\$647,700
Snohomish	Mukilteo	21,350	\$640,500
Snohomish	Snohomish	10,200	\$306,000
Snohomish	Stanwood	7,020	\$210,600
Snohomish	Sultan	5,180	\$155,400
Snohomish	Woodway	1,350	\$40,500
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Spokane	Airway Heights	9,545	\$286,350
Spokane	Cheney	12,410	\$372,300
Spokane	Deer Park	4,390	\$131,700
Spokane	Fairfield	625	\$25,000
Spokane	Latah	195	\$25,000
Spokane	Liberty Lake	11,000	\$330,000
Spokane	Medical Lake	5,005	\$150,150
Spokane	Millwood	1,795	\$53,850
Spokane	Rockford	485	\$25,000
Spokane	Spangle	280	\$25,000
Spokane	Spokane	222,000	\$6,660,000
Spokane	Spokane Valley	96,720	\$2,901,600
Spokane	Waverly	130	\$25,000
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# Coronavirus Relief Funds (CRF) for Local Governments thru CARES Act Washington State Funding Distribution

County	Jurisdiction	2019 Population Estimate	PerCap Amount in Dollars
Stevens	Stevens County	45,470	\$2,500,850
Stevens	Chewelah	2,765	\$82,950
Stevens	Colville	4,760	\$142,800
Stevens	Kettle Falls	1,650	\$49,500
Stevens	Marcus	175	\$25,000
Stevens	Northport	295	\$25,000
Stevens	Springdale	315	\$25,000
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Thurston	Thurston County	285,900	\$15,724,500
Thurston	Bucoda	580	\$25,000
Thurston	Lacey	51,270	\$1,538,100
Thurston	Olympia	52,770	\$1,583,100
Thurston	Rainier	2,110	\$63,300
Thurston	Tenino	1,840	\$55,200
Thurston	Tumwater	24,060	\$721,800
Thurston	Yelm	9,135	\$274,050
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Wahkiakum	Wahkiakum County	4,190	\$250,000
Wahkiakum	Cathlamet	520	\$25,000
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Walla Walla	Walla Walla County	62,200	\$3,421,000
Walla Walla	College Place	9,665	\$289,950
Walla Walla	Prescott	330	\$25,000
Walla Walla	Waitsburg	1,230	\$36,900
Walla Walla	Walla Walla	34,240	\$1,027,200
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Whatcom	Whatcom County	225,300	\$12,391,500
Whatcom	Bellingham	90,110	\$2,703,300
Whatcom	Blaine	5,425	\$162,750
Whatcom	Everson	2,800	\$84,000
Whatcom	Ferndale	14,300	\$429,000
Whatcom	Lynden	14,470	\$434,100
Whatcom	Nooksack	1,605	\$48,150
Whatcom	Sumas	1,604	\$48,120
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Whitman	Whitman County	50,130	\$2,757,150
Whitman	Albion	550	\$25,000
Whitman	Colfax	2,825	\$84,750
Whitman	Colton	445	\$25,000
Whitman	Endicott	295	\$25,000
Whitman	Farmington	155	\$25,000
Whitman	Garfield	600	\$25,000
Whitman	LaCrosse	310	\$25,000
Whitman	Lamont	80	\$25,000
Whitman	Malden	200	\$25,000
Whitman	Oakesdale	425	\$25,000
Whitman	Palouse	1,080	\$32,400
Whitman	Pullman	34,560	\$1,036,800
Whitman	Rosalia	560	\$25,000

# Coronavirus Relief Funds (CRF) for Local Governments thru CARES Act Washington State Funding Distribution

County	Jurisdiction	2019 Population Estimate	PerCap Amount in Dollars
Whitman	St. John	505	\$25,000
Whitman	Tekoa	770	\$25,000
Whitman	Uniontown	355	\$25,000
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Yakima	Yakima County	255,950	\$14,077,250
Yakima	Grandview	11,200	\$336,000
Yakima	Granger	4,075	\$122,250
Yakima	Harrah	675	\$25,000
Yakima	Mabton	2,320	\$69,600
Yakima	Moxee	4,135	\$124,050
Yakima	Naches	990	\$29,700
Yakima	Selah	7,965	\$238,950
Yakima	Sunnyside	17,070	\$512,100
Yakima	Tieton	1,305	\$39,150
Yakima	Toppenish	9,105	\$273,150
Yakima	Union Gap	6,275	\$188,250
Yakima	Wapato	5,055	\$151,650
Yakima	Yakima	94,440	\$2,833,200
Yakima	Zillah	3,185	\$95,550
.	.	.	.
<b>State</b>	<b>State Total</b>	<b>7,546,410</b>	<b>\$296,541,670</b>
State	Unincorporated Population State Total	2,635,501	
State	Incorporated Population State Total	4,910,909	



## **Interagency Agreement with**

City of Sedro-Woolley

through

the Coronavirus Relief Fund for Local Governments

## **For**

Costs incurred due to the public health emergency with respect to the Coronavirus Disease 2019 (COVID-19) during the period of March 1, 2020 thru October 31, 2020.

**Start date:** March 1, 2020

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# FACE SHEET

**Contract Number:** «Contract\_Number»

**Washington State Department of Commerce  
Local Government Division  
Community Capital Facilities Unit  
Coronavirus Relief Fund for Local Governments**

<b>1. Contractor</b> City of Sedro-Woolley 325 Metcalf St Sedro-Woolley, WA 98284		<b>2. Contractor Doing Business As (optional)</b>	
<b>3. Contractor Representative</b> Doug Merriman City Supervisor (360) 855-9921 dmerriman@ci.sedro-woolley.wa.us		<b>4. COMMERCE Representative</b> «Full_Name» P.O. Box 42525 Project Manager 1011 Plum Street SE «LU_Project_ManagerPhone_Number» Olympia, WA 98504-2525 Fax 360-586-5880 «Mgr_EMail»	
<b>5. Contract Amount</b> \$350,700	<b>6. Funding Source</b> Federal: <input checked="" type="checkbox"/> State: <input type="checkbox"/> Other: <input type="checkbox"/> N/A: <input type="checkbox"/>	<b>7. Start Date</b> March 1, 2020	<b>8. End Date</b> October 31, 2020
<b>9. Federal Funds (as applicable)</b> <b>\$350,700</b>		<b>Federal Agency:</b> US Dept. of the Treasury <b>CFDA Number:</b> 21.999 <b>Indirect Rate (if applicable):</b> «Indirect_Rate»	
<b>10. Tax ID #</b> 91-6001276	<b>11. SWV #</b> SWV0018462-00	<b>12. UBI #</b> 298-001-552	<b>13. DUNS #</b> 878469774
<b>14. Contract Purpose</b> To provide funds for costs incurred due to the public health emergency with respect to the Coronavirus Disease 2019 (COVID-19) during the period of March 1, 2020 thru October 31, 2020. Final invoices must be received by November 15, 2020.			
<b>15. Signing Statement</b> COMMERCE, defined as the Department of Commerce, and the Contractor, as defined above, acknowledge and accept the terms of this Contract and Attachments and have executed this Contract on the date below and warrant they are authorized to bind their respective agencies. The rights and obligations of both parties to this Contract are governed by this Contract and the following documents hereby incorporated by reference: Attachment “A” – Scope of Work, Attachment “B” – Budget & Invoicing, Attachment “C” – A-19 Certification, Attachment “D” – A-19 Activity Report			
<b>FOR CONTRACTOR</b>  _____ Douglas A. Merriman, Ph.d, City Supervisor  _____ Date		<b>FOR COMMERCE</b>  _____ Mark K. Barkley, Assistant Director, Local Government Division  _____ Date  <b>APPROVED AS TO FORM ONLY BY ASSISTANT ATTORNEY GENERAL 05-01-2020. APPROVAL ON FILE.</b>	

**SPECIAL TERMS AND CONDITIONS  
INTERAGENCY AGREEMENT  
FEDERAL FUNDS**

**1. AUTHORITY**

COMMERCE and Contractor enter into this Contract pursuant to the authority granted by the Interlocal Cooperation Act, Chapter 39.34 RCW.

**2. ACKNOWLEDGMENT OF FEDERAL FUNDS**

Funds under the Contract are made available and are subject to Section 601(a) of the Social Security Act, as amended by section 5001 of the Coronavirus Aid, Relief, and Economic Security Act (CARES Act), and Title V and VI of the CARES Act.

The Contractor agrees that any publications (written, visual, or sound) but excluding press releases, newsletters, and issue analyses, issued by the Contractor describing programs or projects funded in whole or in part with federal funds under this Contract, shall contain the following statements:

“This project was supported by a grant awarded by US Department of the Treasury. Points of view in this document are those of the author and do not necessarily represent the official position or policies of the US Department of the Treasury. Grant funds are administered by the Local Government Coronavirus Relief Fund thru the Washington State Department of Commerce.”

**3. CONTRACT MANAGEMENT**

The Representative for each of the parties shall be responsible for and shall be the contact person for all communications and billings regarding the performance of this Contract.

The Representative for COMMERCE and their contact information are identified on the Face Sheet of this Contract.

The Representative for the Contractor and their contact information are identified on the Face Sheet of this Contract.

**4. COMPENSATION**

COMMERCE shall pay an amount not to exceed the contract amount listed on the Face Sheet for the performance of all things necessary for or incidental to the performance of work under this Contract as set forth in the Scope of Work (Attachment A).

**5. EXPENSES**

Contractor shall receive reimbursement for allowable expenses as identified in the Scope of Work (Attachment A) or as authorized in advance by COMMERCE as reimbursable.

Travel expenses may include airfare (economy or coach class only), other transportation expenses, and lodging and subsistence necessary during periods of required travel. Contractor shall receive compensation for travel expenses at current state travel reimbursement rates.

**6. INDIRECT COSTS**

Contractor shall provide their indirect cost rate that has been negotiated between their entity and the federal government. If no such rate exists a *de minimis* indirect cost rate of 10% of modified total direct costs (MTDC) will be used.

**7. BILLING PROCEDURES AND PAYMENT**

COMMERCE shall reimburse the Contractor for eligible Project expenditures, up to the maximum payable under this Contract. When requesting reimbursement for expenditures made, Contractor shall submit all Invoice Vouchers and any required documentation electronically through COMMERCE's Contracts Management System (CMS), which is available through the Secure Access Washington (SAW) portal. If the Contractor has constraints preventing access to COMMERCE's online A-19 portal, a hard copy A-19 form may be provided by the COMMERCE Project Manager upon request.

**SPECIAL TERMS AND CONDITIONS  
INTERAGENCY AGREEMENT  
FEDERAL FUNDS**

The voucher must be certified by an official of the Contractor with authority to bind the Contractor. The final voucher shall be submitted to COMMERCE no later than November 15, 2020.

COMMERCE will pay Contractor upon acceptance of services provided and receipt of properly completed invoices, which shall be submitted to the Representative for COMMERCE not more often than monthly.

The invoices shall describe and document, to COMMERCE's satisfaction, reimbursable expenditures as set forth under the Scope of Work (Attachment A) and Budget & Invoicing (Attachment B). The invoice shall include the Contract Number as stated on the Face Sheet.

Each voucher must be accompanied by an A-19 Certification (Attachment C) and A-19 Activity Report (Attachment D). The A-19 Certification must be certified by an authorized party of the Contractor to certify and attest all expenditures submitted on the voucher are in compliance with the United States Treasury Coronavirus Relief Fund ("Fund") Guidance for State, Territorial, Local, and Tribal Governments:

<https://home.treasury.gov/system/files/136/Coronavirus-Relief-Fund-Guidance-for-State-Territorial-Local-and-Tribal-Governments.pdf>

The A-19 Activity Report must be submitted which describes, in Excel spreadsheet and narrative form, a detailed breakdown of the expenditures within each applicable budget sub-category identified in the voucher, as well as a report of expenditures to date. COMMERCE will not release payment for any reimbursement request received unless and until the A-19 Certification and A-19 Activity Report is received. After approving the Invoice Voucher, A-19 Certification and Activity Report, COMMERCE shall promptly remit a warrant to the Contractor.

Payment shall be considered timely if made by COMMERCE within thirty (30) calendar days after receipt of properly completed invoices. Payment shall be sent to the address designated by the Contractor.

COMMERCE may, in its sole discretion, terminate the Contract or withhold payments claimed by the Contractor for services rendered if the Contractor fails to satisfactorily comply with any term or condition of this Contract.

No payments in advance or in anticipation of services or supplies to be provided under this Agreement shall be made by COMMERCE.

**Duplication of Billed Costs**

The Contractor shall not bill COMMERCE for services performed under this Agreement, and COMMERCE shall not pay the Contractor, if the Contractor is entitled to payment or has been or will be paid by any other source, including grants, for that service.

**Disallowed Costs**

The Contractor is responsible for any audit exceptions or disallowed costs incurred by its own organization or that of its subcontractors.

Should the Contractor be found to spent funds inconsistent with federal laws, rules, guidelines, or otherwise inappropriately, it is the responsibility of the Contractor to reimburse Commerce for any amount spent on disallowed costs.

**8. AUDIT**

Contractor shall maintain internal controls providing reasonable assurance it is managing federal awards in compliance with laws, regulations, and provisions of contracts or grant agreements that could have a material effect on each of its federal programs; and prepare appropriate financial statements, including a schedule of expenditures of federal awards.

If the Contractor is a subrecipient and expends \$750,000 or more in federal awards from any and/or all sources in any fiscal year, the Contractor shall procure and pay for a single audit or a program-specific audit for that fiscal year. Upon completion of each audit, the Contractor shall:

**SPECIAL TERMS AND CONDITIONS  
INTERAGENCY AGREEMENT  
FEDERAL FUNDS**

- A. Submit to COMMERCE the reporting package specified in OMB Super Circular 2 CFR 200.501, reports required by the program-specific audit guide (if applicable), and a copy of any management letters issued by the auditor.
- B. Submit to COMMERCE follow-up and developed corrective action plans for all audit findings.

If the Contractor is a subrecipient and expends less than \$750,000 in federal awards from any and/or all sources in any fiscal year, the Contractor shall notify COMMERCE they did not meet the single audit requirement.

The Contractor shall send all single audit documentation to [auditreview@commerce.wa.gov](mailto:auditreview@commerce.wa.gov).

**9. DEBARMENT**

- A. Contractor, defined as the primary participant and its principals, certifies by signing these General Terms and Conditions that to the best of its knowledge and belief that they:
  - i. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency.
  - ii. Have not within a three-year period preceding this Contract, been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public or private agreement or transaction, violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, receiving stolen property, making false claims, or obstruction of justice;
  - iii. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of federal Executive Order 12549; and
  - iv. Have not within a three-year period preceding the signing of this Contract had one or more public transactions (Federal, State, or local) terminated for cause of default.
- B. Where the Contractor is unable to certify to any of the statements in this Contract, the Contractor shall attach an explanation to this Contract.
- C. The Contractor agrees by signing this Contract that it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by COMMERCE.
- D. The Contractor further agrees by signing this Contract that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," as follows, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions:

**LOWER TIER COVERED TRANSACTIONS**

- i. The lower tier Contractor certifies, by signing this Contract that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
  - ii. Where the lower tier Contractor is unable to certify to any of the statements in this Contract, such contractor shall attach an explanation to this Contract.
- E. The terms **covered transaction, debarred, suspended, ineligible, lower tier covered transaction, person, primary covered transaction, principal, and voluntarily excluded**, as used in this section, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. You may contact COMMERCE for assistance in obtaining a copy of these regulations.

**10. LAWS**

The Contractor shall comply with all applicable laws, ordinances, codes, regulations, and policies of local, state, and federal governments, as now or hereafter amended, including, but not limited to:

**SPECIAL TERMS AND CONDITIONS  
INTERAGENCY AGREEMENT  
FEDERAL FUNDS**

**United States Laws, Regulations and Circulars (Federal)**

Contractor shall comply with Uniform Administrative Requirements, Cost Principles, and Audit Requirement for Federal Award, 2 CFR 200, Subpart F – Audit Requirements.

Contractor shall comply with the applicable requirements of 2 CFR Part 200, including any future amendments to 2 CFR Part 200, and any successor or replacement Office of Management and Budget (OMB) Circular or regulation.

Contractor shall comply with Omnibus Crime Control and Safe streets Act of 1968, Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, Title IX of the Education Amendments of 1972, The Age Discrimination Act of 1975, and The Department of Justice Non-Discrimination Regulations, 28 C.F.R. Part 42, Subparts C.D.E. and G, and 28 C.F.R. Part 35 and 39.

**11. ORDER OF PRECEDENCE**

In the event of an inconsistency in this Contract, the inconsistency shall be resolved by giving precedence in the following order:

- Applicable federal and state of Washington statutes and regulations
- Special Terms and Conditions
- General Terms and Conditions
- Attachment A – Scope of Work
- Attachment B – Budget & Invoicing
- Attachment C – A-19 Certification
- Attachment D – A-19 Activity Report

**GENERAL TERMS AND CONDITIONS  
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**1. DEFINITIONS**

As used throughout this Contract, the following terms shall have the meaning set forth below:

- A. "Authorized Representative" shall mean the Director and/or the designee authorized in writing to act on the Director's behalf.
- B. "COMMERCE" shall mean the Department of Commerce.
- C. "Contract" or "Agreement" means the entire written agreement between COMMERCE and the Contractor, including any attachments, documents, or materials incorporated by reference. E-mail or facsimile transmission of a signed copy of this contract shall be the same as delivery of an original.
- D. "Contractor" shall mean the entity identified on the face sheet performing service(s) under this Contract, and shall include all employees and agents of the Contractor.
- E. "Personal Information" shall mean information identifiable to any person, including, but not limited to, information that relates to a person's name, health, finances, education, business, use or receipt of governmental services or other activities, addresses, telephone numbers, social security numbers, driver license numbers, other identifying numbers, and any financial identifiers.
- F. "State" shall mean the state of Washington.
- G. "Subcontractor" shall mean one not in the employment of the Contractor, who is performing all or part of those services under this Contract under a separate contract with the Contractor. The terms "subcontractor" and "subcontractors" mean subcontractor(s) in any tier.

**2. ALL WRITINGS CONTAINED HEREIN**

This Contract contains all the terms and conditions agreed upon by the parties. No other understandings, oral or otherwise, regarding the subject matter of this Contract shall be deemed to exist or to bind any of the parties hereto.

**3. AMENDMENTS**

This Contract may be amended by mutual agreement of the parties. Such amendments shall not be binding unless they are in writing and signed by personnel authorized to bind each of the parties.

**4. ASSIGNMENT**

Neither this Contract, work thereunder, nor any claim arising under this Contract, shall be transferred or assigned by the Contractor without prior written consent of COMMERCE.

**5. CONFIDENTIALITY AND SAFEGUARDING OF INFORMATION**

- A. "Confidential Information" as used in this section includes:
  - i. All material provided to the Contractor by COMMERCE that is designated as "confidential" by COMMERCE;
  - ii. All material produced by the Contractor that is designated as "confidential" by COMMERCE; and
  - iii. All personal information in the possession of the Contractor that may not be disclosed under state or federal law.
- B. The Contractor shall comply with all state and federal laws related to the use, sharing, transfer, sale, or disclosure of Confidential Information. The Contractor shall use Confidential Information solely for the purposes of this Contract and shall not use, share, transfer, sell or disclose any Confidential Information to any third party except with the prior written consent of COMMERCE or as may be required by law. The Contractor shall take all necessary steps to assure that Confidential Information is safeguarded to prevent unauthorized use, sharing, transfer, sale or disclosure of Confidential Information or violation of any state or federal laws related thereto. Upon request, the Contractor shall provide COMMERCE with its policies and procedures on confidentiality.

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COMMERCE may require changes to such policies and procedures as they apply to this Contract whenever COMMERCE reasonably determines that changes are necessary to prevent unauthorized disclosures. The Contractor shall make the changes within the time period specified by COMMERCE. Upon request, the Contractor shall immediately return to COMMERCE any Confidential Information that COMMERCE reasonably determines has not been adequately protected by the Contractor against unauthorized disclosure.

- C. Unauthorized Use or Disclosure. The Contractor shall notify COMMERCE within five (5) working days of any unauthorized use or disclosure of any confidential information, and shall take necessary steps to mitigate the harmful effects of such use or disclosure.

**6. COPYRIGHT**

Unless otherwise provided, all Materials produced under this Contract shall be considered "works for hire" as defined by the U.S. Copyright Act and shall be owned by COMMERCE. COMMERCE shall be considered the author of such Materials. In the event the Materials are not considered "works for hire" under the U.S. Copyright laws, the Contractor hereby irrevocably assigns all right, title, and interest in all Materials, including all intellectual property rights, moral rights, and rights of publicity to COMMERCE effective from the moment of creation of such Materials.

"Materials" means all items in any format and includes, but is not limited to, data, reports, documents, pamphlets, advertisements, books, magazines, surveys, studies, computer programs, films, tapes, and/or sound reproductions. "Ownership" includes the right to copyright, patent, register and the ability to transfer these rights.

For Materials that are delivered under the Contract, but that incorporate pre-existing materials not produced under the Contract, the Contractor hereby grants to COMMERCE a nonexclusive, royalty-free, irrevocable license (with rights to sublicense to others) in such Materials to translate, reproduce, distribute, prepare derivative works, publicly perform, and publicly display. The Contractor warrants and represents that the Contractor has all rights and permissions, including intellectual property rights, moral rights and rights of publicity, necessary to grant such a license to COMMERCE.

The Contractor shall exert all reasonable effort to advise COMMERCE, at the time of delivery of Materials furnished under this Contract, of all known or potential invasions of privacy contained therein and of any portion of such document which was not produced in the performance of this Contract. The Contractor shall provide COMMERCE with prompt written notice of each notice or claim of infringement received by the Contractor with respect to any Materials delivered under this Contract. COMMERCE shall have the right to modify or remove any restrictive markings placed upon the Materials by the Contractor.

**7. DISPUTES**

In the event that a dispute arises under this Agreement, it shall be determined by a Dispute Board in the following manner: Each party to this Agreement shall appoint one member to the Dispute Board. The members so appointed shall jointly appoint an additional member to the Dispute Board. The Dispute Board shall review the facts, Agreement terms and applicable statutes and rules and make a determination of the dispute. The Dispute Board shall thereafter decide the dispute with the majority prevailing. The determination of the Dispute Board shall be final and binding on the parties hereto. As an alternative to this process, either of the parties may request intervention by the Governor, as provided by RCW 43.17.330, in which event the Governor's process will control.

**8. GOVERNING LAW AND VENUE**

This Contract shall be construed and interpreted in accordance with the laws of the state of Washington, and any applicable federal laws, and the venue of any action brought hereunder shall be in the Superior Court for Thurston County.

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**9. INDEMNIFICATION**

Each party shall be solely responsible for the acts of its employees, officers, and agents.

**10. LICENSING, ACCREDITATION AND REGISTRATION**

The Contractor shall comply with all applicable local, state, and federal licensing, accreditation and registration requirements or standards necessary for the performance of this Contract.

**11. RECAPTURE**

In the event that the Contractor fails to perform this Contract in accordance with state laws, federal laws, and/or the provisions of this Contract, COMMERCE reserves the right to recapture funds in an amount to compensate COMMERCE for the noncompliance in addition to any other remedies available at law or in equity.

Repayment by the Contractor of funds under this recapture provision shall occur within the time period specified by COMMERCE. In the alternative, COMMERCE may recapture such funds from payments due under this Contract.

**12. RECORDS MAINTENANCE**

The Contractor shall maintain books, records, documents, data and other evidence relating to this contract and performance of the services described herein, including but not limited to accounting procedures and practices that sufficiently and properly reflect all direct and indirect costs of any nature expended in the performance of this contract.

The Contractor shall maintain records that identify, in its accounts, all federal awards received and expended and the federal programs under which they were received, by Catalog of Federal Domestic Assistance (CFDA) title and number, award number and year, name of the federal agency, and name of the pass-through entity.

The Contractor shall retain such records for a period of six (6) years following the date of final payment. At no additional cost, these records, including materials generated under the contract, shall be subject at all reasonable times to inspection, review or audit by COMMERCE, personnel duly authorized by COMMERCE, the Office of the State Auditor, and federal and state officials so authorized by law, regulation or agreement.

If any litigation, claim or audit is started before the expiration of the six (6) year period, the records shall be retained until all litigation, claims, or audit findings involving the records have been resolved.

**13. SAVINGS**

In the event funding from state, federal, or other sources is withdrawn, reduced, or limited in any way after the effective date of this Contract and prior to normal completion, COMMERCE may suspend or terminate the Contract under the "Termination for Convenience" clause, without the ten calendar day notice requirement. In lieu of termination, the Contract may be amended to reflect the new funding limitations and conditions.

**14. SEVERABILITY**

The provisions of this contract are intended to be severable. If any term or provision is illegal or invalid for any reason whatsoever, such illegality or invalidity shall not affect the validity of the remainder of the contract.

**15. SUBCONTRACTING**

The Contractor may only subcontract work contemplated under this Contract if it obtains the prior written approval of COMMERCE.

If COMMERCE approves subcontracting, the Contractor shall maintain written procedures related to subcontracting, as well as copies of all subcontracts and records related to subcontracts. For cause, COMMERCE in writing may: (a) require the Contractor to amend its subcontracting procedures as they

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relate to this Contract; (b) prohibit the Contractor from subcontracting with a particular person or entity; or (c) require the Contractor to rescind or amend a subcontract.

Every subcontract shall bind the Subcontractor to follow all applicable terms of this Contract. Contractor shall incorporate 2 CFR Part 200, Subpart F audit requirements into all subcontracts. The Contractor is responsible to COMMERCE if the Subcontractor fails to comply with any applicable term or condition of this Contract. The Contractor shall appropriately monitor the activities of the Subcontractor to assure fiscal conditions of this Contract. In no event shall the existence of a subcontract operate to release or reduce the liability of the Contractor to COMMERCE for any breach in the performance of the Contractor's duties.

Every subcontract shall include a term that COMMERCE and the State of Washington are not liable for claims or damages arising from a Subcontractor's performance of the subcontract.

**16. SURVIVAL**

The terms, conditions, and warranties contained in this Contract that by their sense and context are intended to survive the completion of the performance, cancellation or termination of this Contract shall so survive.

**17. TERMINATION FOR CAUSE**

In the event COMMERCE determines the Contractor has failed to comply with the conditions of this contract in a timely manner, COMMERCE has the right to suspend or terminate this contract. Before suspending or terminating the contract, COMMERCE shall notify the Contractor in writing of the need to take corrective action. If corrective action is not taken within 30 calendar days, the contract may be terminated or suspended.

In the event of termination or suspension, the Contractor shall be liable for damages as authorized by law including, but not limited to, any cost difference between the original contract and the replacement or cover contract and all administrative costs directly related to the replacement contract, e.g., cost of the competitive bidding, mailing, advertising and staff time.

COMMERCE reserves the right to suspend all or part of the contract, withhold further payments, or prohibit the Contractor from incurring additional obligations of funds during investigation of the alleged compliance breach and pending corrective action by the Contractor or a decision by COMMERCE to terminate the contract. A termination shall be deemed a "Termination for Convenience" if it is determined that the Contractor: (1) was not in default; or (2) failure to perform was outside of his or her control, fault or negligence.

The rights and remedies of COMMERCE provided in this contract are not exclusive and are in addition to any other rights and remedies provided by law.

**18. TERMINATION FOR CONVENIENCE**

Except as otherwise provided in this Contract, COMMERCE may, by ten (10) business days written notice, beginning on the second day after the mailing, terminate this Contract, in whole or in part. If this Contract is so terminated, COMMERCE shall be liable only for payment required under the terms of this Contract for services rendered or goods delivered prior to the effective date of termination.

**19. TERMINATION PROCEDURES**

Upon termination of this contract, COMMERCE, in addition to any other rights provided in this contract, may require the Contractor to deliver to COMMERCE any property specifically produced or acquired for the performance of such part of this contract as has been terminated. The provisions of the "Treatment of Assets" clause shall apply in such property transfer.

COMMERCE shall pay to the Contractor the agreed upon price, if separately stated, for completed work and services accepted by COMMERCE, and the amount agreed upon by the Contractor and COMMERCE for (i) completed work and services for which no separate price is stated, (ii) partially completed work and services, (iii) other property or services that are accepted by COMMERCE, and (iv) the protection and preservation of property, unless the termination is for default, in which case the Authorized Representative shall determine the extent of the liability of COMMERCE. Failure to agree

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with such determination shall be a dispute within the meaning of the "Disputes" clause of this contract. COMMERCE may withhold from any amounts due the Contractor such sum as the Authorized Representative determines to be necessary to protect COMMERCE against potential loss or liability.

The rights and remedies of COMMERCE provided in this section shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract.

After receipt of a notice of termination, and except as otherwise directed by the Authorized Representative, the Contractor shall:

- A. Stop work under the contract on the date, and to the extent specified, in the notice;
- B. Place no further orders or subcontracts for materials, services, or facilities except as may be necessary for completion of such portion of the work under the contract that is not terminated;
- C. Assign to COMMERCE, in the manner, at the times, and to the extent directed by the Authorized Representative, all of the rights, title, and interest of the Contractor under the orders and subcontracts so terminated, in which case COMMERCE has the right, at its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;
- D. Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with the approval or ratification of the Authorized Representative to the extent the Authorized Representative may require, which approval or ratification shall be final for all the purposes of this clause;
- E. Transfer title to COMMERCE and deliver in the manner, at the times, and to the extent directed by the Authorized Representative any property which, if the contract had been completed, would have been required to be furnished to COMMERCE;
- F. Complete performance of such part of the work as shall not have been terminated by the Authorized Representative; and
- G. Take such action as may be necessary, or as the Authorized Representative may direct, for the protection and preservation of the property related to this contract, which is in the possession of the Contractor and in which the Authorized Representative has or may acquire an interest.

**20. TREATMENT OF ASSETS**

Title to all property furnished by COMMERCE shall remain in COMMERCE. Title to all property furnished by the Contractor, for the cost of which the Contractor is entitled to be reimbursed as a direct item of cost under this contract, shall pass to and vest in COMMERCE upon delivery of such property by the Contractor. Title to other property, the cost of which is reimbursable to the Contractor under this contract, shall pass to and vest in COMMERCE upon (i) issuance for use of such property in the performance of this contract, or (ii) commencement of use of such property in the performance of this contract, or (iii) reimbursement of the cost thereof by COMMERCE in whole or in part, whichever first occurs.

- A. Any property of COMMERCE furnished to the Contractor shall, unless otherwise provided herein or approved by COMMERCE, be used only for the performance of this contract.
- B. The Contractor shall be responsible for any loss or damage to property of COMMERCE that results from the negligence of the Contractor or which results from the failure on the part of the Contractor to maintain and administer that property in accordance with sound management practices.
- C. If any COMMERCE property is lost, destroyed or damaged, the Contractor shall immediately notify COMMERCE and shall take all reasonable steps to protect the property from further damage.
- D. The Contractor shall surrender to COMMERCE all property of COMMERCE prior to settlement upon completion, termination or cancellation of this contract

All reference to the Contractor under this clause shall also include Contractor's employees, agents or Subcontractors.

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**21. WAIVER**

Waiver of any default or breach shall not be deemed to be a waiver of any subsequent default or breach. Any waiver shall not be construed to be a modification of the terms of this Contract unless stated to be such in writing and signed by Authorized Representative of COMMERCE.

## Scope of Work

This funding is made available under section 601(a) of the Social Security Act, as added by section 5001 of the Coronavirus Aid, Relief, and Economic Security Act (“CARES Act”) and Section V and VI of the CARES Act, for costs incurred due to the public health emergency with respect to the Coronavirus Disease 2019 (COVID-19). Under the CARES Act, the Coronavirus Relief Fund may be used to cover costs that:

- 1. Are necessary expenditures incurred due to the public health emergency with respect to the Coronavirus Disease 2019 (COVID-19); AND**
- 2. Are not accounted for in the budget most recently approved as of March 27, 2020 (the date of enactment of the CARES Act) for the State or government.**

These funds may be used to reimburse for expenditures incurred during the period of March 1, 2020 thru Oct. 31, 2020. Please note: In order to ensure all funds have been fully utilized prior to the US Treasury’s December 30, 2020 end date, the State of Washington must closeout contracts by October 31, 2020. All final requests for reimbursement must be received no later than November 15, 2020.

Expenditures must be used for necessary actions taken to respond to the public health emergency. These may include expenditures incurred to allow the local government to respond directly to the emergency, such as by addressing medical or public health needs, as well as expenditures incurred to respond to second-order effects of the emergency, such as by providing economic support to those suffering from employment or business interruptions due to COVID-19-related business closures.

Funds may not be used to fill shortfalls in government revenue to cover expenditures that would not otherwise qualify under the statute. Although a broad range of uses is allowed, revenue replacement is not a permissible use of Fund payments.

Payments may be used only to cover costs not accounted for in the budget most recently approved as of March 27, 2020. A cost meets this requirement if either:

1. The cost cannot lawfully be funded using a line item, allotment, or allocation within that budget; OR
2. The cost is for a substantially different use from any expected use of funds in such a line item, allotment, or allocation.

The “most recently approved” budget is the enacted budget for the relevant fiscal period for the particular government. A cost is not considered to have been accounted for in a budget merely because it could be met using a budgetary stabilization fund, rainy day fund, or similar reserve account.

**Allowable expenditures include, but are not limited to:**

1. Medical expenses such as:
  - a. COVID-19-related expenses of public hospitals, clinics, and similar facilities.
  - b. Expenses of establishing temporary public medical facilities and other measures to increase COVID-19 treatment capacity, including related construction costs.
  - c. Costs of providing COVID-19 testing, including serological testing.
  - d. Emergency medical response expenses, including emergency medical transportation, related to COVID-19.
  - e. Expenses for establishing and operating public telemedicine capabilities for COVID-19-related treatment.
2. Public health expenses such as:

- a. Expenses for communication and enforcement by State, territorial, local, and Tribal governments of public health orders related to COVID-19.
  - b. Expenses for acquisition and distribution of medical and protective supplies, including sanitizing products and personal protective equipment, for medical personnel, police officers, social workers, child protection services, and child welfare officers, direct service providers for older adults and individuals with disabilities in community settings, and other public health or safety workers in connection with the COVID-19 public health emergency.
  - c. Expenses for disinfection of public areas and other facilities, e.g., nursing homes, in response to the COVID-19 public health emergency.
  - d. Expenses for technical assistance to local authorities or other entities on mitigation of COVID-19-related threats to public health and safety.
  - e. Expenses for public safety measures undertaken in response to COVID-19.
  - f. Expenses for quarantining individuals.
3. Payroll expenses for public safety, public health, health care, human services, and similar employees whose services are substantially dedicated to mitigating or responding to the COVID-19 public health emergency.
4. Expenses of actions to facilitate compliance with COVID-19-related public health measures, such as:
  - a. Expenses for food delivery to residents, including, for example, senior citizens and other vulnerable populations, to enable compliance with COVID-19 public health precautions.
  - b. Expenses to facilitate distance learning, including technological improvements, in connection with school closings to enable compliance with COVID-19 precautions.
  - c. Expenses to improve telework capabilities for public employees to enable compliance with COVID-19 public health precautions.
  - d. Expenses of providing paid sick and paid family and medical leave to public employees to enable compliance with COVID-19 public health precautions.
  - e. COVID-19-related expenses of maintaining state prisons and county jails, including as relates to sanitation and improvement of social distancing measures, to enable compliance with COVID-19 public health precautions.
  - f. Expenses for care for homeless populations provided to mitigate COVID-19 effects and enable compliance with COVID-19 public health precautions.
5. Expenses associated with the provision of economic support in connection with the COVID-19 public health emergency, such as:
  - a. Expenditures related to the provision of grants to small businesses to reimburse the costs of business interruption caused by required closures.
  - b. Expenditures related to a State, territorial, local, or Tribal government payroll support program.
  - c. Unemployment insurance costs related to the COVID-19 public health emergency if such costs will not be reimbursed by the federal government pursuant to the CARES Act or otherwise.
6. Any other COVID-19-related expenses reasonably necessary to the function of government that satisfy the Fund's eligibility criteria.

## Budget & Invoicing

The Contractor shall determine the appropriate budget and use of funds within the following 6 budget categories and their sub-categories:

1. Medical
2. Public Health
3. Payroll
4. Actions to Comply with Public Health Measures
5. Economic Support
6. Other Covid-19 Expenses

The Contractor shall submit invoice reimbursement requests to the Commerce Representative using the Commerce Contract Management System's (CMS) Online A-19 Portal. Each reimbursement request must include:

1. A-19 Certification form – An authorized party of the local government will certify each invoice (A19) submitted for reimbursement and attest that all incurred expenditures meet the US Treasury Department's guidance: <https://home.treasury.gov/system/files/136/Coronavirus-Relief-Fund-Guidance-for-State-Territorial-Local-and-Tribal-Governments.pdf>
2. A-19 Activity Report
3. A detailed breakdown of the expenditures incurred within each applicable budget sub-category on the A-19 Activity Report.

The A-19 Certification and Activity Report templates will be provided with the executed contract. The documents are included in Attachment C and Attachment D for reference.

Receipts and proof of payment for costs incurred do not need to be submitted with A-19s. All contractors are required to maintain accounting records in accordance with state and federal laws. Records must be sufficient to demonstrate the funds have been used in accordance with section 601(d) of the Social Security Act. Commerce reserves the right to audit any costs submitted for reimbursement. The Contractor shall comply with Commerce A-19 audits and provide the appropriate records upon request.



## LOCAL GOVERNMENT CORONAVIRUS RELIEF FUNDS CERTIFICATION

I, **<FIRST, LAST NAME>**, am the **<TITLE>** of **<LOCAL GOVERNMENT>**, and I certify that:

1. I have the authority and approval from the governing body on behalf of the Local Government to request reimbursement from the Department of Commerce (Commerce) per contract number **<COMMERCE CONTRACT NUMBER>** from the allocation of the Coronavirus Relief Fund as created in section 5001 of H.R.748, the Coronavirus Aid, Relief, and Economic Security Act ("CARES Act") for eligible expenditures included on the corresponding A-19 invoice voucher for report period **<REPORT PERIOD FROM A-19>**.
2. I understand that as additional federal guidance becomes available, a contract amendment to the agreement between Commerce and the Local Government may become necessary.
3. I understand Commerce will rely on this certification as a material representation in processing this reimbursement.
4. I certify the use of funds submitted for reimbursement from the Coronavirus Relief Funds under this contract were used only to cover those costs that:
  - a. Are *necessary expenditures* incurred due to the public health emergency with respect to the Coronavirus Disease 2019 (COVID-19);
  - b. Were not accounted for in the budget most recently approved as of March 27, 2020; and
  - c. Were incurred during the period that begins on March 1, 2020, and ends on October 31, 2020.
5. I understand the use of funds pursuant to this certification must adhere to official federal guidance issued or to be issued on what constitutes a necessary expenditure. We have reviewed the guidance established by U.S. Department of the Treasury<sup>1</sup> and certify costs meet the required guidance. Any funds expended by the Local Government or its subcontractor(s) in any manner that does not adhere to official federal guidance shall be returned to the State of Washington.

Footnote:

1 – Guidance available at <https://home.treasury.gov/system/files/136/Coronavirus-Relief-Fund-Guidance-for-State-Territorial-Local-and-Tribal-Governments.pdf> (4/30/2020)

## LOCAL GOVERNMENT CORONAVIRUS RELIEF FUNDS CERTIFICATION

Page 2 of 2

6. I understand the Local Government receiving funds pursuant to this certification shall retain documentation of all uses of the funds, including but not limited to invoices and/or sales receipts in a manner consistent with §200.333 *Retention requirements for records* of 2 CFR Part 200 *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Such documentation shall be produced to Commerce upon request and may be subject to audit by the State Auditor.
7. I understand any funds provided pursuant to this certification cannot be used as a revenue replacement for lower than expected tax or other revenue collections.
8. I understand funds received pursuant to this certification cannot be used for expenditures for which the Local Government has received any other emergency COVID-19 supplemental funding (whether state, federal or private in nature) for that same expense.

I certify that I have read the above certification and my statements contained herein are true and correct to the best of my knowledge.



Printed Name



Title

Signature



Date:

CRF A-19 Activity Report  
INSTRUCTIONS

### INSTRUCTIONS:

A completed CRF A-19 Certification and Activity Report must be submitted with each A-19 reimbursement request. The A-19 Activity Report must be submitted as an Excel spreadsheet, not a PDF. You must also include a detailed breakdown of the individual expenditures reported in **Column F** for each applicable sub-category included on the A-19 Activity Report.

There are 6 primary budget categories;

1. Medical Expenses
2. Public Health Expenses
3. Payroll expenses for public employees dedicated to COVID-19
4. Expenses to facilitate compliance with COVID-19-measures
5. Economic Supports
6. Other COVID-19 Expenses

Each primary budget category includes sub-categories and provides an option to add "other" sub-categories not listed.

Follow the below instructions when completing the A-19 Activity Report:

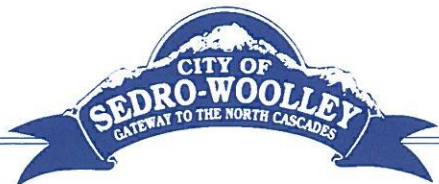
- 1 **REPORT PERIOD** - Enter the report period into **Cell D1** of the A-19 Activity Report.
  - a This should match the report period entered on the corresponding A-19.
  - b Report period should include MM/YY to MM/YYYY, i.e. 03/20, March 2020, 03/2020, etc.
- 2 **COLUMN E** - Enter the total amount of all previous reimbursement requests submitted to Commerce for each applicable sub-category.
- 3 **COLUMN F** - Enter the total amount being requested in the current reimbursement request for each applicable sub-category.
- 4 **COLUMN H: USE OF FUNDS** - You must include a general description of the use of the funds being requested for each applicable sub-category. Keep descriptions as concise as possible, but include adequate context to demonstrate how these funds helped address the COVID-19 emergency. If applicable, please consider:
  - a Providing a brief description of the specific activities performed.
  - b Identifying specific populations served.
  - c Identifying specific programs created or utilized.
  - d Including any known or intended outcomes, results, or community impacts.
- 5 **OTHER SUB-CATEGORIES** - Budget categories 1-5 include a placeholder to add an additional sub-category if necessary.
  - a Enter a **Title** for other expenses added within the appropriate budget category.
  - b Enter titles into **Cells: D10, D19, D27, D36, and D41**.
  - c There is only one "other" placeholder in each budget category section. Please combine multiple "other" sub-categories added to the same budget category.
- 6 **OTHER BUDGET CATEGORIES** - Budget category 6 is where you should include any eligible expenditures that don't fall under budget categories 1-5.
  - a Enter a **Title** for these "other" expenses within budget category 6.
  - b Enter titles into **Cells D44 - D48**.
  - c There are only 5 entry fields available within Budget Category 6.

Coronavirus Relief Fund  
A-19 Activity ReportReport Period: 

Eligible Expenditures	Previously Reported Expenditures	Current Expenditures this Invoice	Total Cumulative Expenditures	Brief Description of Use of Funds
<b>1 Medical Expenses</b>				
A. Public hospitals, clinics, and similar facilities	\$ -	\$ -	\$ -	
B. Temporary public medical facilities & increased capacity	\$ -	\$ -	\$ -	
C. COVID-19 testing, including serological testing	\$ -	\$ -	\$ -	
D. Emergency medical response expenses	\$ -	\$ -	\$ -	
E. Telemedicine capabilities	\$ -	\$ -	\$ -	
F. Other:	\$ -	\$ -	\$ -	
Sub-Total:	\$ -	\$ -	\$ -	
<b>2 Public Health Expenses</b>				
A. Communication and enforcement of public health measures	\$ -	\$ -	\$ -	
B. Medical and protective supplies, including sanitation and PPE	\$ -	\$ -	\$ -	
C. Disinfecting public areas and other facilities	\$ -	\$ -	\$ -	
D. Technical assistance on COVID-19 threat mitigation	\$ -	\$ -	\$ -	
E. Public safety measures undertaken	\$ -	\$ -	\$ -	
F. Quarantining individuals	\$ -	\$ -	\$ -	
G. Other:	\$ -	\$ -	\$ -	
Sub-Total:	\$ -	\$ -	\$ -	
<b>3 Payroll expenses for public employees dedicated to COVID-19</b>				
A. Public Safety	\$ -	\$ -	\$ -	
B. Public Health	\$ -	\$ -	\$ -	
C. Health Care	\$ -	\$ -	\$ -	
D. Human Services	\$ -	\$ -	\$ -	
E. Economic Development	\$ -	\$ -	\$ -	
F. Other:	\$ -	\$ -	\$ -	
Sub-Total:	\$ -	\$ -	\$ -	
<b>4 Expenses to facilitate compliance with COVID-19-measures</b>				
A. Food access and delivery to residents	\$ -	\$ -	\$ -	
B. Distance learning tied to school closings	\$ -	\$ -	\$ -	
C. Telework capabilities of public employees	\$ -	\$ -	\$ -	
D. Paid sick and paid family and medical leave to public employees	\$ -	\$ -	\$ -	
E. COVID-19-related expenses in county jails	\$ -	\$ -	\$ -	
F. Care and mitigation services for homeless populations	\$ -	\$ -	\$ -	
G. Other:	\$ -	\$ -	\$ -	
Sub-Total:	\$ -	\$ -	\$ -	
<b>5 Economic Supports</b>				
A. Small Business Grants for business interruptions	\$ -	\$ -	\$ -	
B. Payroll Support Programs	\$ -	\$ -	\$ -	
C. Other:	\$ -	\$ -	\$ -	
Sub-Total:	\$ -	\$ -	\$ -	
<b>6 Other COVID-19 Expenses</b>				
A. Other:	\$ -	\$ -	\$ -	
B. Other:	\$ -	\$ -	\$ -	
C. Other:	\$ -	\$ -	\$ -	
D. Other:	\$ -	\$ -	\$ -	
E. Other:	\$ -	\$ -	\$ -	
Sub-Total:	\$ -	\$ -	\$ -	
<b>TOTAL:</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	

JUN 10 2020

:00 P.M. COUNCIL CHAMBER  
AGENDA NO. J



SUBJECT: PUBLIC COMMENTS

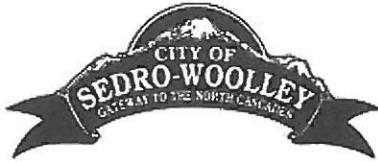
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CITY COUNCIL AGENDA  
REGULAR MEETING

JUN 10 2020

:00 P.M. COUNCIL CHAMBER  
AGENDA NO. m-1

Planning Department  
Sedro-Woolley Municipal Building  
325 Metcalf Street  
Sedro-Woolley, WA 98284  
Phone (360) 855-0771  
Fax (360) 855-0733

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**MEMO:**

**To:** Sedro-Woolley City Council  
Mayor Johnson

**From:** John Coleman, AICP  
Planning Director

**Date:** June 10, 2020

**Subject:** Preliminary approval of the Plat of Garden Meadows (file #LP-2019-432) – *Action Requested*

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**ISSUE**

Should the Council grant preliminary plat approval for the Plat of Garden Meadows?

**PROJECT DESCRIPTION / HISTORY**

Preliminary plat approval for a 28-lot, 31 unit residential subdivision is requested. The subdivision includes 25 single-family lots and three duplex lots. The property is located at 606 F&S Grade Road and is located in the Residential 7 zone. The *Hearing Examiner's Findings of Fact, Conclusions & Recommendation* – attached as Attachment A to the Resolution – contains the complete history of the application and review process. The map of the proposed subdivision is Exhibit C to the *Hearing Examiner's Findings of Fact, Conclusions & Recommendation*.

**EXHIBITS**

Resolution \_\_\_\_-20 to approve the preliminary Plat of Garden Meadows subject to the conditions contained in the *Hearing Examiner's Findings of Fact, Conclusions & Recommendation*.

**RECOMMENDATION**

Make a motion to adopt Resolution \_\_\_\_ - 20 to approve the preliminary Plat of Garden Meadows subject to the conditions contained in the *Hearing Examiner's Findings of Fact, Conclusions & Recommendation*.

**RESOLUTION NO. \_\_\_\_\_-20**

**A RESOLUTION GRANTING PRELIMINARY APPROVAL OF THE “PLAT OF GARDEN MEADOWS,” A 28-LOT, 31 UNIT SUBDIVISION AND AUTHORIZING THE MAYOR AND HER DESIGNEE(S) TO SIGN ALL PRELIMINARY PLAT APPROVAL DOCUMENTS**

**WHEREAS**, Morris Nilson, representative for the property owner of 606 F&S Grade Road, has applied for preliminary plat approval for the proposed Plat of Garden Meadows, a proposed a 28-lot, 31-unit subdivision; and

**WHEREAS**, the City of Sedro-Woolley Planning and Public Works staff reviewed the preliminary plat and determined the proposed preliminary Plat of Garden Meadows has met the requirements of Chapters 13, 15, 16 and 17 SWMC; and

**WHEREAS**, the Sedro-Woolley Hearing Examiner held an open record public hearing for the preliminary plat application on March 13, 2020 and public testimony was received and considered; and

**WHEREAS**, the Hearing Examiner determined that the application was technically compliant with Ch. 16.08 SWMC and recommended to the City Council that the proposed Preliminary Plat of Garden Meadows be approved subject to conditions. The Hearing Examiner’s *Findings, Conclusions and Recommendation* (and exhibits) is attached hereto as Attachment A.

**NOW, THEREFORE BE IT RESOLVED** that the City Council of the City of Sedro-Woolley, Washington adopts the attached *Findings, Conclusions and Recommendation* of the Hearing Examiner; and

**BE IT FURTHER RESOLVED** that the City Council finds that preliminary plat application #LP-2019-432, the Preliminary Plat of Garden Meadows, meets the requirements of Ch. 16.08 SWMC and shall be given preliminary plat approval, subject to conditions stated in the *Findings, Conclusions and Recommendation* of the Hearing Examiner.

**PASSED** by majority vote of the members of the Sedro-Woolley City Council this \_\_\_\_\_ day of June, 2020,

\_\_\_\_\_  
Julia Johnson, Mayor

ATTEST:

APPROVED AS TO FORM:

\_\_\_\_\_  
Jill Scott, Finance Director

\_\_\_\_\_  
Nikki Thompson, City Attorney

Resolution\_\_\_\_\_ -20

## **Attachment A**

***Findings, Conclusions and Recommendation of the Hearing Examiner for the Preliminary  
Plat of Garden Meadows***

**BEFORE THE HEARING EXAMINER  
FOR THE CITY OF SEDRO-WOOLLEY**

In the Matter of the Application of	)	No. LP-2019-432
	)	
<b>Morris Nilson</b>	)	Garden Meadows Preliminary Plat
	)	
	)	FINDINGS, CONCLUSIONS,
<u>For Approval of a Preliminary Plat</u>	)	AND RECOMMENDATION

**SUMMARY OF RECOMMENDATION**

The Hearing Examiner recommends that the request for a preliminary plat to subdivide approximately 5.9 acres into 25 single-family residential lots and 3 duplex lots, with associated improvements, at 606 F & S Grade Road, be **APPROVED**. Conditions are necessary to address specific impacts of the proposal.

**SUMMARY OF RECORD**

Hearing Date:

The Hearing Examiner held an open record hearing on the request on March 13, 2020.

Testimony:

The following individuals provided testimony under oath at the open record hearing:

John Coleman, City Planning Director  
Katherine Weir, City Assistant Planner  
John Ravnik, Applicant Representative  
Dorothy de Fremery

Exhibits:

The following exhibits were admitted into the record:

- A. Transmittal & Report Memorandum (Staff Report)
- B. Preliminary Plat Application, received December 3, 2019
- C. Preliminary Plat of Garden Meadows (3 Sheets), dated November 25, 2019, and November 26, 2019
- D. Critical Areas Study, Essency Environmental, LLC, dated November 22, 2019
- E. SEPA Environmental Checklist, dated December 3, 2019
- F. Preliminary Landscape Plan, dated December 2, 2019
- G. Notice of Application and SEPA Comment Period, published December 20, 2019
- H. Reissued Notice of Application and SEPA Comment Period, published January 14, 2020
- I. SEPA Notice of Threshold Determination – Mitigated Determination of Nonsignificance (MDNS), issued January 29, 2020

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- J. Notice of Public Hearing, published February 28, 2020
- K. Comment Letter from Katelynn Piazza, Washington State Department of Ecology, to Katherine Weir, dated January 28, 2020.
- L. Written Comment from Judith J. Meadows, received December 20, 2019
- M. Written Comment from Judith J. Meadows, received January 10, 2020
- N. Written Comment from Mary and Teresa Johnson, received January 10, 2020
- O. Written Comment from Dorothea de Fremery, undated
- P. Washington Department of Fish & Wildlife Critical Areas Map, undated
- Q. Transportation Element Study Area Map, Transportation Solutions, Inc., undated
- R. Sewer Availability Certificate, dated October 18, 2019
- S. Skagit PUD Water Availability Letter, dated November 21, 2019
- T. Preliminary Drainage Report, Ravnik & Associates, Inc., dated December 4, 2019

The Hearing Examiner enters the following findings and conclusions based upon the admitted testimony and exhibits:

## **FINDINGS**

### Application and Notice

1. Morris Nilson (Applicant) requests approval of a preliminary plat to subdivide approximately 5.9 acres into 25 single-family residential lots and 3 duplex lots, with associated improvements. An existing residence at the southwest corner of the site, on proposed lot 11, would be retained and would continue to be accessed from F & S Grade Road. Proposed lot 28 would also be accessed from F & S Grade Road. The remaining 26 lots would have shared driveway access from a new public arterial road bisecting the site and connecting F & S Grade Road to Jones Road. The property is located at 606 F & S Grade Road.<sup>1</sup> *Exhibit A, Staff Report, pages 1, 2, 7, and 8; Exhibit B; Exhibit C.*
2. The City of Sedro-Woolley (City) determined that the application was complete on December 16, 2019. On December 20, 2019, the City provided notice of the application by mailing notice to property owners and residents within 500 feet of the property, posting notice at the project site, and publishing notice in the *Skagit Valley Herald*, with a comment deadline of January 20, 2020. Due to a procedural error regarding the applicable comment period, the City again provided notice of the application on January 14, 2020, by mailing notice to property owners and residents within 500 feet of the property, posting notice at the project site, and publishing notice in the *Skagit Valley Herald*, with a new comment deadline of January 28, 2020. On February 28, 2020, the City provided notice of the open record hearing associated with the application by mailing notice to property owners and residents within 500 feet of the property, posting notice at the project site, and publishing notice in the *Skagit Valley Herald*. *Exhibit A,*

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<sup>1</sup> The property is identified by Tax Assessor Parcel No. P37229. *Exhibit B.* A legal description of the property is included with the preliminary plat map. *Exhibit C.*

*Staff Report, pages 3 and 4; Exhibit G; Exhibit H; Exhibit J; Testimony of Katherine Weir.*

3. The City received four written comments from members of the public in response to its notice materials:
  - Judith Meadows provided two written comments expressing concerns about the project's potential impacts to wildlife habitat, specifically blue heron habitat. She also expressed concerns about potential diversion of the project site's historic drainage patterns to the nearby Brickyard Creek, which drains into the Skagit River. Additionally, Ms. Meadows expressed concerns over traffic impacts to F & S Grade Road.
  - Mary and Teresa Johnson expressed concerns about the project's potential impacts to wetlands and blue heron habitat.
  - Dorothy de Fremery expressed concerns about the project's potential impacts to local schools and their ability to serve additional students. She also expressed concerns about the proposed amount of open space that would be developed on the site as part of the project as well as the project's traffic impacts.*Exhibits L through O.*
4. The City also received a comment letter from the Washington State Department of Ecology (DOE), which noted that 16 contaminated sites are within a one-mile radius of the project location and that it is unlikely that any of the contaminated sites are hydrogeologically upgradient of the project location. The DOE also noted that the project might require Construction Stormwater General Permit coverage if the earth disturbance would be greater than one acre and there would be stormwater associated with construction activity that would discharge to surface waters. *Exhibit K.*
5. In response to public comments concerning impacts to wildlife habitat, the City contacted the Washington State Department of Fish and Wildlife (WDFW), and WDFW confirmed that there are no known great blue heron rookeries or wetlands on or near the site. *Exhibit A, Staff Report, page 4.*

#### State Environmental Policy Act

6. The City acted as lead agency and analyzed the environmental impacts of the proposal under the State Environmental Policy Act (SEPA), Chapter 43.21C Revised Code of Washington RCW (RCW). The City reviewed the Applicant's environmental checklist and other information on file and determined that, with eight mitigation measures, the proposal would not have a probable significant adverse impact on the environment. Accordingly, the City issued a Mitigated Determination of Nonsignificance (MDNS) with an appeal deadline of February 12, 2020. The required mitigation measures include limitations on hours of construction; compliance with Northwest Clean Air Agency regulations; Public Works Department approval of any water discharged to the

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stormwater system; compliance with all local, state, and federal regulations for construction activities; receipt of and compliance with a NPDES permit; Public Works Department approval of temporary construction traffic access; contribution of police impact fees; and restrictions on lighting emanating from the site. The MDNS was not appealed. *Exhibit A, Staff Report, pages 4 and 5; Exhibit I.*

Comprehensive Plan, Zoning, and Surrounding Property

7. The property is designated Residential 7 (R-7) under the City Comprehensive Plan. The purpose of the designation is to allow “single lot developments to a maximum density of seven units per acre, with a minimum lot size of six thousand (6,000) square feet” and to allow “duplexes on appropriately sized lots (minimum duplex lot size of nine thousand (9,000) square feet.” *City Comprehensive Plan, pages 31 and 32.* City staff identified the following comprehensive plan goals and policies as relevant to the proposal:
- Policy LU5.7: Recognize the rights of property owners to freely use and develop private property consistent with City regulations.
  - Policy LU5.8: Encourage high standards of appearance in all residential areas and in other high visibility areas.
  - Policy T6.2: Ensure that growth mitigates its impacts through transportation impact fees, SEPA mitigation, concurrency, and development regulations.
  - Goal T7: To provide an adequate transportation system current with the traffic-related impacts of new development.
  - Policy T7.1: Maintain the adopted Level of Service (LOS) standard for all roadways classified as arterials or state highways.
  - Policy H3.1: Require usable outdoor recreation space as part of all residential developments.
- City staff determined that, with conditions, the proposed subdivision would be consistent with the City Comprehensive Plan. *Exhibit A, Staff Report, pages 5 and 6.*
8. The property is located in the Residential 7 (R-7) zoning district. The R-7 zone “includes the portion of Sedro-Woolley platted over a hundred years ago” and is “characterized by a grid street system and small lots.” *Sedro-Woolley Municipal Code (SWMC) 17.12.005.* The intent of the R-7 zone is to “encourage the continuation of this traditional pattern.” *SWMC 17.12.005.* Single-family residences are permitted outright in the R-7 zoning district. *SWMC 17.12.010.A.1.* Duplex residences on lots measuring no less than 9,000 square feet are also permitted outright in the R-7 zoning district, subject to the following requirements: duplex lots must have a minimum width of 80 feet at the building line, a minimum depth of 100 feet, and a minimum lot frontage on a public street of 20 feet; duplex lots must provide off-street parking for four vehicles; duplexes must be designed to resemble a single-family residence to blend in with the design and appearance of surrounding residences in the neighborhood; and no more than one duplex shall be allowed per any three successive lots adjoined by side property lines. *SWMC 17.12.010.A.4. Exhibit A, Staff Report, page 5.*

9. Chapter 17.12 SWMC provides specific requirements related to bulk restrictions, minimum lot size, and maximum density in the R-7 zone. City staff reviewed the Applicant's proposal and determined that it would meet the dimensional standards required under Chapter 17.12 SWMC. In addition, SWMC 17.12.050 provides a maximum lot coverage of 50 percent for all structures within a lot in the R-7 zone. This requirement would be reviewed at the building permitting stage. *Exhibit A, Staff Report, pages 6 and 7; Exhibit C.*
10. The subject property is bounded on the south by F & S Grade Road. Property to the south, east, and west of the site is zoned R-7 and generally consists of single-family residential development. Property to the north of the site is zoned R-5 and generally consists of single-family residential development. *Exhibit A, Staff Report, page 2; Exhibit B; Exhibit C.*

#### Critical Areas

11. Essency Environmental, LLC, prepared a "Critical Areas Study" (CAS) for the Applicant, dated November 22, 2019. The CAS determined that the project site is not within shoreline jurisdiction and does not contain any streams, stream buffers, wetlands, wetland buffers, riparian corridors, fish and wildlife conservation areas, frequently flooded areas, or geologically hazardous areas. The CAS also determined that there are no aquifer recharge areas on or within 200 feet of the site. *Exhibit D.*

#### Landscaping and Open Spaces

12. SWMC 17.38.010 requires new developments consisting of over seven dwelling units to provide a minimum of 8,000 square feet of unpaved, usable recreational open space plus an additional 100 square feet of such open space for each unit beyond 25 units. The Applicant's proposed 31-unit subdivision would require 8,600 square feet of recreational open space. The Applicant proposes to develop an 8,612 square foot shared open space tract that would meet this requirement. City staff reviewed the Applicant's landscape plan, which details the proposed open space tract, for compliance with Sedro-Woolley Design Standards and Guidelines as required under SWMC 17.38.020 and determined that the plan would comply with these design standards. *Exhibit A, Staff Report, page 8; Exhibit F.*

#### Stormwater

13. Ravnik & Associates, Inc., prepared a "Preliminary Drainage Report" for the Applicant, dated December 4, 2019. The report notes the 5.92-acre property is generally elevated at the center of the site and slopes gently downhill to the north and south. Stormwater runoff from a proposed public right-of-way would be collected within two sub-basins and routed to a pretreatment vault before being routed to underground infiltration areas below portions of the proposed sidewalk. The infiltration systems would detain and infiltrate a

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majority of the runoff flows and would release a small amount of runoff via a control structure at the north end of the site. The release control structure would be designed to release runoff from the new development at a rate conforming to DOE and municipal code requirements. Stormwater runoff from individual lots would be routed to sections of permeable pavement on shared private driveways with underlying reservoir rock, which would provide for sufficient detention of stormwater runoff before infiltrating into underlying soils. The report determined that the proposed stormwater system would meet the requirements of the municipal code and the 2014 DOE Stormwater Manual. *Exhibit T.*

#### Utilities

14. The City would provide sewer, garbage, stormwater, police, and fire services to the property. The City provided the Applicant with a “Certificate of Sewer Availability” for the proposed development, which specified that the Applicant would be required to extend sanitary sewer services to the site in a manner adequate to serve the proposed new lots and to conform with City standards. The existing residence on the site, which is not currently connected to City sewer services, would be connected upon installation of a new sewer main. Skagit County PUD would provide water service. Skagit PUD issued the Applicant a letter of water availability, which specified that the Applicant would be required to install a waterline extension suitable to serve the proposed lots and to provide a utility easement. Puget Sound Energy would provide electricity service. Cascade Natural Gas would provide natural gas service. Verizon would provide telephone services. Comcast would provide telecommunication service. The property would be served by the Sedro-Woolley School District and Peace Health United Hospital. *Exhibit A, Staff Report, pages 3, 8, and 9; Exhibit R; Exhibit S.*

#### Access, Parking, and Traffic

15. As noted above, access to the existing residence on the site and to proposed lot 28 would be provided directly from F & S Grade Road. The remaining lots would be accessed via a new public road that would bisect the site and connect F & S Grade Road, located at the south of the property, with Jones Road, located at the north of the property. The new road would include construction of curb, gutter, sidewalks, a planter strip with street trees, and any required pavement overlay and stripping. The proposed new arterial road would be designed as an Urban Major Collector Arterial as part of the City’s documented long-term transportation plans and would be dedicated to the City upon final plat approval. City Planning Director John Coleman testified that the proposed arterial road is part of the City’s Transportation Concurrency Plan, which would account for the proposal’s traffic impacts. Because the road would be designed as a required Urban Major Collector Arterial, it would not provide for any on-street parking. Mr. Coleman testified that the project’s compliance with minimum off-street parking requirements would be reviewed at the building permitting stage. The 26 lots proposed to have access from the new arterial road would have shared driveway access, with no lots fronting the

new arterial having direct ingress/egress to the road. Shared driveway access would be designed to limit access points to the new arterial and to prevent vehicles from backing out onto the road. Chapter 15.40 SWMC provides requirements for street and sidewalk designs in new subdivisions, including the requirement that construction or improvements to streets and sidewalks meet City Public Works Department Standards. City staff reviewed the Applicant's proposal and determined that it would meet the street and sidewalk standards of Chapter 15.40 SWMC and the current City Public Works Department Standards Manual. *Exhibit A, Staff Report, pages 7 and 8; Exhibit C; Exhibit Q; Testimony of Mr. Coleman.*

#### Schools

16. The proposed development would be located within two miles of Evergreen Elementary, Cascade Middle School, and Sedro-Woolley High School. City Planning Director John Coleman testified that residents of the proposed development would have safe walking routes to these schools. *Exhibit A, Staff Report, page 6; Testimony of Mr. Coleman.*

#### Testimony

17. City Planning Director John Coleman testified generally about the proposal and how City staff reviewed it for compliance with the City Comprehensive Plan, zoning ordinances, and critical areas ordinances, as discussed above. He noted that the proposed arterial road through the subdivision is part of the City's Transportation Concurrency Plan, which would account for the proposal's traffic impacts. Mr. Coleman explained that the proposed arterial would be designed to minimize the number of access points to the new residences. He also noted that the proposal would need to meet minimum off-street parking requirements and that compliance with this requirement would be reviewed at the building permit stage. Mr. Coleman stated that the proposed development would be required to make sidewalk improvements along the new arterial road, which would provide for safe walking routes to schools serving the development. He further stated that the Applicant would be required to pay school impact fees at the time of building permit issuance, as well as park impact fees, transportation impact fees, and sewer connection fees. Mr. Coleman also explained how the proposal would meet the requirements for recreational areas, including requirements associated with children's play areas within the proposed recreational tract. He noted that the recreational tract would be owned and maintained by a homeowners' association. *Testimony of Mr. Coleman.*
18. City Assistant Planner Katherine Weir testified about the proposed new arterial through the subdivision. She also explained that the City had issued a second notice of application due to a procedural error in the first notice's statement of the applicable comment period. *Testimony of Ms. Weir.*

19. Applicant Representative John Ravnik, who also is serving as the Principal Engineer for the proposal, testified generally about the proposal and how it would comply with the City Comprehensive Plan and zoning ordinances. He noted that all utilities that would serve the development readily exist. Mr. Ravnik addressed public concerns about the project's potential impacts to wetlands and to blue heron habitat, stating that the project site is located outside of any wetlands or wetland buffers and that the WDFW confirmed that impacts to blue heron habitat are not an issue. Mr. Ravnik detailed the proposed stormwater system, noting that the site had good infiltration capacity and that the small amount of overflow would be drained to existing stormwater facilities. Regarding stormwater runoff from individual lots, Mr. Ravnik stated that the Applicant was considering bio-infiltration along with permeable driveways. He noted that the proposed stormwater system would meet the requirements of the 2014 Department of Ecology Stormwater Manual. Mr. Ravnik explained how the proposal would not create adverse traffic impacts to the area based on the current trip levels on F & S Grade Road. He also explained how the proposed recreational tract would meet municipal code requirements. *Testimony of Mr. Ravnik.*
20. Area resident Dorothy de Fremery testified that her property adjoins the project site. She noted her concerns with the project's potential impact on the school district, stating that local schools are currently overcrowded and underfunded and that several new residential developments in the area are contributing to this problem. Ms. de Fremery requested that the proposed play areas be designed for use by children of a variety of ages. She also expressed concerns about potential fencing that would be used as part of the project and about potential impacts to heron habitat. *Testimony of Ms. de Fremery.*
21. In response to Ms. De Fremery's testimony, Mr. Coleman noted that municipal requirements related to open space/recreational areas have recently changed. Developments, like the one proposed, must now provide more open space/recreational space than previously and, in addition, such space must be designed to serve those of all ages. Mr. Coleman also explained that there are no known critical areas in the vicinity of the project site but there has been confusion about blue herons because the City uses the image of a blue heron on its critical area signage (whether blue herons are present in a critical area or not). Finally, he stressed that the Applicant would be required to pay school impact fees and that such fees are applied toward capital facilities improvements, such as schools. Mr. Ravnik concurred with Mr. Coleman's response. *Testimony of Mr. Coleman; Testimony of Mr. Ravnik.*

#### Staff Recommendation

22. City staff reviewed the proposal and determined that, with conditions, it would be consistent with the City Comprehensive Plan and would comply with applicable City code requirements. City staff also determined that the proposal, with conditions, would serve the public interest and meet the preliminary subdivision criteria of SWMC

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16.08.028 and RCW 58.17.110. Mr. Coleman testified that City staff recommends approval of the project with conditions. *Exhibit A, Staff Report, pages 3 through 9; Testimony of Mr. Coleman.*

## **CONCLUSIONS**

### Jurisdiction

The Hearing Examiner is granted jurisdiction to hear and recommend applications for preliminary plats pursuant to SWMC 16.08.024. This review entails the Hearing Examiner ensuring that the proposed plat, or revisions to it, would satisfy the criteria of Chapter 58.17 RCW. SWMC 16.08.024. *See also SWMC 2.34.080.C; SWMC 2.90.060.F.2.d.*

### Criteria for Review

Under SWMC 16.08.028, the effect of preliminary plat approval is as follows:

- A. Approval of the preliminary plat shall constitute authorization for the subdivider to develop the subdivision facilities and improvements as required in the approved preliminary plat upon issuance of the final plat. Development shall be in strict accordance with the plans and specifications as prepared or approved by the city engineer and subject to any conditions imposed by the hearing body.
- B. No subdivision requirements which become effective after the approval of a preliminary plat for a subdivision shall apply to such subdivision unless the hearing body determines that a change in conditions created a serious threat to the public health or safety.
- C. Preliminary plat approval is valid for five years unless extended pursuant to SWMC 16.08.064.

The state subdivision criteria are as follows:

A proposed subdivision and dedication shall not be approved unless the city, town, or county legislature body makes written findings that: (a) appropriate provisions are made for the public health, safety, and general welfare and for such open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and schoolgrounds and all other relevant facts, including sidewalks and other planning features that [ensure] safe walking conditions for students who only walk to and from school; and (b) the public use and interest will be served by the platting of such subdivision and dedication.

*RCW 58.17.110(2).*

The criteria for review adopted by the City Council are designed to implement the requirement of Chapter 36.70B RCW to enact the Growth Management Act. In particular, RCW 36.70B.040 mandates that local jurisdictions review proposed development to ensure consistency with City

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development regulations, considering the type of land use, the level of development, infrastructure, and the characteristics of development. *RCW 36.70B.040*.

#### Conclusions Based on Findings

1. **With conditions, the preliminary plat would comply with RCW 58.17.110(2).** The Applicant submitted plans that ensure that, as proposed, the subdivision would meet all requirements for plat approval under the municipal code. City staff analyzed the proposal and determined that appropriate provisions would be made for: the public health, safety, and general welfare; and for such open spaces, drainage ways, streets or roads, alleys, other public ways; transit stops; potable water supplies; sanitary wastes; parks and recreation; and playgrounds, schools, and schoolgrounds, including sidewalks and other planning features that ensure safe walking conditions for students who walk to and from school. Staff also determined that the public use and interest would be served by the platting of such subdivision and dedication. The Hearing Examiner concurs with staff's assessment.

Conditions, as detailed below, are necessary to ensure that the Applicant adheres to all requirements of the MDNS; constructs all improvements consistent with the preliminary plat map and landscape plan, including improvements related to lot access from the proposed arterial road; constructs all required infrastructure improvements prior to final plat application; provides access to City sanitary sewer services; and creates a homeowners' association to maintain common facilities on-site, including the stormwater system. *Findings 1, 3 – 22.*

2. **With conditions, the proposed subdivision would be consistent with City development regulations, considering land use type, development level, infrastructure, and development characteristics, such as development standards, as required by RCW 36.70B.040.** The City provided adequate notice and opportunity to comment on the proposed preliminary plat. The City acted as lead agency and analyzed the environmental impacts of the proposed plat, as required by SEPA, and issued a Mitigated Determination of Nonsignificance (MDNS). The MDNS was not appealed, and the relevant mitigation measures are incorporated in the conditions, as detailed below. The preliminary plat would provide single-family residential development consistent with City development regulations, including the R-7 zoning district. The proposed use would be compatible with surrounding properties. As noted above in Conclusion 1, conditions are necessary to ensure the proposal meets all requirements for preliminary plat approval under municipal and state requirements. *Findings 1 – 22.*

#### **RECOMMENDATION**

Based on the preceding findings and conclusions, the Hearing Examiner recommends that the request for a preliminary plat to subdivide approximately 5.9 acres into 25 single-family

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residential lots and 3 duplex lots, with associated improvements, at 606 F & S Grade Road, be **APPROVED**, with the following conditions:<sup>2</sup>

1. All development shall generally conform to the plat map as shown in Exhibit C and the landscape plan as shown in Exhibit F.
2. The Applicant shall comply with the mitigation measures included in the SEPA MDNS issued January 29, 2020.
3. Construction of all required infrastructure improvements, including, but not limited to, streets, curbs, sidewalks, sewer, landscaping, and street lighting shall be completed prior to final plat application or bonding in an amount approved by the City Engineer shall be filed with the City.
4. All 28 lots shall have access to City sanitary sewer, and the residences on those lots (including the existing residence) shall be connected to the City sanitary sewer.
5. A homeowners association shall be created to own and maintain the stormwater system infrastructure, recreation area tract and shared driveways; the homeowner's association documents shall be approved by the Planning Department prior to recording.
6. The ingress/egress for the lots fronting directly on the new arterial road shall be through the adjacent shared ingress/egress easement for the adjoining flag-lots.

**RECOMMENDED** this 26<sup>th</sup> day of March 2020.

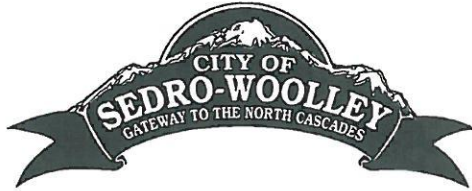


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ANDREW M. REEVES  
Hearing Examiner  
Sound Law Center

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<sup>2</sup> Conditions include legal requirements applicable to all developments, as well as those designed to mitigate the specific impacts of this development.



CITY OF SEDRO-WOOLLEY  
PLANNING DEPARTMENT  
325 Metcalf Street  
Sedro-Woolley, WA 98284  
Phone (360) 855-0771


**Exhibit A**  
to Hearing Examiner Findings

## TRANSMITTAL & REPORT MEMORANDUM

**HEARING DATE:** March 13, 2020 at 2:30 pm

**TO:** Sedro-Woolley Hearing Examiner

**RE:** LP-2019-432 – Preliminary Plat Approval for the Proposed Plat of  
**Garden Meadows**

**FROM:**   
Katherine Weir, Assistant Planner

### GENERAL INFORMATION

**APPLICATION DATE:** December 5, 2019

**APPLICATION COMPLETE:** December 16, 2019

**RECOMMENDATION:** Staff Recommends **Approval with Conditions**

**PROJECT NAME:** Plat of Garden Meadows

**SITE LOCATION:** 606 F&S Grade Road

**PARCEL ID NOS.** P37229

**ZONING DISTRICT:** Residential 7

**SITE AREA:** 5.9 Acres

**PROPERTY OWNER:** Gildnes Credit Trust  
15006 Channel Lane  
La Conner, WA 98257

**PROJECT PROPONENT:** Morris Nilson  
23145 Gunderson Road  
Mount Vernon WA, 98273

## DESCRIPTION OF PROPOSAL:

A proposed preliminary long plat application for a 28 lot, 31 unit development at 606 F&S Grade Road. The parcel has one existing home that will be preserved and 3 of the 28 lots are proposed to be duplex lots. The approximately 5.9 acre property is zoned Residential 7 (R-7) which allows for duplexes subject to Chapter 17.12 of the Sedro-Woolley Municipal Code (SWMC). The project includes construction of a new public arterial road with sidewalks that will connect F&S Grade Road through to Jones Road, a shared recreation area tract, and stormwater infrastructure.

## COMPREHENSIVE PLAN LAND USE DESIGNATIONS, ZONING DESIGNATIONS AND EXISTING LAND USES OF THE SITE AND SURROUNDING AREAS:

Area	Land Use Designation	Zoning	Existing Use
Project Site	Medium Density Residential	Residential 7	One SFR on 5.9 acre site
North	Low Density Residential	Residential 5	Single-Family Residential
South	Medium Density Residential	Residential 7	Single-Family Residential
East	Medium Density Residential	Residential 7	Single-Family Residential
West	Medium Density Residential	Residential 7	Single-Family Residential



<b>Residential 7 (R-7) Zoning Regulations:</b>			
Minimum lot size:	6,000 square feet	Lot width at building line:	40 feet
Front Setback:	20 feet	Lot width at road frontage:	20 feet
Rear Setback:	10 feet	Maximum building height:	35 feet
Side Setback:	5 feet for 1-story buildings, 8 feet for 2-story	Maximum building coverage:	50%

#### **PUBLIC UTILITIES AND SERVICES PROVIDED BY:**

<b>Water:</b>	Skagit County PUD #1	<b>Cable TV:</b>	Comcast
<b>Sewer:</b>	City of Sedro-Woolley	<b>Police:</b>	City of Sedro-Woolley
<b>Garbage:</b>	City of Sedro-Woolley	<b>Fire:</b>	City of Sedro-Woolley
<b>Storm Water:</b>	City of Sedro-Woolley	<b>School:</b>	Sedro-Woolley School District
<b>Telephone:</b>	Verizon	<b>Hospital:</b>	Peace Health United
<b>Electricity:</b>	Puget Sound Energy	<b>Gas:</b>	Cascade Natural Gas

#### **ANALYSIS**

##### **1. Application Process and Public Notice:**

- a. On October 2, 2019 city staff met with the project proponent, Morris Nilson, for a Pre-Application meeting for a 28 lot, 30 unit subdivision on a largely vacant lot at 606 F&S Grade Road.
- b. On December 5, 2019 the City received the preliminary long plat application materials including the long plat application (**Exhibit B**), a preliminary plat map (**Exhibit C**), a critical areas assessment report (**Exhibit D**), a SEPA Checklist (**Exhibit E**) and a landscape plan (**Exhibit F**) for a 28 lot, 31 unit subdivision. The application was determined to be complete on December 16, 2019.
- c. On December 20, 2019 the City issued its first Notice of Application and SEPA Comment Period (**Exhibit G**). The notice was mailed to all property owners and residents within 500 feet of the property, posted on site, and published in the Skagit Valley Herald legal notices on December 20, 2019.
- d. On January 14, 2020 The City reissued the Notice of Application and SEPA Comment Period (**Exhibit H**). Nothing was changed from the first NOA and SEPA Comment Period except the comment period had been extended. The re-issued notice with the extension was published in the Legal Notices section of the January 14 Skagit Valley Herald.

- e. The extended SEPA comment period ended on January 28, 2020. Four comment letters from the public were received and one letter from the Department of Ecology.
- f. On January 29, 2020 the City issued a SEPA Mitigated Determination of Non-Significance (MDNS) (**Exhibit I**). The SEPA MDNS was sent to all property owners and residents within 500 feet of the property, posted on site and published in the January 29, 2020 Skagit Valley Herald in the legal notices.
- g. The appeal period for the MDNS ended on February 12, 2020. The City received no appeals.
- h. A Public Hearing was scheduled for March 13, 2020. A Notice of Public Hearing (**Exhibit J**) was sent to all property owners and residents within 500 feet of the property, all parties of record, posted on the subject site and published in the legal notices section of the February 28, 2020 Skagit Valley Herald.

**CONCLUSION: The application meets the procedural and public notice requirements in Chapter 58.7 RCW and for a Type IV application established in Chapter 2.90 SWMC.**

2. Public Comment:

- a. During the comment period, the City received 5 comment letters.
- b. One comment letter was from the department of Ecology (**Exhibit K**) regarding nearby contaminated sites and their water quality program.
- c. The City also received 4 comment letters (**Exhibits L, M, N and O**) from nearby residents expressing concerns about a wetland and great blue heron rookery on the proposed site.

3. Environmental and Critical Areas Review:

- a. The applicant submitted a SEPA Checklist (**Exhibit E**) and a Critical Areas Assessment Report (**Exhibit D**) for the City to review. The Critical Areas Assessment Report indicates that there are no wetlands, wetland buffers or riparian corridors on the site. SWMC Chapter 17.65 states that no further report is required if no critical areas determined to exist on site.
- b. Prior to issuing an MDNS, the City took the neighbor comments (discussed in 2.c above) into consideration and contacted the Washington Department of Fish and Wildlife (WDFW) in regard to the locations of known great blue heron rookeries. The WDFW confirmed that there are no known great blue heron rookeries or wetlands on (or near) the site and directed City staff to a map (**Exhibit P**) that shows known critical areas and significant habitat locations in Washington.

- c. On January 29, 2020 the City issued a SEPA Mitigated Determination of Non-significance for the proposal (**Exhibit I**). The appeal period for the MDNS ended on February 12, 2020 and the city did not receive any appeals.

**CONCLUSION: The application as conditioned meets State Environmental Policy Act (SEPA) requirements, the city's environmental policy requirements in Chapter 2.88 SWMC and the city's critical areas requirements in Chapter 17.65 SWMC.**

4. Comprehensive Plan, Zoning and Permissible Uses:

- a. The City of Sedro-Woolley Comprehensive Plan identifies this area as medium density residential. Specifically, this area is zoned Residential 7 (R-7).
- b. Chapter 17.12 SWMC contains the zoning and permitted uses for areas in the R-7 zone. The proposal is for single family lots and duplex lots, which are allowed per SWMC 17.12.010(A).
- c. Specific goals and policies from the Land Use Element of the Sedro-Woolley Comprehensive Plan that are relevant and applicable to this proposal include the following:
  - i. Policy LU5.7: Recognize the rights of property owners to freely use and develop private property consistent with city regulations.
  - ii. Policy LU5.8: Encourage high standards of appearance in all residential areas and in other high visibility areas.
- d. Specific goals and policies from the Transportation Element of the Sedro-Woolley Comprehensive Plan that are relevant and applicable to this proposal include the following:
  - i. The proposed street is included as a planned Urban Major Collector Arterial as identified in the Figure 1 - Study Area (**Exhibit Q**) of the Transportation Element. The construction of this arterial is part of the city's documented long-term transportation plans. The lots are designed with shared driveways to limit the number of access points onto the new arterial. The lots and driveways are also designed to prevent cars from having to back out onto the arterial.
  - ii. Policy T6.2: Ensure that growth mitigates its impacts through transportation impact fees, SEPA mitigation, concurrency, and development regulations.
  - iii. Goal T7: To provide an adequate transportation system current with the traffic-related impacts of new development.
  - iv. Policy T7.1: Maintain the adopted Level of Service (LOS) standard for all roadways classified as arterials or state highways.

- e. Specific goals and policies from the Housing Element of the Sedro-Woolley Comprehensive Plan that are relevant and applicable to this proposal include the following:
- i. Policy H3.1: Require usable outdoor recreation space as part of all residential developments.

**CONCLUSION: The application as conditioned is consistent with the Sedro-Woolley Comprehensive Plan and permitted uses identified in Chapter 17.12 SWMC.**

- 5. Application Type and Specific Criteria: Chapters 16.04 and 16.08 SWMC establish the requirements and criteria for approving a preliminary subdivision. A preliminary plat shall be approved if it meets the approval criteria in Chapter 58.17 RCW and the requirements of Chapter 16.04 and 16.12 SWMC.

- a. Preliminary subdivisions are approved subject to the criteria of Chapter 58.17 of the Revised Code of Washington (RCW), which requires provisions for public health, safety, and general welfare; open spaces; drainage; streets; transit stops; potable water supplies; sanitary wastes; parks and recreation and playgrounds; schools, sidewalks, and whether the public interest will be served by the subdivision and dedication. An analysis of each additional criterion will follow in subsequent sections.

The proposal includes plans for an 8,612 square foot shared recreation area and a new through road that would connect F&S Grade Road to Jones Road. The proposed road matches the Sedro-Woolley Traffic Improvement Plan and includes street trees, sidewalks and planter strips. The plans also provide provisions for drainage, water supplies, and sewage. The proposed development is within close proximity to local schools; Cascade Middle School, Evergreen Elementary School and Sedro-Woolley High School are all located within 2 miles of the subject site.

- b. Per Ch. 16.08 SWMC, a preliminary plat shall follow the procedures for a Type IV permit review set forth in Chapter 2.90 SWMC.

As concluded in Section 1 of this report, the application has followed the procedures for a Type IV permit review.

**CONCLUSION: The proposed subdivision as conditioned is consistent with the criteria described in Chapters 16.04 and 16.08 SWMC as well as RCW 58.17.110 for preliminary subdivision approval.**

- 6. Dimensional Standards:

- a. The dimensional standards of Chapter 17.12 SWMC apply to this proposed subdivision. The proposal is not using the optional subdivision process in Chapter 17.43 SWMC – Planned Residential Developments. Therefore only the standard lot dimensions in Chapter 17.12 SWMC apply.

- b. Single-family residential (SFR) lots in the R-7 are required to be no less than 6,000 square feet. The proposal is for 25 SFR lots that are each at least 6,000 square feet in size.
- c. SFR lots in the R-7 are required to be no less than 40 feet at the building line. The proposed plat layout includes SFR lots that are no less than 70 feet at the building line.
- d. The required minimum lot frontage on a public street, approved private street, or approved easement for standard lots in the R-7 zone is twenty feet. The proposed plat layout includes SFR lots with at least twenty feet of frontage on a public street or approved an easement.
- e. The standard minimum lot size for duplex lots in the R-7 is 9,000 square feet. Duplex lots are also required to be at least 80 feet at the building line and 100 feet deep. The proponent is proposing three duplex lots. Each of these lots are at least 9,000 square feet in size, are at least 80 feet wide at the building line and are 100 feet deep.
- f. The required minimum lot frontage on a public street, approved private street, or approved easement for standard duplex lots in the R-7 zone is twenty feet. The proposed plat layout includes duplex lots with at least twenty feet of frontage on a public street or approved an easement.
- g. The maximum coverage in the R-7 zone is 50% of the lot, including all structures, main and accessory. This standard is enforced at the time of building permit application.

**CONCLUSION: The proposal meets the dimensional standards identified in Chapter 17.12 SWMC.**

7. Streets, Sidewalks and Driveways:

- a. Streets and sidewalks in new subdivisions are required to meet the public works constructions standards described in 15.40 SWMC.
- b. The subdivision proposal plans a new public road that includes construction of curb, gutter, sidewalks and a planter strip with street trees along with any required pavement overlay and striping. The road will be dedicated to the City upon final plat approval.
- c. There will be no on-street parking along the new road since it is designed as a required Urban Major Collector Arterial.
- d. SWMC 17.36.040(A) requires that ingress and egress be designed with respect to intersections, crosswalks and traffic in general so as not to create safety hazards or impedances. Only proposed lots 28 and 11 have access on F&S Grade Road. The

remaining 26 lots have access to the new arterial road. Of those 26 lots, all have shared driveway access. Proposed lots that front directly on the new road (non-flag lots) shall not have their own direct ingress / egress to the new road. The ingress / egress for the lots fronting directly on the new road shall be through the adjacent shared easement for the flag-lots. For example, lots 12 and 14 shall not have direct access to the new arterial road, their access shall be from the shared easement across lots 13 and 15.

**CONCLUSION: The application as conditioned meets the streets and sidewalk standards identified in Chapter 15.40 SWMC and in the current Sedro-Woolley Public Works Department Standards Manual.**

8. Landscaping and Residential Recreation Area:

- a. Per SWMC 17.38.010, all new developments of more than seven dwelling units shall be required as a condition of approval, to provide a minimum of 8,000 square feet of unpaved, usable open space with lawn or other soft surface for an outdoor recreation area, plus an additional 100 square feet of usable open space for each additional unit beyond the initial 25 units. A 31 unit subdivision is required to provide 8,600 square feet of recreation area per Ch.17.38 SWMC. The applicant has proposed an 8,612 square foot shared open space tract.
- b. The applicant was required to submit a landscape plan (**Exhibit F**) in accordance with Ch. 17.50 SWMC with the application materials. The applicant included in their landscape plan design details for the 8,612 square foot open space tract, as well as the planter strips along the new public road.
- c. Residential recreational areas are subject to the design standards outlined in the City of Sedro-Woolley Design Standards and Guidelines. The landscape plan demonstrates that the open space tract is in compliance with the design standards.

**CONCLUSION: The proposal as conditioned meets the requirements for landscaping and recreational area as described in Chapters 17.38 and 17.50 SWMC.**

9. Design and Construction Standards:

- a. The plat map (**Exhibit C**) demonstrates that the proposed road and lot access meet the standards in Chapters 16.08 and 15.40 SWMC.
- b. Per Ch. 16.08 SWMC, subdivisions must provide water and sewer from a public supply to each lot.
- c. The existing house is not currently connected to the Sedro-Woolley sewer because the city sewer main is not within 200 feet of the house. The applicant submitted evidence of sewer availability from the Sedro-Woolley Public Works and Engineering Department (**Exhibit R**) that specifies the applicant will be required to extend the sanitary sewer services, in conformity to the Sedro-Woolley standards, to

the site in a capacity suitable to serve the proposed new lots. The existing house shall be connected to sewer once the sewer main is installed in the new road.

- d. The applicant is also required, per a letter from Skagit PUD (**Exhibit S**), to extend water services to the site in a capacity suitable for the proposed lots.

**CONCLUSION: The proposal as conditioned will meet the standards for design and construction in Chapters 16.08 and 15.40 SWMC.**

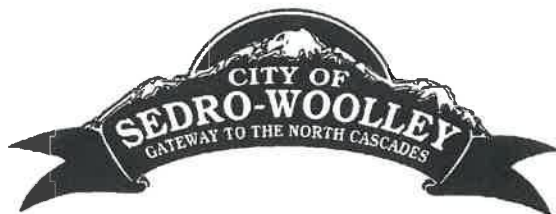
## **STAFF RECOMMENDATIONS**

Permit No. LP 2019-432 is hereby **recommended for APPROVAL** subject to the following conditions:

1. All development shall generally conform to the plat map as shown in **Exhibit C** and the landscape plan as shown in **Exhibit F**.
2. Comply with the mitigation measures included in the SEPA MDNS issued January 29, 2020.
3. Construction of all required infrastructure improvements, including, but not limited to, streets, curbs, sidewalks, sewer, landscaping and street lighting shall be completed prior to final plat application or bonding in an amount approved by the City Engineer shall be filed with the City.
4. All 28 lots shall have access to city sanitary sewer and the residences on those lots (including the existing residence) shall be connected to the city sanitary sewer.
5. A homeowners association shall be created to own and maintain the stormwater system infrastructure, recreation area tract and shared driveways; the homeowner's association documents shall be approved by the Planning Department prior to recording.
6. The ingress/egress for the lots fronting directly on the new arterial road shall be through the adjacent shared ingress/egress easement for the adjoining flag-lots.

## **EXHIBITS**

- A. Staff Report;
- B. Preliminary Plat Application;
- C. Preliminary Plat map of Garden Meadows
- D. Critical Areas Assessment Report
- E. SEPA checklist
- F. Landscape Plan
- G. NOA and SEPA Comment Period
- H. Re-issued NOA and SEPA Comment Period
- I. SEPA MDNS
- J. Notice of Public Hearing
- K. Comment Letter – Department of Ecology
- L. Comment Letter – Meadows (dated December 20, 2019)
- M. Comment Letter – Meadows (dated January 10, 2020)
- N. Comment Letter – Johnsons
- O. Comment Letter – De Fremery
- P. WDFW Map
- Q. Transportation Element Study Area
- R. Evidence of Sewer Availability
- S. Skagit PUD Letter



Building, Planning and Engineering  
Sedro-Woolley Municipal Building  
325 Metcalf Street  
Sedro-Woolley, WA 98284  
Phone (360)855-0771  
Fax (360) 855-0733

## PRELIMINARY PLAT APPLICATION

### Exhibit B

to Hearing Examiner Staff Report

**APPLICATION NUMBER:** \_\_\_\_\_

Proposed name of Subdivision: Garden Meadows

Location (cross street names and addresses, if they exist): 606 F & S Grade Road, Sedro Woolley, WA  
Jones Road abuts the north side of the project and F & S Grade Road abuts the south.

Assessor's Parcel number(s): P37229

Applicant Name: Francis/Nilson (Morris Nilson)

Applicant Address: 23145 Gunderson Road, Mount Vernon, WA 98273

Applicant Phone: 360-840-1415 email: gon2mazama@aol.com

Owner: Gildnes Credit Trust/Gayle Gildnes Trustee

Owner Address: 15006 Channel Lane, La Conner, WA 98257

Owner Phone: \_\_\_\_\_ email: \_\_\_\_\_

I am applying for the following variances or other permits at the same time: \_\_\_\_\_

Zoning Designation: Residential (R7) Flood zone: Not in flood zone

Total site size in acres: Approx 5.9-acres Critical Areas by type and acres: None

Number of lots proposed: 28 lots+1 open space Number of housing units proposed: 31 (incl 1 existing)

Describe existing conditions on and adjacent to site: The existing site contains one single-family residence &  
typical associated residential improvements in the projects southwest corner. The remainder of the property is covered  
w/ pasture & long grass. Adjoining land east & west are residentially developed & roadways abut the north and south sides.

## Application Checklist:

- ☐ A. Pre-application file #: 2019-344 Pre-application date: October 2, 2019
- ☐ B. State Environment Policy Act (SEPA). The applicant shall submit a SEPA Checklist or environmental impact statement (EIS), including a site plan and associated fees, with an application for a subdivision. The SEPA Checklist or EIS shall be reviewed by the SEPA official. Upon determination by the Planning Department that the SEPA Checklist is complete and accurate, thirteen (13) copies of the checklist will be required. No public hearing on a subdivision proposal shall be scheduled prior to the issuance of a determination of nonsignificance or mitigated determination of nonsignificance by the SEPA official.
- ☐ C. Fees. See current fee schedule. The applicant will also be billed for mailing and publication costs.
- ☐ D. Complete Application Required. The planning director notifies applicant when the application is complete.
- ☐ E. Project narrative including: a detailed description of the proposal; any other applications being submitted concurrently (such as planned residential development application or a variance); size of properties to be subdivided; number of lots proposed; critical areas, open space and recreation area calculations or any other information that will be pertinent to the review the application.
- ☐ F. Application Map. Ten copies of an accurately scaled and dimensioned map of the plat prepared by a land surveyor licensed by the state of Washington and showing the following:

**\*\*Every preliminary plat shall consist of one or more maps, on both mylar and in digital format approved by the City Engineer, together with written and digital data including the following:**

- ☐ The name of the proposed subdivision;
- ☐ North point and scale; the location of existing property lines: streets, building, if any; watercourses and all general features;
- ☐ The legal description of the land contained within the subdivision;
- ☐ The names and addresses of all persons, firms and corporations holding interest in the lands, including easement rights and interest;
- ☐ The proposed names, locations, widths and other dimensions of proposed streets, alleys, easements, parks, lots, building lines, if any, and all other information necessary to interpret the plat, including the location of existing utility and access easements which are to remain;
- ☐ The location of streets in adjoining plats and the approximate location of adjoining utilities and proposed extensions into the plat;
- ☐ The names of adjoining plats;
- ☐ The name, address and telephone number and seal of the registered land surveyor who made the survey or under whose supervision it was made;
- ☐ The date of the survey;
- ☐ All existing monuments and markers located by the survey;
- ☐ The zoning classification applicable to the land within the subdivision;
- ☐ The conditions of or the limitations on dedications, if any, including slope rights;
- ☐ Contour intervals as required, based upon city datum with intervals of five feet or less utilizing U.S.G.S. or better datum.
- ☐ Location of significant physical features such as buildings, bodies of water, power lines, slopes, trees, and section lines within or adjacent to the proposed plat;
- ☐ Location and description of existing and proposed drainage, sewer, and water facilities within or adjacent to the proposed plat;

- ☐ Location and outline of any sensitive areas, as defined under Section 17.65.040, using the delineation and classification methods and definitions provided for the specific sensitive area under the provisions of Chapter 17.65;
- ☐ If a replat, the layout for the original plat in dotted lines, with replat status reflected in the plat name;
- ☐ Vicinity map at a smaller scale, to include the location of any natural resource lands within three hundred feet of the edge of the proposed plat.

- ☐ G. Mailing labels: See separate form for instructions. (3 sets per city)
- ☐ H. Posting: See attached form for instructions.
- ☐ I. Copies of covenants, restrictions and collective maintenance agreements, if applicable. NONE
- ☐ J. Environmental checklist or EIS. Wetland Report (HOA AT FINAL PLAT)
- ☒ K. Survey information of all features within 100 feet of the boundary of the proposed subdivision. NOT NEEDED PER CITY 12/3/19 — SEE PRELIM PLAT MAP
- ☐ L. Evidence of water availability. PUD letter date: 11/21/19
- ☐ M. Evidence of sewer availability.
- ☐ N. Required materials identified in the pre-application meeting, such as additional information required for PRDs.
- ☐ O. Other information deemed necessary by the planning director, planning commission or city council. ISSUE REPORT
- ☐ P. Landscaping Plan
- ☐ Q. Street Profiles

**Special Studies:**

- ☒ R. Traffic N/A
- ☐ S. Stormwater
- ☐ T. Critical areas

**Criteria:** The proponent bears the burden of proving that the application should be granted. The project permit must be supported by convincing proof that it conforms to the applicable elements of the city's development regulations and comprehensive plan. The proponent must also prove that any significant adverse environmental impacts have been adequately mitigated.

Describe how the following provisions will be met with the proposed subdivision:

- ☐ **Public health, safety and general welfare:** This project will be designed to meet applicable City and state codes to assure this project will not impact public health, safety and general welfare.

- ☐ **Open spaces:** One open space lot is proposed to provide 8612 sf of area as required by the City for with the with the creation of 28 lots per SWMC 17.38.010, 8600 sf (8,000 sf + 100 sf for each lot over 25) is required or outdoor recreation

- ☐ **Drainage ways:** There is a roadside ditch located along the north side of the subject property, along the south side of Jones Road. There is also a depressed area along the southerly side of the subject property, paralleling the north side of F & S Grade Rd.

- ☐ **Streets, alleys, other public ways:** A new public street with curb, gutter and sidewalk each side will be constructed to serve this project from Jones Road, connecting to F & S Grade Road along the south side of the site.

☐ **Water supplies:** Water will be provided by the extension of a 8-inch watermain southerly from the watermain in Jones road, looping the waterline with the existing waterline in F & S Grade Road along the south side of the site

☐ **Sanitary waste:** Sanitary sewer will be extended uphill south from an existing sewer stub to the north side of the site, south to F & S Grade Road. This sewer extension will serve the plat and additional properties to the south.

☐ **Fire protection facilities:** New fire hydrants will be installed along the proposed public roadway as required by the City to provide fire service to the new lots.

☐ **Parks, playgrounds:** An 8,612 sf open space area tract will be created with this plat as required by the City codes. This area will provide a park area for the new lots.

**Purpose:** The purpose of the Subdivision (Long Plat) regulations:

To regulate the division of land and to promote the public health, safety and general welfare in accordance with standards established by the city and state to:

- A. Prevent the overcrowding of land;
- B. Lessen congestion in the streets and highways;
- C. Promote effective use of land;
- D. Promote safe and convenient travel by the public on streets and highways;
- E. Provide for adequate light and air;
- F. Provide for open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, fire protection, sanitary wastes, parks and recreation, playgrounds, schools and school grounds, sidewalks or other facilities to assure safe walking conditions for students who walk to and from school; and other public requirements;
- G. Provide for proper ingress and egress;
- H. Provide for expeditious review and approval of proposed divisions which conform to zoning standards and local plans and policies, including the purposes stated herein;
- I. Adequately provide for the housing and commercial needs of the citizens of the city; and
- J. Require uniform monumenting of land divisions and conveyance by accurate legal description.

**Process:** Preliminary plat applications shall be processed simultaneously with applications for rezones, variances, planned residential developments (PRDs), site plan approvals, and similar quasi-judicial or administrative actions to the extent that procedural requirements applicable to these actions permit simultaneous processing.

***No public hearing on a subdivision proposal shall be scheduled prior to the issuance of a declaration of non-significance or mitigated declaration of non-significance by the SEPA official.***

**Applicable local and state rules which will be used in the review of all subdivision applications:**

Applications shall be processed according to the procedures set forth in Chapter 2.90 SWMC, and the additional procedures established in Chapter 16.08 SWMC and state law (Chapter 43.21C RCW, and Chapter 36.70B RCW).

Chapter 16.04 SWMC – General Provisions, Chapter 16.08 SWMC – Subdivisions; Chapter 2.88 SWMC – State Environmental Policy Act; Chapter 15.40 SWMC – Public Works Construction Standards; Chapter 2.90 SWMC – Consolidated Planning Procedures; and Title 17 SWMC – Zoning.

Also applicable to subdivisions are the Public Works Department Standards manual and the Sedro-Woolley Design Standards and Guidelines manual. These documents are adopted by reference in the Sedro-Woolley Municipal Code.

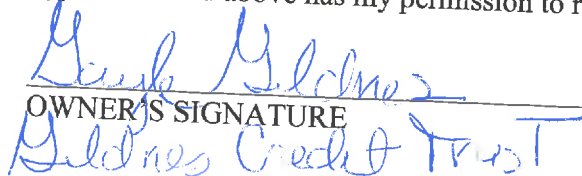
**Signature:**

I request preliminary approval in accordance with the Sedro-Woolley subdivision ordinance and other applicable city codes. Application is hereby made for a **PRELIMINARY PLAT** and to authorize the activities described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities. I hereby grant to the officials of the City of Sedro-Woolley the right to enter the above-described location to inspect the proposed or completed work.

  
SIGNATURE

12/3/19  
DATE RECEIVED

Owner's certification: I certify that I am the legal owner of the property listed above and that the applicant listed above has my permission to represent me in this application for development.

  
OWNER'S SIGNATURE

3 December 2019  
DATE

LEGAL DESCRIPTION

THAT PORTION OF THE NORTHEAST 1/4 OF THE NORTHEAST 1/4, SECTION 23, TOWNSHIP 35 NORTH, RANGE 4 EAST, W.M., DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT 481 FEET WEST OF THE NORTHEAST CORNER OF SAID NORTHEAST 1/4 OF THE NORTHEAST 1/4; THENCE WEST ALONG THE NORTH LINE OF SAID NORTHEAST 1/4 OF THE NORTHEAST 1/4, 370 FEET; THENCE SOUTH 38 RODS, MORE OR LESS, TO INTERSECT THE NORTH LINE OF THE RIGHT-OF-WAY OF THE FAIRHAVEN AND SOUTHERN RAILROAD; THENCE SOUTHEASTERLY ALONG THE NORTH LINE OF THE SAID RIGHT-OF-WAY TO A POINT SOUTH OF THE POINT OF BEGINNING; THENCE NORTH TO THE POINT OF BEGINNING;

EXCEPT ANY PORTION THEREOF LYING WEST OF A LINE THAT IS 463 FEET EAST OF AND PARALLEL WITH THE WEST LINE OF THE NORTHEAST 1/4 OF THE NORTHEAST 1/4 OF SAID SECTION;

ALSO EXCEPTING THE RIGHTS-OF-WAY OF THE PUGET SOUND AND BAKER RIVER RAILROAD AND COUNTY ROADS.

SUBJECT TO AND TOGETHER WITH EASEMENTS, RESERVATIONS, RESTRICTIONS, COVENANTS, LIENS, LEASES, COURT CAUSES AND OTHER INSTRUMENTS OF RECORD.

SITUATE IN THE CITY OF SEDRO-WOOLLEY, COUNTY OF SKAGIT, STATE OF WASHINGTON.

NOTES

- ① INDICATES EXISTING MONUMENT IN CASE.  
○ INDICATES EXISTING PIPE OR REBAR FOUND.
- DESCRIPTION AND EXCEPTION INFORMATION IS FROM LAND TITLE COMPANY TITLE REPORT, ORDER NO. 01-IT2686-GE, DATED MAY 30, 2019.
- FOR ADDITIONAL SUBDIVISION AND MERIDIAN INFORMATION SEE PLAT OF EDEN'S ACRES LP-06-04 RECORDED UNDER AUDITOR'S FILE NO. 20110180064, PLAT OF ZOBY'S PLAGE LP-1-06, RECORDED UNDER AUDITOR'S FILE NO. 201503080035, SHORT PLAT NO. 5W-01-06 RECORDED UNDER AUDITOR'S FILE NO. 8602270013, SHORT PLAT NO. 5W-02-08 RECORDED UNDER AUDITOR'S FILE NO. 8806010039, SHORT PLAT NO. 5W-01-45 RECORDED UNDER AUDITOR'S FILE NO. 9504210048, SHORT PLAT NO. 5W-04-45 RECORDED UNDER AUDITOR'S FILE NO. 9512240100, SHORT PLAT NO. 5W-06-SP-2 RECORDED UNDER AUDITOR'S FILE NO. 200908250031 AND RECORD OF SURVEY MAPS RECORDED UNDER AUDITOR FILE NUMBERS 9108080009 AND 200609190659, ALL IN RECORDS OF SKAGIT COUNTY, WASHINGTON.
- ZONING CLASSIFICATION: R-7, RESIDENTIAL ZONE
- SEWAGE DISPOSAL: CITY OF SEDRO-WOOLLEY
- STORM DRAINAGE: CITY OF SEDRO-WOOLLEY
- STREET STANDARD: CITY OF SEDRO-WOOLLEY
- WATER: SKAGIT COUNTY P.U.D. NO. 1
- POWER: PUGET SOUND ENERGY
- TELEPHONE: FRONTIER COMMUNICATION
- GAS: CASCADE NATURAL GAS
- TELEVISION CABLE: COMCAST CORPORATION  
FIBER OPTIC: WAVE BROADBAND
- GARBAGE COLLECTION: CITY OF SEDRO-WOOLLEY; SOLID WASTE COLLECTION FOR LOTS SHALL BE AT THE EDGE OF THE PUBLIC RIGHT OF WAY.
- MERIDIAN: ASSUMED
- BASIS OF BEARING: MONUMENTED EAST LINE OF THE NORTHEAST 1/4 OF SECTION 23, TOWNSHIP 35 NORTH, RANGE 4 EAST, W.M. (BETWEEN NORTHEAST SECTION CORNER AND MONUMENT AT DEBBIE DRIVE)  
BEARING = SOUTH 0°31'54" EAST
- INSTRUMENTATION: LEICA TCR105A THEODOLITE DISTANCE METER
- SURVEY PROCEDURE: FIELD TRAVERSE
- ALL LOTS WITHIN THIS SUBDIVISION MAY BE SUBJECT TO IMPACT FEES FOR SCHOOLS, FIRE, PARKS AND ANY OTHER CITY IMPACT FEES, PAYABLE UPON ISSUANCE OF A BUILDING PERMIT.
- THIS PROPERTY IS SUBJECT TO AND TOGETHER WITH EASEMENTS, RESERVATIONS, RESTRICTIONS, COVENANTS, LIENS, LEASES OR OTHER INSTRUMENTS OF RECORD REFERRED TO IN LAND TITLE COMPANY REPORT REFERENCED UNDER NOTE 2 ABOVE. SAID REPORT LISTS DOCUMENTS RECORDED UNDER AUDITOR'S FILE NUMBERS: NO ENCUMBRANCES ARE SHOWN ON THIS PROPERTY
- OWNER: OLAF A. GILDNES CREDIT TRUST  
GAYLE GILDNES, TRUSTEE  
15006 CHANNEL LANE  
LA CONNER WA 98257  
  
DEVELOPERS: MORRIS AND CHERYL NILSON, HUSBAND AND WIFE  
LES AND LORRIE FRANCIS, HUSBAND AND WIFE  
C/O 23145 GUNDERSON ROAD  
MOUNT VERNON WA 98273  
PHONE: 360-840-1415
- SKAGIT COUNTY ASSESSOR'S PARCEL NO. P-37229

CITY REFERENCE INFORMATION

EXCERPTS FROM SEDRO-WOOLLEY MUNICIPAL CODE SECTION 17.14 RESIDENTIAL 7 (R-7) ZONE:

DUPLEX LOTS.  
BE SITUATED ON A LOT OF NOT LESS THAN 9,000 SQ FT MINIMUM SIZE, WITH A MINIMUM WIDTH OF 80 FEET AT THE BUILDING LINE, A MINIMUM DEPTH OF 100 FEET, AND A MINIMUM LOT FRONTAGE ON A PUBLIC STREET OF 20 FEET.

PROVIDE OFF-STREET PARKING FOR FOUR VEHICLES.

BE DESIGNED TO RESEMBLE A SINGLE-FAMILY RESIDENCE SO AS TO BLEND IN WITH THE DESIGN AND APPEARANCE OF THE SURROUNDING RESIDENCES IN THE NEIGHBORHOOD.

NO MORE THAN ONE DUPLEX SHALL BE ALLOWED PER ANY THREE SUCCESSIVE LOTS ADJOINED BY SIDE PROPERTY LINES AS DEFINED IN SEDRO-WOOLLEY MUNICIPAL CODE SECTION 17.04.030.

EXCEPTION: LOTS WHICH HAVE 20 FEET OR LESS FRONTAGE ON THE PUBLIC STREET SHALL NOT BE REQUIRED TO BE COUNTED ON A SUCCESSIVE LOT. THIS EXCEPTION IS INTENDED TO ALLOW SUCCESSIVE DUPLEXES IF LOCATED BEHIND SINGLE-FAMILY LOTS.

MINIMUM SETBACKS.  
FRONT: 20 FEET  
SIDE: ONE STORY DWELLINGS AND ACCESSORY STRUCTURES SHALL HAVE A MINIMUM OF 5 FEET; A TWO STORY DWELLING SHALL HAVE A MINIMUM OF 8 FEET AND EACH ADDITIONAL STORY OVER TWO SHALL HAVE AN ADDITIONAL 4 FEET, FOR EACH STORY.  
REAR: 10 FEET FOR RESIDENCES, 5 FEET FOR ACCESSORY STRUCTURES.  
GARAGE SETBACKS: PRIVATE GARAGES ATTACHED TO OR WITHIN THE RESIDENCE SHALL ADHERE TO THE SETBACK REQUIREMENT OF THE RESIDENCE. IN ALL CASES, THERE SHALL BE A MINIMUM OFF-STREET PARKING APRON OF 25 FEET IN LENGTH DIRECTLY IN FRONT OF ALL GARAGE DOOR ENTRANCES WHEN ACCESSING A STREET EITHER TO THE FRONT OR SIDE OF A RESIDENCE. WHERE GARAGE DOORS ACCESS AN ALLEY, THE OFF-STREET PARKING APRON SHALL BE AT LEAST 10 FEET.

MAXIMUM BUILDING HEIGHT: 35 FEET EXCEPT 20 FEET FOR ACCESSORY BUILDINGS, AND NO HEIGHT LIMIT FOR CHURCH STEEPLES OR BELL TOWERS.

MINIMUM LOT SIZE REQUIREMENTS.  
LOT AREA: 6,000 SQ FT  
LOT WIDTH AT BUILDING LINE: 40 FEET  
LOT FRONTAGE ON A PUBLIC STREET, APPROVED PRIVATE STREET, OR APPROVED EASEMENT: 20 FEET.

MAXIMUM DENSITY REQUIREMENTS.  
THE MAXIMUM GROSS DENSITY REQUIREMENTS IN THE R-7 ZONE IS SEVEN UNITS PER ACRE.

MAXIMUM LOT COVERAGE.  
LOT COVERAGE IS THE PERCENT OF THE LOT COVERED BY STRUCTURES INCLUDING THE MAIN AND ALL ACCESSORY BUILDINGS. MAXIMUM LOT COVERAGE REQUIREMENTS IN THE RESIDENTIAL R-7 ZONE SHALL BE AS FOLLOWS:

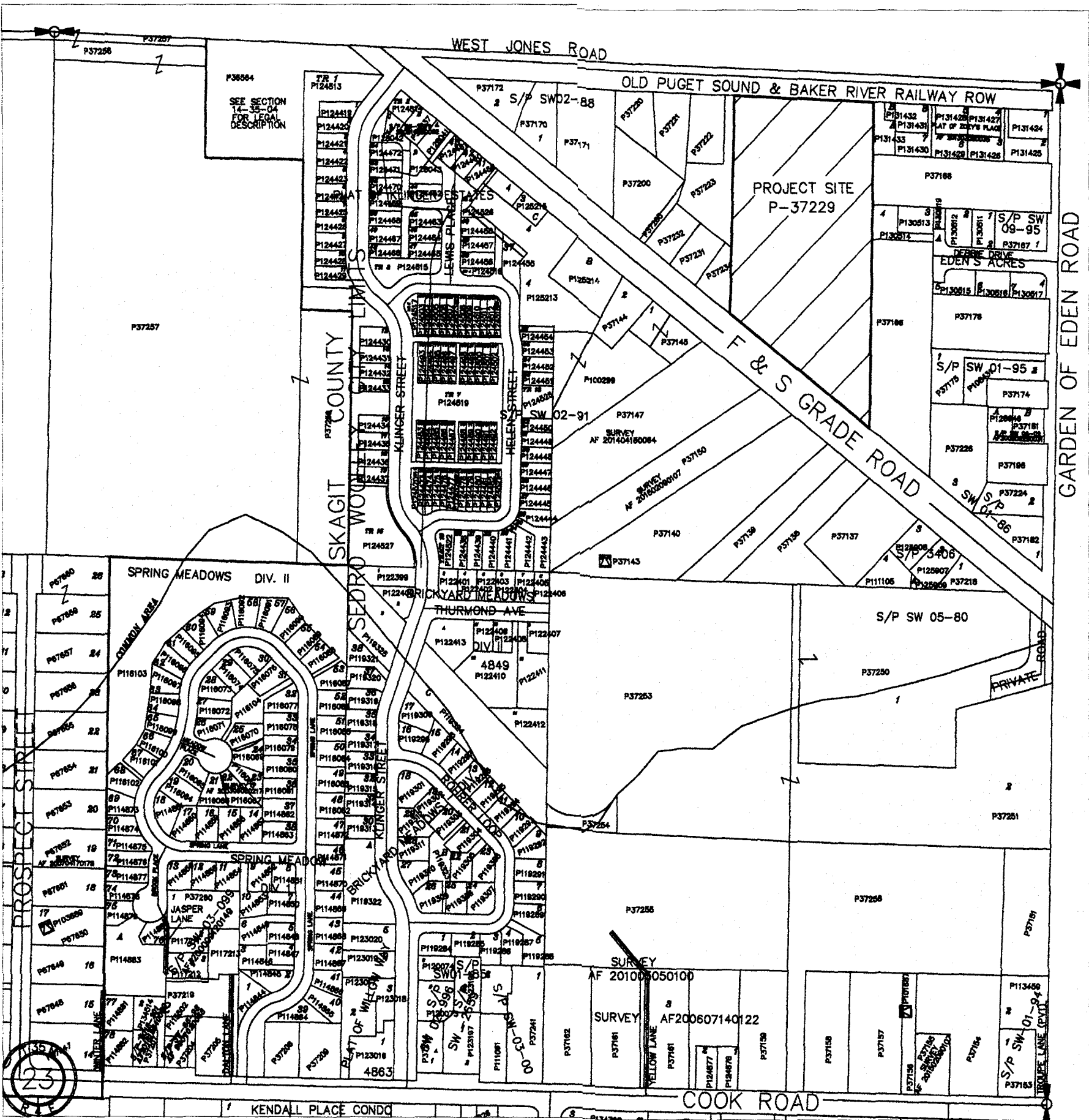
50 PERCENT.  
VARIANCES FROM THE MAXIMUM LOT COVERAGE REQUIREMENT ARE PERMITTED, IF THE APPLICANT CAN DEMONSTRATE THAT THE PROPOSED COVERAGE DOES NOT EXCEED THE AVERAGE LOT COVERAGE OF LOTS WITHIN 100 FEET OF THE PARCEL. LOT COVERAGE CAN BE EQUAL TO THE AVERAGE LOT COVERAGE BUT CANNOT EXCEED IT.

PARCEL AREA INFORMATION

TOTAL PROJECT AREA: 251,900 SQ FT, 5.92 ACRES

AREA OF RIGHT-OF-WAY FOR TRAIL ROAD TO BE DEDICATED TO CITY OF SEDRO-WOOLLEY: 44,539 SQ FT, 1.02 ACRES

Exhibit C  
to Hearing Examiner Staff Report



SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE PRELIMINARY PLAT OF GARDEN MEADOWS, IS BASED UPON AN ACTUAL SURVEY AND SUBDIVISION OF SECTION 23, TOWNSHIP 35 NORTH, RANGE 4 EAST, W.M. AND THAT I HAVE COMPLIED WITH THE APPLICATION REQUIREMENTS FOR A PRELIMINARY PLAT IN THE CITY OF SEDRO-WOOLLEY.

BRUCE G. LISSER, PLS CERTIFICATE NO. 22960  
LISSER & ASSOCIATES, PLLC  
320 MILWAUKEE PO BOX 1109  
MOUNT VERNON WA 98273  
PHONE: (360) 419-1442  
FAX: (360) 419-0581  
E-MAIL: BRUCE@LISSER.COM



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SURVEYING & LAND USE CONSULTATION  
320 MILWAUKEE STREET  
MOUNT VERNON, WA 98273  
360-419-1442

NO.	DATE	REVISION	BY	REV.

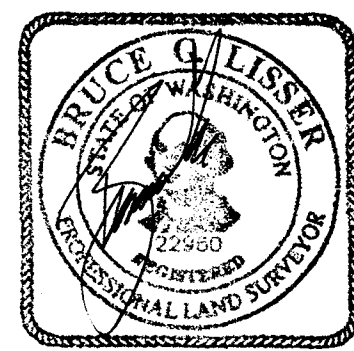
PRELIMINARY PLAT OF  
GARDEN MEADOWS  
SEDRO-WOOLLEY, WASHINGTON

SCALES  
HORIZONTAL: N/A  
VERTICAL: N/A  
DESIGNED:  
DRAWN: BGL  
CHECKED: BGL

SURVEY IN A PORTION OF  
SECTION 23, T. 35 N., R. 4 E., W.M.  
SKAGIT COUNTY, WASHINGTON  
FOR: MORRIS NILSON & LES FRANCIS

FB. PG.  
DATE: 11/25/19  
DRAWING: 19-066 P PLAT  
JOB NO.: 19-066  
SHEET: 1 OF 3





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SURVEYING & LAND USE CONSULTATION  
320 MILWAUKEE STREET  
MOUNT VERNON, WA 98213  
360-419-1442

NO.	DATE	REVISION	BY	REV.

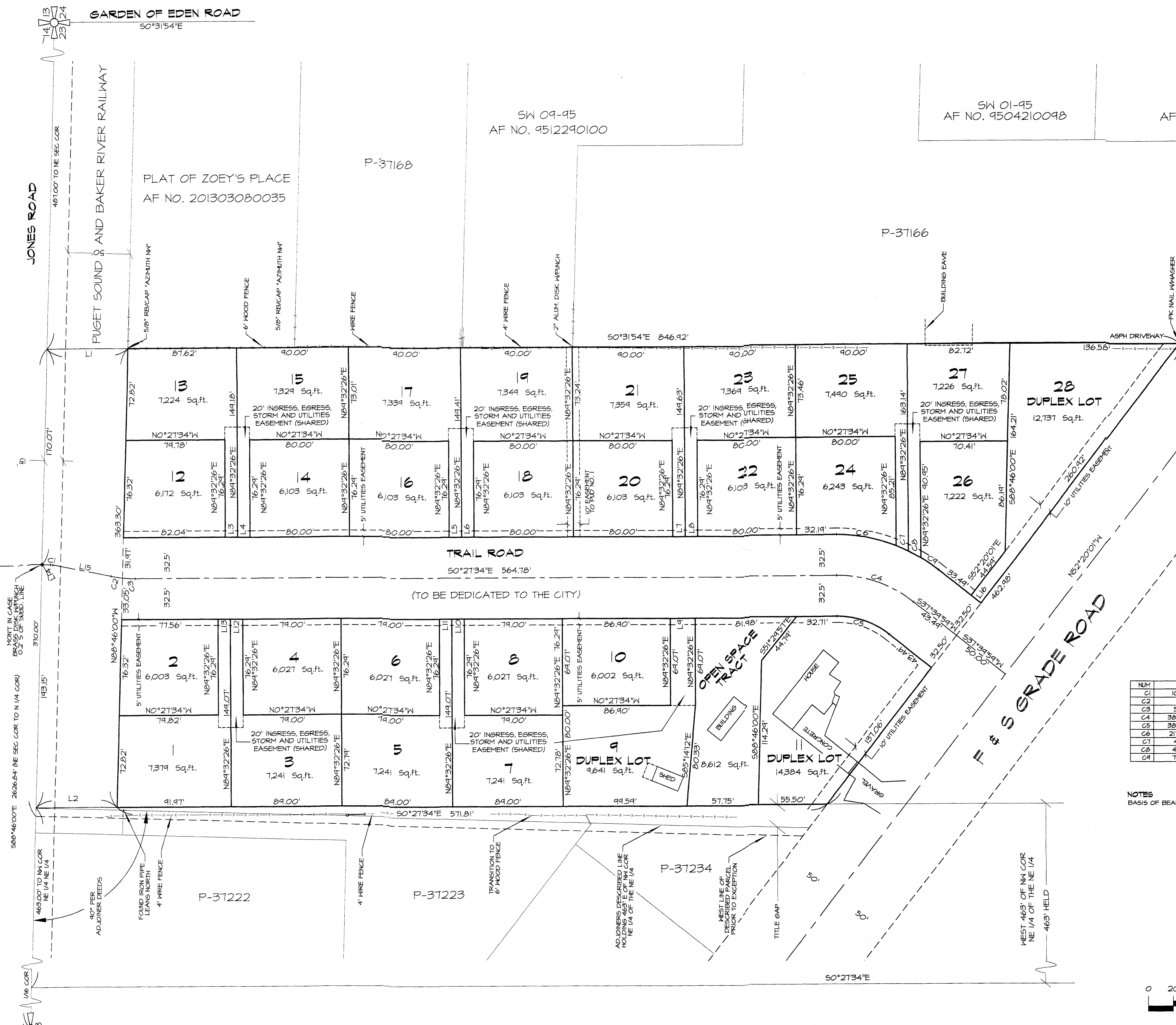
PRELIMINARY PLAT OF  
GARDEN MEADOWS  
SEDRO-WOOLLEY, WASHINGTON

SCALES  
HORIZONTAL: 1"=40'  
VERTICAL: N/A  
DESIGNED:  
DRAWN: BGL  
CHECKED: BGL

SURVEY IN A PORTION OF  
SECTION 23, T. 35 N., R. 4 E., W.M.  
SKAGIT COUNTY, WASHINGTON  
FOR: MORRIS NILSON & LES FRANCIS

FB.	PG.
DATE: 11/26/19	
DRAWING: 19-066 P PLAT	
JOB NO.: 19-066	
SHEET: 3 OF 3	

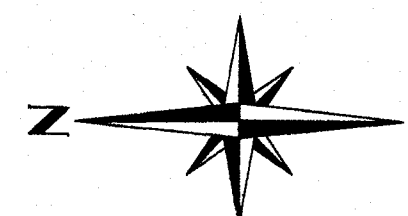
GARDEN OF EDEN ROAD



LINE TABLE		
NUM	BEARING	DISTANCE
L1	S0°31'54"E	65.03'
L2	N0°21'34"W	65.03'
L3	N0°21'34"W	10.00'
L4	N0°21'34"W	10.00'
L5	N0°21'34"W	10.00'
L6	N0°21'34"W	10.00'
L7	N0°21'34"W	10.00'
L8	N0°21'34"W	10.00'
L9	N0°21'34"W	20.00'
L10	N0°21'34"W	10.00'
L11	N0°21'34"W	10.00'
L12	N0°21'34"W	10.00'
L13	N0°21'34"W	10.00'
L14	S0°07'04"E	6.94'
L15	S10°47'26"W	47.71'
L16	S37°34'54"W	10.00'

CURVE TABLE			
NUM	DELTA	ARC	RADIUS
C1	10°40'11"	1.86'	10.00'
C2	5°17'11"	9.23'	100.00'
C3	5°57'44"	10.41'	100.00'
C4	38°07'33"	66.54'	100.00'
C5	38°07'33"	44.42'	61.50'
C6	21°04'04"	48.41'	132.50'
C7	4°43'01"	10.91'	132.50'
C8	4°54'50"	11.36'	132.50'
C9	7°20'34"	16.48'	132.50'

NOTES  
BASIS OF BEARING: MONUMENTED CENTERLINE  
OF GARDEN OF EDEN ROAD  
BETWEEN JONES RD AND DEBBIE DR  
BEARING: S00°31'54"E



0 20 40 80 120  
SCALE: 1" = 40'

## Exhibit D

to Hearing Examiner Staff Report

# **CRITICAL AREAS ASSESSMENT REPORT PARCEL P37229 SEDRO-WOOLLEY, WASHINGTON 98284**

### **PREPARED FOR:**

MORRIS NILSON  
23145 GUNDERSON RD  
MOUNT VERNON, WA 98273

### **PREPARED BY:**

ESSENCY ENVIRONMENTAL, LLC  
11104 320<sup>TH</sup> AVENUE NORTHEAST  
CARNATION, WA 98014  
CONTACT: MARY HAREDA  
(425) 761-5903  
[MHAREDA@CABLESPEED.COM](mailto:MHAREDA@CABLESPEED.COM)



**November 22, 2019**

This report should be cited as:

Essency Environmental, LLC. 2019. Critical Areas Assessment Report for Parcel P37229, Sedro-Woolley, Washington. Prepared for Morris Nilson. November 22.

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## Appendices

Appendix A.	<b>Figures</b> Figure 1 – Vicinity Map Figure 2 – Aerial Image of Parcel P39374
Appendix B.	Wetland Determination Forms
Appendix C.	Site Photographs

## Background

Essency Environmental LLC was retained to complete a Critical Areas Assessment on Parcel P37229, which is located in the northeast quarter of Section 23, Township 35N, Range 4E, W.M., between West Jones Road and F & S Grade Road in Sedro-Woolley, Washington. The project location is shown in Figure 1 (Appendix A).

Project contacts are shown in Table 1.

**Table 1. Project Contacts**

Organization	Role	Representative	Title	Email\Phone
Essency Environmental, LLC	Critical Areas Assessment	Mary Harenda	Professional Wetland Scientist, Fisheries Biologist	<a href="mailto:mharenda@cablespeed.com">mharenda@cablespeed.com</a> (425) 761-5903
	Client	Morris Nilson		<a href="mailto:gon2mazama@aol.com">gon2mazama@aol.com</a> (360) 840-1415

## Qualifications

This critical areas assessment was completed by Andrew Wones and Mary Harenda of Essency Environmental, LLC. Essency Environmental, LLC provides environmental consulting services and has conducted many critical areas studies in Washington State.

Andrew Wones has over 30 years of experience in marine and freshwater ecology research and environmental consulting. He has extensive experience with aquatic resources permitting, natural resource inventories, impact assessment, endangered species, mitigation planning and monitoring, and construction monitoring for environmental compliance. Mr. Wones has contributed to numerous environmental impact statements, natural resource studies, provided compliance monitoring services, and written biological assessments for several ports, marinas, and utility agencies. He has authored natural resources technical reports and chapters for NEPA/SEPA documents evaluating a variety of projects including transportation, mining, residential, and recreational developments. Andrew is also a Certified Erosion and Sedimentation Control Lead (CESCL).

Mary Harenda is a Professional Wetland Scientist with over 30 years of diverse experience in biological sciences, project planning and design. She possesses a thorough working knowledge of local, state, and federal permitting and plan requirements, including the Washington SEPA and federal NEPA processes (BAs/BEs/EISs). Mary's extensive technical experience includes wetland inventories, delineations and functional assessments, stream assessments and evaluations, and assessments for wildlife and threatened and endangered species. Her expertise also includes mitigation design, implementation, and construction oversight on wetland and

stream mitigation projects and follow-up monitoring to meet permit requirements. She has completed long-term, multiparameter monitoring on numerous mitigation banks in Washington State. She has worked in both the public and private sectors and has experience across a broad client base including small and large development firms, private home and property owners, small and large businesses, local, state and federal governments and agencies, and public and private utilities.

## Methods

---

This critical areas assessment was completed following guidelines in Sedro-Woolley Municipal Code (SWMC 17.65 Regulations for Critical Areas). Background research included review of the following sources:

- Federal Emergency Management Agency National Flood Hazard Maps (FEMA 1989)
- Skagit County iMap (Skagit County 2019)
- City of Sedro-Woolley online documents and maps (available at: <https://www.ci.sedro-woolley.wa.us/>)
- Washington State Department of Ecology 303d list, interactive map (Ecology 2019)
- Washington State Department of Fish and Wildlife (WDFW) Priority Habitats and Species database (WDFW 2019a)
- Washington State Department of Fish and Wildlife Salmonscape (WDFW 2019b)
- USFWS National Wetlands Inventory Mapper (USFWS 2019)
- USDA NRCS Web Soil Survey (NRCS 2019)
- Aerial photography of the site from Google Earth and Skagit County iMap
- City of Sedro-Woolley Municipal Code (SWMC)

Essency Environmental staff completed a site visit and field work on Parcel P37229 on November 20<sup>th</sup>, 2019. We walked the parcel to assess the presence of any streams or wetlands and sampled numerous locations that appeared most likely to support wetland conditions. Sample plots were flagged and plot locations were mapped using a mapping grade Juniper Systems Geode GPS and Effigis data collection and post-processing software. In addition, we evaluated areas within 200 feet of the parcel boundaries for the potential presence of critical areas using published information sources including existing critical areas studies, maps, aerial images, and from what could be seen from the project parcel, public roads and other publicly accessible areas. Wetland determinations followed US Army Corps of Engineers wetland delineation guidelines (USACE 2010).

Sedro-Woolley Municipal Code 17.65.020 states the following shall constitute critical areas regulated by code: Wetland and Riparian Corridors, Areas with a Critical Recharging Effect on Aquifers Used for Potable Water, Fish and Wildlife Habitat Conservation Areas, Frequently Flooded Areas, and Geologically Hazardous Areas. Critical area buffers are also regulated as described in SWMC 17.65. This section describes whether any critical areas or buffers regulated by the SWMC are present on or near the subject property. Other regulatory and resource categories of interest are also discussed.

### General Site Description

Parcel P37229 is 5.15 acres in size. An existing one story, single family residence, garage, and outbuildings, and yard and landscaped areas are present in the southwest corner (Figure 2). The remaining area on the parcel is vacant and has been historically used for agriculture. The property lies between West Jones Road on the north and F & S Grade Road on the south. The parcel is zoned R-7 (City of Sedro-Woolley Zoning Map, 2019). Existing residences are present to the east and west.

The parcel was in agricultural use for many years. Vegetation is dominated grasses and weedy forbs typical of agricultural fields. Plants species observed on the parcel include: colonial bentgrass (*Agrostis capillaris*), English plantain (*Plantago lanceolata*), bracken fern, (*Pteridium aquilinum*), meadow fescue (*Schedonorus pratensis*), Canada thistle (*Cirsium arvense*), reed canarygrass (*Phalaris arundinacea*), creeping buttercup (*Ranunculus repens*), soft rush (*Juncus effusus*), field horsetail (*Equisetum arvense*), hardhack (*Spiraea douglasii*), snowberry (*Symphoricarpos albus*), and blackberry (*Rubus armeniacus* and *R. ursinus*). The mapped soil series on the project parcels and surrounding area is Minkler silt loam, a non-hydric soil (NRCS 2019). Photos of the site are in Appendix C.

### Shoreline Jurisdiction

Parcel P37229 is not within Shoreline jurisdiction (City of Sedro-Woolley 2016).

### Streams

There are no streams or stream buffers on the project parcel. The National Wetland Inventory (USFWS 2019) and Salmonscape (WDFW 2019b) show an intermittent stream on the south side of F & S Grade Road opposite the site that discharges to Brickyard Creek, approximately 800 feet to the southeast. Brickyard Creek is a Type 2 water with 200-foot standard buffer per Sedro-Woolley Municipal Code section 17.65.530. Neither WDNR (2019) or USGS (2019) show a stream south of F & S Grade Road. Visual observations indicate a stream channel is not present between Jones Road and Brickyard Creek; existing conditions are either vegetated roadside ditches or culverted sections of ditch.

## Priority Habitats and Species (PHS)

The PHS database identifies the presence of coho salmon (*Oncorhynchus kisutch*), rainbow trout (*Oncorhynchus mykiss*), and resident coastal cutthroat (*Oncorhynchus clarki*) in Brickyard Creek, and a palustrine emergent wetland on Parcel P37166, which is adjacent and to the east of the Parcel P37229 (WDFW 2019a).

## Wetlands and Riparian Corridors

The National Wetland Inventory (NWI) shows the same palustrine emergent wetland on adjacent Parcel P37166 as identified in the PHS database (Figure 3). A wetland critical areas assessment report for Parcel P37166 prepared by Aqua-Terr Systems (2019) provided to us by the City of Sedro-Woolley, delineated the wetland boundary on P37166, rated the wetland as Category III using Hruby (2014), and determined the standard buffer to be 50 feet under Sedro-Woolley Municipal Code. Figure 2 in the Aqua-Terr Systems report shows the 50-foot buffer is wholly on Parcel P37166 and does not extend onto Parcel P37229.

The NWI also shows a small, oblong, palustrine emergent wetland in the northeast quadrant of the project parcel (Figure 3). We sampled three plots within the area of this mapped wetland and six other locations on the project parcel, including locations that appeared most likely to support wetland conditions (Figure 2 and Appendix B). Plots within the mapped wetland, P1, P3, and P4, met the hydrophytic vegetation criterion but did not meet the hydric soil or wetland hydrology criteria. A predominance of relict redoximorphic features were present in horizons within 14 inches of the soil surface and soil chromas were too light to meet hydric soil indicators. Plot P7 was in a depressional area west of the existing wetland on the adjacent parcel. At this location, relict redoximorphic features were present in the soil from 8-15 inches depth and neither hydrophytic vegetation nor wetland hydrology indicators were present. The NOAA weather station in Sedro-Woolley (Sedro-Woolley 5.1 N) recorded 2.38 inches of rain in the 7 days prior to our site visit. Despite this significant rainfall, no indicators of wetland hydrology were seen on the project site or in any of sample locations. The presence of relict redoximorphic features in some of sample plots indicates that wetland conditions were likely present in the vicinity of the mapped wetlands shown on the NWI. However, changes to historic hydrologic conditions during the preceding decades from agriculture, adjacent road ditches and infrastructure improvements, and adjacent residential development likely eliminated wetland hydrology on the project parcel. A deep ditch is present adjacent to Jones Road. In addition, natural gas and water lines are present in the road right-of-way and a drain system could be present in the utility corridor. Both of these drainage features are less than 100 feet from the mapped wetland area and would affect the wetland's hydrology.

No Wetlands, Wetland Buffers, or Riparian Corridors are present on Parcel P37229.

## **Areas with a Critical Recharging Effect on Aquifers Used for Potable Water**

The Skagit County Aquifer Recharge Area Category 1 Areas Map (Skagit County 2010) does not show any aquifer recharge areas on or within 200 feet of the project parcel.

## **Fish and Wildlife Conservation Areas**

There are no known Fish and Wildlife Conservation Areas or habitats for species of local significance as defined in SWMC 17.65.500 on the project parcel. Brickyard Creek, a Type 2 water, is located approximately 800 feet to the southeast (WDFW 2019b).

## **Frequently Flooded Areas**

The project is mapped as outside the 500-year floodplain (Zone X) by the Federal Emergency Management Agency (Skagit County 2019b). Zone X is not regulated.

## **Geologically Hazardous Areas**

There are no potential landslide or erosion hazard areas or steep slopes mapped by Skagit County (2016). Geotest Services (2019) prepared a Preliminary Infiltration Evaluation for the site which also contains information on site soils and geology.

## **Other**

Section 17.65.070[A][4] of the SWMC states that a survey showing locations, descriptions, and species of all trees over 6 inches in diameter, as measured five feet above the base of the trunk, and shrubs over eight feet tall or six feet wide, may be required to be submitted with any development application. Trees and shrubs meeting these criteria are present in the southwest corner of the parcel associated with the existing residence and yard.

## Citations

---

- Aqua-Terr Systems, Inc. 2019. Wetland Critical Areas Assessment Report and Wetland and Buffer Bank Use Plan: Peterson – F & S Grade Road, Sedro-Woolley, Washington. February.
- City of Sedro-Woolley. 2016. City of Sedro-Woolley Shoreline Management Program Update. Effective June 14, 2016.
- City of Sedro-Woolley. 2019. City of Sedro-Woolley Zoning Map. Effective August 13, 2019. Available at: [https://www.ci.sedro-woolley.wa.us/Departments/Planning/Comprehensive%20Plan/Comp Plan Land Use Map.pdf](https://www.ci.sedro-woolley.wa.us/Departments/Planning/Comprehensive%20Plan/Comp%20Plan%20Land%20Use%20Map.pdf)).
- Geotest Services, Inc. 2019. Preliminary Infiltration Evaluation – Nilson Project. Prepared for Morris Nilson. September 24.
- Skagit County. 2010. Aquifer Recharge Area Map. Category 1 Areas. (Skagit County Code 14.24.310). Available at: [https://www.skagitcounty.net/GIS/Documents/Critical Areas/Category%201%20Areas%20Aquifer%20Recharge%20Map.pdf](https://www.skagitcounty.net/GIS/Documents/Critical%20Areas/Category%201%20Areas%20Aquifer%20Recharge%20Map.pdf)
- Skagit County. 2016. Potential Landslide and Erosion Hazard Areas. Available at: <https://www.skagitcounty.net/GIS/Documents/GeoHazard/cw103-53.pdf>
- Skagit County. 2019a. iMap. Skagit County interactive maps. Available at: <https://www.skagitcounty.net/Maps/iMap/>
- Skagit County 2019b. FEMA Q3 100 Year Floodplain. Map. Available at: <https://www.skagitcounty.net/GIS/Documents/Flood/FEMA%20Q3%20100%20Year%20Floodplain%20Map.pdf>
- U.S. Army Corps of Engineers. May 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region, Version 2.0.
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## Appendix A: Figures

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**Figure 1. Vicinity Map**

Critical Areas Assessment  
 Client: Morris Nilson  
 Parcel P37229 in Sedro-Woolley, WA



Essency Environmental LLC  
 11104 320th Ave NE  
 Carnation, WA 98014  
 425 269-3119  
 425 761-5903  
[www.essencyenvironmental.com](http://www.essencyenvironmental.com)



Figure 3- National Wetlands Inventory Map



October 17, 2019

**Wetlands**

- |   |                                |   |                                   |   |          |
|---|--------------------------------|---|-----------------------------------|---|----------|
|  | Estuarine and Marine Deepwater |  | Freshwater Emergent Wetland       |  | Lake     |
|  | Estuarine and Marine Wetland   |  | Freshwater Forested/Shrub Wetland |  | Other    |
|   |                                |  | Freshwater Pond                   |  | Riverine |

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

## **Appendix B: Wetland Determination Data Forms**

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# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Parcel P37229 City/County: Sedro-Woolley/Skagit Sampling Date: 11/20/2019  
 Applicant/Owner: Morris Nilson State: WA Sampling Point: P1  
 Investigator(s): M. Harenda/A. Wones Section, Township, Range: S23, T35N, R4E  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): MLRA2 Lat: 48.513557° Long: -122.250288° Datum: WGS 84  
 Soil Map Unit Name: Minkler silt loam, 0-3% slopes NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒ , Soil ☒ , or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

## VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>20 ft dm</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1.					
2.					
3.					
= Total Cover					<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species <input type="checkbox"/> x 1 = <input type="checkbox"/> FACW species <input type="checkbox"/> x 2 = <input type="checkbox"/> FAC species <input type="checkbox"/> x 3 = <input type="checkbox"/> FACU species <input type="checkbox"/> x 4 = <input type="checkbox"/> UPL species <input type="checkbox"/> x 5 = <input type="checkbox"/> Column Totals: <input type="checkbox"/> (A) <input type="checkbox"/> (B) Prevalence Index = B/A = <input type="checkbox"/>
<b>Sapling/Shrub Stratum</b> (Plot size: <u>10 ft dm</u> )					
1.	<u>Spiraea douglasii</u>	<u>5</u>	<u>yes</u>	<u>FACW</u>	
2.					
3.					
= Total Cover					
<b>Herb</b> (Plot size: <u>6 ft dm</u> )					<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Phalaris arundinacea</u>	<u>100</u>	<u>yes</u>	<u>FACW</u>	
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
= Total Cover					
<b>Woody Vine Stratum</b> (Plot size: <u>        </u> )					<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1.					
2.					
= Total Cover					
% Bare Ground in Herb Stratum <u>        </u>					

Remarks:

## SOIL

Sampling Point: P1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-8	10YR 4/2	100					Most redox look relict*
8-12	2.5Y 4/3-5/3	90	7.5YR 3/3-4/6	10	C	PL,M	
12+	2.5Y 4/3	95	5Y 3/3-3/4	5	C	M	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

Remarks: \*Most redox have sharp edges rather than diffuse boundaries and are hard thick masses. Pore linings are coated with thick oxidation, rather than reduced (would indicate active reduction in pore linings). Some diffuse redox are present that total less than 2% of the matrix. Matrix chroma color is too light to meet definition of depleted matrix.

## HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present?    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe)    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators observed despite 2.39 inches of rain in the 7 days prior to site visit (Sedro-Woolley 5.1 N Station).

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Parcel P37229 City/County: Sedro-Woolley/Skagit Sampling Date: 11/20/2019  
 Applicant/Owner: Morris Nilson State: WA Sampling Point: P2  
 Investigator(s): M. Harenda/A. Wones Section, Township, Range: S23, T35N, R4E  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): MLRA2 Lat: 48.513557° Long: -122.250288° Datum: WGS 84  
 Soil Map Unit Name: Minkler silt loam NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒ , Soil ☒ , or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

## VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>20 ft dm</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1.					
2.					
3.					
4.					
		= Total Cover			<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species <u>      </u> x 1 = <u>      </u> FACW species <u>      </u> x 2 = <u>      </u> FAC species <u>      </u> x 3 = <u>      </u> FACU species <u>      </u> x 4 = <u>      </u> UPL species <u>      </u> x 5 = <u>      </u> Column Totals: <u>      </u> (A) <u>      </u> (B) Prevalence Index = B/A = <u>      </u>
Sapling/Shrub Stratum	(Plot size: <u>10 ft dm</u> )				
1.					
2.					
3.					
4.					
5.					
		= Total Cover			
Herb	(Plot size: <u>6 ft dm</u> )				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Phalaris arundinacea</u>	<u>100</u>	<u>yes</u>	<u>FACW</u>	
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
		100 = Total Cover			
Woody Vine Stratum	(Plot size: <u>      </u> )				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1.					
2.					
		= Total Cover			
% Bare Ground in Herb Stratum <u>      </u>					

Remarks:

# SOIL

Sampling Point: P2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	10YR 4/2	100					silty clay loam	
9-12	10YR 4/2	99	7.5YR 4/6	1	C	M	clay loam	1% black Mn concentrations
12-16	2.5Y 5/3	95	7.5YR 3/3-4/6	5	C	M	clay loam	Redox look relict*

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

Remarks: \*Redox have sharp edges rather than diffuse boundaries and are hard thick masses. Matrix chroma color is too light to meet definition of depleted matrix.

# HYDROLOGY

Wetland Hydrology Indicators:			Secondary Indicators (2 or more required)	
Primary Indicators (minimum of one required; check all that apply)				
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> FAC-Neutral Test (D5)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Frost-Heave Hummocks (D7)		
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> (LRR A)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)				

<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present?    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present?    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators observed despite 2.39 inches of rain in the 7 days prior to site visit (Sedro-Woolley 5.1 N Station).

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Parcel P37229 City/County: Sedro-Woolley/Skagit Sampling Date: 11/20/2019  
 Applicant/Owner: Morris Nilson State: WA Sampling Point: P3  
 Investigator(s): M. Harenda/A. Wones Section, Township, Range: S23, T35N, R4E  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): MLRA2 Lat: 48.513557° Long: -122.250288° Datum: WGS 84  
 Soil Map Unit Name: Minkler silt loam NWI classification: PEM  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒ , Soil ☒ , or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

## VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>20 ft dm</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____					
2. _____					
3. _____					
4. _____					
= Total Cover					<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species <input type="checkbox"/> x 1 = <input type="checkbox"/> FACW species <input type="checkbox"/> x 2 = <input type="checkbox"/> FAC species <input type="checkbox"/> x 3 = <input type="checkbox"/> FACU species <input type="checkbox"/> x 4 = <input type="checkbox"/> UPL species <input type="checkbox"/> x 5 = <input type="checkbox"/> Column Totals: <input type="checkbox"/> (A) <input type="checkbox"/> (B) Prevalence Index = B/A = <input type="checkbox"/>
<b>Sapling/Shrub Stratum</b>	(Plot size: <u>10 ft dm</u> )				
1. <u>Spiraea douglasii</u>		<u>50</u>	<u>yes</u>	<u>FACW</u>	
2. _____					
3. _____					
4. _____					
5. _____					
= Total Cover					<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<b>Herb</b>	(Plot size: <u>6 ft dm</u> )				
1. <u>Agrostis capillaris</u>		<u>95</u>	<u>yes</u>	<u>FAC</u>	
2. <u>Juncus effusus</u>		<u>5</u>	<u>no</u>	<u>FACW</u>	
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
= Total Cover					<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>Woody Vine Stratum</b>	(Plot size: _____ )				
1. _____					
2. _____					
= Total Cover					
% Bare Ground in Herb Stratum _____					
Remarks:					

# SOIL

Sampling Point: P3

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	10YR 4/2	100					silty clay loam	
7-9	10YR 4/2	70					silty clay loam	
	2.5Y 5/3	27	7.5YR 3/3	3	C	M, PL	sandy clay loam	Most redox look relict*
9-12	2.5Y 5/3	97	7.5YR 3/3-4/6	3	C	M, PL	sandy clay loam	Most redox look relict*
12-14	2.5Y 5/3	97	7.5YR 4/4	3	C	M	loamy fine sand	2% active redox present

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                         |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                     |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                 |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                     |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)               |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                   |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- ☐ 2 cm Muck (A10)  
☐ Red Parent Material (TF2)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☐ No ☒

Remarks: \*Most redox have sharp edges rather than diffuse boundaries and are hard thick masses. Pore linings are coated with thick oxidation, rather than reduced (would indicate active reduction in pore linings). Some diffuse redox are present that total less than 2% of the matrix. Matrix chroma color is too light to meet definition of depleted matrix.

# HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one required; check all that apply)**

- |  |   |
|--|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)   |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                              |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                               |
|  | <input type="checkbox"/> Oxidized Rhizospheres along Living                       |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Roots (C3)   |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                            |
|  | <input type="checkbox"/> Recent Iron Reduction in Tilled                          |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Soils (C6)   |
|  | <input type="checkbox"/> Stunted or Stressed Plants (D1)                          |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> (LRR A)  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)                               |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |   |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |   |

**Secondary Indicators (2 or more required)**

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Geomorphic Position (D2)  
☐ Shallow Aquitard (D3)  
☐ FAC-Neutral Test (D5)  
☐ Raised Ant Mounds (D6) (LRR A)  
☐ Frost-Heave Hummocks (D7)

**Field Observations:**

Surface Water Present? Yes ☐ No ☐ Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes ☐ No ☐ Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators observed despite 2.39 inches of rain in the 7 days prior to site visit (Sedro-Woolley 5.1 N Station).

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Parcel P37229 City/County: Sedro-Woolley/Skagit Sampling Date: 11/20/2019  
 Applicant/Owner: Morris Nilson State: WA Sampling Point: P4  
 Investigator(s): M. Harenda/A. Wones Section, Township, Range: S23, T35N, R4E  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): MLRA2 Lat: 48.513557° Long: -122.250288° Datum: WGS 84  
 Soil Map Unit Name: Minkler silt loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒ , Soil ☒ , or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

## VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>20 ft dm</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1.					
2.					
3.					
= Total Cover					<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species <input type="checkbox"/> x 1 = <input type="checkbox"/> FACW species <input type="checkbox"/> x 2 = <input type="checkbox"/> FAC species <input type="checkbox"/> x 3 = <input type="checkbox"/> FACU species <input type="checkbox"/> x 4 = <input type="checkbox"/> UPL species <input type="checkbox"/> x 5 = <input type="checkbox"/> Column Totals: <input type="checkbox"/> (A) <input type="checkbox"/> (B) Prevalence Index = B/A = <input type="checkbox"/>
<b>Sapling/Shrub Stratum</b> (Plot size: <u>10 ft dm</u> )					
1.					
2.					
3.					
= Total Cover					
<b>Herb</b> (Plot size: <u>6 ft dm</u> )					<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Juncus effusus</u>	<u>100</u>	<u>yes</u>	<u>FACW</u>	
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
= Total Cover					
<b>Woody Vine Stratum</b> (Plot size: <u>        </u> )					<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1.					
2.					
= Total Cover					
% Bare Ground in Herb Stratum <u>        </u>					

Remarks:

# SOIL

Sampling Point: P4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 4/2	100					silty clay loam	
6-9	10YR 4/2	99	7.5YR 3/3	1	C	M	clay loam	Redox look relict*
9-14	2.5Y 5/3	97	7.5YR 3/3-4/4	3	C	M	clayey sand	Most redox look relict*

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

Remarks: \*Redox have sharp edges rather than diffuse boundaries and are hard thick masses. Matrix chroma color is too light to meet definition of depleted matrix. Less than 1% of redox look active.

# HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present?    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present?    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators observed despite 2.39 inches of rain in the 7 days prior to site visit (Sedro-Woolley 5.1 N Station).

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Parcel P37229 City/County: Sedro-Woolley/Skagit Sampling Date: 11/20/2019  
 Applicant/Owner: Morris Nilson State: WA Sampling Point: P5  
 Investigator(s): M. Harenda/A. Wones Section, Township, Range: S23, T35N, R4E  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): MLRA2 Lat: 48.513557° Long: -122.250288° Datum: WGS 84  
 Soil Map Unit Name: Minkler silt loam NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒ , Soil ☒ , or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

## VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>20 ft dm</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1.					
2.					
3.					
= Total Cover					<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species <input type="checkbox"/> x 1 = <input type="checkbox"/> FACW species <input type="checkbox"/> x 2 = <input type="checkbox"/> FAC species <input type="checkbox"/> x 3 = <input type="checkbox"/> FACU species <input type="checkbox"/> x 4 = <input type="checkbox"/> UPL species <input type="checkbox"/> x 5 = <input type="checkbox"/> Column Totals: <input type="checkbox"/> (A) <input type="checkbox"/> (B) Prevalence Index = B/A = <input type="checkbox"/>
<b>Sapling/Shrub Stratum</b> (Plot size: <u>10 ft dm</u> )					
1.					
2.					
3.					
= Total Cover					
<b>Herb</b> (Plot size: <u>6 ft dm</u> )					<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Agrostis capillaris</u>	<u>65</u>	<u>yes</u>	<u>FAC</u>	
2.	<u>Plantago lanceolata</u>	<u>15</u>	<u>no</u>	<u>FACU</u>	
3.	<u>Schedonorus pratensis</u>	<u>15</u>	<u>no</u>	<u>FACU</u>	
4.	<u>Ranunculus repens</u>	<u>5</u>	<u>no</u>	<u>FAC</u>	
5.					
6.					
7.					
8.					
9.					
= Total Cover					
<b>Woody Vine Stratum</b> (Plot size: <u>        </u> )					<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1.					
2.					
= Total Cover					
% Bare Ground in Herb Stratum <u>        </u>					

Remarks:

Sampling Point: P5

## HYDROLOGY

US Army Corps of Engineers  
**Sedro-Woolley**

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Parcel P37229 City/County: Sedro-Woolley/Skagit Sampling Date: 11/20/2019  
 Applicant/Owner: Morris Nilson State: WA Sampling Point: P6  
 Investigator(s): M. Harenda/A. Wones Section, Township, Range: S23, T35N, R4E  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): MLRA2 Lat: 48.513557° Long: -122.250288° Datum: WGS 84  
 Soil Map Unit Name: Minkler silt loam NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒ , Soil ☒ , or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

## VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>20 ft dm</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. _____					
2. _____					
3. _____					
_____ = Total Cover					<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum</b> (Plot size: <u>10 ft dm</u> )					
1. _____					
2. _____					
3. _____					
_____ = Total Cover					
<b>Herb</b> (Plot size: <u>6 ft dm</u> )					
1. <u>Agrostis capillaris</u>		<u>60</u>	<u>yes</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Plantago lanceolata</u>		<u>10</u>	<u>no</u>	<u>FACU</u>	
3. <u>Schedonorus pratensis</u>		<u>20</u>	<u>yes</u>	<u>FACU</u>	
4. <u>Ranunculus repens</u>		<u>5</u>	<u>no</u>	<u>FAC</u>	
5. <u>Pteridium aquilinum</u>		<u>5</u>	<u>no</u>	<u>FACU</u>	
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
_____ 100 = Total Cover					
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. _____					<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. _____					
_____ = Total Cover					
% Bare Ground in Herb Stratum _____					

Remarks:

## SOIL

Sampling Point: P6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 3/2	100					silt loam	
12								large wood

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks

## HYDROLOGY

Wetland Hydrology Indicators:				Secondary Indicators (2 or more required)	
Primary Indicators (minimum of one required; check all that apply)					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)			
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)					
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)					

<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present?    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe)    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____				<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators observed despite 2.39 inches of rain in the 7 days prior to site visit (Sedro-Woolley 5.1 N Station).

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Parcel P37229 City/County: Sedro-Woolley/Skagit Sampling Date: 11/20/2019  
 Applicant/Owner: Morris Nilson State: WA Sampling Point: P7  
 Investigator(s): M. Harenda/A. Wones Section, Township, Range: S23, T35N, R4E  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): MLRA2 Lat: 48.513557° Long: -122.250288° Datum: WGS 84  
 Soil Map Unit Name: Minkler silt loam NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No       
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>    </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u>    </u> No <u>X</u>
Hydric Soil Present?	Yes <u>    </u> No <u>X</u>	
Wetland Hydrology Present?	Yes <u>    </u> No <u>X</u>	
Remarks:		

## VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>20 ft dm</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1.					
2.					
3.					
4.					
		= Total Cover			<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species <u>    </u> x 1 = <u>    </u> FACW species <u>    </u> x 2 = <u>    </u> FAC species <u>    </u> x 3 = <u>    </u> FACU species <u>    </u> x 4 = <u>    </u> UPL species <u>    </u> x 5 = <u>    </u> Column Totals: <u>    </u> (A) <u>    </u> (B) Prevalence Index = B/A = <u>    </u>
Sapling/Shrub Stratum	(Plot size: <u>10 ft dm</u> )				
1.					
2.					
3.					
4.					
5.					
		= Total Cover			
Herb	(Plot size: <u>6 ft dm</u> )				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants <sup>1</sup> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Agrostis capillaris</u>	<u>15</u>	<u>no</u>	<u>FAC</u>	
2.	<u>Phalaris arundinacea</u>	<u>5</u>	<u>no</u>	<u>FACW</u>	
3.	<u>Rumex crispus</u>	<u>5</u>	<u>no</u>	<u>FAC</u>	
4.	<u>Schedonorus pratensis</u>	<u>55</u>	<u>yes</u>	<u>FACU</u>	
5.	<u>Plantago lanceolata</u>	<u>15</u>	<u>no</u>	<u>FACU</u>	
6.	<u>Ranunculus repens</u>	<u>5</u>	<u>no</u>	<u>FAC</u>	
7.					
8.					
9.					
		100 = Total Cover			
Woody Vine Stratum	(Plot size: <u>    </u> )				<b>Hydrophytic Vegetation Present?</b> Yes <u>    </u> No <u>X</u>
1.					
2.					
		= Total Cover			
% Bare Ground in Herb Stratum <u>    </u>					

Remarks:

## SOIL

Sampling Point: P7

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 3/2	100					fine sandy loam	
8-15	10YR 3/2	98	7.5YR 3/3-4/6	2	C	M	loamy fine sand	Redox look relict

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☐ No ☒

Remarks: \*Most redox have sharp edges rather than diffuse boundaries and are hard thick masses.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes ☐ No ☐ Depth (inches): \_\_\_\_\_  
Water Table Present? Yes ☐ No ☐ Depth (inches): \_\_\_\_\_  
Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators observed despite 2.39 inches of rain in the 7 days prior to site visit (Sedro-Woolley 5.1 N Station).

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Parcel P37229 City/County: Sedro-Woolley/Skagit Sampling Date: 11/20/2019  
 Applicant/Owner: Morris Nilson State: WA Sampling Point: P8  
 Investigator(s): M. Harenda/A. Wones Section, Township, Range: S23, T35N, R4E  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): MLRA2 Lat: 48.513557° Long: -122.250288° Datum: WGS 84  
 Soil Map Unit Name: Minkler silt loam NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No       
 Are Vegetation     , Soil     , or Hydrology      naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>    </u>	Is the Sampled Area within a Wetland?	Yes <u>    </u>	No <u>X</u>
Hydric Soil Present?	Yes <u>    </u>	No <u>X</u>			
Wetland Hydrology Present?	Yes <u>    </u>	No <u>X</u>			
Remarks:					

## VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>20 ft dm</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1.					
2.					
3.					
= Total Cover					<b>Prevalence Index worksheet:</b> Total % Cover of: <u>    </u> Multiply by: OBL species <u>    </u> x 1 = <u>    </u> FACW species <u>    </u> x 2 = <u>    </u> FAC species <u>    </u> x 3 = <u>    </u> FACU species <u>    </u> x 4 = <u>    </u> UPL species <u>    </u> x 5 = <u>    </u> Column Totals: <u>    </u> (A) <u>    </u> (B) Prevalence Index = B/A = <u>    </u>
Sapling/Shrub Stratum (Plot size: <u>10 ft dm</u> )					
1.					
2.					
3.					
= Total Cover					
Herb (Plot size: <u>6 ft dm</u> )					<b>Hydrophytic Vegetation Indicators:</b> <u>    </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>    </u> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <u>    </u> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>    </u> 5 - Wetland Non-Vascular Plants <sup>1</sup> <u>    </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Agrostis capillaris</u>	<u>70</u>	<u>yes</u>	<u>FAC</u>	
2.	<u>Plantago lanceolata</u>	<u>15</u>	<u>no</u>	<u>FACU</u>	
3.	<u>Schedonorus pratensis</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
4.	<u>Cirsium arvense</u>	<u>5</u>	<u>no</u>	<u>FAC</u>	
5.					
6.					
7.					
8.					
9.					
= Total Cover <u>100</u>					
Woody Vine Stratum (Plot size: <u>    </u> )					<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>    </u>
1.					
2.					
= Total Cover					
% Bare Ground in Herb Stratum <u>    </u>					
Remarks:					

# SOIL

Sampling Point: P8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 3/2	100					fine sandy loam	
12-14+	10YR 4/4	100					loamy fine sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☐ No ☒

Remarks

# HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (2 or more required)

<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): \_\_\_\_\_  
Water Table Present? Yes ☐ No ☐ Depth (inches): \_\_\_\_\_  
Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators observed despite 2.39 inches of rain in the 7 days prior to site visit (Sedro-Woolley 5.1 N Station).

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Parcel P37229 City/County: Sedro-Woolley/Skagit Sampling Date: 11/20/2019  
 Applicant/Owner: Morris Nilson State: WA Sampling Point: P9  
 Investigator(s): M. Harenda/A. Wones Section, Township, Range: S23, T35N, R4E  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): MLRA2 Lat: 48.513557° Long: -122.250288° Datum: WGS 84  
 Soil Map Unit Name: Minkler silt loam NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒ , Soil ☒ , or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

## VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>20 ft dm</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1.					
2.					
3.					
4.					
		= Total Cover			<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species <input type="checkbox"/> x 1 = <input type="checkbox"/> FACW species <input type="checkbox"/> x 2 = <input type="checkbox"/> FAC species <input type="checkbox"/> x 3 = <input type="checkbox"/> FACU species <input type="checkbox"/> x 4 = <input type="checkbox"/> UPL species <input type="checkbox"/> x 5 = <input type="checkbox"/> Column Totals: <input type="checkbox"/> (A) <input type="checkbox"/> (B) Prevalence Index = B/A = <input type="checkbox"/>
Sapling/Shrub Stratum	(Plot size: <u>10 ft dm</u> )				
1.					
2.					
3.					
4.					
5.					
		= Total Cover			
Herb	(Plot size: <u>6 ft dm</u> )				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Agrostis capillaris</u>	<u>100</u>	<u>yes</u>	<u>FAC</u>	
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
		100 = Total Cover			
Woody Vine Stratum	(Plot size: <u>        </u> )				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1.					
2.					
		= Total Cover			
% Bare Ground in Herb Stratum <u>        </u>					

Remarks:

## SOIL

Sampling Point: P9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 3/2	100					silt loam	
8-12	10YR 4/2	100					loam	
12-15	10YR 4/4	97	10YR 3/6-4/6	3	C	M	loam	Redox look relict. 1% black Mn concentrations present.

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

Remarks

## HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

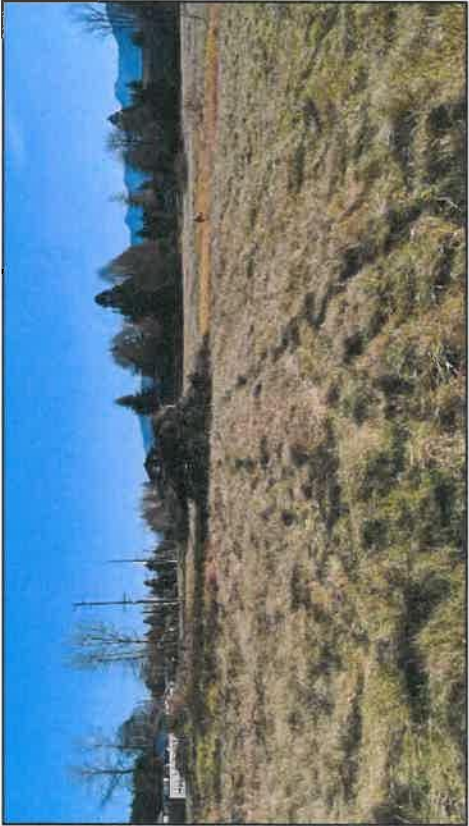



<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present?    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe)    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology indicators observed despite 2.39 inches of rain in the 7 days prior to site visit (Sedro-Woolley 5.1 N Station).

## **Appendix C: Site Photographs**

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<p>Photo 1. From near the northwest corner of the site, facing E.</p>	<p>Photo 2. From near the northwest corner of the site, facing S.</p>
	
<p>Photo 3. From near the northeast corner of the site, facing W.</p>	<p>Photo 4. From the northeast corner of the site, facing S.</p>



**Photo 5. From near the southeast corner of the site, facing W.**



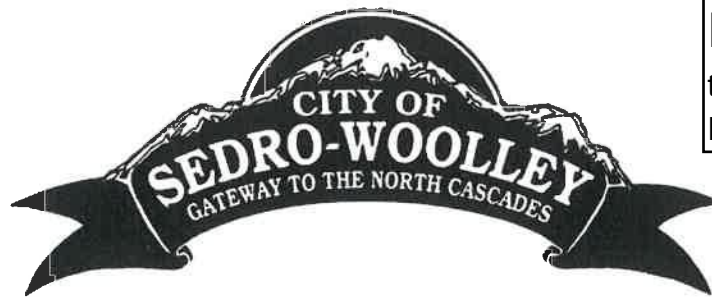
**Photo 6. From near the southeast corner of the site, facing N.**



**Photo 7. Offsite wetland located east of Parcel P37229, facing E.**



**Photo 8. Ditch between Parcel P37229 and Jones Road, facing E.**



## Exhibit E

to Hearing Examiner Staff  
Report

### SEPA

## ENVIRONMENTAL CHECKLIST

### **Purpose of checklist:**

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

### **Instructions for applicants:**

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

### **Instructions for Lead Agencies:**

Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

### **Use of checklist for non-project proposals:**

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the supplemental sheet for nonproject actions (part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

## **A. BACKGROUND**

### **1. Name of proposed project, if applicable:**

Garden Meadows – 28 lot Residential Long Plat

### **2. Name of applicant:**

Francis/Nilson

### **3. Address and phone number of applicant and contact person:**

Applicant: Francis/Nilson  
Attn: Morris Nilson  
23145 Gunderson Road  
Mount Vernon, WA 98273  
Phone: 360-840-1415  
Email: gon2mazama@aol.com

Contact Person: Heike Nelson, PE or John Ravnik, PE  
Ravnik & Associates  
P.O. Box 361/1633 Lindamood Lane  
Burlington, WA 98233  
Phone: 360-707-2048  
Email: hnelson@ravnik.net

### **4. Date checklist prepared:**

November 28, 2019

### **5. Agency requesting checklist:**

City of Sedro-Woolley Planning Department

### **6. Proposed timing or schedule (including phasing, if applicable):**

All work will be performed in one phase. Site development is anticipated to begin Spring of 2020 with project completion by Winter 2020 depending on economics, etc.

### **7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.**

No

### **8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.**

For the proposed residential development a wetland reconnaissance has been performed by Essency Environmental and a geotechnical investigation has been performed by Geotest Services. A copy of these reports are included at the end of this SEPA in appendices F and C.

**9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.**

None known of

**10. List any government approvals or permits that will be needed for your proposal, if known.**

NPDES/NOI Permit – Department of Ecology

Preliminary and Final Plat approval – City of Sedro-Woolley

Fill and Grade Permit approval – City of Sedro-Woolley

Building Permit approval – City of Sedro-Woolley

**11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)**

The project area consists of 5.9 acres, comprised of a total of one parcel, P37229, located southerly of Jones Road and northerly of F & S Grade Road in the City of Sedro Woolley, Washington. The project is located approximately 900 feet easterly from the intersection of Jones Road and F & S Grade Road. This project proposes to create a total of 28 residential lots; comprising 25 new single-family building parcels and three duplex parcels along with a 8,612 square foot open space tract as a recreational area as required by the City of Sedro Woolley. One of the proposed duplex lots will encompass the existing residence located at the southwest corner of the site. Lot areas will be a minimum of 6,000 square feet for single-family lots and a minimum of 9,000 square feet for the proposed duplex lots.

There is one residence located within the southwest corner of the subject property, having an address of 606 F & S Grade Road. This residence and associated out buildings were constructed in 1947 per County records. A residential driveway comprised of gravel proceeds northerly from F & S Grade Road to serve the existing residence. With exception of the residentially developed area in the southwesterly portion of the subject property, the site is covered in unmaintained pasture/field condition. The site topography is generally high in the properties center and gently slopes downhill to the north and south towards the adjoining roadways. There is an existing ditch located along the south side of Jones Road, along the north side of the site, that conveys flows easterly, ultimately reaching Brickyard Creek to the east approximately 2,400-feet from the northeast corner of the site. Due to the creek's northeast-southwest orientation it is only located approximately 675-feet from the project's southeast corner. Per the Forest Practices Water Typing maps Brickyard Creek has an "F" designation, denoting fish bearing. Developed runoff waters from this project will be detained and a majority of the flows will be infiltrated into the underlying soils within the project area. During larger storm events, a small amount of runoff waters will overflow from the onsite infiltration facilities be discharged into this existing ditch as allowed by DOE regulations. Refer to the accompanying Existing Conditions Plan for the terrain conditions located in appendix B.

The proposed access for this plat will be via a new two-directional public roadway to be constructed from Jones Road south to F & S Grade Road. Along with the 26-foot wide roadway surface, curb, gutter landscaping and sidewalks will be constructed along each side of the new public roadway. An exhibit noting the proposed public road cross-section is included in appendix B. This new roadway facilitates the City of Sedro Woolley's transportation plan and road design and construction costs are to be reimbursed to the project in the form of waived traffic impact fees. Other than the two duplex lots fronting F & S Grade Road, new lots will be accessed by driveways to be extended east and west of the new road.

In addition to the public roadway improvements, all other utilities necessary to serve this residential plat will be constructed including sanitary sewer, storm drainage, water, along with conduits for power, cable, telephone natural gas, and fiber optic as needed. There is an existing 8-inch sanitary sewer stubbed into the northerly

end of the subject property that will be utilized to provide sanitary sewer service to the new lots. The new sanitary sewer extension will be either 8- or 12-inch diameter. Water will be provided by the provision of an 8-inch diameter loop from the existing 8-inch waterline in Jones Road, southerly to connect to an existing 6-inch diameter waterline in F & S Grade Road. In addition an 8-inch water main will be installed from the new loop, easterly near the center of the plat, to provide service to the property to the east. For fire protection three new fire hydrants are proposed to serve the new lots within the plat. Conduits for power, cable, telephone, and likely fiber optic will be installed, along with public and private stormwater facilities will also be provided. Public stormwater facilities will include various catch basins installed throughout the proposed right of way to collect surface stormwater and convey it to an underground storm drainage piping system that will route developed runoff waters to various infiltration systems. Stormwater mitigation for each lot and future home sites will be provided by private stormwater systems located outside of the proposed right of way and potentially consisting of (1) pervious driveway sections with underlying reservoir rock, (2) impervious sections with underlying reservoir rock, and/or (3) wet/dry wells for roof water. Stormwater treatment will be achieved by use of the onsite soils via infiltration or a water quality treatment vaults as required and approved by the City and DOE.

**12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.**

The subject property has an existing address of 606 F & S Grade Road in the City of Sedro Woolley, Washington. The site is bound by Jones Road to the north and F & S Grade Road to the south with the intersection of Jones Road with Garden of Eden Road located at the north end of the property. Subdivisionally, the property is located within the northeast quarter of the northwest quarter of Section 23, Township 35 N, Range 4 E.

Accompanying this SEPA within the Preliminary Land Subdivision Application is a title report which contains the property's legal description and a copy of all easements and encumbrances upon the subject property

Refer to the Vicinity Map, Aerial Exhibit, and "Existing Conditions" exhibits attached in appendices A and B at the end of this SEPA for a visual representation of the project area.

## B. ENVIRONMENTAL ELEMENTS

### 1. Earth

#### a. General description of the site

(circle one): Flat, rolling, hilly, steep slopes, mountainous, other \_\_\_\_\_

The subject property is generally flat.

#### b. What is the steepest slope on the site (approximate percent slope)?

Other than near existing ditches along the existing roadways along the north and south sides of the site, the site's steepest slope is approximately 2-3%

#### c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

The onsite soils are identified by the NRCS Web Soil Survey as Minkler silt loam. The SCS Soils Survey for Skagit County notes this soil as being a very deep moderately well drained soils on river terraces. Per the geotechnical information provided by Geotest Engineers, the site soils generally consist of 0.75-to 1-foot of topsoil overlying a variable thickness of medium stiff, tan, sandy, silt with rootlets. Below the silt, from 1 to 4-feet below ground surface (BGS), subsurface soils ranged from sandy silts to very silty sands to poorly graded sands. Per Geotest, the variable silty sands and sandy silts are representative of interbedded, fluvial sands and silts. The geotechnical investigation notes use of an infiltration rate of 1.05 inches per hour at depths of approximately 3 to 6-feet BGS. A larger infiltration rate may be determined with future geotechnical studies.

There is no known classification of agricultural soils or any soils onsite that are of long-term commercial significance.

#### d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

No

#### e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

Within this project, approximately 785 lineal feet of new public roadway construction with sidewalks on each side will be constructed within the proposed right of way area. Topsoil materials will be removed prior to the placement of the structural fill as applicable for the road and sidewalk base, and landscape areas. For the purposes of public right of way construction, approximately 2,300 cubic yards of organic topsoil materials will be excavated and approximately 1,700 cubic yards of gravel structural fill/rock will be imported for the roadway and sidewalk construction, including gravels for a 10-foot wide asphalt walking path to be constructed south of Jones Road, along the north side of the project area.

Within the 28 new lot areas, it is anticipated that up to 12-inches of topsoil and organic soils will be stripped from the residential lots for the construction of new homes ranging in size from 3,200 sf to 5,000 sf on duplex lots and new driveway areas. This material which constitutes approximately 5000 – 5500 cubic yards of material that potentially will be stock piled onsite for use in common lot fill within landscape/lawn areas. For private driveways on the lots, it is estimated up to 12-inches of structural rock will be imported, totaling approximately 475 cubic yards.

Construction of the proposed detention/infiltration systems will involve excavating through organic top soil materials and underlying soil materials. Unused volumes of this soil will be hauled offsite to a legally approved disposal site. Approximately 475 cubic yards of additional excavation of underlying silty sand materials will be removed for the construction of the public and private stormwater detention/infiltration systems. These areas will be back-filled with approximately 375 cubic yards of imported clean reservoir rock/drainrock.

Trenching for utilities to serve the site such as storm drainage piping, sanitary sewer, and waterline are estimated to generate 2,700 cubic yards of excavation and require approximately 2500 cubic yards of structural fill, bedding and cover.

Structural fill is anticipated to consist of gravel borrow, obtained from a Skagit County gravel source for under the public improvements, and a structural reservoir rock beneath the driveway areas. All excavated topsoil materials will be saved and used as common lot grading as needed. Unneeded or unacceptable soils will be hauled off to a legally approved disposal site. The use of the excavated topsoil materials for common grading will not be recognized as any form of a structural fill. Common lot fills will have to be excavated through for the construction of residential foundations.

All quantities as noted are assumed to be "in place" volumes.

**f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.**

Yes, as soils are exposed to rainfall impacts, erosion can occur, however erosion control measures will be implemented during construction to assure site erosion impacts are mitigated.

**g. About what percent of the site will be covered with Impervious surfaces after project construction (for example, asphalt or buildings)?**

Within this project area encompassing a total of 5.9 acres, impervious improvements are recognized as roadways, walking paths, and onsite residential improvements. Combined, the proposed roads and walking paths in the public rights of way equate to approximately 0.79-acres. Based on each single-family residential lot having approximately 3,200 square feet of building, each duplex lot having 5,000 square feet of building, along with the shared driveways as shown, a total residential impervious lot cover is anticipated to be approximately 2.43 acres. In summary, the combined impervious areas could equate to approximately 55 or 60% of the subject property, depending on individual site development.

**h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:**

During the site development activities, rainfall runoff from disturbed areas will likely be directed towards a temporary open ditch, which will provide a facility for rainfall waters to collect, sediment to settle out, and water to soak into the ground. If necessary, a temporary outfall can be made available to the adjacent roadside ditch. Provisions will be incorporated into the site's erosion control plan to assure any waters leaving the site will be filtered before they are discharged. Silt fences, temporary scratch ditches, and other measures will also be implemented where effective.

**2. Air**

**a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.**

During the plat's construction activities, there will be equipment operating such as bulldozers, excavators, and dump trucks. This equipment will be maintained during construction for its optimum performance. There will not be any burning performed during any of the construction activities. Upon the project's completion, the only emissions generated will be from vehicles entering and exiting the residential plat and from the residential grade heating systems. The design of residential heating systems will conform to City of Sedro Wooley regulations.

**b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.**

No.

**c. Proposed measures to reduce or control emissions or other impacts to air, if any:**

During construction, construction equipment will be maintained. The design of residential heating systems will conform to City of Sedro Woolley regulations.

**3. Water**

**a. Surface Water:**

**1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.**

There are no streams, saltwater, lakes, ponds or wetlands within the subject property. Along the north side of the site (south of Jones Road) there is an existing ditch that conveys runoff waters easterly ultimately reaching Brickyard Creek located approximately 2,400 feet to the east. There is a depressed ditch area along the south side of the site, north of F & S Grade Road. No waters have been observed in the southerly ditch, however there is a storm drain outlet that extends southerly, below F & S Grade Road which indicates at least periodic flows that likely also contribute to Brickyard Creek southerly, or southeasterly of the site, 800-900 feet. Brickyard creek is classified as a type "F" stream, for fish bearing. Offsite east of the subject property there is an existing wetland that has been identified by a plat application on the property to the east and is noted as a Category III wetland with a 50-foot buffer by ATSI in the offsite application. This area is approximately 100-feet easterly of the subject property, and thus the 50-foot buffer does not extend onto this project.

**2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.**

No work will be performed within any stream, saltwater, lake, pond or wetland. New 12 or 18-inch diameter drainage culverts will be installed in line with existing roadside ditches below the new road as needed to not obstruct existing flows within the roadside ditches. No work will be done within any wetland area.

**3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.**

No fill or dredge material will be placed or removed within any stream, saltwater, lake, pond or wetland.

**4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.**

No this project will not require any surface water withdrawals or diversions.

**5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

No this proposal is not located within a 100 floodplain.

**6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.**

No. The proposed residential plat will be served by a public sanitary sewer system and runoff waters will be treated before being discharged via infiltration or into the adjacent drainage course.

**Ground Water:**

**7) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.**

No ground water will be withdrawn as part of this project. Storm water runoff from this residential development will be collected and routed to infiltration trenches, or mitigated by use of a pervious pavement section where infiltration will occur. As noted in the accompanying Geotechnical Investigation, the underlying soils have also been examined for their ability to sufficiently provide treatment during the course of infiltration to include proper cation exchange and organic content. If the existing soils below infiltration or pervious pavement facilities are found to not have suitable properties for water treatment, the onsite soils will be blended to achieve the required criteria. A 6-inch depth of sand or 12-inch section of water quality soils will be used under pervious pavement sections and an 18-inch depth of water quality soils will be used below infiltration trenches as required by the DOE Stormwater Manual.

Depending on timing and depths of groundwater at the time of construction, deep sanitary sewer installation may require dewatering.

**8) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.**

No waste materials will be discharged into the ground.

**b. Water runoff (including stormwater):**

**1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.**

Please refer to the accompanying Preliminary Drainage Analysis Report in Appendix D.

**2) Could waste materials enter ground or surface waters? If so, generally describe.**

No. The only "waste material" associated with this project is residential grade sewage waste which will be managed by a new sanitary sewer system connected to the City's sewer system. Storm water runoff will be purposely conveyed to the proposed detention/infiltration facilities where a majority of runoff will be infiltrated into the underlying soils. The underlying soils will be further examined to assure there are suitable soils below infiltration areas to provide treatment. If soils are found insufficient for water quality at design depths, an engineered soil will likely be blended onsite to achieve the required type and depth of soils required by DOE.

**3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.**

No changes to the existing drainage facilities other than the collection of onsite stormwater and its controlled release which will meet requirements of the 2014 DOE Stormwater Manual as required by the City of Sedro Woolley. This project proposes to infiltrate a majority of the stormwater runoff into the underlying soils, with only a small amount of controlled release, as allowed by DOE, being allowed to overflow northerly to the existing ditch along the south side of Jones Road. Refer to the attached Preliminary Drainage Analysis in appendix D for a more detailed description of the stormwater facilities for this project.

**c. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:**

Storm water detention and treatment facilities will be designed and constructed per the 2014 DOE Stormwater manual standards. The design and function of this facility will be reviewed and approved by the City of Sedro Woolley.

**4. Plants**

**a. Check the types of vegetation found on the site:**

- ☒ **deciduous tree: alder, maple, aspen, other**  
☒ **evergreen tree: fir, cedar, pine, other**  
☒ **shrubs**  
☒ **grass**  
☒ **pasture**  
☐ **crop or grain**  
☐ **orchards, vineyards or other permanent crops.**  
☐ **wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other**  
☐ **water plants: water lily, eelgrass, milfoil, other**  
☒ **other types of vegetation**

**b. What kind and amount of vegetation will be removed or altered?**

A majority of the existing trees onsite are located in the southwest corner of the site, where the existing residence is proposed to remain. During the proposed plat construction, the trees within the site that are within the areas where construction will occur will be removed. Other trees onsite will likely be removed for home sites and based on health, size and how they fit into the final landscape of the project. Construction of all roads, sidewalks, driveways, utility corridors, and the detention facilities will involve the removal of surface vegetation. It is assumed that a majority of the 5.9-acres of the site will be cleared eventually to allow for new residential development. The vast majority of the vegetation being removed will be either long grass or pasture.

**c. List threatened and endangered species known to be on or near the site.**

There are no known endangered species on or near the site.

**d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:**

None other than typical street front landscaping and landscaping in the open space recreation area as required by the City and future residential landscaping as each home is constructed. A landscape exhibit has been included within the attached preliminary plat documents, with a final more detailed landscape plan to be provided with construction plans.

**e. List all noxious weeds and invasive species known to be on or near the site.**

There are no known noxious weeds nor invasive plant species on or near the site.

**5. Animals**

**a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include:**

birds: hawk, heron, eagle, songbirds, other: mammals: deer, bear, elk, beaver, other:  
fish: bass, salmon, trout, herring, shellfish, other \_\_\_\_\_

**b. List any threatened and endangered species known to be on or near the site.**

None known of.

**c. Is the site part of a migration route? If so, explain.**

Many parts of Skagit County are located within the Pacific Flyway. It is very likely that the subject property and the surrounding agricultural lands are located within a migration route.

**d. Proposed measures to preserve or enhance wildlife, if any:**

The proposed detention/infiltration pond associated with this project will provide an increase in stormwater infiltration to promote groundwater recharge and will also provide for a clean overflow/discharge of storm runoff waters into the existing drainage ditch paralleling the northerly side of the subject property. New trees and landscaping will also be planted with this project.

**e. List any invasive animal species known to be on or near the site.**

None are known.

**6. Energy and natural resources**

**a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.**

Both electricity and natural gas are anticipated to be used for heating and cooling purposes within the single family and duplex homes associated with this project.

**b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.**

There are no aspects of this proposed residential development that will have a negative impact on the potential use of solar energy by adjacent properties because of the surrounding terrain.

**c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:**

All residential development will have to conform with the International Building Code and Energy Code provisions there in.

**7. Environmental health**

**a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.**

There are no known environmental health hazards anticipated to occur as a result of this residential development proposal.

**1) Describe any known or possible contamination at the site from present or past uses.**

Per Skagit County's iMap, the site has been in a pasture condition since before 1937, likely used for agricultural purposes. The existing onsite residence was constructed in approximately 1947. There is no evidence of any contamination onsite from the past uses.

**2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.**

There are no known hazardous chemicals or conditions that may affect this proposed residential development. Along the north side of the subject property there is an 8-inch diameter high pressure gas line. This gas line is located within the Jones Road right of way, thus no development of residential homes will occur within this area, however this gas line will have to be crossed with new waterline and the stormwater outfall pipe.

**3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.**

There will not be any, nor will there be any need for any toxic or hazardous chemicals to be used during the construction of this residential plot beyond what is commonly used. At such time as residences are constructed on this property, the only anticipated chemicals would be common household cleaning and yard maintenance solutions.

**4) Describe special emergency services that might be required.**

No special emergency services are anticipated for the residential uses proposed herein. During construction, operators of the gas pipeline will be notified and involved.

**5) Proposed measures to reduce or control environmental health hazards, if any:**

During construction, operators of the gas pipeline will be notified and involved.

**b. Noise**

**1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?**

There are no existing noises in the area that will negatively impact the functionality of this proposed residential plat.

**2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.**

During the construction activities, which are anticipated to take approximately 4-6 months for this residential plat infrastructure, there will be noises from common construction equipment such as dump trucks, excavators, vibratory rollers, and other equipment. During the period when individual residential homes are constructed, there will be common noises generated by backhoes, saws, and hammering. During the residential plat infrastructure construction, work will likely occur from approximately 7:00 am to 6:00 pm Monday – Friday. These are also common work hours for the individual residential home construction period. Upon complete build-out of this residential plat, typical noises will be vehicles entering and exiting the residential plat and children playing outdoors.

**3) Proposed measures to reduce or control noise impacts, if any:**

None

**8. Land and shoreline use**

**a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.**

The subject property contains approximately 5.9 acres with an existing single-family residence and associated out buildings located in the southwest corner of the property. Outside of the residentially 0.6-acres of developed area, the remainder of the property is in a long grass/pasture condition, likely historically used for agricultural activities. For the purposes of this residential platting, at completion the total 5.9 acres will comprise the following: 4.1 acres to encompass proposed 28 new lots, 1.0 acres to be dedicated to the City of Sedro Woolley as public right of way, 0.2 acres to be assigned to an open space lot for recreation. In the short term it is anticipated that the existing single family residence onsite will remain and consume one of the proposed duplex lots, however in the future it is likely the house will be removed for construction of a duplex building. All historical and present agricultural activities will no longer be conducted on the property. Refer to the project lot layout is appendix B at the end of this document.

Adjoining uses to the north, east, west, south sides of this project area are all residential in nature. None of these development activities nor the long term residential occupancy is anticipated to negatively impact any surrounding properties.

**b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?**

The 5.3-acres of the subject property area outside of the currently 0.6-acres of residentially developed property area in the property's southwest corner has likely historically supported agricultural activities. There has never been any known working forest land on the subject property. This subject property will support a total of 28 residential lots, with 0.20-acres set aside as an open space tract for recreation, and a public right of way to be dedicated to the City for the roadway and sidewalk improvements. The entire subject property is zoned R-7 Residential and the proposed use herein is consistent with the permitted uses within the zoning code. The subject property is not designated as a natural resource land.

**1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:**

Abutting the project area, there are no working farm nor any working forest land areas. The development and occupancy of this residential plat will not be negatively affected nor will it have a negative effect on agricultural farm activities.

**c. Describe any structures on the site.**

There is one single family residence located onsite adjacent to the south property line, in the subject property's southwest corner. Per Skagit County records, this residence was constructed in 1947. The proposed lot layout has been designed to encompass the existing residential structure on one lot, and it does not require removal for the construction and approval of these plat improvements.

**d. Will any structures be demolished? If so, what?**

One small out building and a shed will be removed for the plat, refer to the attached Existing Conditions plan.

**e. What is the current zoning classification of the site?**

The site is currently zoned R-7, Residential

**f. What is the current comprehensive plan designation of the site?**

Residential 7

**g. If applicable, what is the current shoreline master program designation of the site?**

Not applicable.

**h. Has any part of the site been classified as a critical area by the city or county? If so, specify.**

No.

**i. Approximately how many people would reside or work in the completed project?**

The full build-out of the subject property will not employ any individuals however, based on the total of 25 single family residential lots and three duplex lots and 4 people per home, there will be approximately 124 people residing in this residential plat.

**j. Approximately how many people would the completed project displace?**

None.

**k. Proposed measures to avoid or reduce displacement impacts, if any:**

No impacts so no measures are necessary.

**l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:**

Development of the subject property for a residential plat is an outright permitted use within City of Sedro Wooley R-7 Residential zoning code. This project will be publicly advertised and notices sent to all surrounding property owners within 500'. The public hearing process conducted for this project will allow surrounding property owners to participate and comment upon this residential plat.

**m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:**

There are no forest land activities or agricultural activities located in the immediate vicinity of this project.

**9. Housing**

**a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.**

There is currently one middle income residence on the subject property which is to remain currently, to be removed in the future. This project is estimated to create an additional 30 middle income housing units (including three duplex units) on a total of 28 total lots.

**b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.**

None, other than the removal of the small out building and shed noted on the existing conditions exhibit.

**c. Proposed measures to reduce or control housing impacts, if any:**

No impacts therefore no measures needed.

## **10. Aesthetics**

### **a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?**

The proposed residences herein will be 1 and 2 story. For a 2-story single family residence, a structure height of approximately 24 to 26-feet is anticipated. All residences will have some form of siding.

### **b. What views in the immediate vicinity would be altered or obstructed?**

With the reasonably flat land topography, views will change from a pasture view to a neighborhood.

### **c. Proposed measures to reduce or control aesthetic impacts, if any:**

The intended middle income level of residential homes will be designed with paint colors and landscape features incorporated into future lot development and that will complement each lot's residential development as decided upon by the future lot owner and City.

## **11. Light and glare**

### **a. What type of light or glare will the proposal produce? What time of day would it mainly occur?**

Street lights will be installed along the public right of way as dictated by Puget Sound Energy and Into Light. Each residence will also have some lights attached to the outside of their home for safety and access purposes. The street lights and exterior residential lighting will likely be on only during the evening hours when it is dark.

### **b. Could light or glare from the finished project be a safety hazard or interfere with views?**

In between the right of way lighting in the front of new homes, the structure of the new home will block much of the light that would otherwise cast upon existing residentially developed areas to the east and west. All street lighting will be hooded to direct the light down upon the driving surfaces. No lighting will be directed upwards.

### **c. What existing off-site sources of light or glare may affect your proposal?**

None.

### **d. Proposed measures to reduce or control light and glare impacts, if any:**

Street lights, which are the brightest light within this project, will be hooded and directed to cast their light down upon the underlying drive surface and sidewalks. Individual house-mounted lighting will be significantly less bright than street lights, and will not create any impact on surrounding properties.

## **12. Recreation**

### **a. What designated and informal recreational opportunities are in the immediate vicinity?**

None other than the provision of the open space tract for a residential recreation area and its associated amenities.

### **b. Would the proposed project displace any existing recreational uses? If so, describe.**

No

**c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:**

None as no impact is anticipated

**13. Historic and cultural preservation**

**a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.**

The single onsite residential structure located within the southwest corner of the subject property was constructed in 1947 per Skagit County records. This structure is not listed in nor eligible for listing in any national, state, or local preservation registers. Based upon a review of Skagit County records for homes that were constructed on the adjacent offsite properties, the oldest home constructed was in 1910 with other surrounding residences as new as 2018. None of the surrounding or nearby structures are classified as Registered Properties per the attached Department of Archaeology and Historic Preservation Map included in appendix E of this SEPA.

**b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.**

There are no known landmarks, features or other evidence of Indian or historic use occupation on this site. Additionally, there is no known material evidence, artifacts, or areas of cultural importance on or near the site. We are unaware of any professional studies performed on this or nearby sites regarding this issue.

**c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.**

Department of Archaeology and Historic Preservation Map was reviewed and per the attached historic GLO Map and DAHP map the only noted archaeological information is noted as "Combined" approximately 1.5 miles southwesterly of the project site. Refer to DAHP maps attached.

**d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.**

The extent of investigation with the DAHP has not resulted in any archeological evidence on the property. None the less, if any potential evidence is encountered during site development, work will be halted and local authorities will be contacted.

**14. Transportation**

**a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.**

This project will provide for a 63 to 65-foot wide right of way to encompass the extension of Garden of Eden Road from the north side of the site, from Jones Road southerly to the south side of the site making the connection to F & S Grade Road. This new public roadway improvement is part of the Jones/John Liner/Trail Road Corridor project on the City's Capitol Facilities Plan and its design and construction costs will be eligible for traffic impact fee credits at project completion. The new public road will be approximately 800 feet in length and will contain two 13-foot wide driveways, with adjoining landscape strip, and sidewalk on each side. This road's section has been coordinated with the City and will be constructed to current City of Sedro Woolley standards. This roadway extension will facilitate the City's overall transportation flow from Jones Road to F & S Grade Road, and in the future is anticipated to provide access further south, out to Highway

9. The road location at the north and south ends of the site have preliminarily been located to facilitate two new roundabouts that are proposed by the City at the Jones Road intersection and F & S Grade Road intersection.

**b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?**

No the site is currently not served by public transit.

**c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?**

This residential plat project does not create any specific parking spaces nor will it eliminate any. Within the proposed two lane road contained within the proposed right of way, no on-street parking is proposed. Private driveways are proposed to serve each lot to provide vehicle egress without having to back out onto the new public road. All parking will be provided upon each individual residential lot as it is developed.

**d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).**

The road proposed within this residential plat will be contained within a right of way dedicated to the City of Sedro Woolley. The proposed road will be bordered by a 5-foot wide sidewalk on one side and a 10-foot wide sidewalk along the other, both segregated from the drivelane by a landscape strip as represented on the accompanying Preliminary Developed Conditions Plan. In addition, an asphalt pedestrian walking path will be constructed northerly of the north property line, along the south side of Jones Road. This path is an extension of an existing walking path to the east of the site. New streets will be constructed per the road cross sections provided on the Preliminary Developed Conditions Plan. To date, through coordination with the City of Sedro Woolley, no improvements to offsite roads have been required as the City has large scope projects proposed at each of this project's connecting intersection in the form of new roundabouts, road widening, etc. Refer to the attached preliminary overall site plan, along with preliminary plan and profile sheets attached in appendix B of this SEPA.

**e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.**

This residential plat will not benefit nor occur in the immediate vicinity of water, rail or air transportation.

**f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?**

Based on a total of 25 single family residential lots and three duplex lots, by utilizing the Institute of Transportation Engineers Trip Generation manual, seventh addition, each single family detached house will generate approximately 9.5 trips per day and each duplex lot is assumed to generate 19 trips per day, for an estimated total of approximately 295 vehicle trips per day for all lots herein. With the development herein proposing middle income housing, most individuals will work. As such, the peak hour traffic will generally be in the afternoon between approximately 5:30 pm and 6:30 pm. Based upon the ITE manual, each unit will generate approximately 1 peak hour trip. For this residential plat, a total of approximately 31 peak hour trips will be generated each weekday afternoon sometime between 4:00 pm and 6:00 pm (one of these trips is existing due to the one residence currently onsite). Due to the residential nature of this project, generally vehicles will be cars and pickups. Other than having occasional services provided to any of the residences, the peak hour traffic will not contain any significant quantity of commercial vehicles.

**g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.**

Agricultural activities are not believed to generate any significant quantity of vehicle and equipment movement on the public road system in this area of Sedro Woolley. There are no forest related activities conducted in the area of this project. This project is not anticipated to have a negative effect nor be negatively affected by the movement of agricultural equipment on the surrounding road network.

**h. Proposed measures to reduce or control transportation impacts, if any:**

This project's proposed new public roadway connection from Jones Road south to F & S Grade Road is anticipated to improve the City's overall road network.

**15. Public services**

**a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.**

As with the addition of new residences to any community, there will be an increased need for fire protection, police protection, healthcare, and schools. On the basis that each residence provides 1.5 children to the Sedro Woolley School District, full build-out of this project could generate approximately 47 new children to the school district.

**b. Proposed measures to reduce or control direct impacts on public services, if any.**

Impact fees regulated by the City of Sedro Woolley for public services and schools will be paid at the time of residential building permit issuance to mitigate impacts on schools.

**16. Utilities**

**a. Circle utilities currently available at the site:**

electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other \_

**b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.**

Wire utilities comprising electricity, telephone, television cable, natural gas, and fiber optic will be installed underground to serve this residential plat from existing utilities available in the Jones Road and/or F & S Grade Road. Water for fire protection and domestic water services will involve the installation of water lines up to eight-inches in diameter through this residential plat. In addition an eight-inch waterline will be extended easterly about midway through the plat easterly to proposed additional system connections as requested by Skagit PUD. There is an existing eight-inch sewer stub extending southerly into the subject property from an existing sanitary sewer manhole in Jones Road. Sanitary sewer piping, likely 8-inch diameter (not to exceed 12-inch) will be extended southerly through the site to collect and convey effluent from new lots downhill northerly to the City of Sedro Woolley's sewer system located within Jones Road. For the purposes of storm drainage, up to 18-inch pipe diameter may be used in the plat and as necessary for the road crossings over the ditch along the north and south sides of the subject property.

### C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

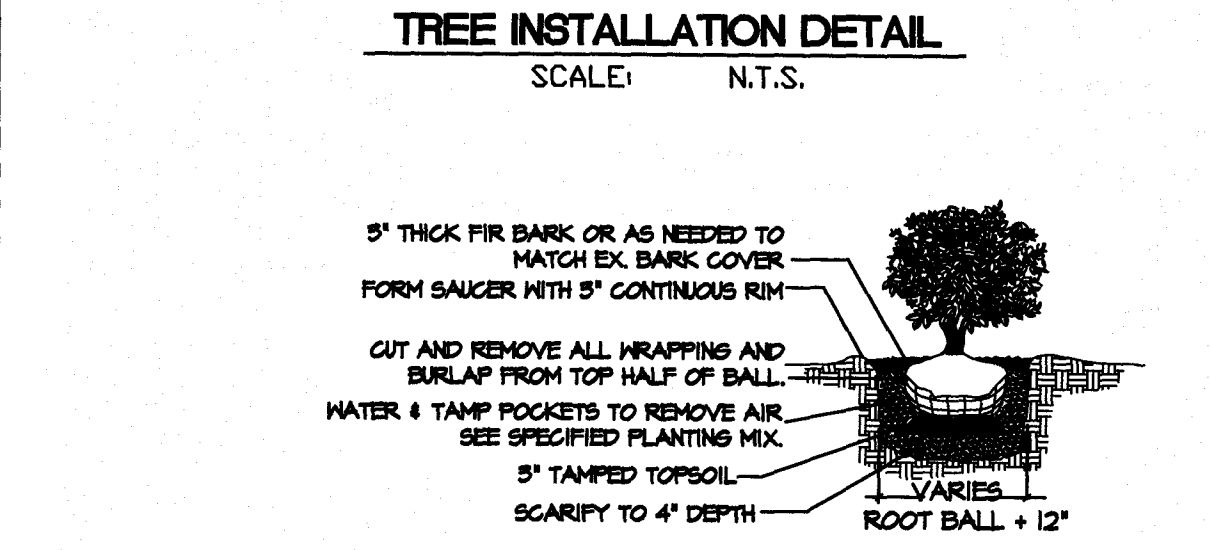
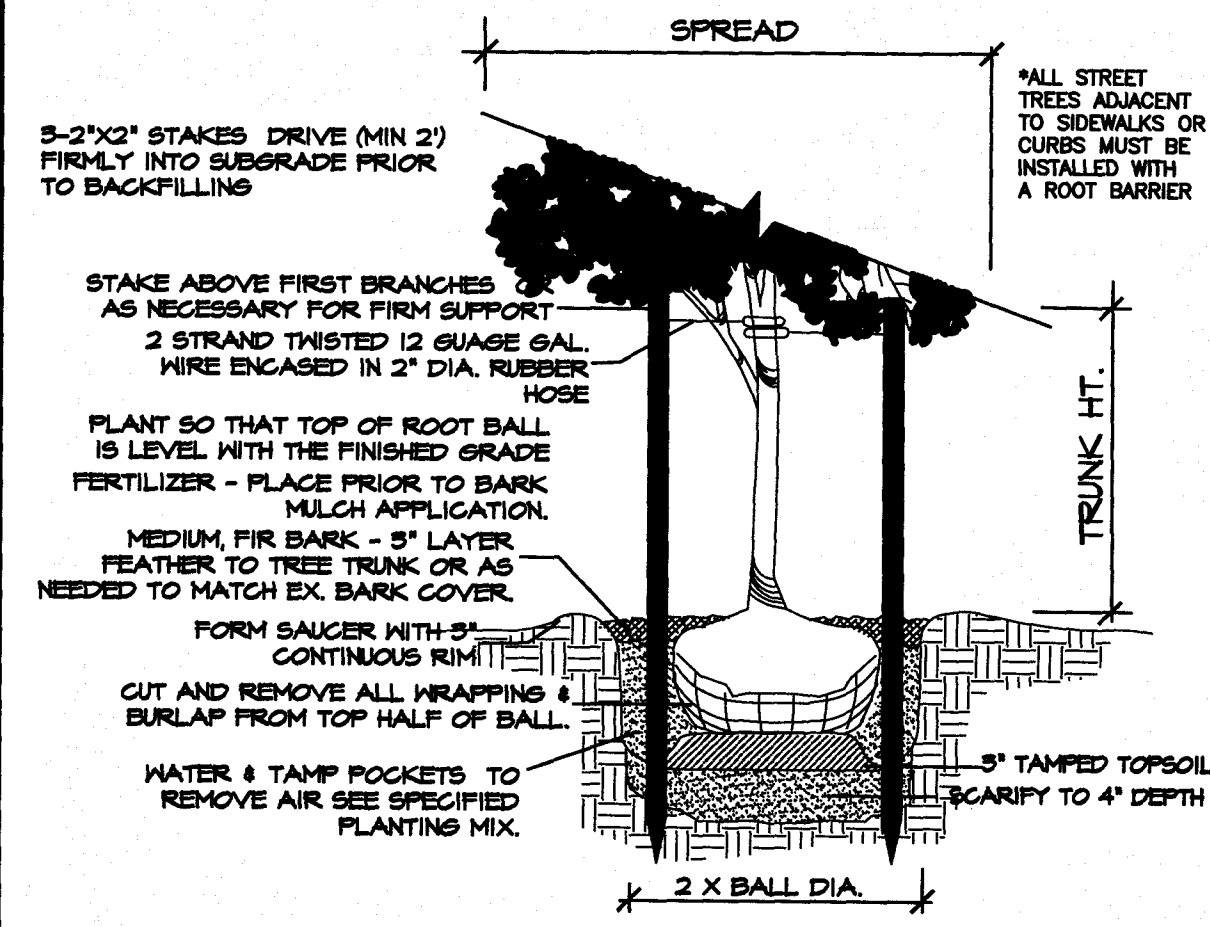
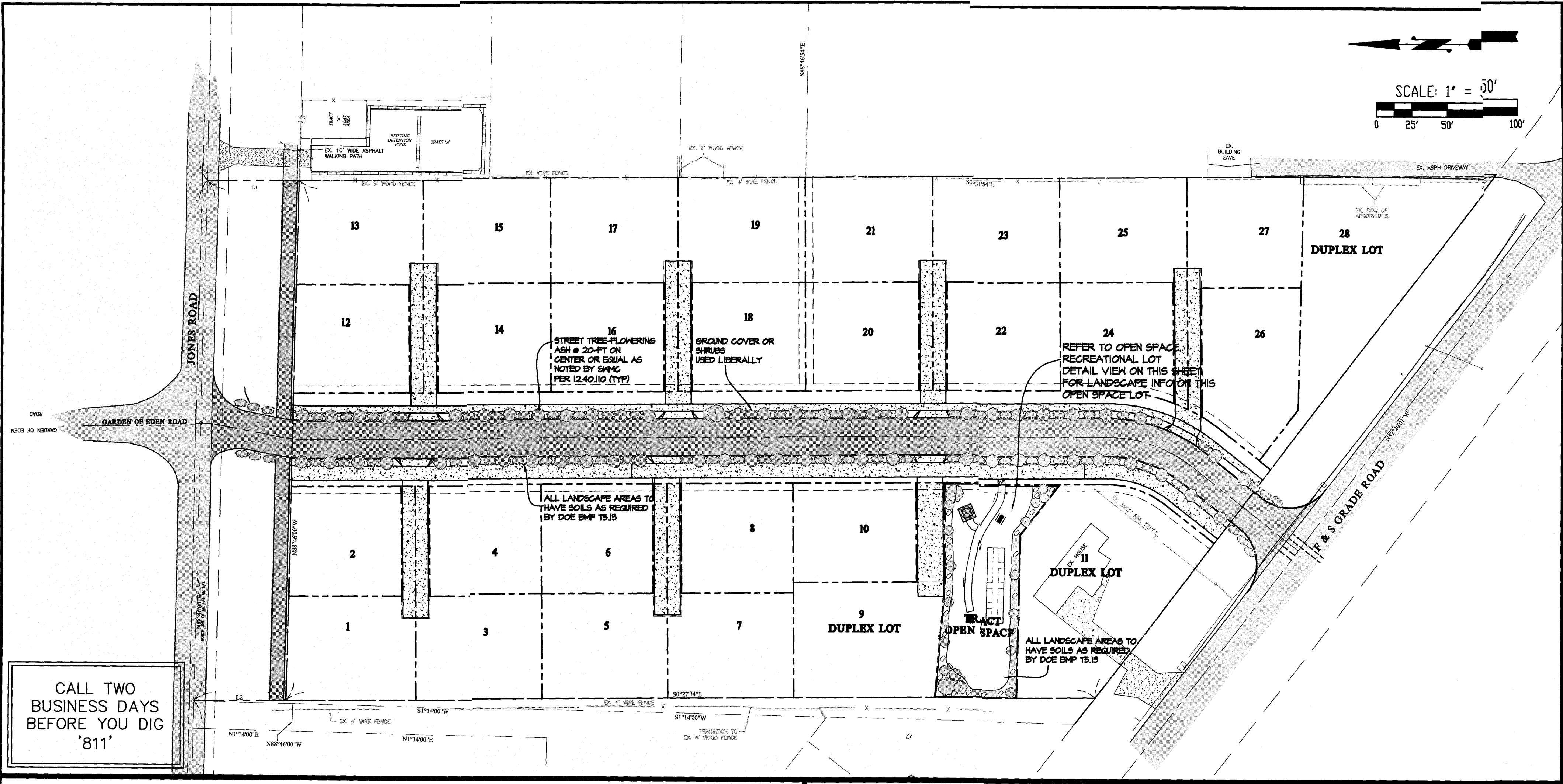
Signature: \_\_\_\_\_

Name of signee \_\_\_\_\_

Position and Agency/Organization \_\_\_\_\_

Date Submitted: \_\_\_\_\_

MORRIS NELSON  
12/3/19



LANDSCAPE DETAILS  
N.T.S.

REV. NO.	REVISION	DATE	BY	APPROVED

**Ravnik & Associates, Inc.**  
CIVIL ENGINEERING & LAND-USE PLANNING  
1633 LINDAMOOD LANE/P.O. BOX 361  
BURLINGTON, WA 98233  
PH: (360) 707-2048 FAX: (360) 707-2216

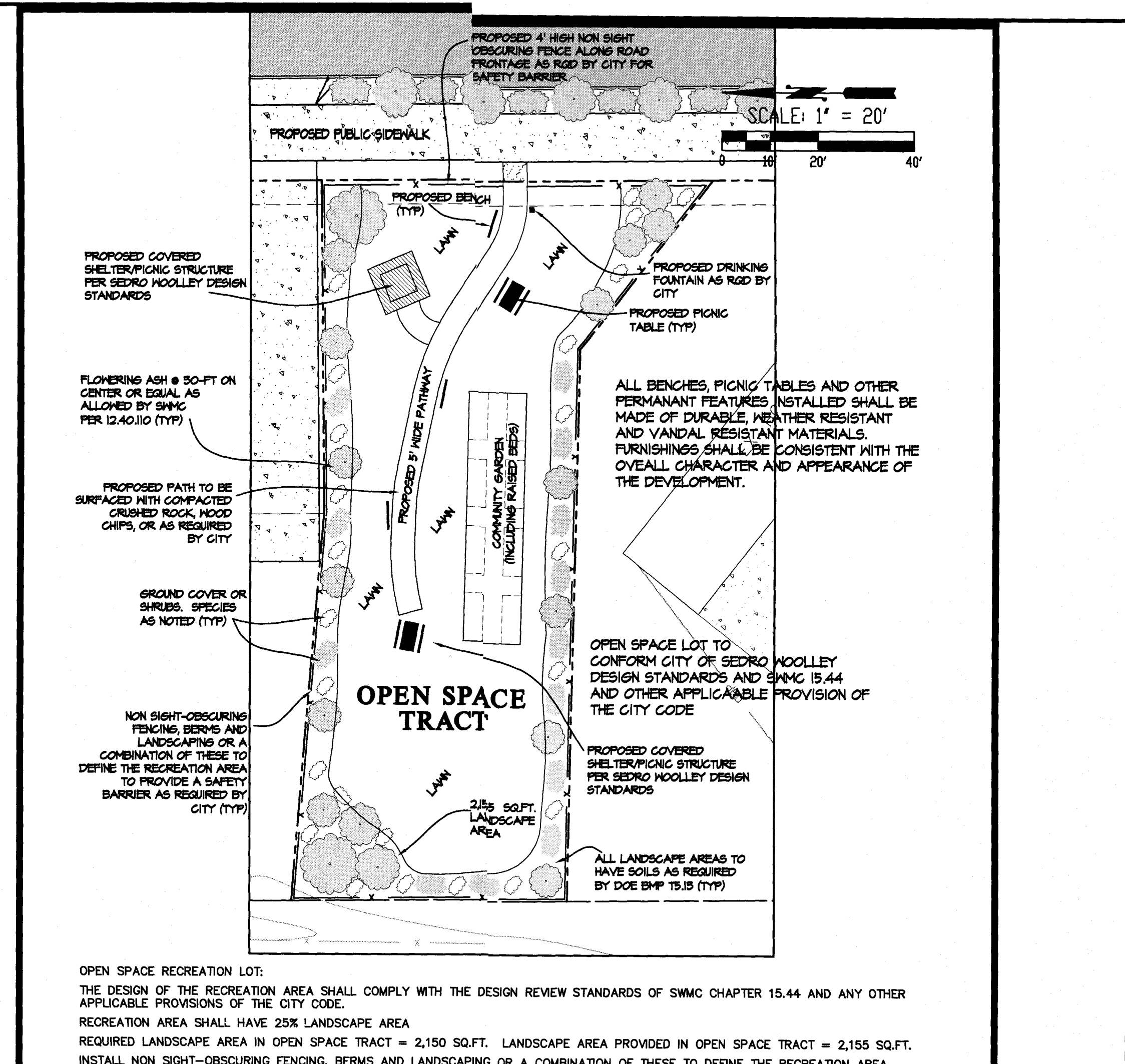
SHEET DESCRIPTION:

# PRELIMINARY LANDSCAPE EXHIBIT

City Council Packet

## MINIMUM LANDSCAPING SITE REQUIREMENTS PER CITY OF SEDRO-WOOLLEY

- PER SWMC 17.50.040
- IN NO CASE SHALL THE TOTAL AMOUNT OF LANDSCAPING BE LESS THAN TEN PERCENT OF THE TOTAL SITE AREA. FOR SUBDIVISIONS, THE TOTAL AMOUNT OF LANDSCAPING SHALL BE NOT LESS THAN 10% PERCENT OF THE COMBINED NET LOT AREA PLUS 10% OF THE SITE OPEN SPACE. DEVELOPMENTS MAY INCLUDE ANY CRITICAL AREA AND/OR SHORELINE BUFFER AREAS WHEN CALCULATING LANDSCAPE AREA IF NATIVE VEGETATION IS ENHANCED.
- LANDSCAPE MATERIAL SPECIFICATIONS (PER SWMC 17.50.070)
- THE APPLICANT SHALL UTILIZE PLANT MATERIALS THAT COMPLEMENT THE NATURAL CHARACTER OF THE PACIFIC NORTHWEST THAT ARE DROUGHT TOLERANT AND ARE ADAPTABLE TO THE CLIMATIC, TOPOGRAPHIC, AND HYDROLOGIC CHARACTERISTICS OF THE SITE.
  - THE APPLICANT SHOULD UTILIZE PLANT MATERIALS THAT REDUCE OR ELIMINATE THE NEED FOR FERTILIZERS, HERBICIDES, OR OTHER CHEMICAL CONTROLS.
  - STREET TREES SHALL BE PROVIDED AS FOLLOWS:
    - MINIMUM PLANTING WIDTH: TEN FEET;
    - MAXIMUM SPACING. TREES SHALL BE PLANTED AT AN AVERAGE OF THIRTY FEET APART, WITH GROUND COVER OR SHRUBS USED LIBERALLY;
    - PLANT VARIETIES. TREES UTILIZED IN THIS AREA SHALL BE OF VARIETIES THAT DO NOT CONFLICT WITH UNDERGROUND AND OVERHEAD UTILITIES. THESE TREES MAY BE SELECTED FROM THE CITY'S SUGGESTED LIST OF PLANT MATERIALS, OR AN APPROVED EQUIVALENT.
  - ALL PLANTINGS SHALL HAVE THE FOLLOWING MINIMUM SIZE AT INSTALLATION:
    - DECIDUOUS TREES: THREE-INCH CALIPER;
    - EVERGREEN TREES: SIX-FOOT MINIMUM HEIGHT RANGE;
    - VINE MAPLES AND OTHER MULTI-STEMMED TREES: SEVEN-FOOT MINIMUM;
    - MEDIUM AND TALL SHRUBS: TWENTY-FOUR- TO THIRTY-INCH MINIMUM RANGE;
    - GROUND COVER: FOUR INCHES (APPROXIMATELY EIGHTEEN INCHES ON CENTER);
    - SHALL NOT INTERFERE WITH SIGHT DISTANCE;
    - SHALL NOT BE INSTALLED WITHIN THREE FEET OF BACK OF CURB FOR SPEED LESS THAN THIRTY-FIVE MPH
- TREE PLANTING IN RIGHTS-OF-WAY (PER SWMC 12.40.090)
- OTHER THAN DISTANCES NOTED ABOVE FROM STREET CORNERS AND UTILITIES, DEVELOPERS SHALL PLANT TREES SHALL BE PLANTED IN THE PUBLIC RIGHT OF WAY EVERY TWENTY FEET (AT A MINIMUM DEPENDING ON THE SIZE OF THE TREE) WITH GROUND COVER OR SHRUBS TO BE USED LIBERALLY.
- PROHIBITED TREES (PER SWMC 12.40.100)
- IT IS UNLAWFUL TO PLANT IN OR ON ANY PARKING STRIP OR OTHER PUBLIC PROPERTY, THE FOLLOWING KINDS OF TREES: POPLAR, WILLOW, COTTONWOOD, FRUIT-BEARING OR NUT-BEARING, ELKHORN, MOUNTAIN ASH, OREGON OR BIG-LEAF MAPLE.
- RECOMMENDED TREES (PER SWMC 12.40.110)
- A. SMALL OR NARROW STREET TREES (MINIMUM SPACING: TWENTY FEET):
- ASH (FLOWERING ASH);
  - FLOWERING CHERRY (NONFRUIT BEARING);
  - LAUREL (CALIFORNIA LAUREL);
  - MAGNOLIA (EVERGREEN MAGNOLIA);
  - MYRTLE (OREGON MYRTLE);
  - OAK (HOLLY OAK).
- B. MEDIUM SIZE STREET TREES (MINIMUM SPACING: THIRTY FEET):
- ASH (FLAME, GOLDEN DESERT, ETC.);
  - BEECH (RIVERS PURPLE BEECH);
  - BIRCH (PAPER BIRCH, RIVER BIRCH);
  - CRABAPPLE (FLOWERING CRABAPPLE);
  - GUM (SWEET GUM);
  - HONEY LOCUST;
  - LINDEN (LITTLELEAF LINDEN);
  - MAPLE (AUTUMN BLAZE, OCTOBER GLORY, NORWEGIAN SUNSET, PACIFIC SUNSET, AUTUMN FLAME, HEDGE MAPLE);
  - MAPLE (RED MAPLE);
  - MAPLE (SUGAR MAPLE);
  - OAK (SCARLET OAK, ENGLISH OAK);
  - REDWOOD (DAWN REDWOOD);
  - YELLOWWOOD;
  - VILLAGE GREEN.
- ADJACENT PROPERTY OWNERS MAY RECOMMEND ALTERNATIVE TREE SPECIES. THESE TREES WILL BE SUBJECT TO APPROVAL BY THE CITY FOLLOWING REVIEW OF THE RECOMMENDED SPECIES. (ORD. 1382-00, § 10, 2000)



## OPEN SPACE RECREATIONAL LOT

OPEN SPACE RECREATION LOT:

THE DESIGN OF THE RECREATION AREA SHALL COMPLY WITH THE DESIGN REVIEW STANDARDS OF SWMC CHAPTER 15.44 AND ANY OTHER APPLICABLE PROVISIONS OF THE CITY CODE.

RECREATION AREA SHALL HAVE 25% LANDSCAPE AREA

REQUIRED LANDSCAPE AREA IN OPEN SPACE TRACT = 2,150 SQ.FT. LANDSCAPE AREA PROVIDED IN OPEN SPACE TRACT = 2,155 SQ.FT.

INSTALL NON SIGHT-OBSCURING FENCING, BERMS AND LANDSCAPING OR A COMBINATION OF THESE TO DEFINE THE RECREATION AREA BOUNDARIES AND PROVIDE A SAFETY BARRIER.

THE OPEN SPACE RECREATIONAL LOT SHALL BE OWNED AND MAINTAINED BY THE HOMEOWNERS WITHIN THE SUBDIVISION AS THIS PARCEL IS INTENDED TO PROVIDE RECREATIONAL OPPORTUNITIES FOR USERS OF ALL AGES. AT THE TIME OF FINAL PLAT LEGAL DOCUMENTS WILL BE PREPARED TO ADDRESS THIS ITEM

SUBJECT PROPERTY:  
P#37229  
EXISTING HOUSE ADDRESS: 606 F & S GRADE ROAD  
ZONED: RESIDENTIAL (R7) PER SWMC 17.24.010  
5.92 GROSS ACRES (257,899 SF)  
-1.02 ACRES TO BE DEDICATED TO CITY FOR PUBLIC STREET R.O.W. (44,539 SF)  
-0.20 ACRES TO BE DEDICATED TO CITY FOR OPEN SPACE LOT (8,612 SF)  
-4.7 ACRES - REMAINING PROJECT AREA (204,748 SQ.FT.)

LANDSCAPE REQUIREMENT PER SWMC FOR SUBDIVISIONS:  
NOT LESS THAN 10% OF THE COMBINED NET LOT AREA + 10% OF THE SITE OPEN SPACE  
SINCE OPEN SPACE IS A RECREATIONAL AREA, PER DESIGN STANDARDS 25% LANDSCAPING IS REQUIRED WITHIN THIS 8,616 SF TRACT.

ROW LANDSCAPING WITHIN 5-FOOT LANDSCAPE STRIP (EACH SIDE) = 6,840 SF  
OPEN SPACE LANDSCAPING PROVIDED = 2,155 SF  
10% REQUIRED ON LOT AT LOT DEVELOPMENT = 20,473 SF  
TOTAL = 29,468 SF

### LEGEND

TREE

SHRUB

PROPOSED FLOWERING ASH STREET TREE INSTALLED AT 20-FOOT ON CENTER (OR EQUAL). A MEDIUM STREET TREE CAN BE USED WITH A 30-FOOT SPACING PER SWMC 12.40.110

"CORNUS STOLONIFERA 'ISANTI' "ISANTI REDTWIG DOGWOOD"  
"GAULTHERIA SHALLOM" "SALAL"  
"MAHONIA AQUIFOLIUM" "OREGON GRAPEHOLLY"  
"MYRICA CALIFORNICA" "PACIFIC WAX MYRTLE"  
"OENLETERIA CERCASIFORMIS" "INDIAN PLUM"  
"RIBES SANGUINEUM" "PINK WINTER CURRANT"  
"ROSA RUOGOSA 'ALBA'" "RUGOSA ROSE"  
ALL SHRUBS ALONG STREET FRONTS TO BE INSTALLED TO COVER 60% OF THE STREET FRONTAGE AREA WITHIN 2 YEARS (TYP)

## Exhibit F

### to Hearing Examiner Staff Report

PLAN STATUS:		SHEET TITLE:		DRAWING NO.
SCALE: AS NOTED		GARDEN MEADOWS FOR FRANCIS/NILSON		19006SIT..dwg
DRAWN BY: H. NELSON		SECTION 23, T. 35 N., R. 4 E., W.M.		JOB NO. 19006
CHECKED BY: J. RAVNIK				SHEET NO. 1 OF 1
DATE: 12.02.19				Page 140 of 810

## NOTICE OF APPLICATION AND SEPA COMMENT PERIOD CITY OF SEDRO-WOOLLEY PLANNING DEPARTMENT

**Description of proposal/application:** The city has received an application for a proposed 28 lot, 31 unit development on F&S Grade Road. The parcel has one existing home that will be preserved and 3 of the 28 lots are proposed to be duplex lots. The approximately 5.9 acre property is zoned Residential 7. The project includes construction of a new public road with sidewalks that will connect F&S Grade Road through to Jones Road, an open space tract, and stormwater infrastructure. File #LP-2019-432.

**Proponent:** Gildnes Credit Trust  
ATTN: Morris Nilson  
23145 Gunderson Road  
Mount Vernon, WA 98273

### Exhibit G to Hearing Examiner Staff Report

**Location of project, including street address if any:** 606 F&S Grade Rd, Parcel #37229

**Environmental Review:** The optional DNS process in WAC 197-11-355 is being used. Agencies, tribes, and the public are encouraged to review and comment on the proposed project and its probable environmental impacts. The City of Sedro-Woolley has reviewed the proposed project for probable adverse environmental impacts and expects to issue a mitigated determination of non-significance (MDNS) for this project. The MDNS will likely include the following conditions and any other conditions that may be necessary to address concerns raised during this comment period:

1. Hours of construction shall be limited to 7:00 a.m. to 9:00 p.m. weekdays and 8:00 a.m. to 9:00 p.m. weekends as required in SWMC 9.46.020;
2. Comply with Northwest Clean Air Agency Regulations during construction activities;
3. All construction traffic shall use temporary construction access as approved by the Public Works Department;
4. Contribute police mitigation fees of \$505.76 per unit as per the residential unit fee calculation in the Capital Facilities Element of the City of Sedro-Woolley Comprehensive Plan; and
5. Lighting from the site shall be directed and/or shielded so as to not shine at the neighboring residential properties.

**Documents are available for review at:** The City of Sedro-Woolley Planning Department, 325 Metcalf Street, Sedro-Woolley, WA 98284, Monday through Friday, 8:00 AM to 5:00 PM. Environmental documents available include a SEPA checklist, preliminary drainage report, and critical areas assessment report. For more information, contact Katherine Weir at the Sedro-Woolley Planning Department at (360) 855-3206 or by email: [kweir@ci.sedro-woolley.wa.us](mailto:kweir@ci.sedro-woolley.wa.us).

**Public Comment Period:** The lead agency for this proposal has NOT yet made a threshold determination of whether or not the proposed project has a probable significant adverse impact on the environment. Interested persons may comment on the application and/or the anticipated SEPA determination, receive notice, participate in any hearings and request a copy of the decision. **Public comments must be received by 4:30 p.m. January 10, 2020** and should be submitted to the City of Sedro-Woolley Planning Department, 325 Metcalf Street, Sedro-Woolley, WA 98284. Comments may be mailed or personally delivered and should be as specific as possible. **This may be your only opportunity to comment on the environmental impacts of the proposed project.**

Katherine Weir, Assistant Planner  
City of Sedro-Woolley Planning Department

Published in Skagit Valley Herald on December 20, 2019

## NOTICE OF APPLICATION AND SEPA COMMENT PERIOD CITY OF SEDRO-WOOLLEY PLANNING DEPARTMENT

**Description of proposal/application:** The city has received an application for a proposed 28 lot, 31 unit development on F&S Grade Road. The parcel has one existing home that will be preserved and 3 of the 28 lots are proposed to be duplex lots. The approximately 5.9 acre property is zoned Residential 7. The project includes construction of a new public road with sidewalks that will connect F&S Grade Road through to Jones Road, an open space tract, and stormwater infrastructure. File #LP-2019-432.

**Proponent:** Gildnes Credit Trust  
ATTN: Morris Nilson  
23145 Gunderson Road  
Mount Vernon, WA 98273

**Exhibit H**  
to Hearing Examiner Staff  
Report

**Location of project, including street address if any:** 606 F&S Grade Rd, Parcel #37229

**Environmental Review:** The optional DNS process in WAC 197-11-355 is being used. Agencies, tribes, and the public are encouraged to review and comment on the proposed project and its probable environmental impacts. The City of Sedro-Woolley has reviewed the proposed project for probable adverse environmental impacts and expects to issue a mitigated determination of non-significance (MDNS) for this project. The MDNS will likely include the following conditions and any other conditions that may be necessary to address concerns raised during this comment period:

1. Hours of construction shall be limited to 7:00 a.m. to 9:00 p.m. weekdays and 8:00 a.m. to 9:00 p.m. weekends as required in SWMC 9.46.020;
2. Comply with Northwest Clean Air Agency Regulations during construction activities;
3. All construction traffic shall use temporary construction access as approved by the Public Works Department;
4. Contribute police mitigation fees of \$505.76 per unit as per the residential unit fee calculation in the Capital Facilities Element of the City of Sedro-Woolley Comprehensive Plan; and
5. Lighting from the site shall be directed and/or shielded so as to not shine at the neighboring residential properties.

**Documents are available for review at:** The City of Sedro-Woolley Planning Department, 325 Metcalf Street, Sedro-Woolley, WA 98284, Monday through Friday, 8:00 AM to 5:00 PM. Environmental documents available include a SEPA checklist, preliminary drainage report, and critical areas assessment report. For more information, contact Katherine Weir at the Sedro-Woolley Planning Department at (360) 855-3206 or by email: [kweir@ci.sedro-woolley.wa.us](mailto:kweir@ci.sedro-woolley.wa.us).

**Public Comment Period:** The lead agency for this proposal has NOT yet made a threshold determination of whether or not the proposed project has a probable significant adverse impact on the environment. Interested persons may comment on the application and/or the anticipated SEPA determination, receive notice, participate in any hearings and request a copy of the decision. **Public comments must be received by 4:30 p.m. January 28, 2020** and should be submitted to the City of Sedro-Woolley Planning Department, 325 Metcalf Street, Sedro-Woolley, WA 98284. Comments may be mailed or personally delivered and should be as specific as possible. **This may be your only opportunity to comment on the environmental impacts of the proposed project.**

Katherine Weir, Assistant Planner  
City of Sedro-Woolley Planning Department

Published in Skagit Valley Herald on January 14, 2020

**CITY OF SEDRO-WOOLLEY**  
**SEPA Notice of Threshold Determination**  
**Mitigated Determination of Non-significance (MDNS)**

**Description of proposal/application:** The city has received an application for a proposed 28 lot, 31 unit development on F&S Grade Road. The parcel has one existing home that will be preserved and 3 of the 28 lots are proposed to be duplex lots. The approximately 5.9 acre property is zoned Residential 7. The project includes construction of a new public road with sidewalks that will connect F&S Grade Road through to Jones Road, an open space tract, and stormwater infrastructure. File #LP-2019-432.

**Proponent:** Morris Nilson  
23145 Gunderson Road  
Mount Vernon, WA 98273

**Exhibit I**  
to Hearing Examiner Staff Report

**Location of project:** 606 F&S Grade Rd, Parcel #37229

**Environmental Review:** The City of Sedro-Woolley, lead agency for this proposal, has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist, and other information on file with the lead agency. This information is available to the public on request. This determination is based upon the following mitigation being provided by the applicant:

1. Hours of construction shall be limited to 7:00 a.m. to 9:00 p.m. weekdays and 8:00 a.m. to 9:00 p.m. weekends as required in SWMC 9.46.020;
2. Comply with Northwest Clean Air Agency Regulations during construction activities;
3. Any water discharged to the City stormwater system as a result of this project must be approved by and comply with conditions of the Public Works Department;
4. Construction shall comply with all local, state and federal regulations, including Sedro-Woolley Municipal Code Title 13.36 Stormwater Management Standards; Title 13.40 Stormwater Facilities Maintenance; Title 15.40 Public Works Construction Standards; Title 17 Zoning; Sedro-Woolley Public Works Design Standards and the Sedro-Woolley Comprehensive Plan;
5. Obtain and comply with conditions of a NPDES stormwater general permit from the Department of Ecology;
6. All construction traffic shall use temporary construction access as approved by the Public Works Department;
7. Contribute police mitigation fees of \$505.76 per unit as per the residential unit fee calculation in the Capital Facilities Element of the City of Sedro-Woolley Comprehensive Plan; and
8. Lighting from the site shall be directed and/or shielded so as to not shine at the neighboring residential properties.

The lead agency previously issued a comment period for this proposal under the optional DNS process in WAC 197-11-355. There is no further comment period on this threshold determination. Per SWMC 2.88.170, you may appeal this threshold determination in writing to the City of Sedro-Woolley Planning Department within 14 days from date of publication.

Written appeals and appeal fees must be submitted by 4:30 p.m. **Wednesday, February 12,**

**2020.** Contact the Assistant Planner at the City of Sedro-Woolley, 325 Metcalf Street, Sedro-Woolley, Washington, 98284 or electronically at [kweir@ci.sedro-woolley.wa.us](mailto:kweir@ci.sedro-woolley.wa.us) to read or ask about the procedures for SEPA appeals.

**Responsible SEPA Official:** Planning Director – City of Sedro-Woolley

**Contact Person:** Katherine Weir, Assistant Planner

**Address:** 325 Metcalf Street, Sedro-Woolley, WA 98284

**Date of Issue:** Wednesday, January 29, 2020 **Date of publication:** Wednesday, January 29, 2020

**Signature:**



John Coleman, Planning Director

Per SWMC 2.88.170, you may appeal this threshold determination in writing to the City of Sedro-Woolley Planning Department no later than **Wednesday, February 12, 2020**. Written appeals must be submitted, along with the required fee, to the Planning Department, City of Sedro-Woolley, 325 Metcalf Street, Sedro-Woolley, WA, 98284. You should be prepared to make specific factual objections. Contact the Planning Department to read or ask about the procedures for SEPA appeals.

# NOTICE OF PUBLIC HEARING

**Friday, March 13, 2020 at 2:30PM**

Sedro-Woolley Municipal Courtroom  
325 Metcalf Street, Sedro-Woolley, WA 98284

**Exhibit J**

to Hearing Examiner Staff  
Report

**Application:** LP-2019-432, Plat of Garden Meadows

**Applicant Contact:** Morris Nilson, 23145 Gunderson Road, Mount Vernon, WA 98273

**Project Address:** 606 F&S Grade Road, Sedro-Woolley

**Project:** Proposed subdivision (long plat) of a 5.9 acre property on F&S Grade Road into 28 residential lots. Three of the 28 lots are proposed to be duplex lots, for a total of 31 units. The back of the property is adjacent to East Jones Road, and the proposal includes a new public road that will connect F&S Grade Road through to East Jones Road. The existing home will remain. The project includes construction of a new public road, private shared driveways, stormwater infrastructure, and a shared open space tract. File #LP-2019-432.

**Public Comment:** Interested persons may comment on the application, receive notice and participate in any hearings and request a copy of the decision. Written testimony may be submitted to: City of Sedro-Woolley Planning Department, ATTN: Assistant Planner, 325 Metcalf Street, Sedro-Woolley, Washington, 98284, or by email to [kweir@ci.sedro-woolley.wa.us](mailto:kweir@ci.sedro-woolley.wa.us) **until 1:00 PM of the date of the public hearing.**

**Documents are available for review at:** The City of Sedro-Woolley Planning Department, Monday through Friday, 8:00 AM to 4:30 PM. Project documents are available for review at no cost; copies will be provided at the requestor's cost. For more information, contact the Planning Department at (360) 855-0771. A staff report will be available seven days prior to the hearing.

**Hearing Examiner:** The Hearing Examiner will hold an open record public hearing on the proposed Preliminary Plat of Garden Meadows at 2:30PM, **Friday, March 13, 2020** at the Sedro-Woolley Municipal Courtroom, 325 Metcalf Street. Based on the information presented to the Hearing Examiner and testimony at that hearing, the Hearing Examiner will make a recommendation to the City Council whether to approve, approve with conditions or deny preliminary approval of the proposed Preliminary Plat proposal.

**Notice Published:** Friday, February 28, 2020



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

*Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000  
711 for Washington Relay Service • Persons with a speech disability can call (877) 833-6341*

January 28, 2020

Katherine Weir  
Planning Department  
City of Sedro-Woolley  
325 Metcalf Street  
Sedro-Woolley, WA 98284

**Exhibit K**  
to Hearing Examiner Staff Report

**Re: Garden Meadows**  
**File# LP-2019-432, Ecology SEPA# 202000186**

Dear Katherine Weir:

Thank you for the opportunity to provide comments on the **Garden Meadows 28-Lot Residential Long Plat project**. Based on review of the State Environmental Policy Act (SEPA) checklist associated with this Project, we offer the following comments:

**TOXICS CLEANUP PROGRAM**

**Heather Vick, (425) 649-7064, [heather.vick@ecy.wa.gov](mailto:heather.vick@ecy.wa.gov)**

There are 16 contaminated sites on Ecology's database within a one-mile radius of this location. All of the sites are more than 0.5 mile southwest, south or southeast of this location and it is likely that none of the sites are hydrogeologically upgradient of this location. Five of the sites have received No Further Action determinations.

For a list and map of the sites, go to <https://apps.ecology.wa.gov/neighborhood/> and type in the address of this location.

**WATER QUALITY PROGRAM**

**Stephanie Barney, (360) 255-4390, [stephanie.barney@ecy.wa.gov](mailto:stephanie.barney@ecy.wa.gov)**

This project may require coverage under the Construction Stormwater General Permit if the earth disturbance is greater than one acre and there are stormwater discharges associated with the construction activity to surface waters of the state. If you have questions about determining the need for CSGP coverage or you need information regarding applying for and implementing the CSGP, Stephanie Barney is the Permit Manager for Skagit County.

Katherine Weir  
January 28, 2020  
Page 2

Thank you for considering these comments from the Department of Ecology. If you have questions or would like to respond to these comments, please contact one of the commenters listed above.

Sincerely,



Katelynn Piazza  
SEPA Coordinator

Sent by email: Katherine Weir, [kweir@ci.sedro-woolley.wa.us](mailto:kweir@ci.sedro-woolley.wa.us)

ecc: Heike Nelson, Ravnik & Associates  
Stephanie Barney, Ecology  
Heather Vick, Ecology

File # LP-2019-432

606 F+S Grade Road, Parcel #37229

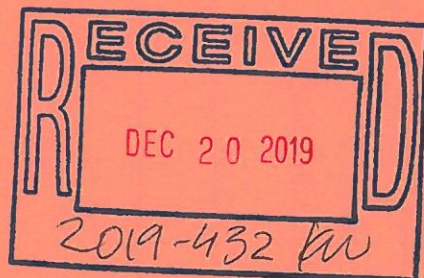
Date: 12-20-19

**Exhibit L**

to Hearing Examiner Staff Report

I, JUDITH MEADOWS, of  
8642 Westerman Rd, SW 98284  
would like to be notified <sup>by mail (SSM)</sup> of  
any action related to this parcel  
and/or opportunities to comment.  
360-856-1693

Judith J. Meadows



To: Sedro Woolley Planning Dept.  
Attn: Katherine Weir



From: Judith J. Meadows  
8642 Westerman Road  
Sedro Woolley, WA 98284  
(360)-856-1693

### Exhibit M

to Hearing Examiner Staff Report

RE: Proposed Residential Development (31 units)  
between FTS Grade Road and Jones Road  
including major through road with sidewalks, etc.  
directly to west of Monty and Nicole Petersen's home/development.

Date: January 10, 2020

(#1) Prior to any further approval/advancement of this  
intense density development I request that you/the Dept.  
provide me/ the gen'l public and appropriate other Authorities  
in Critical Habitat Areas, a well-reasoned,  
sound environmental plan as to how you/the S.W. Plan Dept.  
are protecting currently and how you are  
continuing to protect the already designated  
[the Blue Heron Rookery which is in (nearby) area, very  
slightly to east.] → (continued page 2)

JJMeadows to  
S.W. Plan Dept  
1/10/20

If you/ the S.W. Plan Dept, do not have staff with this level of wildlife and their unique critical habitat needs (i.e. not merely "laws") I request that you obtain that/ provide that from those with such expertise prior to any further approval of this project.

#2 Prior to any further approval of this same proposed development, I would also request that you provide to me, the general public, and appropriate authorities the historic drainage pattern of this particular proposed development land. Specifically, show me and others its historic drainage pattern with regards to nearby Brickyard Creek. This nearby creek drains into the Skagit River, a critical wild and scenic river who is experiencing more & more "low flows", affecting salmon recovery, fishing, agriculture, water rights, etc. It appears to me the S.W. Plan Dept is approving/ continues to approve "diversion" of these critical waters to other drainages. This is of much concern to me regarding "critical areas, critical decisions" made by the City of S.W. and the S.W. Plan Dept.

I would consider it highly imprudent to approve this development until this information has been made public and fully documented.

(#3) My third concern about this proposed development has to do with civil engineering, and the major impact it would make on the already inadequate F+S Grade Road (and possibly?) nearby roads,

I have lived near this stretch of F+S Grade Road for almost 50 years now. It has always been "barely adequate" for existing traffic. It regularly gets heavy logging trucks and St. Co. heavily loaded gravel dump trucks as well as other heavy trucks.

There are very little shoulders, if any, on F+S Grade Road, in City portion and County portion to the west.

More & more people "pull over" (with no shoulder) to answer/talk on their phones.

You have already added some 90(?) proposed residences in the Cambridge Estates (nearby F Jones/RR track) with all that traffic. You have added recently 5 or 6 more residences with Monty Pederson development. Now you are proposing, 31 more residences.

These residences usually do not come with only 1 car or truck. In my opinion, this is a nightmare already starting to happen, and I consider it highly unethical to theoretically "pass that burden" to someone else, to gain more money now.

JJ Meadows to  
J.W. Plan Dept.  
1/10/20

Before you proceed, show me/ the public, etc.  
how you are providing for this NOW, not  
in some long-range, not yet funded —  
maybe never funded (i.e. improvements to F+S Grack Road)  
projects, (i.e. a heavily overloaded boat  
may well capsize and drown those aboard before  
it ever gets to the (needed) adjacent shore!!)

(#4) Conclusions; These are my concerns  
which I would like to see fully addressed before  
any further approval of this development is given.  
Thank you for all your efforts  
which I appreciate.

Sincerely,  
Judith J. Meadows

pg. 4 of 4

January 10, 2020

Mary and Teresa Johnson  
8596 Garden of Eden Rd  
Sedro-Woolley WA 98284

To: Katherine Weir  
Assistant Planner  
325 Metcalf Street  
Sedro-Woolley WA 98284

**Exhibit N**  
to Hearing Examiner Staff Report

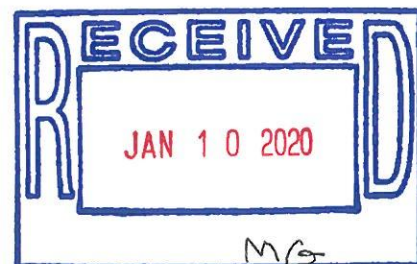
Dear Katherine,

The purpose of this letter is to communicate concern regarding a proposed development between Garden of Eden Rd and F&S Grade Rd. Our understanding is that 31 units, 6 of which will be duplexes is being considered for this area. This is a wetland area with a Blue Heron rookery Habitat at the east end, filling in this area would cause habitat loss as well as putting extra stress on the surrounding drainage and surface waters. We think development and paving of this area could be detrimental to the sensitive ecology of this area. We think a serious ecological study should be conducted before any development is considered.

Thank you,

*Mary M. Johnson*  
*Teresa Johnson*

Mary and Teresa Johnson



## Exhibit O

to Hearing Examiner Staff Report

### Garden Meadows Development:

#### Primary Concerns:

1)

This new development would add 31 new families and their children to our Sedro-Woolley School District, which has just had a severe cutback on Timber dollars (approximately \$620,000 dollars according to the recent article in the Skagit Valley Herald). Our existing families and students will already be severely impacted by this shortage without adding additional students. School bonds have not passed recently as well. Evergreen Elementary is well over capacity and in need of structural improvements.

2)

I believe there should be a moratorium on developments of this size until these monetary issues for our schools have been resolved. Otherwise we are impacting the learning environment for our current students, as well as any to come.

3)

If, in spite of this, Garden Meadows is approved, my property backs on this development, and there is currently only a wire fence between the two. There would need to be a 6' solid wood fence, as there is on the north side of my property, that would run along the west side of my property (316 Garden of Eden Road), running south-north from F&S to G of E so it is contiguous and not a patchwork, 'mish-mash' of different styles of fencing.

#### Secondary Concerns:

The small, designated 'open space' tract is inadequate for the number of families added to the area involved, especially in relation to the lot sizes.

One rational for 'straightening' Garden of Eden Road has been to reduce traffic on the portion between Jones and F & S. I don't see how this addresses that problem. When people come down the hill, they still cannot directly access Cook Road, and will be just as likely to turn onto Jones as to go through to F & S and then back to the round-about to get to Cook Road. Possibly there are other solutions to this?

Dorothy de Fremery PH: 360-856-1727

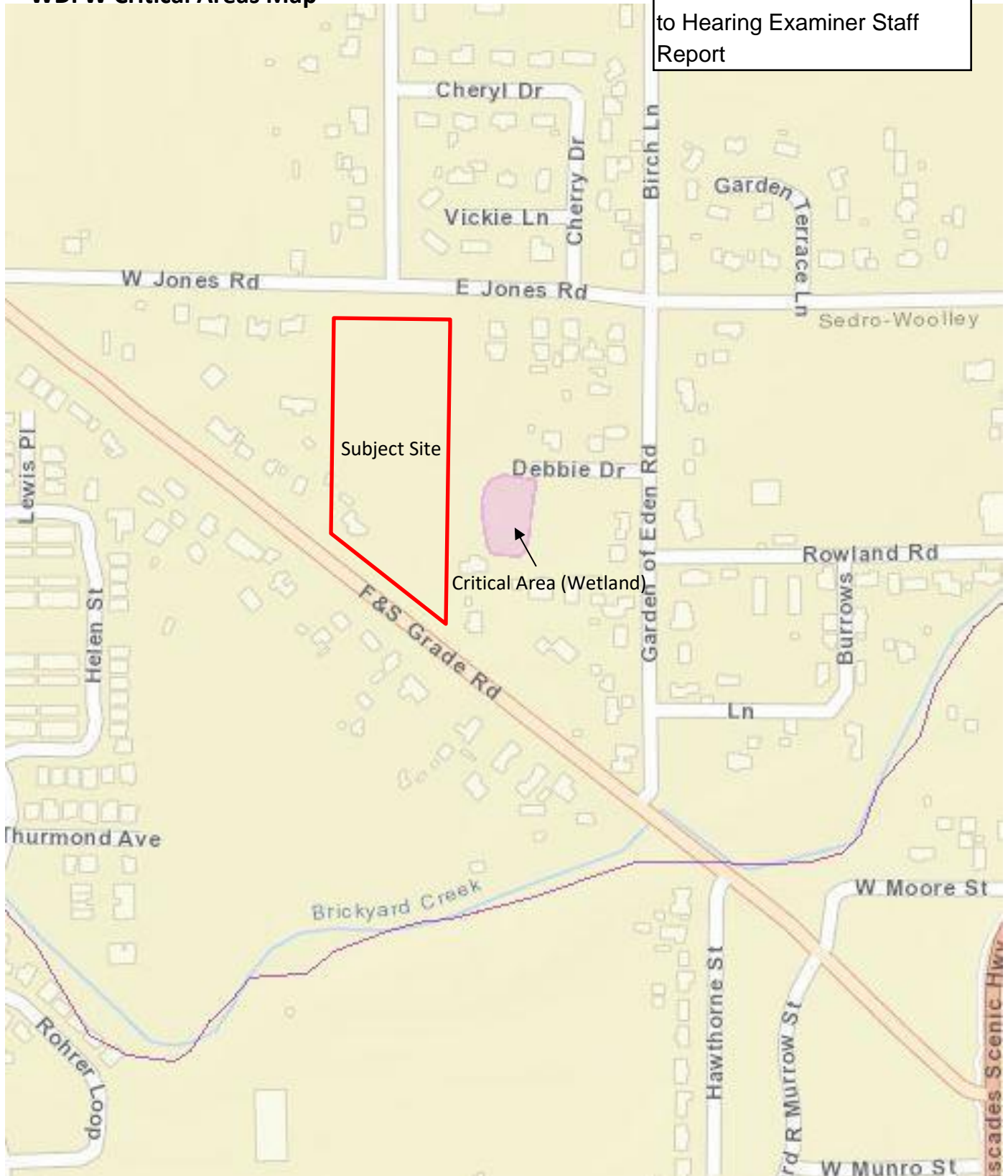
[ddefremery@cnw.com](mailto:ddefremery@cnw.com)

316 Garden of Eden Road,  
Sedro-Woolley, WA 98284

## WDFW Critical Areas Map

## Exhibit P

to Hearing Examiner Staff  
Report



# Exhibit Q

to Hearing Examiner Staff  
Report

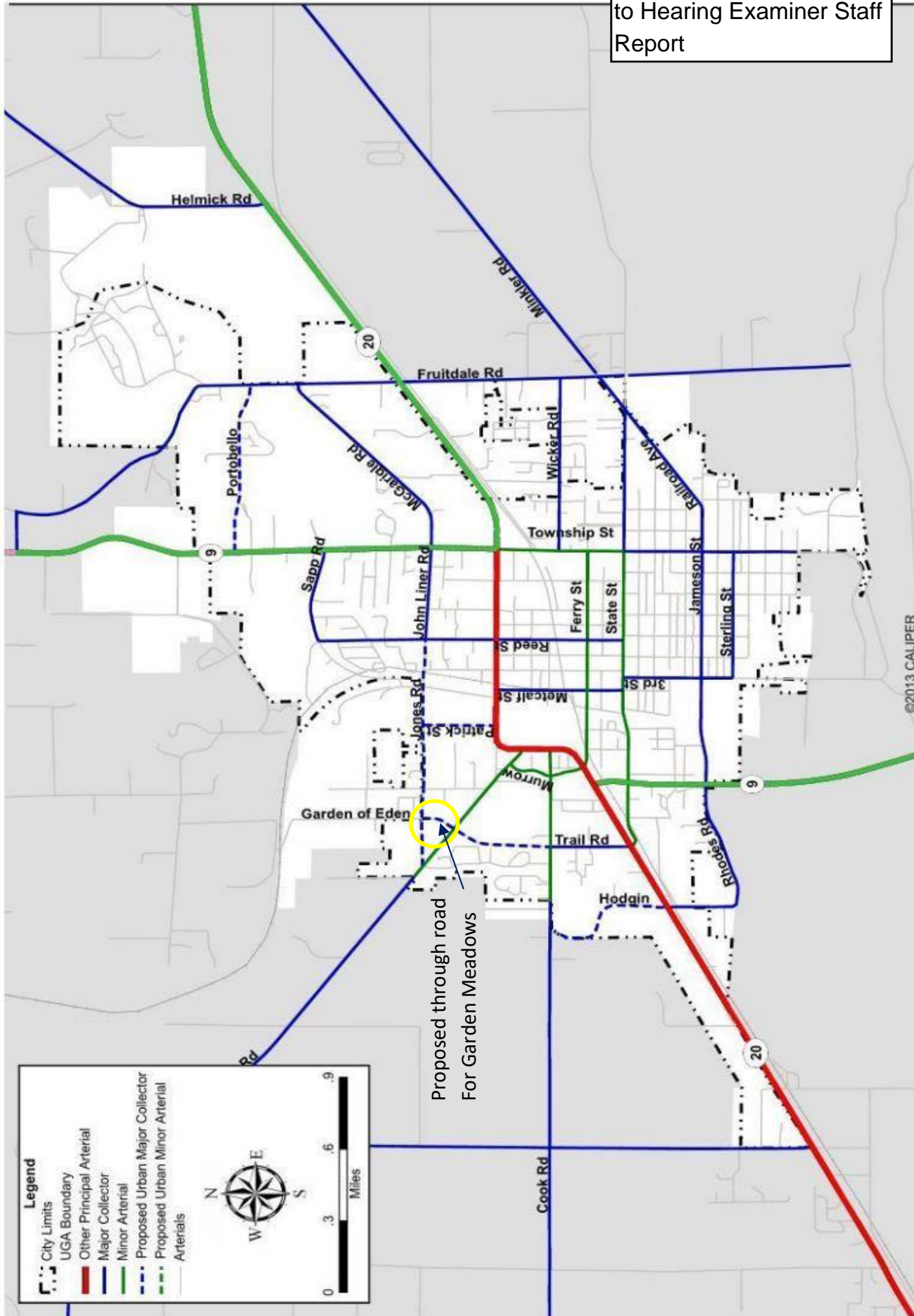


Figure 1

## Study Area

City of Sedro-Woolley





# CERTIFICATE OF SEWER AVAILABILITY

CITY OF SEDRO-WOOLLEY PROJECT NUMBER

CITY OF SEDRO-WOOLLEY  
Public Works and Engineering Department  
Sedro-Woolley Municipal Building  
325 Metcalf Street  
Sedro-Woolley, WA 98284  
Phone (360) 855-0771  
Fax (360) 855-0733

This certificate provides the Sedro-Woolley Public Works, Engineering, and Planning Departments with information necessary to evaluate development proposals.

Exhibit R  
to Hearing Examiner Report

- Building Permit      x Preliminary Plat or PRD
- Short Subdivision      • Rezone or other

Applicant's name: Morris Nilson

Proposed use: 28 Lot Long Plat

Location: 606 F & S Grade Rd. Sedro-Woolley, WA

(Attach map and legal description if necessary)

## Sewer Department Information:

- a. Sewer service is to be a size side sewer connection only to an existing size sewer feet from the site and the sewer system has the capacity to serve the proposed use.
  - Check here if NEW TAP IS REQUIRED. Location of new/existing TAP:   
OR
  - x b. Sewer service will require an improvement to the sewer system of:
    - x (1) Aprox. 750 feet of sewer trunk or lateral to reach the site; and/or
    - x (2) The construction of a collection system on the site; and/or
    - x (3) Other (describe) 8-inch mainline with 6-inch side sewers provided to each lot and manholes with 350' max spacing.
- a. The sewer system improvement is in conformance with the approved City Sewer Comprehensive Plan.  
OR
- b. The sewer system improvement will require a Sewer Comprehensive Plan Amendment.
- a. The proposed project is within the corporate limits of the City or has been granted approval for extension of service outside the City.  
OR
- b. Annexation approval will be necessary to provide service.
- Service is subject to the following:
  - Connection charge (Capital Facilities Fee): \$6,995 per Equivalent Residential Unit (ERU)
  - Easement(s):
  - Other: Last manhole needs to be extended to intersection of F&S Grade Road.

Comments:

I certify that based on the best information available to the City, the above sewer agency information is true. This certification shall be valid for one year from date of signature.

Sewer Department  
Sedro-Woolley Department

Debbie Allen  
Signatory Name

Wastewater Treatment Supervisor  
Title

[Signature]  
Signature

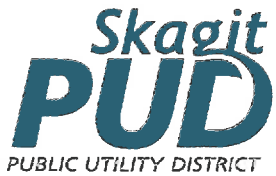
10-18-19  
Date

Check out the City of Sedro-Woolley Website at <http://www.ci.sedro-woolley.wa.us>

N:\FORMS\Sewer Availability.doc

Sewer Availability Form

RB-03



1415 Freeway Drive  
P.O. BOX 1436  
Mount Vernon, WA 98273-1436  
tel: (360) 424-7104  
www.SkagitPUD.org

*Owned by the people we serve.*

November 21, 2019

**Exhibit S**  
to Hearing Examiner Report

Heike Nelson  
Ravnik & Associates, Inc  
1633 Lindamood Lane, P.O. Box 361  
Burlington, WA 98233

**RE: 606 F & S Grade Road P37229  
Single Family Residential Development  
Water Availability**

Dear Ms. Nelson:

In response to your request, Public Utility District No. 1 of Skagit County (District) has reviewed the above location for water availability and offers the following comments:

- The District presently owns and operates a 6-inch diameter Asbestos Concrete (AC) water pipeline on F & S Grade Road and a 6-inch diameter Plastic Class 200 water pipeline on East Jones Road fronting the above-referenced property.
- The District does not own or operate a water pipeline within the boundaries of the above-referenced property. In order to serve the proposed development with water, a waterline extension is required. Costs related to the design and construction of waterline extensions are the responsibility of the customer. If desired, please contact me for additional information and requirements related to waterline extensions.
- Line extensions through private property require the granting of a twenty-foot wide utility easement to the District for operation, maintenance, and replacement purposes. The standard format for a utility easement is available upon request.
- The District has sufficient supply to furnish domestic water to the property. The District's ability to supply water in excess of domestic use for fire flow demand is dependent on a hydraulic analysis of the water system related to your proposed project, as well as the extent of the project's anticipated needs.
- Upon District acceptance of the completed waterline extension, receipt of the necessary application information, fees, easement, permit, site and billing address, and parcel number, a domestic metered water service to each of the anticipated 28 lots can be obtained in accordance with the District's Water Policy Manual. District fees can be found in Appendix

A of the Water Policy Manual, which can be viewed at the District office or online at <http://www.skagitpud.org/resources/document-repository/water-policy-manual/>.

- Upon request and receipt of sufficient information related to the project, the District can provide an estimate of water service fees and specific requirements at the above-referenced property.
- Upon request, the District can provide an estimate of the pressure in the existing waterline. Normal pressure is between 40 and 80 pounds per square inch.

The comments in this letter are based on information available at the time of writing. Modification to the water system or policy changes can make the information provided herein outdated. A re-evaluation of the comments is necessary one year after the date of this letter.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael E. Demers", with a horizontal line extending to the right.

Michael E. Demers  
Engineering Technician

dd

# Ravnik & Associates, Inc.

CIVIL ENGINEERING & LAND-USE PLANNING

## **PRELIMINARY DRAINAGE REPORT for GARDEN MEADOWS RESIDENTIAL DEVELOPMENT (28-lot PRELIMINARY LONG PLAT)**

*December 4th, 2019*



### **Exhibit T**

to Hearing Examiner Report

This preliminary drainage report has been prepared to address the storm water design necessary to mitigate the increased amount of runoff from the proposed Garden Meadows residential development of approximately 25-single family lots and 3-duplex lots on one existing parcel of land. This report is preliminary in nature and is intended to be used for the Preliminary Plat submittal to the City of Sedro Woolley for this project.

The residential development proposed herein is to occur on parcel 37229 located within City of Sedro Woolley. The parcel of land currently has a site address of 606 F & S Grade Road, Sedro Woolley, Washington. Subdivisionally, the subject parcel is located within Section 23, Township 35 N., Range 4 E.

The total subject property area consist of 5.92 acres and is located south of Jones Road and north of F & S Grade Road. The property is generally high in the center and gently slopes downhill to the north and south at approximate slopes of 1 to 2%. Along the south side of Jones Road, along the north boundary of the project, exists an existing drainage ditch conveying waters easterly. Along the south side of the site, north of F & S Grade Road, there is general low area, where waters appear to percolate directly into the underlying soils. The project area is generally in a field condition, and is covered with long grass. This subject property currently supports one existing residence, a small out building and shed all located within the southwest corner of the site. Please refer to the accompanying Existing Conditions Exhibit for the existing development and terrain conditions located at the end of this report.

The subject parcels are currently zoned Residential (R7), as shown on the attached exhibits. Surrounding properties to the west, south and east are also zoned Residential (R7). Properties adjoining the north are zoned Residential (R7 to the west half of the subject property, north of Jones Road. To the northeast of the subject property, easterly of Garden of Eden Road is property located within unincorporated Skagit County and is zoned Urban Reserve Residential (URR).

The onsite soils are identified by the NRCS Web Soil Survey as Minkler silt loam. The SCS Soils Survey for Skagit County notes this soil as being a very deep moderately well drained soils on river terraces. Per the geotechnical information provided by Geotest Engineers, the site soils generally consist of 0.75-to 1-foot of topsoil overlying a variable thickness of medium stiff, tan, sandy, silt with rootlets. Below the silt, from 1 to 4-feet

below ground surface (BGS), subsurface soils ranged from sandy silts to very silty sands to poorly graded sands. Per Geotest, the variable silty sands and sandy silts are representative of interbedded, fluvial sands and silts. The geotechnical investigation notes use of an infiltration rate of 1.05 inches per hour at depths of approximately 3 to 6-feet BGS. A larger infiltration rate may be determined with future geotechnical studies.

The onsite soils are identified as having a hydrologic group classification of "D". Refer to the attached soils information from the National Resources Conservation Services. In addition, Geotest Services, Inc. has prepared geotechnical information for this project. This Preliminary Infiltration Evaluation Report, dated November 26, 2019, more specifically addresses the onsite soils. A copy of the NRCS/SCS soils information, along with the geotechnical information prepared by Geotest is included at the end of this drainage report. In the future additional testing, such as a PIT test may be conducted by the geotechnical engineer for this project to substantiate a larger infiltration rate for the more detailed final drainage report to be prepared with construction plans for this project.

The drainage analysis and report have been prepared to meet the requirements of the 2014 Department of Ecology (DOE) Storm Water Manual regulations as required by the City of Sedro Woolley. Per the 2014 DOE Figure I-2.4.1 Flow Chart for Determining Requirements for New Development this development will be required to meet all 9 of DOE's Minimum Requirements. Refer to a copy of Figure I-2.4.1 included at the end of this report. Most notably these minimum requirements to most notably include Onsite Stormwater Management, Stormwater Flow Control (detention), and Runoff Treatment (water quality measures).

This report has been prepared to meet the requirements of the 2014 Department of Ecology Storm Water Manual which are applicable for this project under current City of Sedro Woolley regulations. The analysis to determine applicable runoff flow rates and stormwater facilities necessary to serve the proposed development, and water quality design represented herein, will be performed using the continuous Western Washington Hydrology Model (WWHM), as incorporated in software created by Clear Creek Solutions. This continuous methodology for calculating allowable developed stormwater runoff rates is consistent with the requirements from the 2014 DOE Stormwater Management Manual. The WWHM software uses long-term local 15-minute time step precipitation data over 50-years to simulate the potential impacts of land use development, running HSPF in the background to generate runoff hydrographs for the project. WWHM2012 uses this information to size and/or determine if stormwater control facilities are sufficient to mitigate the effects of increased runoff (peak discharge, duration, and volume) from proposed land development. DOE requires that storm water discharges to streams shall match developed discharge durations to predeveloped durations for the range of predeveloped discharge rates from 50% of the 2-year peak flow up to the full 50-year peak flow. WWHM computes the predevelopment 2- through 100-year flow frequency values and computes the post-development runoff 2- through 100-year flow frequency values from the outlet of the proposed stormwater facilities. The model uses discharge data to compare the predevelopment and post-development durations and determines if the flow control standards have been met.

Projects are required to meet the 2014 DOE flow related standards used to determine whether or not a proposed stormwater facility will provide a sufficient level of mitigation for the additional runoff from the land development. There are three flow-related standards in the 2014 DOE Manual that must be met. Minimum Requirement #5 - On-site Stormwater Management, Minimum Requirement #7 - Flow Control.

Minimum Requirement #5 allows the user to demonstrate compliance with the LID Performance Standard of matching developed discharge durations to pre-developed durations for the range of pre-developed discharge rates from 8% of the 2-year peak flow to 50% of the 2-year predevelopment peak flow. If the post development flow duration values exceed any of the predevelopment flow levels between 8% and 50% of the 2-year predevelopment peak flow values, then the LID performance standard has not been met. This project will use the LID performance standard to meet this criteria. Generally "The List" will be followed and only a very small amount of runoff is proposed to be released thus passing the LID performance standard within the WWHM software will be reasonably achievable.

Minimum Requirement #7 specifies that a stormwater discharge from the site shall match developed discharge durations for predeveloped duration. For the stormwater facilities to receive a "pass" for this detention criteria within the WWHM analysis there are three criteria which must be met: (1) The post-developed flow duration values must not exceed any of the predevelopment flow levels between 50% and 100% of the two-year predeveloped peak flow values, (2) The post-developed flow duration values must not exceed any of the predevelopment flow level between 100% of the two-year and 100% of the 50-year predeveloped peak flow more than 10% of the time (110% threshold), and (3) No more than 50% of the flow duration levels exceed the 100% threshold.

#### **PRE-DEVELOPED CONDITIONS**

The 5.92 acre property area proposed for residential development herein exists today as a single parcel. The property is currently supports one single-family residence, a small shed and an out building in its southwesterly corner, with the remainder of the site being in an unmaintained condition, and covered with long grass. To the north and south are developed public roadways with existing residential development on the opposite side. To the east and west of the site, lots are generally developed with single-family homes.

In order to design the stormwater system to accommodate the proposed residential development using WWHM, it is necessary to first determine the target flow duration curve for the existing, or pre-developed condition that must be met. For this overall project two types of systems are anticipated to be used, one for the public right of way improvements, and a second type of system will be used to mitigate onsite private drainage to serve future driveways and lot development. A model will created within the following sections of this report to address the proposed drainage system to serve the proposed public right of way improvements is denoted within this preliminary report as the ROW Basin. This basin area includes one 1.02-acre basin area to encompass the new public right of way, including the proposed road and sidewalk improvements will be used

to determine the existing condition. This information is identified within the WWHM model titled "ROW Basin". For private, individual lot development, a permeable pavement section is currently proposed and a typical conservative example will be noted for the purposes of this report. This pervious pavement driveway and underlying reservoir rock section will be designed to infiltrate a majority of the developed runoff from the new driveway surface and also roof runoff from new house sites on adjoining lots. The existing conditions for private lot development will be used to determine the predeveloped flow duration curve for a typical shared driveway and four new home sites. This predeveloped flow curve is what establishes the maximum amount of stormwater that could be released from this basin area and still meet DOE requirements.

For both the public and private predeveloped condition basin areas will be assumed to be forested even though a majority of the area is currently in a field/grassed condition, as this is required by the 2014 DOE manual.

The pre-developed compliance curve generated by the predeveloped basin areas, assuming a forested cover, is noted for each of the two project areas within the WWHM information as 501 POC1-ROW Basin and 501 POC-Private Basin. These are the compliance curves that must be met by any release from proposed detention facilities to meet the new flow control standard and obtain a "passing" detention system during the developed condition.

#### **ROW Basin Area**

To model the proposed right of way improvements a ROW Basin will be used. The following is design information used to create the pre-developed target compliance curve for the ROW Basin:

**ROW Basin Area = 1.02 acres**

0 acres impervious

1.02 acres forested, flat

1.02 acres

Based on the conditions represented above design information for the Pre-developed "ROW" basin, the following flow information was determined using WWHM software:

#### **Flow Frequency Return Periods-Pre-developed. (ROW Basin-501 POC #1)**

<b><u>Return Period</u></b>	<b><u>Flow (cfs)</u></b>
2 year	0.0192
5 year	0.0346
10 year	0.0469
25 year	0.0645
50 year	0.0790
100 year	0.0946

### Private Basin Area

An example of a typical private basin area will be assumed to consist of a shared driveway area (0.03-acres) and four house sites (0.23-acres, assumed 2,500 sf roof for each lot) will be assumed to be directly connected to each shared driveway. This model will be used to determine the minimum cross-section required for the permeable pavement section to serve the proposed development. Lawn areas are assumed to infiltrate directly into the underlying soils. Information regarding this Private Basin model is noted within the WWHM information included.

#### Private Basin Area (Example)= 0.26 acres

0 acres impervious

0.26 acres forested, flat

0.26 acres

Based on the conditions represented above design information for the Pre-developed example for the “Private” basin, the following flow information was determined using WWHM software:

#### Flow Frequency Return Periods-Pre-developed. (Private Basin-501 POC #1)

<u>Return Period</u>	<u>Flow (cfs)</u>
2 year	0.0049
5 year	0.0088
10 year	0.0120
25 year	0.0164
50 year	0.0201
100 year	0.0241

### POST-DEVELOPED CONDITIONS

Development of this property to create new residential lots will include the construction of a new public roadway, private driveways, and infrastructure needed to provide utilities, along with vehicle and pedestrian access to each new lot.

Using the previously established “ROW” and “Private” basin areas and WWHM software, a flow duration curve has been determined for the post-developed condition for each of these basins. This uses the combined flow generated by the proposed public ROW improvements (ROW Basin) and the shared driveways and residential building development proposed within the Private Basin area, as required to determine developed runoff rates per 2014 DOE standards.

### ROW Basin Area

Just as for the predeveloped condition, public improvements proposed within the ROW Basin have been used to address the necessary stormwater requirements. For the purposes of this analysis, two sub-basins will be used (north and south) as noted below. Developed runoff from both sub-basin areas will be collected and routed to an associated underground infiltration area to be located below portions of the proposed sidewalk. These infiltration systems will detain and infiltrate a majority of the developed runoff

flows and are estimated to release only a small amount of runoff via a control structure to be installed at the north end of the site. Developed runoff routed to the stormwater mitigation facilities are noted as the Post-developed, unmitigated flow. This information for the ROW Basin is noted as “701 inflow to POC 1”. The following is the land cover characteristics of the basin areas used to model the post-developed duration curves for the ROW Basin:

**Total ROW Basin Area = 1.02 acres**

**North ROW subbasin**

0.18 acres C, Lawn, Flat

0.27 acres Roads/Flat

0.13 acres Sidewalks Flat

0.58 acres

**South ROW subbasin**

0.13 acres C, Lawn, Flat

0.21 acres Roads/Flat

0.10 acres Sidewalks Flat

0.44 acres

0.58 acres + 0.44 acres = 1.02 acres

Surface conditions within the proposed public ROW Basin are noted above and using the information represented above, the following runoff rates were estimated to occur from the post-developed site condition for the ROW Basin as determined by WWHM software:

**Flow Frequency Return Periods-Inflow to POC 1-Unmitigated Condition  
(ROW Basin-701 POC #1)**

<u>Return Period</u>	<u>Flow (cfs)</u>
2 year	0.1281
5 year	0.1970
10 year	0.2526
25 year	0.3354
50 year	0.4070
100 year	0.4878

Lastly, WWHM uses these pre-developed and post-developed flow duration curves to determine the required size of proposed infiltration trench and control release structure needed to mitigate the increase in stormwater generated from the developed site. The resulting design will provide a sufficient infiltration trench volume and footprint area to detain and infiltrate developed runoff so that the small release allowed to overflow via the proposed control structure at the north end of the site and still conform to flow control requirements required by DOE and the City of Sedro Wooley for the increase of runoff generated from new development proposed for the site.

### **Private Basin Area (Example Lot Development)**

Generally, driveways are proposed to extend east and west from the new public road to serve new lots. For the Private Basin example herein and purposes of this preliminary report sizing of the permeable pavement section, it will be assumed that four new single-family residential lots will route roof runoff to a permeable pavement section with an underlying depth of reservoir rock section. The underlying reservoir rock will provide sufficient voids for detention of developed stormwaters until they can be infiltrated into the underlying soils. The resulting Post-developed, unmitigated flow information is noted as “701 inflow to POC 1” in the attached Private Basin WWHM information. The following is the land cover characteristics for the developed condition for the Private Basin used to model the post-developed duration curves:

#### **Total Private Basin Area = 0.26 acres**

0.23 acres (4 single-family homes, 2,500 sf each)

0.03 acres new pervious shared driveway surface (95-feet x 20-feet)

0.26 acres total hard surface area

Based on the proposed example Private Basin area represented above, the following runoff rates were estimated to occur from the post-developed site condition as determined by WWHM software for the example shared driveway and four adjoining lots:

### **Flow Frequency Return Periods for Post-Developed, Unmitigated Condition.**

**(701 POC #1)**

<b>Return Period</b>	<b>Flow (cfs)</b>
2 year	0.0735
5 year	0.1014
10 year	0.1216
25 year	0.1494
50 year	0.1716
100 year	0.1952

Lastly, just as for the ROW Basin, WWHM uses the post-developed flow duration curves along with the applicable infiltration rate to determine the required detention (depth of reservoir rock) underlying the proposed permeable pavement section needed to detain and infiltrate the stormwater from the example “Private” developed site basin area. Refer to the Private WWHM information provided at the end of this report.

### **PROPOSED DETENTION/INFILTRATION**

#### **ROW Basin Area**

For the ROW basin, stormwater mitigation is anticipated to include two 1.33-foot deep infiltration trench areas, noted as north and south, which will provide necessary storage volume to detain developed runoff until it can be infiltrated into the underlying soils, or be released via a simple control structure outlet. A 4-inch perforated pipe will be installed within the proposed infiltration trenches to facilitate distribution of collected

storm waters. Trenches are anticipated to be connected via a 4-inch diameter storm pipe. The control structure will be sized so that when the combined flow duration curve, or the inflow to the ROW system from the post-developed conditions, will be detained and released at a rate not to exceed the established Pre-developed flow durations as allowed. The flow curve depicting the release of stormwater from the proposed infiltration system and control structure is identified as "801 POC1 Mitigated Flow" on the attached WWHM information. This mitigated flow release rate is required to be equal to, or less than, the original (pre-developed) target flow duration. The provision of a detention, infiltration and control structure allows for a controlled release of stormwater from the site during a post developed condition so the amount of water released from the site will conform to the 2014 DOE requirements for the proposed ROW development. To obtain a "pass" the WWHM software for detention requires the post-developed condition release stormwater at rates based on what was identified as the pre-developed condition. Per the geotechnical information provided by Geotest Services, a preliminary long term infiltration rate of 1.05 inches per hour should be used for the underlying soils. This information also notes the estimated depth to ground water at approximately 10-feet below existing grade. Future soils testing may be done for this project, such as a PIT test, to determine if greater infiltration rates can be used for final design. Refer to attached preliminary Geotest report at the end of this Preliminary Drainage Summary.

Using the design information as previously noted, WWHM has determined the necessary total trench size and control structure that must be constructed to mitigate the proposed residential development is as follows:

Proposed Infiltration Trench (North Gravel Trench Bed)

2,400 square foot pond bottom area required  
1.33-foot depth

Proposed Infiltration Trench (South Gravel Trench Bed)

1,100 square foot pond bottom area required  
1.33-foot depth

Proposed Orifice/Overflow Control Structure

Riser Height: 1.33 ft.

Riser Diameter: 8 in.

Orifice 1 Diameter: 1.00-inch @ Elevation: 1.08 above outlet elevation

*(No bottom orifice is proposed)*

Using the developed land conditions previously noted for the ROW Basin, a combination of an orifice/riser it is estimated that the following mitigated flows will be discharged from the site:

**Flow Frequency Return Periods for Mitigated. POC1 (801)**

<u>Return Period</u>	<u>Flow (cfs)</u>
2 year	0.000000
5 year	0.000000
10 year	0.000000
25 year	0.000000
50 year	0.000000
100 year	0.000000

The infiltration system currently shown the Developed Conditions Exhibit shows a total ROW infiltration system with a bottom footprint of 3,500 square feet (North and South gravel filled trench) and was assumed to have 1.33-feet depth of reservoir rock (clean drainrock) for storage with a orifice/riser overflow to control the release of stormwater from the system north to the existing ditch. The analysis notes 0 cfs being discharged up to the 100-year storm event, however there are some small events that are estimated to have a stormwater release from the site, however they are within the thresholds allowed by DOE. Based on the analysis performed by WWHM, use of 1.05 in/hr infiltration rate, an infiltration system with a footprint of 3,500 square feet being 1.33-feet deep, and the aforementioned control structure is sufficient to mitigate the increase in storm water from the proposed ROW development and the proposed detention/infiltration system “passes” as noted on the attached WWHM Report for the ROW basin located at the end of this report. This “pass” signifies that the currently shown system is properly sized to provide mitigation as determined using the continuous model software WWHM required by the 2014 DOE manual for the proposed development of 1.02 acres of ROW development area as proposed.

**Private Basin Area**

Generally, new lots will be accessed via a shared private driveway. The proposed shared driveways are anticipated to be built with a pervious pavement section. Rainfall upon the proposed driveway surface will be routed to flow through the pervious concrete section reaching an underlying clean, washed, crushed ballast rock section. In addition, for the example noted herein, it will be assumed that runoff from 10,000 square feet of new roof area (four lots at 2,500 sf each) will be collected and routed to the pervious section to mitigate the construction of future homes. Within each lot as it is developed is encouraged to slope walkways and parking areas downhill towards lawn/landscape areas to promote infiltration of runoff from these surfaces as required by DOE onsite stormwater management provisions.

A clean ballast rock section under the permeable driveway area is estimated to provide an approximate 30% void ratio as a reservoir volume for waters to be retained within the voids, until the water can be discharged via infiltration into the roadway’s underlying soils. Within the WWHM software, a theoretical riser outlet structure is purposely

included within the analysis to determine if the system will have sufficient capacity to infiltrate 100% of the developed runoff. If during the analysis water is found to be released through the theoretical riser structure, the volume of rainfall upon the developed contributing area will be considered to have exceeded the driveway system's infiltration and retention capacities, thereby identifying a failure in design. A properly designed drainage system will use the infiltration and retention facilities to their maximum capacities without having any water released through the theoretical riser modeled as a gravel filled trench system.

Utilizing DOE BMP T5.15-Permeable Pavement, the concrete section is assumed to consist of the 6-inch thick permeable concrete over a 24-inch thick layer of ballast reservoir rock having a minimum 30% void ratio. Within the software, the theoretical riser/overflow is set at 2.5-feet above which is at the top 6-inch depth of permeable pavement. Per the attached WWHM Report and attached information, a 6-inch depth of pervious concrete over 24-inch depth of clean ballast rock (reservoir rock) is sufficient to detain and infiltrate 100% of the runoff from this 0.26-acre drainage basin area as noted by the Private Basin WWHM analysis and result of "Total Volume Through Riser = 0 ac-ft". This denotes that the proposed system has the capacity to detain and infiltrate 100% of the developed runoff waters, and thus no water is anticipated to be released from this example Private system. As previously noted, additional geotechnical testing will likely be done to substantiate a larger long term infiltration rate, and potentially reduce the required area and/or depth of drainrock needed within these pervious pavement sections.

For the two lots that do not access via a private driveway, onsite stormwater management provisions will be used such as permeable parking areas, and infiltration trenches, to infiltrate developed runoff into the underlying soils. These infiltration trench areas and permeable sections will be designed at the time actual building and parking areas are known. Due to the reasonable infiltration rates available in the underlying soils, along with the deep depth to the underlying ground water, these systems have sufficient flexibility.

### **WATER QUALITY**

Pollution generating surfaces such as roadways proposed herein are required to receive Basic Treatment for water quality per DOE's Figure 2.1-Runoff Treatment Facility Selection Flow Chart attached. No Oil or Phosphorous Control Facilities are required for this site per SMMWW Volume V Section 2.1.

### **ROW Basin Area**

Basic treatment for runoff from the pollution generating impervious surfaces (PGIS) within the ROW basin areas of this project will be achieved by using soils onsite below the proposed infiltration trenches. Pretreatment will be provided by routing surface runoff from PGIS to an oil/water separator vault (with coalescing plates) prior to discharging them to the proposed infiltration trench. WWHM has been used to determine the 15-minute flow rate for the north and south basin areas and confirm that a Utility Vault Model 660-CPS is sufficient to provide pretreatment for anticipated water quality runoff values for the developed ROW sub-basins. Per the preliminary Geotech report the

cation exchange and organic content within the lower layers of soil are variable. Additional testing will be done by Geotest to confirm soils suitably for providing water quality at depths below the proposed infiltration trenches. If suitable soils are not found at the depths needed, onsite soils can easily be blended with lower soils to create a water quality soil layer as required by DOE standards.

Other provisions for water quality will be investigated when preparing a final report for construction purposes, such as routing developed runoff waters through a water quality vault(s) as approved by the DOE to provide water quality. Regardless of which particular water quality provision is used, the design will conform to the applicable 2014 DOE standards and the City of Sedro Woolley requirements.

Stormwater discharged from the proposed ROW infiltration/detention system is routed north to an existing ditch located along the south side of Jones Road and conveys runoff easterly, ultimately discharging into the existing Brickyard Creek located approximately 200-feet east of the site.

#### **Private Basin Area**

Basic treatment for runoff from the example Private basin area of this project will be achieved by using the underlying soils onsite below the proposed permeable pavement section. Pretreatment will be provided by use of the permeable pavement section. Per the preliminary Geotech report the cation exchange and organic content within the upper layers of soil are suitable for providing water quality. Water quality provision is used, the design will conform to the applicable 2014 DOE standards and the City of Sedro Woolley requirements.

#### **DOWNSTREAM IMPACTS**

Due to the proposed infiltration/detention facilities and associated controlled release, this project will detain and release stormwater from the developed site at rates equal to or less than what occurs from the estimated predeveloped forested condition, with respect to the current onsite pasture/long grass conditions, the developed site will likely discharge less water than what currently occurs today. Therefore based on the analysis as noted herein and with the provision of the infiltration/detention system and there likely being a reduction in the amount of runoff from the site, no downstream impacts are anticipated.

#### **CONCLUSION:**

For the ROW areas, a majority of the storm water runoff from the proposed public right of way development will be collected by catch basins located on site and conveyed to the detention system by a combination of sheet flows, concrete gutter flow, and pipe flow. Surface water runoff from the developed areas within the ROW drainage basin area will be routed to a pretreatment vault (oil/water separator vault) prior to being routed to an underground infiltration/detention system, where they will be released by a combination of infiltration into the underlying soils and an overflow via an orifice/riser control structure within the north end of the site. During rare large storm events a small amount of stormwater from the system is anticipated to overflow flow northerly, discharging into

an existing ditch located along the south side of Jones Road. This existing roadside ditch contributes waters to Brickyard Creek, ultimately reaching the Skagit River south of the project. The stormwater release/overflow control structure has been sized so that the developed flow duration does not exceed any of the predevelopment flow levels between 50% and 100% of the two-year predeveloped peak flow values, the developed flow duration values do not exceed any of the predevelopment flow level between 100% of the two-year and 100% of the 50-year predeveloped peak flow more than 10% of the time (110% threshold), and so that no more than 50% of the flow duration levels exceed the 100% threshold, which is indicated by a "Pass" within the WWHM report attached. Water quality treatment in the form of both pretreatment and basic treatment will be provided for the removal of petroleum particulates, sediments, and nutrients from storm runoff prior to it being released from the site as required by DOE standards.

The example Private Basin model denotes how new lot development will be mitigated by use of permeable pavement sections within shared driveway areas. Water quality will also be provided as applicable as required by DOE. It is anticipated at this time that 100% of the developed runoff volumes will be infiltrated into the underlying soils and no runoff from these Private Basin areas is anticipated to be discharged from the site.

The onsite stormwater management, detention volume, allowable release rates, and proposed water quality provisions for both the ROW and Private Basin areas as noted herein will conform to the requirements of the City of Sedro Woolley and the 2014 Department of Ecology Stormwater Manual.

**In summary, "Minimum Requirements" per the 2014 DOE Stormwater Management Manual have been addressed within sections of this report as noted in the following:**

**#1 - Preparation of a Stormwater Site Plan**

A stormwater site plan will be completed and submitted to the City for review and approval with the preparation of civil construction plans for this project.

**#2 - Construction Stormwater Pollution Prevention (SWPP)**

The contractor will be responsible for preparation of a Stormwater Pollution Prevention Plan (SWPPP) prior to commencing construction.

**#3 - Source Control of Pollution**

There are no known specific sources of pollution that will be generated from the site, therefore no source control is proposed with this project.

**#4 - Preservation of Natural Drainage Systems and Outfalls**

This new development project proposes use of existing storm drainage ditch facilities that currently serve the site. It is estimated that the drainage facilities proposed within this report will actually reduce the amount of runoff released from the site.

**#5 - On-site Stormwater Management**

Per the 2014 DOE Manual Minimum Requirement #5: On-site Stormwater Management, this project must employ on-site stormwater management BMPs. Based on Table 2.5.1 in Volume 1 of the DOE manual, since the project constitutes new development within an Urban Growth Area, and is located within the City of Sedro Woolley, this project has the choice of using the Low Impact Development Performance Standard and BMP T5.13; or the On-site Stormwater Management BMP's from List #2. This project will use Low Impact Development Performance Standard to meet the onsite stormwater management requirements. Per the geotechnical report prepared by Geotest for this project, the underlying soils have reasonable long term infiltration capacity of 1.05 in/hr. On-site stormwater management provisions have been incorporated into the site's stormwater design in the form of infiltration and permeable pavement are sufficient for this project to pass when applying the LID Performance by use of the WWHM analysis. New home construction on each lot will be designed to route roof runoff waters to permeable pavement where there is reasonable detention volume and infiltration area as denoted earlier within this report. The two lots accessing directly from F & S Grade Road will incorporate onsite stormwater management provisions such as downspout infiltration and/or permeable pavement sections at the time of buildings to address this item when specific building size and site configuration have been determine.

#### **#6 - Runoff Treatment**

Per MR #6 requirements noted in the 2014 DOE Manual Volume I, Section 2.2.6, this project will provide stormwater runoff treatment facilities as noted pollution-generating impervious surfaces (PGIS) from ROW development will be routed to a oil/water separator vault for pretreatment prior to being routed to underground infiltration facilities. In addition underlying soils will be confirmed to have proper composition to provide water quality below the trench, or soils will be amended by blending them with upper soils to provide the necessary soils structure as required by DOE.

For private lots, permeable pavement is proposed and PGIS will be filtered through the permeable section and a layer of soils that have suitability as dictated by the DOE manual and the City of Sedro Woolley.

#### **#7 – Flow Control**

For public right of way improvements, as noted within the previous sections of this report, the release of stormwater runoff from the proposed underground infiltration/detention trench system and associated control structure overflows from the site during the post-developed condition at a rate that will not exceed durations of the pre-developed condition for the range of pre-developed discharge rates from 50% of the 2-year peak up to the full 50-year peak based on WWHM analysis even when assuming the 1.02-acre ROW drainage basin/development area to be in a forested condition.

For Private Basin areas, comprised of new driveways and adjoining lot roof areas will be routed to use permeable pavement section to detain and infiltrate developed runoff into the underlying soils. Other new surfaces such and walkways, etc. onsite will be sloped to disperse runoff onto proposed adjoining lawn/landscape areas where they can percolate into the underlying soils

**#8 - Wetlands Protection**

There are no wetlands onsite.

**#9 - Basin/Watershed Planning**

This project is not located within an area where a Basin/Watershed plans has been prepared.

**#10 - Operation and Maintenance**

Operation and Maintenance provisions for the DOE manual for catch basin structures, storm piping, oil/water separator vaults, control structure/storm catch basin, and permeable pavements will be included within the final drainage report to be prepared for this project at the time construction plans are prepared.



**VICINITY MAP**  
**11"x17" EXISTING CONDITIONS DRAINAGE EXHIBIT**  
**11"x17" DEVELOPED CONDITIONS DRAINAGE EXHIBIT**

**NRCS SOILS MAP  
NRCS SOILS INFORMATION  
GEOTEST REPORT**

**2014 DOE FIGURE 1-2.4.1 – Flow Chart  
WWHM REPORTS  
-ROW BASIN  
-PRIVATE BASIN**

**VICINITY MAP**  
**11"x17" EXISTING CONDITIONS DRAINAGE EXHIBIT**  
**11"x17" DEVELOPED CONDITIONS DRAINAGE EXHIBIT**





**Ravnik & Associates, Inc.**  
 CIVIL ENGINEERING & LAND-USE PLANNING  
 103 LINDAMOOD LANE/P.O. BOX 361  
 BURLINGTON, WA 98223  
 PH: (360) 797-2646 FAX: (360) 797-2216



SHEET DESCRIPTION:

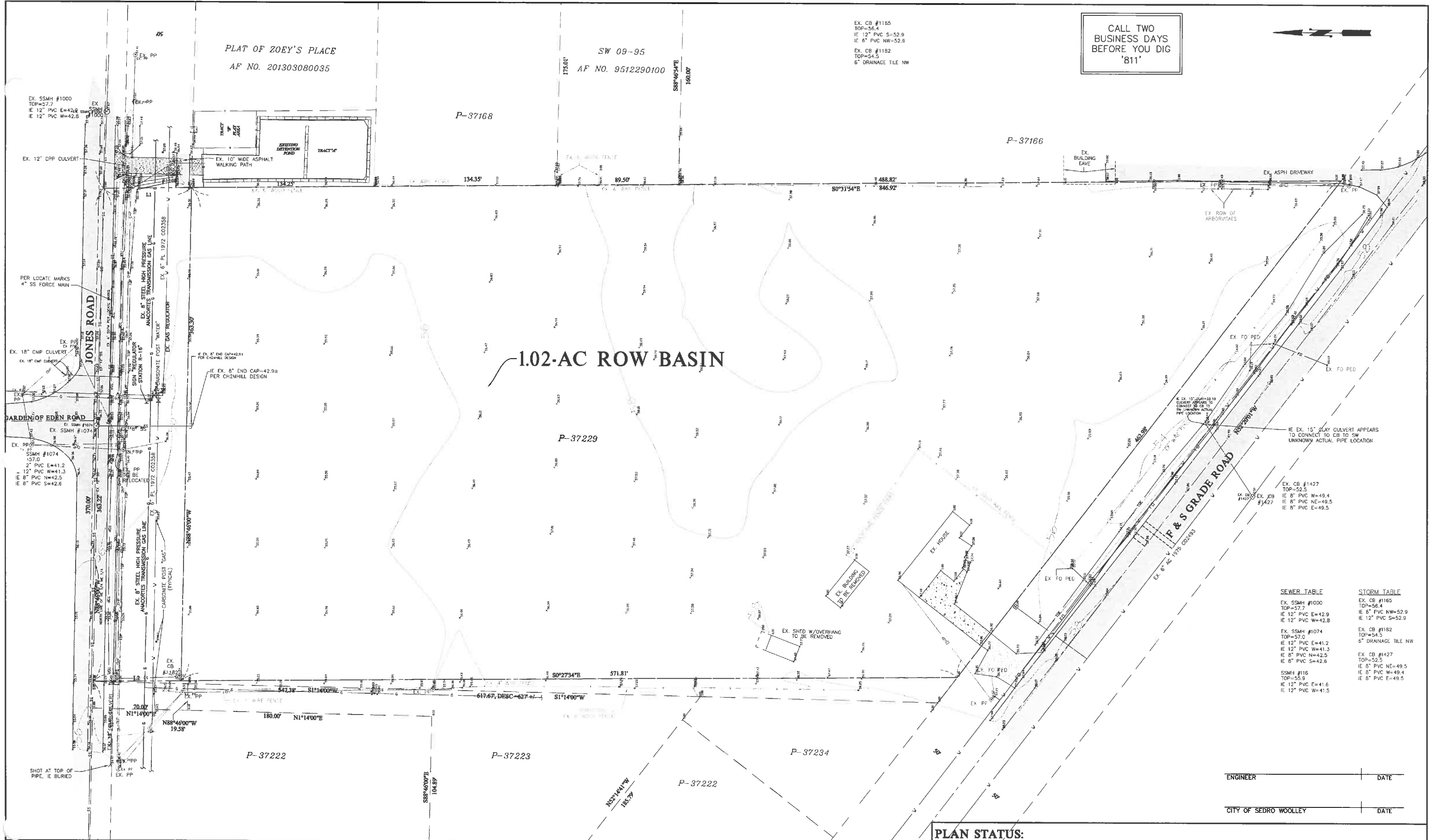
**AERIAL  
 PHOTO**

SCALE: NTS

DRAWN BY: D. REMSEN

JOB NO. 19006

DATE: 08.22.10



REV. NO.	REVISION	DATE	BY	APPROVED

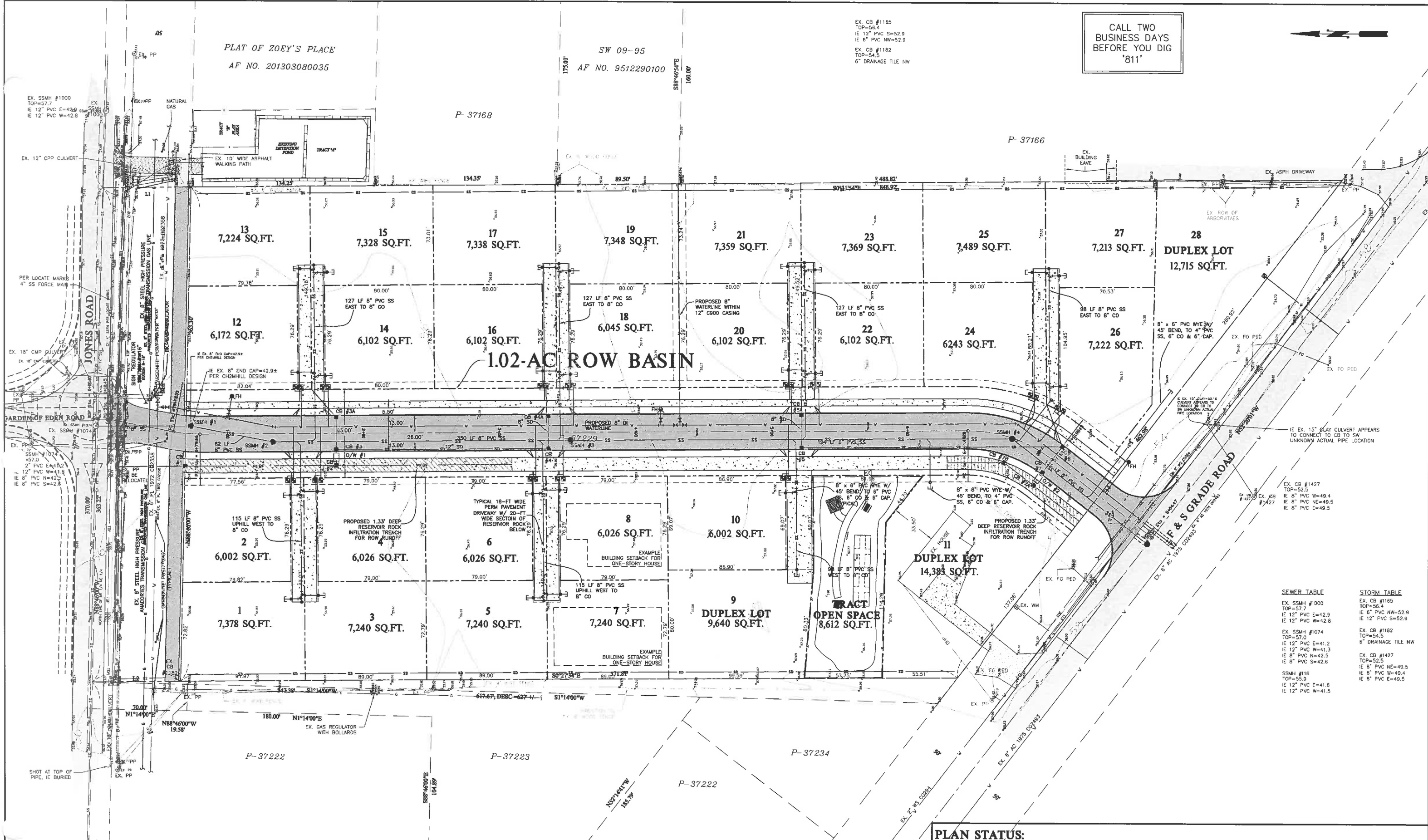
**Ravnik & Associates, Inc.**  
CIVIL ENGINEERING & LAND-USE PLANNING  
1633 LINDAMOOD LANE/P.O. BOX 361  
BURLINGTON, WA 98233  
PH: (360) 707-2048 FAX: (360) 707-2216

SHEET DESCRIPTION:  
**EXISTING CONDITIONS  
DRAINAGE EXHIBIT**  
*City Council Packet*

PLAN STATUS:  
SCALE: 1" = 30'  
DRAWN BY: H. NELSON  
CHECKED BY: J. RAVNIK  
DATE: 12.04.19

SHEET TITLE:  
**GARDEN MEADOWS  
FOR  
FRANCIS/NILSON**  
SECTION 23, T. 35 N., R. 4 E., W.M.

DRAWING NO.  
19006SIT.dwg  
JOB NO.  
19006  
SHEET NO.  
1 OF 2



REV. NO.	REVISION	DATE	BY	APPROVED

**Ravnik & Associates, Inc.**  
CIVIL ENGINEERING & LAND-USE PLANNING  
1633 LINDAMOOD LANE/P.O. BOX 361  
BURLINGTON, WA 98233  
PH: (360) 707-2048 FAX: (360) 707-2216

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19006SIT.dwg  
JOB NO.  
19006  
SHEET NO.  
2 OF 2

**NRCS SOILS MAP  
NRCS SOILS INFORMATION  
GEOTEST REPORT**

# Soil Map—Skagit County Area, Washington



Natural Resources  
Conservation Service

Web Soil Survey  
National Cooperative Soil Survey

7/23/2019  
Page 1 of 3

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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


Soil Survey Area: Skagit County Area, Washington  
Survey Area Data: Version 18, Sep 10, 2018


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


Date(s) aerial images were photographed: Jul 24, 2012—Oct 10, 2016


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


## MAP LEGEND


Area of Interest (AOI)


Area of Interest (AOI)


Soils


Soil Map Unit Polygons


Soil Map Unit Lines


Soil Map Unit Points


Special Point Features


Blowout


Borrow Pit


Clay Spot


Closed Depression


Gravel Pit


Gravelly Spot


Landfill


Lava Flow


Marsh or swamp


Mine or Quarry


Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot


Sandy Spot


Severely Eroded Spot


Sinkhole


Slide or Slip


Sodic Spot


Water Features


Streams and Canals


Transportation


Rails


Interstate Highways


US Routes


Major Roads


Local Roads


Background


Aerial Photography


Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
92	Minkler silt loam	6.9	100.0%
<b>Totals for Area of Interest</b>		<b>6.9</b>	<b>100.0%</b>

## Skagit County Area, Washington

### 92—Minkler silt loam

#### Map Unit Setting

*National map unit symbol:* 2hxl

*Elevation:* 50 to 80 feet

*Mean annual precipitation:* 50 inches

*Mean annual air temperature:* 50 degrees F

*Frost-free period:* 190 days

*Farmland classification:* Prime farmland if drained

#### Map Unit Composition

*Minkler and similar soils:* 100 percent

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

#### Description of Minkler

##### Setting

*Landform:* Terraces

*Parent material:* Alluvium and glaciolacustrine deposits

##### Typical profile

*H1 - 0 to 12 inches:* medial silt loam

*H2 - 12 to 15 inches:* medial silt loam

*H3 - 15 to 60 inches:* stratified fine sand to very fine sandy loam

##### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):*

Moderately high to high (0.57 to 1.98 in/hr)

*Depth to water table:* About 6 to 30 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water storage in profile:* High (about 10.6 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 5w

*Hydrologic Soil Group:* B/D

*Forage suitability group:* Wet Soils (G002XN102WA)

*Hydric soil rating:* No

## Data Source Information

Soil Survey Area: Skagit County Area, Washington

Survey Area Data: Version 18, Sep 10, 2018

# Preliminary Infiltration Evaluation Garden Meadows

## Prepared For:

Francis/Nilson  
23145 Gunderson Road  
Mount Vernon, WA 98273



1 888 251 5276  
Bellingham | Anacortes | Oak Harbor  
[www.geotest-inc.com](http://www.geotest-inc.com)



November 26, 2019  
Project No. 19-0614

**Francis/Nilson**  
**C/O Morris Nilson**  
23145 Gunderson Road  
Mount Vernon, WA 98273

**Regarding: Preliminary Infiltration Evaluation**  
**Garden Meadows**  
606 F & S Grade Road  
Sedro-Woolley, WA 98248

Dear Mr. Nilson:

As requested, GeoTest Services, Inc. (GeoTest) is pleased to submit the following report summarizing the results of our preliminary infiltration evaluation for the proposed Plat to be located at 606 F & S Grade Road in Sedro Woolley, Washington (Vicinity Map, Figure 1). This report has been prepared in general accordance with the terms and conditions established in our services agreement dated August 21, 2019.

We appreciate the opportunity to provide geotechnical services on this project and look forward to assisting you during the construction phase. Should you have any further questions regarding the information contained within the report, or if we may be of service in other regards, please contact the undersigned.

Respectfully,  
**GeoTest Services, Inc.**

Noah Griffin, G.I.T.  
Staff Geologist



Kurt Parker

Kurt Parker, L.E.G.  
Geotechnical Department Manager

Enclosure: Preliminary Infiltration Evaluation



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## PURPOSE AND SCOPE OF SERVICES

The purpose of this evaluation is to establish general subsurface conditions beneath the site from which conclusions and recommendations pertaining to project design can be formulated. Our scope of services includes the following tasks:

- Exploration of soil and groundwater conditions underlying the site by advancing 4 test pits with a client provided backhoe to evaluate subsurface conditions.
- Laboratory testing on representative samples to classify and evaluate the engineering characteristics of the soils encountered.
- To provide a written report containing a description of surface and subsurface conditions, exploration logs, findings and recommendations pertaining to the feasibility of onsite traditional stormwater management.

## PROJECT DESCRIPTION

We understand that the owner is planning to develop the approximately 6-acre property at 606 F&S Grade Road with up to 28 residential lots and associated infrastructure. GeoTest was requested to provide a limited scope infiltration assessment for submittal and design purposes.

## SITE CONDITIONS

This section includes a description of the general surface and subsurface conditions observed at the project site during the time of our field investigation. Interpretations of site conditions are based on the results and review of available information, site reconnaissance, subsurface explorations, laboratory testing, and previous experience in the project vicinity.

### Surface Conditions

The roughly rectangular subject property occupies approximately 6 acres between F & S Grade Road and Jones Road in Sedro Woolley, Washington. The property is relatively level and undeveloped. Vegetation consists of grasses and scattered bushes. The site is bordered to the north by Jones Road, to the south by F & S Grade Road, and to the east and west by single family residences. The property is mapped outside of the FEMA Q3 100 Year Floodplain. No surface water was observed during our onsite explorations.

### **Subsurface Soil Conditions**

Subsurface conditions were explored by advancing 4 test pits with a tracked excavator (TP-1 through TP-4) on August 23, 2019.

Subsurface conditions generally consisted of 0.75 to 1 foot of topsoil (grass surfaced) overlying a variable thickness of medium stiff, tan, sandy, silt with rootlets. Below the silt, from 1 to 4 feet Below Ground Surface (BGS), subsurface soils ranged from sandy silts to very silty sands to poorly graded sands. Wood debris was encountered in some locations during excavation. Notably, large logs were encountered in test pits TP-1 and 2 at depths of 6.5 to 9 feet BGS. Laboratory testing on representative samples taken during the explorations yielded variable soil classifications. Fines content was found to range from 6.67% to 88.72% by weight in samples tested.

We interpret the variable silty sands and sandy silts to be representative of interbedded, fluvial sands and silts.

### **General Geologic Conditions**

General geologic conditions at the site are mapped as Holocene lahar deposits of the Kennedy Creek assemblage (Unit Qv<sub>lk</sub>). These deposits originated as one or more hyperconcentrated debris floods from the Glacier Peak volcano around 5,000 years ago. This unit can range from gravel dominant, sand dominant to silt dominant. Compositionally, this material is similar to nearby Skagit River alluvial deposits but can be distinguished by its relative abundance of dacitic volcanic particles (Lapen, 2000).

Our on-site explorations indicate that the encountered subsurface soil conditions are in general accordance with the mapped soil unit.

### **Groundwater**

Rapid groundwater seepage was encountered within test pit TP-3 at an approximate depth of 10 feet BGS. We interpret this encounter to be the regional groundwater table associated with an abandoned Skagit River channel. Other locations in the upper subsurface contained no evidence for a high seasonal groundwater table. Only scattered light mottling and oxidation was observed in TP-1, TP-2 and TP-4 from the surface to approximately 6 feet BGS, which in our opinion represents perched, transient or migratory water from meteoric sources and not the regional groundwater table. Trace light seepage of perched water was observed in TP-1 at 9 feet BGS.

A review of the Washington State Department of Ecology *Water Resources* webpage indicates that wells in the vicinity of the subject property have a static water level of 8 to 18 feet BGS at the time of construction.

The groundwater conditions reported on the exploration logs are for the specific locations and dates indicated, and therefore may not be indicative of other locations and/or times. Groundwater levels are variable and groundwater conditions will fluctuate depending on local subsurface conditions, precipitation, and changes in on-site and offsite use. We estimate that the regional groundwater table within the project site is located at ten feet or more below the present site grade during elevated groundwater conditions in the winter months and at deeper levels in the summer dry season.

## CONCLUSIONS AND RECOMMENDATIONS

Based on the evaluation of the data collected during this investigation, it is our opinion that the subsurface conditions at the site are suitable for the proposed development, provided the recommendations contained herein are incorporated into the project design. This report constitutes a preliminary stormwater infiltration evaluation for submittal and design purposes. Additional geotechnical work or evaluation that may be required by the owner or the City of Sedro Woolley can be addressed under a new contract.

### Stormwater Infiltration Potential

#### *Test Pit Gradation Results*

From the explorations in the areas of interest, 8 representative soil samples were selected and mechanically tested for grain size distribution and calculation according to the soil grain size analysis method, Section 3.3.6 of the 2012 *Stormwater Management Manual for Western Washington* (SMMWW), amended December 2014. A summary of these results are summarized in Table 1 below.

Table 1 Preliminary Infiltration Results Based on Grain Size Analysis				
Test Pit ID & Depth	Geologic Unit	% passing #200 Sieve	Uncorrected K <sub>sat</sub> Infiltration Rate [in/hr]	Corrected K <sub>sat</sub> Infiltration Rate [in/hr]
TP-1 (3 ft)	Qvl <sub>k</sub>	56.20	3.076	0.775
TP-1 (5 ft)	Qvl <sub>k</sub>	58.76	2.544	0.641
TP-2 (2.5 ft)	Qvl <sub>k</sub>	83.77	0.688	0.173
TP-2 (3.5 ft)	Qvl <sub>k</sub>	54.36	3.269	0.824
TP-3 (3.5 ft)	Qvl <sub>k</sub>	6.67	40.186	10.127
TP-3 (5 ft)	Qvl <sub>k</sub>	39.01	7.253	1.828
TP-4 (4 ft)	Qvl <sub>k</sub>	42.13	5.920	1.492
TP-4 (6 ft)	Qvl <sub>k</sub>	24.24	14.845	3.741
Notes: -Ksat = Initial Saturated Hydraulic Conductivity -Correction Factors Used: CFv = 0.33, CFt = 0.4, CFm = 0.9, Total Correction Factor = 0.12				

The native site soils are variable in terms of predicted infiltration rate and fines content. The above rates are representative of loose soil conditions, and do not take into account relative soil density, particle shape, and stratigraphic effects.

Groundwater was encountered at a depth of 10 feet BGS in test pit TP-3. Localized seepage was encountered within the excavations, but this appeared to be limited to natural hydraulic pathways above silt seams and around buried wood debris and does not appear to be indicative of a regional groundwater table as observed in TP-3.

Based on the above data, a preliminary infiltration rate of **1.05 inches per hour** for depths of approximately 3 to 6 feet BGS may be utilized during the design process. If an increased rate is desired/required, a “real-world” determination can be performed via a Pilot Infiltration Test (PIT) methods per the SMMWW.

#### *Stormwater Treatment*

The stormwater facilities on-site may require some form of pollutant pretreatment with an amended soil for treatment prior to on-site infiltration or offsite discharge. Cation exchange capacities, organic contents, and pH of site subsurface soils were also tested to determine possible pollutant treatment suitability.

Cation exchange capacity, organic content, and pH tests were performed by Northwest Agricultural Consultants on five soil samples collected from the explorations shown in Table 2. A summary of the laboratory test results is presented below.

TABLE 2 Cation Exchange Capacity, Organic Content, and pH Laboratory Test Results					
Test Pit ID	Sample Depth (ft)	Geologic Unit	Cation Exchange Capacity (meq/100 grams)	Organic Content (%)	pH
TP-1	0.5	Topsoil	15.2	6.36	5.8
TP-1	1.5	Lahar Deposits	8.0	2.90	6.3
TP-1	3.0	Lahar Deposits	2.4	1.29	6.4
TP-4	0.5	Topsoil	20.1	12.32	5.7
TP-4	1.0	Lahar Deposits	6.7	3.16	5.9
-2012 SMMWW SSC-6 Criteria for Treatment: CEC ≥ 5.0 meq/100g ; Organic Content ≥ 1%					

Suitability for the use of onsite soils for pollutant treatment is determined in accordance with SSC-6 of the 2012 Washington State Department of Ecology *Stormwater Management Manual for Western Washington*. Soils with an organic content of greater than or equal to 1 percent and a cation exchange capacity of greater than or equal to 5 meq/100 grams are characterized as suitable for stormwater treatment. Based on the results shown in Table 2, the soils within the upper 1.5 feet are generally suitable for stormwater treatment. Some amendment of the lahar deposits soils with topsoil may be required if deeper locations are selected for treatment.

On-site soils can be amended by mixing higher silt content soils or adding mulch (or other admixtures) to elevate the cation exchange capacity and organic contents. On-site amended soil may require additional testing to confirm compliance with ecological regulations. GeoTest is available to perform additional laboratory testing as part of an expanded scope of services if the soil is to be amended. Alternatively, the owner may elect to import amended soils with the desired properties for planned treatment facilities.

#### Geotechnical Consultation and Construction Monitoring

GeoTest recommends that we be involved in the project design review process. The purpose of the review is to verify that the recommendations presented in this report are understood and incorporated in the design and specifications.

GeoTest is available to provide a full range of materials testing and special inspection during construction as required by the local building department and the International Building Code. This may include specific construction inspections on materials such as reinforced concrete, reinforced masonry, wood framing and structural steel. These services are supported by our fully accredited materials testing laboratory.

## USE OF THIS REPORT

GeoTest Services has prepared this report for the exclusive use of Morris Nilson and his design consultants for specific application to the design of the proposed Plat to be located at 606 F & S Grade Road in Sedro Woolley, Washington. Use of this report by others is at the user's sole risk. This report is not applicable to other site locations. Our services are conducted in accordance with accepted practices of the geotechnical engineering profession; no other warranty, express or implied, is made as to the professional advice included in this report.

Our site explorations indicate subsurface conditions at the dates and locations indicated. It is not warranted that these conditions are representative of conditions at other locations and times. The analyses, conclusions, and recommendations contained in this report are based on site conditions to the limited depth and time of our explorations, a geological reconnaissance of the area, and a review of previously published USGS geological information for the site. If variations in subsurface conditions are encountered during construction that differs from those contained within this report, GeoTest should be allowed to review the recommendations and, if necessary, make revisions. If there is a substantial lapse of time between submission of this report and the start of construction, or if conditions change due to construction operations at or adjacent to the project site, we recommend that we review this report to determine the applicability of the conclusions and recommendations contained herein.

The earthwork contractor is responsible to perform all work in conformance with all applicable WISHA/OSHA regulations. GeoTest Services, Inc. is not responsible for job site safety on this project, and this responsibility is specifically disclaimed.

Attachments: Figure 1	Vicinity Map
Figure 2	Site and Exploration Plan
Figure 3	Soil Classification Sheet
Figures 4-5	Test Pit Logs
Figures 6-9	Sieve Analysis
Attached	CEC, pH, OC Test Results
Attached	Report Limitations and Guidelines

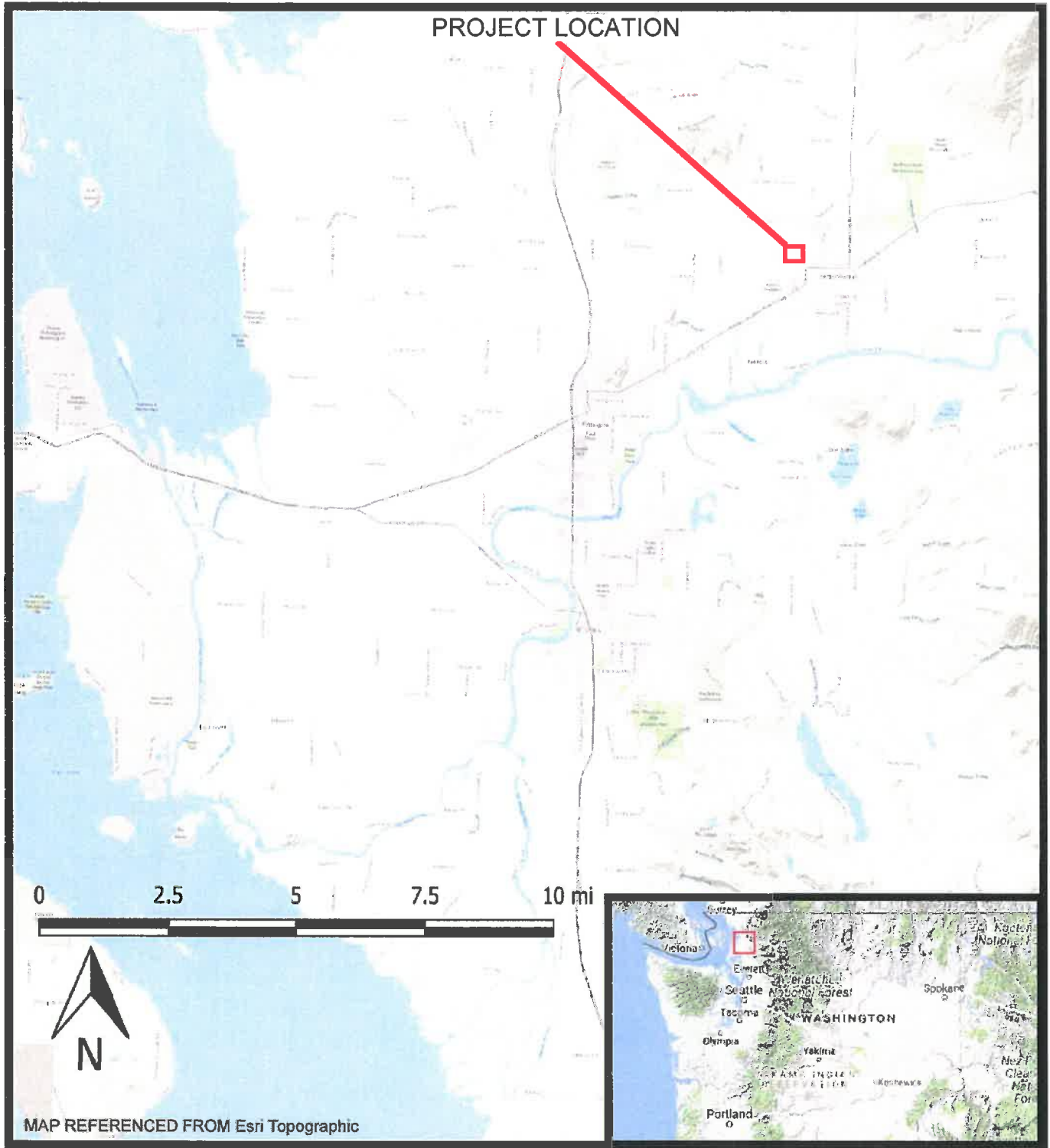
## REFERENCES

Bakeman, S., Dan, G., Howie, D., Killelea, J., Labib, F., & Ed, O. (n.d.). 2012 Stormwater Management Manual for Western Washington, as Amended in December 2014 (The 2014 SWMMWW) (pp. 1-1042) (United States, Washington State Department of Ecology).

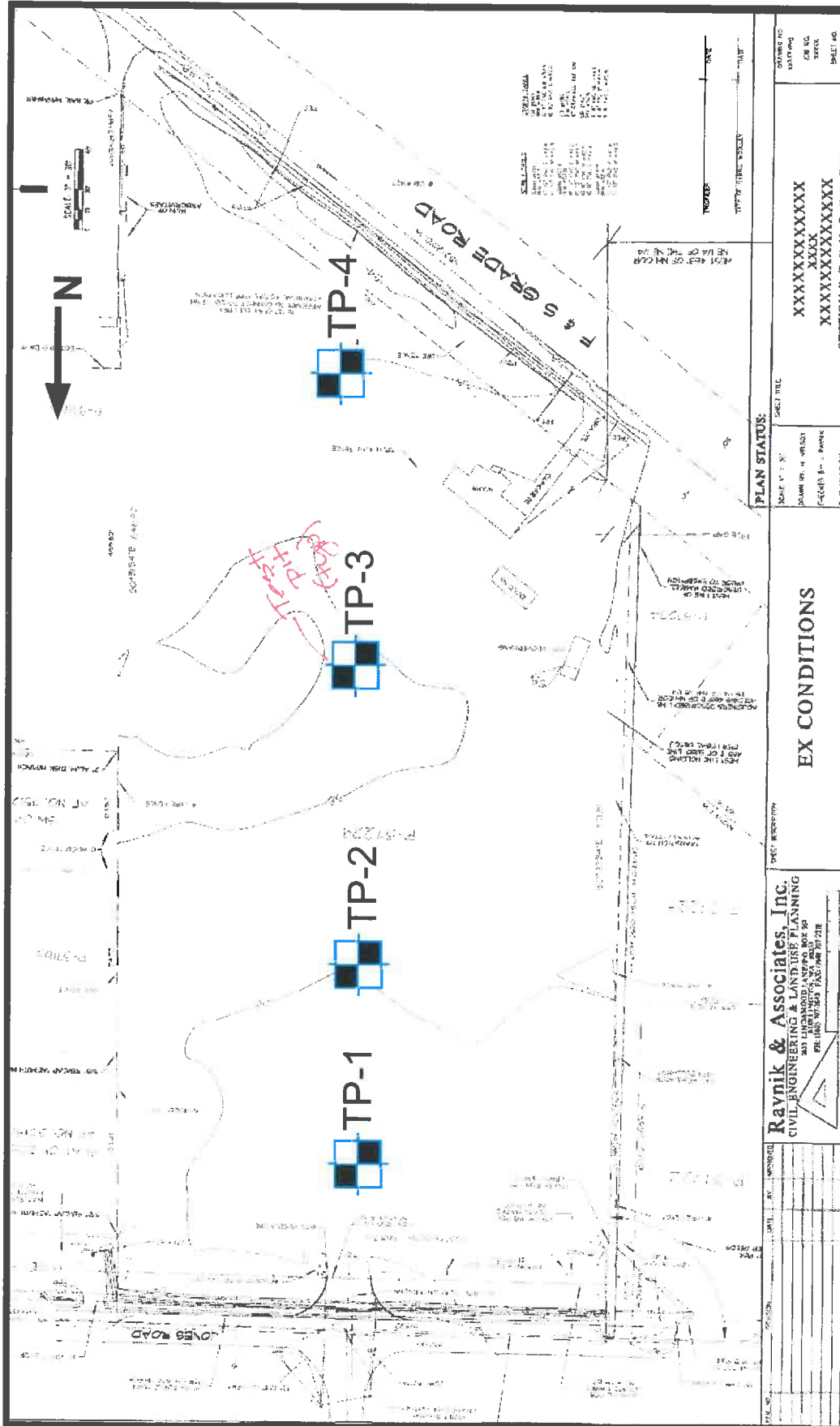
Lapen, Thomas J., 2000, Geologic map of the Bellingham 1:100,000 quadrangle, Washington: Washington Division of Geology and Earth Resources, Open File Report 2000-5, scale 1:100,000.

Washington *Geologic Information Portal*. Washington State Department of Natural Resources - Online Web Services, 2019. Retrieved September 2019 from <https://geologyportal.dnr.wa.gov/>.

Washington State Department of Ecology. Well Log Viewer, Retrieved September 2019 from <https://fortress.wa.gov/ecy/wellconstruction/map/WCLWebMap/WellConstructionMapSearch.aspx>.



<b>GEOTEST SERVICES, INC.</b> 741 Marine Drive Bellingham, WA 98225 phone: (360) 733-7318 fax: (360) 733-7418	Date: 8-30-19	By: KP	Scale: As Shown	Project <b>19-0614</b>
	<b>VICINITY MAP</b> <b>NILSON PROJECT</b> <b>606 F &amp; S GRADE ROAD</b> <b>SEDRO-WOOLLEY, WA 98284</b>			Figure
				<b>1</b>



**Raynik & Associates, Inc.**  
 CIVIL ENGINEERING & LAND USE PLANNING  
 3431 LIVINGSTON AVE. BOX 80  
 P.O. BOX 97004 SEASIDE, WA 98138

**EX CONDITIONS**

**PLAN STATUS:**  
 SCALE: 1" = 40'  
 SHEET NO. 1  
 SHEET TOTAL 1  
 DATE: 8-27-19  
 BY: NG

**GEOTEEST SERVICES, INC.**  
 741 Marine Drive  
 Bellingham, WA 98225  
 phone: (360) 733-7318  
 fax: (360) 733-7418

**Project**  
**19-0614**

**Scale: As Shown**

**Figure**  
**2**

**SITE AND EXPLORATION PLAN**  
**NILSON PROJECT**  
**606 F & S GRADE ROAD**  
**SEDRO-WOOLLEY, WA 98284**

## Soil Classification System

MAJOR DIVISIONS		GRAPHIC SYMBOL	USCS LETTER SYMBOL	TYPICAL DESCRIPTIONS <sup>(1)(2)</sup>	
COARSE-GRAINED SOIL (More than 50% of material is larger than No. 200 sieve size)	GRAVEL AND GRAVELLY SOIL  (More than 50% of coarse fraction retained on No. 4 sieve)		GW	Well-graded gravel; gravel/sand mixture(s); little or no fines	
			GP	Poorly graded gravel; gravel/sand mixture(s); little or no fines	
		GRAVEL WITH FINES (Appreciable amount of fines)		GM	Silty gravel; gravel/sand/silt mixture(s)
				GC	Clayey gravel; gravel/sand/clay mixture(s)
	SAND AND SANDY SOIL  (More than 50% of coarse fraction passed through No. 4 sieve)	CLEAN SAND (Little or no fines)		SW	Well-graded sand; gravelly sand; little or no fines
				SP	Poorly graded sand; gravelly sand; little or no fines
SAND WITH FINES (Appreciable amount of fines)			SM	Silty sand; sand/silt mixture(s)	
			SC	Clayey sand; sand/clay mixture(s)	
FINE-GRAINED SOIL (More than 50% of material is smaller than No. 200 sieve size)	SILT AND CLAY  (Liquid limit less than 50)		ML	Inorganic silt and very fine sand; rock flour; silty or clayey fine sand or clayey silt with slight plasticity	
			CL	Inorganic clay of low to medium plasticity; gravelly clay; sandy clay; silty clay; lean clay	
			OL	Organic silt; organic, silty clay of low plasticity	
	SILT AND CLAY  (Liquid limit greater than 50)		MH	Inorganic silt; micaceous or diatomaceous fine sand	
			CH	Inorganic clay of high plasticity; fat clay	
			OH	Organic clay of medium to high plasticity; organic silt	
			PT	Peat; humus; swamp soil with high organic content	

OTHER MATERIALS		GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
PAVEMENT			AC or PC	Asphalt concrete pavement or Portland cement pavement
ROCK			RK	Rock (See Rock Classification)
WOOD			WD	Wood, lumber, wood chips
DEBRIS			DB	Construction debris, garbage

Notes: 1. Soil descriptions are based on the general approach presented in the *Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*, as outlined in ASTM D 2488. Where laboratory index testing has been conducted, soil classifications are based on the *Standard Test Method for Classification of Soils for Engineering Purposes*, as outlined in ASTM D 2487.

2. Soil description terminology is based on visual estimates (in the absence of laboratory test data) of the percentages of each soil type and is defined as follows:

Primary Constituent: > 50% - "GRAVEL," "SAND," "SILT," "CLAY," etc.  
 Secondary Constituents: > 30% and ≤ 50% - "very gravelly," "very sandy," "very silty," etc.  
 > 12% and ≤ 30% - "gravelly," "sandy," "silty," etc.  
 Additional Constituents: > 5% and ≤ 12% - "slightly gravelly," "slightly sandy," "slightly silty," etc.  
 ≤ 5% - "trace gravel," "trace sand," "trace silt," etc., or not noted.

Drilling and Sampling Key		Field and Lab Test Data	
SAMPLE NUMBER & INTERVAL	SAMPLER TYPE	Code	Description
	Code		
	Description		
	a	3.25-inch O.D., 2.42-inch I.D. Split Spoon	
	b	2.00-inch O.D., 1.50-inch I.D. Split Spoon	
	c	Shelby Tube	
	d	Grab Sample	
	e	Other - See text if applicable	
	1	300-lb Hammer, 30-inch Drop	
	2	140-lb Hammer, 30-inch Drop	
	3	Pushed	
	4	Other - See text if applicable	
Groundwater			
		Approximate water elevation at time of drilling (ATD) or on date noted. Groundwater levels can fluctuate due to precipitation, seasonal conditions, and other factors.	
		Code	Description
		PP = 1.0	Pocket Penetrometer, tsf
		TV = 0.5	Torvane, tsf
		PID = 100	Photoionization Detector VOC screening, ppm
		W = 10	Moisture Content, %
		D = 120	Dry Density, pcf
		-200 = 60	Material smaller than No. 200 sieve, %
		GS	Grain Size - See separate figure for data
		AL	Atterberg Limits - See separate figure for data
		GT	Other Geotechnical Testing
		CA	Chemical Analysis

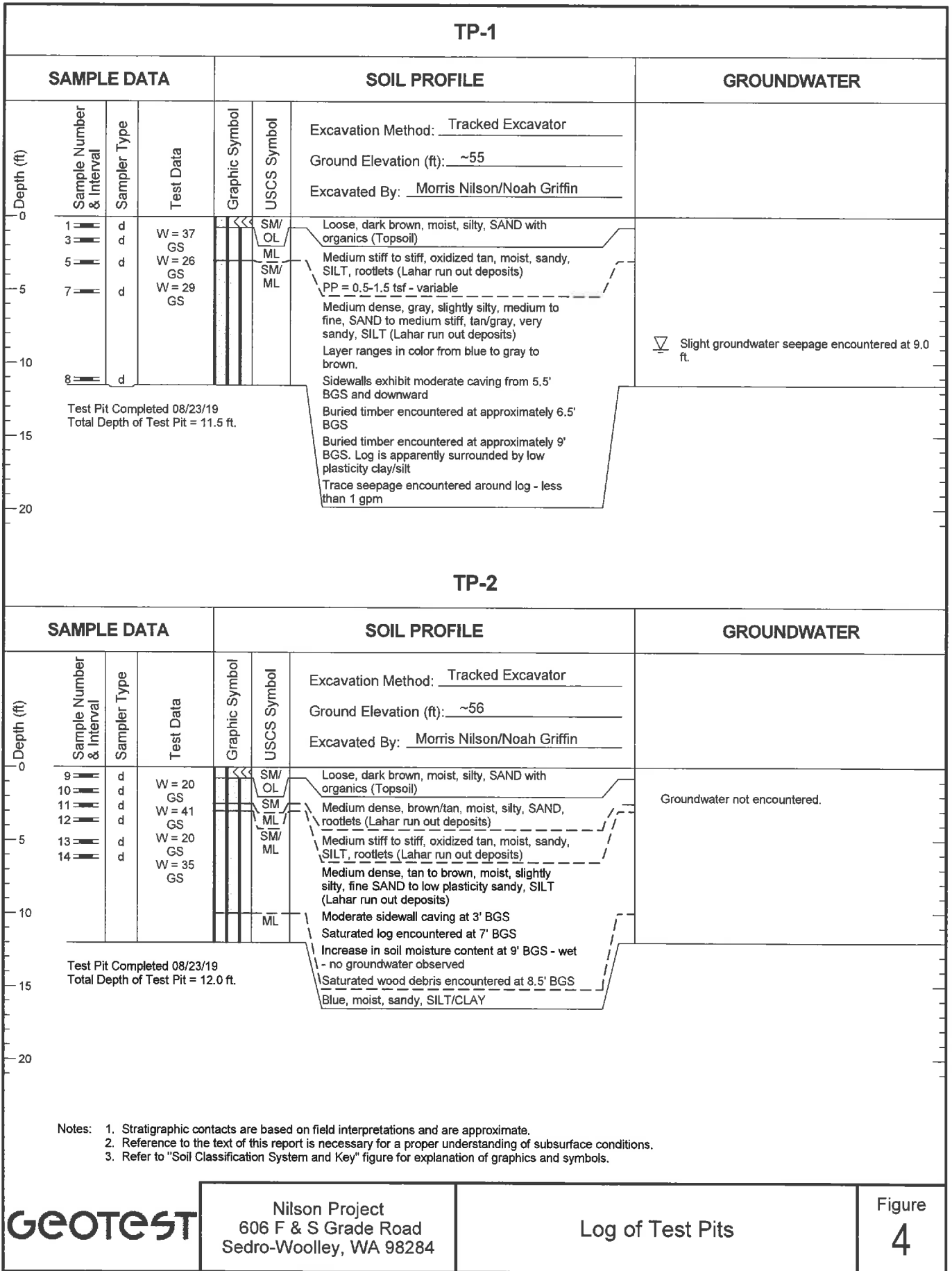
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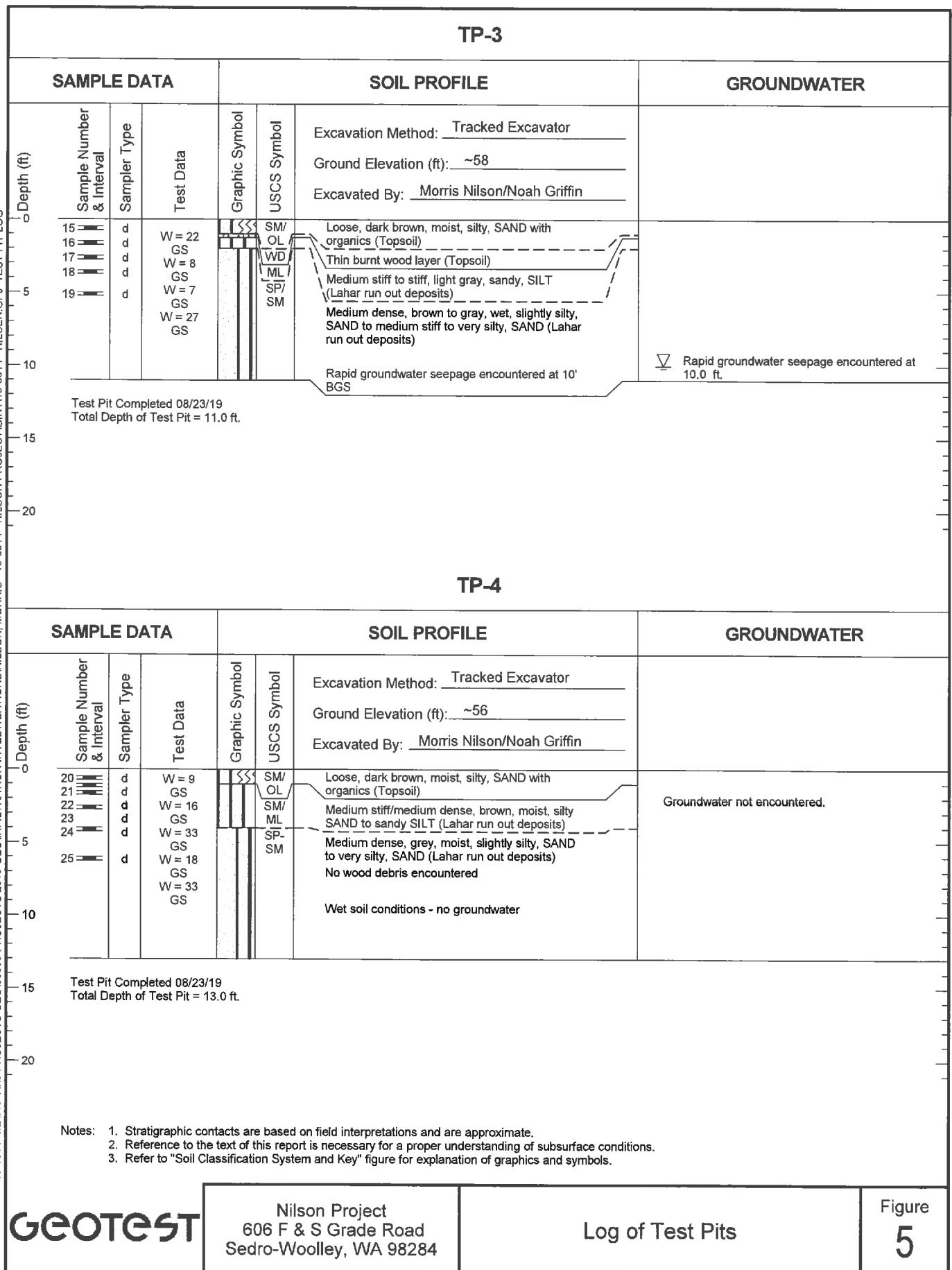
Nilson Project  
606 F & S Grade Road  
Sedro-Woolley, WA 98284

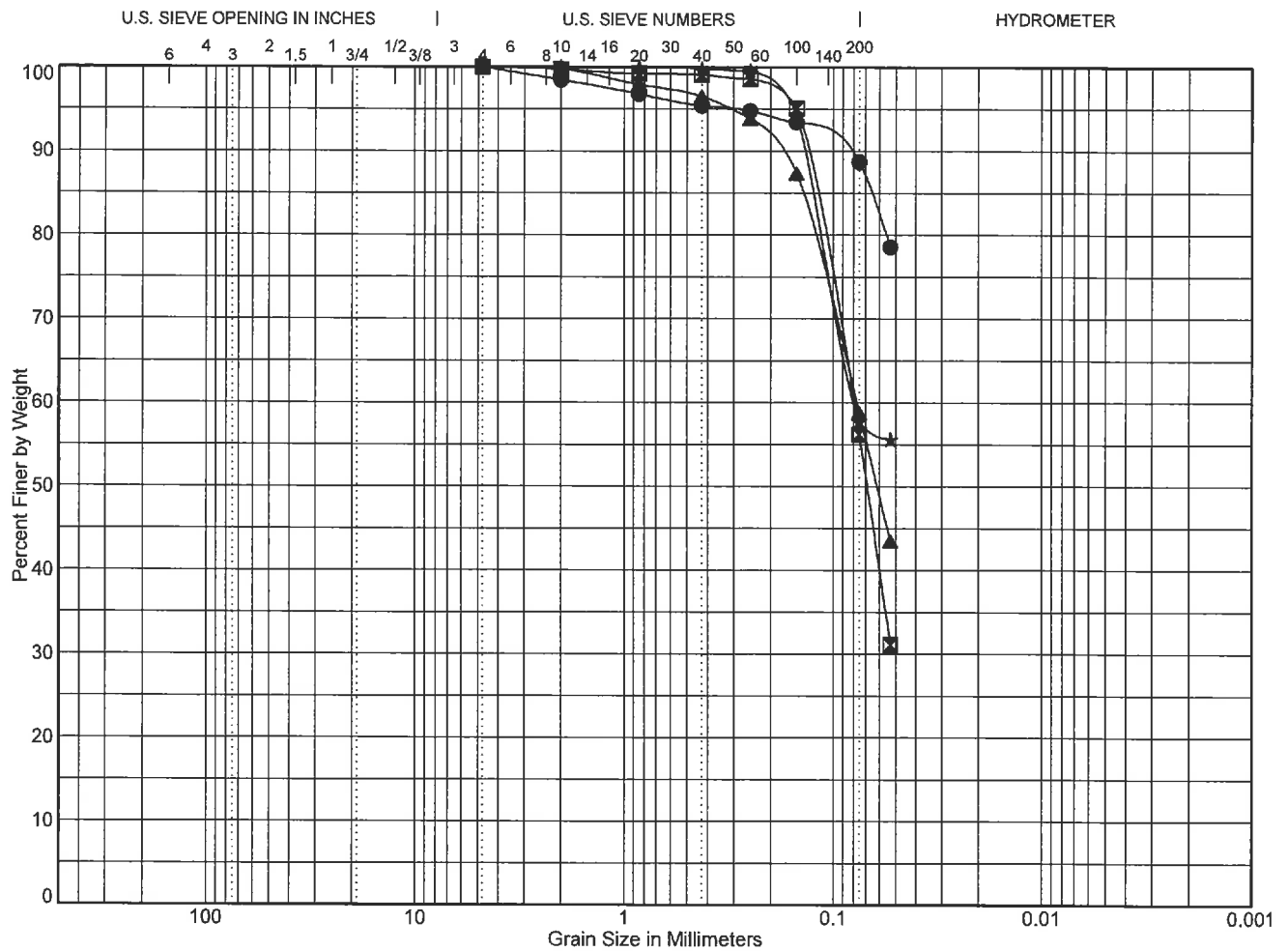
Soil Classification System and Key

Figure  
**3**

19-0614 9/24/19 X:\0-PROJECTS GEO\000000-PROJECTS 2019-GEOINTEGRATION INVESTIGATIONS\NILSON, MORRIS - 19-0614 - NILSON PROJECT\GINTV19-0614 - NILSEN.GPJ TEST PIT LOG







Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Point Depth			Classification						LL	PL	PI	C <sub>c</sub>	C <sub>u</sub>
●	TP-1	1.5	SLIGHTLY SANDY SILT (ML)										
☒	TP-1	3.0	VERY SANDY SILT (ML)										
▲	TP-1	5.0	VERY SANDY SILT (ML)										
★	TP-2	1.5	VERY SANDY SILT (ML)										
Point Depth			D <sub>90</sub>	D <sub>80</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>10</sub>	%Coarse Gravel	% Fine Gravel	% Coarse Sand	% Medium Sand	% Fine Sand	% Fines
●	TP-1	1.5	0.091					0.0	0.0	1.5	3.1	6.7	88.7
☒	TP-1	3.0	0.137	0.08	0.069			0.0	0.0	0.3	0.6	42.9	56.2
▲	TP-1	5.0	0.185	0.077	0.061			0.0	0.0	0.2	3.3	37.8	58.8
★	TP-2	1.5	0.138	0.078				0.0	0.0	0.0	0.2	42.1	57.8

$$C_c = D_{30}^2 / (D_{60} * D_{10})$$

$$C_u = D_{60} / D_{10}$$

To be well graded:  $1 < C_c < 3$  and  $C_u > 4$  for GW or  $C_u > 6$  for SW

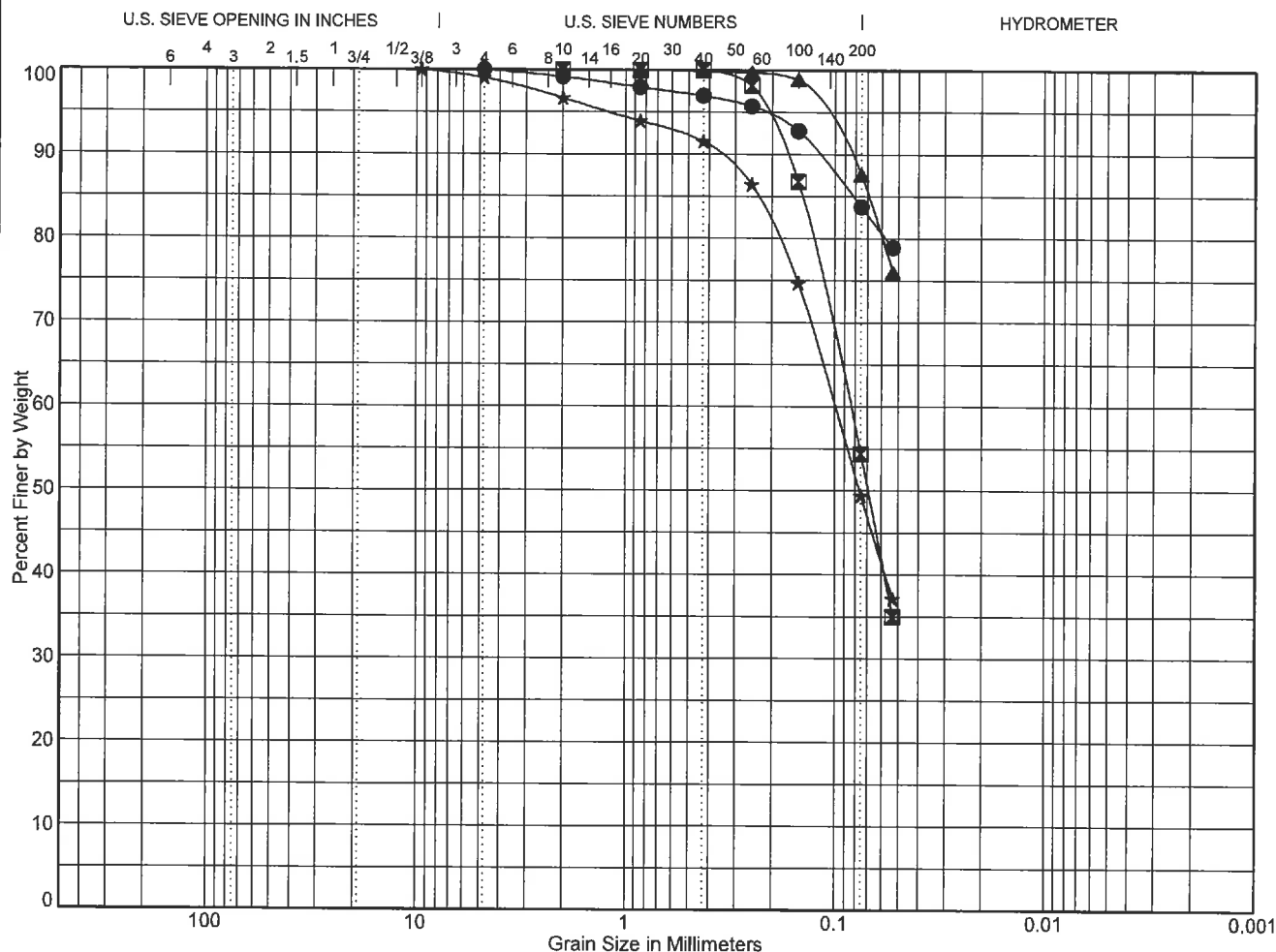
**GEOTEST**

Nilson Project  
606 F & S Grade Road  
Sedro-Woolley, WA 98284

Grain Size Test Data

Figure  
**6**

19-0614 9/4/19 \\SBSERVERDATA\0-PROJECTS\GEO\00000-PROJECTS 2019-GEOINFILTRATION INVESTIGATIONS\NILSON, MORRIS - 19-0614 - NILSON PROJECT\GINT19-0614 - NILSEN.GPJ GRAIN SIZE W/STATS



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Point Depth			Classification						LL	PL	PI	C <sub>c</sub>	C <sub>u</sub>
●	TP-2	2.5	SANDY SILT (ML)										
☒	TP-2	3.5	VERY SANDY SILT/CLAY (ML)										
▲	TP-2	6.0	SANDY SILT (ML)										
★	TP-3	1.5	VERY SILTY SAND (SM)										
Point Depth			D <sub>90</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>10</sub>	%Coarse Gravel	% Fine Gravel	% Coarse Sand	% Medium Sand	% Fine Sand	% Fines
●	TP-2	2.5	0.121					0.0	0.0	0.8	2.2	13.2	83.8
☒	TP-2	3.5	0.174	0.085	0.069			0.0	0.0	0.0	0.0	45.6	54.4
▲	TP-2	6.0	0.087					0.0	0.0	0.0	0.2	12.2	87.6
★	TP-3	1.5	0.363	0.1	0.076			0.0	1.0	2.4	5.1	42.1	49.4

$$C_c = D_{30}^2 / (D_{60} * D_{10})$$

$$C_u = D_{60} / D_{10}$$

To be well graded:  $1 < C_c < 3$  and  $C_u > 4$  for GW or  $C_u > 6$  for SW

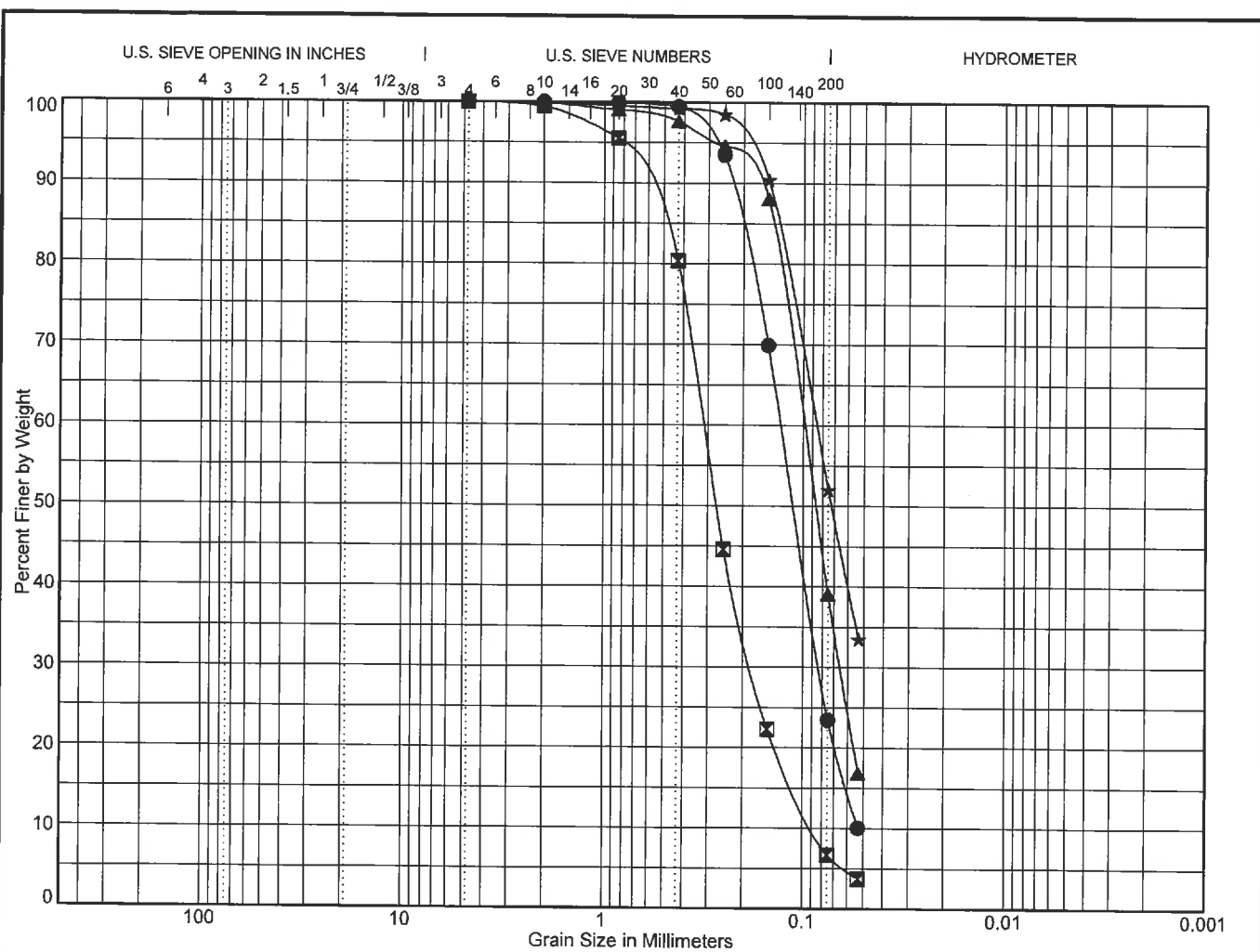
**GEOTEST**

Nilson Project  
606 F & S Grade Road  
Sedro-Woolley, WA 98284

Grain Size Test Data

Figure  
**7**

19-0614 9/4/19 \NSBSERVER\DATA\PROJECTS\GEOTEST\PROJECTS\2019-GEOTEST\INVESTIGATIONS\NILSON, MORRIS - 19-0614 - NILSON.GPJ GRAIN SIZE WSTATS



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

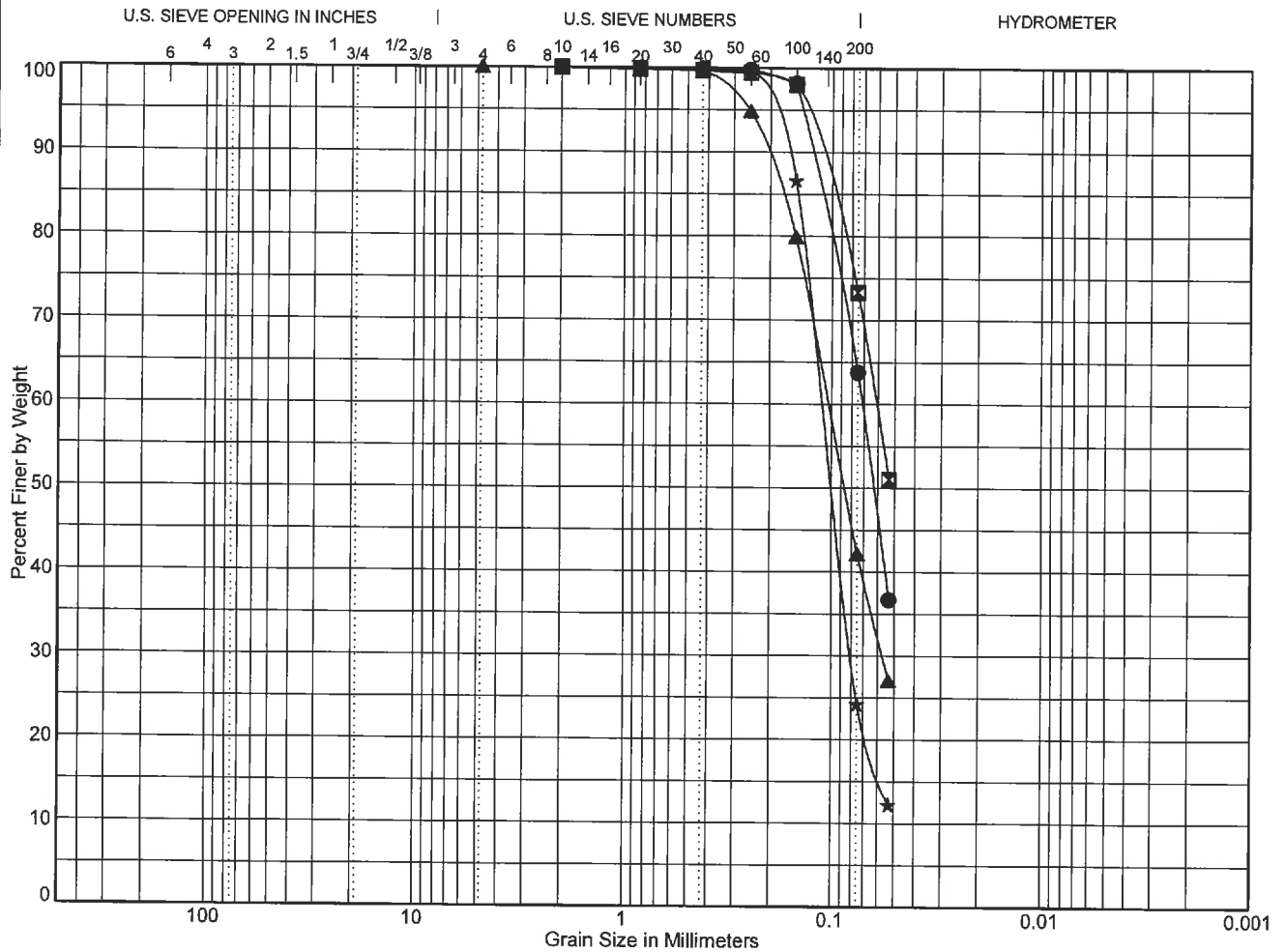
Point Depth			Classification							LL	PL	PI	C <sub>c</sub>	C <sub>u</sub>
●	TP-3	2.5	SILTY SAND (SM)											
☒	TP-3	3.5	SLIGHTLY SILTY, POORLY GRADED SAND (SP/SM)										1.17	3.62
▲	TP-3	5.0	VERY SILTYSAND (SM)											
★	TP-4	1.0	VERY SANDY SILT (ML)											
Point Depth			D <sub>90</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>10</sub>	%Coarse Gravel	% Fine Gravel	% Coarse Sand	% Medium Sand	% Fine Sand	% Fines	
●	TP-3	2.5	0.232	0.129	0.111	0.083		0.0	0.0	0.0	0.5	76.0	23.4	
☒	TP-3	3.5	0.66	0.314	0.271	0.179	0.087	0.0	0.0	0.5	19.1	73.7	6.7	
▲	TP-3	5.0	0.175	0.101	0.088	0.065		0.0	0.0	0.1	2.3	58.6	39.0	
★	TP-4	1.0	0.149	0.087	0.072			0.0	0.0	0.2	0.6	47.2	52.0	

$C_c = D_{30}^2 / (D_{60} * D_{10})$  To be well graded:  $1 < C_c < 3$  and  $C_u > 4$  for GW or  $C_u > 6$  for SW  
 $C_u = D_{60} / D_{10}$

Nilson Project  
606 F & S Grade Road  
Sedro-Woolley, WA 98284

Grain Size Test Data

Figure  
**8**



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Point	Depth	Classification							LL	PL	PI	C <sub>c</sub>	C <sub>u</sub>	
●	TP-4	1.5	VERY SANDY SILT (ML)											
☒	TP-4	2.5	SANDY SILT (ML)											
▲	TP-4	4.0	VERY SILTY SAND (SM)											
★	TP-4	6.0	SILTY SAND (SM)											
Point	Depth	D <sub>90</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>10</sub>	%Coarse Gravel	% Fine Gravel	% Coarse Sand	% Medium Sand	% Fine Sand	% Fines		
●	TP-4	1.5	0.127	0.071	0.063		0.0	0.0	0.0	0.2	36.1	63.8		
☒	TP-4	2.5	0.12	0.061			0.0	0.0	0.0	0.3	26.4	73.3		
▲	TP-4	4.0	0.212	0.104	0.087	0.057	0.0	0.0	0.1	0.3	57.5	42.1		
★	TP-4	6.0	0.171	0.112	0.1	0.08	0.0	0.0	0.0	0.0	75.8	24.2		

$$C_c = D_{30}^2 / (D_{60} * D_{10})$$

$$C_u = D_{60} / D_{10}$$

To be well graded:  $1 < C_c < 3$  and  $C_u > 4$  for GW or  $C_u > 6$  for SW

**GEOTEST**

Nilson Project  
606 F & S Grade Road  
Sedro-Woolley, WA 98284

Grain Size Test Data

Figure  
**9**



**Northwest Agricultural  
Consultants**

2545 W Falls Avenue  
Kennewick, WA 99336  
509.783.7450  
www.nwag.com  
lab@nwag.com

PAP-Accredited



GeoTest Services Inc.  
741 Marine Drive  
Bellingham, WA 98225

**Report:** 48871-1-1  
**Date:** August 27, 2019  
**Project No:** 19-0614  
**Project Name:** Nilson Project

Sample ID	pH	Organic Matter	Cation Exchange Capacity
TP-1 @ 0.5'	5.8	6.36%	15.2 meq/100g
TP-1 @ 1.5'	6.3	2.90%	8.0 meq/100g
TP-1 @ 3.0'	6.4	1.29%	2.4 meq/100g
TP-4 @ 0.5'	5.7	12.32%	20.1 meq/100g
TP-4 @ 1.0'	5.9	3.16%	6.7 meq/100g
Method	SM 4500-H <sup>+</sup> B	ASTM D2974	EPA 9081



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## REPORT LIMITATIONS AND GUIDELINES FOR ITS USE<sup>1</sup>

Subsurface issues may cause construction delays, cost overruns, claims, and disputes. While you cannot eliminate all such risks, you can manage them. The following information is provided to help:

### **Geotechnical Services are Performed for Specific Purposes, Persons, and Projects**

At GeoTest our geotechnical engineers and geologists structure their services to meet specific needs of our clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of an owner, a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared solely for the client. No one except you should rely on your geotechnical engineer who prepared it. And no one – not even you – should apply the report for any purpose or project except the one originally contemplated.


### **Read the Full Report**

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

### **A Geotechnical Engineering Report is Based on a Unique Set of Project-Specific Factors**

GeoTest's geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the clients goals, objectives, and risk management preferences; the general nature of the structure involved its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless GeoTest, who conducted the study specifically states otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.



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Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed, for example, from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed construction,
- alterations in drainage designs; or
- composition of the design team; the passage of time; man-made alterations and construction whether on or adjacent to the site; or by natural alterations and events, such as floods, earthquakes or groundwater fluctuations; or project ownership.

Always inform GeoTest's geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.

### **Subsurface Conditions Can Change**

This geotechnical or geologic report is based on conditions that existed at the time the study was performed. Do not rely on the findings and conclusions of this report, whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. Always contact GeoTest before applying the report to determine if it is still relevant. A minor amount of additional testing or analysis will help determine if the report remains applicable.

### **Most Geotechnical and Geologic Findings are Professional Opinions**

Our site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoTest's engineers and geologists review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in your report. Retaining GeoTest who developed this report to provide construction observation is the most effective method of managing the risks associated with anticipated or unanticipated conditions.

### **A Report's Recommendations are Not Final**

Do not over-rely on the construction recommendations included in this report. Those recommendations are not final, because geotechnical engineers or geologists develop them principally from judgment and opinion. GeoTest's geotechnical engineers or geologists can finalize their recommendations only by observing actual subsurface conditions revealed during construction. GeoTest cannot assume responsibility or liability for the report's recommendations if our firm does not perform the construction observation.

### **A Geotechnical Engineering or Geologic Report may be Subject to Misinterpretation**


Misinterpretation of this report by other design team members can result in costly problems. Lower that risk by having GeoTest confer with appropriate members of the design team after submitting the report. Also, we suggest retaining GeoTest to review pertinent elements of the design teams plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having GeoTest participate in pre-bid and preconstruction conferences, and by providing construction observation.

### **Do not Redraw the Exploration Logs**

Our geotechnical engineers and geologists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors of omissions, the logs included in this report should never be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable; but recognizes that separating logs from the report can elevate risk.

### **Give Contractors a Complete Report and Guidance**

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, but preface it with a clearly written letter of transmittal. In that letter, consider advising the contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with GeoTest and/or to conduct additional study to obtain the specific types of information they need or prefer. A pre-bid conference can also be valuable. Be sure contractors have sufficient time to perform additional study. Only then might you be in a position to give contractors the best information available, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.



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In addition, it is recommended that a contingency for unanticipated conditions be included in your project budget and schedule.

### **Read Responsibility Provisions Closely**

Some clients, design professionals, and contractors do not recognize that geotechnical engineering or geology is far less exact than other engineering disciplines. This lack of understanding can create unrealistic expectations that can lead to disappointments, claims, and disputes. To help reduce risk, GeoTest includes an explanatory limitations section in our reports. Read these provisions closely. Ask questions and we encourage our clients or their representative to contact our office if you are unclear as to how these provisions apply to your project.

### **Environmental Concerns Are Not Covered in this Geotechnical or Geologic Report**

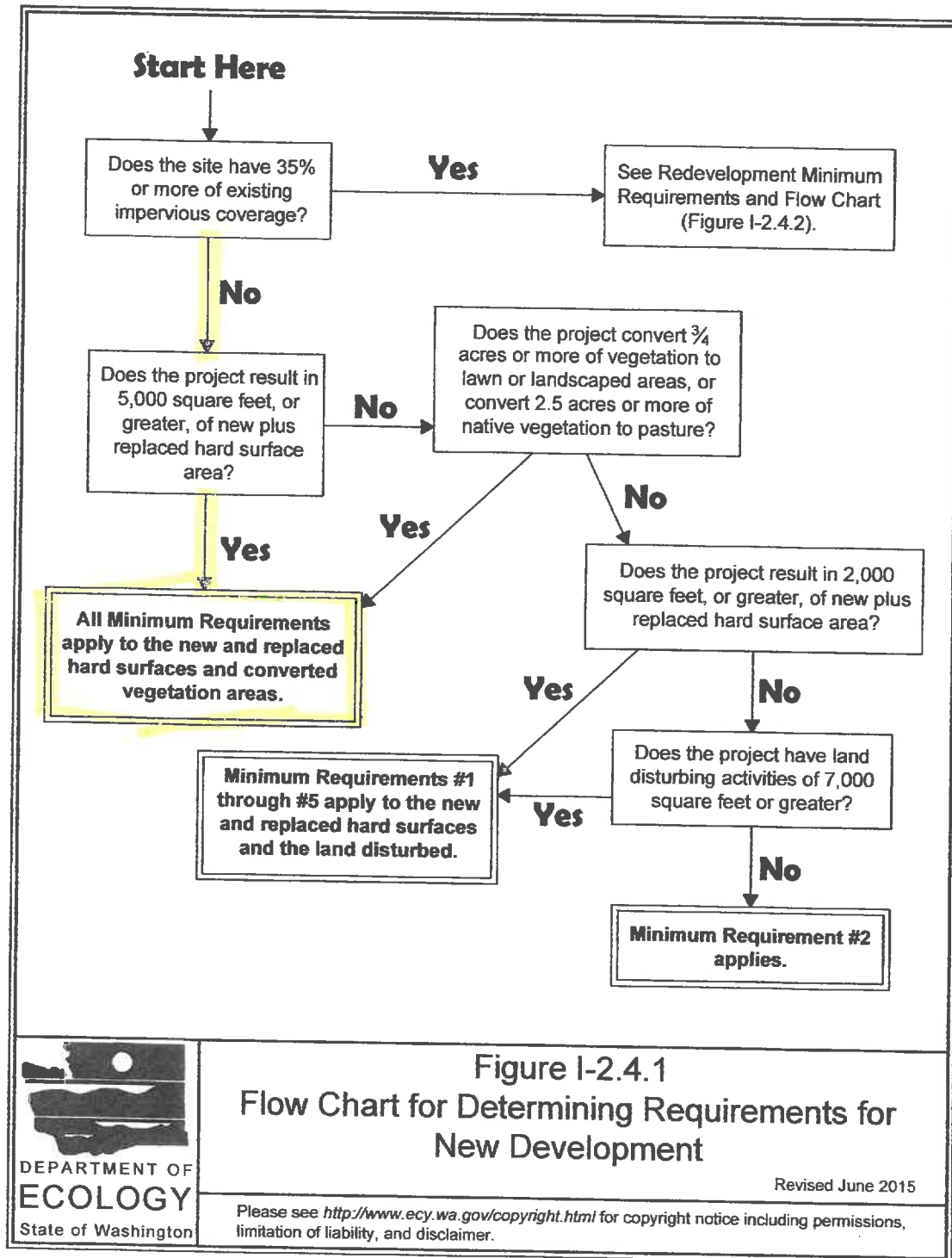
The equipment, techniques, and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated containments, etc. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk management guidance. Do not rely on environmental report prepared for some one else.

### **Obtain Professional Assistance to Deal with Biological Pollutants**

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts biological pollutants from growing on indoor surfaces. Biological pollutants includes but is not limited to molds, fungi, spores, bacteria and viruses. To be effective, all such strategies should be devised for the express purpose of prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional biological pollutant prevention consultant. Because just a small amount of water or moisture can lead to the development of severe biological infestations, a number of prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of this study, the geotechnical engineer or geologist in charge of this project is not a biological pollutant prevention consultant; none of the services preformed in connection with this geotechnical engineering or geological study were designed or conducted for the purpose of preventing biological infestations.

**2014 DOE FIGURE 1-2.4.1 – Flow Chart  
WWHM REPORTS  
-ROW BASIN  
-PRIVATE BASIN**

**Figure I-2.4.1 Flow Chart for Determining Requirements for New Development**



Western Washington Hydrology Model  
PROJECT REPORT

ROW

Project Name: ROW WITH TWO SUBBASINS-wwhm3 11.26.19  
Site Address:  
City :  
Report Date : 11/26/2019  
Gage : Burlington  
Data Start : 1948/10/01  
Data End : 1999/09/30  
Precip Scale: 1.00  
WWHM3 Version:

PREDEVELOPED LAND USE

Name : ROW Basin  
Bypass: No

GroundWater: No

<u>Pervious Land Use</u>	<u>Acres</u>
C, Forest, Flat	1.02

<u>Impervious Land Use</u>	<u>Acres</u>
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Element Flows To:

Surface	Interflow	Groundwater
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Name : South ROW Basin  
Bypass: No

GroundWater: No

<u>Pervious Land Use</u>	<u>Acres</u>
C, Lawn, Flat	.13

<u>Impervious Land Use</u>	<u>Acres</u>
ROADS FLAT	0.21
SIDEWALKS FLAT	0.1

Element Flows To:

Surface	Interflow	Groundwater
South Gravel Trench Bed 1,	South Gravel Trench Bed 1,	

Name : South Gravel Trench Bed 1

Bottom Length: 110ft.  
 Bottom Width : 10ft.  
 Trench bottom slope 1: 0.01 To 1  
 Trench Left side slope 0: 0 To 1  
 Trench right side slope 2: 0 To 1  
 Material thickness of first layer : 2.33  
 Pour Space of material for first layer : 0.31  
 Material thickness of second layer : 0  
 Pour Space of material for second layer : 0  
 Material thickness of third layer : 0  
 Pour Space of material for third layer : 0  
 Infiltration On  
 Infiltration rate : 1.05  
 Infiltration safety factor : 1  
 Wetted surface area On  
Discharge Structure  
 Riser Height: 1.33 ft.  
 Riser Diameter: 8 in.

Element Flows To:  
 Outlet 1                      Outlet 2  
 North Gravel Trench Bed 2,

Gravel Trench Bed Hydraulic Table				
Stage(ft)	Area(acr)	Volume(acr-ft)	Dschrg(cfs)	Infilt(cfs)
0.000	0.025	0.000	0.000	0.000
0.026	0.025	0.000	0.000	0.027
0.052	0.025	0.000	0.000	0.027
0.078	0.025	0.001	0.000	0.027
0.104	0.025	0.001	0.000	0.027
0.129	0.025	0.001	0.000	0.027
0.155	0.025	0.001	0.000	0.028
0.181	0.025	0.001	0.000	0.028
0.207	0.025	0.002	0.000	0.028
0.233	0.025	0.002	0.000	0.028
0.259	0.025	0.002	0.000	0.028
0.285	0.025	0.002	0.000	0.028
0.311	0.025	0.002	0.000	0.029
0.337	0.025	0.003	0.000	0.029
0.362	0.025	0.003	0.000	0.029
0.388	0.025	0.003	0.000	0.029
0.414	0.025	0.003	0.000	0.029
0.440	0.025	0.003	0.000	0.029
0.466	0.025	0.004	0.000	0.029
0.492	0.025	0.004	0.000	0.030
0.518	0.025	0.004	0.000	0.030
0.544	0.025	0.004	0.000	0.030
0.570	0.025	0.004	0.000	0.030
0.595	0.025	0.005	0.000	0.030
0.621	0.025	0.005	0.000	0.030
0.647	0.025	0.005	0.000	0.031
0.673	0.025	0.005	0.000	0.031
0.699	0.025	0.005	0.000	0.031
0.725	0.025	0.006	0.000	0.031

0.751	0.025	0.006	0.000	0.031
0.777	0.025	0.006	0.000	0.031
0.803	0.025	0.006	0.000	0.031
0.828	0.025	0.006	0.000	0.032
0.854	0.025	0.007	0.000	0.032
0.880	0.025	0.007	0.000	0.032
0.906	0.025	0.007	0.000	0.032
0.932	0.025	0.007	0.000	0.032
0.958	0.025	0.007	0.000	0.032
0.984	0.025	0.008	0.000	0.032
1.010	0.025	0.008	0.000	0.033
1.036	0.025	0.008	0.000	0.033
1.061	0.025	0.008	0.000	0.033
1.087	0.025	0.009	0.000	0.033
1.113	0.025	0.009	0.000	0.033
1.139	0.025	0.009	0.000	0.033
1.165	0.025	0.009	0.000	0.034
1.191	0.025	0.009	0.000	0.034
1.217	0.025	0.010	0.000	0.034
1.243	0.025	0.010	0.000	0.034
1.269	0.025	0.010	0.000	0.034
1.294	0.025	0.010	0.000	0.034
1.320	0.025	0.010	0.000	0.034
1.346	0.025	0.011	0.013	0.035
1.372	0.025	0.011	0.056	0.035
1.398	0.025	0.011	0.115	0.035
1.424	0.025	0.011	0.187	0.035
1.450	0.025	0.011	0.269	0.035
1.476	0.025	0.012	0.361	0.035
1.502	0.025	0.012	0.461	0.035
1.527	0.025	0.012	0.570	0.036
1.553	0.025	0.012	0.685	0.036
1.579	0.025	0.012	0.808	0.036
1.605	0.025	0.013	0.937	0.036
1.631	0.025	0.013	1.072	0.036
1.657	0.025	0.013	1.213	0.036
1.683	0.025	0.013	1.360	0.037
1.709	0.025	0.013	1.513	0.037
1.735	0.025	0.014	1.671	0.037
1.760	0.025	0.014	1.834	0.037
1.786	0.025	0.014	2.001	0.037
1.812	0.025	0.014	2.174	0.037
1.838	0.025	0.014	2.352	0.037
1.864	0.025	0.015	2.534	0.038
1.890	0.025	0.015	2.720	0.038
1.916	0.025	0.015	2.911	0.038
1.942	0.025	0.015	3.106	0.038
1.968	0.025	0.015	3.305	0.038
1.993	0.025	0.016	3.509	0.038
2.019	0.025	0.016	3.716	0.039
2.045	0.025	0.016	3.927	0.039
2.071	0.025	0.016	4.142	0.039
2.097	0.025	0.016	4.361	0.039
2.123	0.025	0.017	4.584	0.039
2.149	0.025	0.017	4.810	0.039
2.175	0.025	0.017	5.040	0.039
2.201	0.025	0.017	5.274	0.040

2.226	0.025	0.017	5.511	0.040
2.252	0.025	0.018	5.751	0.040
2.278	0.025	0.018	5.995	0.040
2.304	0.025	0.018	6.242	0.040
2.330	0.025	0.018	6.493	0.040

Name : North ROW Basin  
Bypass: No

GroundWater: No

<u>Pervious Land Use</u>	<u>Acres</u>
C, Lawn, Flat	.18

<u>Impervious Land Use</u>	<u>Acres</u>
ROADS FLAT	0.27
SIDEWALKS FLAT	0.13

Element Flows To:

Surface	Interflow	Groundwater
North Gravel Trench Bed 2,	North Gravel Trench Bed 2,	

Name : North Gravel Trench Bed 2  
Bottom Length: 240ft.  
Bottom Width : 10ft.  
Trench bottom slope 1: 0.01 To 1  
Trench Left side slope 0: 0 To 1  
Trench right side slope 2: 0 To 1  
Material thickness of first layer : 3  
Pour Space of material for first layer : 0.31  
Material thickness of second layer : 0  
Pour Space of material for second layer : 0  
Material thickness of third layer : 0  
Pour Space of material for third layer : 0  
Infiltration On  
Infiltration rate : 1.05  
Infiltration safety factor : 1  
Wetted surface area On  
Discharge Structure  
Riser Height: 1.33 ft.  
Riser Diameter: 8 in.  
Orifice 1 Diameter: 1 in. Elevation: 1.08 ft.

Element Flows To:

Outlet 1	Outlet 2
----------	----------

Gravel Trench Bed Hydraulic Table  
Stage(ft) Area(acr) Volume(acr-ft) Dschrg(cfs) Infilt(cfs)

0.000	0.055	0.000	0.000	0.000
0.026	0.055	0.000	0.000	0.059
0.052	0.055	0.001	0.000	0.059
0.078	0.055	0.001	0.000	0.059
0.104	0.055	0.002	0.000	0.060
0.129	0.055	0.002	0.000	0.060
0.155	0.055	0.003	0.000	0.060
0.181	0.055	0.003	0.000	0.061
0.207	0.055	0.004	0.000	0.061
0.233	0.055	0.004	0.000	0.061
0.259	0.055	0.004	0.000	0.061
0.285	0.055	0.005	0.000	0.062
0.311	0.055	0.005	0.000	0.062
0.337	0.055	0.006	0.000	0.062
0.362	0.055	0.006	0.000	0.063
0.388	0.055	0.007	0.000	0.063
0.414	0.055	0.007	0.000	0.063
0.440	0.055	0.008	0.000	0.064
0.466	0.055	0.008	0.000	0.064
0.492	0.055	0.008	0.000	0.064
0.518	0.055	0.009	0.000	0.065
0.544	0.055	0.009	0.000	0.065
0.570	0.055	0.010	0.000	0.065
0.595	0.055	0.010	0.000	0.066
0.621	0.055	0.011	0.000	0.066
0.647	0.055	0.011	0.000	0.066
0.673	0.055	0.011	0.000	0.067
0.699	0.055	0.012	0.000	0.067
0.725	0.055	0.012	0.000	0.067
0.751	0.055	0.013	0.000	0.067
0.777	0.055	0.013	0.000	0.068
0.803	0.055	0.014	0.000	0.068
0.828	0.055	0.014	0.000	0.068
0.854	0.055	0.015	0.000	0.069
0.880	0.055	0.015	0.000	0.069
0.906	0.055	0.015	0.000	0.069
0.932	0.055	0.016	0.000	0.070
0.958	0.055	0.016	0.000	0.070
0.984	0.055	0.017	0.000	0.070
1.010	0.055	0.017	0.000	0.071
1.036	0.055	0.018	0.000	0.071
1.061	0.055	0.018	0.000	0.071
1.087	0.055	0.019	0.002	0.072
1.113	0.055	0.019	0.005	0.072
1.139	0.055	0.019	0.006	0.072
1.165	0.055	0.020	0.008	0.072
1.191	0.055	0.020	0.009	0.073
1.217	0.055	0.021	0.010	0.073
1.243	0.055	0.021	0.011	0.073
1.269	0.055	0.022	0.011	0.074
1.294	0.055	0.022	0.012	0.074
1.320	0.055	0.023	0.013	0.074
1.346	0.055	0.023	0.027	0.075
1.372	0.055	0.023	0.070	0.075
1.398	0.055	0.024	0.130	0.075
1.424	0.055	0.024	0.202	0.076
1.450	0.055	0.025	0.285	0.076

1.476	0.055	0.025	0.377	0.076
1.502	0.055	0.026	0.478	0.077
1.527	0.055	0.026	0.587	0.077
1.553	0.055	0.027	0.703	0.077
1.579	0.055	0.027	0.826	0.078
1.605	0.055	0.027	0.956	0.078
1.631	0.055	0.028	1.092	0.078
1.657	0.055	0.028	1.233	0.078
1.683	0.055	0.029	1.381	0.079
1.709	0.055	0.029	1.534	0.079
1.735	0.055	0.030	1.692	0.079
1.760	0.055	0.030	1.855	0.080
1.786	0.055	0.031	2.024	0.080
1.812	0.055	0.031	2.197	0.080
1.838	0.055	0.031	2.374	0.081
1.864	0.055	0.032	2.557	0.081
1.890	0.055	0.032	2.744	0.081
1.916	0.055	0.033	2.935	0.082
1.942	0.055	0.033	3.130	0.082
1.968	0.055	0.034	3.330	0.082
1.993	0.055	0.034	3.534	0.083
2.019	0.055	0.034	3.741	0.083
2.045	0.055	0.035	3.953	0.083
2.071	0.055	0.035	4.169	0.084
2.097	0.055	0.036	4.388	0.084
2.123	0.055	0.036	4.611	0.084
2.149	0.055	0.037	4.837	0.084
2.175	0.055	0.037	5.068	0.085
2.201	0.055	0.038	5.302	0.085
2.226	0.055	0.038	5.539	0.085
2.252	0.055	0.038	5.780	0.086
2.278	0.055	0.039	6.024	0.086
2.304	0.055	0.039	6.271	0.086
2.330	0.055	0.040	6.522	0.087

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#### MITIGATED LAND USE

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#### ANALYSIS RESULTS

Flow Frequency Return Periods for Predeveloped. POC #1

<u>Return Period</u>	<u>Flow(cfs)</u>
2 year	0.019153
5 year	0.034636
10 year	0.046895
25 year	0.06446
50 year	0.078951
100 year	0.094577

Flow Frequency Return Periods for Mitigated. POC #1

<u>Return Period</u>	<u>Flow(cfs)</u>
2 year	0.016869
5 year	0.035076
10 year	0.054395
25 year	0.090775

50 year                      0.12955  
 100 year                    0.181451

---

**Yearly Peaks for Predeveloped and Mitigated. POC #1**

<u>Year</u>	<u>Predeveloped</u>	<u>Mitigated</u>
1950	0.051	0.038
1951	0.033	0.000
1952	0.027	0.000
1953	0.025	0.000
1954	0.012	0.000
1955	0.013	0.000
1956	0.018	0.000
1957	0.015	0.000
1958	0.027	0.056
1959	0.012	0.000
1960	0.029	0.000
1961	0.019	0.000
1962	0.012	0.000
1963	0.002	0.000
1964	0.012	0.000
1965	0.015	0.000
1966	0.026	0.182
1967	0.013	0.000
1968	0.017	0.000
1969	0.036	0.042
1970	0.010	0.000
1971	0.007	0.003
1972	0.035	0.028
1973	0.017	0.000
1974	0.016	0.000
1975	0.033	0.000
1976	0.133	0.339
1977	0.010	0.026
1978	0.013	0.000
1979	0.021	0.021
1980	0.012	0.000
1981	0.029	0.008
1982	0.018	0.000
1983	0.040	0.000
1984	0.020	0.000
1985	0.039	0.047
1986	0.008	0.000
1987	0.026	0.000
1988	0.019	0.000
1989	0.047	0.153
1990	0.011	0.000
1991	0.029	0.000
1992	0.046	0.000
1993	0.020	0.000
1994	0.019	0.000
1995	0.004	0.000
1996	0.006	0.000
1997	0.020	0.000
1998	0.090	0.127
1999	0.020	0.000
2000	0.012	0.000

---

Ranked Yearly Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.1325	0.3387
2	0.0898	0.1818
3	0.0509	0.1530
4	0.0470	0.1271
5	0.0457	0.0562
6	0.0395	0.0470
7	0.0394	0.0425
8	0.0359	0.0376
9	0.0345	0.0277
10	0.0332	0.0255
11	0.0329	0.0214
12	0.0295	0.0080
13	0.0295	0.0035
14	0.0291	0.0002
15	0.0269	0.0000
16	0.0268	0.0000
17	0.0258	0.0000
18	0.0258	0.0000
19	0.0247	0.0000
20	0.0213	0.0000
21	0.0205	0.0000
22	0.0199	0.0000
23	0.0198	0.0000
24	0.0197	0.0000
25	0.0194	0.0000
26	0.0193	0.0000
27	0.0189	0.0000
28	0.0180	0.0000
29	0.0179	0.0000
30	0.0169	0.0000
31	0.0167	0.0000
32	0.0163	0.0000
33	0.0154	0.0000
34	0.0145	0.0000
35	0.0133	0.0000
36	0.0129	0.0000
37	0.0126	0.0000
38	0.0124	0.0000
39	0.0122	0.0000
40	0.0122	0.0000
41	0.0118	0.0000
42	0.0118	0.0000
43	0.0117	0.0000
44	0.0113	0.0000
45	0.0104	0.0000
46	0.0102	0.0000
47	0.0081	0.0000
48	0.0067	0.0000
49	0.0055	0.0000
50	0.0038	0.0000
51	0.0023	0.0000

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POC #1

The Facility PASSED

The Facility PASSED.

Flow(CFS)	Predev	Dev	Percentage	Pass/Fail
0.0096	4190	42	1	Pass
0.0103	3678	42	1	Pass
0.0110	3224	41	1	Pass
0.0117	2864	40	1	Pass
0.0124	2569	40	1	Pass
0.0131	2308	40	1	Pass
0.0138	2091	39	1	Pass
0.0145	1883	39	2	Pass
0.0152	1684	39	2	Pass
0.0159	1507	38	2	Pass
0.0166	1349	38	2	Pass
0.0173	1217	38	3	Pass
0.0180	1093	38	3	Pass
0.0187	978	37	3	Pass
0.0194	890	36	4	Pass
0.0201	809	36	4	Pass
0.0208	752	36	4	Pass
0.0215	683	35	5	Pass
0.0222	623	32	5	Pass
0.0229	571	32	5	Pass
0.0236	509	32	6	Pass
0.0243	468	32	6	Pass
0.0250	436	31	7	Pass
0.0257	402	30	7	Pass
0.0264	366	29	7	Pass
0.0271	334	27	8	Pass
0.0278	312	26	8	Pass
0.0285	286	25	8	Pass
0.0292	267	25	9	Pass
0.0299	242	24	9	Pass
0.0306	216	24	11	Pass
0.0313	190	24	12	Pass
0.0320	172	24	13	Pass
0.0327	155	23	14	Pass
0.0334	142	23	16	Pass
0.0341	134	23	17	Pass
0.0348	124	23	18	Pass
0.0355	118	23	19	Pass
0.0362	112	22	19	Pass
0.0369	107	22	20	Pass
0.0376	102	21	20	Pass
0.0383	96	20	20	Pass
0.0390	90	20	22	Pass
0.0397	85	20	23	Pass
0.0404	82	20	24	Pass
0.0411	81	19	23	Pass
0.0418	75	19	25	Pass
0.0425	72	18	25	Pass
0.0432	71	18	25	Pass
0.0439	68	18	26	Pass
0.0446	65	18	27	Pass

0.0453	61	18	29	Pass
0.0460	57	18	31	Pass
0.0467	55	18	32	Pass
0.0474	52	17	32	Pass
0.0481	50	17	34	Pass
0.0488	49	17	34	Pass
0.0495	46	17	36	Pass
0.0502	44	17	38	Pass
0.0509	40	17	42	Pass
0.0516	40	17	42	Pass
0.0523	39	17	43	Pass
0.0530	39	17	43	Pass
0.0537	38	17	44	Pass
0.0544	38	17	44	Pass
0.0551	37	17	45	Pass
0.0558	37	17	45	Pass
0.0565	37	16	43	Pass
0.0572	36	16	44	Pass
0.0579	36	16	44	Pass
0.0586	35	15	42	Pass
0.0593	35	15	42	Pass
0.0600	34	15	44	Pass
0.0607	33	15	45	Pass
0.0614	33	15	45	Pass
0.0621	32	15	46	Pass
0.0628	32	15	46	Pass
0.0635	29	15	51	Pass
0.0642	28	15	53	Pass
0.0649	28	15	53	Pass
0.0656	28	15	53	Pass
0.0663	27	15	55	Pass
0.0670	27	15	55	Pass
0.0677	26	15	57	Pass
0.0684	25	15	60	Pass
0.0691	24	14	58	Pass
0.0698	24	14	58	Pass
0.0705	23	14	60	Pass
0.0712	23	14	60	Pass
0.0719	22	14	63	Pass
0.0726	22	14	63	Pass
0.0733	19	14	73	Pass
0.0740	19	14	73	Pass
0.0747	18	14	77	Pass
0.0754	17	14	82	Pass
0.0761	17	14	82	Pass
0.0768	16	14	87	Pass
0.0775	15	14	93	Pass
0.0783	14	14	100	Pass
0.0790	13	14	107	Pass

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Water Quality BMP Flow and Volume for POC 1.  
 On-line facility volume: 0.05 acre-feet  
 On-line facility target flow: 0.01 cfs.  
 Adjusted for 15 min: 0.0658 cfs.  
 Off-line facility target flow: 0.0345 cfs.

Adjusted for 15 min: 0.0376 cfs.

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**Perlnd and Implnd Changes**

No changes have been made.

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Western Washington Hydrology Model  
PROJECT REPORT

PRIVATE  
EXAMPLE

Project Name: Private-wwhm3 (11.27.19)  
Site Address:  
City :  
Report Date : 12/2/2019  
Gage : Burlington  
Data Start : 1948/10/01  
Data End : 1999/09/30  
Precip Scale: 1.00  
WWHM3 Version:

PREDEVELOPED LAND USE

Name : Basin 1  
Bypass: No

GroundWater: No

<u>Pervious Land Use</u>	<u>Acres</u>
C, Forest, Flat	.26

<u>Impervious Land Use</u>	<u>Acres</u>
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Element Flows To:  
Surface                      Interflow                      Groundwater

Name : Basin 1  
Bypass: No

GroundWater: No

<u>Pervious Land Use</u>	<u>Acres</u>
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<u>Impervious Land Use</u>	<u>Acres</u>
ROADS FLAT	0.03
ROOF TOPS FLAT	0.23

Element Flows To:  
Surface                      Interflow                      Groundwater  
Gravel Trench Bed 1, Gravel Trench Bed 1,

Name : Gravel Trench Bed 1  
Bottom Length: 95ft.

Bottom Width : 20ft.  
 Trench bottom slope 1: 0.005 To 1  
 Trench Left side slope 0: 0 To 1  
 Trench right side slope 2: 0 To 1  
 Material thickness of first layer : 0.5  
 Pour Space of material for first layer : 0.15  
 Material thickness of second layer : 2  
 Pour Space of material for second layer : 0.35  
 Material thickness of third layer : 0  
 Pour Space of material for third layer : 0  
 Infiltration On  
 Infiltration rate : 1.02  
 Infiltration safety factor : 1  
 Wetted surface area On  
Discharge Structure  
 Riser Height: 2.5 ft.  
 Riser Diameter: 8 in.

Element Flows To:  
 Outlet 1                      Outlet 2

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Gravel Trench Bed Hydraulic Table				
Stage(ft)	Area(acr)	Volume(acr-ft)	Dschrg(cfs)	Infilt(cfs)
0.000	0.044	0.000	0.000	0.000
0.039	0.044	0.000	0.000	0.045
0.078	0.044	0.001	0.000	0.045
0.117	0.044	0.001	0.000	0.045
0.156	0.044	0.001	0.000	0.046
0.195	0.044	0.001	0.000	0.046
0.234	0.044	0.002	0.000	0.046
0.272	0.044	0.002	0.000	0.046
0.311	0.044	0.002	0.000	0.047
0.350	0.044	0.002	0.000	0.047
0.389	0.044	0.003	0.000	0.047
0.428	0.044	0.003	0.000	0.047
0.467	0.044	0.003	0.000	0.047
0.506	0.044	0.004	0.000	0.048
0.545	0.044	0.004	0.000	0.048
0.584	0.044	0.005	0.000	0.048
0.623	0.044	0.005	0.000	0.048
0.662	0.044	0.006	0.000	0.048
0.701	0.044	0.007	0.000	0.049
0.739	0.044	0.007	0.000	0.049
0.778	0.044	0.008	0.000	0.049
0.817	0.044	0.008	0.000	0.049
0.856	0.044	0.009	0.000	0.050
0.895	0.044	0.010	0.000	0.050
0.934	0.044	0.010	0.000	0.050
0.973	0.044	0.011	0.000	0.050
1.012	0.044	0.011	0.000	0.050
1.051	0.044	0.012	0.000	0.051
1.090	0.044	0.013	0.000	0.051
1.129	0.044	0.013	0.000	0.051
1.168	0.044	0.014	0.000	0.051

1.206	0.044	0.014	0.000	0.051
1.245	0.044	0.015	0.000	0.052
1.284	0.044	0.016	0.000	0.052
1.323	0.044	0.016	0.000	0.052
1.362	0.044	0.017	0.000	0.052
1.401	0.044	0.017	0.000	0.052
1.440	0.044	0.018	0.000	0.053
1.479	0.044	0.019	0.000	0.053
1.518	0.044	0.019	0.000	0.053
1.557	0.044	0.020	0.000	0.053
1.596	0.044	0.020	0.000	0.054
1.635	0.044	0.021	0.000	0.054
1.673	0.044	0.021	0.000	0.054
1.712	0.044	0.022	0.000	0.054
1.751	0.044	0.023	0.000	0.054
1.790	0.044	0.023	0.000	0.055
1.829	0.044	0.024	0.000	0.055
1.868	0.044	0.024	0.000	0.055
1.907	0.044	0.025	0.000	0.055
1.946	0.044	0.026	0.000	0.055
1.985	0.044	0.026	0.000	0.056
2.024	0.044	0.027	0.000	0.056
2.063	0.044	0.027	0.000	0.056
2.102	0.044	0.028	0.000	0.056
2.140	0.044	0.029	0.000	0.056
2.179	0.044	0.029	0.000	0.057
2.218	0.044	0.030	0.000	0.057
2.257	0.044	0.030	0.000	0.057
2.296	0.044	0.031	0.000	0.057
2.335	0.044	0.032	0.000	0.058
2.374	0.044	0.032	0.000	0.058
2.413	0.044	0.033	0.000	0.058
2.452	0.044	0.033	0.000	0.058
2.491	0.044	0.034	0.000	0.058
2.530	0.044	0.036	0.033	0.059
2.569	0.044	0.037	0.116	0.059
2.607	0.044	0.039	0.229	0.059
2.646	0.044	0.041	0.363	0.059
2.685	0.044	0.042	0.518	0.059
2.724	0.044	0.044	0.689	0.060
2.763	0.044	0.046	0.876	0.060
2.802	0.044	0.048	1.078	0.060
2.841	0.044	0.049	1.292	0.060
2.880	0.044	0.051	1.520	0.061
2.919	0.044	0.053	1.759	0.061
2.958	0.044	0.054	2.010	0.061
2.997	0.044	0.056	2.272	0.061
3.036	0.044	0.058	2.544	0.061
3.074	0.044	0.059	2.827	0.062
3.113	0.044	0.061	3.119	0.062
3.152	0.044	0.063	3.420	0.062
3.191	0.044	0.065	3.731	0.062
3.230	0.044	0.066	4.050	0.062
3.269	0.044	0.068	4.378	0.063
3.308	0.044	0.070	4.715	0.063
3.347	0.044	0.071	5.060	0.063
3.386	0.044	0.073	5.412	0.063

3.425	0.044	0.075	5.773	0.063
3.464	0.044	0.076	6.141	0.064

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MITIGATED LAND USE

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ANALYSIS RESULTS

Flow Frequency Return Periods for Predeveloped. POC #1

<u>Return Period</u>	<u>Flow(cfs)</u>
2 year	0.004882
5 year	0.008829
10 year	0.011954
25 year	0.016431
50 year	0.020125
100 year	0.024108

Flow Frequency Return Periods for Mitigated. POC #1

<u>Return Period</u>	<u>Flow(cfs)</u>
2 year	0
5 year	0
10 year	0
25 year	0
50 year	0
100 year	0

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Yearly Peaks for Predeveloped and Mitigated. POC #1

<u>Year</u>	<u>Predeveloped</u>	<u>Mitigated</u>
1950	0.013	0.000
1951	0.008	0.000
1952	0.007	0.000
1953	0.006	0.000
1954	0.003	0.000
1955	0.003	0.000
1956	0.005	0.000
1957	0.004	0.000
1958	0.007	0.000
1959	0.003	0.000
1960	0.008	0.000
1961	0.005	0.000
1962	0.003	0.000
1963	0.001	0.000
1964	0.003	0.000
1965	0.004	0.000
1966	0.007	0.000
1967	0.003	0.000
1968	0.004	0.000
1969	0.009	0.000
1970	0.003	0.000
1971	0.002	0.000
1972	0.009	0.000
1973	0.004	0.000
1974	0.004	0.000
1975	0.008	0.000

1976	0.034	0.007
1977	0.003	0.000
1978	0.003	0.000
1979	0.005	0.000
1980	0.003	0.000
1981	0.008	0.000
1982	0.005	0.000
1983	0.010	0.000
1984	0.005	0.000
1985	0.010	0.000
1986	0.002	0.000
1987	0.007	0.000
1988	0.005	0.000
1989	0.012	0.000
1990	0.003	0.000
1991	0.007	0.000
1992	0.012	0.000
1993	0.005	0.000
1994	0.005	0.000
1995	0.001	0.000
1996	0.001	0.000
1997	0.005	0.000
1998	0.023	0.000
1999	0.005	0.000
2000	0.003	0.000

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**Ranked Yearly Peaks for Predeveloped and Mitigated. POC #1**

<b>Rank</b>	<b>Predeveloped</b>	<b>Mitigated</b>
1	0.0338	0.0068
2	0.0229	0.0000
3	0.0130	0.0000
4	0.0120	0.0000
5	0.0117	0.0000
6	0.0101	0.0000
7	0.0101	0.0000
8	0.0091	0.0000
9	0.0088	0.0000
10	0.0085	0.0000
11	0.0084	0.0000
12	0.0075	0.0000
13	0.0075	0.0000
14	0.0074	0.0000
15	0.0069	0.0000
16	0.0068	0.0000
17	0.0066	0.0000
18	0.0066	0.0000
19	0.0063	0.0000
20	0.0054	0.0000
21	0.0052	0.0000
22	0.0051	0.0000
23	0.0050	0.0000
24	0.0050	0.0000
25	0.0049	0.0000
26	0.0049	0.0000
27	0.0048	0.0000
28	0.0046	0.0000

29	0.0046	0.0000
30	0.0043	0.0000
31	0.0043	0.0000
32	0.0041	0.0000
33	0.0039	0.0000
34	0.0037	0.0000
35	0.0034	0.0000
36	0.0033	0.0000
37	0.0032	0.0000
38	0.0032	0.0000
39	0.0031	0.0000
40	0.0031	0.0000
41	0.0030	0.0000
42	0.0030	0.0000
43	0.0030	0.0000
44	0.0029	0.0000
45	0.0026	0.0000
46	0.0026	0.0000
47	0.0021	0.0000
48	0.0017	0.0000
49	0.0014	0.0000
50	0.0010	0.0000
51	0.0006	0.0000

POC #1

The Facility PASSED

The Facility PASSED.

Flow(CFS)	Predev	Dev	Percentage	Pass/Fail
0.0024	4190	3	0	Pass
0.0026	3676	3	0	Pass
0.0028	3223	3	0	Pass
0.0030	2860	2	0	Pass
0.0032	2568	2	0	Pass
0.0033	2308	2	0	Pass
0.0035	2092	2	0	Pass
0.0037	1883	2	0	Pass
0.0039	1684	2	0	Pass
0.0040	1507	1	0	Pass
0.0042	1348	1	0	Pass
0.0044	1217	1	0	Pass
0.0046	1093	1	0	Pass
0.0048	978	1	0	Pass
0.0049	889	1	0	Pass
0.0051	808	1	0	Pass
0.0053	750	1	0	Pass
0.0055	683	1	0	Pass
0.0057	624	1	0	Pass
0.0058	571	1	0	Pass
0.0060	509	1	0	Pass
0.0062	468	1	0	Pass
0.0064	436	1	0	Pass
0.0065	402	1	0	Pass
0.0067	365	1	0	Pass
0.0069	334	0	0	Pass

0.0071	311	0	0	Pass
0.0073	286	0	0	Pass
0.0074	267	0	0	Pass
0.0076	242	0	0	Pass
0.0078	216	0	0	Pass
0.0080	190	0	0	Pass
0.0082	172	0	0	Pass
0.0083	155	0	0	Pass
0.0085	142	0	0	Pass
0.0087	134	0	0	Pass
0.0089	124	0	0	Pass
0.0091	118	0	0	Pass
0.0092	112	0	0	Pass
0.0094	107	0	0	Pass
0.0096	102	0	0	Pass
0.0098	96	0	0	Pass
0.0099	90	0	0	Pass
0.0101	85	0	0	Pass
0.0103	82	0	0	Pass
0.0105	81	0	0	Pass
0.0107	75	0	0	Pass
0.0108	72	0	0	Pass
0.0110	71	0	0	Pass
0.0112	68	0	0	Pass
0.0114	65	0	0	Pass
0.0116	61	0	0	Pass
0.0117	57	0	0	Pass
0.0119	56	0	0	Pass
0.0121	52	0	0	Pass
0.0123	50	0	0	Pass
0.0124	49	0	0	Pass
0.0126	46	0	0	Pass
0.0128	44	0	0	Pass
0.0130	40	0	0	Pass
0.0132	40	0	0	Pass
0.0133	39	0	0	Pass
0.0135	39	0	0	Pass
0.0137	38	0	0	Pass
0.0139	38	0	0	Pass
0.0141	37	0	0	Pass
0.0142	37	0	0	Pass
0.0144	37	0	0	Pass
0.0146	36	0	0	Pass
0.0148	36	0	0	Pass
0.0149	35	0	0	Pass
0.0151	35	0	0	Pass
0.0153	34	0	0	Pass
0.0155	33	0	0	Pass
0.0157	33	0	0	Pass
0.0158	32	0	0	Pass
0.0160	32	0	0	Pass
0.0162	29	0	0	Pass
0.0164	28	0	0	Pass
0.0166	28	0	0	Pass
0.0167	28	0	0	Pass
0.0169	27	0	0	Pass
0.0171	27	0	0	Pass

0.0173	26	0	0	Pass
0.0174	25	0	0	Pass
0.0176	24	0	0	Pass
0.0178	24	0	0	Pass
0.0180	23	0	0	Pass
0.0182	23	0	0	Pass
0.0183	22	0	0	Pass
0.0185	22	0	0	Pass
0.0187	19	0	0	Pass
0.0189	19	0	0	Pass
0.0191	18	0	0	Pass
0.0192	17	0	0	Pass
0.0194	17	0	0	Pass
0.0196	16	0	0	Pass
0.0198	15	0	0	Pass
0.0199	14	0	0	Pass
0.0201	13	0	0	Pass

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Water Quality BMP Flow and Volume for POC 1.  
On-line facility volume: 0 acre-feet  
On-line facility target flow: 0 cfs.  
Adjusted for 15 min: 0 cfs.  
Off-line facility target flow: 0 cfs.  
Adjusted for 15 min: 0 cfs.

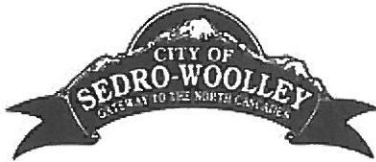
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#### **Perlnd and Implnd Changes**

No changes have been made.

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CITY COUNCIL AGENDA  
REGULAR MEETING

JUN 10 2020

:00 P.M. COUNCIL CHAMBER  
AGENDA NO. m-2

Planning Department  
Sedro-Woolley Municipal Building  
325 Metcalf Street  
Sedro-Woolley, WA 98284  
Phone (360) 855-0771  
Fax (360) 855-0733

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**MEMO:**

**To:** Sedro-Woolley City Council  
Mayor Johnson

**From:** John Coleman, AICP  
Planning Director

**Date:** June 10, 2020

**Subject:** Preliminary approval of the Plat of Brickyard Park – a Planned Residential Development (file #LP-2019-389) – *Action Requested*

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**ISSUE**

Should the Council grant preliminary plat approval for the Plat of Brickyard Park – A Planned Residential Development?

**PROJECT DESCRIPTION / HISTORY**

Preliminary plat approval for an 85-lot planned residential development is requested. The subdivision is proposed to be age-restricted to residents 55 years or older. The property, Skagit County Assessor parcel # P39374, is located on McGargile Road. The 12.7 acre parcel is vacant and is located in the Residential 7 zone. The *Hearing Examiner's Findings of Fact, Conclusions & Recommendation* – attached as Attachment A to the Resolution – contains the complete history of the application and review process. The map of the proposed subdivision is Exhibit T to the *Hearing Examiner's Findings of Fact, Conclusions & Recommendation*.

**EXHIBITS**

Resolution \_\_\_\_-20 to approve the preliminary Plat of Brickyard Park subject to the conditions contained in the *Hearing Examiner's Findings of Fact, Conclusions & Recommendation*.

**RECOMMENDATION**

Make a motion to adopt Resolution \_\_\_\_\_ - 20 to approve the preliminary Plat of Brickyard Park subject to the conditions contained in the *Hearing Examiner's Findings of Fact, Conclusions & Recommendation*.

RESOLUTION NO. \_\_\_\_\_-20

**A RESOLUTION GRANTING PRELIMINARY APPROVAL OF THE “PLAT OF BRICKYARD PARK – A PLANNED RESIDENTIAL DEVELOPMENT” AN 85-LOT SUBDIVISION AND AUTHORIZING THE MAYOR AND HER DESIGNEE(S) TO SIGN ALL PRELIMINARY PLAT APPROVAL DOCUMENTS**

**WHEREAS**, Brickyard Park, LLC, property owner of the Skagit county Assessor parcel #39374 – a 12.7 acre parcel located on McGarigle Road – has applied for preliminary plat approval for the proposed Plat of Brickyard Park – a Planned residential Development, a proposed age-restricted, 85-lot subdivision; and

**WHEREAS**, the City of Sedro-Woolley Planning and Public Works staff reviewed the proposed preliminary plat and determined the preliminary plat has met the requirements of Chapters 13, 15, 16 and 17 SWMC; and

**WHEREAS**, the Sedro-Woolley Hearing Examiner held an open record public hearing for the planned residential development (subdivision) application on March 24, 2020 and public testimony was received and considered; and

**WHEREAS**, the Hearing Examiner determined that the application was technically compliant with Ch. 16.08 SWMC and recommended to the City Council that the proposed Preliminary Plat of Brickyard Park – a Planned Residential Development be approved subject to conditions. The Hearing Examiner’s *Findings, Conclusions and Recommendation* (and exhibits) is attached hereto as Attachment A.

**NOW, THEREFORE BE IT RESOLVED** that the City Council of the City of Sedro-Woolley, Washington adopts the attached *Findings, Conclusions and Recommendation* of the Hearing Examiner; and

**BE IT FURTHER RESOLVED** that the City Council finds that preliminary plat application #LP-2019-389, the Preliminary Plat of Brickyard Park – a Planned Residential Development, meets the requirements of Ch. 16.08 SWMC and shall be given preliminary plat approval, subject to conditions stated in the attached *Findings, Conclusions and Recommendation*.

**PASSED** by majority vote of the members of the Sedro-Woolley City Council this \_\_\_\_\_ day of June, 2020,

\_\_\_\_\_  
Julia Johnson, Mayor

ATTEST:

APPROVED AS TO FORM:

\_\_\_\_\_  
Jill Scott, Finance Manager

\_\_\_\_\_  
Nikki Thompson, City Attorney

Resolution\_\_\_\_\_ -20

## **Attachment A**

***Findings, Conclusions and Recommendation of the Hearing Examiner for the Preliminary  
Plat of Brickyard Park – a Planned Residential Development***

**BEFORE THE HEARING EXAMINER  
FOR THE CITY OF SEDRO-WOOLLEY**

In the Matter of the Application of	)	No. LP-2019-389
	)	
<b>Tim Woodmansee, BYK Construction</b>	)	Brickyard Park PP/PRD
<b>Inc., on behalf of Brickyard Park, LLC</b>	)	
	)	
	)	
For Approval of a Preliminary Plat and	)	FINDINGS, CONCLUSIONS,
<u>Planned Residential Development</u>	)	AND RECOMMENDATION

**SUMMARY OF RECOMMENDATION**

The Hearing Examiner recommends that the request for a preliminary plat to develop a 12.7-acre property in two phases as an 85-lot Planned Residential Development for residents 55 years of age and older, with 33 townhouse lots, 52 single-family lots, and associated improvements, on the south side of McGarigle Road, across from the east entrance of Independence Blvd, be **APPROVED**. Conditions are necessary to address specific impacts of the proposal. <sup>1</sup>

**SUMMARY OF RECORD**

Hearing Date:

The Hearing Examiner held an open record hearing on the request on March 24, 2020. The record was left open until March 27, 2020, to allow for the additional submission of comments.

Testimony:

The following individuals provided testimony under oath at the open record hearing: <sup>2</sup>

John Coleman, City Planning Director  
Mark Freiburger, City Director of Public Works  
Andrew L. Bratlien, Transportation Solutions, Inc.  
Zach Wieben, P.E., Gibson Traffic Consultants  
Tim Woodmansee, Applicant  
Frank Bresnan, Sr.  
Allen Emerson

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<sup>1</sup> The Hearing Examiner also held an appeal hearing related to the Mitigated Determination of Nonsignificance issued for this proposal under the State Environmental Policy Act. The Hearing Examiner's decision denying the appeal is provided in a separate decision issued concurrently with this decision, following a consolidated hearing as required by Washington Administrative Code 197-11-680(3)(v), as detailed further below.

<sup>2</sup> The Hearing Examiner ruled that those providing testimony at the appeal hearing that immediately preceded the application hearing need not repeat their remarks. Accordingly, a summary of such testimony has been included in this decision. *Oral Ruling of the Hearing Examiner.*

*Findings, Conclusions, and Recommendation  
City of Sedro-Woolley Hearing Examiner  
Brickyard Park Preliminary Plat/PRD  
No. LP-2019-389 (PRD Application)*

Larry Stiles  
Marilyn Kenney  
James Johnson  
Linda Emerson  
Bonnie Belles  
Celeste Weaver  
Bob Mataya  
Margaret Miller

Exhibits:

The following exhibits were admitted into the record:

- A. City Staff Report
- B. Preliminary Plat Application, dated November 1, 2019
- C. Planned Residential Development Checklist, dated November 1, 2019
- D. Notice of Application and SEPA Comment Period, published November 18, 2019
- E. SEPA Notice of Threshold Determination Mitigated Determination of Nonsignificance (MDNS), dated January 13, 2020
- F. SEPA Notice of Threshold Determination Mitigated Determination of Nonsignificance (MDNS), dated January 29, 2020
- G. Notice of Public Hearing, published March 13, 2020
- H. Letter from Katelynn Piazza, SEPA Coordinator, Department of Ecology, to Katherine Weir, dated November 27, 2019
- I. Email from Brad Winder, Skagit Transit, to Katherine Weir, dated November 20, 2019
- J. Letter from Allen and Linda Emerson to Planning Department, dated December 2, 2019, with attachment; Letter from Allen and Linda Emerson to City Planning Department, dated November 26, 2019, with attachments
- K. Comment letters:
  - 1. Letter from Diane Celeste and Roger Weaver, dated December 2, 2019
  - 2. Letter from Robert Mataya to Planning Department, received December 2, 2019
  - 3. Letter from Frank A. Bresnan, Sr., dated December 2, 2019
  - 4. Letter from Mark and Kathryn Sutton to Planning Department, dated December 2, 2019
  - 5. Letter from Marilyn Kenney to Planning Department, dated November 27, 2019
  - 6. Letter from James L. Johnson to Planning Department, dated November 30, 2019
  - 7. Letter from Carl Lundstrom to Planning Department, received December 2, 2019
  - 8. Letter from Margaret Miller and Larry Stiles, received December 2, 2019
  - 9. Letter from Randie Wright to Planning Department, dated December 2, 2019
- L. SEPA Environmental Checklist, dated November 1, 2019
- M. Critical Areas Assessment Report, Essency Environmental, LLC, dated September 17, 2019
- N. Traffic Impact Analysis (TIA), Gibson Traffic Consultants, dated September 2019

*Findings, Conclusions, and Recommendation  
City of Sedro-Woolley Hearing Examiner  
Brickyard Park Preliminary Plat/PRD  
No. LP-2019-389 (PRD Application)*

- O. TIA Review Memorandum, Transportation Solutions, Inc., dated October 4, 2019
- P. Citywide Transportation Concurrency Review, dated January 7, 2020
- Q. SEPA Threshold Determination Appeal, dated January 24, 2020
- R. Project Narrative, BYK Construction, undated
- S. Landscape Plan (Sheets L-1 through L-5), dated February 17, 2020
- T. Plat map (Sheets 1 of 7 through 7 of 7), dated February 14, 2020
- U. Street Parking Exhibit (Sheet Attachment 1), dated February 14, 2020
- V. Preliminary Stormwater Site Plan, dated October 18, 2019
- W. Water Availability Letter, dated October 15, 2019
- X. Sewer Department Letter, dated September 3, 2019
- Y. Comments from Frank A. Bresnan, Sr., with email string and attachments, received March 24, 2020

The Hearing Examiner enters the following findings and conclusions based upon the admitted testimony and exhibits:

## **FINDINGS**

### Application and Notice

1. Tim Woodmansee, BYK Construction Inc. (Applicant), on behalf of Brickyard Park, LLC, requests approval of a preliminary plat to develop 12.7 acres in two phases as an 85-lot Planned Residential Development (PRD), with associated improvements, for residents 55 years of age and older. The proposal includes 52 single-family lots and 33 lots that could accommodate one townhome per lot. Phase one would include construction of an open space tract, a partial access road with a temporary turn-around, and 42 of the 85 proposed lots. Phase two would include development of the remaining 43 lots and completion of the looped access road. The property is located on the south side of McGarigle Road, across the street from the east entrance of Independence Blvd.<sup>3</sup> *Exhibit A, Staff Report, pages 1 and 2; Exhibit B; Exhibit C; Exhibits R through U.*
2. The City of Sedro-Woolley (City) determined that the application was complete on November 14, 2019. On November 18, 2019, the City provided notice of the application and the State Environmental Policy Act (SEPA) comment period by mailing notice to all property owners within 500 feet of the property, posting notice on site, and publishing notice in the *Skagit Valley Herald*. On March 13, 2020, the City provided notice of the open record hearing associated with the application by mailing notice to all property owners within 500 feet of the subject property, posting notice on the subject property, and publishing notice in the *Skagit Valley Herald*. *Exhibit A, Staff Report, pages 1, 3, and 4; Exhibit D; Exhibit G.*

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<sup>3</sup> The property is identified by Tax Assessor Parcel No. 39374. *Exhibit A, Staff Report, page 1.* A legal description of the property is included with the preliminary plat map. *Exhibit T.*

3. The City received several written comments on the proposal from members of the public in response to its notice materials. The written comments generally expressed concerns about the potential traffic and safety impacts of the proposed development, particularly along McGarigle Road and Carter Road during peak pick-up and drop-off times for students of Evergreen Elementary School and Cascade Middle School. Several of the comments noted that these roads are already congested during these times. In addition to the potential traffic and safety impacts of the proposal, the following specific concerns were raised:
- Allen and Linda Emerson expressed concerns about the combined traffic impacts to Highway 20 from the proposed development and other potential development in the area. They also expressed concerns about the project's proposed density of homes and dedicated open space.
  - Diane Celeste and Roger Weaver expressed concerns about the number of proposed homes in relation to the project site and with potential flooding of Brickyard Creek.
  - Robert Mataya expressed concerns about the proposed development's impacts to the area's small-town atmosphere.
  - Marilyn Kenney expressed concerns about adequate walkable access for residents of the proposed development.
  - James L. Johnson expressed concerns about the proposed development's lack of amenities and lack of dedicated affordable housing. He also expressed concerns about the overall design of the proposed development.
  - Randie Wright expressed concerns about the density of homes in the proposed development.<sup>4</sup>

*Exhibit A, Staff Report, page 4; Exhibit J; Exhibit K.*

4. The City received two agency comments in response to its notice materials. The Washington State Department of Ecology (DOE) provided a written comment describing contaminated sites located within a one-mile radius of the project site. Skagit Transit provided a written comment noting that the proposed development for residents 55 years of age and older would increase the use of public transportation in the area. Skagit Transit requested that the project develop improvements to facilitate the placement of a bus stop at the entrance to the development. Specifically, it requested that the developer construct a 15-foot concrete pad running from the back of the street curb to the edge of the sidewalk, with the eastern edge of the pad to start 25 feet to the west of the proposed

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<sup>4</sup> As noted above, all the submitted written public comments expressed concerns about the proposed development's potential traffic impacts. In addition to the members of the public listed above, the following people submitted written comments expressing concerns about the traffic impacts of the proposed development: Frank A. Bresnen, Sr., Mark Sutton, Kathryn Sutton, Carl Lundstrom, Margaret Miller, and Larry Stiles. *Exhibit K.*

entrance to the development on the south side of McGarigle Road. *Exhibit A, Staff Report, page 4; Exhibit H; Exhibit I.*

State Environmental Policy Act

5. The City acted as lead agency and analyzed the environmental impacts of the proposal under SEPA, Chapter 43.21C Revised Code of Washington (RCW). The City reviewed the Applicant's environmental checklist and other information on file and determined that, with four conditions to mitigate impacts, the project would not have a probable significant adverse impact on the environment. These mitigation conditions require that the project comply with clean air regulations during construction, that all construction traffic use temporary access approved by the Public Works Department, that the Applicant pay police mitigation fees, and that lighting from the site be directed or shielded to prevent light impacts to neighboring residential properties. The City issued the Mitigated Determination of Nonsignificance (MDNS) on January 13, 2020. The City provided notice of the MDNS by sending notice to property owners within 500 feet of the property and publishing notice in the *Skagit Valley Herald*. Due to a procedural error, the City reissued the MDNS on January 29, 2020, with no changes to the mitigation conditions and extending the appeal deadline to February 12, 2020. The City provided notice of the reissued MDNS by sending notice to property owners within 500 feet of the property and publishing notice in the *Skagit Valley Herald*. The MDNS was timely appealed on January 27, 2020. *Exhibit A, Staff Report, pages 3 and 4; Exhibit B; Exhibit C; Exhibit E; Exhibit F; Exhibits L through P.*
6. The MDNS appeal hearing was consolidated with the open record application hearing and testimony concerning the appeal was heard prior to the application hearing. In summary:
  - Allen Emerson presented video footage showing the traffic conditions in the area during afternoon school pick-up times, showing vehicles backed up from the school and spilling out on the street accessing the school while waiting to pick up students. Mr. Emerson noted his safety concerns about vehicles idling while waiting to pick up students and his concerns about the adequacy of the Applicant's Transportation Impact Analysis (TIA) that was prepared for the project. *Testimony of Mr. Emerson.*
  - Larry Stiles testified that he has been an area resident for 30 years and has lived in his current location for 22 years. He noted his concern about pedestrian and vehicle safety along the McGarigle Road corridor, stating that a number of vehicles ignore the speed limit. Mr. Stiles stated that a choke point exists on the corridor at a crossing spot. He suggested developing an access point to the proposed development in a manner that would separate it from traffic along the McGarigle Road corridor. *Testimony of Mr. Stiles.*

- Marilyn Kenney testified that she has lived in the area since 1999. She noted her safety concerns about parents using the McGarigle Road corridor to pick up students, stating that the parents appear distracted and in a hurry. Ms. Kenney also noted that several families with children have moved into the area, which has further impacted these traffic and safety issues. She stated her concerns about pedestrian safety for people using sidewalks and about the safety of students using bicycles. *Testimony of Ms. Kenney.*
- James Johnson testified that he has lived in his home for 25 years, is a teacher at Sedro-Woolley High School, and has previously worked with the Planning Commission. He noted that Carter Road gets a fair amount of traffic and is stunned to hear the assessment that the LOS on Carter is adequate. Mr. Johnson stated that Carter Road is a substandard road lacking adequate sidewalk access and that it is not designed to handle the amount of traffic using the road. He noted that he has concerns about pedestrian safety and that the TIA did not adequately address pedestrian safety. Mr. Johnson stated that pedestrian safety issues in the area around the school continue into the evening in light of afterschool activities. He also stated his concerns with the aesthetic and view impacts of the proposed development, as well as with traffic impacts on Sundays in light of a nearby Mormon church. On cross-examination, the City asked whether Mr. Johnson had raised these issues in the appeal letter, to which Mr. Johnson conceded that he did not raise the issue regarding traffic generated by the church. *Testimony of Mr. Johnson.*
- Linda Emerson testified that she has lived in her home for approximately 40 years and has seen an increase in traffic, particularly with the increase in school enrollment. She noted that area schools are beyond capacity. Ms. Emerson stated her concerns about the dangerous conditions at Carver Road and about the ability of residents exiting the proposed development to turn left onto McGarigle Road. She detailed the existing traffic conditions along the McGarigle Road corridor during school pick-up times, noting that traffic backs up onto the street. She also detailed issues with people being able to leave or return home during peak traffic times. *Testimony of Ms. Emerson.*
- Bonnie Belles testified that she lives directly across from the Evergreen Elementary School drop-off/pick-up area and that she works at the school. She noted her safety concerns, stating that several vehicles, including Skagit Transit busses, speed on the road and that she has almost been hit while crossing the road and while working as a crossing guard at the crosswalk. Ms. Belles also noted that people are unable to exit their driveways during school drop-off/pick-up times. She further noted that a left-turn signal on McGarigle Road would improve traffic congestion. Ms. Belles also expressed concerns about overgrown foliage creating safety issues by blocking views. *Testimony of Ms. Belles.*

- Celeste Weaver testified that she has lived in the area for 22 years, teaches at the elementary and middle schools, and agrees with all the witnesses who have already testified. She noted that a Mormon church in the area has morning classes that generate traffic. Ms. Weaver stated that she has not been able to turn left when coming home due to the line of cars congesting the street. She also noted her concerns with student safety. *Testimony of Ms. Weaver.*
- Margaret Miller submitted written testimony that expressed concerns about Gibson Traffic Consultants' February 14, 2020, memorandum. She noted that the video exhibit admitted at the appeal hearing showed a line of idling vehicles that caused backups on McGarigle Road, which she stated impacts public health and safety. Ms. Miller took issue with the memorandum's conclusion that traffic at the intersection of Carter Road and SR-20 was manageable and that congestion would occur with or without the proposed development. She recommended either diverting east, onto McGarigle Road, the traffic leaving the proposed development or reducing the number of units in the development. *Written Testimony of Ms. Miller.*
- Bob Mataya submitted written testimony that expressed his concerns about the traffic and safety impacts of the proposed development. He stated his objections to the methodology used by Gibson Traffic Consultants in its February 14, 2020, memorandum. Mr. Mataya also noted that the memorandum showed that vehicles traveling southbound at the intersection of Carter Road and SR 20 during the peak 15 minutes in the AM peak hour could experience LOS D conditions. He also identified other alleged deficiencies in the original TIA and in the February 14, 2020, memorandum. *Written Testimony of Mr. Mataya.*
- City Public Works Director Mark Freiburger testified that, after the City received the Applicant's TIA, it required the Applicant to pay for a peer review of the TIA by Transportation Solutions, Inc. (TSI). He also noted that TSI conducted a Citywide Transportation Concurrency Review later in the process. Mr. Freiburger stated that McGarigle Road was designed/rebuilt in 2008 and 2009 to address projected traffic conditions and its use as an arterial. He noted that a shared-use path exists on the north side of McGarigle with improved pedestrian facilities. Mr. Freiburger acknowledged that the intersection at SR-9 and McGarigle Road is busy but not unsafe, noting that further improvements will occur and were considered as part of the intersection's predicted LOS. He addressed concerns about overgrown foliage blocking views, noting that the City has been working with property owners to trim the foliage. Mr. Freiburger noted that review of a proposed development's traffic impacts is governed by LOS standards, which is the reason for requiring applicants to submit traffic studies. He stated that the City has no basis for hindering development if the development does not impact LOS. He also noted that required traffic impact fees contribute to improvements

that are necessary to facilitate growth. Mr. Freiburger agreed that the increased traffic from the proposed development would have an impact but that such impact is acceptable under the requirements of the municipal code. *Testimony of Mr. Freiburger.*

- TSI Consultant Andrew Bratlien testified that TSI provided a third-party peer review of the Applicant's TIA. He noted that he had also reviewed GTC's February 14, 2020, memorandum, which addressed concerns raised in the MDNS appeal, and that he had no objection to the methodology used or conclusions in it. Mr. Bratlien stated that, from a traffic operations perspective, the memorandum utilized a correct methodology and analysis. He further noted that the scope of both the TIA and the supplemental study was to identify any significant adverse impacts from cumulative development in the area and that no significant adverse impact was found to exist when considering such development, including the current proposal. *Testimony of Mr. Bratlien.*
- City Planning Director John Coleman testified in response to concerns about idling from vehicles waiting to pick up students, noting that this appeal involves the proposed development, which would not be the cause of idling vehicles. Mr. Coleman detailed the City's efforts to review the traffic impacts of the proposed development, which included reviewing the Applicant's TIA, the third-party peer review of the TIA, and TSI's memorandum, Citywide Transportation Concurrency Review. He stated that all of the traffic studies determined that the proposed development would not cause LOS standards to drop below acceptable levels. *Testimony of Mr. Coleman.*
- Gibson Traffic Consultants Engineer Zach Wieben testified on behalf of the Applicant and detailed aspects of the TIA, explaining the PM peak-hour analysis. He noted that planned improvements to the intersection of SR-9 and McGarigle Road would be required for the intersection to operate at an acceptable LOS in the future. Mr. Wieben stated that the Applicant would be required to pay traffic impact fees that would help fund transportation improvements. He noted that the TIA included an analysis of safety issues that included review of five and a half years of collision data, which showed that the area did not have high collision rates. Mr. Wieben stressed that the purpose of the TIA is to identify LOS deficiencies. He stated that he drafted the February 14, 2020, memorandum in response to the issues raised in the appeal. Mr. Wieben stated that WSDOT would not allow the proposed development to have access from SR-20. He also stated that area schools have the ability to mitigate impacts from the student drop-off/pick-up times. Mr. Wieben explained that GTC does not have the expertise to address concerns about air pollution generated by idling vehicles. He asserted that the Appellant has not presented any specific data that would change the conclusions set forth in the TIA. *Testimony of Mr. Wieben.*

- Applicant Tim Woodmansee testified that he is the owner of BYK Construction, Inc., and Brickyard Park, LLC. He noted that he shares the Appellant’s concerns regarding traffic and safety in regard to area schools’ student drop-off/pick-up times, which is why the Applicant paid for an additional study to address the concerns. Mr. Woodmansee stated that the additional study did not provide any additional information but, rather, merely confirmed that the TIA was correct. He noted that the all of the traffic studies show that traffic will continue to operate at acceptable standards after the proposed development is complete. *Testimony of Mr. Woodmansee.*

*Hearing Examiner Decision, Emerson MDNS Appeal, issued April 9, 2020.*

7. In a decision issued concurrently with this decision, the Hearing Examiner denied the appeal of the City’s SEPA determination, concluding that substantial evidence in the record supported the City’s decision to issue an MDNS for the proposal. *Hearing Examiner Decision, Emerson MDNS Appeal, issued April 9, 2020.*

#### Comprehensive Plan, Zoning, and Surrounding Property

8. The property is designated Residential 7 (R-7) under the City’s Comprehensive Plan. The purpose of the designation is to allow “single lot developments to a maximum density of seven units per acre, with a minimum lot size of six thousand (6,000) square feet [and] planned residential developments (PRDs) with varying residential densities as a conditional use.” *City Comprehensive Plan, pages 31 and 32.* City staff identified the following Comprehensive Plan goals and policies as relevant to the proposal:
  - Policy LU5.7: Recognize the rights of property owners to freely use and develop private property consistent with city regulations.
  - Policy LU5.8: Encourage high standards of appearance in all residential areas and in other high visibility areas.
  - Policy T6.2: Ensure that growth mitigates its impacts through transportation impact fees, SEPA mitigation, concurrency, and development regulations.
  - Goal T7: To provide an adequate transportation system current with the traffic-related impacts of new development.
  - Policy T7.1: Maintain the adopted Level of Service (LOS) standard for all roadways classified as arterials or state highways.
  - Policy H2.1: Encourage affordable housing for the elderly. As an alternative, the elderly should be accommodated in safe, well-maintained multiple-unit structures.
  - Policy H3.1: Require usable outdoor recreation space as part of all residential developments.
  - Policy H3.7: Allow planned residential developments (PRD’s) within the R7 and R5 land use designation as a conditional use. PRD developments are characterized by a variety of housing products and provide indoor and outdoor common space for residents.

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No. LP-2019-389 (PRD Application)*

City staff reviewed the Applicant's proposal and determined that, with conditions, it would be consistent with the City Comprehensive Plan. *Exhibit A, Staff Report, pages 6 and 7.*

9. The property is located in the Residential 7 (R-7) zoning district. The R-7 zone "includes the portion of Sedro-Woolley platted over a hundred years ago" and is "characterized by a grid street system and small lots." *Sedro-Woolley Municipal Code (SWMC) 17.12.005.* The intent of the R-7 zone is to "encourage the continuation of this traditional pattern." *SWMC 17.12.005.* Single-family residential development is permitted outright in the R-7 zoning district, and PRDs are allowed in the R-7 zoning district as a conditional use. Detached townhouses on individual lots developed through a PRD are an allowed residential use in the R-7 zone. *SWMC 17.12.010.A.1; SWMC 17.12.010.B.1; SWMC 17.43.030.A. Exhibit A, Staff Report, pages 1, 2, and 5.*
10. Chapter 17.12 SWMC provides requirements related to bulk restrictions, minimum lot size, maximum density, and maximum lot coverage generally applicable to development in the R-7 zone. Chapter 17.43 SWMC provides alternative standards applicable to development through a PRDs. The purpose of the PRD development standards is "to create open space in residential developments and to encourage imaginative site and building design that exceeds the minimum standards found in the subdivision regulations . . . by permitting greater flexibility in zoning requirements than is permitted by other sections of this title." *SWMC 17.43.010.* PRDs are permitted on property measuring three acres or greater. *SWMC 17.43.060.A.* *SWMC 17.43.060.B.2* provides that single-family lots created through a PRD in the R-7 zoning district may be a variety of sizes, provided that no lot is less than 4,800 square feet, except that 50 percent of the single-family lots may be as small as 4,000 square feet. The Applicant proposes that the 52 single-family lots range in size from 4,673 to 14,090 square feet. *SWMC 17.43.060.B.4* provides a minimum lot size of 2,500 for townhouse units that are on their own platted lot and have a unit on either side of the lot, and a minimum lot size of 3,000 square feet for lots at the end of a townhouse row. The Applicant proposes 33 zero lot line townhouse lots varying in size from 3,675 to 5,122 square feet. *Exhibit A, Staff Report, pages 7 through 10; Exhibit R; Exhibit T.*
11. *SWMC 17.43.060.E* provides that setback requirements for lots within a PRD comply with the setback requirements for the underlying zone but it permits alternate setbacks if specified in the PRD approval. The Applicant proposes a reduction to the second front setback on corner lots, a reduction in the garage setback on certain lots accessing off a private shared driveway, and a reduction in the side setbacks for all two-story building lots. City staff reviewed the proposal, recommended approval of the proposed reduced setbacks, and determined that, with conditions, the proposal would comply with the PRD

development standards. Additionally, SWMC 17.43.080.A<sup>5</sup> requires that the Applicant achieve two or more enumerated design criteria for PRD approval. City staff reviewed the Applicant's plat map and landscape plan and determined that the proposal would meet these criteria by orienting the lots around a large open space tract in a manner achieving a high quality placement and orientation of structures and by achieving the allowable density for the subject property. Compliance with building design standards would be reviewed at the building permit stage. *Exhibit A, Staff Report, pages 7 through 10; Exhibit R; Exhibit T.*

12. The subject property is bound on the north by McGarigle Road. Property to the north of the site is zoned R-5 and is developed with single-family residences. Property to the east and west of the site is zoned R-7 and is developed with single-family residences. Property to the south of the site is zoned mixed commercial and is developed with self-storage lots. *Exhibit A, Staff Report, page 2.*

#### Critical Areas

13. Essency Environmental, LLC, prepared a Critical Areas Report (CAR) for the Applicant, dated September 17, 2019. Brickyard Creek, a Type 2 watercourse with a standard 200-foot buffer, is located north of the project site. The CAR concluded that the buffer for Brickyard Creek does not extend into the project site and that no other streams or stream buffers are located on or in the vicinity of the project site. The CAR also concluded that the project site does not contain any wetlands, wetland buffers, riparian corridors, aquifer recharge areas, fish and wildlife conservation areas, flood hazard areas, or geological hazard areas. *Exhibit M.*

#### Stormwater

14. Sound Development Group, LLC, prepared a Preliminary Stormwater Site Plan for the Applicant, dated October 18, 2019. The Site Plan noted that stormwater from the site currently sheetflows across the site to natural low areas before infiltration, with no discharge or flowpath/conveyance discovered during the site inspection. The proposed development would result in 5,000 square feet or more of new hard surface area. Stormwater runoff from the proposed looped road and from 72 of the driveways would be captured and conveyed to an underground infiltration trench within the center park area, which would be designed to infiltrate fully. Stormwater runoff from three shared access roads and 13 associated driveways would be captured through the permeable pavement access roads. Proposed rooftops would discharge to infiltration trenches. The proposed

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<sup>5</sup> Specifically, SWMC 17.43.080.A provides that the design of the PRD shall achieve two or more of the following results: (1) high quality architectural design, placement, relationship or orientation of the structures; (2) achieving the allowable density for the subject property; (3) improving circulation patterns; (4) minimizing the use of impervious surfacing materials; (5) increasing open space or recreational facilities on site; and/or (6) preserving, enhancing or rehabilitating the natural features of the property such as significant woodlands or critical areas.

development would not discharge any stormwater runoff off-site. The Site Plan concluded that increased stormwater runoff from hard surfaces would be mitigated by the proposed localized infiltration systems, and thus, the resulting stormwater impact of the proposed development would be negligible. *Exhibit V.*

#### Trees and Landscaping

15. SWMC 17.50.110 requires significant existing trees on a site to be incorporated into the landscaping design. The CAR prepared for the Applicant determined that there were no existing trees on the project site. PRDs are required to provide a minimum of 20 percent of the gross site area for common open space or, as applicable to this proposed development, a minimum of 10 percent of the gross site area if the 100 percent of the open space provided would be “usable open space.” *SWMC 17.43.060.H.* The Applicant would meet this requirement by providing a 55,532 square foot shared usable open space tract for the 553,212 square foot site. City staff reviewed the Applicant’s landscape plan and determined that, with conditions, it would comply with City code requirements and requirements under the Sedro-Woolley Design Standards and Guidelines for recreation areas. *Exhibit A, Staff Report, page 9; Exhibit S.*

#### Utilities

16. The City would provide sewer, garbage, stormwater, police, and fire services to the property. The City Sewer Department provided the Applicant with a letter noting the requirements for City sanitary sewer service to the property. Skagit County PUD would provide water service to the property. Skagit County PUD provided the Applicant with a water availability letter detailing the requirements for water service to the property. Puget Sound Energy would provide electricity service. Cascade Natural Gas would provide natural gas service. The property would be served by Peace Health Hospital. *Exhibit A, Staff Report, page 3; Exhibit W; Exhibit X.*

#### Access, Parking, and Traffic

17. The Applicant’s site plans show that all the lots in the proposed subdivision would be accessed from McGarigle Road via an internal looped road that would be dedicated to the City as a public right-of-way at the time of final plat approval. Access to all of the individual lots would be from the internal road. The Applicant would include frontage improvements to the internal road to include curb, gutter sidewalk, planting strips with street trees, and any required pavement overlay and striping. Due to the proposed road’s paved width of 38 feet, street parking would be allowed on only one side of the road. The proposed internal road would be developed in two phases. A portion of the road would be developed in phase one and would utilize a temporary turn-around prior to the loop being completed during phase two. The temporary turn-around would be required to be approved by the City engineer for compliance with City standards. The Applicant’s project narrative noted that construction for phase one of the project would begin when phase one is approved and recorded. The Applicant anticipates that phase two would

begin within 1 to 6 years of phase one, with a goal of beginning phase two within 12 to 16 months of recording the final plat for phase one. City Staff reviewed the Applicant's proposal for the internal road and concluded that, with conditions, it would meet the street and sidewalk requirements of Chapter 15.40 SWMC, Chapter 17.36 SWMC, and the current City Engineering Design & Development Standards. Any significant changes to the project design, including the design of the temporary turnaround or specific details regarding phasing, would require further administrative approval by the City. *Exhibit A, Staff Report, pages 8 and 9; Exhibit R; Exhibit T; Exhibit U.*

18. SWMC 17.36.030 requires that single-family residences provide two off-street parking spaces per dwelling unit. City staff reviewed the Applicant's site plans and determined that the lots are of a sufficient size and layout to meet this requirement. SWMC 17.43.060.G requires PRDs to provide one on-street parking space for every four units. The Applicant has submitted a parking plan showing that the proposal would meet this requirement. *Exhibit A, Staff Report, page 10; Exhibit S; Exhibit T; Exhibit U.*
19. As noted above, Gibson Traffic Consultants prepared a TIA for the Applicant, dated September 2019. The TIA determined that, as an age-restricted development, the proposed development would generate approximately 344 average daily trips, with 19 AM peak-hour trips and 24 PM peak-hour trips. The TIA also calculated the traffic impacts of the proposed development if not age-restricted, determining that it would generate approximately 730 average daily trips, with 53 AM peak-hour trips and 70 PM peak-hour trips. The TIA studied the expected traffic impacts of the proposal to the intersection at SR-9 and McGarigle Road and the intersection at McGarigle Road and Fruitdale Road, as well as the intersection at McGarigle Road and Independence Road, which would serve as the access point for the proposed development. Using the trip generation data under the unrestricted development scenario, the TIA concluded that all of the studied intersections would continue to operate at acceptable levels of service (LOS) with the proposed development when accounting for a planned improvement project affecting the intersection at SR-9 and McGarigle Road.<sup>6</sup> The TIA calculated the 5-year collision rate at the studied intersections and, based on its calculations, did not recommend any further safety measures. The TIA noted that there were no reported collisions along the development site's frontage. The Applicant would be required to pay traffic impact fees. *Exhibit N; Exhibit O; Exhibit P.*
20. Transportation Solutions, Inc. (TSI) provided a peer review of the Applicant's TIA for the City, which agreed with the TIA's conclusions. TSI also prepared a memorandum describing the methods, assumptions, and findings of the Sedro-Woolley Citywide Transportation Concurrency Review, dated January 7, 2020. The Citywide Transportation Concurrency Review provided an analysis of City intersections, predicting

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<sup>6</sup> The TIA noted that, without the planned improvement project, the intersection at SR-9 and McGarigle Road would be projected to operate at LOS F with or without the proposed development. *Exhibit N.*

LOS conditions from pending developments, including the Applicant's proposed development, and concluding that the intersection at McGarigle Road and Carter Road would continue to operate at an acceptable LOS with all pending development. The Concurrency Review also concluded that the McGarigle Road corridor from SR-9 to Fruitdale Road would have adequate capacity and would operate at an acceptable LOS with all pending developments. *Exhibit N; Exhibit O; Exhibit P.*

#### Testimony

21. City Planning Director John Coleman testified generally about the proposal and how City staff reviewed it for consistency with the City's Comprehensive Plan and its compliance with zoning ordinances, as discussed above. He discussed the Applicant's proposed stormwater plans, noting that it would comply with the Washington State Department of Ecology (DOE) 2012 Stormwater Management Manual for Western Washington. Mr. Coleman noted that the Applicant's proposed plans for a Homeowner's Association (HOA) would require approval by the City Planning Department prior to recording of the final plat. *Testimony of Mr. Coleman.*
22. Applicant Tim Woodmansee testified that the proposed PRD would include 33 townhouse lots, 52 single-family lots, a usable open space tract, and a clubhouse. He detailed the proposed plans for comprehensive HOA that would govern several of the development's various improvements. Mr. Woodmansee also detailed aspects of the proposed stormwater plan. He stated his agreement with the City's recommended conditions of approval. *Testimony of Mr. Woodmansee.*
23. Frank Bresnan, Sr. testified about his concerns with the potential traffic impacts of the proposed development and submitted additional written comments detailing his concerns (Exhibit Y). *Testimony of Mr. Bresnan.*

#### Staff Recommendation

24. Mr. Coleman testified that City staff recommends approval of the proposal, with conditions. *Exhibit A, Staff Report, page 10; Testimony of Mr. Coleman.*

### **CONCLUSIONS**

#### Jurisdiction

The Hearing Examiner is granted jurisdiction to hear and recommend applications for preliminary plats pursuant to SWMC 16.08.024. This review entails the Hearing Examiner ensuring that the proposed plat, or revisions to it, would satisfy the criteria of Chapter 58.17 RCW. *SWMC 16.08.024. See also SWMC 2.34.080.C; SWMC 2.90.060.F.2.d.*

### Criteria for Review

#### *Planned Residential Development*

Following a public hearing, the Hearing Examiner shall make a report of findings and recommendations with respect to the proposed PRD, and shall forward the report to the city council. Such report shall include, but need not be limited to, the following items:

1. Suitability of the site area for the proposed development;
2. Requirements of the subdivision code for the proposed development;
3. Time limitations for the entire development and specified stages;
4. Development in accordance with the Sedro-Woolley comprehensive plan;
5. Public purposes have been served by the proposed development;
6. Compliance with the design standards and guidelines.

*SWMC 17.43.070.E.*

#### *Preliminary Plat*

Under SWMC 16.08.028, the effect of preliminary plat approval is as follows:

- A. Approval of the preliminary plat shall constitute authorization for the subdivider to develop the subdivision facilities and improvements as required in the approved preliminary plat upon issuance of the final plat. Development shall be in strict accordance with the plans and specifications as prepared or approved by the city engineer and subject to any conditions imposed by the hearing body.
- B. No subdivision requirements which become effective after the approval of a preliminary plat for a subdivision shall apply to such subdivision unless the hearing body determines that a change in conditions created a serious threat to the public health or safety.
- C. Preliminary plat approval is valid for five years unless extended pursuant to SWMC 16.08.064.

The state subdivision criteria are as follows:

A proposed subdivision and dedication shall not be approved unless the city, town, or county legislature body makes written findings that: (a) appropriate provisions are made for the public health, safety, and general welfare and for such open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and schoolgrounds and all other relevant facts, including sidewalks and other planning features that [ensure] safe walking conditions for students who only walk to and from school; and (b) the public use and interest will be served by the platting of such subdivision and dedication.

*RCW 58.17.110(2).*

The criteria for review adopted by the City Council are designed to implement the requirement of Chapter 36.70B RCW to enact the Growth Management Act. In particular, RCW 36.70B.040

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mandates that local jurisdictions review proposed development to ensure consistency with City development regulations, considering the type of land use, the level of development, infrastructure, and the characteristics of development. *RCW 36.70B.040.*

Conclusions Based on Findings  
*Planned Residential Development*

1. **With conditions, the proposal would comply with the requirements for a Planned Residential Development under SWMC 17.43.070.E.** The approximately 12.7-acre property is suitable site area for the proposed PRD because it exceeds the 3-acre minimum size required for a PRD. The Hearing Examiner concurs with City staff's recommendation to approve the Applicant's request for reduced setbacks to the second front setback on corner lots, garage setback on certain lots accessing off a private shared driveway, and side setbacks for all two-story building lots. With approval of the Applicant's requests for reduced setbacks, the proposed development would comply with the development standards for PRDs under Chapter 17.43 SWMC. The Applicant would develop the property in two phases. The Applicant anticipates that construction for phase one would begin when it is approved and recorded and that phase two would begin within 1 to 6 years of phase one, with a goal of beginning phase two within 12 to 16 months of recording the final plat for phase one. With recommended conditions, the proposed development would be consistent with the City Comprehensive Plan. The proposed development would ensure that the Applicant would comply City regulations, would meet the heightened design standards for PRDs, would be required to pay traffic impact fees, would be required to comply with SEPA mitigation measures as set forth in the MDNS, would maintain adopted LOS standards, and would develop the required amount of usable open space. Additionally, the proposed development would serve a public purpose by providing housing for individuals of the age of 55 and older. Conditions, as detailed below, would be necessary to ensure that the proposed development would meet the PRD requirements. Accordingly, the Hearing Examiner recommends approval of the proposed PRD with the conditions detailed below. *Findings 1, 8 – 24.*

*Preliminary Plat*

2. **With conditions, the preliminary plat would comply with RCW 58.17.110(2).** The Applicant submitted plans that ensure that, as proposed, the subdivision would meet all requirements for plat approval under the municipal code. City staff analyzed the proposal to develop the age-restricted PRD and determined that appropriate provisions would be made for the public health, safety, and general welfare; and for such open spaces, drainage ways, streets or roads, alleys, other public ways; transit stops; potable water supplies; sanitary wastes; parks and recreation; and playgrounds, schools, and schoolgrounds, including sidewalks and other planning features that ensure safe walking conditions for students who walk to and from school. Staff also determined that the public use and interest would be served by the platting of such subdivision and dedication. The Hearing Examiner concurs with staff's assessment.

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Conditions, as detailed below, are necessary to ensure that the Applicant adheres to all requirements of the MDNS; constructs all improvements consistent with the preliminary plat map and landscape plan; completes required infrastructure improvements prior to final plat application; creates a homeowners' association to maintain common facilities on site, including the stormwater system, recreation area tract, and shared driveways; submits a final plat map to the City for review and approval after site improvements are completed, approved, and/or financially secured; receives final plat approval for phase one and phase two of development; includes in civil plans the temporary turn-around for phase one, the demolition plans for the turn-around, the completed road plans for phase one, and all other improvements for final plat approval; and dedicates all roads as public rights-of-way at the time of final subdivision approval. *Findings 1 – 24.*

2. **With conditions, the proposed subdivision would be consistent with City development regulations, considering land use type, development level, infrastructure, and development characteristics, such as development standards, as required by RCW 36.70B.040.** The City provided adequate notice and opportunity to comment on the proposed preliminary plat. The City acted as lead agency and analyzed the environmental impacts of the proposed plat, as required by SEPA, and issued a Mitigated Determination of Nonsignificance (MDNS). An appeal from the MDNS was denied. The MDNS mitigation measures are incorporated as recommended conditions of subdivision approval. The preliminary plat for a PRD would provide development for age-restricted, single-family residences and townhouses consistent with the City development regulations, including regulations for development pursuant to a PRD in the R-7 zoning district. The proposed residential use would be compatible with surrounding properties. As noted above in Conclusion 2, conditions are necessary to ensure the proposal meets all requirements for preliminary plat approval under municipal and state requirements. *Findings 1 – 24.*

### RECOMMENDATION

Based on the preceding findings and conclusions, the Hearing Examiner recommends that the request for a preliminary plat to develop a 12.7-acre property in two phases as an 85-lot Planned Residential Development, with associated improvements, for residents 55 years of age and older, on the south side of McGarigle Road, across from the east entrance of Independence Blvd, be **APPROVED**, with the following conditions:<sup>7</sup>

1. All development shall generally conform to the proposed preliminary plat map and the landscape plan.

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<sup>7</sup> Conditions include legal requirements applicable to all developments, as well as those designed to mitigate the specific impacts of this development.

2. The proponent or successor shall comply with the mitigation measures included in the SEPA MDNS issued January 29, 2020.
3. Construction of all required infrastructure improvements, including, but not limited to, streets, curbs, sidewalks, sewer, landscaping and street lighting shall be completed prior to final plat application or bonding in an amount approved by the City Engineer shall be filed with the City.
4. A homeowners association shall be created to own and maintain the stormwater system infrastructure, recreation area tract and shared driveways; the homeowner's association documents shall be approved by the Planning Department prior to recording of the final plat.
5. The proponent or successor shall submit a final plat map for each phase to the city for review and approval after site improvements are completed, approved, and/or financially secured.
6. Phases one and two shall be approved as separate final plats and shall include separate plat maps and construction as-builds. The civil plans for the project shall include the temporary turn-around for phase one, the demolition plans for the temporary turn-around, and the completed road plans for phase two, along with all other required infrastructure and improvements for final plat approval. The City may administratively approve alterations to the proposed turn-around, or other aspects of the project that do not have significant impacts (such as increasing the number of units), without further approval of the Hearing Examiner.
7. The proponent or successor shall dedicate all roads as public right-of-way at the time of final subdivision approval.

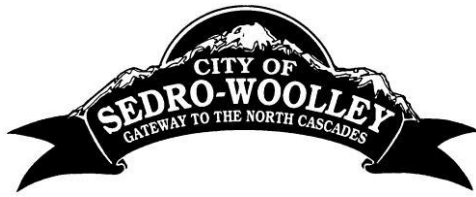
**RECOMMENDED** this 9<sup>th</sup> day of April 2020.



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ANDREW M. REEVES  
Hearing Examiner  
Sound Law Center

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## Exhibit A

To Hearing Examiner Findings

CITY OF SEDRO-WOOLLEY  
PLANNING DEPARTMENT  
325 Metcalf Street  
Sedro-Woolley, WA 98284  
Phone (360) 855-0771  
Fax (360) 855-0733

### TRANSMITTAL & REPORT MEMORANDUM

**HEARING DATE:** March 24, 2020 at 10:00 am

**TO:** Sedro-Woolley Hearing Examiner

**RE:** LP-2019-389 – Preliminary Plat Approval for the Proposed Plat of  
**Brickyard Park** a Planned Residential Development

**FROM:** \_\_\_\_\_  
Katherine Weir, Assistant Planner

#### GENERAL INFORMATION:

**APPLICATION DATE:** November 1, 2019

**APPLICATION COMPLETE:** November 14, 2019

**RECOMMENDATION:** Staff Recommends **Approval with Conditions**

**PROJECT NAME:** Plat of Brickyard Park - a Planned Residential Development

**SITE LOCATION:** McGarigle Road, Parcel #39374

**PARCEL ID NOS.** P39374

**ZONING DISTRICT:** Residential 7

**SITE AREA:** 12.7

**PROPERTY OWNER:** Brickyard Park, LLC  
702 Metcalf Street, Suite A  
Sedro-Woolley, WA 98284

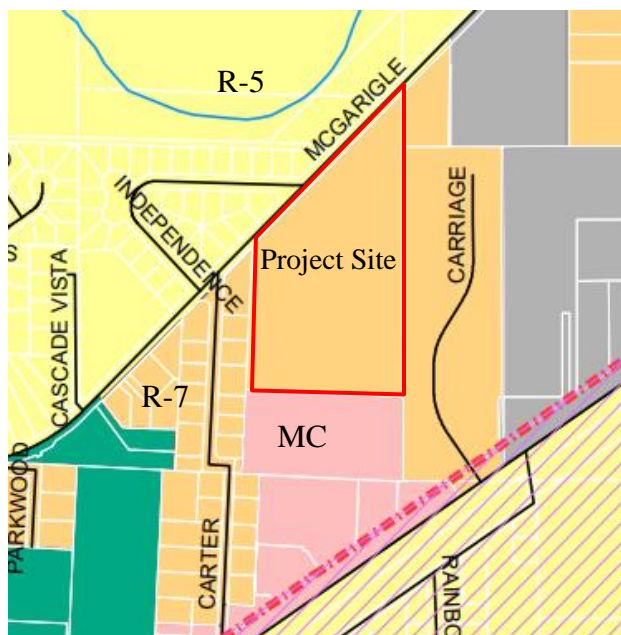
**PROJECT PROPONENT:** BYK Construction Inc.  
ATTN: Tim Woodmansee  
702 Metcalf Street, Suite A  
Sedro-Woolley WA, 98284

## DESCRIPTION OF PROPOSAL:

The City has received a preliminary long plat application for a proposal to develop an 85-lot Planned Residential Development (PRD) on a vacant 12.7 acre property on McGarigle Road. The proposed PRD will be age-restricted to 55 and older. The property is zoned Residential 7 and allows for a variety of lot sizes under the PRD regulations in Chapter 17.43 of the Sedro-Woolley Municipal Code (SWMC). The proponent is proposing 52 single family lots and 33 lots that can accommodate one townhome unit per lot. The project includes construction of a new public road accessed off McGarigle Road, a shared (private) open space area with a clubhouse and stormwater infrastructure. The project is proposed be in two phases; phase one will include the open space tract and 42 of the 85 proposed lots. The new road will not be a complete loop in phase one and will instead have a temporary turn-around. Phase two will include the remaining 43 lots and completion of the access road.

## COMPREHENSIVE PLAN LAND USE DESIGNATIONS, ZONING DESIGNATIONS AND EXISTING LAND USES OF THE SITE AND SURROUNDING AREAS:

Area	Land Use Designation	Zoning	Existing Use
Project Site	Medium Density Residential	Residential 7	Undeveloped
North	Low density Residential	Residential 5	Single-Family Residential
South	Mixed Commercial	Mixed Commercial	Self-Storage Lots
East	Medium Density Residential	Residential 7	Single-Family Residential
West	Medium Density Residential	Residential 7	Single-Family Residential



<b>Residential 7 (R-7) Zoning Regulations:</b>			
Minimum lot size:	6,000 square feet	Lot width at building line:	40 feet
Front Setback:	20 feet	Lot width at road frontage:	20 feet
Rear Setback:	10 feet	Maximum building height:	35 feet
Side Setback:	5 feet for 1-story buildings, 8 feet for 2-story	Maximum building coverage:	50%

**PUBLIC UTILITIES AND SERVICES PROVIDED BY:**

<b>Water:</b>	Skagit County PUD #1	<b>Cable TV:</b>	Comcast
<b>Sewer:</b>	City of Sedro-Woolley	<b>Police:</b>	City of Sedro-Woolley
<b>Garbage:</b>	City of Sedro-Woolley	<b>Fire:</b>	City of Sedro-Woolley
<b>Storm Water:</b>	City of Sedro-Woolley	<b>School:</b>	Sedro-Woolley School District
<b>Telephone:</b>	Verizon	<b>Hospital:</b>	Peace Health
<b>Electricity:</b>	Puget Sound Energy	<b>Gas:</b>	Cascade Natural Gas

**ANALYSIS**

1. Application Process and Public Notice:

- a. Per Chapter 2.90 SWMC, both a preliminary long plat and a PRD are Type IV permits and shall be reviewed in accordance with the procedure for a Type IV permit process. Planned Residential Development applications are run along with a subdivision application.
- b. Chapter 2.90 SWMC specifies the requirements for notice of application and SEPA determinations.
- c. On September 3, 2019 city staff met with the project proponent Tim Woodmansee for a required Pre-Application meeting for an 85 lot, ages 55 and up Planned Residential Development (PRD) on an undeveloped lot off McGarigle Road.
- d. On November 1, 2019 the City received the Preliminary Long Plat and PRD application materials, including a preliminary long plat application (**Exhibit B**) and a PRD checklist (**Exhibit C**). The application was determined to be complete on November 14, 2019.
- e. On November 18, 2019 the City issued a Notice of Application and SEPA Comment Period (**Exhibit D**). The notice was mailed to all property owners within 500 feet of the property, posted on site, and published in the Skagit Valley Herald legal notices on November 18, 2019.
- f. The SEPA Comment Period ended on December 2, 2019. The City received a total of 13 comments.

- g. On January 13, 2020 the City Issued a SEPA Mitigated Determination of Non-Significance (MDNS) (**Exhibit E**). The Notice of SEPA Determination was sent to all property owners and residents within 500 feet of the property and published in the January 13 Skagit Valley Herald in the legal notices.
- h. On January 29, 2020 the city re-issued the SEPA MDNS (**Exhibit F**) with no changes to the mitigation requirements, only an extension of the appeal period. The MDNS was re-issued due to a procedural error. The re-issued MDNS was sent to all property owners and residents within 500 feet of the property, all parties of record, posted on the subject site and published in the legal notices section of the January 29, 2020 Skagit Valley Herald.
- i. The appeal period for the re-issued MDNS ended on February 12, 2020. On January 27, 2020, the City received one appeal from a group of neighbors.
- j. Applicable law requires the appeal of a threshold determination be consolidated with the hearing of the underlying permit. Thus, a hearing with two parts was scheduled for March 24, 2020. Notice of the hearing (**Exhibit G**) was sent to all property owners and residents within 500 feet of the property, all parties of record, posted on the subject site and published in the legal notices section of the March 13, 2020 Skagit Valley Herald.

**CONCLUSION: The application meets the procedural and public notice requirements for Type IV applications established in Chapter 2.90 SWMC.**

2. Public Comment:

- a. During the comment period, the city received a comment letter from the department of Ecology (**Exhibit H**) regarding nearby contaminated sites, a letter from Sound Transit regarding potential public transportation (**Exhibit I**), and 11 comment letters from the neighbors (**Exhibits J and K**).
- b. The neighbor comments were mostly concerned with the level of traffic during school pick up and drop off, with cars idling on the road during this time, and the safety of school children who walk or ride their bikes to school.

3. Environmental and Critical Area Review:

- a. The applicant submitted a SEPA Checklist (**Exhibit L**) a Critical Areas Assessment Report (**Exhibit M**) and other documents related to the environment, including a Traffic Impact Analysis (**Exhibit N**). The SEPA checklist identified no significant environmental impacts from the proposal, the Critical Areas Assessment indicated that there are no wetlands or critical areas on site, and the traffic impact analysis indicated that no significant traffic impacts would occur from the proposal.
- b. A Notice of Application and SEPA Comment Period was issued by the SEPA lead agency (City of Sedro-Woolley) utilizing the optional DNS process in WAC 197-11-

355. The public comments that were received are addressed above in Section 2 – Public Comments.

- c. Prior to issuing an MDNS, the City carefully reviewed the public comments. The major concerns are the potential traffic impacts of the proposed subdivision. The City Engineering Department carefully reviewed the Traffic Impact Analysis (**Exhibit N**) submitted with the application. To assure that the information in the Traffic Impact Analysis is correct, the City hired a third party (TSI) to review Traffic Impact Analysis. TSI performed the review and produced a Technical Memo (**Exhibit O**) dated October 4, 2019 that found no errors in the Traffic Impact Analysis.

To analyze the cumulative impacts of recently completed development, the proposed 85-lot PRD and four other proposed subdivisions (115 lots, 201 lots, 31 lots and 6 lots for a total of 353 proposed lots), the City hired TSI to produce a separate concurrency study referred to as the Citywide Transportation Concurrency Review (**Exhibit P**). The TSI Citywide Transportation Concurrency Review examined the impacts of the identified development on the entire city transportation network and also examined the impacts on McGarigle Road and the intersection of McGarigle and North Township Street (alternately named State Route 9). The TSI Citywide Transportation Concurrency Review concluded that the traffic impacts of the addition of the identified five pending applications will increase delay, resulting in LOS D at the intersection of McGarigle and North Township Street, but will not trigger an LOS deficiency.

- d. On January 13, 2020 the city issued a SEPA Mitigated Determination of Non-significance for the proposal (**Exhibit E**). The appeal period for that SEPA MDNS ended January 27, 2020.
- e. On January 27, the City received a timely appeal of the SEPA determination from a group of neighbors (**Exhibit Q**). The appeal generally points out that there is traffic on McGarigle Road during school drop-off and pick-up and the appellant does not agree with the Traffic Impact Analysis (**Exhibit N**). The SEPA MDNS appeal hearing is consolidated with the public hearing for the PRD application.
- f. On January 29, 2020 the City issued a revised SEPA MDNS (**Exhibit F**) as discussed in 1.h (above). The appeal period for the re-issued MDNS ended on February 12, 2020.

**CONCLUSION: The application as conditioned meets the SEPA standards as identified in WAC 197-11 and the critical areas standards identified in Chapter 17.65 SWMC.**

4. Comprehensive Plan, Zoning and Permissible Uses:

- a. The City of Sedro-Woolley Comprehensive Plan Identifies this area as medium residential. Specifically, this area is zoned Residential 7 (R-7). Planned Residential Developments are allowed in the R-7 as a conditional use.

- b. Specific goals and policies from the Land Use Element of the Sedro-Woolley Comprehensive Plan that are relevant and applicable to this proposal include the following:
  - i. Policy LU5.7: Recognize the rights of property owners to freely use and develop private property consistent with city regulations. The proposal is consistent with city regulations.
  - ii. Policy LU5.8: Encourage high standards of appearance in all residential areas and in other high visibility areas. The proposal is utilizing the PRD provisions in Chapter 17.43 SWMC which require higher standards for appearance.
- c. Specific goals and policies from the Transportation Element of the Sedro-Woolley Comprehensive Plan that are relevant and applicable to this proposal include the following:
  - i. Policy T6.2: Ensure that growth mitigates its impacts through transportation impact fees, SEPA mitigation, concurrency, and development regulations. The proponent will be required to pay all impact fees at time of building permit, including traffic impact fees. This report describes how the proposals impacts are mitigated through SEPA mitigation (**Condition 2**), concurrency (**Conditions 6 and 7**) and development regulations (**Sections 6 through 10**).
  - ii. Goal T7: To provide an adequate transportation system current with the traffic-related impacts of new development. The proposed loop road is part of an adequate transportation system. Traffic impact fees will be required at time of building permit.
  - iii. Policy T7.1: Maintain the adopted Level of Service (LOS) standard for all roadways classified as arterials or state highways. The LOS will be maintained as supported by multiple levels of analysis (**Exhibits N, O and P**).
- d. Specific goals and policies from the Housing Element of the Sedro-Woolley Comprehensive Plan that are relevant and applicable to this proposal include the following:
  - i. Policy H2.1: Encourage affordable housing for the elderly. As an alternative, the elderly should be accommodated in safe, well-maintained multiple-unit structures. This proposal will be age restricted to individuals of the age of 55 and older.
  - ii. Policy H3.1: Require usable outdoor recreation space as part of all residential developments. The proposal includes plans for an open space tract that meets the requirements for recreational open space (**Section 8**).
  - iii. Policy H3.7: Allow planned residential developments (PRD's) within the R7 and R5 land use designation as a conditional use. PRD developments are characterized

by a variety of housing products and provide indoor and outdoor common space for residents. This proposal is utilizing the PRD standards in Chapter 17.43 SWMC and will provide both indoor and outdoor common space for residents by way of a shared open space tract and a clubhouse.

**CONCLUSION: The application, as conditioned is consistent with the Sedro-Woolley Comprehensive Plan and permissible uses identified in Chapter 17.12 SWMC.**

5. Application Type and Specific Criteria: Chapter 16.08 SWMC establishes the requirements and criteria for approving a preliminary subdivision. Chapter 17.43 SWMC establishes the requirements and criteria for Planned Residential Developments (PRDs). Specifically, the criteria for preliminary plat and PRD application are listed below as per Chapters 16.08 and 17.43 SWMC:

- a. A preliminary plat and PRD shall follow the procedures for a type IV permit review pursuant to Chapter 2.90 SWMC.

As concluded in Section 1 of this report, the application has followed the procedures for a type IV review.

- b. A preliminary plat shall be approved if it meets the approval criteria and requirements in Chapter 58.17 of the Revised Code of Washington (RCW).

Preliminary subdivisions are approved subject to the criteria of Chapter 58.17 RCW, which requires provisions for public health, safety, and general welfare; open spaces; drainage; streets; transit stops; potable water supplies; sanitary wastes; parks and recreation and playgrounds; schools, sidewalks, and whether the public interest will be served by the subdivision and dedication. An analysis of each additional criterion will follow in subsequent sections.

The proposal includes plans for a 55,532 Square foot private shared open space, a new road with street trees, sidewalks and planter strips, and provisions for drainage, water supplies, and sewage. The proposed development is within close proximity to local schools, however the age-restricted community that is proposed will likely result in very few new student admissions. The private shared open space tract includes a clubhouse for the residents to use for recreation and leisure.

**CONCLUSION: The proposed subdivision as conditioned is consistent with the criteria described in Chapters 16.08 and 17.43 SWMC and RCW 58.17.110 for preliminary subdivision approval.**

6. Dimensional Standards:

- a. The dimensional standards of Chapters 17.12 and 17.43 SWMC apply to this subdivision.

- b. Single family residential lots created through the PRD process in the R-7 zone may be a variety of sizes provided that no lot shall be less than 4,800 square feet in size – except 50 percent of the single family lots may be as small as 4,000 square feet. The applicant has proposed 52 single family lots ranging in size from 4,673 square feet to 14,090 square feet.
- c. In the R-5 and R-7 zones, the minimum lot size for townhouse units on their own platted lot is 2,500 square feet for center townhouse units and 3,000 square feet for corner lots. The applicant has proposed 33 zero lot line townhome lots that vary in size from 3,675 to 5,122 square feet.
- d. The setbacks in a PRD must comply with the underlying zone, however per Chapter 17.43 SWMC, alternate setbacks to lots within the PRD can be specified in the PRD preliminary subdivision approval. Corner lots have two front setbacks in the underlying zone. In the narrative provided with the application (**Exhibit R**), the applicant has proposed a reduction to the second front setback on corner lots, a reduction in the garage setback on certain lots accessing off a private shared driveway, and a reduction in the side setbacks for all lots for a two story building. City Staff has reviewed the application against the criteria for alternate setbacks and recommends approval of the proposed reduced setbacks.

**CONCLUSION: The proposal as conditioned meets the dimensional standards set forth in Chapters 17.12 and 17.43 SWMC.**

7. Streets and Sidewalks:

- a. Streets and sidewalks in new subdivisions are required to meet the public works constructions standards described in Chapter 15.40 SWMC.
- b. Parking facilities, including driveways accessing public thoroughfares must meet the standards in Chapter 17.36 SWMC.
- c. Access to the subdivision will be from one new access point off McGarigle Road. The loop road that will serve the new lots is proposed to be dedicated to the city to become a public road.
- d. The proposed loop road will include frontage improvements within the loop, no frontage improvements are required on McGarigle Road. Plans for the proposed loop road include curb, gutter sidewalk, and planting strips with street trees along with any required pavement overlay and striping.
- e. SWMC 17.36.040(A) requires that ingress and egress be designed with respect to intersections, crosswalks and traffic in general so as not to create safety hazards or impedances. The entry point of the proposal will be off of an arterial road, however all of the proposed homes will utilize the proposed loop road for driveways. Street parking will only be allowed on one side of the street due to the paved width of 38

feet. The proponent or successor will dedicate all roads as public right-of-way at the time of final subdivision approval (**Condition 6**).

- f. The proposed road will be built in two phases. The road in phase one will not be a complete loop but will instead utilize a temporary turn around. The road will not be completed as a loop until phase two. The temporary turn-around must meet city standards and be approved by the city engineer for phase one and the road must be completed as a loop for phase two (**Condition 6**).

**CONCLUSION: The application as conditioned meets the streets and sidewalk standards identified in Chapters 15.40 and 17.36 SWMC and in the current Engineering Design & Development Standards.**

8. Landscaping and Open Space:

- a. Per Chapter 17.43 SWMC, a PRD is required to provide no less than twenty percent of the gross site area of the PRD for common open space, or if one hundred percent of the open space provided is “usable open space” as defined in SWMC 17.43.060, then no less than ten percent of the gross site area of the PRD shall be provided as open space. The applicant is proposing a 55,532 square foot shared open space tract with 100 percent of the space qualified as “usable open space” per the definition in SWMC 17.43.060(I). The size of the proposed open space accounts for 10 percent of the gross site area (553,212 square feet).
- b. The applicant was required to submit a landscape plan (**Exhibit S**) with the application materials in accordance with the requirements of Chapters 17.38 and 17.50 SWMC. Staff has found that the landscape plan for the proposal demonstrates compliance with both of the code chapters and the Sedro-Woolley Design Standards and Guidelines for recreation areas.

**CONCLUSION: The proposal as conditioned meets the requirements for landscaping and recreational area as described in Chapters 17.38, 17.43 and 17.50 SWMC.**

9. Design Review:

- a. PRDs are held to a higher level of design standards than a standard subdivision. Per the PRD criteria in SWMC 17.43.080(A), the design of the PRD shall achieve two or more of the following results: High quality architectural design, placement, or orientation of the structures; achieving the allowable density for the subject property; improving circulation patterns; minimizing the use of impervious surfacing materials; increasing open space or recreational facilities on site; and preserving, enhancing or rehabilitating the natural features of the property such as significant woodlands or critical areas.
- b. The plat map that was submitted (**Exhibit T**) and the landscape (**Exhibit S**) plan demonstrate that the proposal meets two or more of the criteria. Namely, staff finds that the orientation of the lots around a large open space tract achieves high quality

placement and orientation of structures, and the proposal achieves the allowable density for the subject property.

- c. Buildings in the PRD will be required to meet the additional design standards for PRDs in the Sedro-Woolley Design Standards and Guidelines enabled by Chapter 15.44 SWMC as well as 25% landscaping per lot, to be reviewed at time of building permit.
- d. All development must meet the design standards described in SWMC 16.08.100.
- e. The road and lot access shown on the plat map (**Exhibit T**) meet the standards in SWMC 16.08.100.

**CONCLUSION: The proposal as conditioned will meet the design standards described in Chapters 17.43 and 16.08 SWMC as well as the Sedro-Woolley Design Standards and Guidelines.**

10. Parking:

- a. SWMC 17.36.030 requires that single-family residences provide two off-street parking spaces per dwelling unit. The plat map (**Exhibit S**) shows that the lots have sufficient size and layout to meet this requirement.
- b. Chapter 17.43 SWMC requires PRDs to provide one on-street parking space per every four units. The applicant provided a parking plan (**Exhibit U**) that demonstrates that the proposal meets this requirement.

**CONCLUSION: The proposed subdivision as conditioned will meet the parking requirements identified in Chapters 17.36 and 17.43 SWMC.**

## **STAFF RECOMMENDATIONS**

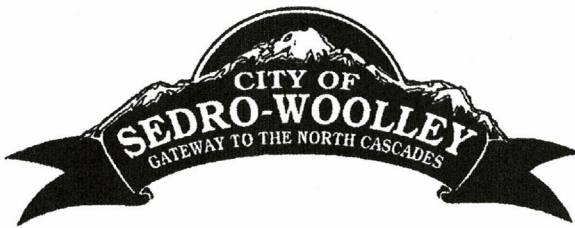
Application # LP 2019-389, a proposed preliminary subdivision application for an 85-lot Planned Residential Development restricted to residents of 55 years and older is **recommended for APPROVAL subject to the following conditions:**

1. All development shall generally conform to the proposed preliminary plat map as shown in **Exhibit L** and the landscape plan as shown in **Exhibit F**.
2. Comply with the mitigation measures included in the SEPA MDNS issued January 29, 2020.
3. Construction of all required infrastructure improvements, including, but not limited to, streets, curbs, sidewalks, sewer, landscaping and street lighting shall be completed prior to final plat application or bonding in an amount approved by the City Engineer shall be filed with the City.

4. A homeowners association shall be created to own and maintain the stormwater system infrastructure, recreation area tract and shared driveways; the homeowner's association documents shall be approved by the Planning Department prior to recording.
5. The proponent or successor shall submit a final plat map for each phase to the city for review and approval after site improvements are completed, approved, and/or financially secured.
6. Phases one and two shall be approved as separate final plats and shall include separate plat maps and construction as-builds. The civil plans for the project shall include the temporary turn-around for phase one, demolition plans for the temporary turn-around, the completed road plans for phase two along with all other required infrastructure and improvements for final plat approval.
7. The proponent or successor will dedicate all roads as public right-of-way at the time of final subdivision approval.

## **EXHIBITS**

- A. Staff Report
- B. Preliminary Long Plat Application
- C. PRD Checklist
- D. NOA and SEPA Comment Period
- E. SEPA MDNS
- F. Re-issued SEPA MDNS
- G. Notice of Public Hearing
- H. Ecology Letter
- I. Sound Transit Letter
- J. Emerson Letter
- K. Compiled Neighbor Comments
- L. SEPA Checklist
- M. Critical Areas Assessment Report
- N. Traffic Impact Analysis
- O. T.S.I. Technical Memo (October 4, 2019)
- P. City Wide Transportation Concurrency Review
- Q. Letter of MDNS Appeal
- R. Narrative
- S. Landscape Plan
- T. Plat Map
- U. Parking Plan



Building, Planning and Engineering  
Sedro-Woolley Municipal Building  
325 Metcalf Street  
Sedro-Woolley, WA 98284  
Phone (360)855-0771  
Fax (360) 855-0733

## PRELIMINARY PLAT APPLICATION

### Exhibit B

To Hearing Examiner Staff Report

**APPLICATION NUMBER:** \_\_\_\_\_

Proposed name of Subdivision: The Park at Brickyard Creek, A Planned Residential Development

Location (cross street names and addresses, if they exist): McGarigle Road, Independence Blvd.

Assessor's Parcel number(s): P39374

Applicant Name: Tim Woodmansee

Applicant Address: PO Box 619 Sedro-Woolley WA, 98284

Applicant Phone: 360-421-1221 , 360-755-3101 email: Tim@bykconstruction.com

Owner: Brickyard Park LLC

Owner Address: PO Box 619 Sedro-Woolley WA, 98284

Owner Phone: 360-421-1221 , 360-755-3101 email: Tim@bykconstruction.com

I am applying for the following variances or other permits at the same time: PRD

Zoning Designation: R-7 Flood zone: N/A

Total site size in acres: 12.7 Critical Areas by type and acres: None

Number of lots proposed: 85 Number of housing units proposed: 85

Describe existing conditions on and adjacent to site: Open Hay Field

## Application Checklist:

- ☒ A. Pre-application file #: 2019-298 Pre-application date: 9/3/19
- ☒ B. State Environment Policy Act (SEPA). The applicant shall submit a SEPA Checklist or environmental impact statement (EIS), including a site plan and associated fees, with an application for a subdivision. The SEPA Checklist or EIS shall be reviewed by the SEPA official. Upon determination by the Planning Department that the SEPA Checklist is complete and accurate, thirteen (13) copies of the checklist will be required. No public hearing on a subdivision proposal shall be scheduled prior to the issuance of a determination of nonsignificance or mitigated determination of nonsignificance by the SEPA official.
- ☒ C. Fees. See current fee schedule. The applicant will also be billed for mailing and publication costs.
- ☒ D. Complete Application Required. The planning director notifies applicant when the application is complete.
- ☒ E. Project narrative including: a detailed description of the proposal; any other applications being submitted concurrently (such as planned residential development application or a variance); size of properties to be subdivided; number of lots proposed; critical areas, open space and recreation area calculations or any other information that will be pertinent to the review the application.
- ☒ F. Application Map. Ten copies of an accurately scaled and dimensioned map of the plat prepared by a land surveyor licensed by the state of Washington and showing the following:

**\*\*Every preliminary plat shall consist of one or more maps, on both mylar and in digital format approved by the City Engineer, together with written and digital data including the following:**

- ☒ The name of the proposed subdivision;
- ☒ North point and scale; the location of existing property lines: streets, building, if any; watercourses and all general features;
- ☒ The legal description of the land contained within the subdivision;
- ☒ The names and addresses of all persons, firms and corporations holding interest in the lands, including easement rights and interest;
- ☒ The proposed names, locations, widths and other dimensions of proposed streets, alleys, easements, parks, lots, building lines, if any, and all other information necessary to interpret the plat, including the location of existing utility and access easements which are to remain;
- ☒ The location of streets in adjoining plats and the approximate location of adjoining utilities and proposed extensions into the plat;
- ☒ The names of adjoining plats;
- ☒ The name, address and telephone number and seal of the registered land surveyor who made the survey or under whose supervision it was made;
- ☒ The date of the survey;
- ☒ All existing monuments and markers located by the survey;
- ☒ The zoning classification applicable to the land within the subdivision;
- ☒ The conditions of or the limitations on dedications, if any, including slope rights;
- ☒ Contour intervals as required, based upon city datum with intervals of five feet or less utilizing U.S.G.S, or better datum.
- ☒ Location of significant physical features such as buildings, bodies of water, power lines, slopes, trees, and section lines within or adjacent to the proposed plat;
- ☒ Location and description of existing and proposed drainage, sewer, and water facilities within or adjacent to the proposed plat;

- ☒ Location and outline of any sensitive areas, as defined under Section 17.65.040, using the delineation and classification methods and definitions provided for the specific sensitive area under the provisions of Chapter 17.65;
- ☒ If a replat, the layout for the original plat in dotted lines, with replat status reflected in the plat name;
- ☒ Vicinity map at a smaller scale, to include the location of any natural resource lands within three hundred feet of the edge of the proposed plat.

- ☒ G. Mailing labels: See separate form for instructions.
- ☒ H. Posting: See attached form for instructions.
- ☒ I. Copies of covenants, restrictions and collective maintenance agreements, if applicable.
- ☒ J. Environmental checklist or EIS.
- ☒ K. Survey information of all features within 100 feet of the boundary of the proposed subdivision.
- ☒ L. Evidence of water availability. PUD letter date: 10/15/2019.
- ☒ M. Evidence of sewer availability.
- ☒ N. Required materials identified in the pre-application meeting, such as additional information required for PRDs.
- ☒ O. Other information deemed necessary by the planning director, planning commission or city council.
- ☒ P. Landscaping Plan
- ☒ Q. Street Profiles

#### Special Studies:

- ☒ R. Traffic
- ☒ S. Stormwater
- ☒ T. Critical areas

**Criteria:** The proponent bears the burden of proving that the application should be granted. The project permit must be supported by convincing proof that it conforms to the applicable elements of the city's development regulations and comprehensive plan. The proponent must also prove that any significant adverse environmental impacts have been adequately mitigated.

Describe how the following provisions will be met with the proposed subdivision:

- ☒ Public health, safety and general welfare: Public health and safety will be served by the City of Sedro-Woolley Emergency Services
- ☒ Open spaces: There will be a 55,000+sf Park with a possible clubhouse. The park will be a private park for the residences owned and maintained by the HOA.
- ☒ Drainage ways: The drainage will meet the LID requirements and will utilize Infiltration through a regional infiltration facility as well as individual infiltration trenches.
- ☒ Streets, alleys, other public ways: The Streets will be dedicated to the City and will have sidewalk on both sides of the street. The inside loop sidewalk will be on an easement

- ☒ Water supplies: Water will be served by the Skagit PUD each house will have it's own individual meter
- ☒ Sanitary waste: Sanitary waste will be served by the City of Sedro-Woolley.
- ☒ Fire protection facilities: There will be fire hydrants provided as required by the Fire Department
- ☒ Parks, playgrounds: There will be a 55,000+sf Park with a possible clubhouse. The park will be a private park for the residences owned and maintained by the HOA.

**Purpose:** The purpose of the Subdivision (Long Plat) regulations:

To regulate the division of land and to promote the public health, safety and general welfare in accordance with standards established by the city and state to:

- A. Prevent the overcrowding of land;
- B. Lessen congestion in the streets and highways;
- C. Promote effective use of land;
- D. Promote safe and convenient travel by the public on streets and highways;
- E. Provide for adequate light and air;
- F. Provide for open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, fire protection, sanitary wastes, parks and recreation, playgrounds, schools and school grounds, sidewalks or other facilities to assure safe walking conditions for students who walk to and from school; and other public requirements;
- G. Provide for proper ingress and egress;
- H. Provide for expeditious review and approval of proposed divisions which conform to zoning standards and local plans and policies, including the purposes stated herein;
- I. Adequately provide for the housing and commercial needs of the citizens of the city; and
- J. Require uniform monumenting of land divisions and conveyance by accurate legal description.

**Process:** Preliminary plat applications shall be processed simultaneously with applications for rezones, variances, planned residential developments (PRDs), site plan approvals, and similar quasi-judicial or administrative actions to the extent that procedural requirements applicable to these actions permit simultaneous processing.

***No public hearing on a subdivision proposal shall be scheduled prior to the issuance of a declaration of non-significance or mitigated declaration of non-significance by the SEPA official.***

**Applicable local and state rules which will be used in the review of all subdivision applications:**

Applications shall be processed according to the procedures set forth in Chapter 2.90 SWMC, and the additional procedures established in Chapter 16.08 SWMC and state law (Chapter 43.21C RCW, and Chapter 36.70B RCW).

Chapter 16.04 SWMC – General Provisions, Chapter 16.08 SWMC – Subdivisions; Chapter 2.88 SWMC – State Environmental Policy Act; Chapter 15.40 SWMC – Public Works Construction Standards; Chapter 2.90 SWMC – Consolidated Planning Procedures; and Title 17 SWMC – Zoning.

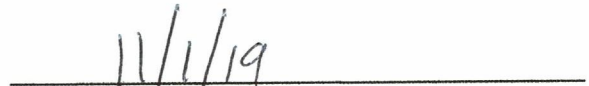
Also applicable to subdivisions are the Public Works Department Standards manual and the Sedro-Woolley Design Standards and Guidelines manual. These documents are adopted by reference in the Sedro-Woolley Municipal Code.

**Signature:**

I request preliminary approval in accordance with the Sedro-Woolley subdivision ordinance and other applicable city codes. Application is hereby made for a **PRELIMINARY PLAT** and to authorize the activities described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities. I hereby grant to the officials of the City of Sedro-Woolley the right to enter the above-described location to inspect the proposed or completed work.



SIGNATURE



DATE RECEIVED

Owner's certification: I certify that I am the legal owner of the property listed above and that the applicant listed above has my permission to represent me in this application for development.



OWNER'S SIGNATURE



DATE

## City of Sedro-Woolley Mailing Procedure

1. Obtain a list of names and addresses of **residents and property owners** within 500 feet of the exterior edges of the subject property. In determining the outside edge, include all other adjacent property owned by the applicant. The source of the names and addresses must be the Skagit County Assessor's records.
2. Obtain a map showing the subject property, the 500 foot radius, and all properties on the mailing list. This is available at the Assessor's office.
3. Prepare 3 sets of postage-paid envelopes using these lists.
4. Prepare additional envelopes for residents of the property if the owner does not live on site. If the name of the resident is unknown, address the envelope to "resident".  
*Example: Resident, 123 State St., Sedro-Woolley, WA. 98284.*
5. Fill out the affidavit below and have it notarized.
6. Bring the list, postage-paid addressed envelopes, map, and notarized affidavit to the city Planning Department.

### AFFIDAVIT OF CORRECT NAMES AND ADDRESSES

I, Tim Woodmansee, do hereby certify  
Affiant

That the attached list of property owners, addresses and parcel numbers for the proposed project, The Park at Brickyard Creek,  
Name of proposed project

Is a true and correct copy provided for me by the Skagit County Assessor's Office for land within 500 feet of the property lines of P 39374.  
Site parcel number

Signed: \_\_\_\_\_

Date: 11 / 1 / 19

Subscribed and sworn to before me on this 15<sup>th</sup> day of November, 2019.  
Marcie O'Brien

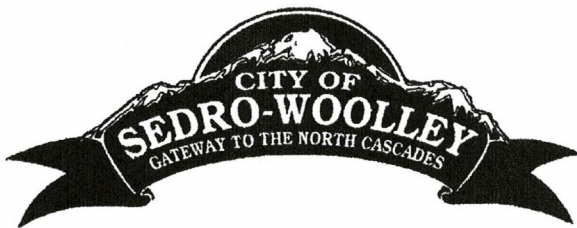
Print Name: Marcie O'Brien

Notary for the State of Washington,

Residing at Sedro Woolley

My Commission expires: 01-01-21





Building, Planning and Engineering  
Sedro-Woolley Municipal Building  
325 Metcalf Street  
Sedro-Woolley, WA 98284  
Phone (360)855-0771  
Fax (360) 855-0733

# PLANNED RESIDENTIAL DEVELOPMENT CHECKLIST

## Exhibit C

To Hearing Examiner Staff Report

Planned Residential Development (PRD) applications shall be under SWMC Chapter 16.08 as well as the criteria for PRDs in SWMC Chapter 17.43. An application for preliminary plat must be submitted with the PRD Checklist. Please submit this completed checklist and the items required in this checklist with your Preliminary Plat (Long Plat) Application.

Proposed name of PRD: The Park at Brickyard Creek, A Planned Residential Development

Assessor's Parcel number(s): P39374

Applicant Name: Tim Woodmansee

Applicant Address: PO Box 619 Sedro-Woolley WA, 98284

Applicant Phone: 360-421-1221 , 360-755-3101

email: Tim@bykconstruction.com

### Application Checklist:

- ☒ A. Pre-application date: #2019-298 9/3/19
- ☐ B. A written statement providing justification for the density bonus, if requested by the applicant.
- ☒ C. A written statement providing a program for development including staging or timing of development.
- ☒ D. A written statement providing proposed ownership pattern upon completion of the project.
- ☒ E. A written statement providing basic content of any restrictive covenants.
- ☒ F. A written statement explaining provisions to assure permanence and maintenance of common open space through a homeowners' association or similar association, condominium development or other means acceptable to the city.

- ☒ G. Application Map. Preliminary Plat applications require ten copies of an accurately scaled and dimensioned map of the plat prepared by a land surveyor licensed by the state of Washington (see Long Plat Application). In addition to those requirements, PRD applications require that the following features must also be represented on the maps: A map of the site drawn to a scale of not less than one inch representing one hundred feet showing the following:
- ☒ Existing site conditions including watercourses, floodplains and unique natural features;
  - ☒ The location and floor area size of all existing and proposed buildings, structures and other improvements including maximum heights, types of dwelling units, density per type, and nonresidential structures, including commercial facilities, if any;
  - ☒ The location and size in acres or square feet of all areas to be conveyed, dedicated, or reserved as common open spaces, public parks, recreational areas, and similar public or semipublic uses;
  - ☒ The existing and proposed circulation system of streets, including off-street parking areas, service areas, loading areas and major points of access to public rights-of-way;
  - ☒ The existing and proposed pedestrian circulation system;
  - ☒ The existing and proposed utility systems, including sanitary sewers, storm sewers, water, electric, gas and telephone; and
  - ☒ The proposed treatment of the perimeter of the PRD, including materials and techniques used such as screens, fences and walls.
- ☒ H. A PRD application must contain sufficient detail to show compliance with the design standards and guidelines of SWMC Chapter 15.44 for the layout, infrastructure, and buildings within the PRD, to allow the reviewing body to incorporate compliance with design standards into its recommendation and final decision. The applicant is expected to submit this information in a format that meets the standards of an architect or design professional. The integration of a comprehensive, well-planned design into all aspects of the PRD is a required element of the application. The application and approval shall require subsequent construction within the PRD to conform with the approved design elements, at a sufficiently detailed level to ensure subsequent compliance with the approval documents.
- ☒ I. The design and layout of a planned residential development shall take into account the relationship of the site to the surrounding areas. The PRD shall be so designed as to minimize any undesirable impact of the PRD on adjacent properties.
- ☒ J. Setbacks, building heights and lot sizes of the PRD shall be comparable to, or compatible with, those of the existing development of adjacent properties or, if adjacent properties are undeveloped, the type of development that may be permitted.
- ☒ K. Other information deemed necessary by the Planning Director, Hearing Examiner or City Council.
- ☒ L. Completed and signed checklist.
- ☒ M. Fees associated with both the PRD and Preliminary Plat application.

**Procedure:**

Public Hearing. A PRD is a Type IV land use application under Ch. 2.90. The Hearing Examiner shall hold a public hearing on the proposed PRD. Following the public hearing, the Hearing Examiner shall make a report of findings and recommendations with respect to the proposed PRD, and shall forward the report to the City Council. Such report shall include, but need not be limited to, the following items:

- Suitability of the site area for the proposed development;
- Requirements of the subdivision code for the proposed development;
- Reasons for density bonuses;
- Time limitations for the entire development and specified stages;
- Development in accordance with the Sedro-Woolley comprehensive plan;
- Public purposes have been served by the proposed development; and
- Compliance with the design standards and guidelines.

City Council Decision. After receipt of the Hearing Examiner's findings and recommendations, the City Council shall make a decision based on the materials submitted by staff and the Hearing Examiner's recommendation. The City Council shall give approval, approval with modifications or disapproval to the proposed PRD. The City Council's decision may be appealed to Skagit County Superior Court as allowed in SWMC Chapter 2.90.

**Purpose:** The purpose of the PRD regulations: to create open space in residential developments and to encourage imaginative site and building design by permitting greater flexibility in zoning requirements than is permitted by other sections of this title. Furthermore, it is the purpose of this section to:

- A. Promote the retention of significant features of the natural environment, including waterways and views;
- B. Encourage a variety of housing types and densities;
- C. Encourage maximum efficiency in the layout of streets, stormwater facilities, utility networks and other public improvements; and
- D. Create and/or preserve usable open space for the enjoyment of the occupants and the general public.

**Signature:**

I DECLARE UNDER PENALY OF THE PERJURY LAWS THAT THE INFORMATION I HAVE PROVIDED ON THIS FORM/APPLICATION IS TRUE, CORRECT AND COMPLETE.



SIGNATURE



DATE RECEIVED

## NOTICE OF APPLICATION AND SEPA COMMENT PERIOD CITY OF SEDRO-WOOLLEY PLANNING DEPARTMENT

**Description of proposal/application:** The city has received an application for a proposed 85-unit Planned Residential Development (PRD) on a vacant 12.7 acre property on McGarigle Road. The proposed PRD will be age-restricted to 55 years and older. The property is zoned Residential 7 and allows for a variety of lot sizes under the PRD provisions in the Sedro-Woolley Municipal Code (SWMC). The proposed lots range from 3,675 to 14,090 square feet in size. The project includes construction of a new public road with sidewalks, a 55,532 square foot community open space, and stormwater infrastructure. File #LP-2019-389.

**Proponent:** BYK Construction Inc.  
ATTN: Tim Woodmansee  
PO Box 619  
Sedro-Woolley, WA 98284

### Exhibit D

To Hearing Examiner Staff Report

**Location of project, including street address if any:** Skagit County Assessor's parcel #39374 located on the south side of McGarigle Road roughly across from the east end of Independence Boulevard, Sedro-Woolley, WA 98284.

**Environmental Review:** The optional DNS process in WAC 197-11-355 is being used. Agencies, tribes, and the public are encouraged to review and comment on the proposed project and its probable environmental impacts. The City of Sedro-Woolley has reviewed the proposed project for probable adverse environmental impacts and expects to issue a mitigated determination of non-significance (MDNS) for this project. The MDNS will likely include the following conditions and any other conditions that may be necessary to address concerns raised during this comment period:

1. Hours of construction shall be limited to 7:00 a.m. to 9:00 p.m. weekdays and 8:00 a.m. to 9:00 p.m. weekends as required in SWMC 9.46.020;
2. Comply with Northwest Clean Air Agency Regulations during construction activities;
3. Any water discharged to the City stormwater system as a result of this project must be approved by and comply with conditions of the Public Works Department;
4. Provide a temporary erosion and sedimentation control plan for approval by the city engineer;
5. Lighting from the site shall be directed and/or shielded so as to not shine at the neighboring residential properties;
6. All construction traffic shall use temporary construction access as approved by the Public Works Department;
7. Obtain and comply with conditions of a NPDES stormwater general permit from the Department of Ecology;
8. Contribute police mitigation fees of \$505.76 per unit as per the residential unit fee calculation in the Capital Facilities Element of the City of Sedro-Woolley Comprehensive Plan; and
9. Construction shall comply with all local, state and federal regulations, including Sedro-Woolley Municipal Code Title 13.36 Stormwater Management Standards; Title 13.40 Stormwater Facilities Maintenance; Title 15.40 Public Works Construction Standards; Title 17 Zoning; Sedro-Woolley Public Works Design Standards and the Sedro-Woolley Comprehensive Plan.

**Documents are available for review at:** The City of Sedro-Woolley Planning Department, 325 Metcalf Street, Sedro-Woolley, WA 98284, Monday through Friday, 8:00 AM to 5:00 PM. Environmental documents available include a SEPA checklist, stormwater report, stormwater infiltration feasibility assessment, traffic impact analysis and critical areas assessment. For more information, contact Katherine Weir at the Sedro-Woolley Planning Department at (360) 855-3206 or by email: [kweir@ci.sedro-woolley.wa.us](mailto:kweir@ci.sedro-woolley.wa.us).

**Public Comment Period:** The lead agency for this proposal has NOT yet made a threshold determination of whether or not the proposed project has a probable significant adverse impact on the environment. Interested persons may comment on the application and/or the anticipated SEPA determination, receive notice, participate in any hearings and request a copy of the decision. **Public comments must be received by 4:30 p.m. December 2, 2019** and should be submitted to the City of Sedro-Woolley Planning Department, 325 Metcalf Street, Sedro-Woolley, WA 98284. Comments may be mailed or personally delivered and should be as specific as possible. **This may be your only opportunity to comment on the environmental impacts of the proposed project.**

Katherine Weir, Assistant Planner  
City of Sedro-Woolley Planning Department

Published in Skagit Valley Herald on November 18, 2019

**CITY OF SEDRO-WOOLLEY**  
**SEPA Notice of Threshold Determination**  
**Mitigated Determination of Non-significance (MDNS)**

**Description of proposal/application:** The city has received an application for an 85-unit Planned Residential Development (PRD) on a vacant 12.7 acre property on McGarigle Road. The proposed PRD will be age-restricted to 55 years and older. The project includes construction of a new public road with sidewalks, a 55,532 square foot community open space, and stormwater infrastructure. File #LP-2019-389.

**Proponent:** BYK Construction Inc.  
ATTN: Tim Woodmansee  
PO Box 619  
Sedro-Woolley, WA 98284

**Exhibit E**

To Hearing Examiner Staff Report

**Location of project:** Skagit County Assessor's parcel #39374.

**Environmental Review:** The City of Sedro-Woolley, lead agency for this proposal, has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist, stormwater report, stormwater infiltration feasibility assessment, traffic impact analysis and critical areas assessment, all on file with the lead agency. This information is available to the public on request. This determination is based upon the following mitigation being provided by the applicant:

1. Comply with Northwest Clean Air Agency Regulations during construction activities;
2. All construction traffic shall use temporary construction access as approved by the Public Works Department;
3. Contribute police mitigation fees of \$505.76 per unit as per the residential unit fee calculation in the Capital Facilities Element of the City of Sedro-Woolley Comprehensive Plan; and
4. Lighting from the site shall be directed and/or shielded so as to not shine at the neighboring residential properties.

The lead agency previously issued a comment period for this proposal under the optional DNS process in WAC 197-11-355. There is no further comment period on this threshold determination. Per SWMC 2.88.170, you may appeal this threshold determination in writing to the City of Sedro-Woolley Planning Department within 14 days from date of publication. Written appeals and appeal fees must be submitted by 4:30 p.m.

**Monday, January 27, 2020.** Contact the Assistant Planner at the City of Sedro-Woolley, 325 Metcalf Street, Sedro-Woolley, Washington, 98284 or electronically at [kweir@ci.sedro-woolley.wa.us](mailto:kweir@ci.sedro-woolley.wa.us) to read or ask about the procedures for SEPA appeals.

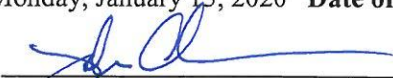
**Responsible SEPA Official:** Planning Director – City of Sedro-Woolley

**Contact Person:** Katherine Weir, Assistant Planner

**Address:** 325 Metcalf Street, Sedro-Woolley, WA 98284

**Date of Issue:** Monday, January 13, 2020 **Date of publication:** Monday, January 13, 2020

**Signature:**

  
John Coleman, Planning Director

Per SWMC 2.88.170, you may appeal this threshold determination in writing to the City of Sedro-Woolley Planning Department no later than **Monday, January 27, 2020.** Written appeals must be submitted, along with the required fee, to the Planning Department, City of Sedro-Woolley, 325 Metcalf Street, Sedro-Woolley, WA, 98284. You should be prepared to make specific factual objections. Contact the Planning Department to read or ask about the procedures for SEPA appeals.

**CITY OF SEDRO-WOOLLEY**  
**SEPA Notice of Threshold Determination**  
**Mitigated Determination of Non-significance (MDNS)**

**Description of proposal/application:** An application for an 85-unit Planned Residential Development (PRD) on a vacant 12.7 acre property on McGarigle Road. The proposed PRD will be age-restricted to 55 years and older. The project includes construction of a new public road with sidewalks, a 55,532 square foot community open space and stormwater infrastructure. This is a re-issued MDNS with a new appeal date; the proposal has not changed. File #LP-2019-389.

**Proponent:** BYK Construction Inc.  
ATTN: Tim Woodmansee  
PO Box 619  
Sedro-Woolley, WA 98284

**Exhibit F**  
To Hearing Examiner Staff Report

**Location of project:** Skagit County Assessor's parcel #39374.

**Environmental Review:** The City of Sedro-Woolley, lead agency for this proposal, has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist, stormwater report, stormwater infiltration feasibility assessment, traffic impact analysis and critical areas assessment, all on file with the lead agency. This information is available to the public on request. This determination is based upon the following mitigation being provided by the applicant:

1. Comply with Northwest Clean Air Agency Regulations during construction activities;
2. All construction traffic shall use temporary construction access as approved by the Public Works Department;
3. Contribute police mitigation fees of \$505.76 per unit as per the residential unit fee calculation in the Capital Facilities Element of the City of Sedro-Woolley Comprehensive Plan; and
4. Lighting from the site shall be directed and/or shielded so as to not shine at the neighboring residential properties.


The lead agency previously issued a comment period for this proposal under the optional DNS process in WAC 197-11-355. There is no further comment period on this threshold determination. Per SWMC 2.88.170, you may appeal this threshold determination in writing to the City of Sedro-Woolley Planning Department within 14 days from date of publication. Written appeals and appeal fees must be submitted by 4:30 p.m.

**Wednesday, February 12, 2020.** Contact the Assistant Planner at the City of Sedro-Woolley, 325 Metcalf Street, Sedro-Woolley, Washington, 98284 or electronically at [kweir@ci.sedro-woolley.wa.us](mailto:kweir@ci.sedro-woolley.wa.us) to read or ask about the procedures for SEPA appeals.

**Responsible SEPA Official:** Planning Director – City of Sedro-Woolley  
**Contact Person:** Katherine Weir, Assistant Planner  
**Address:** 325 Metcalf Street, Sedro-Woolley, WA 98284

**Date of Issue:** Wednesday, January 29, 2020 **Date of publication:** Wednesday, January 29, 2020

**Signature:**

  
John Coleman, Planning Director

Per SWMC 2.88.170, you may appeal this threshold determination in writing to the City of Sedro-Woolley Planning Department no later than **Wednesday, February 12, 2020.** Written appeals must be submitted, along with the required fee, to the Planning Department, City of Sedro-Woolley, 325 Metcalf Street, Sedro-Woolley, WA, 98284. You should be prepared to make specific factual objections. Contact the Planning Department to read or ask about the procedures for SEPA appeals.

# NOTICE OF PUBLIC HEARING

**Tuesday, March 24, 2020 at 10:00 AM**

Sedro-Woolley Municipal Courtroom  
325 Metcalf Street, Sedro-Woolley, WA 982

## **Exhibit G**

To Hearing Examiner Staff Report

**Application:** Plat of Brickyard Creek, a Planned Residential Development (file#LP-2019-389)  
& Appeal of the SEPA MDNS for the Plat of Brickyard Creek

**Applicant Contact:** Tim Woodmansee, PO Box 619, Sedro-Woolley, WA 98284

**Project Address:** 1200 block of McGarigle Rd, Sedro-Woolley, Assessor's Parcel P39374

**Project:** A proposed 85-unit Planned Residential Development (PRD) on a vacant 12.7 acre property on McGarigle Rd. The proposed PRD will be age-restricted to 55 years and older. The project includes construction of a new public road with sidewalks, a 55,532 square foot community open space, and stormwater infrastructure. File #LP-2019-389. The City received an appeal of a Mitigated Determination of Nonsignificance (MDNS), issued under the State Environmental Policy Act (SEPA). The hearing will take place in two parts. The Hearing Examiner (HE) will first hear the Appellant's MDNS appeal, followed by an open record hearing on the PRD application.

**Public Comment:** Interested persons may comment on the PRD application, receive notice, participate in future hearings and request a copy of the decision. Written testimony on the PRD application may be submitted to: Sedro-Woolley Planning Department, ATTN: Assistant Planner, 325 Metcalf Street, Sedro-Woolley, Washington, 98284, or by email to [kweir@ci.sedro-woolley.wa.us](mailto:kweir@ci.sedro-woolley.wa.us) **until 9:00 AM of the date of the public hearing.**

**Documents are available for review at:** The City of Sedro-Woolley Planning Department, Monday through Friday, 8:00 AM to 4:30 PM. Project documents are available for review at no cost; copies will be provided at the requestor's cost. For more information, contact the Planning Department at (360) 855-0771. A staff report will be available seven days prior to the hearing.

**Hearing Examiner:** Applicable law requires the appeal of a threshold determination be consolidated with the hearing of the underlying permit. Thus, the hearing will take place in two parts. The HE will first hear the MDNS appeal, followed by an open record hearing on the PRD application. If the MDNS appeal is granted, no decision on the PRD application will be made until environmental review is completed. If the MDNS appeal is denied, the PRD application will be decided. The public is welcome to observe the appeal hearing, but public comment may only be given during the PRD application portion of the hearing that follows the appeal hearing. The hearing begins at 10:00 AM, **March 24, 2020** at the Sedro-Woolley Municipal Courtroom, 325 Metcalf Street. Based on the information presented to the Hearing Examiner and testimony at that hearing, the Hearing Examiner will make a recommendation to the City Council whether to approve, approve with conditions or deny preliminary approval of the proposed PRD.

**Notice Published:** Friday, March 13, 2020

**Sedro-Woolley**

**City Council Packet**

**Page 277 of 810**



## Exhibit H

To Hearing Examiner Staff Report

STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

*Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000  
711 for Washington Relay Service • Persons with a speech disability can call (877) 833-6341*

November 27, 2019

Katherine Weir  
City of Sedro-Woolley Planning Department  
325 Metcalf Street  
Sedro-Woolley, WA 98284

**Re: The Park at Brickyard Creek Planned Residential Development**  
**File# LP-2019-389, Ecology SEPA# 201906513**

Dear Katherine Weir:

Thank you for the opportunity to provide comments on **The Park at Brickyard Creek Planned Residential Development** project. Based on review of the State Environmental Policy Act (SEPA) checklist associated with this Project, the Department of Ecology (Ecology) has the following comments:

There are eight contaminated sites listed on Ecology's database within a one-mile radius of this location. Five of the eight sites have received No Further Action determinations. The three active sites are described below.

Spearing Trucking (Facility Site ID No.: 6948127; Cleanup Site ID No.: 7722) located at 2239 Hwy 20 in Sedro Wooley, is approximately 0.3 mile southwest of this location. The status of this site is 'Cleanup Started'. This site has gasoline, diesel at concentrations exceeding cleanup levels in soil; benzene and heavy oil are suspected in soil at concentrations exceeding cleanup levels.

Harris Property Auto Recycling (Facility Site ID No.: 8017804; Cleanup Site ID No.: 379) located at 20571 Minkler Road in Sedro Wooley is approximately 0.75 mile southeast of this location. This site has been ranked a '1' using the Washington Ranking Method in which a '1' represents the highest risk and a '5' represents the lowest risk. The status of this site is 'Awaiting Cleanup'. The site is contaminated with metals, non-halogenated solvents and petroleum hydrocarbons at concentrations exceeding cleanup levels confirmed in soil and suspected in ground water.

PSE Sedro Wooley located at 284 Minkler Road in Sedro Wooley (Facility Site ID No.: 32313154; Cleanup Site ID No.: 5871) is approximately 0.75 mile southeast of this location. The status of this site is 'Awaiting Cleanup'. This site has been ranked a '5' using the Washington

Katherine Weir  
November 27, 2019  
Page 2

Ranking Method. This site is contaminated with petroleum hydrocarbons at concentrations above cleanup levels that have been remediated in soil and confirmed in ground water.

Thank you for considering these comments from Ecology. If you have any questions or would like to respond to these comments, please contact Heather Vick from the Toxics Cleanup Program at (425) 649-7064 or by email at [heather.vick@ecy.wa.gov](mailto:heather.vick@ecy.wa.gov).

Sincerely,



Katelynn Piazza  
SEPA Coordinator

Sent by email: Katherine Weir, [kweir@ci.sedro-woolley.wa.us](mailto:kweir@ci.sedro-woolley.wa.us)

ecc: Heather Vick, Ecology

**Exhibit I**

To Hearing Examiner Staff Report

**From:** Brad Windler <BWindler@skagittransit.org>  
**Sent:** Wednesday, November 20, 2019 2:06 PM  
**To:** Katherine Weir  
**Subject:** Comment on the Park at Brickyard Creek

CAUTION: This email originated from an external email address. Do not click links or open attachments unless you recognize the sender, you are expecting this email and attachments, and you know the content is safe.

Good Afternoon,

Skagit Transit would like to request that the developer some concrete be placed along McGarigle Rd to facilitate the placement of a bus stop near the entrance to the development.

Specifically, If we could have a 15' long concrete pad that runs from the back of the street curb to the edge of the sidewalk. The eastern edge of this concrete pad would start 25' to the west of the proposed entrance to the development on the south side of the McGarigle.

55 and older developments will increase the use of public transportation system. A concrete pad will allow easier access to the buses that service this location.

Thanks,

Brad Windler, Planning and Outreach Supervisor



600 County Shop Lane  
Burlington, WA 98233  
360-757-5179  
[bwindler@skagittransit.org](mailto:bwindler@skagittransit.org)

Skagit Transit Confidentiality Notice: This email, including any attachments, contains information that may be confidential or privileged, and is intended solely for the entity or individual to whom it is addressed. If you are not the intended recipient, please notify us immediately by return email and destroy all information received. Any unauthorized review, use, disclosure or distribution is prohibited.

ALLEN R. & LINDA EMERSON  
1226 McGarigle Street  
Sedro Woolley, WA. 98284  
(360) 856-2618  
CELL: 360-421-1867  
Email: [allen.emerson@comcast.net](mailto:allen.emerson@comcast.net)



December 2, 2019

City of Sedro Woolley  
Planning Department  
325 Metcalf Street  
Sedro Woolley, WA 98284

## Exhibit J

To Hearing Examiner Staff Report

Dear Planning Department

This letter is supplemental to my letter dated November 26th, 2019, which was sent via USPS. I've been informed that mail is running late today, so I have included with this supplemental letter the documents I mailed to the planning department on 11/30/19.

Please find attached to this letter two photographs. Both photographs were taken by my wife, Linda Emerson, who retired this year from the Sedro Woolley School District. Linda worked as an SLPA with children who had speech difficulties and her work brought her to several schools including Evergreen Elementary and Cascade Middle School. So Linda is very familiar with the ingress and egress of traffic from those two schools and has first-hand experience regarding what the peak commuter travel times are on Carter, McGarigle, Highway 9 and John Liner roads.

The photograph I have marked as Exhibit #1 was taken from Linda's car on November 1 at 3:30 PM. The time can be proven because it is date stamped on her cell phone. Linda's parents live on John Liner and she was heading to our home on McGarigle Road. She pulled over to the side of the road on John Liner to assess the traffic situation and took the camera shot from that location. You will see from Exhibit #1 that the cars heading east on McGarigle towards Evergreen and Cascade Schools are backed up to Highway 9. For traffic heading westbound on McGarigle you will see a truck that is stopped on McGarigle waiting for the opportunity to enter Highway 9.

Photograph marked exhibit #2 was taken by Linda while her car was stopped in traffic on Highway 9. She realized that it was impossible to go forward onto McGarigle Road from her position on John Liner Road, so she turned right on Highway 9 and found traffic at a complete standstill as depicted in exhibit #2. Again this is the same day, November 1, 2019 and the time is 3:32 PM. The time is also dated stamped on Linda's cell phone. The truck you see in front of her car was part of a line of vehicles that were backed up on Highway 9 from the stoplight on Highway 20. The truck in front of Linda's car was parallel to the AA building, which is adjacent to Cascade Middle School. Linda estimates that the truck you see on exhibit 2 was only five car lengths from where John Liner & McGarigle intersects with Highway 9.

On page 1 of GTC's report it says and I quote: "Intersections were analyzed during the 4-6 PM typical afternoon commuter peak period". The report does not state the day of the week that the study was taken. Was the study made while school was in session? It lists the peak time period for commuter traffic between 4 to 6 PM. *This is not the peak time for commuter traffic.* The peak time for commuter traffic on Carter, McGarigle, Highway 9 and John Liner Road has two separate time periods *each day*. In the morning the peak commuter traffic on those intersecting roads is between 7:30 AM and 9:30 AM when buses and parents are bringing their children to Evergreen and Cascade Schools. The peak time period for commuter traffic on McGarigle, Carter, John Liner Roads and Highway 9 in the afternoon is between 2:30 PM and 4:00 PM. Cascade Middle schools lets out a 2:30 PM and Evergreen lets out at 3:30 PM.

My wife and I along with our fellow neighbors find the GRC report to be inaccurate in it's assessment when it depicted the peak commuter period as existing between 4 – 6 PM and would request that another study be done on a school day during the peak computer times listed in the previous paragraph. We would respectfully request the hearing examiner to order another traffic study by someone other than GTC. An accurate study is extremely important given the other potential future traffic issues that I cited in my November 26th letter to the City of SW Planning Department. BYK has set a time in February of 2020 to break ground on that 12.7 acre parcel. We would urge the hearing examiner to order a delay in the start of construction for the reasons stated in this letter and in my November 26, 2019 letter.

Thank you for your time.

Sincerely,



Allen & Linda Emerson

November 1, 2014  
3:31 PM

John Limer / MS GARIGLE / Hwy 9  
Could not cross intersecting to  
get home on MS GARIGLE  
Traffic was backed up on Hwy 9 - North  
trying to turn Right onto MS GARIGLE Rd  
Danda Emmons



November 1, 2019  
3:32 PM.

Heading South on Hwy 9  
on left is Admin. Annex for SWSD  
Traffic backed up to light at Hwy 28  
Janda Emmons

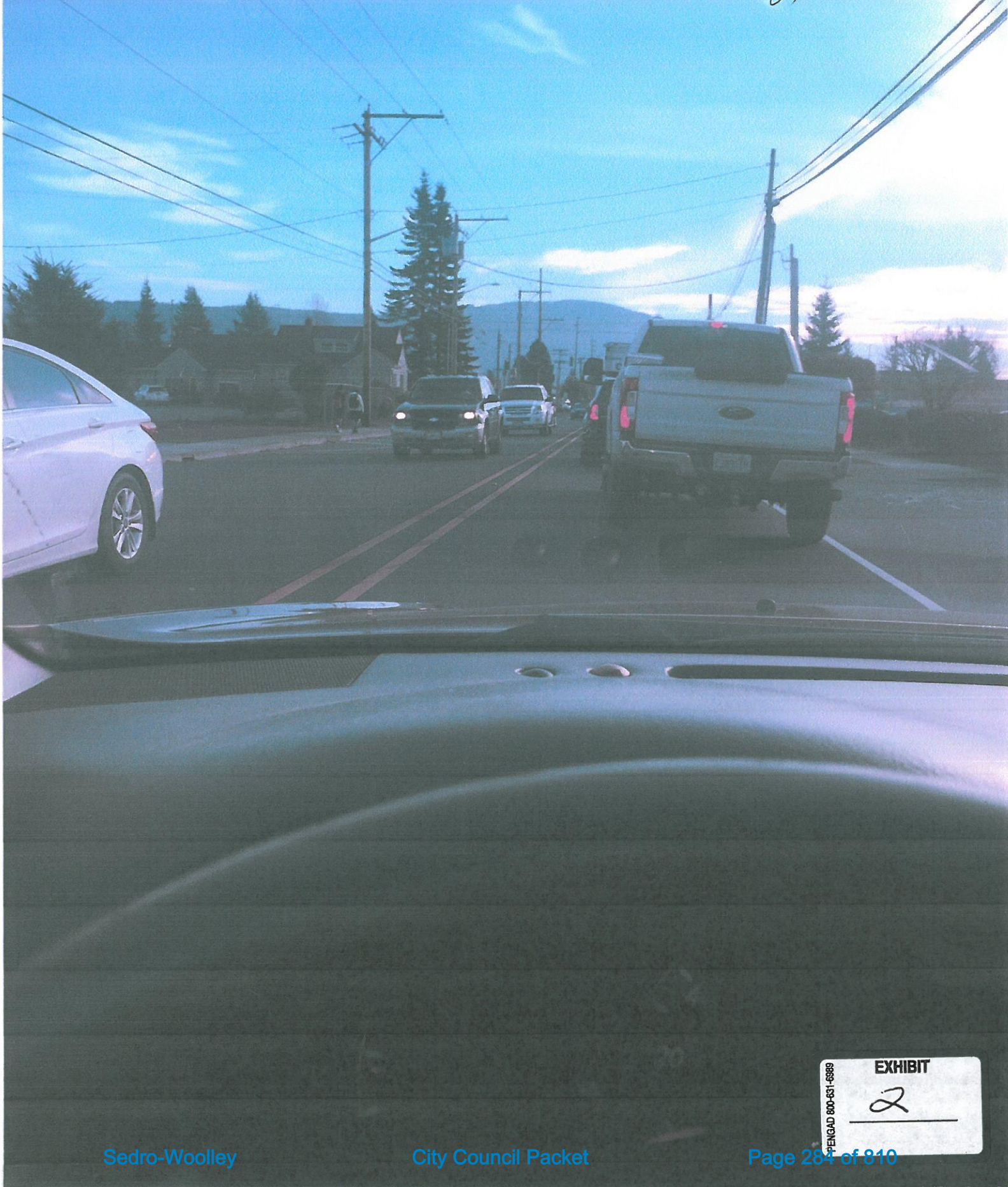
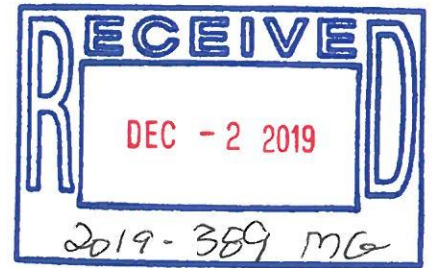


EXHIBIT  
2  
SPENGAD 800-631-6989

ALLEN R. & LINDA EMERSON  
1226 McGarigle Street  
Sedro Woolley, WA. 98284  
Cell: 360-421-1867  
Email: [allen.emerson@comcast.net](mailto:allen.emerson@comcast.net)



November 26, 2019

City of Sedro Woolley  
Planning Department  
325 Metcalf Street  
Sedro Woolley, WA 98284

Dear Planning Department

Please accept our appreciation for the hard work that your office performs day in and day out regarding our rapidly growing community. It cannot be an easy task.

In accordance with the timeliness to respond to the notice of application for SEPA commentary, my wife and I will attempt to outline our concerns for BYK's proposed 85 home construction project on the 12.7 acres that borders McGarigle Road. We disagree with the feasibility study that was performed regarding the impact that increased vehicular traffic from this development would have on McGarigle and Carter Roads. We therefore object to the proposed 85 home development for the following reasons:

1 The impact that a steady flow of traffic from 85 homes would have on McGarigle Road during parent pickup. Traffic from parent pickup at Evergreen School is constantly backed up on McGarigle and in some cases the parent pickup traffic is backed up to Highway 9 from Evergreen School and the Boys and Girls Club.

2 We feel the proposed roundabout linking John Liner Road, Highway 9 and McGarigle Road will not adequately alleviate future increases in traffic flow. We do not object to the construction of a roundabout at this location. However we have a concern that the large 18 wheel commercial trucks emanating from Canada and Whatcom County will in fact create additional problems as they enter the roundabout when school is dismissing from Evergreen and Cascade Schools. This concern regarding larger commercial trucks entering the roundabout is directed not only towards passenger car traffic emanating from Cascade and Evergreen Schools towards the roundabout but also the school bus traffic that will be merging into the roundabout. I believe a public disclosure request through WSDOT can be made because they may have cameras placed at certain locations on Highway 9. This would provide the necessary information needed regarding the number of large commercial trucks travel south on Highway 9. You could also do a PDC to Skagit Co. District Court for the number of citations issued for the overweight commercial vehicles traveling on Highway 9.

3 The residents on Carter Road are very concerned that egress from the newly constructed homes on the 12.7 acres will result in vehicles turning left onto McGarigle and then left onto Carter Road going towards Highway 20. Ingress to the housing development on the 12.7 acre property would probably emanate from Highway 20 onto Carter or else from Highway 9 onto McGarigle heading towards the 12.7 acre property. Carter Road already has an ever increasing flow of traffic from cars emanating from Evergreen and Cascade Schools including current residential traffic.

4 A further reason for concern in reference to the 85 home development has to do with Janicki's proposed tech center at the North Cascades Gateway Center Property for which I have appended an article from the Skagit Valley Herald. The development of the Omniprocessor is an exciting economic development for the City of Sedro Woolley and my wife and I support that development one hundred percent. One of the articles from the Skagit Valley Herald entitled *Janicki proposes tech center at Northern State* is dated February 14, 2015 and it states on page two, paragraph three and I quote: "If the project moves forward unhindered, Janicki said he intends to break ground on the site by the end of 2015 and plans to support 1,000 living-wage jobs there within five years", end quote. I do not know the status of construction for this project but five years from 2015 is 2020.

I addressed the neighborhood's concerns with a City of Sedro Woolley employee regarding the proposed 85 home development and part of that discussion with the city included the future increase in traffic from the North Cascade Gateway Center and, specifically, the Janicki Tech Center. The City offered no specific solutions regarding the ingress and egress for the increase in traffic from the Janicki Tech Center other than to say it was their hope that the vehicular traffic would stay on Fruitdale and proceed forward to the traffic light on Highway 20. Of course some of the traffic leaving the Janicki Tech Center would turn right on Fruitdale heading north depending on their place of residence. I believe it is entirely possible that some of the North Cascade Gateway Center traffic will divert onto McGarigle Road and either stay on McGarigle towards Highway 9 or turn onto Carter Road to link up with Highway 20. For morning commuters on their way to work at the Janicki Tech Center, we can only assume that many of those employees who are traveling to work in the morning hours would use the same route, thus encountering school traffic including passenger vehicles and school buses.

5 A fifth and final point regarding our concerns and objections to 85 homes being built on the 12.7 acre property off McGarigle Road is in reference to another possible future development bordering McGarigle and Fruitdale Roads. I have appended to this letter another article from the Skagit Valley Herald dated 2008 entitled *"Sedro-Woolley to consider leasing golf course for one more year"*. This is an eleven year-old article. I was told within the past month by a City of Sedro Woolley employee that there is a potential sale of the Sauk Mountain Golf Course to a real estate developer and that there was a possibility this developer would be building on the property known as the Sauk Mountain Golf Course. If there will be future housing on the site of the Sauk Mountain Golf course it seems likely that McGarigle and Fruitdale Roads would receive all of the ingress and egress emanating from that site thereby compounding current and future traffic issues when considering the fact that there will be 1,000 living-wage job earners traveling on these same roads.

Let me direct your attention back to this 2008 article, the 6th paragraph down. A gentleman by the name of Ruby says, quote: *"Under current zoning Ruby said he could cover the project with 70 houses"*. Then if you drop down to the last paragraph, Ruby states, quote: *"details are still up in the air. But cities sometimes allow developers to build at an increased density – by decreasing lot sizes or allowing apartments, duplexes or condos rather than single-family homes – if the developer agrees to preserve open space"*, end quote. That is exactly what the city has allowed for in reference to BYK's development; increased density (85 homes) because the developer has preserved an open space.

Of interest to me from reading this article is whether the zoning for the property known as the Sauk Mountain Golf course has changed. If it has then the question I have is whether the City of Sedro Woolley will allow a developer of the golf course property to build at an increased density. This certainly would add to our concern regarding future potential congestion caused by vehicles entering McGarigle Road from BYK's 12.7 acre property. The potential for congestion under these hypothetical circumstances would affect not only McGarigle and Carter Roads but also Fruitdale Road, Highway 20 and Highway 9.

What solutions do we have for future traffic issues affecting our neighborhood. This is a serious issue facing not only the residents on Carter, McGarigle and Independence Roads but also Evergreen and Cascade Schools who only have McGarigle Road for vehicular access. It is my understanding from doing title research that directly south of and abutting the 12.7 acre property owned by BYK there is an undeveloped five acre parcel which has as it's southerly border the commercial property including the storage facility. The undeveloped five acre parcel is owned by Campbell LLC. Apparently this undeveloped five acre parcel serves as an impediment for allowing an easement from the 12.7 acres to Highway 20. Lawrence Campbell owns the commercial property and I do not know whether he would be willing to join in allowing the granting of an easement from the undeveloped five acre parcel through his commercial property. If you travel on Highway 20 you will see that there is the start of a road off of Highway 20 onto the easterly end of the commercial development and I'm presuming this is for the commercial development only. There is no doubt in my mind that if an easement were to be allowed from the 12.7 acres onto Highway 20 that it would provide a proper and justifiable solution to the traffic issues facing the residents in this small community.

A second possible solution has to do with reducing the density of homes now depicted on the plat map. From looking at BYK's plat map it is obvious that the proposed 85 homes are compactly situated on that plat map. Apparently the city has allowed this density on the 12.7 acre property because a small open space has been preserved. I would, therefore, respectfully ask the hearing examiner to give due and proper consideration regarding a reduction of the number of homes that can be allowed for construction on this 12.7 acre property. I think that is an entirely reasonable request when you take into consideration all of the potential future traffic issues facing our small neighborhood. At the very least I believe a substantial delay in construction is warranted so that the hearing examiner can have more time to weigh all of the factors regarding potential vehicular traffic occurring within a very small radius. For a certainty the safety of the students exiting Evergreen and Cascade Schools whether on foot, on buses or in passenger vehicles is of prime importance.

Thank you for your kind consideration regarding the possible impacts that BYK's property development and other future property developments could have on our neighborhood and our community for years to come. We would like to have this letter presented to the hearing examiner.

Sincerely,


Allen & Linda Emerson



**NOTICE OF  
APPLICATION AND  
SEPA COMMENT  
PERIOD  
CITY OF  
SEDRO-WOOLLEY  
PLANNING  
DEPARTMENT**

**Description of proposal/application:** The city has received an application for a proposed 85-unit Planned Residential Development (PRD) on a vacant 12.7 acre property on McGarigle Road. The proposed PRD will be age-restricted to 55 years and older. The property is zoned Residential 7 and allows for a variety of lot sizes under the PRD provisions in the Sedro-Woolley Municipal Code (SWMC). The proposed lots range from 3,675 to 14,090 square feet in size. The project includes construction of a new public road with sidewalks, a 55,532 square foot community open space, and stormwater infrastructure. File #LP-2019-389.

**Proponent:**

BYK Construction Inc.  
ATTN: Tim Woodmansee  
PO Box 619  
Sedro-Woolley, WA 98284

**Location of project, including street address if any:** Skagit County Assessor's parcel #39374 located on the south side of McGarigle Road roughly across from the east end of Independence Boulevard, Sedro-Woolley, WA 98284.

**Environmental Review:**

The optional DNS process in WAC 197-11-355 is being used. Agencies, tribes, and the public are encouraged to review and comment on the proposed project and its probable environmental impacts. The City of Sedro-Woolley has reviewed the proposed project for probable adverse environmental impacts and expects to issue a mitigated determination of non-significance (MDNS) for this project. The MDNS will likely include the following conditions and any other conditions that may be necessary to address concerns raised during this comment period:

1. Hours of construction shall be limited to 7:00 a.m. to 9:00 p.m. weekdays and 8:00 a.m. to 9:00 p.m. weekends as required in SWMC 9.46.020;
2. Comply with Northwest Clean Air Agency Regulations during construction activities;
3. Any water discharged to the City stormwater system as a result of this project must be approved by and comply with conditions of the Public Works Department;
4. Provide a temporary erosion and sedimentation control plan for approval by the city engineer;
5. Lighting from the site shall be directed and/or shielded so as to not shine at the neighboring residential properties;
6. All construction traffic shall use temporary construction access as approved by the Public Works Department;
7. Obtain and comply with conditions of a NPDES stormwater general permit from the Department of Ecology;
8. Contribute police mitigation fees of \$505.76 per unit as per the residential unit fee calculation in the Capital Facilities Element of the City of Sedro-Woolley Comprehensive Plan; and
9. Construction shall comply with all local, state and federal regulations, including Sedro-Woolley Municipal Code Title

13.36 Stormwater Management Standards; Title 13.40 Stormwater Facilities Maintenance; Title 15.40 Public Works Construction Standards; Title 17 Zoning; Sedro-Woolley Public Works Design Standards and the Sedro-Woolley Comprehensive Plan.

Documents are available for review at: The City of Sedro-Woolley Planning Department, 325 Metcalf Street, Sedro-Woolley, WA 98284, Monday through Friday, 8:00 AM to 5:00 PM. Environmental documents available include a SEPA checklist, stormwater report, stormwater infiltration feasibility assessment, traffic impact analysis and critical areas assessment. For more information, contact Katherine Weir at the Sedro-Woolley Planning Department at (360) 855-3206 or by email: [kweir@ci.sedro-woolley.wa.us](mailto:kweir@ci.sedro-woolley.wa.us).

**Public Comment Period:**

The lead agency for this proposal has NOT yet made a threshold determination of whether or not the proposed project has a probable significant adverse impact on the environment. Interested persons may comment on the application and/or the anticipated SEPA determination, receive notice, participate in any hearings and request a copy of the decision. **Public comments must be received by 4:30 p.m. December 2, 2019 and should be submitted to the City of Sedro-Woolley Planning Department, 325 Metcalf Street, Sedro-Woolley, WA 98284. Comments may be mailed or personally delivered and should be as specific as possible. This may be your only opportunity to comment on the environmental impacts of the proposed project.**

Katherine Weir,  
Assistant Planner  
City of Sedro-Woolley  
Planning Department

**Published  
November 18, 2019  
SVH-1967030**



# Sedro-Woolley to consider leasing golf course for one more year

- Elliott Wilson
- Oct 6, 2008

SEDRO-WOOLLEY — Last week's repeal of a years-long sewer moratorium was welcomed by developers. But for Sedro-Woolley golfers, it could mean losing their home greens.

Sauk Mountain Golf Course, which is run and maintained by the city of Sedro-Woolley, sits on 50 acres of residential property on Fruitdale Road.

Bob Ruby's company, Granite Holdings LLC, owns the land and has leased it to the city since 2006 for \$1 a year. Ruby bought the property in 2005 and has waited since then to develop it.

"From the beginning it was made clear to the city that this arrangement would end when the moratorium was lifted," stated a memo from City Supervisor and Attorney Eron Berg to the City Council.

The City Council will consider Wednesday authorizing the Parks and Recreation Department to operate the golf course for one additional year. Ruby estimates it will take that long to get the needed approvals to build a residential development.

Under current zoning, Ruby said he could cover the property with 70 houses. But development does not have to mean the course disappears, he stressed Monday.

The Mount Vernon developer and investor said a portion of the course or a driving range may be preserved and the homes situated around it.

Ruby said details are still up in the air. But cities sometimes allow developers to build at an increased density — by decreasing lot sizes or allowing apartments, duplexes or condos rather than single-family homes — if the developer agrees to preserve open space.

In 2006, councilmen Ted Meamber and Tony Splane — both still on the council — opposed the initial \$1-a-year lease with Ruby. The councilmen said they were concerned a golf course was not the best use of city money.

The city has not quite broken even on the course, Berg said. And it is unclear whether the council foresees the city as a long-term golf-course operator, he said.

Up to this point, Berg said council members were just voting for a short-term lease. Their views on owning a golf course may be different, he said.

"I think they would only be interested in doing it if it could essentially fund itself," Berg said. "Whether a smaller course would be economically viable or not I think would be one of the council's chief concerns in looking at a proposal."

Elliott Wilson can be reached at 360-416-2147 or at ewilson @skagitvalleyherald.com.

...

top story

# Janicki proposes tech center at Northern State

1 of 2

. Brandy Shreve / Skagit Valley Herald

**SEDRO-WOOLLEY — Janicki Bioenergy founders Peter and Susan Janicki have a bold proposal for the Northern State Hospital campus in Sedro-Woolley: Use it as the global headquarters for their new company and the innovative Omniprocessor.**

Officials at the Port of Skagit, Skagit County and the city of Sedro-Woolley announced in a news release Friday they are in early discussions with the company founders to turn the 227-acre former hospital campus into a high-tech research and development center.

The three local government entities formed an interlocal agreement early in 2014 to assess the possibilities for increased economic opportunities at the site though redevelopment while maintaining its historic character.

If the project moves forward unhindered, Janicki said he intends to break ground on the site by the end of 2015 and plans to support 1,000 living-wage jobs there within five years.

"I think it's a gigantic opportunity for me and the community to work on such really technical stuff that also can make such a profound impact around the world," Janicki said. "It's a great opportunity for every single person who works on it. It taxes their brain, stretches their creativity and imagination. In the end you're doing something great for the world, as well. It's pretty awesome."

Janicki said he needs a site for continued research, development, testing, sales and manufacturing of the Omniprocessor, a machine designed to turn sewage into clean drinking water and electricity — and do it profitably.

Janicki's vision for the Northern State site is to turn it into an open campus where government officials and dignitaries from other countries could come to experience the machine firsthand.

Maintenance and fire protection upgrades for the older buildings cost the state around \$1 million per year.

The interlocal partners recently recommended the state allow a 16-bed short-term mental health facility open next year, with the potential to stay through July 2018.

Surrounding the campus portion of the site is a 726-acre recreation area owned by Skagit County, which will not be altered by the proposal, according to a news release from the port.

Senate Bill 5887 has been introduced to the Legislature by Sens. Kirk Pearson, R-Monroe, and Kevin Ranker, D-Orcas Island, to grant the Department of Enterprise Services authority to pursue a possible 60-year lease agreement with the Port of Skagit.

The bill is scheduled for public hearing in the Senate Committee on Government Operations & Security at 10 a.m. Monday in Olympia.

"The Port of Skagit, the City of Sedro-Woolley and Skagit County have made great progress in their joint effort to accommodate the community's interests and goals for the future use of the Northern State Hospital campus," Department of Enterprise Services Director Chris Liu said in the release.

"We look forward to evaluating the proposal in a timely manner on behalf of the state of Washington."

Port Commissioner Kevin Ware said the port originally intended to acquire ownership of the property over the course of a few legislative sessions, but Janicki's accelerated timetable necessitated a quicker process.

Ware said the port is seeking to either lease the site from the state and then sublet it to Janicki, or to manage the site for the state.

Although Ware said the port is working in tandem with the two other partners of the interlocal agreement, he said the decision to sign leases would ultimately fall to the port if it ends up managing the site.

Ware said current tenants of the site wouldn't be displaced initially.

"They've got all kinds of buildings that are completely empty, key buildings are not being utilized," Ware said. "There's plenty of room. There's no need for anybody to be displaced immediately. Over time, in the end, it would all be a biotechnology center."

## Exhibit K

To Hearing Examiner Staff Report  
- Compiled Neighbor Comments

DEC - 2 2019

2d9-389 MG

December 2, 2019  
SW Planning Department  
Sedro-Woolley, Washington

To whom it may concern:

My husband and I have lived on Independence Boulevard for 22 years. We have really enjoyed the upgraded sidewalk that was put in along McGargile several years ago and we use it for walking or biking almost every day. The last time I went walking, I noticed a Land Use Sign, which I had not seen before. It showed a plan for a very large amount of houses being built in the field sometime in the near future.

I am very concerned for a number of reasons. First of all, the number "85" really stood out to me. I looked and tried to visualize what 85 units would look like all crammed into one field. That is .15 acre per house. How well has the small lot concept worked out in the development above the Gateway Golf Course?

Secondly, I am very familiar with the traffic on McGargile. There is congestion around Evergreen School and around Cascade Middle School already. Both schools enter and exit only onto McGargile. The congestion occurs between 7 AM and 9:15 AM and between 2 PM and 4 PM. More traffic would mean more congestion on McGargile as well as on Carter Road. There appear to be no other entrances planned for 85+ cars other than the one entrance on McGargile.

Thirdly, part of the beauty of living where we do (which I call the "suburbs" of Sedro Woolley) is the pleasure of the surrounding countryside. A development of 85 houses, would totally change the surrounding landscape which is currently so pleasant to walk through and be part of.

Fourthly, the proposal is for a community of 55 and older. Apparently there is a question about whether that is what will actually happen. General housing, if it comes to pass, will have a major impact on Evergreen School, which is already in need of major attention and upgrades.

Fifthly, I am concerned about Brickyard Creek flooding. Our house has undergone flooding in the past 10 years, due to Brickyard Creek. Is this a wise place to create a new development, if flooding is a possibility?

For these reasons specifically, I would like to ask you to consider not allowing this development to be built. I know we need more low income and small home housing. But this is not necessarily the way to go about it.

My husband and I are very concerned about the large number of houses. (If nothing else, please scale back the number of houses and see how it goes.) We are also concerned about traffic, about impact on the surrounding area, about Evergreen School, about keeping within the 55 and older age limit and about flooding.

For these reasons, we would request you to seriously consider the ramifications of this BYK proposal in your accepting or denying this proposal.

Sincerely, Diane Celeste and Roger Weaver



To City of Sedro Woolley Planning Department:

It seems to me that the McGarigle Development will be a detriment to not only the existing neighborhoods but a traffic hazard to young students as well! The analyzed intersections were based on data that took place between 4-6pm. The problem times are earlier in the day when the elementary and middle schools let out between 2:30 and 3:30pm! The school pick up traffic is sometimes backed up from the Evergreen Elementary all the way back to Highway 9. Traffic that goes beyond the school to other areas on McGarigle have to use the left lane to pass the school pick up traffic and block oncoming traffic. This is a dangerous scenario. Why is the access road going to be on McGarigle when it would alleviate all of the traffic problems if you would put the access road off Highway 20?

I have lived on Independence Blvd. for going on 28 years and raised my family here. I have enjoyed that small town feel until now! If the new project is anything like the area developed above the golf course it will turn out to be an eyesore as well. The houses are crammed in so close together and painted such horrid colors it's not pleasant to look at not only up close but even from Highway 20!

Concerning the round-about at Highway 9, McGarigle Road and John Liner. It will only exist because of the McGarigle Project! Shouldn't BYK Construction pay for this project instead of local taxpayers?

Have you taken into consideration any future construction going on in the area? I've heard rumor of a similar site going to be built on the existing Sauk Mountain Golf Course! Has your study included any data from that possible site? There will be even more of a traffic impact on the area than already planned for. This seems like bad planning from the City Planners that the possible future projects haven't been included in these studies!

All in all I believe that this project has been pushed through at such a pace that the area homeowners haven't had a chance to respond to this project! This project, it seems to me, has favored the Construction company building this project and The City of Sedro Woolley as a way to pad the coffers and to raise more taxes for the city at the existing neighborhoods expense.

ROBERT MATAYA  
1226 INDEPENDENCE BLVD.  
SEDRO WOOLLEY, WA. 98284  
360-391-3150  
mataya@msn.com

Frank A Bresh<sup>NAN</sup>~~nan~~ Sr

I would Talk ABOUT Traffic on  
McGargile Road & Carter Road  
problem occurs 3:00 PM 3:00 to 3:45  
AM ~~that~~ Traffic is in morning

*[Signature]* 12-2-19





8250 - 165th Avenue NE  
Suite 100  
Redmond, WA 98052-6628  
T 425-883-4134  
F 425-867-0898  
www.tsinw.com

## Technical Memorandum

110 Pages  
City has

October 4, 2019

**TO:** David Lee, PE  
City Engineer, City of Sedro-Woolley

**FROM:** Andrew L. Bratlien, PE

**SUBJECT:** McGarigle Development TIA Review

This memorandum summarizes the findings of Transportation Solutions' peer review of the McGarigle Development Traffic Impact Analysis (TIA) dated September 2019. The TIA is provided as **Attachment 1**.

Transportation Solutions reviewed the TIA methods and assumptions, with specific consideration for PM peak hour traffic volume forecasts. As a reference check, the 2025 traffic forecasts in the TIA were compared to the 2036 traffic forecasts identified in the Jones/John Liner/Trail Rd Corridor Traffic Analysis, provided as **Attachment 2**. The Jones/John Liner/Trail Rd forecasts were developed using the Sedro-Woolley citywide travel demand model, which includes anticipated 2036 land use growth consistent with the Sedro-Woolley Comprehensive Plan.

This review indicated that the findings and recommendations of the TIA are generally consistent with the conclusions of the Jones/John Liner/Trail Rd corridor study.

- The intersection of John Liner Rd/McGarigle Rd and Township St (SR 9) will operate at LOS F without improvement in both without- and with-development scenarios.
- The planned single-lane roundabout at the intersection will allow the intersection to operate well at LOS A through the 2036 PM peak hour.
- The residential development does not exceed the total long-range growth forecasts identified in the Sedro-Woolley Comprehensive Plan.

Please contact me with any questions regarding this peer review.

**Attachment 1.** McGarigle Development Traffic Impact Analysis

**Attachment 2.** Jones/John Liner/Trail Rd Corridor Projects Traffic Analysis; Updated 1/3/2019

City has

# NOTICE OF APPLICATION AND SEPA COMMENT PERIOD CITY OF SEDRO-WOOLLEY PLANNING DEPARTMENT

**Description of proposal application:** The city has received an application for a proposed 85-unit Planned Residential Development (PRD) on a vacant 12.7 acre property on McGargle Road. The proposed PRD will be age-restricted to 55 years and older. The property is zoned Residential 7 and allows for a variety of lot sizes under the PRD provisions in the Sedro-Woolley Municipal Code (SWMC). The proposed lots range from 3,675 to 14,090 square feet in size. The project includes construction of a new public road with sidewalks, a 55,532 square foot community open space, and stormwater infrastructure. File #LP-2019-389.

**Proponent:** BYK Construction Inc.  
ATTN: Tim Woodmansee  
PO Box 619  
Sedro-Woolley, WA 98284

**Location of project, including street address if any:** Skagit County Assessor's parcel #39374 located on the south side McGargle Road roughly across from the east end of Independence Boulevard, Sedro-Woolley, WA 98284.

**Environmental Review:** The optional DNS process in WAC 197-11-355 is being used. Agencies, tribes, and the public are encouraged to review and comment on the proposed project and its probable environmental impacts. The City of Sedro-Woolley has reviewed the proposed project for probable adverse environmental impacts and expects to issue a mitigated determination of non-significance (MDNS) for this project. The MDNS will likely include the following conditions and any other conditions that may be necessary to address concerns raised during this comment period.

1. Hours of construction shall be limited to 7:00 a.m. to 9:00 p.m. weekdays and 8:00 a.m. to 9:00 p.m. weekends as required in SWMC 9.46.020.
2. Comply with Northwest Clean Air Agency Regulations during construction activities.
3. Any water discharged to the City stormwater system as a result of this project must be approved by and comply with conditions of the Public Works Department.
4. Provide a temporary erosion and sedimentation control plan for approval by the city engineer.
5. Lighting from the site shall be directed and/or shielded so as to not shine at the neighboring residential properties.
6. All construction traffic shall use temporary construction access as approved by the Public Works Department.
7. Obtain and comply with conditions of a NPDES stormwater general permit from the Department of Ecology.
8. Contribute police mitigation fees of \$505.76 per unit as per the residential unit fee calculation in the Capital Facilities Element of the City of Sedro-Woolley Comprehensive Plan; and
9. Construction shall comply with all local, state and federal regulations, including Sedro-Woolley Municipal Code Title 13.36 Stormwater Management Standards, Title 13.40 Stormwater Facilities Maintenance; Title 15.40 Public Works Construction Standards; Title 17 Zoning; Sedro-Woolley Public Works Design Standards and the Sedro-Woolley Comprehensive Plan.

**Documents are available for review at:** The City of Sedro-Woolley Planning Department, 325 Metcalf Street, Sedro-Woolley, WA 98284, Monday through Friday, 8:00 AM to 5:00 PM. Environmental documents available include a SEPA checklist, stormwater report, stormwater infiltration feasibility assessment, traffic impact analysis and critical areas assessment. For more information, contact Katherine Weir at the Sedro-Woolley Planning Department at (360) 855-3206 or by email, [kweir@sedro-woolley.wa.us](mailto:kweir@sedro-woolley.wa.us).

**Public Comment Period:** The lead agency for this proposal has NOT yet made a threshold determination of whether or not the proposed project has a probable significant adverse impact on the environment. Interested persons may comment on the application and/or the anticipated SEPA determination, receive notice, participate in any hearings and request a copy of the decision. Public comments must be received by 4:30 p.m. December 2, 2019 and should be submitted to the City of Sedro-Woolley Planning Department, 325 Metcalf Street, Sedro-Woolley, WA 98284. Comments may be mailed or personally delivered and should be as specific as possible. This may be your only opportunity to comment on the environmental impacts of the proposed project.

Katherine Weir, Assistant Planner  
City of Sedro-Woolley Planning Department

Published in Skagit Valley Herald on November 18, 2019

Get Outlook for Android

FW: McGarigle Development project/Traffic Issues

Allen Emerson <allen.emerson@comcast.net>

Wed 11/13/2019 1:42 PM

To: 'Frank Alan Bresnan Sr' <sparky1943@hotmail.com>

2 attachments (8 MB)

McGarigle Development TIA Peer Review\_2019-10-04.pdf, McGarigle Traffic--Parent pickup.jpg;

Good Morning, Chuck

Thank you for giving your attention to local resident concerns regarding a possible 85 home development of the open land property bordering McGarigle, I am sending you a copy of the recent Traffic Analysis that was prepared by Gibson Traffic Consultants for the site. Apparently the city engaged their on-call Transportation consultant Transportation Solutions Inc. to review and comment on the GTC study. This is also attached.

Please note page 15, conclusions. This survey does not take into consideration the possible impact on McGarigle Road from the traffic that would be generated by the future development of the golf course bordering Fruitdale and McGarigle Roads. I don't have a start date for that future development nor the number or style of dwellings that would be constructed. **This attached study does not address that development.** City of Sedro Woolley, engineering department, informed be about the golf course being sold. I do not know how that piece of property is zoned in reference to the type of homes/apartments/condominiums that might be constructed.

**I would ask you as our councilman to please inquire as to who bought the golf course property, the type of construction planned and when that construction is planned**

The picture attached was taken by my wife from a vantage point on John Liner Road on Friday, November 1. As you can see parent pickup is backed up to Highway 9 in the approximate location of the proposed round-about.

**Can you please find out the name of the hearing examiner assigned to hear this matter of construction/traffic issues. Need that information as soon as possible. Again your assistance is very much appreciated. I'm sorry you cannot meet with the residents in and around McGarigle this coming Friday. I completely understand that you need to be in a position of having an objective viewpoint on these matters with your peers. We will continue to keep you informed on any and all matters concerning these issues. We also respectfully request that you let us know whatever information you can learn regarding the development of the golf course**

Sincerely,

A. Emerson

[Allen.emerson@comcast.net](mailto:Allen.emerson@comcast.net)

Cell: 360.421.1867

## Possible Concerns and Talking Points for BYK'S Proposed 85 Home Development off of McGarigle Road

Traffic Impact during parent pickup on McGarigle Road. Traffic has been seen backed up to Highway 9 during parent pickup. What effect will the construction project off of McGarigle Road have on school pickup and will school bus traffic be affected.

Will a proposed round-about linking John Liner Road, Highway 9 and McGarigle provide the necessary traffic movement needed when there is ingress and egress from 85 new homes onto McGarigle Road. What affect will the increased 18-wheel truck traffic have on the proposed round-about including buss and parent traffic.

Will the Janicki construction of the Omni Processor at the old Northern State Campus cause additional traffic concerns for McGarigle Road when the construction of the Omni Processor is completed and Janicki is has reached full employment at the Northern State Campus

The Old Golf bordering Fruitdale and McGarigle Road is up for sale and may in fact be sold to a housing contractor. If that sale occurs and there is housing construction on the old golf course site what effect would that have regarding any possible ingress and egress onto McGarigle Road.

As a possible solution, could BYK's McGarigle Construction project be built, for example, in twenty home increments to see how the traffic from those twenty homes affects the already existing traffic on McGarigle Road

Mark A. Sutton  
Kathryn L. Sutton  
1234 McGarigle Road  
Sedro-Woolley, WA 98284



December 2, 2019

*Hand Delivered December 2, 2019*

City of Sedro-Woolley  
Planning Department  
Attn: Mark A. Freiberger, Director of Public Works  
Attn: David Lee, City Engineer  
325 Metcalf Street  
Sedro-Woolley, WA 98284

RE: Proposed Development by BYK-McGarigle Road  
Gibson Traffic Consultants/McGarigle Development Traffic Impact Analysis

Dear Mr. Freiberger and Mr. Lee;

On Wednesday, November 25, 2019 I stopped in at the planning department to obtain information regarding the 85 lot development that has been submitted for approval on McGarigle Road. I spoke to both Katherine Weir and David Lee about my concerns pertaining to the additional traffic in the area that will be created by a development of this size, along with other growth that has been, or will be, occurring in the area in the near future. I want to thank both Katherine and David for taking the time to assist me.

We still have many concerns regarding the traffic, the schools, and any future revisions to McGarigle Road that may be needed to maintain the road. In reviewing the McGarigle Development Traffic Impact Analysis created in September 2019 by Gibson Traffic Consultants, I have the following concerns and comments:

- I understand that it may be typical to do an analysis of this type using the afternoon commuter peak period of 4-6 PM. In this instance it would have been more accurate to perform the analysis during the appropriate time frame in the morning when school is preparing to start, and again in the afternoon when students are released for the day. Evergreen Elementary School is located on McGarigle Road and only has one access point, which is located on McGarigle Road. The amount of traffic in the morning and afternoon, that is school related, can get quite heavy. The school buses for Evergreen Elementary School, that drop off students in the morning, and pick them up at the end of their day, all access the school from McGarigle Road. The parents that take their children to school, and pick them up in the afternoon, all use this entry point as well.

- Cascade Middle School is located at 905 McGarigle Road, with a large parking lot located off McGarigle Road. Evergreen Elementary and Cascade Middle Schools are very close and have common grounds. Parents dropping off or picking up children to both schools enter and exit the school property from McGarigle Road. The entry to this parking/drop off area resembles a bee hive when school is starting in the morning and letting out in the afternoon.
- The housing development above the golf course, located off of Portobello Avenue, has been developed to full capacity. My understanding is that there will soon be a new development behind it, adding more houses, and more traffic to the area. The existing development on Portobello has increased the amount of traffic going back and forth on McGarigle Road to and from the schools significantly. I believe that the number of additional cars from the new development once completed, will only increase the traffic on McGarigle Road further.
- According to the TIA, an estimated 72% of the vehicles exiting from the McGarigle development will travel on Hwy 20, 60% of those accessing Hwy 20 to and from the west. This route goes right by the schools. At peak morning and afternoon time, for pick up and delivery of children, there can be cars lined up on McGarigle Road waiting to enter the school parking lot. This will increase the unsafe environment for not only for the regular traffic, the construction vehicles, and any emergency vehicles attempting to get through, but also for the students that walk down McGarigle Road to their homes.
- From reviewing the TIA, it looks like a roundabout will, at some point, be installed as a solution to the traffic issues happening right now at the Hwy 9 and John Liner/McGarigle intersection. This will open up a straight shot from John Liner Road, parallel to Hwy 20, and increase the traffic onto McGarigle Road for those that wish to avoid Hwy 20, and those that enjoy racing down our road well above the speed limit as well.
- Once the Swift Center is in full swing, and Sedron Technologies has employed the estimated 1000+ employees, there will be additional cars traveling McGarigle Road trying to avoid the long wait at the Hwy 20 stop light.
- It is mentioned in the TIA that all the intersections analyzed in the TIA will operate within acceptable service standards. In 2025 the delays would be acceptable with planned roadway improvements by the City of Sedro-Woolley. What improvements? How will these improvements affect the property owners along McGarigle Road, and especially those whose properties are located in the area of entry to the development? I was unable to get an answer to this question on my visit to the planning department. Our property is located at the entry to the proposed development and we would love to know what changes may be coming that will affect us.

I'm sure we are not the only residents of the McGarigle Road/Carter Road/Independence Blvd. areas, with many questions and few answers. If any of the above comments were taken individually, it may not seem like a lot. But all together, they will certainly change the dynamic of the area even further. Maybe if this proposed project is thoroughly thought out before approval, and steps taken to alleviate

some of the above concerns, then the "improvements" down the road may not need to be extensive and/or invasive.

Suggestions:

- If the construction vehicles were to enter and exit the project property to the east, towards the McGarigle Road/Fruitdale Road intersection, it would help with any additional congestion near the schools and the additional house shaking that comes when the big trucks pass by. There are fewer home owners along McGarigle Road towards the east as well.
- If there will be a possibility of needing to install turn lanes at the intersection of McGarigle Road and Independence Blvd in the future, maybe easements could be built into the development property on the south side of McGarigle Road during the planning phase. This would take into account the future revisions with the least affect to the existing property owners.

Thank you for your consideration and for listening to our concerns.

Sincerely,



Mark A. and Kathryn L. Sutton

cc: Katherine Weir

Marilyn Kenney  
587 Carter St.  
Sedro-Woolley, WA 98284  
360 856-2085



November 27, 2019

City of Sedro-Woolley Planning Department  
325 Metcalf St.  
Sedro-Woolley, WA 98284

Re: The Park at Brickyard Creek

To Whom It May Concern:

I am concerned about the traffic impact on Carter St. Carter St. has become a "short cut" for those folks upon the hill who wish to avoid the stop light on Fruitdale, those who live on Independence and those who live west of Carter not wanting to deal with Highway 9. This is in addition to school traffic.

The demographic of Carter St. has changed in the last few years. We have had families with children move in that include young children to teenagers. There are still those of us who are older, and some who use walkers to get about. I am concerned about all of our safety. So much money and work has been done on McGarigle to make it safer and people friendly it would be a shame to interfere with it.

Having only one way in and out of this development seems short sighted to me. It appears that areas of Highway 20 are being groomed for family friendly businesses. The folks in this new development will not have easy, walkable access.

Thank you for your consideration.

Sincerely,

Marilyn Kenney

James L. Johnson  
587 Carter St.  
Sedro-Woolley WA 98284  
360-856-2085



November 30, 2019

City of Sedro-Woolley Planning Department  
325 Metcalf St.  
Sedro-Woolley, WA 98284

Re: The Park at Brickyard Creek

Dear Sir or Madam,

My wife and I have resided at 587 Carter Street for the past 25 years. During that time we have enjoyed the 20 plus acre field just beyond our backyard. It was a bit of country in town. We knew though, that it couldn't last. Residential housing was the highest and most appropriate use. That said, we find the proposed Park at Brickyard Creek lacking in generosity, uninspired, and a source of needless traffic congestion.

Having shoehorned 6.7 houses per acre into the plan, little room remains for amenities like alleys or pocket parks. All this is probably, if regrettably, in accord with requirements. Also missing from documents we received is any mention of rental housing. Some years back when I served on the Planning Commission there was considerable talk about dispersing rental units-duplexes even triples-throughout the city to minimize creation of "rental ghettos" Those discussions would seem not to have come to fruition. Apparently too, the City believes that all citizens over 55 can afford to be homeowners. What of affordable or low-income housing within the proposed development? These oversights may be legal, but they remain oversights. The City would seem to be operating in a vacuum where social problems and the obligation to address them do not exist.

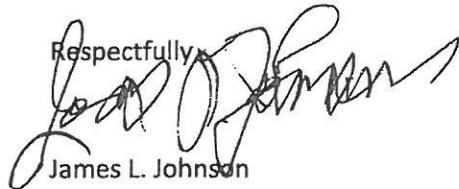
The overall design is dull and unimaginative. With one glance you've seen the whole thing. There are no surprises. The only comparable development I know of in Woolley, though much smaller with a mere twenty houses as opposed to eighty-five, is at Fidalgo and Settlers Place. The one thing that enlivens it is a children's playground in the central green space. Older folks love to watch kids at play, but there won't be any kids here. Likely covenants to control the species of trees and their height will be in place, further diminishing an already bland community.

There will, however be children aplenty out front on McGairgle walking and bicycling, and, not only when nearby schools take up and dismiss. Yet the developer has chosen to funnel all the development

generated vehicular traffic out onto McGairgle. That seems little short of insanity. Surely an entrance and exit onto Hwy. 20 are called for. We live on the corner of McGairgle and Carter, a street lacking sidewalks. Already when parents are dropping off or picking up their kids from school it is dangerous to be a pedestrian on Carter Street. The Planning Department should know this; the police department does. Further, the planners and developer seem to be operating under the delusion that traffic generated by the development will either go east to Fruitdale or west to Hwy. 9. Please know they will head for the shorter more direct route down an already substandard, inadequate Carter Street. The City and the developer ought to be prepared to retrofit Carter with long overdue sidewalks.

I doubt that any municipality anywhere in Skagit County would approve of this plan as it now stands. Our planners and City are capable of better. Indeed, they owe it to their citizenry.

Thank you for your consideration.

Respectfully,  
  
James L. Johnson



To: City of Sedro Woolley Planning Dept

Re: 85 unit Planned residential development (Park at Brickyard Creek)

I do not have an issue with the development. My issue is with the extra traffic that will be directed to McGarigle Rd., and end up on Carter St.

A lot of this traffic will end up using Carter St. We already have a large number of cars using Carter St. when dropping children off and picking them up at the schools. This traffic increased when the new school was built, even though we were told that traffic would be directed to Fruitdale Rd.

The residents on Carter St. would like to see something done to stop our residential road from becoming an even more used "shortcut".

Carl Lundstrom

387 Carter St.

Sedro Woolley, WA 98284

[cal058@hotmail.com](mailto:cal058@hotmail.com)

360-420-3763

Concerns about BKY's Proposed 85 Unit Home Development  
on McGarigle Rd, Sedro Woolley



We do not think the proposed development of an 85 unit over 55 retirement residential Property on McGarigle at Independence Blvd will be beneficial to our schools or community. We are very concerned about the impact of the construction and the subsequent increase in traffic this development will have on McGarigle and Carter Roads and SR9.

There is only one outlet designed into this project. People 55 and over are still working and will be coming and going all day long. Adding this to the ever-increasing traffic with moms and buses with school children in addition to cyclists and pedestrians is not going to work.

Another development planed for the Gateway Golf Course? What a shame the city could not maintain our nice course. We've had a young couple move into our neighborhood because there was a course nearby. Oh well. This traffic will be added to the growing car count coming out of Gateway Heights and the increasing traffic of the SWIFT Center.

I'm usually a fan of Round-Abouts. They can be very useful in keeping the traffic moving. I can see a Round-About being effective at the intersection of McGarigle and Fruitdale. Where Round-Abouts don't work so well is when pedestrians are involved. I believe putting one at the intersection of SR9 and McGarigle or SR9 and SR20 would be suicidal. With the steady stream of 18 wheelers, the occasional log truck, harried moms and loaded school buses, we can only thank the Crossing Guards and our lucky stars that disaster has not visited us already.

This looks to me like another situation where the developers swoop in, do their thing, make lots of money and then leave it to the taxpayers to deal with the problems. This has not been thought through.

How about a nice retirement home like Country Meadow?

*Margaret Miller*  
*Larry Stolt*



RANDIE WRIGHT  
1233 Independence Boulevard  
Sedro Woolley, WA. 98284  
360-818-8719  
[spikeybeagle@comcast.net](mailto:spikeybeagle@comcast.net)



December 2, 2019

City of Sedro Woolley  
Planning Department  
325 Metcalf Street  
Sedro Woolley, WA. 98284

Dear Planning Department

I have spent numerous hours thinking about the proposed 85 residential housing development across McGarigle Street from Independence Boulevard. I see that the proposed ingress and egress from this development is across from the north end of Independence Boulevard. Since I live on Independence across from the proposed new intersection, I am writing about my concerns regarding the density of homes being allowed on the 12.7 acre construction site.

I found in reading the materials sent to me by the city informative. I also found the the traffic feasibility study was done at a time of day when the school traffic had already dissipated. During drop-off and pick-up times for Cascade Middle School and Evergreen Elementary School, the line of cars waiting to get to these schools can be all the way to Highway 9. I am forced to use Carter Street to either leave or return back to my residence. I believe the additional 85 homes proposed will further impede me and my neighbors. Carter Street cannot handle the additional traffic the new homes will bring.

McGarigle Street already has become a favorite "side" road for some of the people living in the community of homes further up Fruitdale Road (the newer homes just north of the golf course). Instead of continuing south on Fruitdale to Highway 20, they choose to turn down McGarigle to get to Highway 9. I have witnessed these same drivers choose to go more than the posted 25 miles per hour. I believe the 85 new homes add too much traffic to McGarigle and Carter Streets.

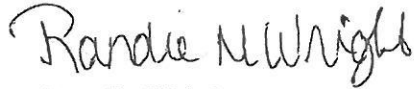
I also found that there is a proposed roundabout for the intersection of Highway 9 and McGarigle Street/John Liner Road. When I look at this intersection and the housing around it, I cannot see that there is enough room to install such a traffic diversion. With traffic already backed up to Highway 9 during afore mentioned pick-up traffic for the two schools and the current commercial big rig traffic southbound on Highway 9, I believe that a roundabout at this location would not help traffic flow, but make it worse.

I am requesting that the hearing examiner to give due and proper consideration to the possibility of reducing the number of homes that are allowed for construction on this 12.7 acre property.

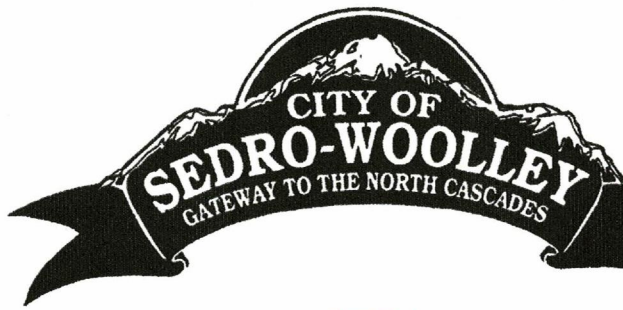
I am not opposed to the development on this property, just to the density of homes allowed.

Thank you for your consideration of my concerns.

Sincerely,

A handwritten signature in cursive script that reads "Randie N Wright". The signature is written in dark ink and is positioned above the printed name.

Randie Wright



## Exhibit L

To Hearing Examiner Staff Report

### SEPA

## ENVIRONMENTAL CHECKLIST

### **Purpose of checklist:**

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

### **Instructions for applicants:**

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

### **Instructions for Lead Agencies:**

Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

### **Use of checklist for non-project proposals:**

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the supplemental sheet for nonproject actions (part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

## Mailing Procedure

1. Obtain a list of names and addresses of residents AND property owners within 500 feet of the outside edge of the subject property. This list must be prepared by the Skagit County Assessor's Office. In determining the outside edge, include all other adjacent property owned by the applicant. Be sure to include the subject parcel's information.
2. Obtain a map showing the subject property and all properties on the mailing list.
3. Prepare 2 sets of postage-paid envelopes using these lists.
4. Prepare additional envelopes for residents of the property if the owner does not live on site.  
*Example: Resident, 123 State St., Sedro-Woolley, WA. 98284.*
5. Fill out the affidavit below and have it notarized.
6. Bring the list, postage-paid addressed envelopes, map and the notarized affidavit to the city Planning Department.

## AFFIDAVIT OF CORRECT NAMES AND ADDRESSES

I, Tim Woodmanssee, do hereby certify  
(Affiant)

That the attached list of property owners, addresses and parcel numbers for the proposed project,  
The Park at Brickyard Creek, A Planned Residential Development  
(Name of proposed project)

Is a true and correct copy provided for land within 500 feet of the property lines of P 39374.  
(Site parcel number)

Signature: \_\_\_\_\_

Date: 11 / 1 / 2019

## -----NOTARY-----

Subscribed and sworn to before me on this 1<sup>st</sup> day of November, 2019.

Signature: Marcie O'Brien

Print Name: Marcie O'Brien

Notary for the State of Washington,

Residing at Sedro Woolley

My Commission expires: 01-01-21



## **A. BACKGROUND**

**1. Name of proposed project, if applicable:**

The Park At Brickyard Creek A Planned Residential Development

**2. Name of applicant:**

Tim Woodmansee

**3. Address and phone number of applicant and contact person:**

PO BOX 619 Sedro-Woolley WA, 98284      office 360-755-3101 Tim Woodmansee

**4. Date checklist prepared:**

10/18/2019

**5. Agency requesting checklist:**

City of Sedro-Woolley

**6. Proposed timing or schedule (including phasing, if applicable):**

There will be 2 phases of development construction, the 1 phase will be started in Spring of 2020 with the 2 phase of development construction being started between Spring of 2020 and Spring of 2026. Homes will be built and sold as the market dictates this will most likely be 2+ years.

**7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.**

We plan on building the homes in this development.

**8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.**

Critical Areas Report has been prepared and came back with no wetlands present on the proposed site.

**9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.**

None known

**10. List any government approvals or permits that will be needed for your proposal, if known.**

None known

**11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)**

This project site is approximately 12.7 acres and will be developed into 85 lots. It will be a 55 and older restricted residential plat.

**12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.**

This Project site is located on the South side of McGarigle Road across the street from the East entrance of Independence Blvd. The Parcel # is 39374.

## **B. ENVIRONMENTAL ELEMENTS**

### **1. Earth**

#### **a. General description of the site**

(circle one): Flat, rolling, hilly, steep slopes, mountainous, other \_\_\_\_\_

#### **b. What is the steepest slope on the site (approximate percent slope)?**

2-4%

#### **c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.**

approximately 6-12 inches of organic top soil with medium coarse sand from 6-36" deep with coarse sand from 12"-12'

#### **d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.**

No

#### **e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.**

The site will be cut and filled with onsite soils with approximately 14,585 cubic yards of gravel borrow fill under the roads. The source of the gravel borrow is to be determined but will likely be from Skagit Aggregates or Miles sand and Gravel.

#### **f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.**

Erosion should not be an issue as the site has high infiltrating soils and the water generally goes straight down once it hits the ground.

#### **g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?**

After construction approximate percent of impervious surfaces will be 72%.

#### **h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:**

We will use bmps to reduce and control erosion.

**2. Air**

**a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.**

When the project is complete there will be heating equipment for the 85 homes plus the clubhouse that produces normal single family home emissions. During construction there will be normal emissions from heavy equipment.

**b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.**

none known

**c. Proposed measures to reduce or control emissions or other impacts to air, if any:**

Will use a water truck during dry months to keep dust down.

**3. Water**

**a. Surface Water:**

**1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.**

none

**2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.**

none known

**3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.**

none

**4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.**

no

**5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

no

**6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.**

no

**b. Ground Water:**

**1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.**

no

**2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.**

none

**c. Water runoff (including stormwater):**

**1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.**

Stormwater is expected to be treated and discharged back into the ground onsite.

**2) Could waste materials enter ground or surface waters? If so, generally describe.**

no

**3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.**

no

**d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:**

no

**4. Plants**

**a. Check the types of vegetation found on the site:**

- ☐ deciduous tree: alder, maple, aspen, other
- ☐ evergreen tree: fir, cedar, pine, other
- ☐ shrubs
- ☒ grass
- ☐ pasture
- ☐ crop or grain
- ☐ orchards, vineyards or other permanent crops.
- ☐ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
- ☐ water plants: water lily, eelgrass, milfoil, other
- ☐ other types of vegetation

**b. What kind and amount of vegetation will be removed or altered?**

All existing vegetation will be removed and will be replanted with permanent landscaping when the homes are built.

- c. List threatened and endangered species known to be on or near the site.

none

- d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Street trees will be planted, also the tract 900 park will be fully landscaped with trees, shrubs and Grass. Normal Single Family Residence Landscaping will be installed once the homes are built.

- e. List all noxious weeds and invasive species known to be on or near the site.

none known

## 5. Animals

- a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include:

birds: hawk, heron, eagle, songbirds, other:

mammals: deer, bear, elk, beaver, other:

fish: bass, salmon, trout, herring, shellfish, other \_\_\_\_\_

none known

- b. List any threatened and endangered species known to be on or near the site.

none known

- c. Is the site part of a migration route? If so, explain.

The entire region is part of the Pacific Flyway migration route. Migrating species of geese, ducks and other migratory birds can be found in lakes, ponds, wetlands and waterways of the area. Key rest stops are not known to be located within this site

- d. Proposed measures to preserve or enhance wildlife, if any:

none

- e. List any invasive animal species known to be on or near the site.

none known

## 6. Energy and natural resources

- a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electricity and Natural gas will be used to energize the homes. Diesel and gasoline will be used to fuel the equipment during construction

- b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

no

- c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

none

**7. Environmental health**

**a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.**

none

**1) Describe any known or possible contamination at the site from present or past uses.**

none known

**2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.**

none known

**3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.**

none known

**4) Describe special emergency services that might be required.**

none known

**5) Proposed measures to reduce or control environmental health hazards, if any:**

none known

**b. Noise**

**1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?**

There are no known existing noises except normal single family residence noise surrounding the property.

**2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.**

The short term would be normal construction noise from heavy equipment, nail guns, air compressors, ect... The long term noise would be normal single family residence noise.

**3) Proposed measures to reduce or control noise impacts, if any:**

Construction will operate from the hours of 7am-7pm.

**8. Land and shoreline use**

**a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.**

The current use is vacant land and the proposed use will fit in with current nearby Single Family Residences.

**b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?**

It appears that the property was at one time farmed but has not been farmed in awhile. The property taxes are current.

**1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:**

No

**c. Describe any structures on the site.**

None

**d. Will any structures be demolished? If so, what?**

No

**e. What is the current zoning classification of the site?**

R-7 Residential

**f. What is the current comprehensive plan designation of the site?**

Residential Housing in the R-7 zone.

**g. If applicable, what is the current shoreline master program designation of the site?**

N/A

**h. Has any part of the site been classified as a critical area by the city or county? If so, specify.**

No

**i. Approximately how many people would reside or work in the completed project?**

Approximately 1-2 per home with a range of 85-170 people would reside.

**j. Approximately how many people would the completed project displace?**

Zero

**k. Proposed measures to avoid or reduce displacement impacts, if any:**

N/A

**l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:**

None

**m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:**

None

**9. Housing**

**a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.**

85 middle income units.

**b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.**

Zero

**c. Proposed measures to reduce or control housing impacts, if any:**

None

**10. Aesthetics**

**a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?**

30'

**b. What views in the immediate vicinity would be altered or obstructed?**

None

**c. Proposed measures to reduce or control aesthetic impacts, if any:**

This Project is a Planned Residential Development and under design review by the City of Sedro-Woolley.

**11. Light and glare**

**a. What type of light or glare will the proposal produce? What time of day would it mainly occur?**

Normal Single Family Resident Lights on the house as well as Street lights as required by the City of Sedro-Woolley.

**b. Could light or glare from the finished project be a safety hazard or interfere with views?**

None known.

**c. What existing off-site sources of light or glare may affect your proposal?**

None known.

**d. Proposed measures to reduce or control light and glare impacts, if any:**

**12. Recreation**

**a. What designated and informal recreational opportunities are in the immediate vicinity?**

There are nearby schools off of McGarigle Road in the immediate vicinity there will also be a 1.27 acre private park constructed onsite that will have sidewalks, and potential recreation games such as Bocce Ball, Corn Hole, Horseshoe, ect...

**b. Would the proposed project displace any existing recreational uses? If so, describe.**

No

**c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:**

The home building permits will have a Park Impact Fee that will be paid to the City of Sedro-Woolley

**13. Historic and cultural preservation**

**a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.**

No

**b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.**

None known

**c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.**

None

**d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.**

None

**14. Transportation**

**a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.**

The project will be served by McGarigle Road and will have a new road that will create a loop. This new road will be dedicated to the City of Sedro-Woolley.

**b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?**

None known

**c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?**

Including the garages the completed project will have approximately 340 off street parking. Not including the garages the project will have 170 off street parking units. there will be an additional 28-56 parking units in the ROW.

**d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).**

McGarigle Road already has street improvements along the property frontage. there will be no improvements to the existing roads other than cutting in a new access to McGarigle to create the intersection of the new road that will run through the project.

**e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.**

No

**f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?**

We have a Traffic Analysis completed by Gibson Traffic Consultants, the anticipated daily trips is 344 trips per day with 19 AM peak hour trips and 24 PM peak hour trips. There are no commercial and nonpassenger vehicles anticipated for this project

**g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.**

No

**h. Proposed measures to reduce or control transportation impacts, if any:**

There will be Traffic Impact Fees based on the Peak Hour Trips that will be paid to the City of Sedro-Woolley.

#### **15. Public services**

**a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.**

The project would need the normal services for 85 new Single Family Residences.

**b. Proposed measures to reduce or control direct impacts on public services, if any.**

There will be City of Sedro-Woolley impact fees paid at the time of building permit for the new homes.

#### **16. Utilities**

**a. Circle utilities currently available at the site:**

electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other Broadband

**b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.**

All utilities needed front the property at McGarigle Road, PSE will supply Electrical, Skagit PUD will supply domestic water, City of Sedro-Woolley will supply Sewer and Garbage. Frontier and Comcast will supply internet and phone.

### **C. SIGNATURE**

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: \_\_\_\_\_

Name of signee Tim Woodmansee

Owner Brickyard Park LLC/BYK

Position and Agency/Organization Construction Inc.

Date Submitted: 11/1/19

**D. SUPPLEMENTAL SHEET FOR NON-PROJECT ACTIONS**  
**(IT IS NOT NECESSARY to use this sheet for project actions)**

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

**1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?**

**Proposed measures to avoid or reduce such increases are:**

**2. How would the proposal be likely to affect plants, animals, fish, or marine life?**

**Proposed measures to protect or conserve plants, animals, fish, or marine life are:**

**3. How would the proposal be likely to deplete energy or natural resources?**

**Proposed measures to protect or conserve energy and natural resources are:**

**4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?**

**Proposed measures to protect such resources or to avoid or reduce impacts are:**

**5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?**

**Proposed measures to avoid or reduce shoreline and land use impacts are:**

**6. How would the proposal be likely to increase demands on transportation or public services and utilities?**

**Proposed measures to reduce or respond to such demand(s) are:**

**7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.**

## **Exhibit M**

To Hearing Examiner Staff Report

# **CRITICAL AREAS ASSESSMENT REPORT FOR PARCEL P39374 – MCGARIGLE RD SEDRO-WOOLLEY, WASHINGTON 98284**

### **PREPARED FOR:**

TIM WOODMANSEE  
BYK CONSTRUCTION, INC.  
P.O. BOX 619  
SEDRO-WOOLLEY, WA 98284

### **PREPARED BY:**

ESSENCY ENVIRONMENTAL, LLC  
11104 320<sup>TH</sup> AVENUE NORTHEAST  
CARNATION, WA 98014  
CONTACT: MARY HAREENDA  
(425) 761-5903  
[MHAREENDA@CABLESPEED.COM](mailto:MHAREENDA@CABLESPEED.COM)



**September 17, 2019**

This report should be cited as:

Essency Environmental, LLC. 2019. Critical Areas Assessment Report for Parcel P39374 – McGarigle Road, Sedro-Woolley, Washington. Prepared for BYK Construction. September 17.

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## Appendices

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## Background

BYK Construction retained Essency Environmental, LLC to complete a Critical Areas Assessment on Parcel P39374. Parcel P39374 is located in the southwest quarter of Section 18, Township 35N, Range 5E, adjacent to McGarigle Road in Sedro-Woolley, Washington. The project location is shown in Figure 1 (Appendix A).

Project contacts are shown in Table 1.

**Table 1. Project Contacts**

Organization	Role	Representative	Title	Email\Phone
Essency Environmental, LLC	Critical Areas Assessment	Mary Harenda	Professional Wetland Scientist, Fisheries Biologist	<a href="mailto:mharenda@cablespeed.com">mharenda@cablespeed.com</a> (425) 761-5903
BYK Construction, Inc.	Client	Tim Woodmansee	Vice-president	<a href="mailto:tim@bykconstruction.com">tim@bykconstruction.com</a> (360) 421-1221

## Qualifications

This critical areas assessment was completed by Andrew Wones and Mary Harenda of Essency Environmental, LLC. Essency Environmental, LLC provides environmental consulting services and has conducted many critical areas studies in Washington State.

Andrew Wones has over 30 years of experience in marine and freshwater ecology research and environmental consulting. He has extensive experience with aquatic resources permitting, natural resource inventories, impact assessment, endangered species, mitigation planning and monitoring, and construction monitoring for environmental compliance. Mr. Wones has contributed to numerous environmental impact statements, natural resource studies, provided compliance monitoring services, and written biological assessments for several ports, marinas, and utility agencies. He has authored natural resources technical reports and chapters for NEPA/SEPA documents evaluating a variety of projects including transportation, mining, residential, and recreational developments. Andrew is also a Certified Erosion and Sedimentation Control Lead (CESCL).

Mary Harenda is a Professional Wetland Scientist with over 30 years of diverse experience in biological sciences, project planning and design. She possesses a thorough working knowledge of local, state, and federal permitting and plan requirements, including the Washington SEPA and federal NEPA processes (BAs/BEs/EISs). Mary's extensive technical experience includes wetland inventories, delineations and functional assessments, stream assessments and evaluations, and assessments for wildlife and threatened and endangered species. Her expertise also includes construction oversight on wetland and stream mitigation projects and follow-up

monitoring to meet permit requirements. She has completed long-term, multiparameter monitoring on numerous mitigation banks in Washington State. She has worked in both the public and private sectors and has experience across a broad client base including small and large development firms, private home and property owners, small and large businesses, local, state and federal governments and agencies, and public and private utilities.

## Methods

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This critical areas assessment was completed following guidelines in Sedro-Woolley Municipal Code (SWMC 17.65 Regulations for Critical Areas). Background research included review of the following sources:

- Federal Emergency Management Agency National Flood Hazard Maps (FEMA 1989)
- Skagit County iMap (Skagit County 2019)
- City of Sedro-Woolley online documents and maps (available at: <https://www.ci.sedro-woolley.wa.us/>)
- Washington State Department of Ecology 303d list, interactive map (Ecology 2019)
- Washington State Department of Fish and Wildlife (WDFW) Priority Habitats and Species database (WDFW 2019a)
- Washington State Department of Fish and Wildlife Salmonscape (WDFW 2019b)
- USFWS National Wetlands Inventory Mapper (USFWS 2019).
- USDA NRCS Web Soil Survey (NRCS 2019).
- Aerial photography of the site from Google Earth and Skagit County iMap.
- City of Sedro-Woolley Municipal Code

Essency Environmental staff completed a site visit and field work on Parcel P39374 on September 11<sup>th</sup>, 2019. We walked the parcel to assess the presence of any streams or wetlands and sampled locations that appeared most likely to support wetland conditions. Sample plots were flagged, and plot locations were mapped using a mapping grade Juniper Systems Geode GPS and Effigis data collection and post-processing software. In addition, we evaluated areas within 200 feet of the parcel boundaries for the potential presence of critical areas using published information sources including maps and aerial images, and from what could be seen from the project parcel, public roads and other publicly accessible areas. Wetland determinations followed US Army Corps of Engineers wetland delineation guidelines (USACE 2010).

Sedro-Woolley Municipal Code 17.65.020 states the following shall constitute critical areas regulated by code: Wetland and Riparian Corridors, Areas with a Critical Recharging Effect on Aquifers Used for Potable Water, Fish and Wildlife Habitat Conservation Areas, Frequently Flooded Areas, and Geologically Hazardous Areas. Critical area buffers are also regulated as described in SWMC 17.65. This section describes whether any critical areas or buffers regulated by the SWMC are present on or near the subject property. Other regulatory and resource categories of interest are also discussed.

### General Site Description

Parcel P39374 is 12.7 acres in size and is currently vacant. The property abuts McGarigle Road to the north. The parcel is zoned Mixed Commercial (City of Sedro-Woolley Zoning Map (available at: [https://www.ci.sedro-woolley.wa.us/Departments/Planning/Comprehensive%20Plan/Comp\\_Plan\\_Land\\_Use\\_Map.pdf](https://www.ci.sedro-woolley.wa.us/Departments/Planning/Comprehensive%20Plan/Comp_Plan_Land_Use_Map.pdf))). Existing residences are present to the east and west and north of McGarigle Road. An existing vacant parcel is present to the south which is also zoned Mixed Commercial.

The parcel was in agricultural use for many years. Vegetation is dominated grasses and weedy forbs typical of agricultural fields. Plants species observed on the parcel include: creeping bentgrass (*Agrostis stolonifera*), English plantain (*Plantago lanceolata*), red sorrel, (*Rumex acetosella*), orchardgrass (*Dactylis glomerata*), Canada thistle (*Cirsium arvense*), reed canarygrass (*Phalaris arundinacea*), cat's ear (*Hypochaeris radicata*), tall buttercup (*Ranunculus acris*), field horsetail (*Equisetum arvense*), sweet vernal grass (*Anthoxanthum odoratum*), snowberry (*Symphoricarpos albus*) and blackberry (*Rubus armeniacus*) along fence lines.

### Shoreline Jurisdiction

Parcel P39374 is not within Shoreline jurisdiction (City of Sedro-Woolley 2016).

### Streams

There are no streams or stream buffers on the project parcel and no streams or buffers are shown on any map resources (WDFW 2019a, WDFW 2019b, WDNR 2019, USGS 2019). Brickyard Creek (Type 2 water with 200-foot standard buffer per Sedro-Woolley Municipal Code section 17.65.530) is present on the north side of McGarigle Road. The standard buffer for Brickyard Creek does not extend onto Parcel 39374 and the effective buffer stops at the McGarigle Road.

### Priority Habitats and Species (PHS)

PHS resources identify the presence of coho salmon (*Oncorhynchus kisutch*) and resident coastal cutthroat (*Oncorhynchus clarki*) in Brickyard Creek and the presence of three bat species, *Myotis yumanensis* and *lucifugus*, and *Corynorhinus townsendii* in the parcel township

(WDFW 2019a).

## **Wetlands and Riparian Corridors**

The National Wetland Inventory (NWI) does not show any wetlands on or within 200 feet of the project parcel (USFWS 2019). The Natural Resource Conservation Service (2019) maps the parcel soil as Nargar loam, which is not classified as a hydric soil (Figure 2 and Appendix D).

We sampled locations on the parcel that appeared most likely to support wetland conditions (Figure 2 and Appendix C). There were no indicators of either hydric soils or wetland hydrology in the five plots we sampled. No Wetlands or Riparian Corridors are present on the project parcel. In addition, we evaluated adjacent areas up to roads or other development that would mark the end of any effective buffer within 200 feet of the project parcel boundaries and determined that no wetland buffers are present on the project parcel.

## **Areas with a Critical Recharging Effect on Aquifers Used for Potable Water**

The Skagit County Aquifer Recharge Area Category 1 Areas Map (Skagit County 2010) does not show any aquifer recharge areas on or within 200 feet of the project parcel.

## **Fish and Wildlife Conservation Areas**

There are no known Fish and Wildlife Conservation Areas or habitats for species of local significance as defined in SWMC 17.65.500 on the project parcel. Brickyard Creek, a Type 2 water, is located over 200 feet from the parcel boundaries on the north side of McGarigle Road (Figure 2).

## **Frequently Flooded Areas**

The project is mapped as outside the 500-year floodplain (Zone X) by the Federal Emergency Management Agency (Skagit County 2019b). Zone X is not regulated.

## **Geologically Hazardous Areas**

There are no potential landslide or erosion hazard areas or steep slopes mapped by Skagit County (2016). A geotechnical study may be required to assess the presence of Geologically Hazardous Areas (SWMC 17.54.420) as part of the development review process.

## **Other**

Section 17.65.070[A][4] of the SWMC states that a survey showing locations, descriptions, and species of all trees over 6 inches in diameter, as measured five feet above the base of the trunk, and shrubs over eight feet tall or six feet wide, may be required to be submitted with any development application. There are no trees located on the parcel.

- City of Sedro-Wooley. 2016. City of Sedro-Woolley Shoreline Management Program Update. . Effective June 14, 2016.
- Skagit County. 2010. Aquifer Recharge Area Map. Category 1 Areas. (Skagit County Code 14.24.310). Available at: [https://www.skagitcounty.net/GIS/Documents/Critical Areas/Category%201%20Areas%20Aquifer%20Recharge%20Map.pdf](https://www.skagitcounty.net/GIS/Documents/Critical%20Areas/Category%201%20Areas%20Aquifer%20Recharge%20Map.pdf) . Accessed: May 1, 2019.
- Skagit County. 2016. Potential Landslide and Erosion Hazard Areas. Available at: <https://www.skagitcounty.net/GIS/Documents/GeoHazard/cw103-53.pdf> . Accessed: May 1, 2019
- Skagit County. 2019a. iMap. Skagit County interactive maps. Available at: <https://www.skagitcounty.net/Maps/iMap/> . Accessed: May 1, 2019.
- Skagit County 2019b. FEMA Q3 100 Year Floodplain. Map. Available at: <https://www.skagitcounty.net/GIS/Documents/Flood/FEMA%20Q3%20100%20Year%20Floodplain%20Map.pdf> . Accessed: May 1, 2019.
- U.S. Army Corps of Engineers. May 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region, Version 2.0.
- U.S. Department of Agriculture (USDA). Natural Resources Conservation Service (NRCS). 2019. Custom Soil Report for Snohomish County Area, WA. Parcel P107812. Downloaded from [websoilsurvel.sc.egov.usda.gov](http://websoilsurvel.sc.egov.usda.gov). May 1, 2019.
- U.S. Fish and Wildlife Service. National Wetlands Inventory Mapper. 2019. Available at: <http://www.fws.gov/wetlands/data/mapper.HTML> . Accessed: May 1, 2019.
- U.S. Geological Survey (USGS). 2019. The National Map. National Hydrography Layer. Available at: [viewer.nationalmap.gov/viewer/](http://viewer.nationalmap.gov/viewer/). Accessed: May 1, 2019.
- Washington State Department of Ecology. 2019. Water Quality Assessment for Washington. On-line interactive map. Available at: <https://fortress.wa.gov/ecy/wqamapviewer/map.aspx>. Accessed: May 1, 2019.
- Washington Department of Natural Resources (WDNR). 2019. Forest Practices Application Mapping Tool. Available at: <https://fortress.wa.gov/dnr/protectiongis/fpamt/default.aspx> . Accessed: May 1, 2019.
- Washington State Department of Fish and Wildlife (WDFW). 2019a. PHS on the Web. Priority Habitats and Species database. Available at: <http://apps.wdfw.wa.gov/phsontheweb/>. Accessed: May 1, 2019.
- WDFW. 2019b. Salmonscape online fish distribution maps. Available at: <http://apps.wdfw.wa.gov/salmonscape/map.html> . Accessed: May 1, 2019.

## Appendix A: Figures

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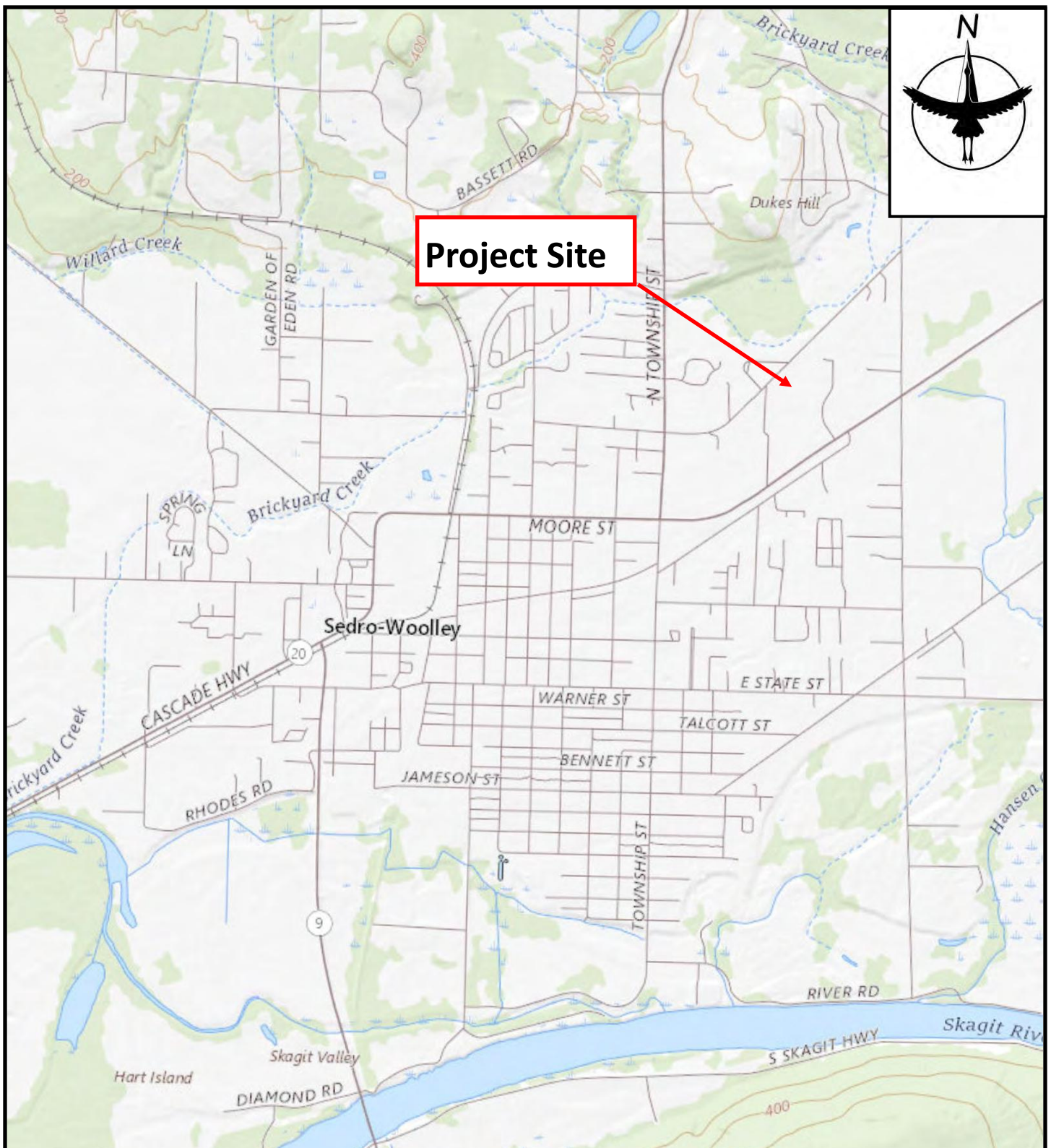


Image Source: WDNR 2019. <https://geologyportal.dnr.wa.gov/>

**Figure 1. Vicinity Map.**

Critical Areas Assessment Report for Parcel P39374 in Sedro-Woolley, WA

Client: BYK Construction, Inc.



Essency Environmental LLC  
11104 320th Ave NE  
Carnation, WA 98014  
425 269-3119  
425 761-5903

[www.essencyenvironmental.com](http://www.essencyenvironmental.com)

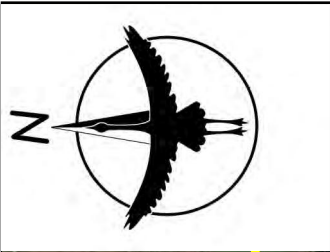


Image Source: Google Earth Pro dated 7/15/2018.

Soil series obtained from Google Earth Soil Web interface to USDA-NCSS SSURGO and STATSGO soil survey products.

LEGEND	
	Parcel Boundary (from Skagit County GIS)
	Brickyard Creek (Type 2 with 200' buffer)
	Soil Series (100=Nargar Loam; 34=Cokedale Silt Loam; 92=Minkler Silt Loam)
	Wetland Determination Sample Plot

Figure 2. Aerial Image of Parcel P39374

Critical Areas Report for Parcel P39374– McGarigle Road, Sedro Woolley, WA.  
Client: BYK Construction, Inc.

Essency Environmental LLC  
11104 320th Ave NE  
Carnation, WA 98014  
425 269-3119  
425 761-5903  
www.essencyenvironmental.com



Date: 9/18/2019

## Appendix B: Site Photographs

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**Photo 1. Panorama from northwest corner of Parcel P39374, facing southeast. 9/11/19.**



**Photo 3. Panorama from northeast corner of Parcel P39374, facing southwest. 9/11/19.**



**Photo 4. Panorama from southwest corner of Parcel P39374, facing northeast. 9/11/19.**



**Photo 9. Panorama from southwest corner of Parcel P39374, facing northwest. 9/11/19.**

## **Appendix C: Wetland Determination Data Forms**

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# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Parcel P39374 City/County: Sedro-Woolley/Skagit Sampling Date: 9/11/2019  
 Applicant/Owner: BYK Construction State: WA Sampling Point: P1  
 Investigator(s): M. Harenda/A. Wones Section, Township, Range: S18, T35N, R5E  
 Landform (hillslope, terrace, etc.): Historic floodplain Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): MLRA2 Lat: 48.515572° Long: -122.217526° Datum: WGS 84  
 Soil Map Unit Name: Nargar loam, 0-8 percent slopes NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒ , Soil ☒ , or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks:			

## VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>20 ft dm</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1.					
2.					
3.					
4.					
		= Total Cover			<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species <input type="checkbox"/> x 1 = <input type="checkbox"/> FACW species <input type="checkbox"/> x 2 = <input type="checkbox"/> FAC species <input type="checkbox"/> x 3 = <input type="checkbox"/> FACU species <input type="checkbox"/> x 4 = <input type="checkbox"/> UPL species <input type="checkbox"/> x 5 = <input type="checkbox"/> Column Totals: <input type="checkbox"/> (A) <input type="checkbox"/> (B) Prevalence Index = B/A = <input type="checkbox"/>
Sapling/Shrub Stratum	(Plot size: <u>10 ft dm</u> )				
1.					
2.					
3.					
4.					
5.					
		= Total Cover			
Herb	(Plot size: <u>6 ft dm</u> )				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Agrostis stolonifera</u>	<u>65</u>	<u>yes</u>	<u>FAC</u>	
2.	<u>Dactylis glomerata</u>	<u>25</u>	<u>yes</u>	<u>FACU</u>	
3.	<u>Plantago lanceolata</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
		<u>100</u>	= Total Cover		
Woody Vine Stratum	(Plot size: <u>        </u> )				<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1.					
2.					
		= Total Cover			
% Bare Ground in Herb Stratum					

Remarks:

## SOIL

Sampling Point: P1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 4/3	100					fine sandy loam	
6-14	10YR 4/3	100					loamy fine sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.    <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)  <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic
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<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks: \_\_\_\_\_

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)  <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3)  <input type="checkbox"/> Algal Mat or Crust (B4)  <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)  <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3)  <input type="checkbox"/> FAC-Neutral Test (D5)  <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present?      Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe)    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: \_\_\_\_\_

Remarks: \_\_\_\_\_

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Parcel P39374 City/County: Sedro-Woolley/Skagit Sampling Date: 9/11/2019  
 Applicant/Owner: BYK Construction State: WA Sampling Point: P2  
 Investigator(s): M. Harenda/A. Wones Section, Township, Range: S18, T35N, R5E  
 Landform (hillslope, terrace, etc.): Historic floodplain Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): MLRA2 Lat: 48.515572° Long: -122.217526° Datum: WGS 84  
 Soil Map Unit Name: Nargar loam, 0-8 percent slopes NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒ , Soil ☒ , or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks:		

## VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>20 ft dm</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
= Total Cover				
Sapling/Shrub Stratum	(Plot size: <u>10 ft dm</u> )			
1.				
2.				
3.				
4.				
5.				
= Total Cover				
Herb	(Plot size: <u>6 ft dm</u> )			
1.	<u>Agrostis stolonifera</u>	<u>70</u>	<u>yes</u>	<u>FAC</u>
2.	<u>Dactylis glomerata</u>	<u>15</u>	<u>no</u>	<u>FACU</u>
3.	<u>Plantago lanceolata</u>	<u>10</u>	<u>no</u>	<u>FACU</u>
4.	<u>Ranunculus acris</u>	<u>5</u>	<u>no</u>	<u>FAC</u>
5.				
6.				
7.				
8.				
9.				
10.				
11.				
100 = Total Cover				
Woody Vine Stratum	(Plot size: <u>        </u> )			
1.				
2.				
= Total Cover				
% Bare Ground in Herb Stratum <u>        </u>				

**Dominance Test worksheet:**  
 Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)  
 Total Number of Dominant Species Across All Strata: 1 (B)  
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**  
 Total % Cover of: Multiply by:  
 OBL species          x 1 =           
 FACW species          x 2 =           
 FAC species          x 3 =           
 FACU species          x 4 =           
 UPL species          x 5 =           
 Column Totals:          (A)          (B)  
 Prevalence Index = B/A =         

**Hydrophytic Vegetation Indicators:**  
☐ 1 - Rapid Test for Hydrophytic Vegetation  
☒ 2 - Dominance Test is >50%  
☐ 3 - Prevalence Index is ≤3.0<sup>1</sup>  
☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
☐ 5 - Wetland Non-Vascular Plants<sup>1</sup>  
☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ☒ No ☐

Remarks:

## SOIL

Sampling Point: P2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 4/3	100					fine sandy loam	
6-14	10YR 5/3	100					loamy fine sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.    <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)  <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic
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<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks: \_\_\_\_\_

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)  <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3)  <input type="checkbox"/> Algal Mat or Crust (B4)  <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)  <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3)  <input type="checkbox"/> FAC-Neutral Test (D5)  <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present?     Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present?       Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: \_\_\_\_\_

Remarks: \_\_\_\_\_

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Parcel P39374 City/County: Sedro-Woolley/Skagit Sampling Date: 9/11/2019  
 Applicant/Owner: BYK Construction State: WA Sampling Point: P3  
 Investigator(s): M. Harenda/A. Wones Section, Township, Range: S18, T35N, R5E  
 Landform (hillslope, terrace, etc.): Historic floodplain Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): MLRA2 Lat: 48.515572° Long: -122.217526° Datum: WGS 84  
 Soil Map Unit Name: Nargar loam, 0-8 percent slopes NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒ , Soil ☒ , or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks:		

## VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>20 ft dm</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
= Total Cover				
Sapling/Shrub Stratum	(Plot size: <u>10 ft dm</u> )			
1.				
2.				
3.				
4.				
5.				
= Total Cover				
Herb	(Plot size: <u>6 ft dm</u> )			
1.	<u>Agrostis stolonifera</u>	<u>60</u>	<u>yes</u>	<u>FAC</u>
2.	<u>Dactylis glomerata</u>	<u>5</u>	<u>no</u>	<u>FACU</u>
3.	<u>Plantago lanceolata</u>	<u>15</u>	<u>no</u>	<u>FACU</u>
4.	<u>Ranunculus acris</u>	<u>15</u>	<u>no</u>	<u>FAC</u>
5.	<u>Anthoxanthum odoratum</u>	<u>2</u>	<u>no</u>	<u>FACU</u>
6.	<u>Equisetum arvense</u>	<u>3</u>	<u>no</u>	<u>FAC</u>
7.				
8.				
9.				
10.				
11.				
100 = Total Cover				
Woody Vine Stratum	(Plot size: <u>        </u> )			
1.				
2.				
= Total Cover				
% Bare Ground in Herb Stratum				

**Dominance Test worksheet:**  
 Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)  
 Total Number of Dominant Species Across All Strata: 1 (B)  
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**  
 Total % Cover of:      Multiply by:  
 OBL species               x 1 =           
 FACW species               x 2 =           
 FAC species               x 3 =           
 FACU species               x 4 =           
 UPL species               x 5 =           
 Column Totals:          (A)               (B)  
 Prevalence Index = B/A =         

**Hydrophytic Vegetation Indicators:**  
☐ 1 - Rapid Test for Hydrophytic Vegetation  
☒ 2 - Dominance Test is >50%  
☐ 3 - Prevalence Index is ≤3.0<sup>1</sup>  
☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
☐ 5 - Wetland Non-Vascular Plants<sup>1</sup>  
☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ☒ No ☐

Remarks:

## SOIL

Sampling Point: P3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 4/3	100					loamy fine sand	
8-14	10YR 4/4	100					loamy fine sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.    <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)  <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic
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<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks: \_\_\_\_\_

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)  <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3)  <input type="checkbox"/> Algal Mat or Crust (B4)  <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)  <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3)  <input type="checkbox"/> FAC-Neutral Test (D5)  <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present?      Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe)    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: \_\_\_\_\_

Remarks: \_\_\_\_\_

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Parcel P39374 City/County: Sedro-Woolley/Skagit Sampling Date: 9/11/2019  
 Applicant/Owner: BYK Construction State: WA Sampling Point: P4  
 Investigator(s): M. Harenda/A. Wones Section, Township, Range: S18, T35N, R5E  
 Landform (hillslope, terrace, etc.): Historic floodplain Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): MLRA2 Lat: 48.515572° Long: -122.217526° Datum: WGS 84  
 Soil Map Unit Name: Nargar loam, 0-8 percent slopes NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒ , Soil ☒ , or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks:

## VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>20 ft dm</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
= Total Cover				
Sapling/Shrub Stratum	(Plot size: <u>10 ft dm</u> )			
1.				
2.				
3.				
4.				
5.				
= Total Cover				
Herb	(Plot size: <u>6 ft dm</u> )			
1.	<u>Agrostis stolonifera</u>	<u>70</u>	<u>yes</u>	<u>FAC</u>
2.	<u>Dactylis glomerata</u>	<u>10</u>	<u>no</u>	<u>FACU</u>
3.	<u>Plantago lanceolata</u>	<u>10</u>	<u>no</u>	<u>FACU</u>
4.	<u>Ranunculus acris</u>	<u>10</u>	<u>no</u>	<u>FAC</u>
5.				
6.				
7.				
8.				
9.				
10.				
11.				
100 = Total Cover				
Woody Vine Stratum	(Plot size: <u>        </u> )			
1.				
2.				
= Total Cover				
% Bare Ground in Herb Stratum				

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>        </u>	x 1 = <u>        </u>
FACW species <u>        </u>	x 2 = <u>        </u>
FAC species <u>        </u>	x 3 = <u>        </u>
FACU species <u>        </u>	x 4 = <u>        </u>
UPL species <u>        </u>	x 5 = <u>        </u>
Column Totals: <u>        </u> (A)	<u>        </u> (B)
Prevalence Index = B/A = <u>        </u>	

**Hydrophytic Vegetation Indicators:**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0<sup>1</sup>
- ☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants<sup>1</sup>
- ☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ☒ No ☐

Remarks:

## SOIL

Sampling Point: P4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 4/3	100					fine sandy loam	
6-14	10YR 4/4	100					loamy fine sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.    <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)  <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic
--	---

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

Remarks: \_\_\_\_\_

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1)  <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3)  <input type="checkbox"/> Algal Mat or Crust (B4)  <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> ) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> ) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)  <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3)  <input type="checkbox"/> FAC-Neutral Test (D5)  <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present?      Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present?        Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: \_\_\_\_\_

Remarks: \_\_\_\_\_

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Parcel P39374 City/County: Sedro-Woolley/Skagit Sampling Date: 9/11/2019  
 Applicant/Owner: BYK Construction State: WA Sampling Point: P5  
 Investigator(s): M. Harenda/A. Wones Section, Township, Range: S18, T35N, R5E  
 Landform (hillslope, terrace, etc.): Historic floodplain Local relief (concave, convex, none): none Slope (%): 1%  
 Subregion (LRR): MLRA2 Lat: 48.515572° Long: -122.217526° Datum: WGS 84  
 Soil Map Unit Name: Nargar loam, 0-8 percent slopes NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☒ , Soil ☒ , or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks:					

## VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>20 ft dm</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1.					
2.					
3.					
4.					
		= Total Cover			<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species <input type="checkbox"/> x 1 = <input type="checkbox"/> FACW species <input type="checkbox"/> x 2 = <input type="checkbox"/> FAC species <input type="checkbox"/> x 3 = <input type="checkbox"/> FACU species <input type="checkbox"/> x 4 = <input type="checkbox"/> UPL species <input type="checkbox"/> x 5 = <input type="checkbox"/> Column Totals: <input type="checkbox"/> (A) <input type="checkbox"/> (B) Prevalence Index = B/A = <input type="checkbox"/>
Sapling/Shrub Stratum	(Plot size: <u>10 ft dm</u> )				
1.					
2.					
3.					
4.					
5.					
		= Total Cover			
Herb	(Plot size: <u>6 ft dm</u> )				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Agrostis stolonifera</u>	<u>100</u>	<u>yes</u>	<u>FAC</u>	
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
		100 = Total Cover			
Woody Vine Stratum	(Plot size: <u>        </u> )				
1.					
2.					
		= Total Cover			
% Bare Ground in Herb Stratum <u>        </u>					

Remarks:

## SOIL

Sampling Point: P5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10YR 4/3	100					fine sandy loam	
12-14	10YR 5/6	100					fine sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.    <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soil Present?**    Yes ☐    No ☒

Remarks: \_\_\_\_\_

## HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

**Field Observations:**

Surface Water Present?    Yes ☐    No ☐    Depth (inches): \_\_\_\_\_

Water Table Present?    Yes ☐    No ☐    Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe)    Yes ☐    No ☐    Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?**    Yes ☐    No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: \_\_\_\_\_

Remarks: \_\_\_\_\_

## Appendix D: Soils Report

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United States  
Department of  
Agriculture

**NRCS**

Natural  
Resources  
Conservation  
Service

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

# Custom Soil Resource Report for **Skagit County Area, Washington**

**Parcel P39374, Sedro-Woolley  
WA**



# Preface

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

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

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

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

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

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

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# How Soil Surveys Are Made

---

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

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

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

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

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

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

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

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

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

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

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

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

## Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

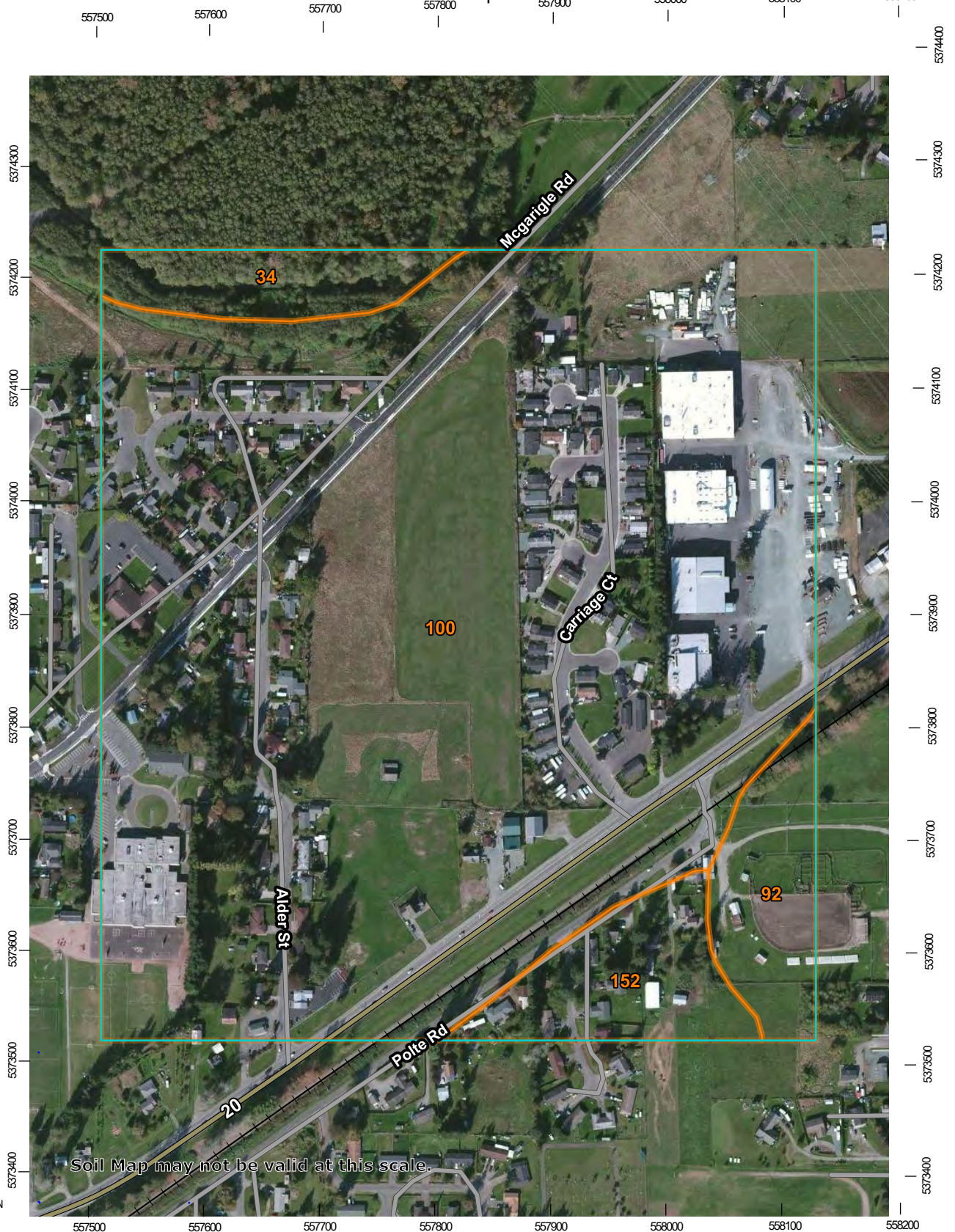
---

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

# Custom Soil Resource Report Soil Map

48° 31' 12" N

48° 31' 12" N



Map Scale: 1:5,060 if printed on A portrait (8.5" x 11") sheet.


0 50 100 200 300 Meters

0 200 400 800 1200 Feet

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


## MAP LEGEND


### Area of Interest (AOI)

 Area of Interest (AOI)


### Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

### Special Point Features

 Blowout

 Borrow Pit


 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop


 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole


 Slide or Slip

 Sodic Spot


 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

### Water Features

 Streams and Canals


### Transportation

 Rails


 Interstate Highways

 US Routes

 Major Roads

 Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Skagit County Area, Washington  
Survey Area Data: Version 18, Sep 10, 2018

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

Date(s) aerial images were photographed: Jul 9, 2010—Aug 28, 2011

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

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
34	Cokedale silt loam	4.3	3.7%
92	Minkler silt loam	5.3	4.5%
100	Nargar loam, 0 to 8 percent slopes	101.1	86.6%
152	Urban land-Mt. Vernon-Field complex	6.1	5.2%
<b>Totals for Area of Interest</b>		<b>116.8</b>	<b>100.0%</b>

## Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

## Skagit County Area, Washington

### 34—Cokedale silt loam

#### Map Unit Setting

*National map unit symbol:* 2hvj  
*Elevation:* 120 to 1,200 feet  
*Mean annual precipitation:* 45 to 80 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 160 to 220 days  
*Farmland classification:* Prime farmland if drained

#### Map Unit Composition

*Cokedale and similar soils:* 95 percent  
*Minor components:* 5 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Cokedale

##### Setting

*Landform:* Flood plains  
*Parent material:* Alluvium derived from phyllite

##### Typical profile

*H1 - 0 to 4 inches:* silt loam  
*H2 - 4 to 27 inches:* silt loam  
*H3 - 27 to 45 inches:* sand  
*H4 - 45 to 60 inches:* stratified loamy sand to very channery loamy sand

##### Properties and qualities

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification  
*Natural drainage class:* Somewhat poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)  
*Depth to water table:* About 6 to 24 inches  
*Frequency of flooding:* Occasional  
*Frequency of ponding:* None  
*Available water storage in profile:* Low (about 5.1 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4w  
*Hydrologic Soil Group:* B/D  
*Forage suitability group:* Seasonally Wet Soils (G002XN202WA)  
*Hydric soil rating:* No

#### Minor Components

##### Sumas, undrained

*Percent of map unit:* 5 percent  
*Landform:* Tidal flats  
*Hydric soil rating:* Yes

## 92—Minkler silt loam

### Map Unit Setting

*National map unit symbol:* 2hxl  
*Elevation:* 50 to 80 feet  
*Mean annual precipitation:* 50 inches  
*Mean annual air temperature:* 50 degrees F  
*Frost-free period:* 190 days  
*Farmland classification:* Prime farmland if drained

### Map Unit Composition

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

### Description of Minkler

#### Setting

*Landform:* Terraces  
*Parent material:* Alluvium and glaciolacustrine deposits

#### Typical profile

*H1 - 0 to 12 inches:* medial silt loam  
*H2 - 12 to 15 inches:* medial silt loam  
*H3 - 15 to 60 inches:* stratified fine sand to very fine sandy loam

#### Properties and qualities

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)  
*Depth to water table:* About 6 to 30 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water storage in profile:* High (about 10.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 5w  
*Hydrologic Soil Group:* B/D  
*Forage suitability group:* Wet Soils (G002XN102WA)  
*Hydric soil rating:* No

## **100—Nargar loam, 0 to 8 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2hrl  
*Elevation:* 400 to 1,100 feet  
*Mean annual precipitation:* 50 to 75 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 120 to 200 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

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

### **Description of Nargar**

#### **Setting**

*Landform:* Terraces  
*Parent material:* Alluvium, loess, volcanic ash

#### **Typical profile**

*H1 - 0 to 3 inches:* loam  
*H2 - 3 to 33 inches:* loam  
*H3 - 33 to 60 inches:* sand

#### **Properties and qualities**

*Slope:* 0 to 8 percent  
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification  
*Natural drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water storage in profile:* Moderate (about 6.9 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* B  
*Forage suitability group:* Soils with Few Limitations (G002XN502WA)  
*Hydric soil rating:* No

## 152—Urban land-Mt. Vernon-Field complex

### Map Unit Setting

*National map unit symbol:* 2htf  
*Elevation:* 10 to 50 feet  
*Mean annual precipitation:* 32 to 40 inches  
*Mean annual air temperature:* 50 degrees F  
*Frost-free period:* 160 to 210 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Urban land:* 40 percent  
*Mt. vernon and similar soils:* 30 percent  
*Field and similar soils:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Urban Land

#### Typical profile

*H1 - 0 to 6 inches:* variable

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8s  
*Hydric soil rating:* No

### Description of Mt. Vernon

#### Setting

*Landform:* Natural levees, flood plains  
*Parent material:* Alluvium and volcanic ash

#### Typical profile

*H1 - 0 to 10 inches:* ashy very fine sandy loam  
*H2 - 10 to 29 inches:* stratified ashy sand to very fine sandy loam  
*H3 - 29 to 60 inches:* stratified fine sand to silt loam

#### Properties and qualities

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)  
*Depth to water table:* About 24 to 48 inches  
*Frequency of flooding:* Occasional  
*Frequency of ponding:* None  
*Available water storage in profile:* High (about 10.2 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 3w  
*Land capability classification (nonirrigated):* 3w  
*Hydrologic Soil Group:* C

## Custom Soil Resource Report

*Forage suitability group:* Soils with Few Limitations (G002XN502WA)

*Hydric soil rating:* No

### Description of Field

#### Setting

*Landform:* Flood plains, natural levees

*Parent material:* Alluvium and volcanic ash

#### Typical profile

*H1 - 0 to 13 inches:* silt loam

*H2 - 13 to 21 inches:* silt loam

*H3 - 21 to 40 inches:* stratified sand to loamy fine sand

*H4 - 40 to 60 inches:* stratified sand to very fine sandy loam

#### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)

*Depth to water table:* About 24 to 60 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water storage in profile:* High (about 10.2 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* B

*Forage suitability group:* Seasonally Wet Soils (G002XN202WA)

*Hydric soil rating:* No

### Minor Components

#### Mt. vernon

*Percent of map unit:*

*Hydric soil rating:* No

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## Custom Soil Resource Report

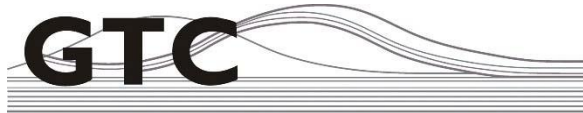
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## **Exhibit N**

To Hearing Examiner Staff Report



Gibson Traffic Consultants  
2813 Rockefeller Avenue  
Suite B  
Everett, WA 98201  
425.339.8266

# **McGarigle Development Traffic Impact Analysis**

**Jurisdiction: City of Sedro Woolley**

**September 2019**



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## 1. INTRODUCTION

Gibson Traffic Consultants, Inc. (GTC) has been retained to provide an analysis of the impacts of the McGarigle development in the City of Sedro Woolley. The development is proposed to consist of 85 residential units. The McGarigle development is located on the south side of McGarigle Road, east of Carter Street. The development is proposed to have one access to McGarigle Road opposite of the existing Independence Boulevard/McGarigle Road intersection. A site vicinity map is included in Figure 1.

Zach Wieben, responsible for this report, is a licensed professional engineer (Civil) in the State of Washington and member of the Washington State section of the Institute of Transportation Engineers (ITE).

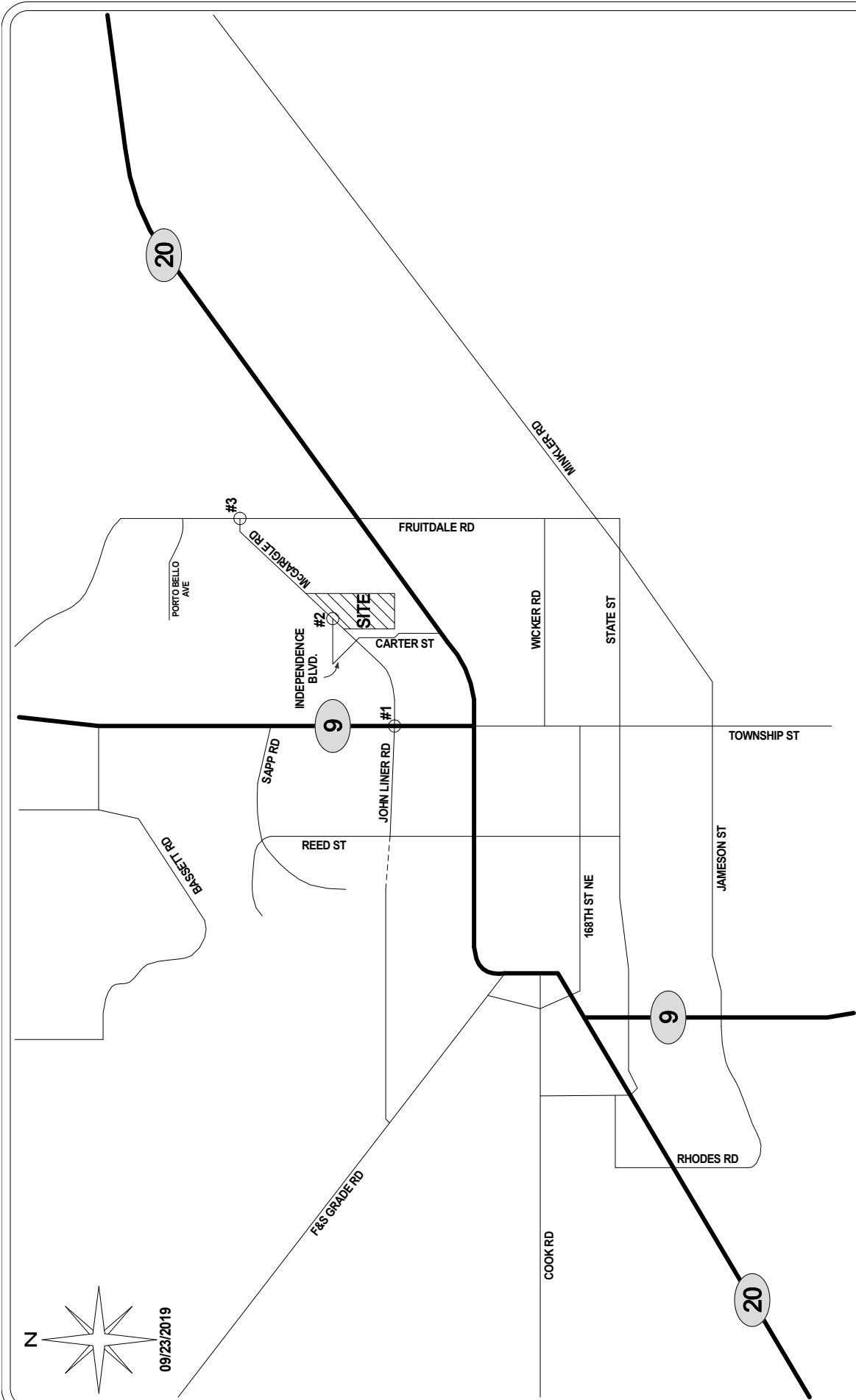
## 2. METHODOLOGY

Scoping discussions with the City of Sedro Woolley staff identified two off-site intersections to be analyzed. The proposed site access to McGarigle Road was also analyzed for level of service and channelization warrants under the future with development conditions. The three intersections analyzed during the PM peak-hour in this report are listed below.

1. SR-9 at John Liner Road/McGarigle Road
2. McGarigle Road at Independence Boulevard/Site Access
3. McGarigle Road at Fruitdale Road

The 85 residential units within the McGarigle Development may be age-restricted units for seniors 55 years and older; however, that determination has yet to be made. Intersection analysis for the off-site intersections and the site access were analyzed with no age restrictions for the development (i.e. a higher vehicle trip generation) to perform a conservative level of service analysis. Trip generation and traffic mitigation fee calculations for both the age-restricted and unrestricted development scenarios are included in the report.

Intersections were analyzed during the 4-6 PM typical afternoon commuter peak period. The existing count data at the study intersections is based on data collected by the independent count firm Traffic Data Gathering (TDG), collected in 2019. The trip generation calculations were performed using data from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10<sup>th</sup> Edition (2017)*. The intersection analysis has been performed using existing channelization, phasing, intersection peak-hour factors, and intersection heavy vehicle factors from the existing turning movement counts. The intersection level of service has been reported for each study intersection.






TRAFFIC IMPACT STUDY  
GTC #19-229

GIBSON TRAFFIC CONSULTANTS

McGARIGLE DEVELOPMENT  
51 NEW DETACHED UNITS  
34 NEW TOWNHOMES

CITY OF SEDRO WOOLLEY

FIGURE 1  
SITE VICINITY  
MAP

LEGEND  
 DEVELOPMENT SITE  
 STUDY INTERSECTION  
 FUTURE ROAD

The peak-hour level of service (LOS) analysis calculations were completed using the *Synchro 10.2, Build 0* software for signalized and unsignalized intersections. This software applies the operational analysis methodology of the *Highway Capacity Manual 6<sup>th</sup> Edition (HCM)*. Traffic congestion is generally measured in terms of level of service. In accordance with the HCM 6<sup>th</sup> Edition, road facilities and intersections are rated between LOS A and LOS F, with LOS A being free flow and LOS F being forced flow or over-capacity conditions. Analysis of the roundabouts was performed using *Sidra Intersection 8.0* software. It is important to note that the volumes included in the Sidra results printouts account for the peak-hour factor, the volumes in the printouts are not the input volumes. The results for the roundabout analysis have been evaluated based on volume-to-capacity (v/c) ratio and the level of service. WSDOT evaluates roundabouts on a pass/fail basis, with a v/c ratio of 0.92 on any approach being the threshold. The level of service criteria is summarized in Table 1. The level of service at two-way stop-controlled intersections is based on the average delay of the worst approach. The level of service at signalized and all-way stop-controlled intersections is based on the average delay for all approaches. Geometric characteristics and conflicting traffic movements are taken into consideration when determining level of service values.

**Table 1: Level of Service Criteria for Intersections**

Level of <sup>1</sup> Service	Expected Delay	Intersection Control Delay (Seconds per Vehicle)	
		Unsignalized Intersections	Signalized Intersections
A	Little/No Delay	≤10	≤10
B	Short Delays	>10 and ≤15	>10 and ≤20
C	Average Delays	>15 and ≤25	>20 and ≤35
D	Long Delays	>25 and ≤35	>35 and ≤55
E	Very Long Delays	>35 and ≤50	>55 and ≤80
F	Extreme Delays <sup>2</sup>	>50	>80

The City of Sedro Woolley's level of service standard for SR-20, SR-9, and principal arterials is LOS D. The City of Sedro Woolley's level of service standard for minor arterials and major collectors is LOS C.

<sup>1</sup> **Source:** *Highway Capacity Manual 6<sup>th</sup> Edition*.

LOS A: Free-flow traffic conditions, with minimal delay to stopped vehicles (no vehicle is delayed longer than one cycle at signalized intersection).

LOS B: Generally stable traffic flow conditions.

LOS C: Occasional back-ups may develop, but delay to vehicles is short term and still tolerable.

LOS D: During short periods of the peak hour, delays to approaching vehicles may be substantial but are tolerable during times of less demand (i.e. vehicles delayed one cycle or less at signal).

LOS E: Intersections operate at or near capacity, with long queues developing on all approaches and long delays.

LOS F: Jammed conditions on all approaches with excessively long delays and vehicles unable to move at times.

<sup>2</sup> When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection.

### 3. TRIP GENERATION AND DISTRIBUTION

#### 3.1 Trip Generation Calculations

The McGarigle development is proposed to consist of 85 residential units. The development is proposed to consist of 51 detached units and 34 attached townhome units. The development could be age-restricted for seniors 55 years and older or it could have no age restrictions. The ITE Land Use Codes (LUC) for the attached and detached units for both the age-restricted and unrestricted scenarios are shown in Table 2.

**Table 2: ITE Land Use Codes**

Unit Type	Number of Units	ITE Land Use Code	
		Age-Restricted (55+ Years)	Unrestricted
Detached	51	ITE LUC 251 Senior Housing Detached	ITE LUC 210 Single-Family Detached
Attached	34	ITE LUC 252 Senior Housing Attached	ITE LUC 220 Multifamily Low-Rise

Trip generation calculations for the age-restricted scenario are summarized in Table 3.

**Table 3: Trip Generation Summary – Age-Restricted Scenario**

Land Use	# Units	ADT	AM Peak-Hour			PM Peak-Hour		
			In	Out	Total	In	Out	Total
LUC 251, Senior Housing, Detached	51	218	4	8	12	9	6	15
LUC 252, Senior Housing, Attached	34	126	2	5	7	5	4	9
<b>TOTAL</b>		<b>344</b>	<b>6</b>	<b>13</b>	<b>19</b>	<b>14</b>	<b>10</b>	<b>24</b>

Trip generation calculations for the unrestricted scenario are summarized in Table 4.

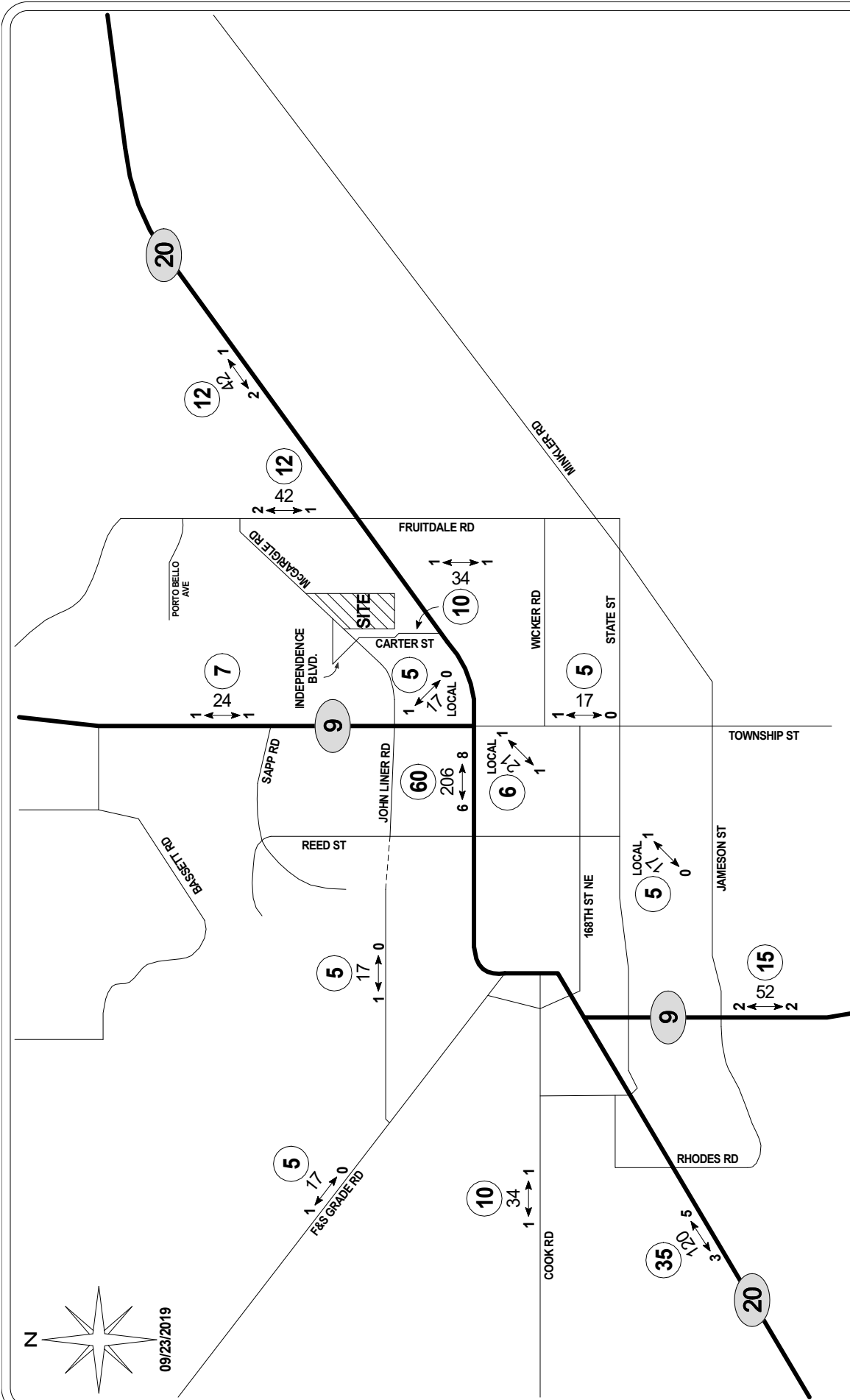
**Table 4: Trip Generation Summary – Unrestricted Scenario**

Land Use	# Units	ADT	AM Peak-Hour			PM Peak-Hour		
			In	Out	Total	In	Out	Total
LUC 210, Single-Family, Detached	51	481	9	28	37	32	19	51
LUC 220, Multifamily (Low-Rise)	34	249	4	12	16	12	7	19
<b>TOTAL</b>		<b>730</b>	<b>13</b>	<b>40</b>	<b>53</b>	<b>44</b>	<b>26</b>	<b>70</b>

As an age-restricted development, the McGarigle development would generate approximately 344 average daily trips, 19 AM peak-hour trips, and 24 PM peak-hour trips. As an unrestricted development, the McGarigle development would generate approximately 730 average daily trips, 53 AM peak-hour trips, and 70 PM peak-hour trips. Detailed trip generation calculations for each of the development scenarios are included in the attachments.

### **3.2 Trip Distribution**

It is estimated that 72% of the development's trips will travel along SR-20, sixty percent to and from the west and twelve percent to and from the east. Approximately 12% of the development's trips are expected to travel along Township Street, five percent to and from the south and seven percent to and from the north. An additional 11% of the trips from the development are expected to travel to local destinations along Township Street between John Liner Road/McGarigle Road and Wicker Road. The remaining 5% of the trips from the development are anticipated to travel along John Liner Road. Detailed trip distributions for the age-restricted and unrestricted PM peak-hour are included in Figure 2 and Figure 3, respectively.



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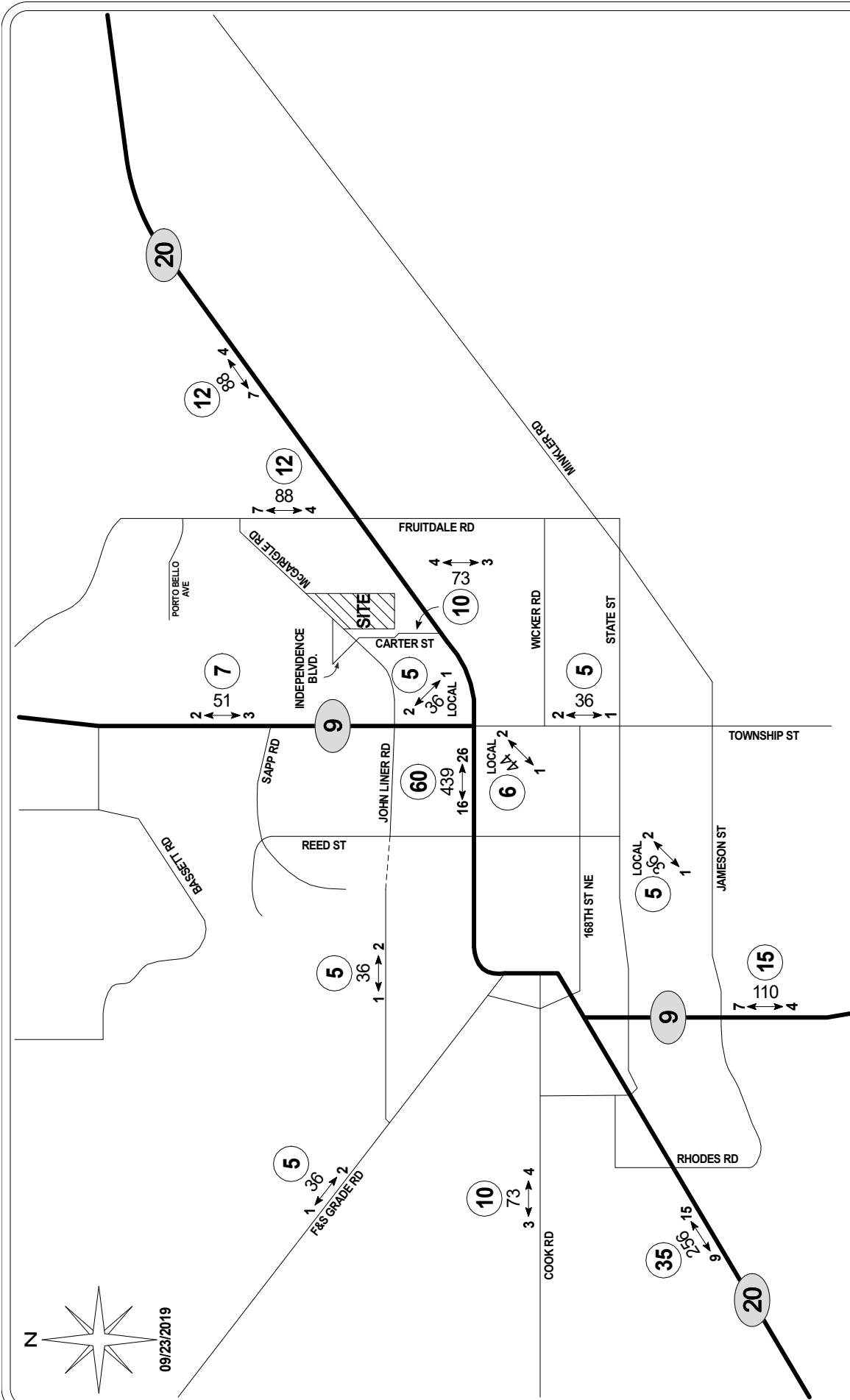
**FIGURE 2**  
DEVELOPMENT TRIP  
DISTRIBUTION  
PM PEAK-HOUR  
AGE-RESTRICTED UNITS

**GIBSON TRAFFIC CONSULTANTS**

**McGARIGLE DEVELOPMENT**  
51 NEW DETACHED UNITS  
34 NEW TOWNHOMES

**CITY OF SEDRO WOOLLEY**

**LEGEND**  
AWDT  
PM  
NEW SITE TRAFFIC  
(DAILY/PEAK HOUR)  
PEAK  
TRIP DISTRIBUTION %  
XX



TRAFFIC IMPACT STUDY  
GTC #19-229

**FIGURE 3**  
DEVELOPMENT TRIP  
DISTRIBUTION  
PM PEAK-HOUR  
UNRESTRICTED UNITS

**GIBSON TRAFFIC CONSULTANTS**

**McGARIGLE DEVELOPMENT**  
51 NEW DETACHED UNITS  
34 NEW TOWNHOMES  
**CITY OF SEDRO WOOLLEY**

**LEGEND**  
AWDT  
PM  
NEW SITE TRAFFIC  
(DAILY/PEAK HOUR)  
PEAK  
TRIP DISTRIBUTION %  
XX

#### 4. WEEKDAY PM PEAK-HOUR ANALYSIS

The scope of the level of service analysis performed as part of this report is based on scoping discussions between GTC staff and City of Sedro Woolley staff. Level of service at the following intersections has been analyzed for the weekday PM peak-hour:

1. SR-9 at John Liner Rd/McGarigle Rd
2. McGarigle Road at Independence Blvd/Site Access
3. McGarigle Road at Fruitdale Road

Level of Service for each of the study intersections was performed for the following scenarios:

- 2019 Existing Conditions
- 2025 Baseline Conditions
- 2025 Future Conditions with Development

The level of service analysis was performed using development trips from the unrestricted scenario which has the higher expected trip generation of the two scenarios (age restricted vs. unrestricted). Using the higher of the two trip generation scenarios results in a conservative (higher average vehicle delay) level of service analysis for potential mitigation.

##### 4.1 Turning Movement Calculations

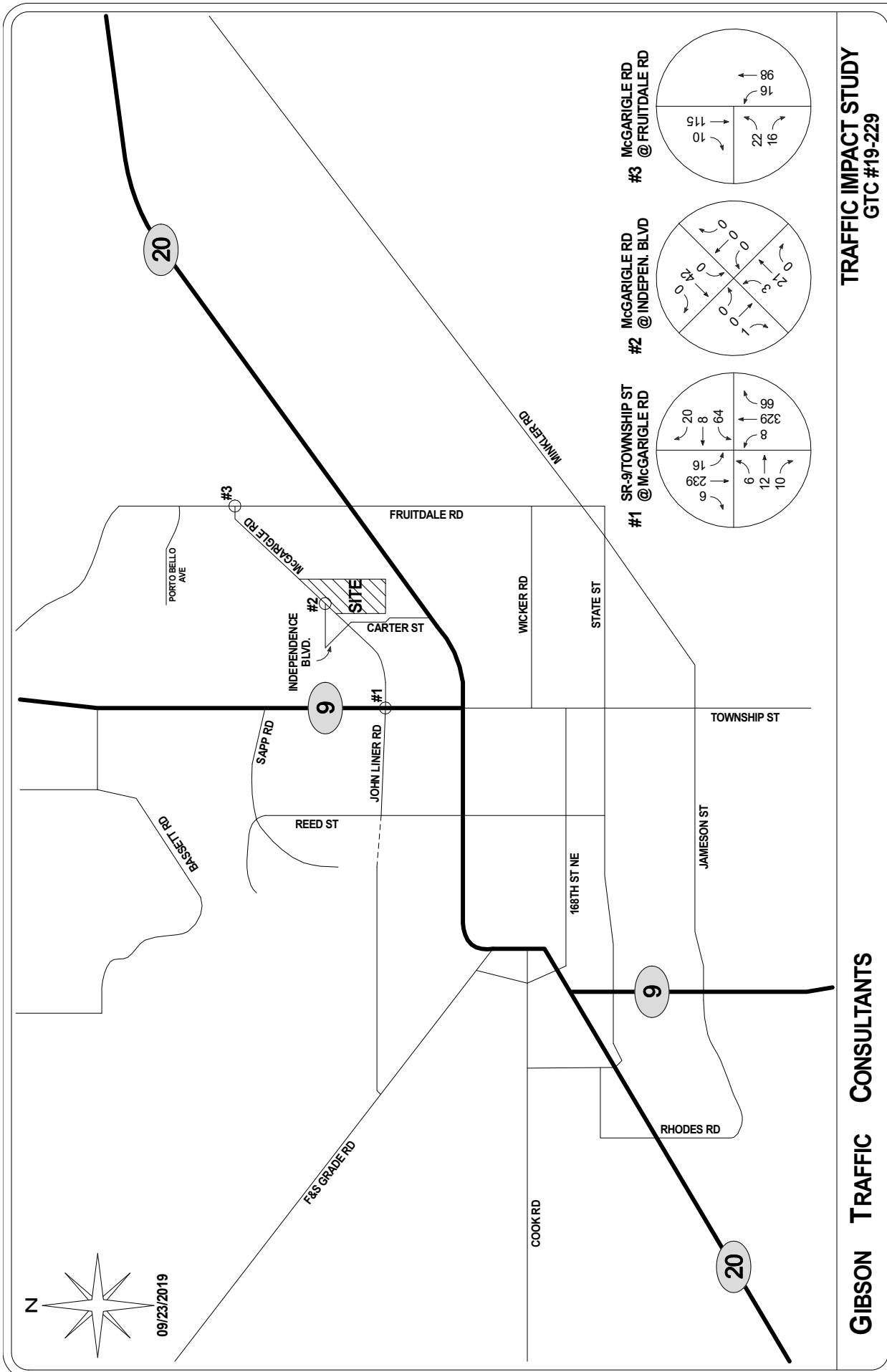
The 2019 existing turning movements at the study intersections are based on data collected by the independent traffic count firm Traffic Data Gathering. The 2019 existing volumes at the study intersections are shown in Figure 4.

The 2025 baseline volumes were calculated by applying a 2% annually compounding growth rate to the existing volumes as well as pipeline trips from the Northern State Campus Planned Action and diverting trips from the John Liner Road Corridor Project. Traffic volumes at the study intersections for the “High Intensity Site Development” were added from a draft version of the Northern State Campus Planned Action EIS completed in 2015 by TSI, Inc. City of Sedro Woolley staff were not able to provide a final analysis and therefore inclusion of trips from the Northern State Campus Planned Action should be considered conservative and preliminary.

Improvement projects identified in the City of Sedro Woolley’s 2019-2024 TIP will construct roadway improvements creating a continuous arterial on John Liner Road/Jones Road from Township Street/SR-9 to F&S Grade Road. This new arterial will provide an alternative parallel route to SR-20 to help reduce congestion. Construction of intersection improvements at Township Street/SR-9 and John Liner Rd/McGarigle Road by WSDOT and the City of Sedro Woolley are expected to be complete in 2025 based on the City’s 2019 TIP. A report completed by TSI, Inc. for the City of Sedro Woolley in January 2019 identified the preferred intersection improvement to be a single-lane roundabout at this location. The TSI report identified approximately 255 additional eastbound trips in the forecast year 2036 on John Liner Road west of Township Street/SR-9 as a result of the arterial and intersection improvements. These additional trips were

added to the 2025 background growth forecast for the McGarigle development analysis based on the 2036 eastbound turning movement splits in the TSI analysis. By including the additional growth expected on John Liner Road by the year 2036 in the 2025 forecast, the intersection volumes for the SR-9 and John Liner Road/McGarigle Road intersection should be considered conservatively high. The background improvement projects included in the 2025 future baseline analysis are either funded or included in the City of Sedro Woolley's Traffic Impact Fee (TIF) cost basis. The 2025 future baseline volumes are shown in Figure 5.

The 2025 future with development turning movement volumes were calculated by adding the unrestricted development trips to the 2025 baseline volumes. The 2025 future with development volumes are shown in Figure 6.



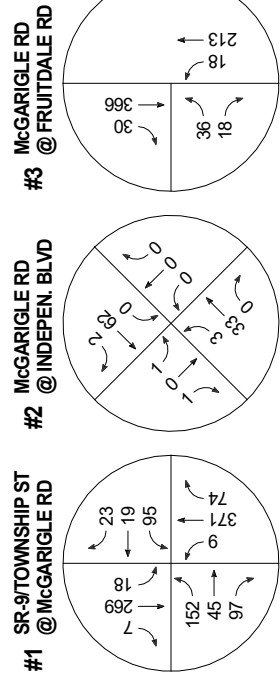
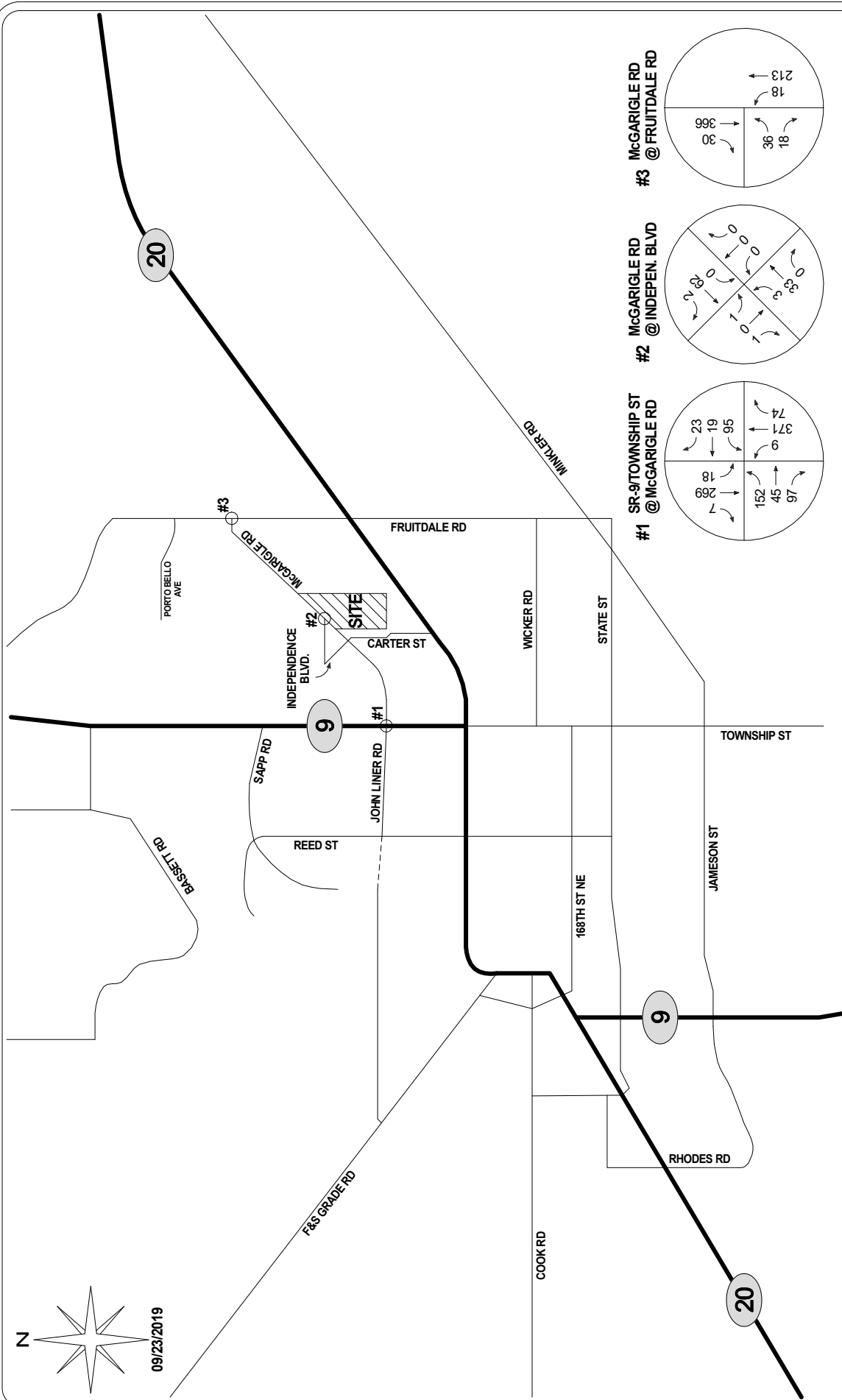
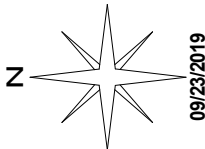
**TRAFFIC IMPACT STUDY**  
GTC #19-229

**FIGURE 4**  
**EXISTING**  
**TURNING MOVEMENTS**  
**PM PEAK-HOUR**

**GIBSON TRAFFIC CONSULTANTS**

**LEGEND**  
XX → PEAK HOUR  
TURNING MOVEMENT VOLUMES

**McGARIGLE DEVELOPMENT**  
**51 NEW DETACHED UNITS**  
**34 NEW TOWNHOMES**  
**CITY OF SEDRO WOOLLEY**



**GIBSON TRAFFIC CONSULTANTS**

**TRAFFIC IMPACT STUDY**  
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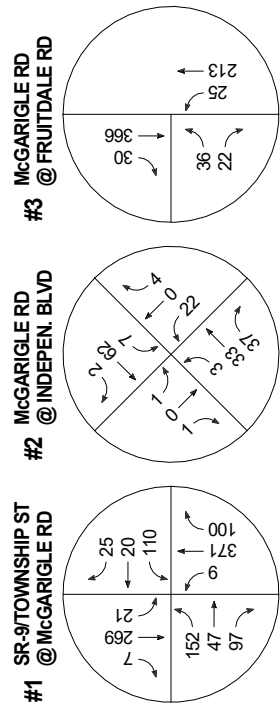
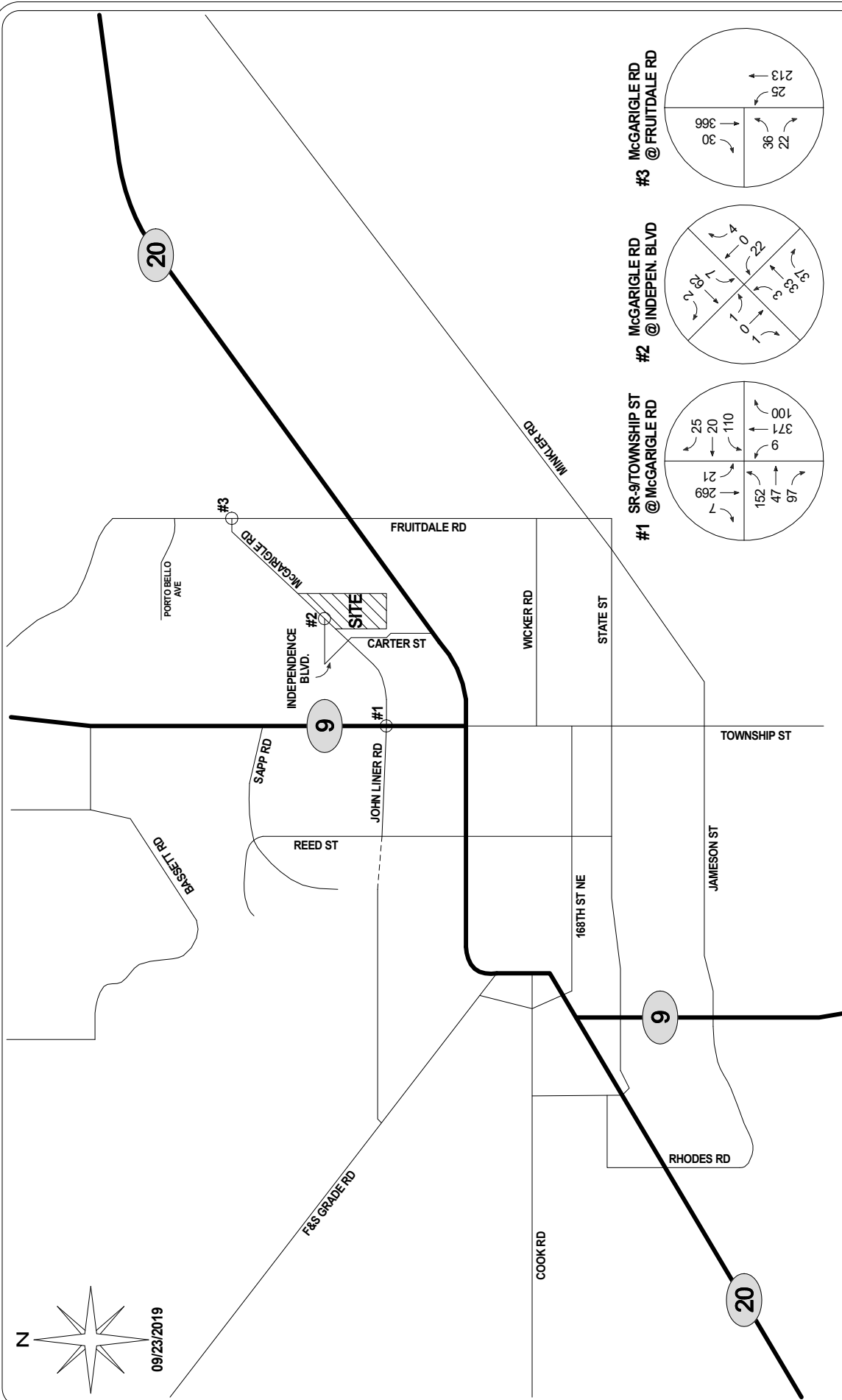
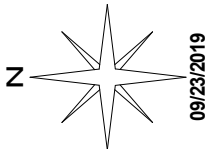
**McGARIGLE DEVELOPMENT**  
51 NEW DETACHED UNITS  
34 NEW TOWNHOMES

**CITY OF SEDRO WOOLLEY**

**LEGEND**

XX → PEAK HOUR TURNING MOVEMENT VOLUMES

**FIGURE 5**  
**2025 BASELINE**  
**TURNING MOVEMENTS**  
**PM PEAK-HOUR**



**GIBSON TRAFFIC CONSULTANTS**

**TRAFFIC IMPACT STUDY**  
GTC #19-229

**McGARIGLE DEVELOPMENT**  
51 NEW DETACHED UNITS  
34 NEW TOWNHOMES

**CITY OF SEDRO WOOLLEY**

**LEGEND**

XX → PEAK HOUR TURNING MOVEMENT VOLUMES

**FIGURE 6**  
**2025 FUTURE W/ DEV.**  
**TURNING MOVEMENTS**  
**PM PEAK-HOUR**

## 4.2 LOS Analysis

The McGarigle development is anticipated to be constructed and occupied by the year 2025. The level of service (LOS) analysis was conducted assuming the development would not have age restricted residential units (unrestricted), which represents the higher of the development's two trip generation scenarios. The 2019 existing, 2025 baseline and 2025 future with development level of service as well as the critical approaches are shown in Table 5.

**Table 5: Intersection LOS Summary – PM Peak-Hour**

Intersection	2019 Existing Conditions			2025 Baseline Conditions			2025 Future with Development Conditions		
	LOS	Delay	Critical Approach	LOS	Delay	Critical Approach	LOS	Delay	Critical Approach
1. SR-9/Township St @ John Liner Rd/McGarigle Rd	C	20.5 sec	Westbound	F	65.5 sec	Eastbound <sup>3</sup>	F	78.0 sec	Eastbound
<i>Single-Lane Roundabout</i>	-	-	-	A	6.9 sec	Northbound (0.42 v/c)	A	7.0 sec	Northbound (0.45 v/c)
2. McGarigle Rd @ Independence Blvd/Access	A	8.6 sec	Eastbound	A	9.1 sec	Eastbound	A	9.8 sec	Westbound
3. McGarigle Rd @ Fruitdale Road	B	10 sec	Eastbound	B	14.3 sec	Eastbound	B	14.4 sec	Eastbound

All study intersections are expected to operate at acceptable levels of service in the 2025 forecast year with planned improvement projects and with the higher trip generation scenario assumed for development trips. Additionally, the single-lane roundabout improvement is expected to operate acceptably at a volume-to-capacity (v/c) ratio below WSDOT's 0.92 threshold. No additional mitigation should therefore be required.

## 5. COLLISION DATA

WSDOT collision data from the five most recent years of collision data (2014-2018) was reviewed at the study intersections. The collision data is summarized in Table 6.

<sup>3</sup> Includes additional eastbound volume from arterial improvements but no intersection improvements

**Table 6: 5-Year Collision Rate Calculation**

Intersection	PM Peak-Hour Intersection Vol.	K-Factor	Total Collisions	Collision Rate <sup>4</sup>	Collision Frequency <sup>5</sup>
SR-9/Township St @ John Liner Rd/McGarigle Rd	804	10	4	0.27	0.80
McGarigle Rd @ Independence Blvd/Access	67	10	0	0.00	0.00
McGarigle Rd @ Fruitdale Road	277	10	0	0.00	0.00

Reported collisions only occurred at the intersection of SR-9/Township Street and John Liner Rd/McGarigle Rd. A total of four reported collisions occurred at the intersection over the five-year timeline which results in a collision frequency of 0.8 collisions per year. The existing PM peak-hour total intersection volume corresponds to a 5-year collision rate of 0.27 collisions per million entering vehicles. Both the collision frequency and collision rate are below the usual thresholds (5 collisions per year, 1.0 collisions per MEV) for unsignalized intersections where additional safety analysis may be advisable. As a result, there are no further safety recommendations at this time.

## 6. ACCESS ANALYSIS

The development's access to McGarigle Road will be located directly across from Independence Boulevard. McGarigle Road is a two-lane road with a 25-mph posted speed limit. There were no reported collisions along the development site's frontage.

Channelization warrants for left and right-turn channelization were performed based on warrants in WSDOT's 2018 Design Manual. No additional channelization is warranted for the McGarigle development access while assuming the higher unrestricted trip generation volumes. Channelization warrants are included in the attachments.

## 7. TRAFFIC MITIGATION FEES

The City of Sedro Woolley assesses traffic impact fees per PM peak-hour trip. The City's current fee per PM peak-hour trip for development's outside the CBD area is \$2,407. The McGarigle development could have an age-restriction on its units for seniors 55 years and older, or the units could be unrestricted. These two scenarios result in a different trip generation calculation for the development and therefore would have different corresponding traffic impact fees. The age-restricted scenario is expected to generate 24 PM peak-hour trips and would have a corresponding traffic impact fee of \$57,768, equivalent to \$679.62 per unit. The unrestricted scenario is expected to generate 70 PM peak-hour trips and would have a corresponding traffic impact fee of \$168,490, equivalent to \$1,982.24 per unit. The development would pay its proportional share of

<sup>4</sup> The collision rate is based on Million Entering Vehicles.

<sup>5</sup> Collisions per year

improvement projects identified in the level of service analysis by paying the City's standard traffic impact fees because the projects are included in the fee's cost basis.

## 8. CONCLUSIONS

The McGarigle development is an 85-unit residential development that could either be age-restricted for seniors 55 years and older or could have no age restrictions. As an age-restricted development, the McGarigle development would generate approximately 344 average daily trips, 19 AM peak-hour trips, and 24 PM peak-hour trips. As an unrestricted development, the McGarigle development would generate approximately 730 average daily trips, 53 AM peak-hour trips, and 70 PM peak-hour trips. All the intersections analyzed would operate within acceptable level of service standards and the approaches would operate with acceptable delays in 2025 with planned roadway improvements by the City of Sedro Woolley. The development's access would not warrant any additional left or right-turn channelization.

City of Sedro Woolley traffic impact fees would differ depending on whether or not an age restriction was put in place for the units. An age-restricted community would have a proportional traffic impact fee of \$57,768, equivalent to \$679.62 per unit for the 85 total units. An unrestricted community would have a proportional traffic impact fee of \$168,490, equivalent to \$1,982.24 per unit for the 85 total units. Payment of the City's traffic impact fee should be considered the development's proportionate share contribution towards the cost of planned improvement projects because the projects are included in the City's fee cost basis.

# **Trip Generation Calculations**

Trip Generation for: Development Peak Weekday  
(a.k.a.): Average Weekday Daily Trips (AWDT)

NET EXTERNAL TRIPS BY TYPE									
IN BOTH DIRECTIONS					DIRECTIONAL ASSIGNMENTS				
LAND USES	VARIABLE	ITE LU code	Gross Trips			Internal Crossover		PASS-BY	
			Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	In+Out (Total)	% of Ext. Trips
Senior Housing Detached	51 units	251	4.27	50%	50%	217.77	0%	217.77	0%
Senior Housing Attached	34 units	252	3.70	50%	50%	125.80	0%	125.80	0%
Total						343.57		343.57	
								In+Out (Total)	In+Out (Total)
								In	Out
								108.89	108.88
								62.90	62.90
								171.79	171.78

**Trip Generation for: Development Peak Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 7 and 9 AM  
(a.k.a.): Weekday AM Peak Hour**

LAND USES		NET EXTERNAL TRIPS BY TYPE										
		IN BOTH DIRECTIONS					DIRECTIONAL ASSIGNMENTS					
		TOTAL	PASS-BY		NEW	PASS-BY		NEW		PASS-BY		NEW
	ITE LU code		% IN	% OUT	In+Out (Total)	% of Gross Trips	% of Gross Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out
Senior Housing Detached	51 units	251	33%	67%	12.24	0%	0%	12.24	0%	12.24	0.00	8.20
Senior Housing Attached	34 units	252	35%	65%	6.80	0%	0%	6.80	0%	6.80	0.00	4.42
<b>Total</b>					19.04			19.04		19.04	0.00	12.62

**Trip Generation for: Development Peak Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 4 and 6 PM  
(a.k.a.): Weekday PM Peak Hour**

		NET EXTERNAL TRIPS BY TYPE										
		IN BOTH DIRECTIONS					DIRECTIONAL ASSIGNMENTS					
		TOTAL	PASS-BY		NEW	PASS-BY		NEW				
LAND USES	VARIABLE	ITE LU code	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out
Senior Housing Detached	51 units	251	0.30	61%	39%	15.30	0%	0.00	0%	15.30	0.00	9.33
Senior Housing Attached	34 units	252	0.26	55%	45%	8.84	0%	0.00	0%	8.84	0.00	4.86
<b>Total</b>						24.14		0.00		24.14	0.00	14.19
											0.00	9.95

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AM Peak-Hour

%	New ADT	New AM Peak Hour Trips		
		In	Out	Total
100%	344	6	13	19
1%	3.44	0.06	0.13	0.19
2%	6.87	0.13	0.25	0.38
3%	10.31	0.19	0.38	0.57
4%	13.74	0.26	0.50	0.76
5%	17.18	0.32	0.63	0.95
6%	20.61	0.39	0.76	1.14
7%	24.05	0.45	0.88	1.33
8%	27.49	0.51	1.01	1.52
9%	30.92	0.58	1.14	1.71
10%	34.36	0.64	1.26	1.90
11%	37.79	0.71	1.39	2.09
12%	41.23	0.77	1.51	2.28
13%	44.66	0.83	1.64	2.48
14%	48.10	0.90	1.77	2.67
15%	51.54	0.96	1.89	2.86
16%	54.97	1.03	2.02	3.05
17%	58.41	1.09	2.15	3.24
18%	61.84	1.16	2.27	3.43
19%	65.28	1.22	2.40	3.62
20%	68.71	1.28	2.52	3.81
21%	72.15	1.35	2.65	4.00
22%	75.59	1.41	2.78	4.19
23%	79.02	1.48	2.90	4.38
24%	82.46	1.54	3.03	4.57
25%	85.89	1.61	3.16	4.76
26%	89.33	1.67	3.28	4.95
27%	92.76	1.73	3.41	5.14
28%	96.20	1.80	3.53	5.33
29%	99.64	1.86	3.66	5.52
30%	103.07	1.93	3.79	5.71
31%	106.51	1.99	3.91	5.90
32%	109.94	2.05	4.04	6.09
33%	113.38	2.12	4.16	6.28
34%	116.81	2.18	4.29	6.47
35%	120.25	2.25	4.42	6.66
36%	123.69	2.31	4.54	6.85
37%	127.12	2.38	4.67	7.04
38%	130.56	2.44	4.80	7.24
39%	133.99	2.50	4.92	7.43
40%	137.43	2.57	5.05	7.62
41%	140.86	2.63	5.17	7.81
42%	144.30	2.70	5.30	8.00
43%	147.74	2.76	5.43	8.19
44%	151.17	2.82	5.55	8.38
45%	154.61	2.89	5.68	8.57
46%	158.04	2.95	5.81	8.76
47%	161.48	3.02	5.93	8.95
48%	164.91	3.08	6.06	9.14
49%	168.35	3.15	6.18	9.33
50%	171.79	3.21	6.31	9.52

%	New ADT	New AM Peak Hour Trips		
		In	Out	Total
100%	344	6	13	19
51%	175.22	3.27	6.44	9.71
52%	178.66	3.34	6.56	9.90
53%	182.09	3.40	6.69	10.09
54%	185.53	3.47	6.81	10.28
55%	188.96	3.53	6.94	10.47
56%	192.40	3.60	7.07	10.66
57%	195.83	3.66	7.19	10.85
58%	199.27	3.72	7.32	11.04
59%	202.71	3.79	7.45	11.23
60%	206.14	3.85	7.57	11.42
61%	209.58	3.92	7.70	11.61
62%	213.01	3.98	7.82	11.80
63%	216.45	4.04	7.95	12.00
64%	219.88	4.11	8.08	12.19
65%	223.32	4.17	8.20	12.38
66%	226.76	4.24	8.33	12.57
67%	230.19	4.30	8.46	12.76
68%	233.63	4.37	8.58	12.95
69%	237.06	4.43	8.71	13.14
70%	240.50	4.49	8.83	13.33
71%	243.93	4.56	8.96	13.52
72%	247.37	4.62	9.09	13.71
73%	250.81	4.69	9.21	13.90
74%	254.24	4.75	9.34	14.09
75%	257.68	4.82	9.47	14.28
76%	261.11	4.88	9.59	14.47
77%	264.55	4.94	9.72	14.66
78%	267.98	5.01	9.84	14.85
79%	271.42	5.07	9.97	15.04
80%	274.86	5.14	10.10	15.23
81%	278.29	5.20	10.22	15.42
82%	281.73	5.26	10.35	15.61
83%	285.16	5.33	10.47	15.80
84%	288.60	5.39	10.60	15.99
85%	292.03	5.46	10.73	16.18
86%	295.47	5.52	10.85	16.37
87%	298.91	5.59	10.98	16.56
88%	302.34	5.65	11.11	16.76
89%	305.78	5.71	11.23	16.95
90%	309.21	5.78	11.36	17.14
91%	312.65	5.84	11.48	17.33
92%	316.08	5.91	11.61	17.52
93%	319.52	5.97	11.74	17.71
94%	322.96	6.03	11.86	17.90
95%	326.39	6.10	11.99	18.09
96%	329.83	6.16	12.12	18.28
97%	333.26	6.23	12.24	18.47
98%	336.70	6.29	12.37	18.66
99%	340.13	6.36	12.49	18.85
100%	343.57	6.42	12.62	19.04

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PM Peak-Hour

%	New ADT	New PM Peak Hour Trips		
		In	Out	Total
100%	344	14	10	24
1%	3.44	0.14	0.10	0.24
2%	6.87	0.28	0.20	0.48
3%	10.31	0.43	0.30	0.72
4%	13.74	0.57	0.40	0.97
5%	17.18	0.71	0.50	1.21
6%	20.61	0.85	0.60	1.45
7%	24.05	0.99	0.70	1.69
8%	27.49	1.14	0.80	1.93
9%	30.92	1.28	0.90	2.17
10%	34.36	1.42	1.00	2.41
11%	37.79	1.56	1.09	2.66
12%	41.23	1.70	1.19	2.90
13%	44.66	1.84	1.29	3.14
14%	48.10	1.99	1.39	3.38
15%	51.54	2.13	1.49	3.62
16%	54.97	2.27	1.59	3.86
17%	58.41	2.41	1.69	4.10
18%	61.84	2.55	1.79	4.35
19%	65.28	2.70	1.89	4.59
20%	68.71	2.84	1.99	4.83
21%	72.15	2.98	2.09	5.07
22%	75.59	3.12	2.19	5.31
23%	79.02	3.26	2.29	5.55
24%	82.46	3.41	2.39	5.79
25%	85.89	3.55	2.49	6.04
26%	89.33	3.69	2.59	6.28
27%	92.76	3.83	2.69	6.52
28%	96.20	3.97	2.79	6.76
29%	99.64	4.12	2.89	7.00
30%	103.07	4.26	2.99	7.24
31%	106.51	4.40	3.08	7.48
32%	109.94	4.54	3.18	7.72
33%	113.38	4.68	3.28	7.97
34%	116.81	4.82	3.38	8.21
35%	120.25	4.97	3.48	8.45
36%	123.69	5.11	3.58	8.69
37%	127.12	5.25	3.68	8.93
38%	130.56	5.39	3.78	9.17
39%	133.99	5.53	3.88	9.41
40%	137.43	5.68	3.98	9.66
41%	140.86	5.82	4.08	9.90
42%	144.30	5.96	4.18	10.14
43%	147.74	6.10	4.28	10.38
44%	151.17	6.24	4.38	10.62
45%	154.61	6.39	4.48	10.86
46%	158.04	6.53	4.58	11.10
47%	161.48	6.67	4.68	11.35
48%	164.91	6.81	4.78	11.59
49%	168.35	6.95	4.88	11.83
50%	171.79	7.10	4.98	12.07

%	New ADT	New PM Peak Hour Trips		
		In	Out	Total
100%	344	14	10	24
51%	175.22	7.24	5.07	12.31
52%	178.66	7.38	5.17	12.55
53%	182.09	7.52	5.27	12.79
54%	185.53	7.66	5.37	13.04
55%	188.96	7.80	5.47	13.28
56%	192.40	7.95	5.57	13.52
57%	195.83	8.09	5.67	13.76
58%	199.27	8.23	5.77	14.00
59%	202.71	8.37	5.87	14.24
60%	206.14	8.51	5.97	14.48
61%	209.58	8.66	6.07	14.73
62%	213.01	8.80	6.17	14.97
63%	216.45	8.94	6.27	15.21
64%	219.88	9.08	6.37	15.45
65%	223.32	9.22	6.47	15.69
66%	226.76	9.37	6.57	15.93
67%	230.19	9.51	6.67	16.17
68%	233.63	9.65	6.77	16.42
69%	237.06	9.79	6.87	16.66
70%	240.50	9.93	6.97	16.90
71%	243.93	10.07	7.06	17.14
72%	247.37	10.22	7.16	17.38
73%	250.81	10.36	7.26	17.62
74%	254.24	10.50	7.36	17.86
75%	257.68	10.64	7.46	18.11
76%	261.11	10.78	7.56	18.35
77%	264.55	10.93	7.66	18.59
78%	267.98	11.07	7.76	18.83
79%	271.42	11.21	7.86	19.07
80%	274.86	11.35	7.96	19.31
81%	278.29	11.49	8.06	19.55
82%	281.73	11.64	8.16	19.79
83%	285.16	11.78	8.26	20.04
84%	288.60	11.92	8.36	20.28
85%	292.03	12.06	8.46	20.52
86%	295.47	12.20	8.56	20.76
87%	298.91	12.35	8.66	21.00
88%	302.34	12.49	8.76	21.24
89%	305.78	12.63	8.86	21.48
90%	309.21	12.77	8.96	21.73
91%	312.65	12.91	9.05	21.97
92%	316.08	13.05	9.15	22.21
93%	319.52	13.20	9.25	22.45
94%	322.96	13.34	9.35	22.69
95%	326.39	13.48	9.45	22.93
96%	329.83	13.62	9.55	23.17
97%	333.26	13.76	9.65	23.42
98%	336.70	13.91	9.75	23.66
99%	340.13	14.05	9.85	23.90
100%	343.57	14.19	9.95	24.14

Trip Generation for: Development Peak Weekday  
(a.k.a.): Average Weekday Daily Trips (AWDT)

LAND USES		NET EXTERNAL TRIPS BY TYPE									
		IN BOTH DIRECTIONS					DIRECTIONAL ASSIGNMENTS				
		TOTAL	PASS-BY		NEW	PASS-BY		NEW		NEW	
	ITE LU code		% IN	% OUT	In+Out (Total)	% of Gross Trips	% of Ext. Trips	In+Out (Total)	In+Out (Total)	In	Out
Single Family Detached	210	9.44	50%	50%	481.44	0%	0%	481.44	0.00	0.00	240.72
Multifamily Housing (Low-Rise)	220	7.32	50%	50%	248.88	0%	0%	248.88	0.00	0.00	124.44
Total					730.32			730.32	0.00	0.00	365.16

**Trip Generation for: Development Peak Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 7 and 9 AM  
(a.k.a.): Weekday AM Peak Hour**

NET EXTERNAL TRIPS BY TYPE														
IN BOTH DIRECTIONS														
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**Trip Generation for: Development Peak Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 4 and 6 PM  
(a.k.a.): Weekday PM Peak Hour**

		NET EXTERNAL TRIPS BY TYPE									
		IN BOTH DIRECTIONS					DIRECTIONAL ASSIGNMENTS				
		TOTAL	PASS-BY		NEW	PASS-BY		NEW			
LAND USES	VARIABLE	ITE LU code	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Internal Crossover	% of Gross Trips	In+Out (Total)	Out
Single Family Detached	51 units	210	0.99	63%	37%	50.49	0%	0.00	0%	50.49	18.68
Multifamily Housing (Low-Rise)	34 units	220	0.56	63%	37%	19.04	0%	0.00	0%	19.04	7.04
<b>Total</b>						69.53		0.00		69.53	25.72

McGarigle Development  
GTC #19-229

AM Peak-Hour

%	New ADT	New AM Peak Hour Trips		
		In	Out	Total
100%	730	13	40	53
1%	7.30	0.13	0.40	0.53
2%	14.61	0.26	0.81	1.07
3%	21.91	0.39	1.21	1.60
4%	29.21	0.52	1.61	2.14
5%	36.52	0.65	2.02	2.67
6%	43.82	0.78	2.42	3.20
7%	51.12	0.91	2.82	3.74
8%	58.43	1.04	3.23	4.27
9%	65.73	1.17	3.63	4.80
10%	73.03	1.30	4.03	5.34
11%	80.34	1.43	4.44	5.87
12%	87.64	1.56	4.84	6.41
13%	94.94	1.70	5.24	6.94
14%	102.24	1.83	5.65	7.47
15%	109.55	1.96	6.05	8.01
16%	116.85	2.09	6.45	8.54
17%	124.15	2.22	6.86	9.07
18%	131.46	2.35	7.26	9.61
19%	138.76	2.48	7.66	10.14
20%	146.06	2.61	8.07	10.68
21%	153.37	2.74	8.47	11.21
22%	160.67	2.87	8.87	11.74
23%	167.97	3.00	9.28	12.28
24%	175.28	3.13	9.68	12.81
25%	182.58	3.26	10.09	13.35
26%	189.88	3.39	10.49	13.88
27%	197.19	3.52	10.89	14.41
28%	204.49	3.65	11.30	14.95
29%	211.79	3.78	11.70	15.48
30%	219.10	3.91	12.10	16.01
31%	226.40	4.04	12.51	16.55
32%	233.70	4.17	12.91	17.08
33%	241.01	4.30	13.31	17.62
34%	248.31	4.43	13.72	18.15
35%	255.61	4.56	14.12	18.68
36%	262.92	4.69	14.52	19.22
37%	270.22	4.82	14.93	19.75
38%	277.52	4.96	15.33	20.28
39%	284.82	5.09	15.73	20.82
40%	292.13	5.22	16.14	21.35
41%	299.43	5.35	16.54	21.89
42%	306.73	5.48	16.94	22.42
43%	314.04	5.61	17.35	22.95
44%	321.34	5.74	17.75	23.49
45%	328.64	5.87	18.15	24.02
46%	335.95	6.00	18.56	24.55
47%	343.25	6.13	18.96	25.09
48%	350.55	6.26	19.36	25.62
49%	357.86	6.39	19.77	26.16
50%	365.16	6.52	20.17	26.69

%	New ADT	New AM Peak Hour Trips		
		In	Out	Total
100%	730	13	40	53
51%	372.46	6.65	20.57	27.22
52%	379.77	6.78	20.98	27.76
53%	387.07	6.91	21.38	28.29
54%	394.37	7.04	21.78	28.83
55%	401.68	7.17	22.19	29.36
56%	408.98	7.30	22.59	29.89
57%	416.28	7.43	22.99	30.43
58%	423.59	7.56	23.40	30.96
59%	430.89	7.69	23.80	31.49
60%	438.19	7.82	24.20	32.03
61%	445.50	7.95	24.61	32.56
62%	452.80	8.08	25.01	33.10
63%	460.10	8.22	25.41	33.63
64%	467.40	8.35	25.82	34.16
65%	474.71	8.48	26.22	34.70
66%	482.01	8.61	26.62	35.23
67%	489.31	8.74	27.03	35.76
68%	496.62	8.87	27.43	36.30
69%	503.92	9.00	27.83	36.83
70%	511.22	9.13	28.24	37.37
71%	518.53	9.26	28.64	37.90
72%	525.83	9.39	29.04	38.43
73%	533.13	9.52	29.45	38.97
74%	540.44	9.65	29.85	39.50
75%	547.74	9.78	30.26	40.04
76%	555.04	9.91	30.66	40.57
77%	562.35	10.04	31.06	41.10
78%	569.65	10.17	31.47	41.64
79%	576.95	10.30	31.87	42.17
80%	584.26	10.43	32.27	42.70
81%	591.56	10.56	32.68	43.24
82%	598.86	10.69	33.08	43.77
83%	606.17	10.82	33.48	44.31
84%	613.47	10.95	33.89	44.84
85%	620.77	11.08	34.29	45.37
86%	628.08	11.21	34.69	45.91
87%	635.38	11.34	35.10	46.44
88%	642.68	11.48	35.50	46.97
89%	649.98	11.61	35.90	47.51
90%	657.29	11.74	36.31	48.04
91%	664.59	11.87	36.71	48.58
92%	671.89	12.00	37.11	49.11
93%	679.20	12.13	37.52	49.64
94%	686.50	12.26	37.92	50.18
95%	693.80	12.39	38.32	50.71
96%	701.11	12.52	38.73	51.24
97%	708.41	12.65	39.13	51.78
98%	715.71	12.78	39.53	52.31
99%	723.02	12.91	39.94	52.85
100%	730.32	13.04	40.34	53.38

McGarigle Development  
GTC #19-229

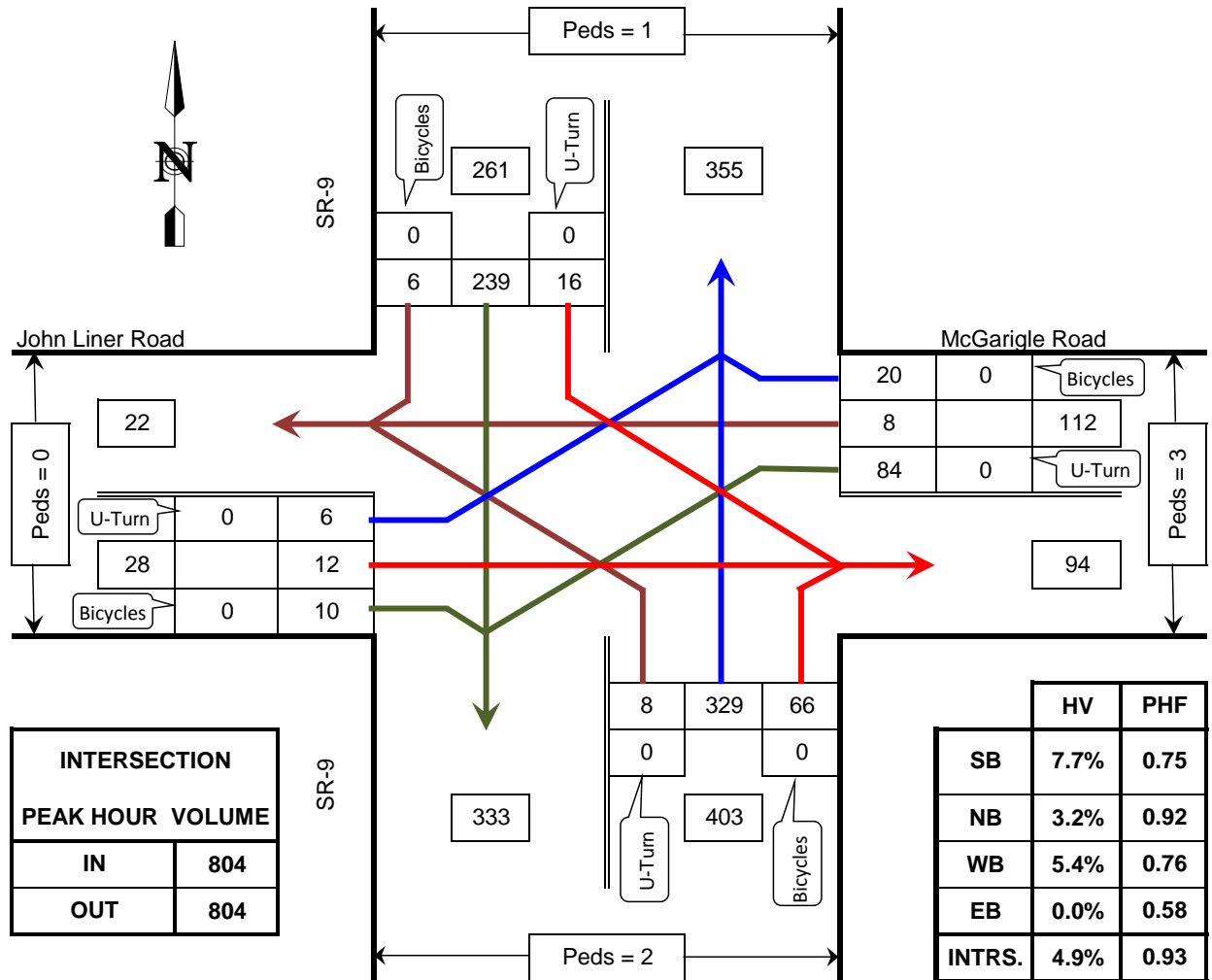
PM Peak-Hour

%	New ADT	New PM Peak Hour Trips		
		In	Out	Total
100%	730	44	26	70
1%	7.30	0.44	0.26	0.70
2%	14.61	0.88	0.51	1.39
3%	21.91	1.31	0.77	2.09
4%	29.21	1.75	1.03	2.78
5%	36.52	2.19	1.29	3.48
6%	43.82	2.63	1.54	4.17
7%	51.12	3.07	1.80	4.87
8%	58.43	3.50	2.06	5.56
9%	65.73	3.94	2.31	6.26
10%	73.03	4.38	2.57	6.95
11%	80.34	4.82	2.83	7.65
12%	87.64	5.26	3.09	8.34
13%	94.94	5.70	3.34	9.04
14%	102.24	6.13	3.60	9.73
15%	109.55	6.57	3.86	10.43
16%	116.85	7.01	4.12	11.12
17%	124.15	7.45	4.37	11.82
18%	131.46	7.89	4.63	12.52
19%	138.76	8.32	4.89	13.21
20%	146.06	8.76	5.14	13.91
21%	153.37	9.20	5.40	14.60
22%	160.67	9.64	5.66	15.30
23%	167.97	10.08	5.92	15.99
24%	175.28	10.51	6.17	16.69
25%	182.58	10.95	6.43	17.38
26%	189.88	11.39	6.69	18.08
27%	197.19	11.83	6.94	18.77
28%	204.49	12.27	7.20	19.47
29%	211.79	12.70	7.46	20.16
30%	219.10	13.14	7.72	20.86
31%	226.40	13.58	7.97	21.55
32%	233.70	14.02	8.23	22.25
33%	241.01	14.46	8.49	22.94
34%	248.31	14.90	8.74	23.64
35%	255.61	15.33	9.00	24.34
36%	262.92	15.77	9.26	25.03
37%	270.22	16.21	9.52	25.73
38%	277.52	16.65	9.77	26.42
39%	284.82	17.09	10.03	27.12
40%	292.13	17.52	10.29	27.81
41%	299.43	17.96	10.55	28.51
42%	306.73	18.40	10.80	29.20
43%	314.04	18.84	11.06	29.90
44%	321.34	19.28	11.32	30.59
45%	328.64	19.71	11.57	31.29
46%	335.95	20.15	11.83	31.98
47%	343.25	20.59	12.09	32.68
48%	350.55	21.03	12.35	33.37
49%	357.86	21.47	12.60	34.07
50%	365.16	21.91	12.86	34.77
51%	372.46	22.34	13.12	35.46
52%	379.77	22.78	13.37	36.16
53%	387.07	23.22	13.63	36.85
54%	394.37	23.66	13.89	37.55
55%	401.68	24.10	14.15	38.24
56%	408.98	24.53	14.40	38.94
57%	416.28	24.97	14.66	39.63
58%	423.59	25.41	14.92	40.33
59%	430.89	25.85	15.17	41.02
60%	438.19	26.29	15.43	41.72
61%	445.50	26.72	15.69	42.41
62%	452.80	27.16	15.95	43.11
63%	460.10	27.60	16.20	43.80
64%	467.40	28.04	16.46	44.50
65%	474.71	28.48	16.72	45.19
66%	482.01	28.91	16.98	45.89
67%	489.31	29.35	17.23	46.59
68%	496.62	29.79	17.49	47.28
69%	503.92	30.23	17.75	47.98
70%	511.22	30.67	18.00	48.67
71%	518.53	31.11	18.26	49.37
72%	525.83	31.54	18.52	50.06
73%	533.13	31.98	18.78	50.76
74%	540.44	32.42	19.03	51.45
75%	547.74	32.86	19.29	52.15
76%	555.04	33.30	19.55	52.84
77%	562.35	33.73	19.80	53.54
78%	569.65	34.17	20.06	54.23
79%	576.95	34.61	20.32	54.93
80%	584.26	35.05	20.58	55.62
81%	591.56	35.49	20.83	56.32
82%	598.86	35.92	21.09	57.01
83%	606.17	36.36	21.35	57.71
84%	613.47	36.80	21.60	58.41
85%	620.77	37.24	21.86	59.10
86%	628.08	37.68	22.12	59.80
87%	635.38	38.11	22.38	60.49
88%	642.68	38.55	22.63	61.19
89%	649.98	38.99	22.89	61.88
90%	657.29	39.43	23.15	62.58
91%	664.59	39.87	23.41	63.27
92%	671.89	40.31	23.66	63.97
93%	679.20	40.74	23.92	64.66
94%	686.50	41.18	24.18	65.36
95%	693.80	41.62	24.43	66.05
96%	701.11	42.06	24.69	66.75
97%	708.41	42.50	24.95	67.44
98%	715.71	42.93	25.21	68.14
99%	723.02	43.37	25.46	68.83
100%	730.32	43.81	25.72	69.53

# Turning Movement Counts

**TURNING MOVEMENTS DIAGRAM**

**4:00 PM - 6:00 PM PEAK HOUR: 4:00 PM TO 5:00 PM**



**John Liner Road/McGarigle Road @ SR-9**

**Sedro Woolley, WA**

COUNTED BY: TDG

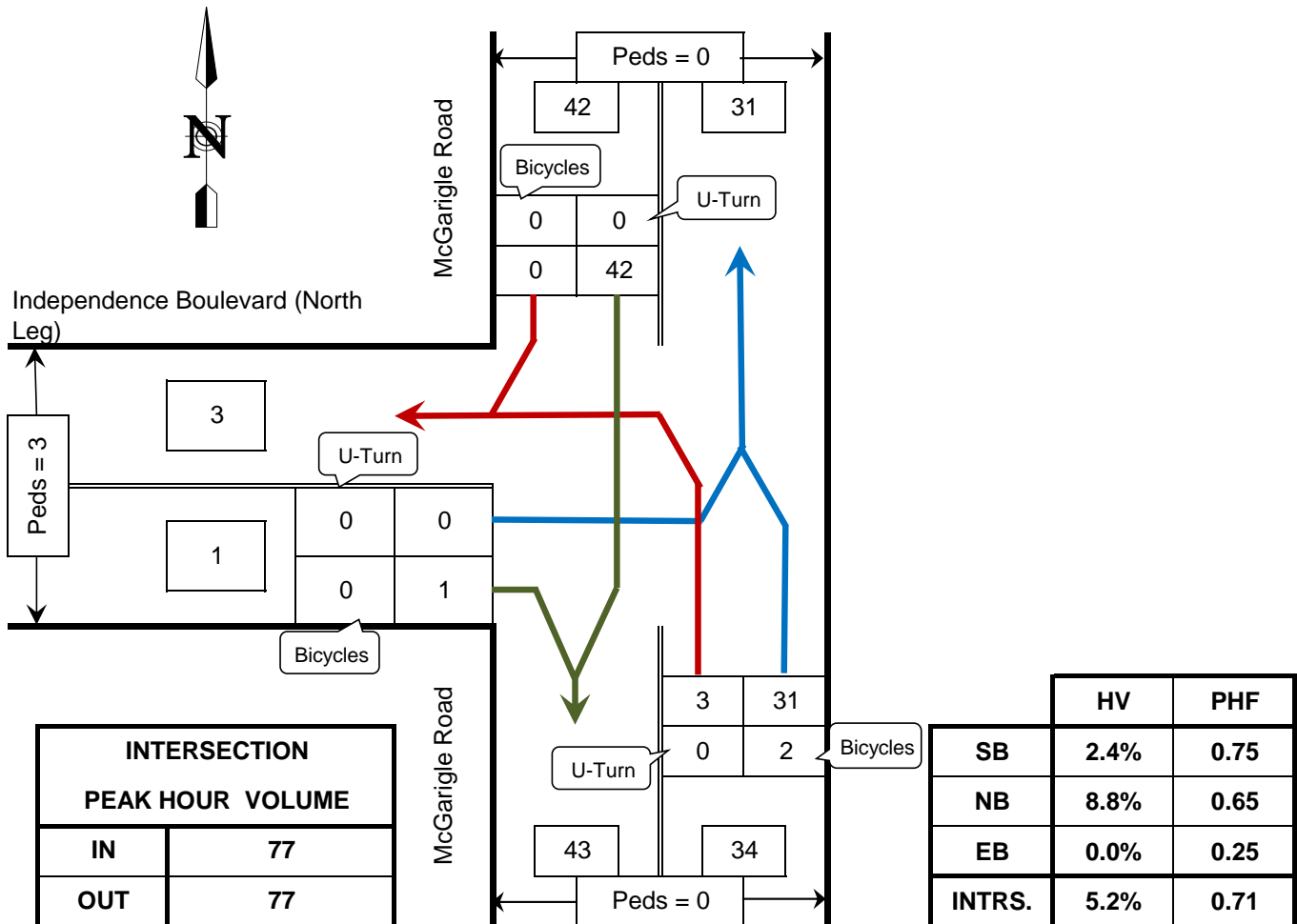
DATE OF COUNT: Wed. 4/24/19

REDUCTION DATE: Thu. 4/25/19

TIME OF COUNT: 4:00 PM - 6:00 PM

**TURNING MOVEMENTS DIAGRAM**

**4:00 PM - 6:00 PM PEAK HOUR: 5:00 PM TO 6:00 PM**



**McGarigle Road @ Independence Boulevard (North Leg)**

**Sedro Woolley, WA**

COUNTED BY: TDG

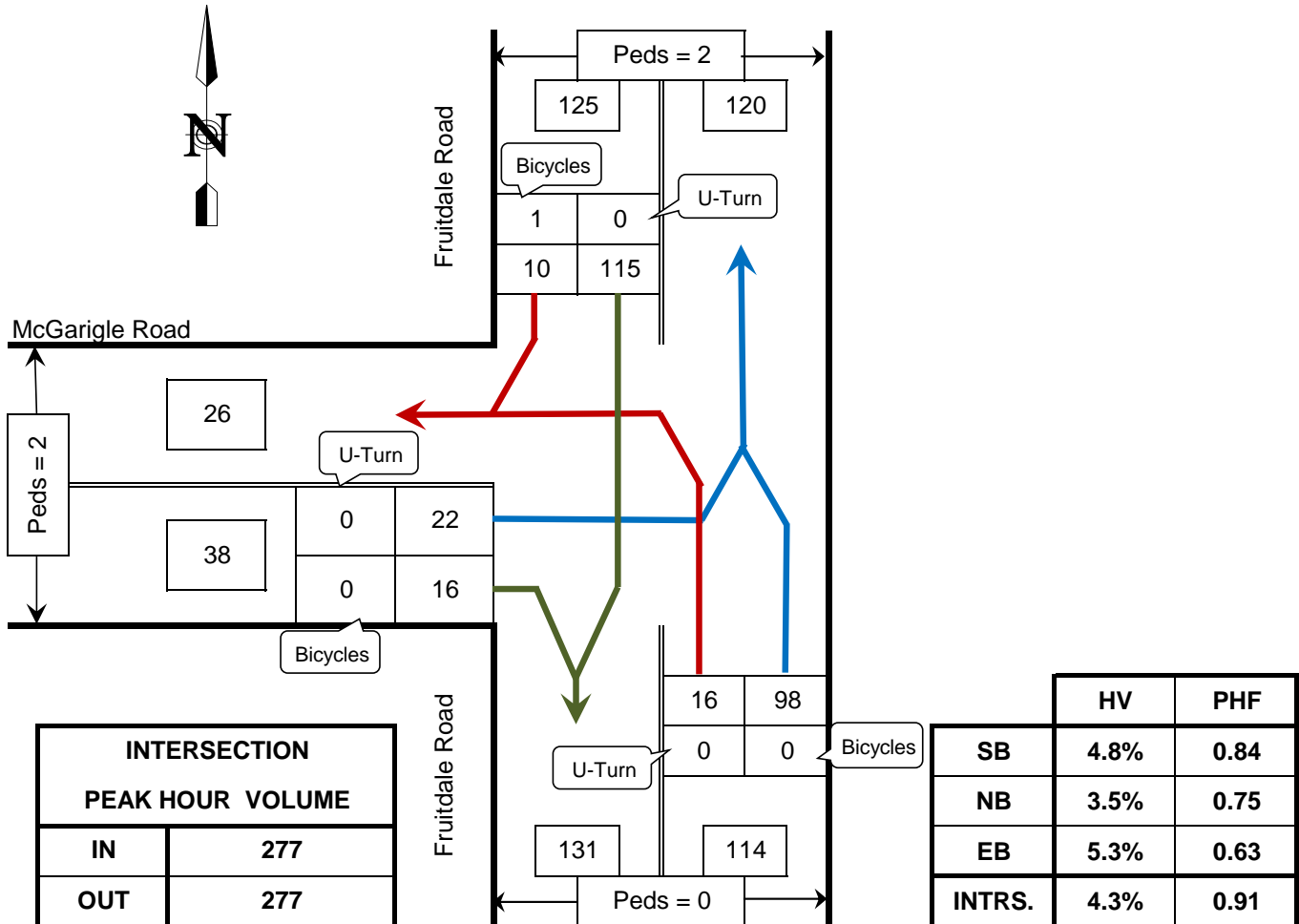
DATE OF COUNT: Wed. 9/18/19

REDUCTION DATE: Sun. 9/22/19

TIME OF COUNT: 4:00 PM - 6:00 PM

**TURNING MOVEMENTS DIAGRAM**

**4:00 PM - 6:00 PM PEAK HOUR: 4:45 PM TO 5:45 PM**



HV = Heavy Vehicles  
PHF = Peak Hour Factor

**McGarigle Road @ Fruitdale Road**

**Sedro Woolley, WA**

COUNTED BY: TDG

DATE OF COUNT: Wed. 4/24/19

REDUCTION DATE: Thu. 4/25/19

TIME OF COUNT: 4:00 PM - 6:00 PM

# **2025 Turning Movement Calculations**

1 SR-9 @ McGarigle Rd

Data Source: **TDG**

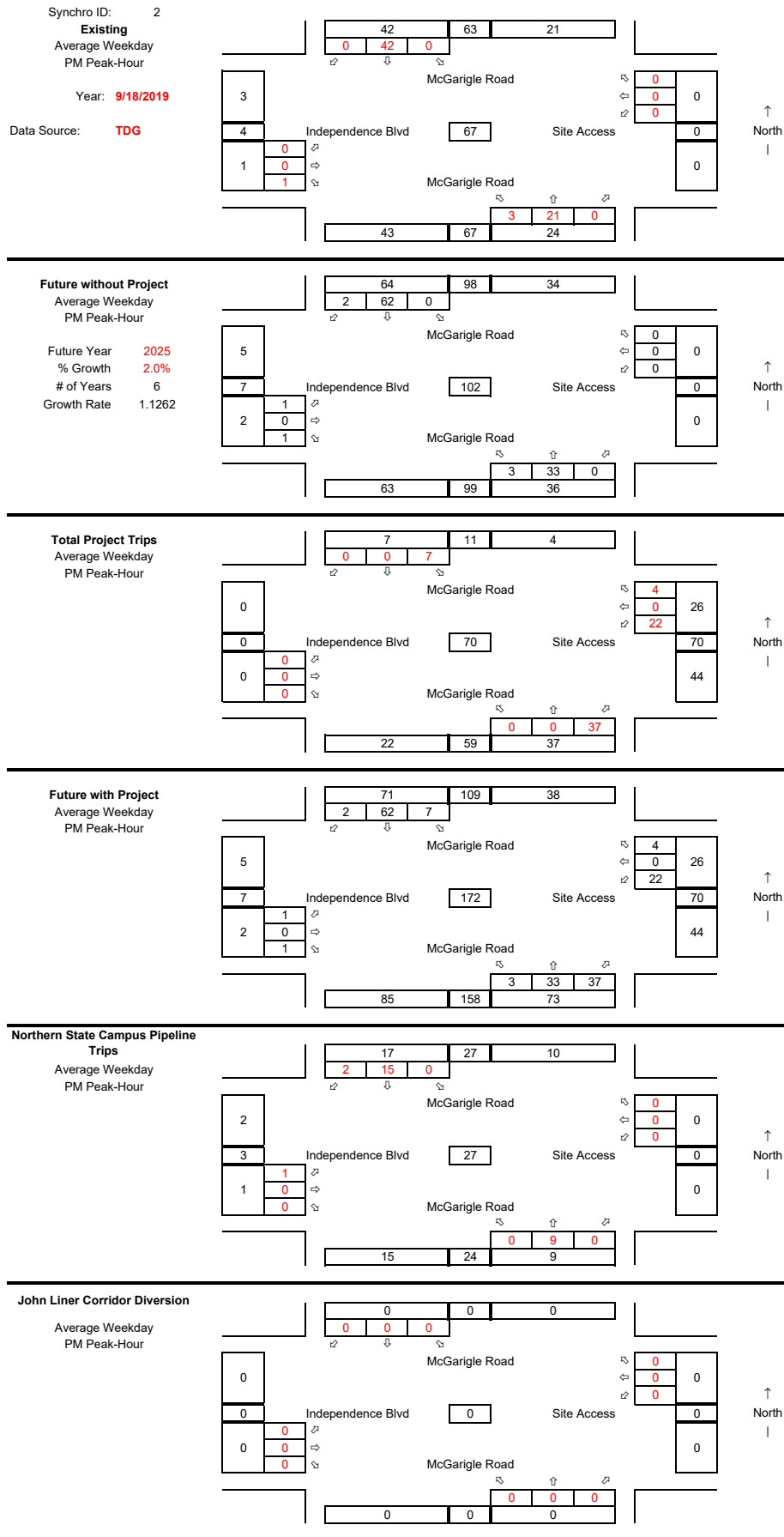


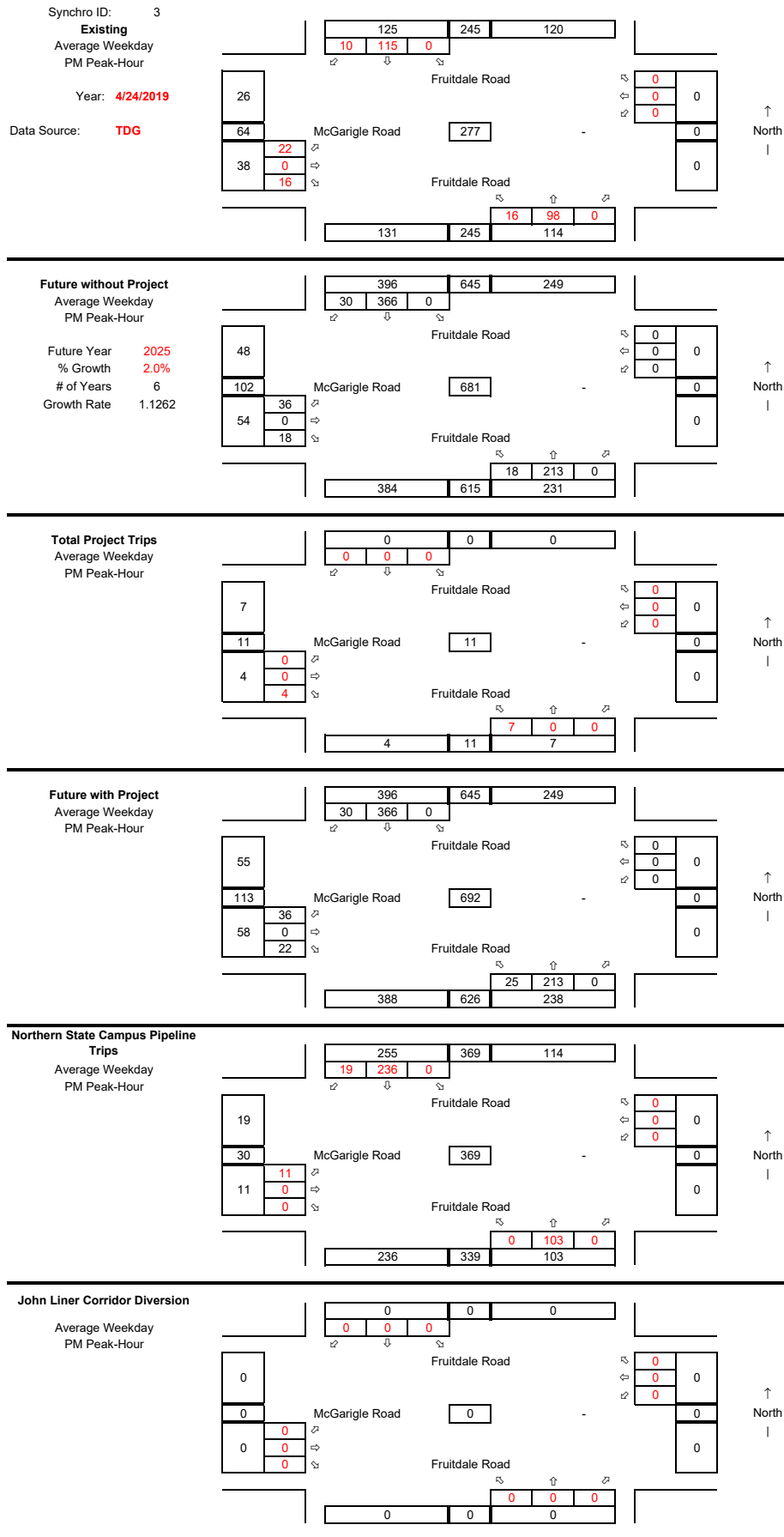
PM Peak-Hour



PM Peak-Hour







# **Level of Service Calculations**

# HCM 6th TWSC

## 1: SR 9 & John Liner Rd/McGarigle Rd

McGarigle Development

### Intersection

Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	6	12	10	84	8	20	8	329	66	16	239	6
Future Vol, veh/h	6	12	10	84	8	20	8	329	66	16	239	6
Conflicting Peds, #/hr	1	0	2	2	0	1	0	0	3	3	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	5	5	5	3	3	3	8	8	8
Mvmt Flow	6	13	11	90	9	22	9	354	71	17	257	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	718	740	262	719	708	394	263	0	0	428	0	0
Stage 1	294	294	-	411	411	-	-	-	-	-	-	-
Stage 2	424	446	-	308	297	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.15	6.55	6.25	4.13	-	-	4.18	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.545	4.045	3.345	2.227	-	-	2.272	-	-
Pot Cap-1 Maneuver	347	347	782	340	356	649	1295	-	-	1100	-	-
Stage 1	719	673	-	612	590	-	-	-	-	-	-	-
Stage 2	612	577	-	696	662	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	322	337	781	317	345	647	1295	-	-	1097	-	-
Mov Cap-2 Maneuver	322	337	-	317	345	-	-	-	-	-	-	-
Stage 1	713	661	-	605	583	-	-	-	-	-	-	-
Stage 2	577	570	-	660	650	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB					
HCM Control Delay, s	14.3		20.5		0.2		0.5					
HCM LOS	B		C									

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1295	-	-	418	351	1097	-	-				
HCM Lane V/C Ratio	0.007	-	-	0.072	0.343	0.016	-	-				
HCM Control Delay (s)	7.8	0	-	14.3	20.5	8.3	0	-				
HCM Lane LOS	A	A	-	B	C	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.2	1.5	0	-	-				

2019 Existing  
PM Peak

Gibson Traffic Consultants, Inc. [#19-229, ZJW]  
2019 Existing - PM Peak.syn

## HCM 6th TWSC

### 2: McGarigle Rd & Independence Blvd/Site Access

McGarigle Development

#### Intersection

Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	0	1	0	0	0	3	21	0	0	42	0
Future Vol, veh/h	0	0	1	0	0	0	3	21	0	0	42	0
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	0	0	0	2	2	2	9	9	9	2	2	2
Mvmt Flow	0	0	1	0	0	0	4	30	0	0	59	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	100	100	62	98	100	30	62	0	0	30	0	0
Stage 1	62	62	-	38	38	-	-	-	-	-	-	-
Stage 2	38	38	-	60	62	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.19	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.281	-	-	2.218	-	-
Pot Cap-1 Maneuver	886	794	1009	884	790	1044	1497	-	-	1583	-	-
Stage 1	954	847	-	977	863	-	-	-	-	-	-	-
Stage 2	982	867	-	951	843	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	882	789	1006	880	785	1044	1493	-	-	1583	-	-
Mov Cap-2 Maneuver	882	789	-	880	785	-	-	-	-	-	-	-
Stage 1	948	844	-	974	860	-	-	-	-	-	-	-
Stage 2	979	864	-	950	840	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	0	0.9	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1493	-	-	1006	-	1583	-
HCM Lane V/C Ratio	0.003	-	-	0.001	-	-	-
HCM Control Delay (s)	7.4	0	-	8.6	0	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-




2019 Existing  
PM Peak

Gibson Traffic Consultants, Inc. [#19-229, ZJW]  
2019 Existing - PM Peak.syn

# HCM 6th TWSC 3: Fruitdale Rd & McGarigle Rd

McGarigle Development

## Intersection

Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	16	16	98	115	10
Future Vol, veh/h	22	16	16	98	115	10
Conflicting Peds, #/hr	2	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	5	4	4	5	5
Mvmt Flow	24	18	18	108	126	11

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	280	134	139	0	-	0
Stage 1	134	-	-	-	-	-
Stage 2	146	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.14	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.236	-	-	-
Pot Cap-1 Maneuver	704	907	1432	-	-	-
Stage 1	885	-	-	-	-	-
Stage 2	874	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	692	905	1429	-	-	-
Mov Cap-2 Maneuver	692	-	-	-	-	-
Stage 1	872	-	-	-	-	-
Stage 2	872	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1429	-	768	-	-
HCM Lane V/C Ratio	0.012	-	0.054	-	-
HCM Control Delay (s)	7.6	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-





2019 Existing  
PM Peak

Gibson Traffic Consultants, Inc. [#19-229, ZJW]  
2019 Existing - PM Peak.syn

HCM 6th TWSC  
1: SR 9 & John Liner Rd/McGarigle Rd

McGarigle Development

Intersection

Int Delay, s/veh	21.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	152	45	97	95	19	23	9	371	74	18	269	7
Future Vol, veh/h	152	45	97	95	19	23	9	371	74	18	269	7
Conflicting Peds, #/hr	1	0	2	2	0	1	0	0	3	3	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	5	5	5	3	3	3	8	8	8
Mvmt Flow	163	48	104	102	20	25	10	399	80	19	289	8

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	814	833	295	871	797	443	297	0	0	482	0	0
Stage 1	331	331	-	462	462	-	-	-	-	-	-	-
Stage 2	483	502	-	409	335	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.15	6.55	6.25	4.13	-	-	4.18	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.545	4.045	3.345	2.227	-	-	2.272	-	-
Pot Cap-1 Maneuver	299	307	749	268	316	608	1259	-	-	1050	-	-
Stage 1	687	649	-	574	560	-	-	-	-	-	-	-
Stage 2	569	545	-	613	637	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	265	296	748	196	305	606	1259	-	-	1047	-	-
Mov Cap-2 Maneuver	265	296	-	196	305	-	-	-	-	-	-	-
Stage 1	679	635	-	566	552	-	-	-	-	-	-	-
Stage 2	519	537	-	476	623	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB
HCM Control Delay, s	65.5		43.4		0.2		0.5
HCM LOS	F		E				

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1259	-	-	344	234	1047	-
HCM Lane V/C Ratio	0.008	-	-	0.919	0.63	0.018	-
HCM Control Delay (s)	7.9	0	-	65.5	43.4	8.5	0
HCM Lane LOS	A	A	-	F	E	A	A
HCM 95th %tile Q(veh)	0	-	-	9.3	3.8	0.1	-

2025 Baseline  
PM Peak

Gibson Traffic Consultants, Inc. [#19-229, ZJW]  
2025 Baseline - PM Peak.syn

# MOVEMENT SUMMARY

 **Site: 1 [SR-9 at John Liner Rd 2025 Baseline]**

2025 Baseline  
PM Peak-Hour  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: SR-9 (NB)												
3	L2	10	3.0	0.424	11.0	LOS B	2.8	72.5	0.52	0.55	0.52	36.0
8	T1	399	3.0	0.424	5.3	LOS A	2.8	72.5	0.52	0.55	0.52	36.0
18	R2	80	3.0	0.424	5.4	LOS A	2.8	72.5	0.52	0.55	0.52	35.0
Approach		488	3.0	0.424	5.4	LOS A	2.8	72.5	0.52	0.55	0.52	35.9
East: John Liner Rd (WB)												
1	L2	102	5.0	0.167	12.5	LOS B	0.9	24.2	0.62	0.75	0.62	33.9
6	T1	20	5.0	0.167	6.9	LOS A	0.9	24.2	0.62	0.75	0.62	34.0
16	R2	25	5.0	0.167	6.9	LOS A	0.9	24.2	0.62	0.75	0.62	33.1
Approach		147	5.0	0.167	10.8	LOS B	0.9	24.2	0.62	0.75	0.62	33.8
North: SR-9 (SB)												
7	L2	19	8.0	0.268	10.4	LOS B	1.6	41.4	0.35	0.47	0.35	36.2
4	T1	289	8.0	0.268	4.7	LOS A	1.6	41.4	0.35	0.47	0.35	36.3
14	R2	8	8.0	0.268	4.8	LOS A	1.6	41.4	0.35	0.47	0.35	35.2
Approach		316	8.0	0.268	5.0	LOS A	1.6	41.4	0.35	0.47	0.35	36.3
West: John Liner Rd (EB)												
5	L2	163	5.0	0.316	11.9	LOS B	1.8	47.2	0.58	0.72	0.58	34.7
2	T1	48	5.0	0.316	6.3	LOS A	1.8	47.2	0.58	0.72	0.58	34.7
12	R2	104	5.0	0.316	6.3	LOS A	1.8	47.2	0.58	0.72	0.58	33.7
Approach		316	5.0	0.316	9.2	LOS A	1.8	47.2	0.58	0.72	0.58	34.4
All Vehicles		1268	5.0	0.424	6.9	LOS A	2.8	72.5	0.50	0.60	0.50	35.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: GIBSON TRAFFIC CONSULTANTS | Processed: Tuesday, September 24, 2019 8:20:32 AM





Project: H:\2019\19-229\Sidra\PM Peak-hour.sip8

## HCM 6th TWSC

### 2: McGarigle Rd & Independence Blvd/Site Access

McGarigle Development

#### Intersection

Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	1	0	0	0	3	33	0	0	62	2
Future Vol, veh/h	1	0	1	0	0	0	3	33	0	0	62	2
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	0	0	0	2	2	2	9	9	9	2	2	2
Mvmt Flow	1	0	1	0	0	0	4	46	0	0	87	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	146	146	92	143	147	46	93	0	0	46	0	0
Stage 1	92	92	-	54	54	-	-	-	-	-	-	-
Stage 2	54	54	-	89	93	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.19	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.281	-	-	2.218	-	-
Pot Cap-1 Maneuver	827	749	971	826	744	1023	1458	-	-	1562	-	-
Stage 1	920	823	-	958	850	-	-	-	-	-	-	-
Stage 2	963	854	-	918	818	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	823	745	968	823	740	1023	1454	-	-	1562	-	-
Mov Cap-2 Maneuver	823	745	-	823	740	-	-	-	-	-	-	-
Stage 1	914	821	-	955	847	-	-	-	-	-	-	-
Stage 2	960	851	-	917	816	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	0	0.6	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1454	-	-	890	-	1562	-
HCM Lane V/C Ratio	0.003	-	-	0.003	-	-	-
HCM Control Delay (s)	7.5	0	-	9.1	0	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-




2025 Baseline  
PM Peak

Gibson Traffic Consultants, Inc. [#19-229, ZJW]  
2025 Baseline - PM Peak.syn

# HCM 6th TWSC 3: Fruitdale Rd & McGarigle Rd

McGarigle Development

## Intersection

Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	36	18	18	213	366	30
Future Vol, veh/h	36	18	18	213	366	30
Conflicting Peds, #/hr	2	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	5	4	4	5	5
Mvmt Flow	40	20	20	234	402	33

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	697	421	437	0	-	0
Stage 1	421	-	-	-	-	-
Stage 2	276	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.14	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.236	-	-	-
Pot Cap-1 Maneuver	403	626	1112	-	-	-
Stage 1	656	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	393	625	1110	-	-	-
Mov Cap-2 Maneuver	393	-	-	-	-	-
Stage 1	641	-	-	-	-	-
Stage 2	762	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.3	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1110	-	448	-	-
HCM Lane V/C Ratio	0.018	-	0.132	-	-
HCM Control Delay (s)	8.3	0	14.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-





2025 Baseline  
PM Peak

Gibson Traffic Consultants, Inc. [#19-229, ZJW]  
2025 Baseline - PM Peak.syn

HCM 6th TWSC  
1: SR 9 & John Liner Rd/McGarigle Rd

McGarigle Development

Intersection

Int Delay, s/veh	26.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	152	47	97	110	20	25	9	371	100	21	269	7
Future Vol, veh/h	152	47	97	110	20	25	9	371	100	21	269	7
Conflicting Peds, #/hr	1	0	2	2	0	1	0	0	3	3	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	5	5	5	3	3	3	8	8	8
Mvmt Flow	163	51	104	118	22	27	10	399	108	23	289	8

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	838	869	295	895	819	457	297	0	0	510	0	0
Stage 1	339	339	-	476	476	-	-	-	-	-	-	-
Stage 2	499	530	-	419	343	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.15	6.55	6.25	4.13	-	-	4.18	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.545	4.045	3.345	2.227	-	-	2.272	-	-
Pot Cap-1 Maneuver	288	292	749	258	307	597	1259	-	-	1025	-	-
Stage 1	680	643	-	564	552	-	-	-	-	-	-	-
Stage 2	557	530	-	606	632	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	252	280	748	185	294	595	1259	-	-	1022	-	-
Mov Cap-2 Maneuver	252	280	-	185	294	-	-	-	-	-	-	-
Stage 1	673	626	-	556	544	-	-	-	-	-	-	-
Stage 2	505	523	-	466	615	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	78	59.3	0.1	0.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1259	-	-	329	220	1022	-
HCM Lane V/C Ratio	0.008	-	-	0.967	0.758	0.022	-
HCM Control Delay (s)	7.9	0	-	78	59.3	8.6	0
HCM Lane LOS	A	A	-	F	F	A	A
HCM 95th %tile Q(veh)	0	-	-	10.3	5.2	0.1	-

2025 Future with Development  
PM Peak

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2025 Future with Development - PM Peak.syn

# MOVEMENT SUMMARY

## Site: 1 [SR-9 at John Liner Rd 2025 Future With]

2025 Future With  
PM Peak-Hour  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: SR-9 (NB)												
3	L2	10	3.0	0.450	11.0	LOS B	3.1	79.2	0.54	0.56	0.54	36.0
8	T1	399	3.0	0.450	5.4	LOS A	3.1	79.2	0.54	0.56	0.54	36.0
18	R2	108	3.0	0.450	5.4	LOS A	3.1	79.2	0.54	0.56	0.54	35.0
Approach		516	3.0	0.450	5.5	LOS A	3.1	79.2	0.54	0.56	0.54	35.8
East: John Liner Rd (WB)												
1	L2	118	5.0	0.189	12.6	LOS B	1.1	27.9	0.63	0.76	0.63	33.9
6	T1	22	5.0	0.189	6.9	LOS A	1.1	27.9	0.63	0.76	0.63	33.9
16	R2	27	5.0	0.189	7.0	LOS A	1.1	27.9	0.63	0.76	0.63	33.0
Approach		167	5.0	0.189	10.9	LOS B	1.1	27.9	0.63	0.76	0.63	33.7
North: SR-9 (SB)												
7	L2	23	8.0	0.275	10.5	LOS B	1.6	42.7	0.38	0.49	0.38	36.1
4	T1	289	8.0	0.275	4.8	LOS A	1.6	42.7	0.38	0.49	0.38	36.2
14	R2	8	8.0	0.275	4.8	LOS A	1.6	42.7	0.38	0.49	0.38	35.1
Approach		319	8.0	0.275	5.2	LOS A	1.6	42.7	0.38	0.49	0.38	36.2
West: John Liner Rd (EB)												
5	L2	163	5.0	0.323	12.1	LOS B	1.9	48.8	0.59	0.73	0.59	34.6
2	T1	51	5.0	0.323	6.4	LOS A	1.9	48.8	0.59	0.73	0.59	34.7
12	R2	104	5.0	0.323	6.5	LOS A	1.9	48.8	0.59	0.73	0.59	33.7
Approach		318	5.0	0.323	9.3	LOS A	1.9	48.8	0.59	0.73	0.59	34.3
All Vehicles		1320	4.9	0.450	7.0	LOS A	3.1	79.2	0.52	0.61	0.52	35.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: GIBSON TRAFFIC CONSULTANTS | Processed: Tuesday, September 24, 2019 8:20:33 AM





Project: H:\2019\19-229\Sidra\PM Peak-hour.sip8

## HCM 6th TWSC

### 2: McGarigle Rd & Independence Blvd/Site Access

McGarigle Development

#### Intersection

Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	1	22	0	4	3	33	37	7	62	2
Future Vol, veh/h	1	0	1	22	0	4	3	33	37	7	62	2
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	0	0	0	2	2	2	9	9	9	2	2	2
Mvmt Flow	1	0	1	31	0	6	4	46	52	10	87	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	195	218	92	189	193	72	93	0	0	98	0	0
Stage 1	112	112	-	80	80	-	-	-	-	-	-	-
Stage 2	83	106	-	109	113	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.19	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.281	-	-	2.218	-	-
Pot Cap-1 Maneuver	769	684	971	771	702	990	1458	-	-	1495	-	-
Stage 1	898	807	-	929	828	-	-	-	-	-	-	-
Stage 2	930	811	-	896	802	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	757	675	968	764	693	990	1454	-	-	1495	-	-
Mov Cap-2 Maneuver	757	675	-	764	693	-	-	-	-	-	-	-
Stage 1	893	799	-	926	826	-	-	-	-	-	-	-
Stage 2	922	809	-	888	794	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9.8	0.3	0.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1454	-	-	850	792	1495	-
HCM Lane V/C Ratio	0.003	-	-	0.003	0.046	0.007	-
HCM Control Delay (s)	7.5	0	-	9.2	9.8	7.4	0
HCM Lane LOS	A	A	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-




2025 Future with Development  
PM Peak

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2025 Future with Development - PM Peak.syn

# HCM 6th TWSC 3: Fruitdale Rd & McGarigle Rd

McGarigle Development

## Intersection

Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	36	22	25	213	366	30
Future Vol, veh/h	36	22	25	213	366	30
Conflicting Peds, #/hr	2	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	5	4	4	5	5
Mvmt Flow	40	24	27	234	402	33

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	711	421	437	0	-	0
Stage 1	421	-	-	-	-	-
Stage 2	290	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.14	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.236	-	-	-
Pot Cap-1 Maneuver	395	626	1112	-	-	-
Stage 1	656	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	382	625	1110	-	-	-
Mov Cap-2 Maneuver	382	-	-	-	-	-
Stage 1	636	-	-	-	-	-
Stage 2	751	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.4	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1110	-	448	-	-
HCM Lane V/C Ratio	0.025	-	0.142	-	-
HCM Control Delay (s)	8.3	0	14.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

2025 Future with Development  
PM Peak

Gibson Traffic Consultants, Inc. [#19-229, ZJW]  
2025 Future with Development - PM Peak.syn

# Collision Data

PRIMARY TRAFFICWAY	MILEPOST	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# I N J U R Y	# F A T A L I T Y	# P E R S O N S I N J U R Y	# B I K E S	FIRST COLLISION TYPE / OBJECT STRUCK	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)
009	57.43	E406212	2015-03-04	08:31	No Apparent Injury	0	0	0	0	From opposite direction - one left turn - one straight	Did Not Grant RW to Vehicle
009	57.43	E584580	2016-09-13	19:21	No Apparent Injury	0	0	0	0	Entering at angle	Inattention
009	57.43	3640550	2017-09-11	17:40	Suspected Minor Injury	5	0	2	0	Entering at angle	Did Not Grant RW to Vehicle
9	57.43	E773554	2018-02-13	14:23	Suspected Minor Injury	1	0	2	0	From same direction - both going straight - one stopped - rear-end	Driver Distractions Outside Vehicle

**Collision Data Date Range**

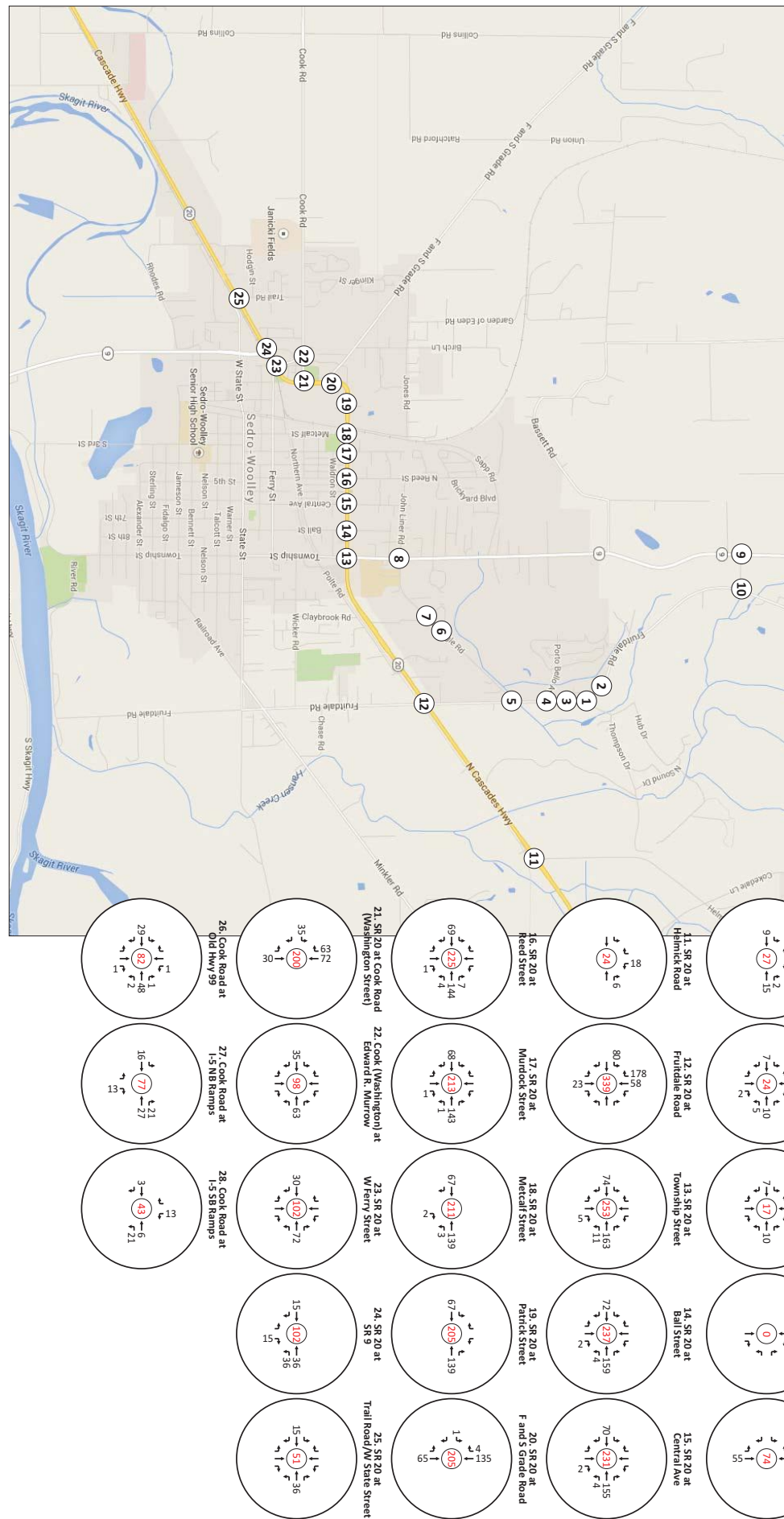
Start 1/1/2014  
 End 12/31/2018  
 Total Years 5.00

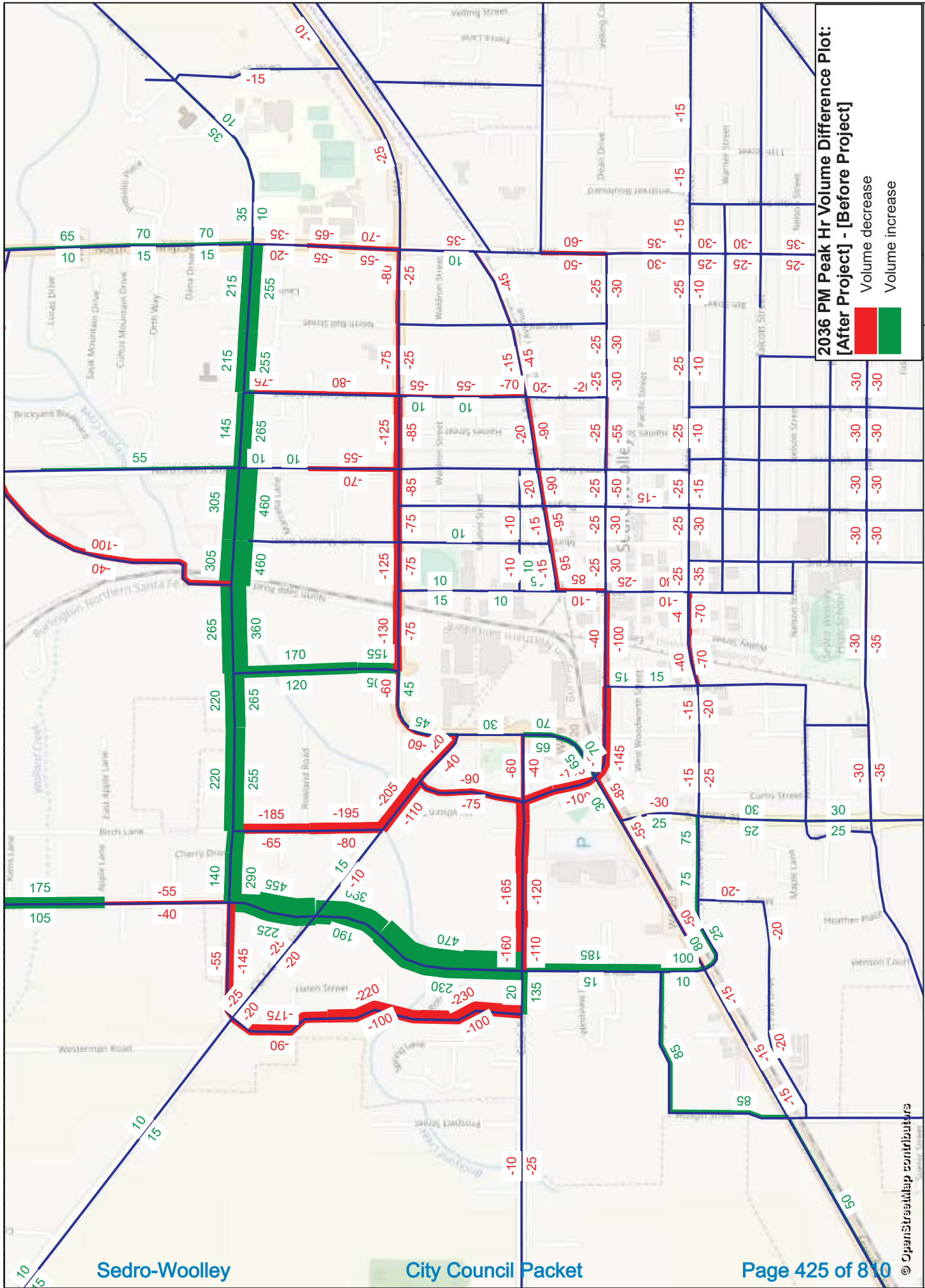
Intersection	No. Collisions	No. Injury Collisions	Estimated ADT	Collisions per Year	Collisions per MEV
#1: SR-9 @ John Liner Rd/McGarigle Rd	4	2	8,040	0.8	0.27
#2: McGarigle Rd @ Independence Blvd/Access	0	0	670	0	0.00
#3: McGarigle Rd @ Fruitdale Rd	0	0	2,770	0	0.00

# Pipeline Projects



# Intersection PM Peak Hour Trip Impact

























2036 PM Peak Hr Volume Difference Plot:  
[After Project] - [Before Project]  
Volume decrease  
Volume increase

# HCM 2010 Signalized Intersection Summary

208: N Township St. (SR 9) & John Liner Rd./McGarigle Rd.

12/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	30	110	65	70	35	80	350	50	15	240	150
Future Volume (veh/h)	185	30	110	65	70	35	80	350	50	15	240	150
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.97		0.98	1.00		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1743	1743	1900
Adj Flow Rate, veh/h	208	34	124	73	79	39	90	393	56	17	270	169
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	9	9	9
Cap, veh/h	499	108	395	454	371	183	454	781	111	451	495	310
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.50	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	1236	338	1234	1181	1158	572	933	1574	224	870	998	625
Grp Volume(v), veh/h	208	0	158	73	0	118	90	0	449	17	0	439
Grp Sat Flow(s),veh/h/ln	1236	0	1573	1181	0	1730	933	0	1799	870	0	1623
Q Serve(g_s), s	6.4	0.0	3.3	2.2	0.0	2.2	3.2	0.0	7.3	0.6	0.0	8.1
Cycle Q Clear(g_c), s	8.6	0.0	3.3	5.5	0.0	2.2	11.3	0.0	7.3	7.9	0.0	8.1
Prop In Lane	1.00		0.78	1.00		0.33	1.00		0.12	1.00		0.38
Lane Grp Cap(c), veh/h	499	0	503	454	0	554	454	0	893	451	0	806
V/C Ratio(X)	0.42	0.00	0.31	0.16	0.00	0.21	0.20	0.00	0.50	0.04	0.00	0.54
Avail Cap(c_a), veh/h	1040	0	1191	970	0	1310	1040	0	2023	998	0	1825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.9	0.0	11.2	13.3	0.0	10.8	11.5	0.0	7.4	10.0	0.0	7.6
Incr Delay (d2), s/veh	0.6	0.0	0.4	0.2	0.0	0.2	0.2	0.0	0.4	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.1	0.0	2.6	1.3	0.0	1.9	1.5	0.0	6.5	0.3	0.0	6.6
LnGrp Delay(d),s/veh	14.5	0.0	11.5	13.4	0.0	11.0	11.7	0.0	7.8	10.0	0.0	8.2
LnGrp LOS	B		B	B		B	B		A	B		A
Approach Vol, veh/h		366			191			539			456	
Approach Delay, s/veh		13.2			11.9			8.5			8.2	
Approach LOS		B			B			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		25.6		17.9		25.6		17.9				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		49.0		33.0		49.0		33.0				
Max Q Clear Time (g_c+I1), s		13.3		10.6		10.1		7.5				
Green Ext Time (p_c), s		8.3		2.9		8.4		2.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			9.9									
HCM 2010 LOS			A									

**Table 7. Left-Turn Lane Analysis**

Intersection	Approach Leg	Total DHV <sup>1</sup>	% Total DHV Turning Left	2036 PM LOS (Delay) <sup>2</sup>		Left-Turn Lane Warranted
				Without LT Lane	With LT Lane	
Trail Road & F&S Grade Road	West (EB)	50	10.0%	B (13.3)	B (14.7)	No
	East (WB)	125	24.0%	C (15.8)	B (14.5)	No
	South (NB)	665	0.8%	A (0.1)	A (0.1)	No
	North (SB)	645	3.1%	A (0.8)	A (0.8)	No
Trail Road & Jones Road	West (EB)	185	8.1%	A (1.1)	A (1.1)	No
	East (WB)	660	22.0%	A (4.5)	A (4.5)	<b>Yes</b>
	South (NB)	660	0.8%	D (27.1)	D (25.4)	No
	North (SB)	315	11.1%	D (32.7)	C (24.2)	No
Jones Road & Patrick Street	East (WB)	840	10.1%	A (2.1)	A (2.1)	<b>Yes</b>
	South (NB)	290	12.1%	B (16.1)	B (12.8)	No

<sup>1</sup>Design hourly volume (both directions)

<sup>2</sup>Average LOS and delay by approach

Left-turn lanes are warranted on the east (Jones Rd) approach of the Trail Road and Jones Road intersection, and the east (Jones Rd) approach of the Jones Road and Patrick Street intersection.

## FINDINGS AND RECOMMENDATIONS

Findings and recommendations are summarized below.

- Single-lane roundabouts are the preferred intersection control alternative at the intersections of:
  - Cook Road and Trail Road
  - N Township Road (SR 9) and John Liner Road/McGarigle Road.
- A left-turn lane is warranted at the following two locations:
  - East (Jones Rd) approach of Trail Road and Jones Road intersection.
  - East (Jones Rd) approach of Jones Road and Patrick Street intersection.

Attachment 1. 2036 PM Peak Hour Volume With Jones/John Liner Road Corridor

Attachment 2. 2036 PM Peak Hour Volume Difference, Before and After Jones/John Liner Road Corridor

Attachment 3. Conceptual Roundabout Layouts

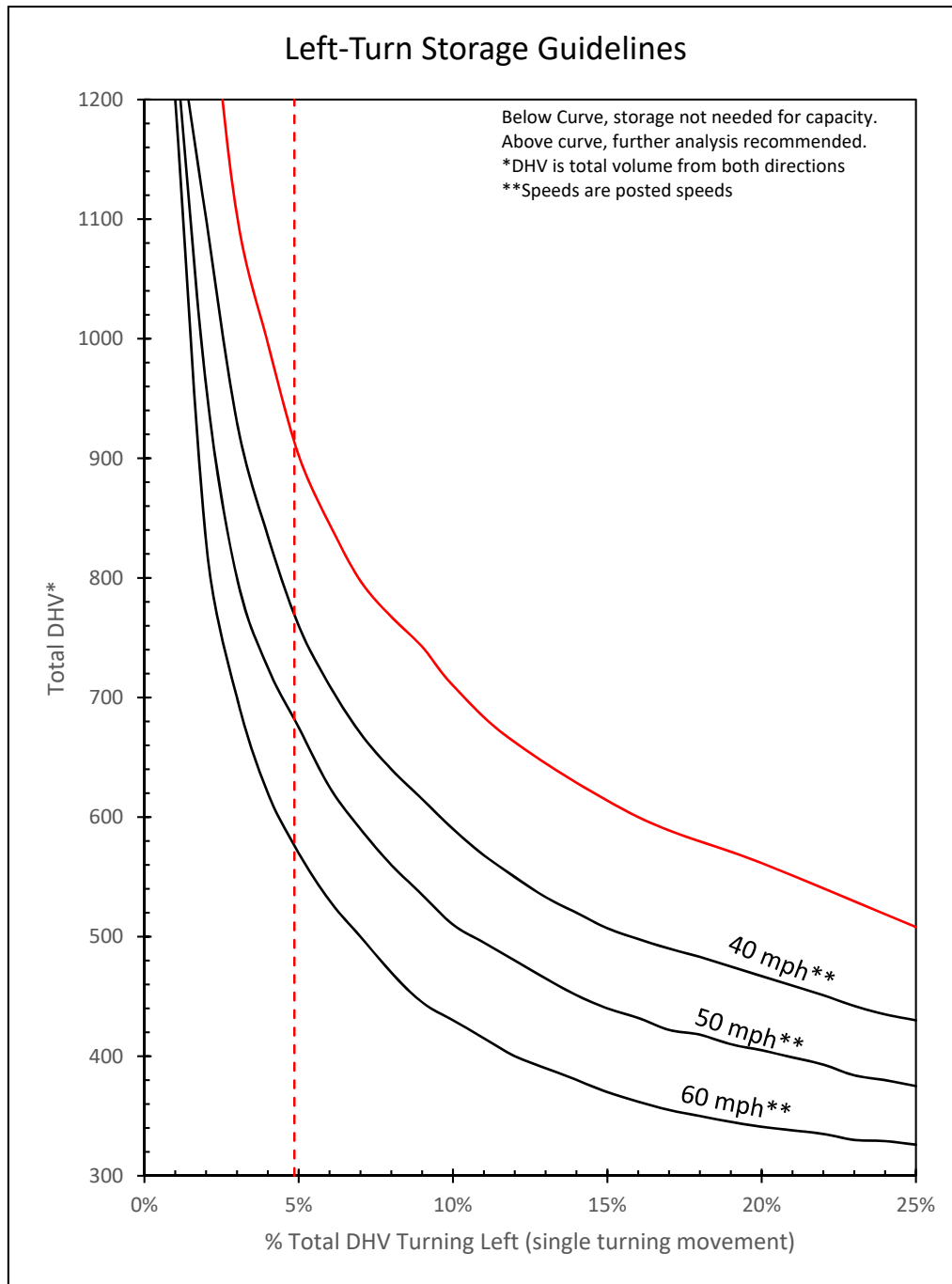
Attachment 4. Signal Warrant Reports

Attachment 5: Intersection LOS Reports

Attachment 6: Left-Turn Storage Guidelines

# **Channelization Warrants**

## McGarigle Road @ Site Access

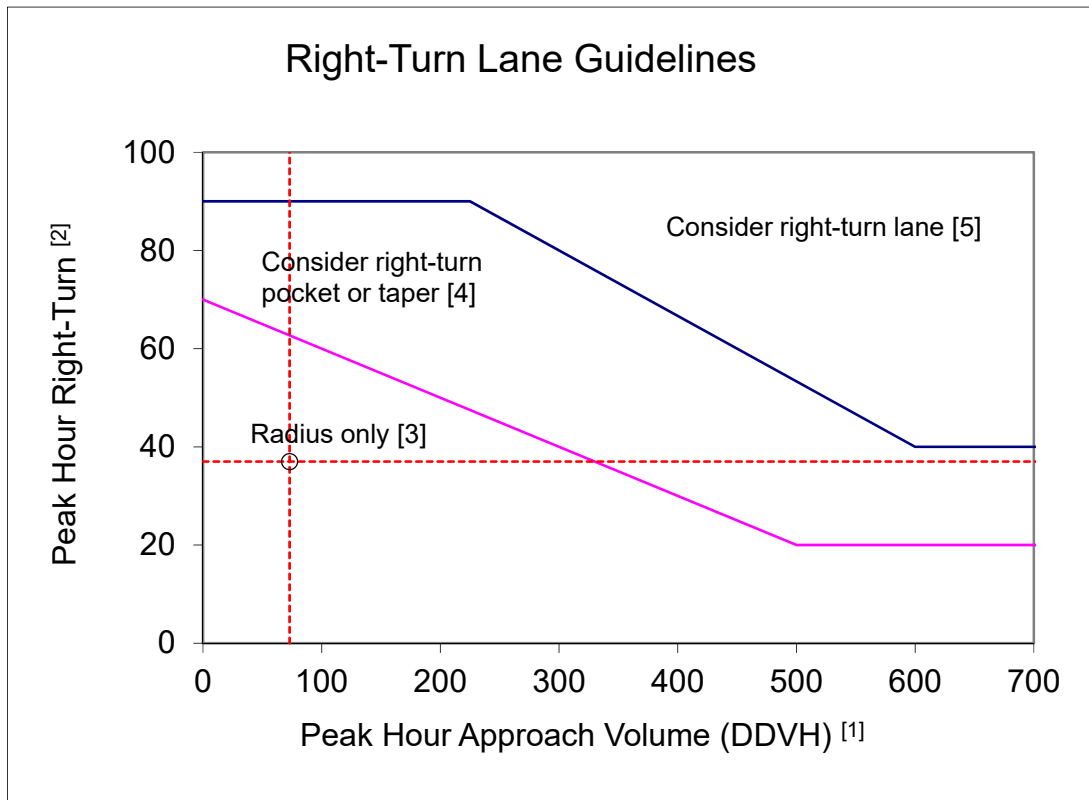


Total DHV: 144  
Left Turns: 7  
% Left: 4.9%

Posted Speed: 25 mph

Based on WSDOT July 2018 Design Manual: Exhibit 1310-7a, Page 1310-13.

**McGarigle Road @ Site Access**



Right Turn Volume: 37 [DDHV]  
 Adjusted Right Turn Volume: 37 [DDHV]  
 Pk Hr Curb Ln Approach Vol: 73 [DDHV]

Posted Speed: 25 mph

[1] For two-lane highways, use the peak hour DDHV (through + right turn).  
 For multilane, high speed highways (posted speed 45 mph or above), use the right-lane peak hour approach volume (through + right turn).

[2] When all three of the following conditions are met, reduce the right-turn DDHV by 20:

- The posted speed is 45 mph or less
- The right-turn volume is greater than 40 VPH
- The peak hour approach volume (DDHV) is less than 300 VPH.

[3] For right-turn corner design, see Exhibit 1310-6.

[4] For right-turn pocket or taper design, see Exhibit 1310-12.

[5] For right-turn lane design, see Exhibit 1310-13.

Based on WSDOT July 2018 Design Manual: Exhibit 1310-11, Page 1310-27.

# **Sedro Woolley Six-Year TIP**

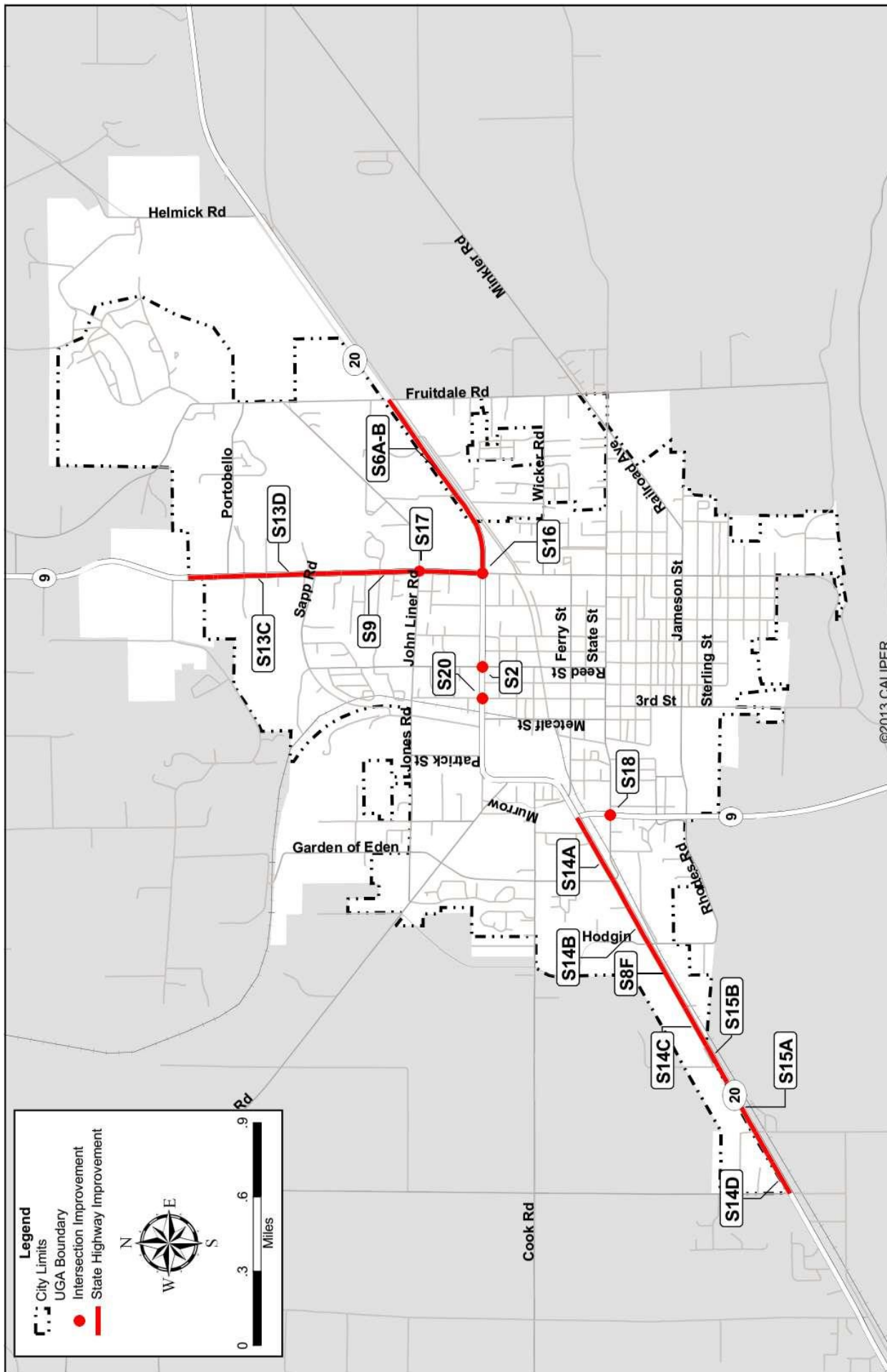


Figure 7

# State Highway Improvement Projects - Corrected 5/3/2018

City of Sedro-Woolley



# Arterial Improvement Projects - 2017 Update

City of Sedro-Woolley



# 2019-2024 TIP PROJECT LIST

REVISED: 5/3/2018

## Sedro-Woolley Transportation Improvement Program and Projects

MAP ID <sup>(1)</sup>	2019 - 2024 TIP Project	2019 - 2024 TIP CN Year	2019 - 2024 TIP Priority No.	Project Name	Project Limits	Project Description	Priority	In Existing TIP (2019/20)	Total Cost 2018 (\$1,000's) (3/4)	Sedro-Woolley 2018 Cost (\$1,000's) (3)	TIP Eligible (Y/N)	JONES-JOHN LINER-TRAIL RD CORRIDOR PROJECT
C1E	SW53	2019	1	Jones/John Liner/Trail Road Corridor Scoping Study	Cook Road to SR9 MP 57.43 John Liner Road	Planning level project to define the scope of the Jones/John Liner/Trail Road Corridor in order to establish an alternative east-west corridor to relieve congestion on SR20 between SR9 South and SR9 North.	High	Yes	200	125	Yes	
C1C	SW08A	2020	2	John Liner Road, Reed to Township Bicycle/Pedestrian Improvements	Reed Street to SR9/Township Street (2,000 LF)	Construct shared use path on the north side of John Liner Road from Reed to Township, including drainage and illumination.	High	Yes	583	87	Yes	200
C1B	SW06	2019	3	Jones/John Liner RR Undercrossing	Sapp Road to Reed Street (1,000 ft)	New BNSF RR undercrossing and new major collector from East Jones Road to John Liner Road, including drainage, curbs, sidewalks, HMA, pavement markings and illumination.	High	Yes	7,700	1,925	Yes	
S15B	NEW SW59	2028	4	SR20 West Lane Widening & Safety Improvements Project 1	Holtcamp Road / Hodgkin Street	Improve and widen to 3 lanes (2,400 LF); add Brickyard Creek crossing.	High	Yes	600	150	Yes	7,700
C33B	SW49	2023	5	Jamez Street Overlay Project 2	3rd Street to Township (2,800 LF)	Grind and overlay; upgrade ADA Ramps	High	Yes	476	119	No	
C19	SW20	2020	6	Patrick Street Arterial Extension	Michael Street to East Jones Road (1,200 LF)	New major collector with drainage, curbs, sidewalks, HMA, pavement markings, illumination.	Medium	Yes	2,100	2,100	Yes	
C26	SW38	2019	7	Trail Road Overlay	SR20 to Cook Road (1,600 LF)	Grind and overlay	High	Yes	272	41	No	2,100
NEW C13A	NEW SW54	NEW	8	Rhodes Road Overlay	SR20 to City Limits (510 LF)	Grind and overlay	High	No	54	8	No	
S16	SW33	2021	9	SR20/SR9N-Township Intersection Improvements	SR20 MP 66.08; SR9 MP 57.17	Intersection channelization improvements to allow concurrent north-south left turns and improve signal sequencing, including sidewalk/path improvements.	High	Yes	828	207	Yes	
S2	SW35	2021	10	SR20 / Reed Street Intersection Improvements	SR20 MP 65.70 to 65.72	Intersection improvements to restrict minor approach motions to right-in, right-out.	High	Yes	50	13	Yes	
C24	SW24	2020	11	Cook Road Overlay	West City Limits to Crossroads (2,200 LF)	Grind and overlay	High	Yes	449	67	No	
C3	SW25	2022	12	Cook Road / Trail Road Intersection Improvements	Trail Road to Trail Road	Reconstruct intersection with traffic signal or Roundabout.	High	Yes	1,000	250	Yes	
S14C	SW42	2023	13	SR20/Cascade Trail West Extension Phase 2A Holtcamp Road to Hodgkin Road	SR20 MP 63.64 Holtcamp Rd to SR20 MP 64.21 Hodgkin Road (3,000 LF)	Construct a shared use path along the north side of SR20 from Holtcamp Road to Hodgkin Road	Medium	Yes	840.5	78	Yes	1,000
C28	SW40	2021	14	North Reed Street Overlay Project 1	SR20 to John Liner Road (1,400 ft)	Grind and overlay; upgrade ADA ramps.	High	Yes	315	47	No	
C1A	SW07	2023	15	Jones Road Arterial Improvements	F&S Grade Rd to Sapp Road (4,000 LF)	Reconstruct to major collector section including drainage, curbs, sidewalks, shared use path, HMA, pavement markings and illumination.	High	Yes	3,200	800	Yes	
S18	SW45	2023	16	SR 9 / W State Street Intersection Improvements	SR9 MP 55.75	Intersection improvements to add a dedicated right turn lane to the west leg.	High	Yes	250	63	Yes	3,200



## 2019-2024 TIP PROJECT LIST

REVISED: 5/3/2018

### Sedro-Woolley Transportation Improvement Program and Projects

MAP ID (i)	2019 - 2024 TIP Project	2018 - 2023 TIP CN Year	2019 - 2024 TIP CN Year	2019 - 2024 TIP Priority No.	Project Name	Project Limits	Project Description	Priority	In Existing TIP (2019)? (ii)	Total Cost 2018 (\$1,000's) (3)(4)	Sedro-Woolley 2018 Cost (\$1,000's) (3)	TIF Eligible (Y/N)	JONES-JOHN LINER-TRAIL RD CORRIDOR PROJECT
C18	SW21	2023	2023	17	Portobello Street Arterial Extension	SRSIN Township Street to Cascadia Drive (2,100 LF)	New major collector connecting Fruitdale to SRSIN Township, including drainage, curbs, sidewalks, HMA, pavement markings and illumination.	Medium	Yes	1,700	425	Yes	
C33A	SW48	2022	2023	18	Jameson Street Overlay Project 1	800' W of Baley to 3rd Street (800 LF)	Grind and overlay; upgrade ADA ramps.	High	Yes	213	32	No	
C9A	NEW SW55	2024	2024	19	Trail Road Arterial Extension	Cook Rd to F&S Grade (2,200 LF)	Construct new major collector.	High	Yes	4,000	1,000	Yes	
C9B	NEW SW56	2024	2024	20	Trail Rd - Garden of Eden Rd Extension	F&S Grade to Jones Rd (770 LF)	Construct new major collector (Will require Functional Classification).	High	Yes	850	213	Yes	4,000
C34	NEW SW57	2024	2024	21	Sapp Road Overlay	Road Street to SR 9/Township (2,000 LF)	Grind and overlay; upgrade ADA ramps.	High	Yes	266	40	No	850
SUBTOTAL 2019-2024 ALL PROJECTS										25,947	7,789		19,050
SUBTOTAL 2019-2024 - TIF ELIGIBLE PROJECTS										23,902	7,435		
SUBTOTAL 2019-2024 - OTHER PROJECTS										2,045	354		



## 2025-2038 TIP PROJECT LIST

### Sedro-Woolley Transportation Improvement Program and Programs

REVISED: 5/1/2018

MAP ID (1)	2019 - 2024 TIP Project	2018 - 2023 TIP CN Year	2019 - 2024 TIP CN Year	2019 - 2024 TIP Priority No.	Project Name	Project Limits	Project Description	Priority	In Existing TIP (2018) (2)	Total Cost 2018 (\$1,000's) (3)	Sedro-Woolley 2018 Cost (\$1,000's) (3)	TIF Eligible (Y/N)	JONES-JOHN LINER-TRAIL RD CORRIDOR PROJECT
S17	SW41	2025	2025		SR9/Township St & John Liner/McGarigle Intersection Improvements	SR9 MP 57.43	Intersection Improvements, including signalization or Single Lane Roundabout.	Medium	Yes	1,000	250	Yes	
S13C	SW03B	2025	2025		SR9N Pedestrian/Bicycle Safety Improvements	West Side of SR9 M 57.99 Park Cottage to MP 58.30 North City Limits (1,240 LF)	Construct bicycle lane and sidewalk improvements on the west side of SR9 from Park Cottage Place to the North City Limits.	Medium	Yes	434	109	Yes	1,000
C35		2025	2025		West State Street Overlay	SR 20 to SR 9 (1,500 LF x 30 LF)	Grind and overlay.	High	Yes	259	65	No	
C1D		2026	2026		John Liner Road Arterial Improvements	Reed Street to SR9/Township Street (2,000 LF)	Reconstruct John Liner Road to major collector section including drainage, curbs, sidewalk, shared use path, HMA, pavement markings and illumination.	Medium	Yes	1,600	400	Yes	
C36		2026	2026		North Reed Street Overlay Project 2	John Liner Road to Sapp Road (2,200 LF)	Grind and overlay.	High	Yes	400	100	No	1,600
C7A	SW27	2027	2027		Jameson St Arterial Improvements	600' E of Baley to Railroad St (4,500 LF)	Widen and rebuild Jameson St to secondary standards including 3 lanes, curb & gutter, bike lanes, planter strip, and sidewalks. Some right-of-way may be required.	Medium	Yes	3,600	900	Yes	
C7B	SW29	2027	2027		Jameson St / 11th St Intersection Improvements	Intersection	Change access on 11th St to right-in right-out	Medium	Yes	70	18	Yes	
C37 NEW		2027	2027		Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
NEW-S15B		2028	2028		SR20 West Lane Widening & Safety Improvements	Holtcamp Road / Hodgkin Street	Improve and widen to 3 lanes (2,400 LF)	High	Yes	600	150	Yes	
C7C	SW28	2028	2028		Railroad St / Jameson St Intersection Improvements	Intersection	Improve intersection. Construct roundabout.	Medium	Yes	750	188	Yes	
NEW		2028	2028		Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
C38		2029	2029		Cook Road Arterial Extension	SR20 to Metcalf Street (1,050 LF)	New major collector with drainage, curbs, sidewalks, HMA, pavement markings, illumination	Medium	Yes	825	206	Yes	
S16A		2029	2029		SR20 West Lane Widening & Safety Improvements	Hospital Drive / Holtcamp Road	Improve and widen to 3 lanes (1,300 LF)	Medium	Yes	325	81	Yes	
C7D		2029	2029		Railroad St Arterial Improvements	Jameson St to Fruitdale Rd (3,600 lf)	Widen and rebuild Railroad St to secondary arterial standards including 3 lanes, curb & gutter, bike lanes, planter strip, and sidewalks. Some right-of-way may be required	Medium	Yes	2,880	720	Yes	
NEW		2029	2029		Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
C4	SW26	2030	2030		Reed Street Arterial Improvements	Ferry Street to SR 20 (1,800 LF)	Reconstruct street to arterial standards with new curbs, sidewalks, ADA facilities, HMA pavement and pavement markings.	Medium	Yes	1,440	360	Yes	



**2025-2038 TIP PROJECT LIST**  
**Sedro-Woolley Transportation Improvement Program and Programs**

REVISED: 5/1/2018

MAP ID (1)	2019 - 2024 TIP Project	2018 - 2023 TIP CN Year	2019 - 2024 TIP CN Priority No.	Project Name	Project Limits	Project Description	Priority	In Existing TIP (2018) (2)	Total Cost 2018 (\$1,000's) (3/4)	Sedro-Woolley 2018 Cost (\$1,000's) (3)	TIF Eligible (Y/N)	JONES-JOHN LINER-TRAIL RD CORRIDOR PROJECT
NEW		2030	2030	Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
C2	SW09	2031	2031	F&S Grade Rd Arterial Improvements	SR 20 MP 65.16 to West City Limits/Jones Road (3,700 LF)	Reconstruct F&S Grade Road to arterial standards including drainage, curbs, sidewalk, combined bicycle/pedestrian path, HMA, pavement markings and illumination.	Medium	Yes	2,960	740	Yes	
S20	SW44	2031	2031	SR20/Central Ave Intersection Improvements	SR20 MP 65.63	Intersection improvements or RIRO	Medium	Yes	150	38	Yes	
NEW		2031	2031	Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
S14D	SW43	2032	2032	SR20/Cascade Trail West Extension Phase 2B Collins Road to Holcamp Road	SR20 MP 63.06 Collins Rd to MP 63.64 Holcamp Rd (3,100 LF)	Construct a shared use path along the north side of SR20 from Collins Road to Holcamp Road	Medium	Yes	620	155	Yes	
S8F	SW02F	2032	2032	SR 20 Stormwater Conveyance System Upgrade	SR20 MP 63.64 Holcamp Road to MP 64.21 Hodgkin Road (72 IN - 984 LF)	Upgrade the SR20 Stormwater Conveyance System from Holcamp Road to Hodgkin Road to correct existing capacity issues. Extends and completes undersized portions of the stormwater identified in the SR20/Cook Road Realignment and Grind and overlay.	Medium	Yes	300	300	No	
NEW		2032	2032	Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
C8		2033	2033	State St Sidewalks	Haines to E City Limits (3,000 LF)	Construct sidewalks, ADA ramps, and other pedestrian improvements along north side of State St.	Low	Yes	540	135	Yes	
NEW		2033	2033	Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
C10		2034	2034	Township St / Ferry St Intersection Improvements	Intersection	Construct intersection improvements to include an all-way stop.	Medium	Yes	50	13	No	
C13		2034	2034	Rhodes Rd Arterial Improvements	SR 9 to SR 20 (4,000 LF)	Reconstruct roadway to secondary arterial standards including curb & gutter, bike lanes, sidewalk, and stormwater facilities. (City portion 500 LF, County portion 3,500 LF)	Low	Yes	3,200	800	Yes	
NEW		2034	2034	Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
C15		2035	2035	Hodgkin Road Arterial Extension Project	SR 20 to Cook Rd (2,100 LF)	Construct new collector arterial including drainage, curbs, sidewalks, HMA, pavement markings and illumination. Grind and overlay.	Low	Yes	2,225	556	Yes	
NEW		2035	2035	Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
C20		2036	2036	4th Street, Alexander to State Arterial	Alexander to State (1,600 LF)	Reconstruct to major collector standards to replace 3rd Street as N-S Arterial	Low	Yes	1,300	325	Yes	
NEW		2036	2036	Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	



## 2025-2038 TIP PROJECT LIST

REVISED: 5/1/2018

### Sedro-Woolley Transportation Improvement Program and Programs

2019 - 2024 TIP Project ID (1)	2018 - 2023 TIP CN Year	2019 - 2024 TIP CN Priority No.	Project Name	Project Limits	Project Description	Priority	In Existing TIP (2018) (2)	Total Cost 2018 (\$1,000's) (3)(4)	Sedro- Woolley 2018 Cost (\$1,000's) (3)	TIF Eligible (Y/N)	JONES-JOHN LINER-TRAIL RD CORRIDOR PROJECT
S9	2037		SR9/North Township St Arterial Improvements	SR 20 to city limits (5,900 LF)	Planning Phase - Reconstruct to minor arterial standards including 3 lanes, curb & gutter, bike lanes, planter strip, sidewalks. Some right-of-way may be required. 2016 RTIP EST CN \$4.7M	Medium	Yes	100	25	Yes	
C6B	2037		South Township St Arterial Improvements Project	Dunlop to Sterling St (1,300 LF)	Reconstruct to major collector standards.	Low	Yes	1,040	260	No	
C21	2037		Garden of Eden Rd Arterial Improvements	F&S Grade Road to Jones Road (1,300 LF)	Reconstruct to major collector standards.	Low	Yes	1,040	260	Yes	
C29	2037		Centennial Trail South: County or BNSF RW	South City Limits to Ferry Street (3,700 LF)	County ROW south of Jameson - improve trail with gravel or pavement. BNSF ROW north of Jameson - remove abandoned rail and fees and improve as a trail. ROW acquisition or easement required.	Medium	Yes	500	125	No	
C30	2037		Cascade Trail East Extension	Melcalf Street to 400' East of Township Street (4,420 LF)	Construct a shared use path on former BNSF RW	Medium	Yes	100	25	No	
S13D	2037		SR9/Centennial Trail Pedestrian/Bicycle Safety Improvements	East Side of SR9 MP 57.59 Summer Meadows Place to MP 58.30 North City Limits (4,100 LF)	Construct bicycle lane and sidewalk improvements on the east side of SR9 from Summer Meadows Court to the North City Limits, including a pedestrian crossing bridge at Brickyard Creek.	Medium	Yes	1,700	425	Yes	
NEW	2037		Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
NEW	NEW	3038	NEW PROJECT TBD	TBD	TBD	Low		500	125		
NEW	NEW	3038	Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
SUBTOTAL 2025-2038 PROJECTS								35,308	9,052		2,600
SUBTOTAL 2025-2038 - TIF ELIGIBLE PROJECTS								28,259	28,259		-
SUBTOTAL 2025-2038 - OTHER PROJECTS								7,049	1,987		-

# **Sedro Woolley Traffic Impact Fee Documents**



### Transportation Impact Fee Project List

ID	Project Name	Project Limits	Description	Total Est. Cost (\$)
C14	Jameson Arterial Extension	SR 9 / Batey Rd	New arterial segment	3,020,000
S14A	SR20/Cascade Trail West Extension Ph.1A	Trail Rd / SR 9 South	Shared use path	575,000
S14B	SR20/Cascade Trail West Extension Ph.1B	Hodgin Rd / Trail Rd	Shared use path	288,000
C22	Fruitdale Rd Arterial Improvements	Portobello / North City Limit	Reconstruct to arterial standards incl. roundabout at Northern State Rd	2,320,000
C1B	Jones/John Liner RR Undercrossing	Sapp Rd / Reed St	New BNSF undercrossing and new arterial from E Jones Rd to John Liner Rd	7,700,000
C1C	John Liner Bike/Ped Impr	Redd St / SR 9	Complete Streets completion	555,000
C19	Patrick St Extension	Michael St/E Jones St	New major collector w/sidewalks	2,100,000
C1A	Jones Rd Improvements	F&S Grade Rd / Sapp Rd	Reconstruct to arterial section including sidewalk & shared use path	3,200,000
S16	SR20 & SR9 (Township) Intersection Impr.		Channelization and signal improvements	1,000,000
C18	Portobello Arterial Extension	Township / Cascadia	New major collector connecting Fruitdale w/ SR 9	1,700,000
S2	SR20 & Reed St Intersection Impr.		RIRO access restriction	50,000
S18	SR 9 / W State St Intersection Impr		Intersection improvements	250,000
C3	Cook Rd / Trail Rd Intersection Improvements		Intersection improvements	1,000,000
C9A	Trail Rd Arterial Extension	Cook Rd / F&S Grade	Construct new minor arterial	4,000,000
C9B	Trail Rd – Garden of Eden Rd Extension	F&S Grade / Jones Rd	Construct new minor arterial	850,000
S13C	SR9N Ped/Bike Safety Improvements	Park Cottage / N City Limits	Bike lane & sidewalk improvements	434,000
S17	Township St (SR 9) & John Liner/McGarigle Rd Intersection Improvements		Intersection improvements	1,000,000
C1D	John Liner Rd Arterial Improvements	Reed St / Township St	Reconstruct to arterial section	1,600,000
S6 A-B	SR 20 East Lane Widening & Safety Improvements	SR 9 / Fruitdale Rd	Improve and widen to 3 lanes	960,000
C7A	Jameson St Arterial Improvements	600' e/o Batey to Railroad St	Widen to arterial standards w/3 lanes, bike lane, sidewalk	3,600,000
C7B	Jameson / 11 <sup>th</sup> St Intersection Improvements		Change access to RIRO	70,000
C7C	Railroad St / Jameson Intersection Improvements		Intersection improvements to include new roundabout	750,000
C7D	Railroad St Arterial Improvements	Jameson St / Fruitdale	Reconstruct to arterial standards incl. 3 lanes, bike lanes, sidewalks	2,880,000
C2	F&S Grade Rd Arterial Improvements	SR20 MP 65.16 / Jones Rd	Reconstruct to arterial standards	2,960,000
S14C	SR20/Cascade Trail West Extension Ph.2A	Holtcamp Rd/Hodgin Rd	Shared use path	600,000
S20	SR 20 / Central Ave Intersection Improvements		Intersection improvements or RIRO	150,000
S14D	SR20/Cascade Trail West Extension Ph.2B	Collins Rd/Holtcamp Rd	Shared use path	620,000

<b>ID</b>	<b>Project Name</b>	<b>Project Limits</b>	<b>Description</b>	<b>Total Est. Cost (\$)</b>
C13	Rhodes Rd Arterial Impr	SR 9 / SR 20	Reconstruct to arterial standards incl. bike lanes, sidewalks	3,200,000
C15	Hodgin Rd Arterial Ext.	SR 20 / Cook	New collector arterial	2,225,000
S9	SR9/N Township St Arterial Improvements	SR 20 / City limits	Planning phase – reconstruct to arterial standards incl. 3 lanes, bike lanes, sidewalk	100,000
S13D	SR9 / Centennial Trail Ped/Bike Safety Improvements	Summer Meadows Pl / North City Limits	Construct bicycle lane and sidewalk improvements incl. ped crossing bridge at Brickyard Crk	1,700,000



8250 - 165th Avenue NE  
Suite 100  
Redmond, WA 98052-6628  
T 425-883-4134  
F 425-867-0898  
www.tsinw.com

## Technical Memorandum

### Exhibit O

To Hearing Examiner Staff Report

October 4, 2019

**TO:** David Lee, PE  
City Engineer, City of Sedro-Woolley

**FROM:** Andrew L. Bratlien, PE

**SUBJECT:** McGarigle Development TIA Review

This memorandum summarizes the findings of Transportation Solutions' peer review of the McGarigle Development Traffic Impact Analysis (TIA) dated September 2019. The TIA is provided as **Attachment 1**.

Transportation Solutions reviewed the TIA methods and assumptions, with specific consideration for PM peak hour traffic volume forecasts. As a reference check, the 2025 traffic forecasts in the TIA were compared to the 2036 traffic forecasts identified in the Jones/John Liner/Trail Rd Corridor Traffic Analysis, provided as **Attachment 2**. The Jones/John Liner/Trail Rd forecasts were developed using the Sedro-Woolley citywide travel demand model, which includes anticipated 2036 land use growth consistent with the Sedro-Woolley Comprehensive Plan.

This review indicated that the findings and recommendations of the TIA are generally consistent with the conclusions of the Jones/John Liner/Trail Rd corridor study.

- The intersection of John Liner Rd/McGarigle Rd and Township St (SR 9) will operate at LOS F without improvement in both without- and with-development scenarios.
- The planned single-lane roundabout at the intersection will allow the intersection to operate well at LOS A through the 2036 PM peak hour.
- The residential development does not exceed the total long-range growth forecasts identified in the Sedro-Woolley Comprehensive Plan.

Please contact me with any questions regarding this peer review.

**Attachment 1.** McGarigle Development Traffic Impact Analysis

**Attachment 2.** Jones/John Liner/Trail Rd Corridor Projects Traffic Analysis; Updated 1/3/2019



Gibson Traffic Consultants  
2813 Rockefeller Avenue  
Suite B  
Everett, WA 98201  
425.339.8266

# McGarigle Development Traffic Impact Analysis

Jurisdiction: City of Sedro Woolley

September 2019



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## 1. INTRODUCTION

Gibson Traffic Consultants, Inc. (GTC) has been retained to provide an analysis of the impacts of the McGarigle development in the City of Sedro Woolley. The development is proposed to consist of 85 residential units. The McGarigle development is located on the south side of McGarigle Road, east of Carter Street. The development is proposed to have one access to McGarigle Road opposite of the existing Independence Boulevard/McGarigle Road intersection. A site vicinity map is included in Figure 1.

Zach Wieben, responsible for this report, is a licensed professional engineer (Civil) in the State of Washington and member of the Washington State section of the Institute of Transportation Engineers (ITE).

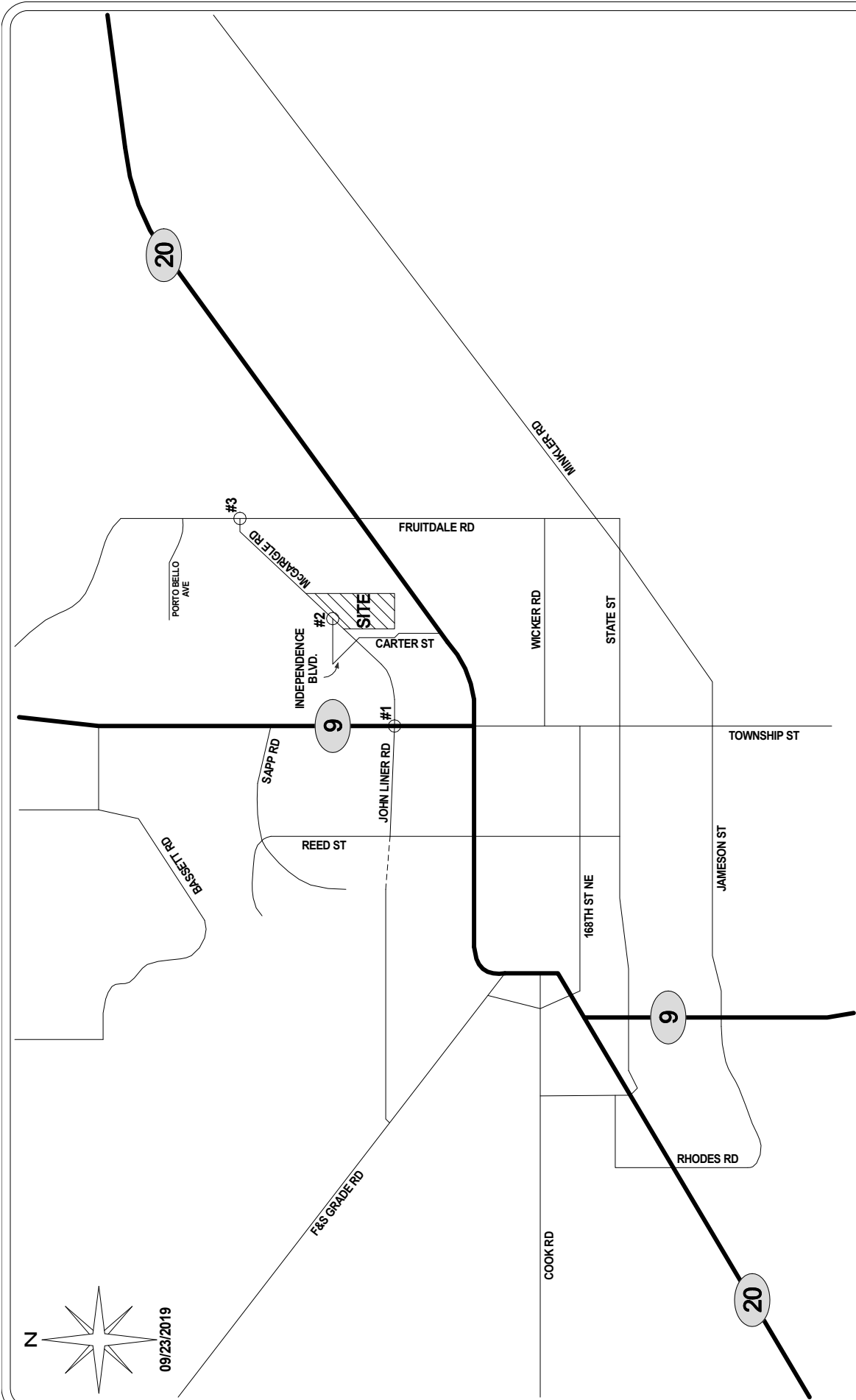
## 2. METHODOLOGY

Scoping discussions with the City of Sedro Woolley staff identified two off-site intersections to be analyzed. The proposed site access to McGarigle Road was also analyzed for level of service and channelization warrants under the future with development conditions. The three intersections analyzed during the PM peak-hour in this report are listed below.

1. SR-9 at John Liner Road/McGarigle Road
2. McGarigle Road at Independence Boulevard/Site Access
3. McGarigle Road at Fruitdale Road

The 85 residential units within the McGarigle Development may be age-restricted units for seniors 55 years and older; however, that determination has yet to be made. Intersection analysis for the off-site intersections and the site access were analyzed with no age restrictions for the development (i.e. a higher vehicle trip generation) to perform a conservative level of service analysis. Trip generation and traffic mitigation fee calculations for both the age-restricted and unrestricted development scenarios are included in the report.

Intersections were analyzed during the 4-6 PM typical afternoon commuter peak period. The existing count data at the study intersections is based on data collected by the independent count firm Traffic Data Gathering (TDG), collected in 2019. The trip generation calculations were performed using data from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10<sup>th</sup> Edition (2017)*. The intersection analysis has been performed using existing channelization, phasing, intersection peak-hour factors, and intersection heavy vehicle factors from the existing turning movement counts. The intersection level of service has been reported for each study intersection.






TRAFFIC IMPACT STUDY  
GTC #19-229

GIBSON TRAFFIC CONSULTANTS

McGARIGLE DEVELOPMENT  
51 NEW DETACHED UNITS  
34 NEW TOWNHOMES

CITY OF SEDRO WOOLLEY

FIGURE 1  
SITE VICINITY  
MAP

LEGEND  
 DEVELOPMENT SITE  
 STUDY INTERSECTION  
 FUTURE ROAD

The peak-hour level of service (LOS) analysis calculations were completed using the *Synchro 10.2, Build 0* software for signalized and unsignalized intersections. This software applies the operational analysis methodology of the *Highway Capacity Manual 6<sup>th</sup> Edition (HCM)*. Traffic congestion is generally measured in terms of level of service. In accordance with the HCM 6<sup>th</sup> Edition, road facilities and intersections are rated between LOS A and LOS F, with LOS A being free flow and LOS F being forced flow or over-capacity conditions. Analysis of the roundabouts was performed using *Sidra Intersection 8.0* software. It is important to note that the volumes included in the Sidra results printouts account for the peak-hour factor, the volumes in the printouts are not the input volumes. The results for the roundabout analysis have been evaluated based on volume-to-capacity (v/c) ratio and the level of service. WSDOT evaluates roundabouts on a pass/fail basis, with a v/c ratio of 0.92 on any approach being the threshold. The level of service criteria is summarized in Table 1. The level of service at two-way stop-controlled intersections is based on the average delay of the worst approach. The level of service at signalized and all-way stop-controlled intersections is based on the average delay for all approaches. Geometric characteristics and conflicting traffic movements are taken into consideration when determining level of service values.

**Table 1: Level of Service Criteria for Intersections**

Level of <sup>1</sup> Service	Expected Delay	Intersection Control Delay (Seconds per Vehicle)	
		Unsignalized Intersections	Signalized Intersections
A	Little/No Delay	≤10	≤10
B	Short Delays	>10 and ≤15	>10 and ≤20
C	Average Delays	>15 and ≤25	>20 and ≤35
D	Long Delays	>25 and ≤35	>35 and ≤55
E	Very Long Delays	>35 and ≤50	>55 and ≤80
F	Extreme Delays <sup>2</sup>	>50	>80

The City of Sedro Woolley's level of service standard for SR-20, SR-9, and principal arterials is LOS D. The City of Sedro Woolley's level of service standard for minor arterials and major collectors is LOS C.

<sup>1</sup> **Source:** *Highway Capacity Manual 6<sup>th</sup> Edition*.

LOS A: Free-flow traffic conditions, with minimal delay to stopped vehicles (no vehicle is delayed longer than one cycle at signalized intersection).

LOS B: Generally stable traffic flow conditions.

LOS C: Occasional back-ups may develop, but delay to vehicles is short term and still tolerable.

LOS D: During short periods of the peak hour, delays to approaching vehicles may be substantial but are tolerable during times of less demand (i.e. vehicles delayed one cycle or less at signal).

LOS E: Intersections operate at or near capacity, with long queues developing on all approaches and long delays.

LOS F: Jammed conditions on all approaches with excessively long delays and vehicles unable to move at times.

<sup>2</sup> When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection.

### 3. TRIP GENERATION AND DISTRIBUTION

#### 3.1 Trip Generation Calculations

The McGarigle development is proposed to consist of 85 residential units. The development is proposed to consist of 51 detached units and 34 attached townhome units. The development could be age-restricted for seniors 55 years and older or it could have no age restrictions. The ITE Land Use Codes (LUC) for the attached and detached units for both the age-restricted and unrestricted scenarios are shown in Table 2.

**Table 2: ITE Land Use Codes**

Unit Type	Number of Units	ITE Land Use Code	
		Age-Restricted (55+ Years)	Unrestricted
Detached	51	ITE LUC 251 Senior Housing Detached	ITE LUC 210 Single-Family Detached
Attached	34	ITE LUC 252 Senior Housing Attached	ITE LUC 220 Multifamily Low-Rise

Trip generation calculations for the age-restricted scenario are summarized in Table 3.

**Table 3: Trip Generation Summary – Age-Restricted Scenario**

Land Use	# Units	ADT	AM Peak-Hour			PM Peak-Hour		
			In	Out	Total	In	Out	Total
LUC 251, Senior Housing, Detached	51	218	4	8	12	9	6	15
LUC 252, Senior Housing, Attached	34	126	2	5	7	5	4	9
<b>TOTAL</b>		<b>344</b>	<b>6</b>	<b>13</b>	<b>19</b>	<b>14</b>	<b>10</b>	<b>24</b>

Trip generation calculations for the unrestricted scenario are summarized in Table 4.

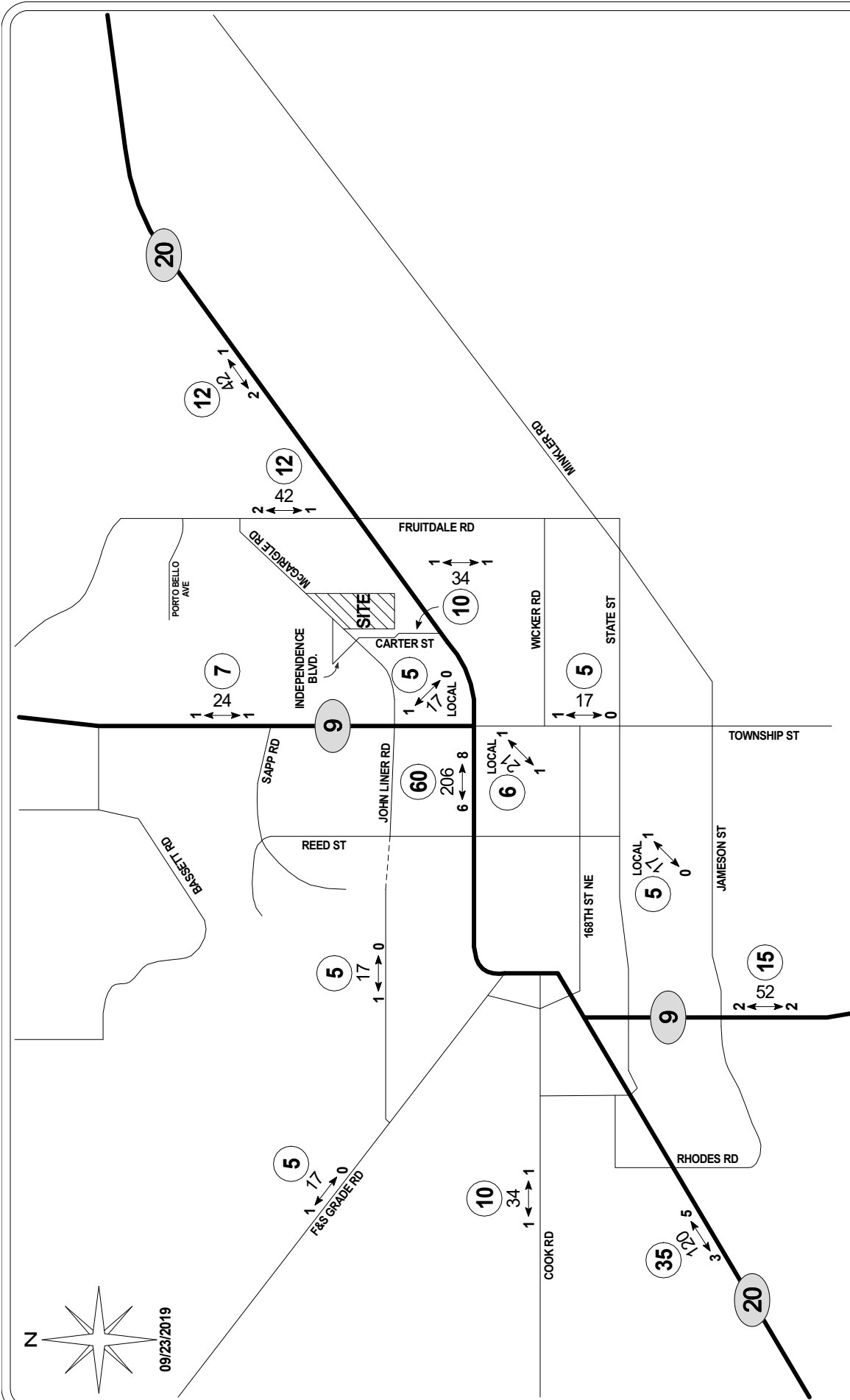
**Table 4: Trip Generation Summary – Unrestricted Scenario**

Land Use	# Units	ADT	AM Peak-Hour			PM Peak-Hour		
			In	Out	Total	In	Out	Total
LUC 210, Single-Family, Detached	51	481	9	28	37	32	19	51
LUC 220, Multifamily (Low-Rise)	34	249	4	12	16	12	7	19
<b>TOTAL</b>		<b>730</b>	<b>13</b>	<b>40</b>	<b>53</b>	<b>44</b>	<b>26</b>	<b>70</b>

As an age-restricted development, the McGarigle development would generate approximately 344 average daily trips, 19 AM peak-hour trips, and 24 PM peak-hour trips. As an unrestricted development, the McGarigle development would generate approximately 730 average daily trips, 53 AM peak-hour trips, and 70 PM peak-hour trips. Detailed trip generation calculations for each of the development scenarios are included in the attachments.

### **3.2 Trip Distribution**

It is estimated that 72% of the development's trips will travel along SR-20, sixty percent to and from the west and twelve percent to and from the east. Approximately 12% of the development's trips are expected to travel along Township Street, five percent to and from the south and seven percent to and from the north. An additional 11% of the trips from the development are expected to travel to local destinations along Township Street between John Liner Road/McGarigle Road and Wicker Road. The remaining 5% of the trips from the development are anticipated to travel along John Liner Road. Detailed trip distributions for the age-restricted and unrestricted PM peak-hour are included in Figure 2 and Figure 3, respectively.



TRAFFIC IMPACT STUDY  
GTC #19-229

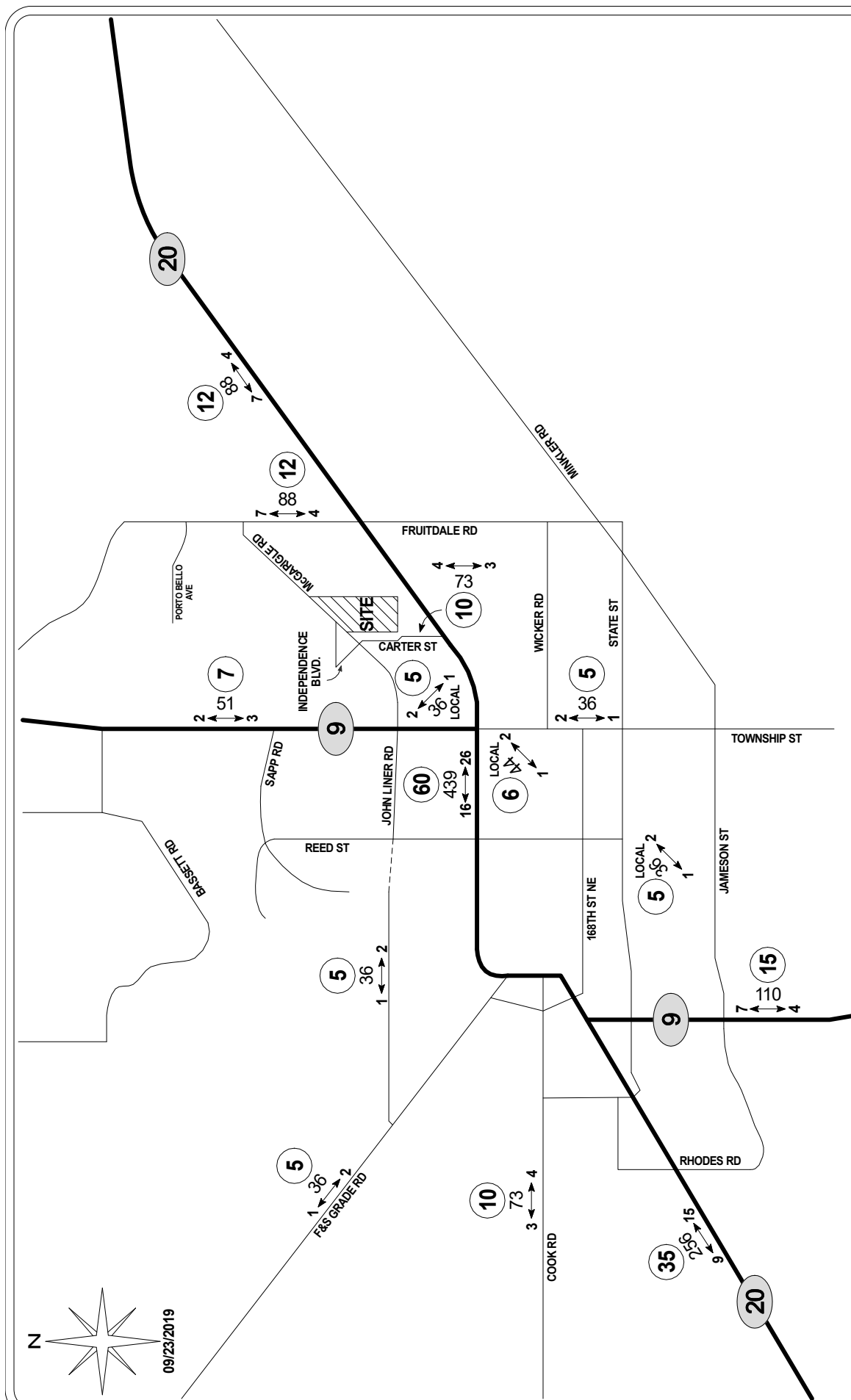
**FIGURE 2**  
DEVELOPMENT TRIP  
DISTRIBUTION  
PM PEAK-HOUR  
AGE-RESTRICTED UNITS

**GIBSON TRAFFIC CONSULTANTS**

**McGARIGLE DEVELOPMENT**  
51 NEW DETACHED UNITS  
34 NEW TOWNHOMES

**CITY OF SEDRO WOOLLEY**

**LEGEND**  
AWDT  
PM  
NEW SITE TRAFFIC  
(DAILY/PEAK HOUR)  
PEAK  
TRIP DISTRIBUTION %  
XX



**TRAFFIC IMPACT STUDY**  
**GTC #19-229**

**FIGURE 3**  
**DEVELOPMENT TRIP**  
**DISTRIBUTION**  
**PM PEAK-HOUR**  
**UNRESTRICTED UNITS**

**GIBSON TRAFFIC CONSULTANTS**

**McGARIGLE DEVELOPMENT  
51 NEW DETACHED UNITS  
34 NEW TOWNHOMES**

CITY OF SEDRO WOOLLEY

**LEGEND**

PM ← AWDT → PEAK

NEW SITE TRAFFIC  
(DAILY/PEAK HOUR)

TRIP DISTRIBUTION %

XX

#### 4. WEEKDAY PM PEAK-HOUR ANALYSIS

The scope of the level of service analysis performed as part of this report is based on scoping discussions between GTC staff and City of Sedro Woolley staff. Level of service at the following intersections has been analyzed for the weekday PM peak-hour:

1. SR-9 at John Liner Rd/McGarigle Rd
2. McGarigle Road at Independence Blvd/Site Access
3. McGarigle Road at Fruitdale Road

Level of Service for each of the study intersections was performed for the following scenarios:

- 2019 Existing Conditions
- 2025 Baseline Conditions
- 2025 Future Conditions with Development

The level of service analysis was performed using development trips from the unrestricted scenario which has the higher expected trip generation of the two scenarios (age restricted vs. unrestricted). Using the higher of the two trip generation scenarios results in a conservative (higher average vehicle delay) level of service analysis for potential mitigation.

##### 4.1 Turning Movement Calculations

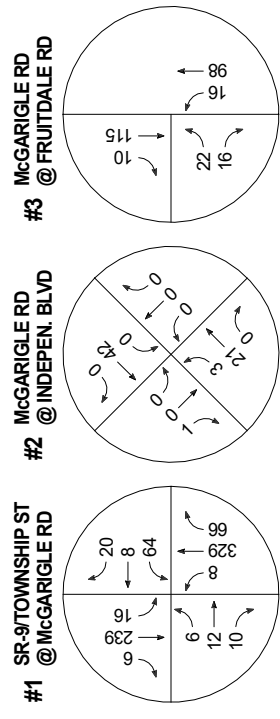
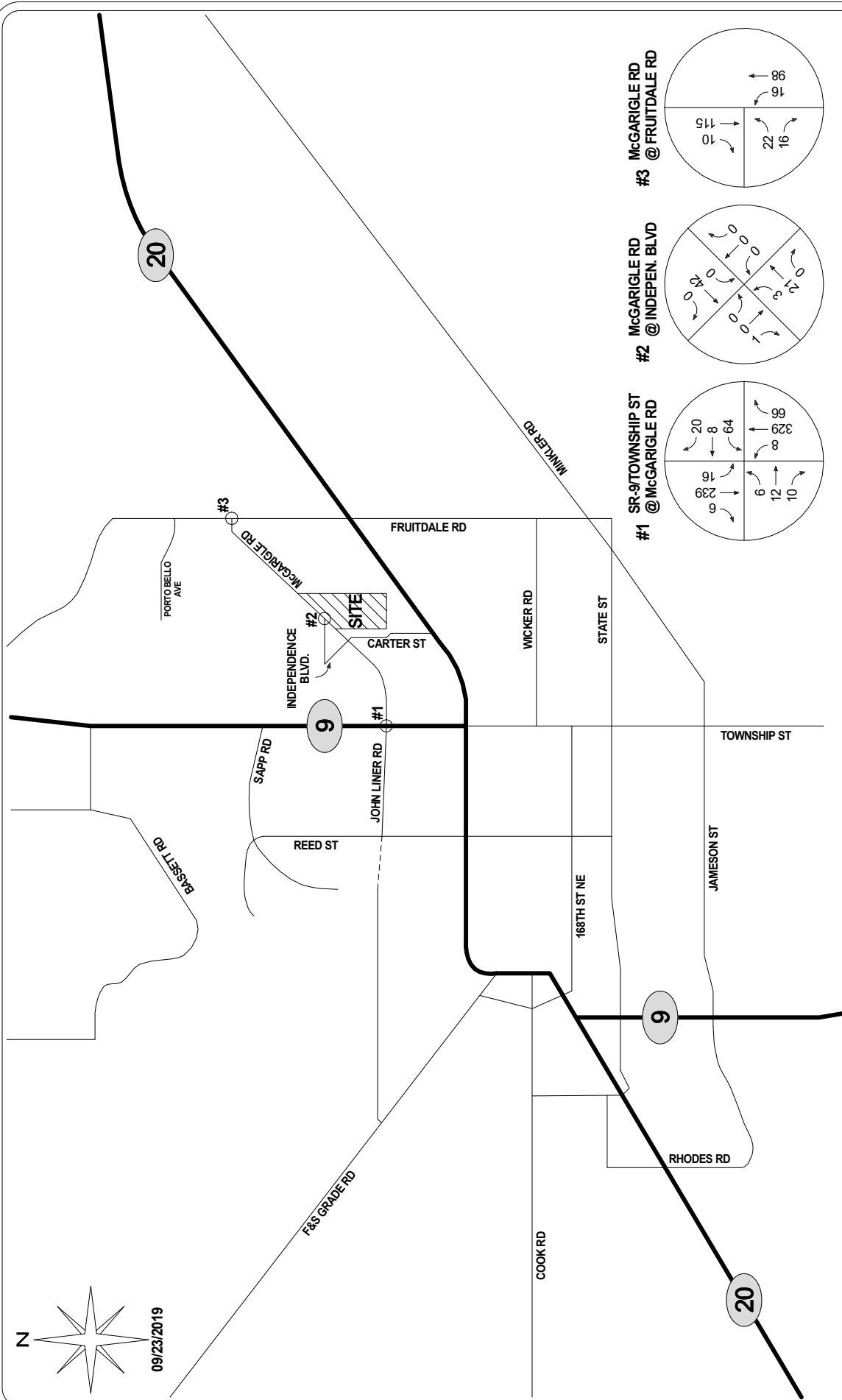
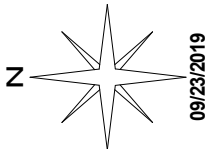
The 2019 existing turning movements at the study intersections are based on data collected by the independent traffic count firm Traffic Data Gathering. The 2019 existing volumes at the study intersections are shown in Figure 4.

The 2025 baseline volumes were calculated by applying a 2% annually compounding growth rate to the existing volumes as well as pipeline trips from the Northern State Campus Planned Action and diverting trips from the John Liner Road Corridor Project. Traffic volumes at the study intersections for the “High Intensity Site Development” were added from a draft version of the Northern State Campus Planned Action EIS completed in 2015 by TSI, Inc. City of Sedro Woolley staff were not able to provide a final analysis and therefore inclusion of trips from the Northern State Campus Planned Action should be considered conservative and preliminary.

Improvement projects identified in the City of Sedro Woolley’s 2019-2024 TIP will construct roadway improvements creating a continuous arterial on John Liner Road/Jones Road from Township Street/SR-9 to F&S Grade Road. This new arterial will provide an alternative parallel route to SR-20 to help reduce congestion. Construction of intersection improvements at Township Street/SR-9 and John Liner Rd/McGarigle Road by WSDOT and the City of Sedro Woolley are expected to be complete in 2025 based on the City’s 2019 TIP. A report completed by TSI, Inc. for the City of Sedro Woolley in January 2019 identified the preferred intersection improvement to be a single-lane roundabout at this location. The TSI report identified approximately 255 additional eastbound trips in the forecast year 2036 on John Liner Road west of Township Street/SR-9 as a result of the arterial and intersection improvements. These additional trips were

added to the 2025 background growth forecast for the McGarigle development analysis based on the 2036 eastbound turning movement splits in the TSI analysis. By including the additional growth expected on John Liner Road by the year 2036 in the 2025 forecast, the intersection volumes for the SR-9 and John Liner Road/McGarigle Road intersection should be considered conservatively high. The background improvement projects included in the 2025 future baseline analysis are either funded or included in the City of Sedro Woolley's Traffic Impact Fee (TIF) cost basis. The 2025 future baseline volumes are shown in Figure 5.

The 2025 future with development turning movement volumes were calculated by adding the unrestricted development trips to the 2025 baseline volumes. The 2025 future with development volumes are shown in Figure 6.



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GTC #19-229

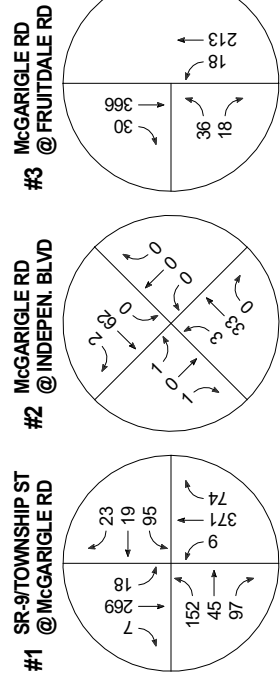
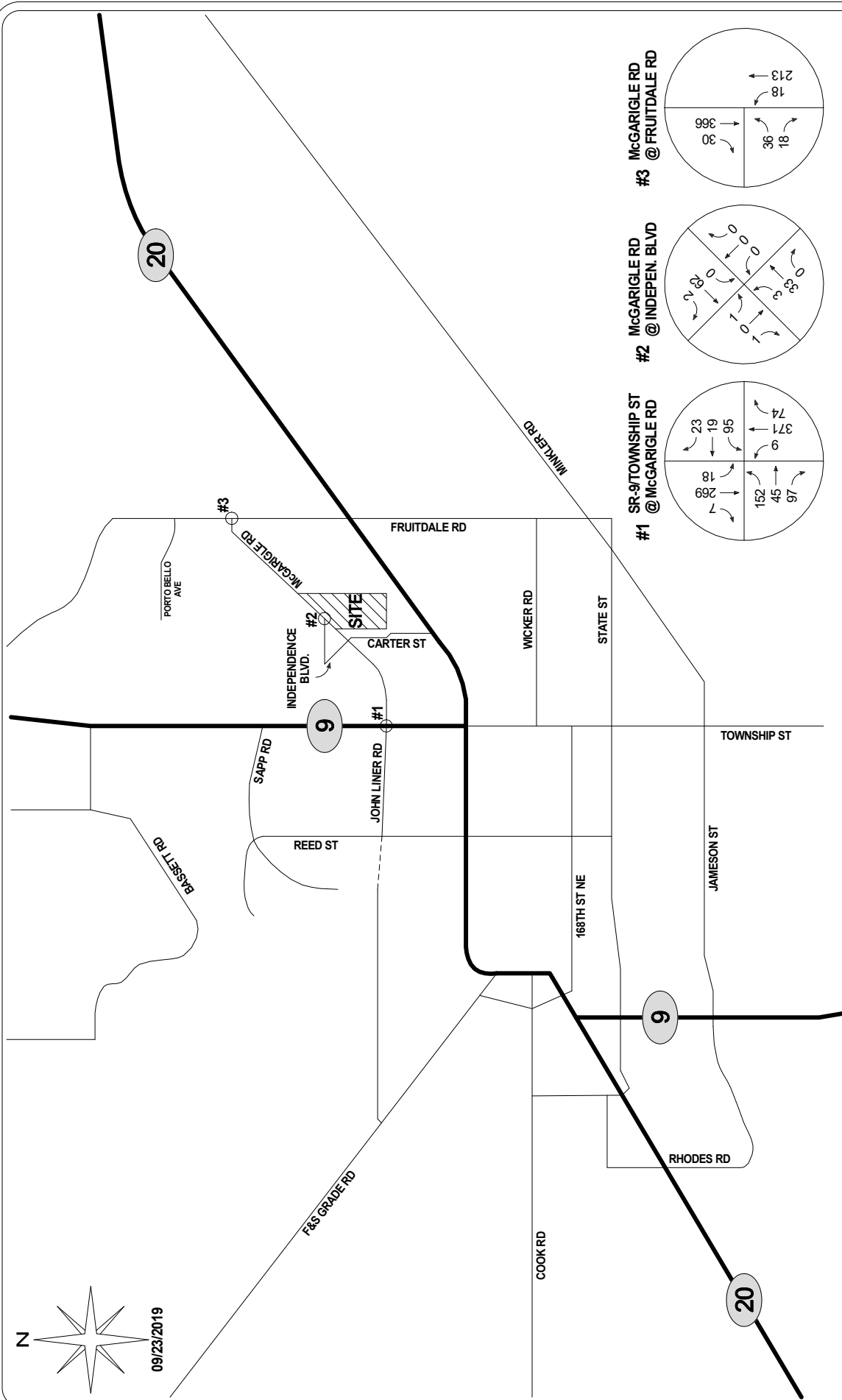
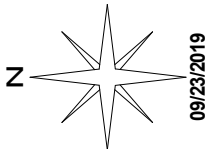
**McGARIGLE DEVELOPMENT**  
51 NEW DETACHED UNITS  
34 NEW TOWNHOMES

**CITY OF SEDRO WOOLLEY**

LEGEND

XX → PEAK HOUR  
TURNING MOVEMENT VOLUMES

**FIGURE 4**  
**EXISTING**  
**TURNING MOVEMENTS**  
**PM PEAK-HOUR**



**GIBSON TRAFFIC CONSULTANTS**

**TRAFFIC IMPACT STUDY**  
GTC #19-229

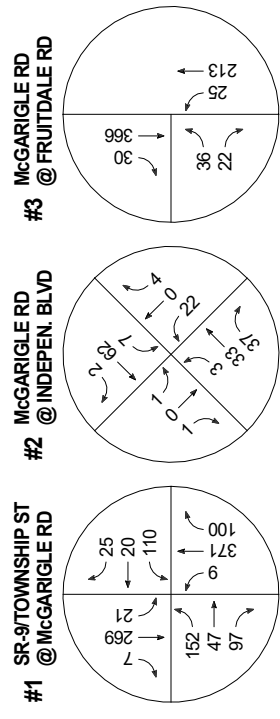
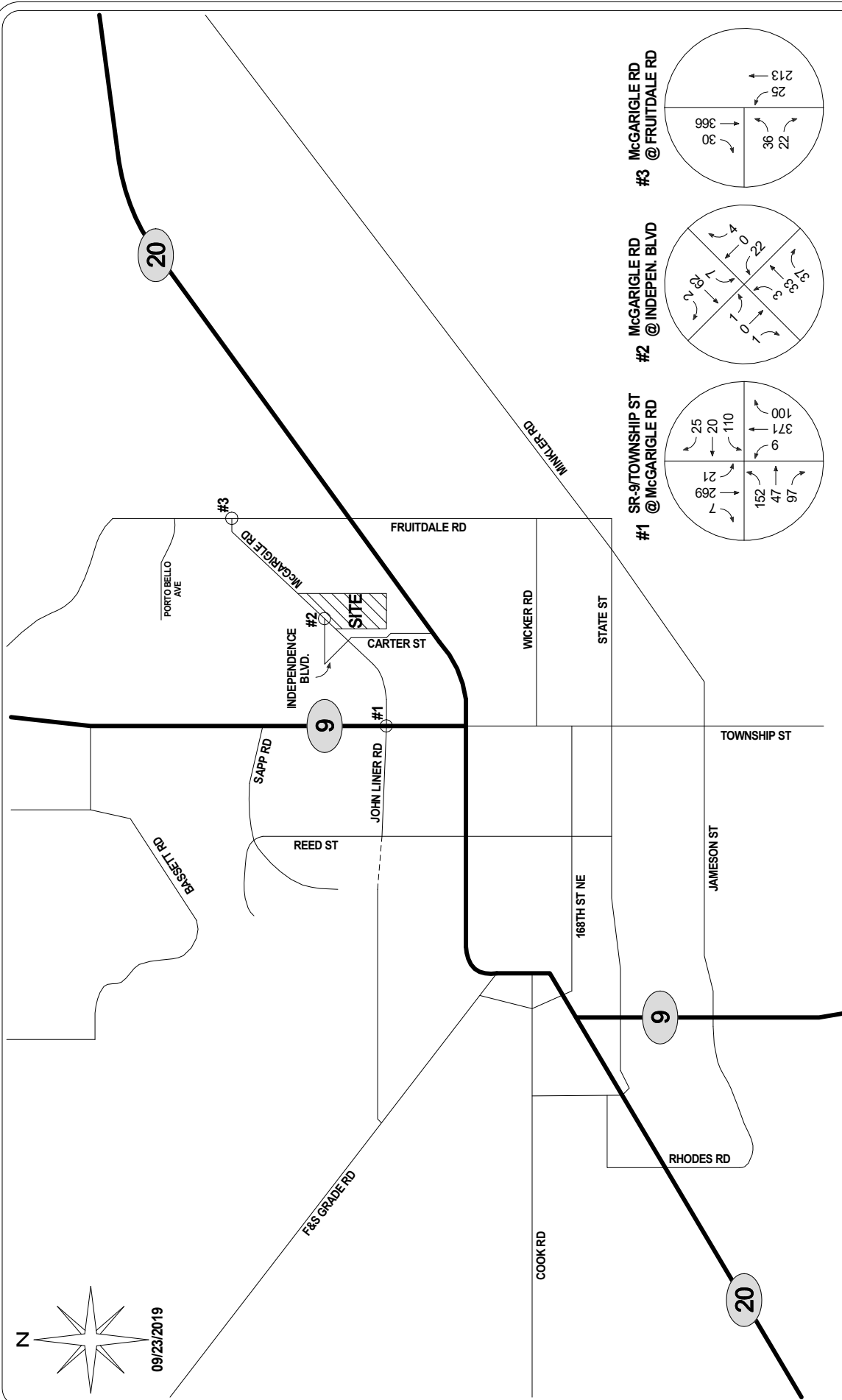
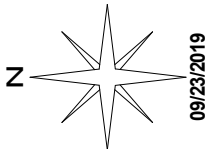
**McGARIGLE DEVELOPMENT**  
51 NEW DETACHED UNITS  
34 NEW TOWNHOMES

**CITY OF SEDRO WOOLLEY**

**LEGEND**

XX → PEAK HOUR TURNING MOVEMENT VOLUMES

**FIGURE 5**  
**2025 BASELINE**  
**TURNING MOVEMENTS**  
**PM PEAK-HOUR**



**GIBSON TRAFFIC CONSULTANTS**

**TRAFFIC IMPACT STUDY**  
GTC #19-229

**McGARIGLE DEVELOPMENT**  
51 NEW DETACHED UNITS  
34 NEW TOWNHOMES

**CITY OF SEDRO WOOLLEY**

**LEGEND**

XX → PEAK HOUR TURNING MOVEMENT VOLUMES

**FIGURE 6**  
**2025 FUTURE W/ DEV.**  
**TURNING MOVEMENTS**  
**PM PEAK-HOUR**

## 4.2 LOS Analysis

The McGarigle development is anticipated to be constructed and occupied by the year 2025. The level of service (LOS) analysis was conducted assuming the development would not have age restricted residential units (unrestricted), which represents the higher of the development's two trip generation scenarios. The 2019 existing, 2025 baseline and 2025 future with development level of service as well as the critical approaches are shown in Table 5.

**Table 5: Intersection LOS Summary – PM Peak-Hour**

Intersection	2019 Existing Conditions			2025 Baseline Conditions			2025 Future with Development Conditions		
	LOS	Delay	Critical Approach	LOS	Delay	Critical Approach	LOS	Delay	Critical Approach
1. SR-9/Township St @ John Liner Rd/McGarigle Rd	C	20.5 sec	Westbound	F	65.5 sec	Eastbound <sup>3</sup>	F	78.0 sec	Eastbound
<i>Single-Lane Roundabout</i>	-	-	-	A	6.9 sec	Northbound (0.42 v/c)	A	7.0 sec	Northbound (0.45 v/c)
2. McGarigle Rd @ Independence Blvd/Access	A	8.6 sec	Eastbound	A	9.1 sec	Eastbound	A	9.8 sec	Westbound
3. McGarigle Rd @ Fruitdale Road	B	10 sec	Eastbound	B	14.3 sec	Eastbound	B	14.4 sec	Eastbound

All study intersections are expected to operate at acceptable levels of service in the 2025 forecast year with planned improvement projects and with the higher trip generation scenario assumed for development trips. Additionally, the single-lane roundabout improvement is expected to operate acceptably at a volume-to-capacity (v/c) ratio below WSDOT's 0.92 threshold. No additional mitigation should therefore be required.

## 5. COLLISION DATA

WSDOT collision data from the five most recent years of collision data (2014-2018) was reviewed at the study intersections. The collision data is summarized in Table 6.

<sup>3</sup> Includes additional eastbound volume from arterial improvements but no intersection improvements

**Table 6: 5-Year Collision Rate Calculation**

Intersection	PM Peak-Hour Intersection Vol.	K-Factor	Total Collisions	Collision Rate <sup>4</sup>	Collision Frequency <sup>5</sup>
SR-9/Township St @ John Liner Rd/McGarigle Rd	804	10	4	0.27	0.80
McGarigle Rd @ Independence Blvd/Access	67	10	0	0.00	0.00
McGarigle Rd @ Fruitdale Road	277	10	0	0.00	0.00

Reported collisions only occurred at the intersection of SR-9/Township Street and John Liner Rd/McGarigle Rd. A total of four reported collisions occurred at the intersection over the five-year timeline which results in a collision frequency of 0.8 collisions per year. The existing PM peak-hour total intersection volume corresponds to a 5-year collision rate of 0.27 collisions per million entering vehicles. Both the collision frequency and collision rate are below the usual thresholds (5 collisions per year, 1.0 collisions per MEV) for unsignalized intersections where additional safety analysis may be advisable. As a result, there are no further safety recommendations at this time.

## 6. ACCESS ANALYSIS

The development's access to McGarigle Road will be located directly across from Independence Boulevard. McGarigle Road is a two-lane road with a 25-mph posted speed limit. There were no reported collisions along the development site's frontage.

Channelization warrants for left and right-turn channelization were performed based on warrants in WSDOT's 2018 Design Manual. No additional channelization is warranted for the McGarigle development access while assuming the higher unrestricted trip generation volumes. Channelization warrants are included in the attachments.

## 7. TRAFFIC MITIGATION FEES

The City of Sedro Woolley assesses traffic impact fees per PM peak-hour trip. The City's current fee per PM peak-hour trip for development's outside the CBD area is \$2,407. The McGarigle development could have an age-restriction on its units for seniors 55 years and older, or the units could be unrestricted. These two scenarios result in a different trip generation calculation for the development and therefore would have different corresponding traffic impact fees. The age-restricted scenario is expected to generate 24 PM peak-hour trips and would have a corresponding traffic impact fee of \$57,768, equivalent to \$679.62 per unit. The unrestricted scenario is expected to generate 70 PM peak-hour trips and would have a corresponding traffic impact fee of \$168,490, equivalent to \$1,982.24 per unit. The development would pay its proportional share of

<sup>4</sup> The collision rate is based on Million Entering Vehicles.

<sup>5</sup> Collisions per year

improvement projects identified in the level of service analysis by paying the City's standard traffic impact fees because the projects are included in the fee's cost basis.

## 8. CONCLUSIONS

The McGarigle development is an 85-unit residential development that could either be age-restricted for seniors 55 years and older or could have no age restrictions. As an age-restricted development, the McGarigle development would generate approximately 344 average daily trips, 19 AM peak-hour trips, and 24 PM peak-hour trips. As an unrestricted development, the McGarigle development would generate approximately 730 average daily trips, 53 AM peak-hour trips, and 70 PM peak-hour trips. All the intersections analyzed would operate within acceptable level of service standards and the approaches would operate with acceptable delays in 2025 with planned roadway improvements by the City of Sedro Woolley. The development's access would not warrant any additional left or right-turn channelization.

City of Sedro Woolley traffic impact fees would differ depending on whether or not an age restriction was put in place for the units. An age-restricted community would have a proportional traffic impact fee of \$57,768, equivalent to \$679.62 per unit for the 85 total units. An unrestricted community would have a proportional traffic impact fee of \$168,490, equivalent to \$1,982.24 per unit for the 85 total units. Payment of the City's traffic impact fee should be considered the development's proportionate share contribution towards the cost of planned improvement projects because the projects are included in the City's fee cost basis.

# **Trip Generation Calculations**

**Trip Generation for:** Development Peak Weekday  
(a.k.a.): Average Weekday Daily Trips (AWDDT)

NET EXTERNAL TRIPS BY TYPE																		
IN BOTH DIRECTIONS																		
DIRECTIONAL ASSIGNMENTS																		
LAND USES		VARIABLE	ITE LU code	Gross Trips				Internal Crossover		TOTAL	PASS-BY		NEW	PASS-BY		NEW		
				Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out	In	Out		
Senior Housing Detached		51 units	251	4.27	50%	50%	217.77	0%	0.00	0.00	217.77	0%	0.00	217.77	0.00	0.00	108.89	108.88
Senior Housing Attached		34 units	252	3.70	50%	50%	125.80	0%	0.00	0.00	125.80	0%	0.00	125.80	0.00	0.00	62.90	62.90
Total							343.57		0.00	0.00	343.57		0.00	343.57	0.00	0.00	171.79	171.78

**Trip Generation for: Development Peak Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 7 and 9 AM  
(a.k.a.): Weekday AM Peak Hour**

LAND USES		NET EXTERNAL TRIPS BY TYPE										
		IN BOTH DIRECTIONS					DIRECTIONAL ASSIGNMENTS					
		TOTAL	PASS-BY		NEW	PASS-BY		NEW		PASS-BY		NEW
	ITE LU code		% IN	% OUT	In+Out (Total)	% of Gross Trips	% of In+Out Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out
Senior Housing Detached	51 units	251	33%	67%	12.24	0%	0%	12.24	0%	12.24	0.00	8.20
Senior Housing Attached	34 units	252	35%	65%	6.80	0%	0%	6.80	0%	6.80	0.00	4.42
<b>Total</b>					19.04			19.04		19.04	0.00	12.62

**Trip Generation for: Development Peak Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 4 and 6 PM  
(a.k.a.): Weekday PM Peak Hour**

		NET EXTERNAL TRIPS BY TYPE										
		IN BOTH DIRECTIONS					DIRECTIONAL ASSIGNMENTS					
		TOTAL	PASS-BY		NEW	PASS-BY		NEW				
LAND USES	VARIABLE	ITE LU code	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out
Senior Housing Detached	51 units	251	0.30	61%	39%	15.30	0%	0.00	0%	15.30	0.00	9.33
Senior Housing Attached	34 units	252	0.26	55%	45%	8.84	0%	0.00	0%	8.84	0.00	4.86
<b>Total</b>						24.14		0.00		24.14	0.00	14.19
											0.00	9.95

McGarigle Development  
GTC #19-229

AM Peak-Hour

%	New ADT	New AM Peak Hour Trips		
		In	Out	Total
100%	344	6	13	19
1%	3.44	0.06	0.13	0.19
2%	6.87	0.13	0.25	0.38
3%	10.31	0.19	0.38	0.57
4%	13.74	0.26	0.50	0.76
5%	17.18	0.32	0.63	0.95
6%	20.61	0.39	0.76	1.14
7%	24.05	0.45	0.88	1.33
8%	27.49	0.51	1.01	1.52
9%	30.92	0.58	1.14	1.71
10%	34.36	0.64	1.26	1.90
11%	37.79	0.71	1.39	2.09
12%	41.23	0.77	1.51	2.28
13%	44.66	0.83	1.64	2.48
14%	48.10	0.90	1.77	2.67
15%	51.54	0.96	1.89	2.86
16%	54.97	1.03	2.02	3.05
17%	58.41	1.09	2.15	3.24
18%	61.84	1.16	2.27	3.43
19%	65.28	1.22	2.40	3.62
20%	68.71	1.28	2.52	3.81
21%	72.15	1.35	2.65	4.00
22%	75.59	1.41	2.78	4.19
23%	79.02	1.48	2.90	4.38
24%	82.46	1.54	3.03	4.57
25%	85.89	1.61	3.16	4.76
26%	89.33	1.67	3.28	4.95
27%	92.76	1.73	3.41	5.14
28%	96.20	1.80	3.53	5.33
29%	99.64	1.86	3.66	5.52
30%	103.07	1.93	3.79	5.71
31%	106.51	1.99	3.91	5.90
32%	109.94	2.05	4.04	6.09
33%	113.38	2.12	4.16	6.28
34%	116.81	2.18	4.29	6.47
35%	120.25	2.25	4.42	6.66
36%	123.69	2.31	4.54	6.85
37%	127.12	2.38	4.67	7.04
38%	130.56	2.44	4.80	7.24
39%	133.99	2.50	4.92	7.43
40%	137.43	2.57	5.05	7.62
41%	140.86	2.63	5.17	7.81
42%	144.30	2.70	5.30	8.00
43%	147.74	2.76	5.43	8.19
44%	151.17	2.82	5.55	8.38
45%	154.61	2.89	5.68	8.57
46%	158.04	2.95	5.81	8.76
47%	161.48	3.02	5.93	8.95
48%	164.91	3.08	6.06	9.14
49%	168.35	3.15	6.18	9.33
50%	171.79	3.21	6.31	9.52

%	New ADT	New AM Peak Hour Trips		
		In	Out	Total
100%	344	6	13	19
51%	175.22	3.27	6.44	9.71
52%	178.66	3.34	6.56	9.90
53%	182.09	3.40	6.69	10.09
54%	185.53	3.47	6.81	10.28
55%	188.96	3.53	6.94	10.47
56%	192.40	3.60	7.07	10.66
57%	195.83	3.66	7.19	10.85
58%	199.27	3.72	7.32	11.04
59%	202.71	3.79	7.45	11.23
60%	206.14	3.85	7.57	11.42
61%	209.58	3.92	7.70	11.61
62%	213.01	3.98	7.82	11.80
63%	216.45	4.04	7.95	12.00
64%	219.88	4.11	8.08	12.19
65%	223.32	4.17	8.20	12.38
66%	226.76	4.24	8.33	12.57
67%	230.19	4.30	8.46	12.76
68%	233.63	4.37	8.58	12.95
69%	237.06	4.43	8.71	13.14
70%	240.50	4.49	8.83	13.33
71%	243.93	4.56	8.96	13.52
72%	247.37	4.62	9.09	13.71
73%	250.81	4.69	9.21	13.90
74%	254.24	4.75	9.34	14.09
75%	257.68	4.82	9.47	14.28
76%	261.11	4.88	9.59	14.47
77%	264.55	4.94	9.72	14.66
78%	267.98	5.01	9.84	14.85
79%	271.42	5.07	9.97	15.04
80%	274.86	5.14	10.10	15.23
81%	278.29	5.20	10.22	15.42
82%	281.73	5.26	10.35	15.61
83%	285.16	5.33	10.47	15.80
84%	288.60	5.39	10.60	15.99
85%	292.03	5.46	10.73	16.18
86%	295.47	5.52	10.85	16.37
87%	298.91	5.59	10.98	16.56
88%	302.34	5.65	11.11	16.76
89%	305.78	5.71	11.23	16.95
90%	309.21	5.78	11.36	17.14
91%	312.65	5.84	11.48	17.33
92%	316.08	5.91	11.61	17.52
93%	319.52	5.97	11.74	17.71
94%	322.96	6.03	11.86	17.90
95%	326.39	6.10	11.99	18.09
96%	329.83	6.16	12.12	18.28
97%	333.26	6.23	12.24	18.47
98%	336.70	6.29	12.37	18.66
99%	340.13	6.36	12.49	18.85
100%	343.57	6.42	12.62	19.04

McGarigle Development  
GTC #19-229

PM Peak-Hour

%	New ADT	New PM Peak Hour Trips		
		In	Out	Total
100%	344	14	10	24
1%	3.44	0.14	0.10	0.24
2%	6.87	0.28	0.20	0.48
3%	10.31	0.43	0.30	0.72
4%	13.74	0.57	0.40	0.97
5%	17.18	0.71	0.50	1.21
6%	20.61	0.85	0.60	1.45
7%	24.05	0.99	0.70	1.69
8%	27.49	1.14	0.80	1.93
9%	30.92	1.28	0.90	2.17
10%	34.36	1.42	1.00	2.41
11%	37.79	1.56	1.09	2.66
12%	41.23	1.70	1.19	2.90
13%	44.66	1.84	1.29	3.14
14%	48.10	1.99	1.39	3.38
15%	51.54	2.13	1.49	3.62
16%	54.97	2.27	1.59	3.86
17%	58.41	2.41	1.69	4.10
18%	61.84	2.55	1.79	4.35
19%	65.28	2.70	1.89	4.59
20%	68.71	2.84	1.99	4.83
21%	72.15	2.98	2.09	5.07
22%	75.59	3.12	2.19	5.31
23%	79.02	3.26	2.29	5.55
24%	82.46	3.41	2.39	5.79
25%	85.89	3.55	2.49	6.04
26%	89.33	3.69	2.59	6.28
27%	92.76	3.83	2.69	6.52
28%	96.20	3.97	2.79	6.76
29%	99.64	4.12	2.89	7.00
30%	103.07	4.26	2.99	7.24
31%	106.51	4.40	3.08	7.48
32%	109.94	4.54	3.18	7.72
33%	113.38	4.68	3.28	7.97
34%	116.81	4.82	3.38	8.21
35%	120.25	4.97	3.48	8.45
36%	123.69	5.11	3.58	8.69
37%	127.12	5.25	3.68	8.93
38%	130.56	5.39	3.78	9.17
39%	133.99	5.53	3.88	9.41
40%	137.43	5.68	3.98	9.66
41%	140.86	5.82	4.08	9.90
42%	144.30	5.96	4.18	10.14
43%	147.74	6.10	4.28	10.38
44%	151.17	6.24	4.38	10.62
45%	154.61	6.39	4.48	10.86
46%	158.04	6.53	4.58	11.10
47%	161.48	6.67	4.68	11.35
48%	164.91	6.81	4.78	11.59
49%	168.35	6.95	4.88	11.83
50%	171.79	7.10	4.98	12.07

%	New ADT	New PM Peak Hour Trips		
		In	Out	Total
100%	344	14	10	24
51%	175.22	7.24	5.07	12.31
52%	178.66	7.38	5.17	12.55
53%	182.09	7.52	5.27	12.79
54%	185.53	7.66	5.37	13.04
55%	188.96	7.80	5.47	13.28
56%	192.40	7.95	5.57	13.52
57%	195.83	8.09	5.67	13.76
58%	199.27	8.23	5.77	14.00
59%	202.71	8.37	5.87	14.24
60%	206.14	8.51	5.97	14.48
61%	209.58	8.66	6.07	14.73
62%	213.01	8.80	6.17	14.97
63%	216.45	8.94	6.27	15.21
64%	219.88	9.08	6.37	15.45
65%	223.32	9.22	6.47	15.69
66%	226.76	9.37	6.57	15.93
67%	230.19	9.51	6.67	16.17
68%	233.63	9.65	6.77	16.42
69%	237.06	9.79	6.87	16.66
70%	240.50	9.93	6.97	16.90
71%	243.93	10.07	7.06	17.14
72%	247.37	10.22	7.16	17.38
73%	250.81	10.36	7.26	17.62
74%	254.24	10.50	7.36	17.86
75%	257.68	10.64	7.46	18.11
76%	261.11	10.78	7.56	18.35
77%	264.55	10.93	7.66	18.59
78%	267.98	11.07	7.76	18.83
79%	271.42	11.21	7.86	19.07
80%	274.86	11.35	7.96	19.31
81%	278.29	11.49	8.06	19.55
82%	281.73	11.64	8.16	19.79
83%	285.16	11.78	8.26	20.04
84%	288.60	11.92	8.36	20.28
85%	292.03	12.06	8.46	20.52
86%	295.47	12.20	8.56	20.76
87%	298.91	12.35	8.66	21.00
88%	302.34	12.49	8.76	21.24
89%	305.78	12.63	8.86	21.48
90%	309.21	12.77	8.96	21.73
91%	312.65	12.91	9.05	21.97
92%	316.08	13.05	9.15	22.21
93%	319.52	13.20	9.25	22.45
94%	322.96	13.34	9.35	22.69
95%	326.39	13.48	9.45	22.93
96%	329.83	13.62	9.55	23.17
97%	333.26	13.76	9.65	23.42
98%	336.70	13.91	9.75	23.66
99%	340.13	14.05	9.85	23.90
100%	343.57	14.19	9.95	24.14

Trip Generation for: Development Peak Weekday  
(a.k.a.): Average Weekday Daily Trips (AWDT)

LAND USES		NET EXTERNAL TRIPS BY TYPE									
		IN BOTH DIRECTIONS					DIRECTIONAL ASSIGNMENTS				
		TOTAL	PASS-BY		NEW	PASS-BY		NEW		NEW	
	ITE LU code		% IN	% OUT	In+Out (Total)	% of Gross Trips	% of Ext. Trips	In+Out (Total)	In+Out (Total)	In	Out
Single Family Detached	210	9.44	50%	50%	481.44	0%	0%	481.44	0.00	0.00	240.72
Multifamily Housing (Low-Rise)	220	7.32	50%	50%	248.88	0%	0%	248.88	0.00	0.00	124.44
Total					730.32			730.32	0.00	0.00	365.16

**Trip Generation for: Development Peak Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 7 and 9 AM  
(a.k.a.): Weekday AM Peak Hour**

LAND USES		NET EXTERNAL TRIPS BY TYPE									
		IN BOTH DIRECTIONS					DIRECTIONAL ASSIGNMENTS				
		TOTAL	PASS-BY		NEW	PASS-BY		NEW		NEW	
	ITE LU code		% IN	% OUT	In+Out (Total)	% of Gross Trips	% of Ext. Trips	In+Out (Total)	In+Out (Total)	In	Out
Single Family Detached	51 units	210	0.74	25%	37.74	0%	0%	0.00	37.74	0.00	9.44
Multifamily Housing (Low-Rise)	34 units	220	0.46	23%	15.64	0%	0%	0.00	15.64	0.00	3.60
<b>Total</b>					53.38			0.00	53.38	0.00	13.04
										0.00	40.34

**Trip Generation for:** Development Peak Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 4 and 6 PM (a.k.a.): Weekday PM Peak Hour

NET EXTERNAL TRIPS BY TYPE																
					IN BOTH DIRECTIONS					DIRECTIONAL ASSIGNMENTS						
					Gross Trips				Internal Crossover		TOTAL	PASS-BY		NEW	PASS-BY	
LAND USES	VARIABLE	ITE LU code	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	In+Out (Total)	% of Ext. Trips	In+Out (Total)	PASS-BY		In	Out	NEW
Single Family Detached	51 units	210	0.99	63%	37%	50.49	0%	0.00	50.49	0%	0.00	0.00	0.00	31.81	18.68	
Multifamily Housing (Low-Rise)	34 units	220	0.56	63%	37%	19.04	0%	0.00	19.04	0%	0.00	0.00	0.00	12.00	7.04	
Total						69.53		0.00	69.53		0.00	0.00	0.00	43.81	25.72	

McGarigle Development  
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AM Peak-Hour

%	New ADT	New AM Peak Hour Trips		
		In	Out	Total
100%	730	13	40	53
1%	7.30	0.13	0.40	0.53
2%	14.61	0.26	0.81	1.07
3%	21.91	0.39	1.21	1.60
4%	29.21	0.52	1.61	2.14
5%	36.52	0.65	2.02	2.67
6%	43.82	0.78	2.42	3.20
7%	51.12	0.91	2.82	3.74
8%	58.43	1.04	3.23	4.27
9%	65.73	1.17	3.63	4.80
10%	73.03	1.30	4.03	5.34
11%	80.34	1.43	4.44	5.87
12%	87.64	1.56	4.84	6.41
13%	94.94	1.70	5.24	6.94
14%	102.24	1.83	5.65	7.47
15%	109.55	1.96	6.05	8.01
16%	116.85	2.09	6.45	8.54
17%	124.15	2.22	6.86	9.07
18%	131.46	2.35	7.26	9.61
19%	138.76	2.48	7.66	10.14
20%	146.06	2.61	8.07	10.68
21%	153.37	2.74	8.47	11.21
22%	160.67	2.87	8.87	11.74
23%	167.97	3.00	9.28	12.28
24%	175.28	3.13	9.68	12.81
25%	182.58	3.26	10.09	13.35
26%	189.88	3.39	10.49	13.88
27%	197.19	3.52	10.89	14.41
28%	204.49	3.65	11.30	14.95
29%	211.79	3.78	11.70	15.48
30%	219.10	3.91	12.10	16.01
31%	226.40	4.04	12.51	16.55
32%	233.70	4.17	12.91	17.08
33%	241.01	4.30	13.31	17.62
34%	248.31	4.43	13.72	18.15
35%	255.61	4.56	14.12	18.68
36%	262.92	4.69	14.52	19.22
37%	270.22	4.82	14.93	19.75
38%	277.52	4.96	15.33	20.28
39%	284.82	5.09	15.73	20.82
40%	292.13	5.22	16.14	21.35
41%	299.43	5.35	16.54	21.89
42%	306.73	5.48	16.94	22.42
43%	314.04	5.61	17.35	22.95
44%	321.34	5.74	17.75	23.49
45%	328.64	5.87	18.15	24.02
46%	335.95	6.00	18.56	24.55
47%	343.25	6.13	18.96	25.09
48%	350.55	6.26	19.36	25.62
49%	357.86	6.39	19.77	26.16
50%	365.16	6.52	20.17	26.69

%	New ADT	New AM Peak Hour Trips		
		In	Out	Total
100%	730	13	40	53
51%	372.46	6.65	20.57	27.22
52%	379.77	6.78	20.98	27.76
53%	387.07	6.91	21.38	28.29
54%	394.37	7.04	21.78	28.83
55%	401.68	7.17	22.19	29.36
56%	408.98	7.30	22.59	29.89
57%	416.28	7.43	22.99	30.43
58%	423.59	7.56	23.40	30.96
59%	430.89	7.69	23.80	31.49
60%	438.19	7.82	24.20	32.03
61%	445.50	7.95	24.61	32.56
62%	452.80	8.08	25.01	33.10
63%	460.10	8.22	25.41	33.63
64%	467.40	8.35	25.82	34.16
65%	474.71	8.48	26.22	34.70
66%	482.01	8.61	26.62	35.23
67%	489.31	8.74	27.03	35.76
68%	496.62	8.87	27.43	36.30
69%	503.92	9.00	27.83	36.83
70%	511.22	9.13	28.24	37.37
71%	518.53	9.26	28.64	37.90
72%	525.83	9.39	29.04	38.43
73%	533.13	9.52	29.45	38.97
74%	540.44	9.65	29.85	39.50
75%	547.74	9.78	30.26	40.04
76%	555.04	9.91	30.66	40.57
77%	562.35	10.04	31.06	41.10
78%	569.65	10.17	31.47	41.64
79%	576.95	10.30	31.87	42.17
80%	584.26	10.43	32.27	42.70
81%	591.56	10.56	32.68	43.24
82%	598.86	10.69	33.08	43.77
83%	606.17	10.82	33.48	44.31
84%	613.47	10.95	33.89	44.84
85%	620.77	11.08	34.29	45.37
86%	628.08	11.21	34.69	45.91
87%	635.38	11.34	35.10	46.44
88%	642.68	11.48	35.50	46.97
89%	649.98	11.61	35.90	47.51
90%	657.29	11.74	36.31	48.04
91%	664.59	11.87	36.71	48.58
92%	671.89	12.00	37.11	49.11
93%	679.20	12.13	37.52	49.64
94%	686.50	12.26	37.92	50.18
95%	693.80	12.39	38.32	50.71
96%	701.11	12.52	38.73	51.24
97%	708.41	12.65	39.13	51.78
98%	715.71	12.78	39.53	52.31
99%	723.02	12.91	39.94	52.85
100%	730.32	13.04	40.34	53.38

McGarigle Development  
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PM Peak-Hour

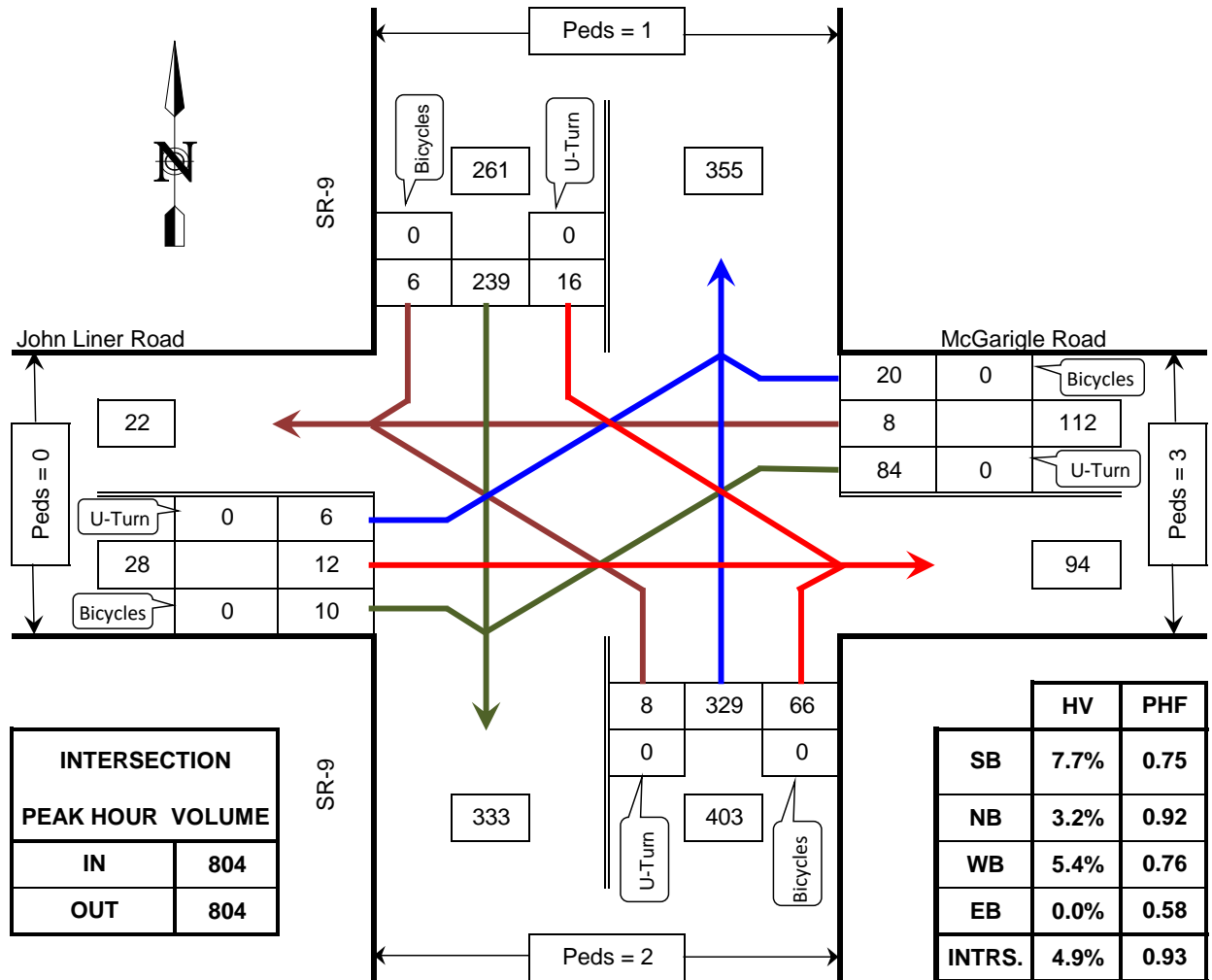
%	New ADT	New PM Peak Hour Trips		
		In	Out	Total
100%	730	44	26	70
1%	7.30	0.44	0.26	0.70
2%	14.61	0.88	0.51	1.39
3%	21.91	1.31	0.77	2.09
4%	29.21	1.75	1.03	2.78
5%	36.52	2.19	1.29	3.48
6%	43.82	2.63	1.54	4.17
7%	51.12	3.07	1.80	4.87
8%	58.43	3.50	2.06	5.56
9%	65.73	3.94	2.31	6.26
10%	73.03	4.38	2.57	6.95
11%	80.34	4.82	2.83	7.65
12%	87.64	5.26	3.09	8.34
13%	94.94	5.70	3.34	9.04
14%	102.24	6.13	3.60	9.73
15%	109.55	6.57	3.86	10.43
16%	116.85	7.01	4.12	11.12
17%	124.15	7.45	4.37	11.82
18%	131.46	7.89	4.63	12.52
19%	138.76	8.32	4.89	13.21
20%	146.06	8.76	5.14	13.91
21%	153.37	9.20	5.40	14.60
22%	160.67	9.64	5.66	15.30
23%	167.97	10.08	5.92	15.99
24%	175.28	10.51	6.17	16.69
25%	182.58	10.95	6.43	17.38
26%	189.88	11.39	6.69	18.08
27%	197.19	11.83	6.94	18.77
28%	204.49	12.27	7.20	19.47
29%	211.79	12.70	7.46	20.16
30%	219.10	13.14	7.72	20.86
31%	226.40	13.58	7.97	21.55
32%	233.70	14.02	8.23	22.25
33%	241.01	14.46	8.49	22.94
34%	248.31	14.90	8.74	23.64
35%	255.61	15.33	9.00	24.34
36%	262.92	15.77	9.26	25.03
37%	270.22	16.21	9.52	25.73
38%	277.52	16.65	9.77	26.42
39%	284.82	17.09	10.03	27.12
40%	292.13	17.52	10.29	27.81
41%	299.43	17.96	10.55	28.51
42%	306.73	18.40	10.80	29.20
43%	314.04	18.84	11.06	29.90
44%	321.34	19.28	11.32	30.59
45%	328.64	19.71	11.57	31.29
46%	335.95	20.15	11.83	31.98
47%	343.25	20.59	12.09	32.68
48%	350.55	21.03	12.35	33.37
49%	357.86	21.47	12.60	34.07
50%	365.16	21.91	12.86	34.77

%	New ADT	New PM Peak Hour Trips		
		In	Out	Total
100%	730	44	26	70
51%	372.46	22.34	13.12	35.46
52%	379.77	22.78	13.37	36.16
53%	387.07	23.22	13.63	36.85
54%	394.37	23.66	13.89	37.55
55%	401.68	24.10	14.15	38.24
56%	408.98	24.53	14.40	38.94
57%	416.28	24.97	14.66	39.63
58%	423.59	25.41	14.92	40.33
59%	430.89	25.85	15.17	41.02
60%	438.19	26.29	15.43	41.72
61%	445.50	26.72	15.69	42.41
62%	452.80	27.16	15.95	43.11
63%	460.10	27.60	16.20	43.80
64%	467.40	28.04	16.46	44.50
65%	474.71	28.48	16.72	45.19
66%	482.01	28.91	16.98	45.89
67%	489.31	29.35	17.23	46.59
68%	496.62	29.79	17.49	47.28
69%	503.92	30.23	17.75	47.98
70%	511.22	30.67	18.00	48.67
71%	518.53	31.11	18.26	49.37
72%	525.83	31.54	18.52	50.06
73%	533.13	31.98	18.78	50.76
74%	540.44	32.42	19.03	51.45
75%	547.74	32.86	19.29	52.15
76%	555.04	33.30	19.55	52.84
77%	562.35	33.73	19.80	53.54
78%	569.65	34.17	20.06	54.23
79%	576.95	34.61	20.32	54.93
80%	584.26	35.05	20.58	55.62
81%	591.56	35.49	20.83	56.32
82%	598.86	35.92	21.09	57.01
83%	606.17	36.36	21.35	57.71
84%	613.47	36.80	21.60	58.41
85%	620.77	37.24	21.86	59.10
86%	628.08	37.68	22.12	59.80
87%	635.38	38.11	22.38	60.49
88%	642.68	38.55	22.63	61.19
89%	649.98	38.99	22.89	61.88
90%	657.29	39.43	23.15	62.58
91%	664.59	39.87	23.41	63.27
92%	671.89	40.31	23.66	63.97
93%	679.20	40.74	23.92	64.66
94%	686.50	41.18	24.18	65.36
95%	693.80	41.62	24.43	66.05
96%	701.11	42.06	24.69	66.75
97%	708.41	42.50	24.95	67.44
98%	715.71	42.93	25.21	68.14
99%	723.02	43.37	25.46	68.83
100%	730.32	43.81	25.72	69.53

# Turning Movement Counts

**TURNING MOVEMENTS DIAGRAM**

**4:00 PM - 6:00 PM PEAK HOUR: 4:00 PM TO 5:00 PM**



PHF = Peak Hour Factor  
HV = Heavy Vehicle

**John Liner Road/McGarigle Road @ SR-9**

**Sedro Woolley, WA**

COUNTED BY: TDG

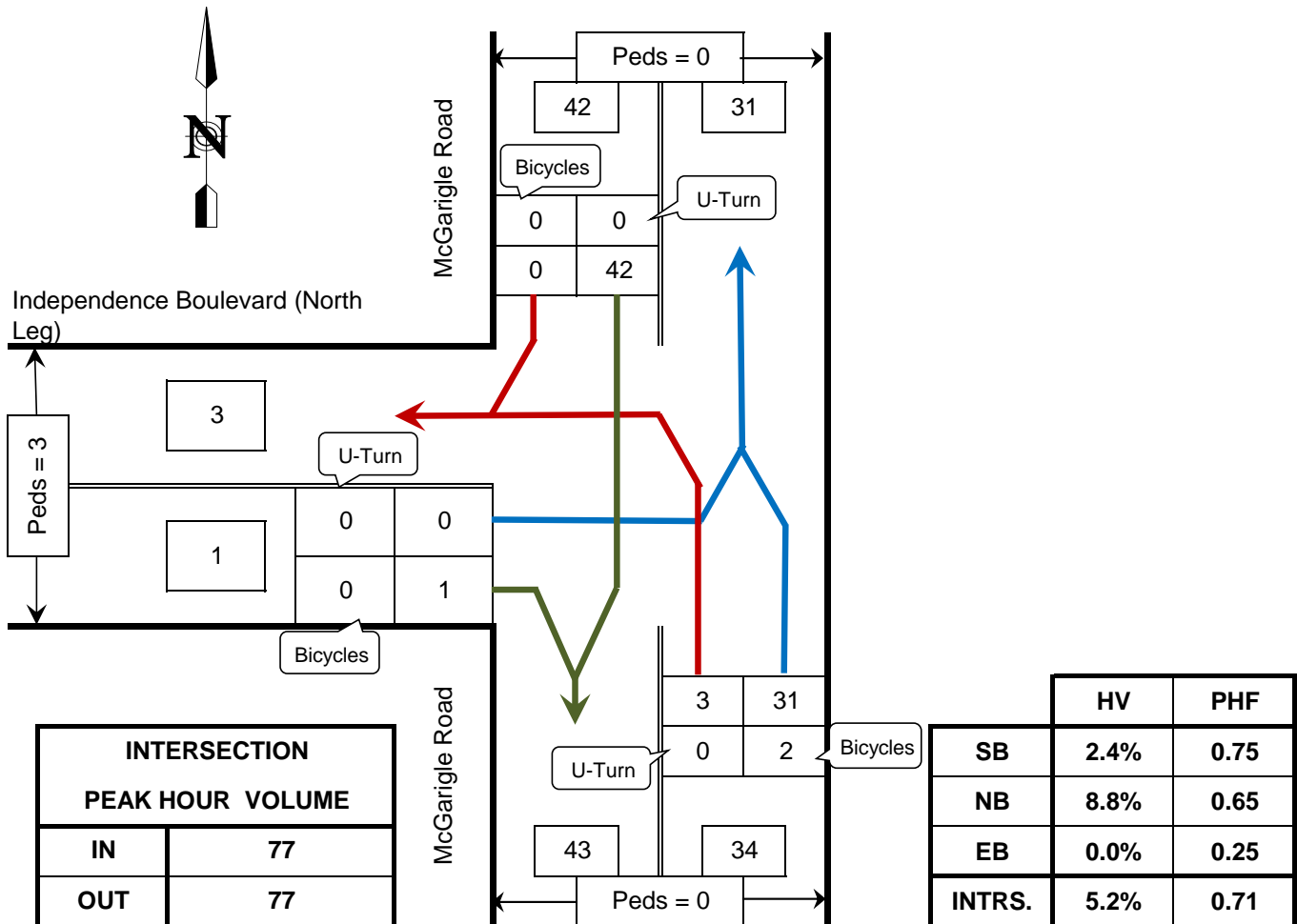
DATE OF COUNT: Wed. 4/24/19

REDUCTION DATE: Thu. 4/25/19

TIME OF COUNT: 4:00 PM - 6:00 PM

**TURNING MOVEMENTS DIAGRAM**

**4:00 PM - 6:00 PM PEAK HOUR: 5:00 PM TO 6:00 PM**



**McGarigle Road @ Independence Boulevard (North Leg)**

**Sedro Woolley, WA**

COUNTED BY: TDG

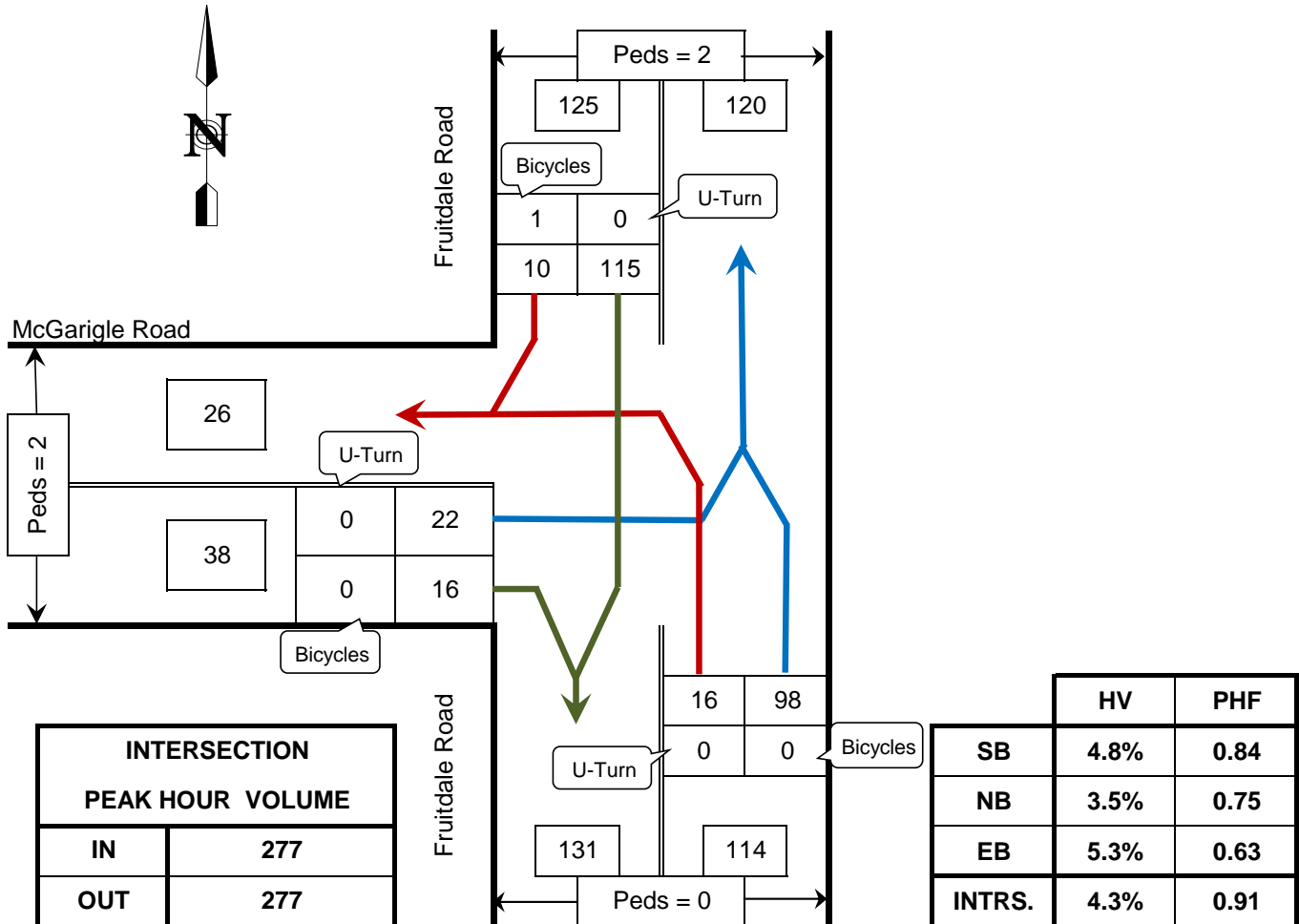
DATE OF COUNT: Wed. 9/18/19

REDUCTION DATE: Sun. 9/22/19

TIME OF COUNT: 4:00 PM - 6:00 PM

**TURNING MOVEMENTS DIAGRAM**

**4:00 PM - 6:00 PM PEAK HOUR: 4:45 PM TO 5:45 PM**



HV = Heavy Vehicles  
PHF = Peak Hour Factor

**McGarigle Road @ Fruitdale Road**

**Sedro Woolley, WA**

COUNTED BY: TDG

DATE OF COUNT: Wed. 4/24/19

REDUCTION DATE: Thu. 4/25/19

TIME OF COUNT: 4:00 PM - 6:00 PM

# **2025 Turning Movement Calculations**

1 SR-9 @ McGarigle Rd

Data Source: **TDG**

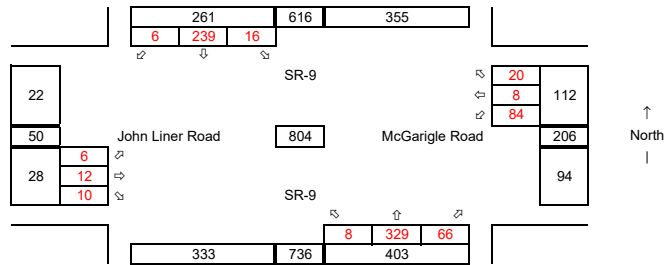


Diagram illustrating the proposed SR-9 interchange at John Liner Road and McGargile Road. The diagram shows the layout of the interchange, including the SR-9 road, the John Liner Road, and the McGargile Road. It includes traffic flow arrows and vehicle counts for each approach.

**SR-9 Approach (Northbound):**

- Vehicle counts: 294, 840, 546
- Lane configuration: 2 lanes (left, right)

**SR-9 Approach (Southbound):**

- Vehicle counts: 7, 269, 18
- Lane configuration: 3 lanes (left, through, right)

**John Liner Road Approach (Northbound):**

- Vehicle counts: 35, 329
- Lane configuration: 2 lanes (left, right)

**John Liner Road Approach (Southbound):**

- Vehicle counts: 152, 45, 97
- Lane configuration: 3 lanes (left, through, right)

**McGargile Road Approach (Northbound):**

- Vehicle counts: 23, 19, 95
- Lane configuration: 3 lanes (left, through, right)

**McGargile Road Approach (Southbound):**

- Vehicle counts: 137, 274, 137
- Lane configuration: 3 lanes (left, through, right)

**SR-9 Interchange Structure:**

- SR-9 bridge over McGargile Road
- John Liner Road bridge over SR-9

**SR-9 Approach (Northbound):**

- Vehicle counts: 9, 371, 74
- Lane configuration: 3 lanes (left, through, right)

**SR-9 Approach (Southbound):**

- Vehicle counts: 461, 915, 454
- Lane configuration: 3 lanes (left, through, right)

[illegible]

The map shows the SR-9 corridor with the following stations and segment lengths:

- Station 297 (top left)
- Station 845 (top center)
- Station 548 (top right)
- Station 7 (left of 297)
- Station 269 (between 7 and 297)
- Station 21 (right of 269)
- Station 36 (left of 332)
- Station 332 (left of 152)
- Station 152 (left of 47)
- Station 47 (left of 97)
- Station 97 (left of 1,228)
- Station 1,228 (center)
- Station 25 (top right of 155)
- Station 20 (between 25 and 110)
- Station 110 (left of 155)
- Station 155 (right of 110)
- Station 323 (right of 155)
- Station 168 (bottom right of 323)
- Station 476 (bottom left)
- Station 956 (bottom center)
- Station 9 (bottom right of 476)
- Station 371 (between 9 and 100)
- Station 100 (bottom right of 371)

John Liner Road and McGargie Road are labeled. Arrows indicate travel directions. A north arrow points upwards.

The diagram shows a road network with the following components:

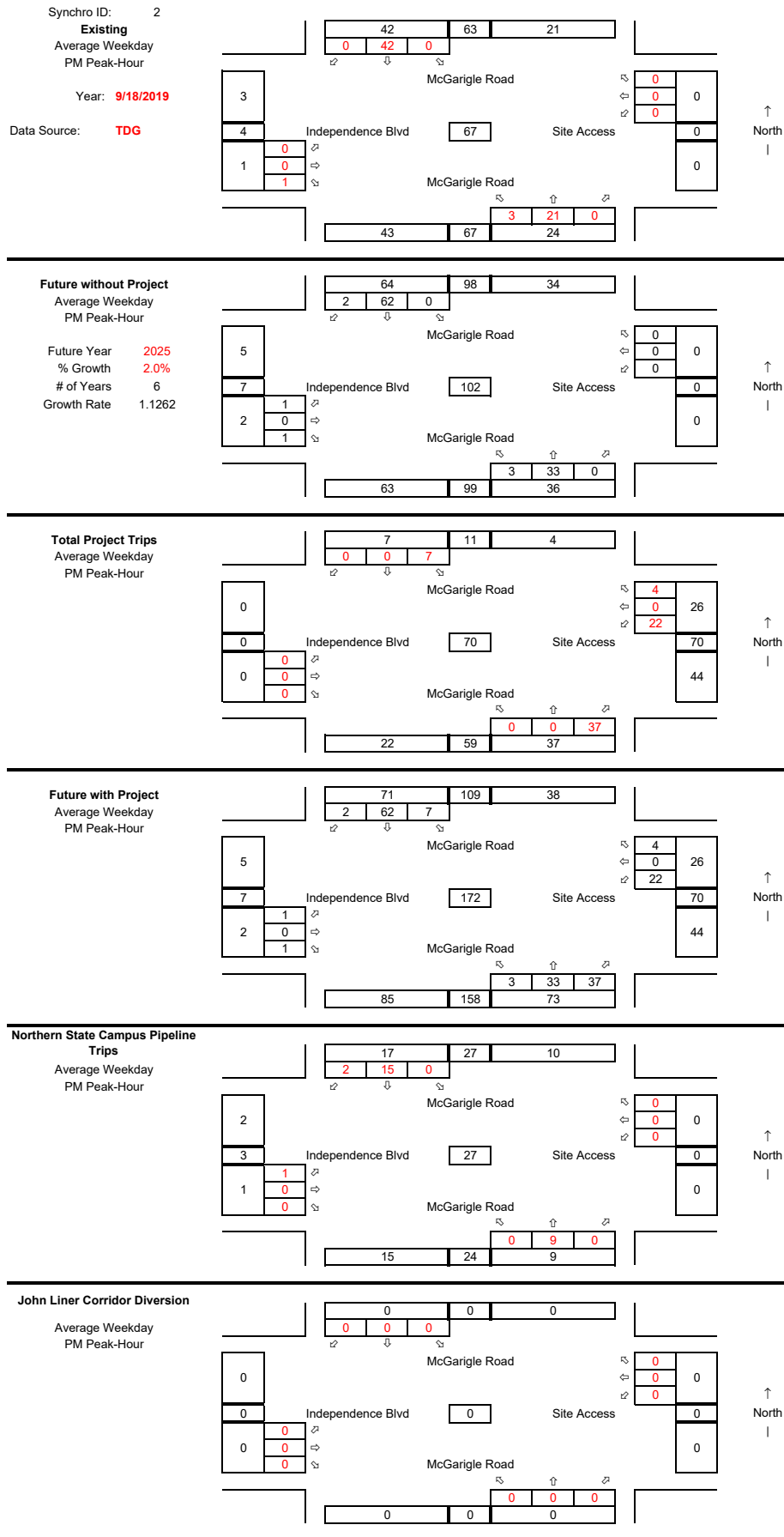
- John Liner Road:** A vertical road on the left. It has a traffic light with a red light (top) and a green light (bottom). Below the green light is a yellow light. A north arrow points upwards.
- McGargie Road:** A horizontal road in the middle. It has a traffic light with a red light (left) and a green light (right). Below the green light is a yellow light.
- SR-9:** A vertical road on the right. It has a traffic light with a red light (top) and a green light (bottom). Below the green light is a yellow light.
- Intersections:**
  - John Liner Road and McGargie Road intersect. The traffic light at this intersection has a red light (left) and a green light (right). Below the green light is a yellow light.
  - McGargie Road and SR-9 intersect. The traffic light at this intersection has a red light (left) and a green light (right). Below the green light is a yellow light.
- Other Features:**
  - A north arrow points upwards.
  - Arrows indicate traffic flow directions.

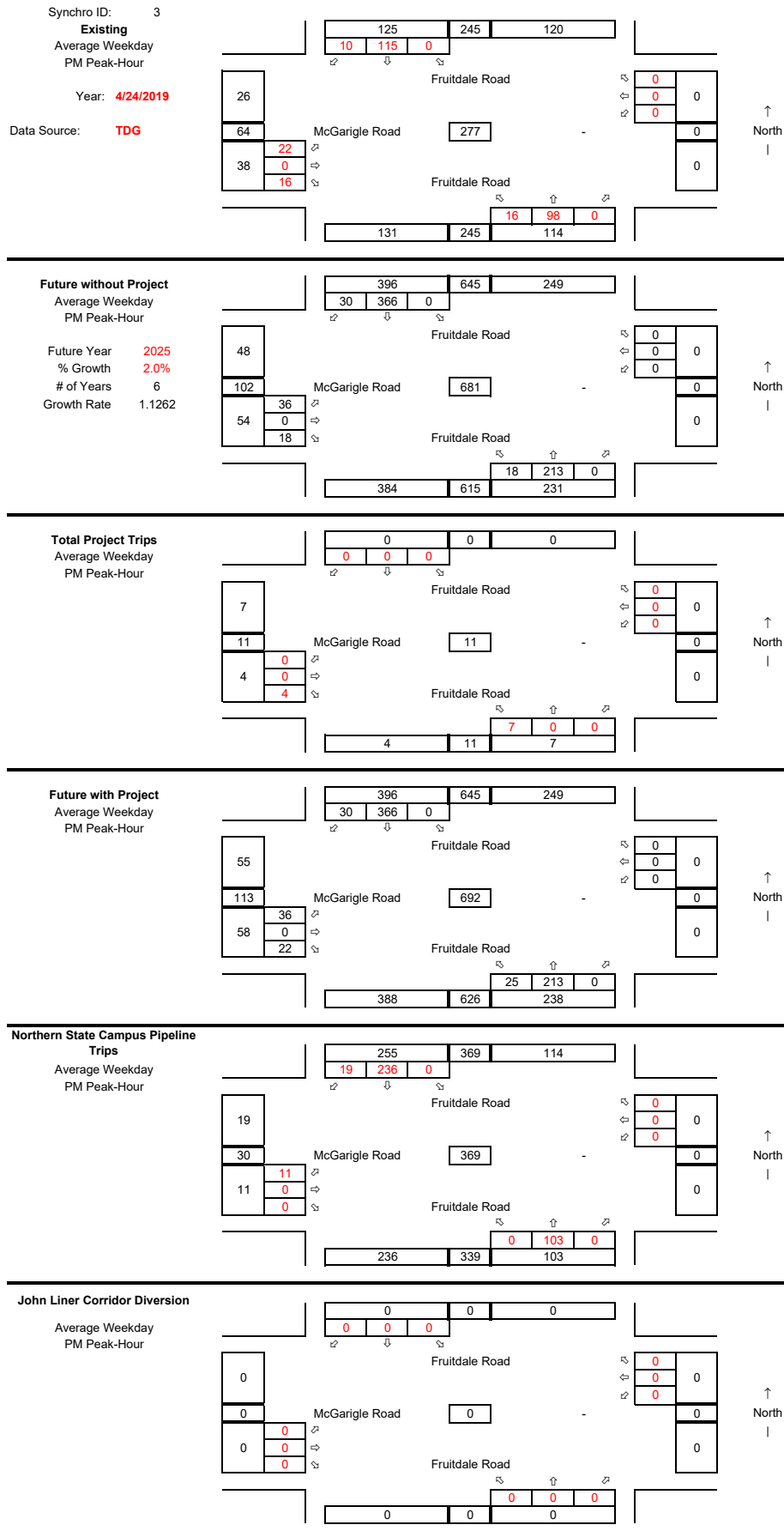
The diagram illustrates the SR-9 corridor with the following details:

- Corridor Orientation:** North is indicated by an upward arrow on the right side.
- Intersections:**
  - John Liner Road:** Located on the left side of the corridor. It has a left-turn lane (marked with a left-turn arrow) and a right-turn lane (marked with a right-turn arrow).
  - McGarigle Road:** Located on the right side of the corridor. It has a left-turn lane (marked with a left-turn arrow) and a right-turn lane (marked with a right-turn arrow).
- Vehicle Counts (shown in boxes):**
  - Northbound (top):**
    - Approaching John Liner Road: 0 (left), 145 (middle), 145 (right).
    - Between John Liner Road and McGarigle Road: 0 (left), 0 (middle), 0 (right).
    - Approaching McGarigle Road: 0 (left), 0 (middle), 0 (right).
    - Between McGarigle Road and the bottom: 24 (left), 24 (right).
  - Southbound (bottom):**
    - Approaching McGarigle Road: 86 (left), 86 (middle), 0 (right).
    - Between McGarigle Road and John Liner Road: 255 (left), 24 (middle), 86 (right).
    - Approaching John Liner Road: 255 (left), 0 (right).

PM Peak-Hour

2 McGarigle Rd @ Site Access





# **Level of Service Calculations**

# HCM 6th TWSC

## 1: SR 9 & John Liner Rd/McGarigle Rd

McGarigle Development

### Intersection

Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	6	12	10	84	8	20	8	329	66	16	239	6
Future Vol, veh/h	6	12	10	84	8	20	8	329	66	16	239	6
Conflicting Peds, #/hr	1	0	2	2	0	1	0	0	3	3	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	5	5	5	3	3	3	8	8	8
Mvmt Flow	6	13	11	90	9	22	9	354	71	17	257	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	718	740	262	719	708	394	263	0	0	428	0	0
Stage 1	294	294	-	411	411	-	-	-	-	-	-	-
Stage 2	424	446	-	308	297	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.15	6.55	6.25	4.13	-	-	4.18	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.545	4.045	3.345	2.227	-	-	2.272	-	-
Pot Cap-1 Maneuver	347	347	782	340	356	649	1295	-	-	1100	-	-
Stage 1	719	673	-	612	590	-	-	-	-	-	-	-
Stage 2	612	577	-	696	662	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	322	337	781	317	345	647	1295	-	-	1097	-	-
Mov Cap-2 Maneuver	322	337	-	317	345	-	-	-	-	-	-	-
Stage 1	713	661	-	605	583	-	-	-	-	-	-	-
Stage 2	577	570	-	660	650	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.3	20.5	0.2	0.5
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1295	-	-	418	351	1097	-
HCM Lane V/C Ratio	0.007	-	-	0.072	0.343	0.016	-
HCM Control Delay (s)	7.8	0	-	14.3	20.5	8.3	0
HCM Lane LOS	A	A	-	B	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0.2	1.5	0	-

2019 Existing  
PM Peak

Gibson Traffic Consultants, Inc. [#19-229, ZJW]  
2019 Existing - PM Peak.syn





## HCM 6th TWSC

### 2: McGarigle Rd & Independence Blvd/Site Access

McGarigle Development

#### Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	1	0	0	0	3	21	0	0	42	0
Future Vol, veh/h	0	0	1	0	0	0	3	21	0	0	42	0
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	0	0	0	2	2	2	9	9	9	2	2	2
Mvmt Flow	0	0	1	0	0	0	4	30	0	0	59	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	100	100	62	98	100	30	62	0	0	30	0	0
Stage 1	62	62	-	38	38	-	-	-	-	-	-	-
Stage 2	38	38	-	60	62	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.19	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.281	-	-	2.218	-	-
Pot Cap-1 Maneuver	886	794	1009	884	790	1044	1497	-	-	1583	-	-
Stage 1	954	847	-	977	863	-	-	-	-	-	-	-
Stage 2	982	867	-	951	843	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	882	789	1006	880	785	1044	1493	-	-	1583	-	-
Mov Cap-2 Maneuver	882	789	-	880	785	-	-	-	-	-	-	-
Stage 1	948	844	-	974	860	-	-	-	-	-	-	-
Stage 2	979	864	-	950	840	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	0	0.9	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1493	-	-	1006	-	1583	-
HCM Lane V/C Ratio	0.003	-	-	0.001	-	-	-
HCM Control Delay (s)	7.4	0	-	8.6	0	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-

2019 Existing  
PM Peak




Gibson Traffic Consultants, Inc. [#19-229, ZJW]  
2019 Existing - PM Peak.syn

# HCM 6th TWSC

## 3: Fruitdale Rd & McGarigle Rd

McGarigle Development

### Intersection

Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	16	16	98	115	10
Future Vol, veh/h	22	16	16	98	115	10
Conflicting Peds, #/hr	2	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	5	4	4	5	5
Mvmt Flow	24	18	18	108	126	11

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	280	134	139	0	-	0
Stage 1	134	-	-	-	-	-
Stage 2	146	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.14	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.236	-	-	-
Pot Cap-1 Maneuver	704	907	1432	-	-	-
Stage 1	885	-	-	-	-	-
Stage 2	874	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	692	905	1429	-	-	-
Mov Cap-2 Maneuver	692	-	-	-	-	-
Stage 1	872	-	-	-	-	-
Stage 2	872	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1429	-	768	-	-
HCM Lane V/C Ratio	0.012	-	0.054	-	-
HCM Control Delay (s)	7.6	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

2019 Existing  
PM Peak

Gibson Traffic Consultants, Inc. [#19-229, ZJW]  
2019 Existing - PM Peak.syn

# HCM 6th TWSC

## 1: SR 9 & John Liner Rd/McGarigle Rd

McGarigle Development

### Intersection

Int Delay, s/veh	21.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	152	45	97	95	19	23	9	371	74	18	269	7
Future Vol, veh/h	152	45	97	95	19	23	9	371	74	18	269	7
Conflicting Peds, #/hr	1	0	2	2	0	1	0	0	3	3	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	5	5	5	3	3	3	8	8	8
Mvmt Flow	163	48	104	102	20	25	10	399	80	19	289	8

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	814	833	295	871	797	443	297	0	0	482	0	0
Stage 1	331	331	-	462	462	-	-	-	-	-	-	-
Stage 2	483	502	-	409	335	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.15	6.55	6.25	4.13	-	-	4.18	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.545	4.045	3.345	2.227	-	-	2.272	-	-
Pot Cap-1 Maneuver	299	307	749	268	316	608	1259	-	-	1050	-	-
Stage 1	687	649	-	574	560	-	-	-	-	-	-	-
Stage 2	569	545	-	613	637	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	265	296	748	196	305	606	1259	-	-	1047	-	-
Mov Cap-2 Maneuver	265	296	-	196	305	-	-	-	-	-	-	-
Stage 1	679	635	-	566	552	-	-	-	-	-	-	-
Stage 2	519	537	-	476	623	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	65.5	43.4	0.2	0.5
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1259	-	-	344	234	1047	-
HCM Lane V/C Ratio	0.008	-	-	0.919	0.63	0.018	-
HCM Control Delay (s)	7.9	0	-	65.5	43.4	8.5	0
HCM Lane LOS	A	A	-	F	E	A	A
HCM 95th %tile Q(veh)	0	-	-	9.3	3.8	0.1	-

2025 Baseline  
PM Peak

Gibson Traffic Consultants, Inc. [#19-229, ZJW]  
2025 Baseline - PM Peak.syn

# MOVEMENT SUMMARY

 **Site: 1 [SR-9 at John Liner Rd 2025 Baseline]**

2025 Baseline  
PM Peak-Hour  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: SR-9 (NB)												
3	L2	10	3.0	0.424	11.0	LOS B	2.8	72.5	0.52	0.55	0.52	36.0
8	T1	399	3.0	0.424	5.3	LOS A	2.8	72.5	0.52	0.55	0.52	36.0
18	R2	80	3.0	0.424	5.4	LOS A	2.8	72.5	0.52	0.55	0.52	35.0
Approach		488	3.0	0.424	5.4	LOS A	2.8	72.5	0.52	0.55	0.52	35.9
East: John Liner Rd (WB)												
1	L2	102	5.0	0.167	12.5	LOS B	0.9	24.2	0.62	0.75	0.62	33.9
6	T1	20	5.0	0.167	6.9	LOS A	0.9	24.2	0.62	0.75	0.62	34.0
16	R2	25	5.0	0.167	6.9	LOS A	0.9	24.2	0.62	0.75	0.62	33.1
Approach		147	5.0	0.167	10.8	LOS B	0.9	24.2	0.62	0.75	0.62	33.8
North: SR-9 (SB)												
7	L2	19	8.0	0.268	10.4	LOS B	1.6	41.4	0.35	0.47	0.35	36.2
4	T1	289	8.0	0.268	4.7	LOS A	1.6	41.4	0.35	0.47	0.35	36.3
14	R2	8	8.0	0.268	4.8	LOS A	1.6	41.4	0.35	0.47	0.35	35.2
Approach		316	8.0	0.268	5.0	LOS A	1.6	41.4	0.35	0.47	0.35	36.3
West: John Liner Rd (EB)												
5	L2	163	5.0	0.316	11.9	LOS B	1.8	47.2	0.58	0.72	0.58	34.7
2	T1	48	5.0	0.316	6.3	LOS A	1.8	47.2	0.58	0.72	0.58	34.7
12	R2	104	5.0	0.316	6.3	LOS A	1.8	47.2	0.58	0.72	0.58	33.7
Approach		316	5.0	0.316	9.2	LOS A	1.8	47.2	0.58	0.72	0.58	34.4
All Vehicles		1268	5.0	0.424	6.9	LOS A	2.8	72.5	0.50	0.60	0.50	35.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: GIBSON TRAFFIC CONSULTANTS | Processed: Tuesday, September 24, 2019 8:20:32 AM

Project: H:\2019\19-229\Sidra\PM Peak-hour.sip8





## HCM 6th TWSC

### 2: McGarigle Rd & Independence Blvd/Site Access

McGarigle Development

#### Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	1	0	0	0	3	33	0	0	62	2
Future Vol, veh/h	1	0	1	0	0	0	3	33	0	0	62	2
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	0	0	0	2	2	2	9	9	9	2	2	2
Mvmt Flow	1	0	1	0	0	0	4	46	0	0	87	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	146	146	92	143	147	46	93	0	0	46	0	0
Stage 1	92	92	-	54	54	-	-	-	-	-	-	-
Stage 2	54	54	-	89	93	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.19	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.281	-	-	2.218	-	-
Pot Cap-1 Maneuver	827	749	971	826	744	1023	1458	-	-	1562	-	-
Stage 1	920	823	-	958	850	-	-	-	-	-	-	-
Stage 2	963	854	-	918	818	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	823	745	968	823	740	1023	1454	-	-	1562	-	-
Mov Cap-2 Maneuver	823	745	-	823	740	-	-	-	-	-	-	-
Stage 1	914	821	-	955	847	-	-	-	-	-	-	-
Stage 2	960	851	-	917	816	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	0	0.6	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1454	-	-	890	-	1562	-
HCM Lane V/C Ratio	0.003	-	-	0.003	-	-	-
HCM Control Delay (s)	7.5	0	-	9.1	0	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-




2025 Baseline  
PM Peak

Gibson Traffic Consultants, Inc. [#19-229, ZJW]  
2025 Baseline - PM Peak.syn

# HCM 6th TWSC 3: Fruitdale Rd & McGarigle Rd

McGarigle Development

## Intersection

Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	36	18	18	213	366	30
Future Vol, veh/h	36	18	18	213	366	30
Conflicting Peds, #/hr	2	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	5	4	4	5	5
Mvmt Flow	40	20	20	234	402	33

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	697	421	437	0	-	0
Stage 1	421	-	-	-	-	-
Stage 2	276	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.14	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.236	-	-	-
Pot Cap-1 Maneuver	403	626	1112	-	-	-
Stage 1	656	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	393	625	1110	-	-	-
Mov Cap-2 Maneuver	393	-	-	-	-	-
Stage 1	641	-	-	-	-	-
Stage 2	762	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.3	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1110	-	448	-	-
HCM Lane V/C Ratio	0.018	-	0.132	-	-
HCM Control Delay (s)	8.3	0	14.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

2025 Baseline  
PM Peak

Gibson Traffic Consultants, Inc. [#19-229, ZJW]  
2025 Baseline - PM Peak.syn

# HCM 6th TWSC

## 1: SR 9 & John Liner Rd/McGarigle Rd

McGarigle Development

### Intersection

Int Delay, s/veh	26.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	152	47	97	110	20	25	9	371	100	21	269	7
Future Vol, veh/h	152	47	97	110	20	25	9	371	100	21	269	7
Conflicting Peds, #/hr	1	0	2	2	0	1	0	0	3	3	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	5	5	5	3	3	3	8	8	8
Mvmt Flow	163	51	104	118	22	27	10	399	108	23	289	8

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	838	869	295	895	819	457	297	0	0	510	0	0
Stage 1	339	339	-	476	476	-	-	-	-	-	-	-
Stage 2	499	530	-	419	343	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.15	6.55	6.25	4.13	-	-	4.18	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.545	4.045	3.345	2.227	-	-	2.272	-	-
Pot Cap-1 Maneuver	288	292	749	258	307	597	1259	-	-	1025	-	-
Stage 1	680	643	-	564	552	-	-	-	-	-	-	-
Stage 2	557	530	-	606	632	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	252	280	748	185	294	595	1259	-	-	1022	-	-
Mov Cap-2 Maneuver	252	280	-	185	294	-	-	-	-	-	-	-
Stage 1	673	626	-	556	544	-	-	-	-	-	-	-
Stage 2	505	523	-	466	615	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	78	59.3	0.1	0.6
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1259	-	-	329	220	1022	-
HCM Lane V/C Ratio	0.008	-	-	0.967	0.758	0.022	-
HCM Control Delay (s)	7.9	0	-	78	59.3	8.6	0
HCM Lane LOS	A	A	-	F	F	A	A
HCM 95th %tile Q(veh)	0	-	-	10.3	5.2	0.1	-

2025 Future with Development  
PM Peak

Gibson Traffic Consultants, Inc. [#19-229, ZJW]  
2025 Future with Development - PM Peak.syn

# MOVEMENT SUMMARY

## Site: 1 [SR-9 at John Liner Rd 2025 Future With]

2025 Future With  
PM Peak-Hour  
Site Category: (None)  
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: SR-9 (NB)												
3	L2	10	3.0	0.450	11.0	LOS B	3.1	79.2	0.54	0.56	0.54	36.0
8	T1	399	3.0	0.450	5.4	LOS A	3.1	79.2	0.54	0.56	0.54	36.0
18	R2	108	3.0	0.450	5.4	LOS A	3.1	79.2	0.54	0.56	0.54	35.0
Approach		516	3.0	0.450	5.5	LOS A	3.1	79.2	0.54	0.56	0.54	35.8
East: John Liner Rd (WB)												
1	L2	118	5.0	0.189	12.6	LOS B	1.1	27.9	0.63	0.76	0.63	33.9
6	T1	22	5.0	0.189	6.9	LOS A	1.1	27.9	0.63	0.76	0.63	33.9
16	R2	27	5.0	0.189	7.0	LOS A	1.1	27.9	0.63	0.76	0.63	33.0
Approach		167	5.0	0.189	10.9	LOS B	1.1	27.9	0.63	0.76	0.63	33.7
North: SR-9 (SB)												
7	L2	23	8.0	0.275	10.5	LOS B	1.6	42.7	0.38	0.49	0.38	36.1
4	T1	289	8.0	0.275	4.8	LOS A	1.6	42.7	0.38	0.49	0.38	36.2
14	R2	8	8.0	0.275	4.8	LOS A	1.6	42.7	0.38	0.49	0.38	35.1
Approach		319	8.0	0.275	5.2	LOS A	1.6	42.7	0.38	0.49	0.38	36.2
West: John Liner Rd (EB)												
5	L2	163	5.0	0.323	12.1	LOS B	1.9	48.8	0.59	0.73	0.59	34.6
2	T1	51	5.0	0.323	6.4	LOS A	1.9	48.8	0.59	0.73	0.59	34.7
12	R2	104	5.0	0.323	6.5	LOS A	1.9	48.8	0.59	0.73	0.59	33.7
Approach		318	5.0	0.323	9.3	LOS A	1.9	48.8	0.59	0.73	0.59	34.3
All Vehicles		1320	4.9	0.450	7.0	LOS A	3.1	79.2	0.52	0.61	0.52	35.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

**SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | sidrasolutions.com**

Organisation: GIBSON TRAFFIC CONSULTANTS | Processed: Tuesday, September 24, 2019 8:20:33 AM

Project: H:\2019\19-229\Sidra\PM Peak-hour.sip8





## HCM 6th TWSC

### 2: McGarigle Rd & Independence Blvd/Site Access

McGarigle Development

#### Intersection

Int Delay, s/veh 2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	1	22	0	4	3	33	37	7	62	2
Future Vol, veh/h	1	0	1	22	0	4	3	33	37	7	62	2
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	0	0	0	2	2	2	9	9	9	2	2	2
Mvmt Flow	1	0	1	31	0	6	4	46	52	10	87	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	195	218	92	189	193	72	93	0	0	98	0	0
Stage 1	112	112	-	80	80	-	-	-	-	-	-	-
Stage 2	83	106	-	109	113	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.12	6.52	6.22	4.19	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.518	4.018	3.318	2.281	-	-	2.218	-	-
Pot Cap-1 Maneuver	769	684	971	771	702	990	1458	-	-	1495	-	-
Stage 1	898	807	-	929	828	-	-	-	-	-	-	-
Stage 2	930	811	-	896	802	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	757	675	968	764	693	990	1454	-	-	1495	-	-
Mov Cap-2 Maneuver	757	675	-	764	693	-	-	-	-	-	-	-
Stage 1	893	799	-	926	826	-	-	-	-	-	-	-
Stage 2	922	809	-	888	794	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9.8	0.3	0.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1454	-	-	850	792	1495	-
HCM Lane V/C Ratio	0.003	-	-	0.003	0.046	0.007	-
HCM Control Delay (s)	7.5	0	-	9.2	9.8	7.4	0
HCM Lane LOS	A	A	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-




2025 Future with Development  
PM Peak

Gibson Traffic Consultants, Inc. [#19-229, ZJW]  
2025 Future with Development - PM Peak.syn

# HCM 6th TWSC 3: Fruitdale Rd & McGarigle Rd

McGarigle Development

## Intersection

Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	36	22	25	213	366	30
Future Vol, veh/h	36	22	25	213	366	30
Conflicting Peds, #/hr	2	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	5	4	4	5	5
Mvmt Flow	40	24	27	234	402	33

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	711	421	437	0	-	0
Stage 1	421	-	-	-	-	-
Stage 2	290	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.14	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.236	-	-	-
Pot Cap-1 Maneuver	395	626	1112	-	-	-
Stage 1	656	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	382	625	1110	-	-	-
Mov Cap-2 Maneuver	382	-	-	-	-	-
Stage 1	636	-	-	-	-	-
Stage 2	751	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.4	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1110	-	448	-	-
HCM Lane V/C Ratio	0.025	-	0.142	-	-
HCM Control Delay (s)	8.3	0	14.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

2025 Future with Development  
PM Peak

Gibson Traffic Consultants, Inc. [#19-229, ZJW]  
2025 Future with Development - PM Peak.syn

# Collision Data

PRIMARY TRAFFICWAY	MILEPOST	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	FIRST COLLISION TYPE / OBJECT STRUCK										MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)		
						# J	# T	# H	# S	# I	# F	# V	# E	# K	# P		# B	
009	57.43	E406212	2015-03-04	08:31	No Apparent Injury	0	0	2	0	0	0	0	0	0	0	0	From opposite direction - one left turn - one straight	Did Not Grant RW to Vehicle
009	57.43	E584580	2016-09-13	19:21	No Apparent Injury	0	0	2	0	0	0	0	0	0	0	0	Entering at angle	Inattention
009	57.43	3640550	2017-09-11	17:40	Suspected Minor Injury	5	0	2	0	0	0	0	0	0	0	0	Entering at angle	Did Not Grant RW to Vehicle
	57.43	E773554	2018-02-13	14:23	Suspected Minor Injury	1	0	2	0	0	0	0	0	0	0	0	From same direction - both going straight - one stopped - rear-end	Driver Distractions Outside Vehicle

**Collision Data Date Range**

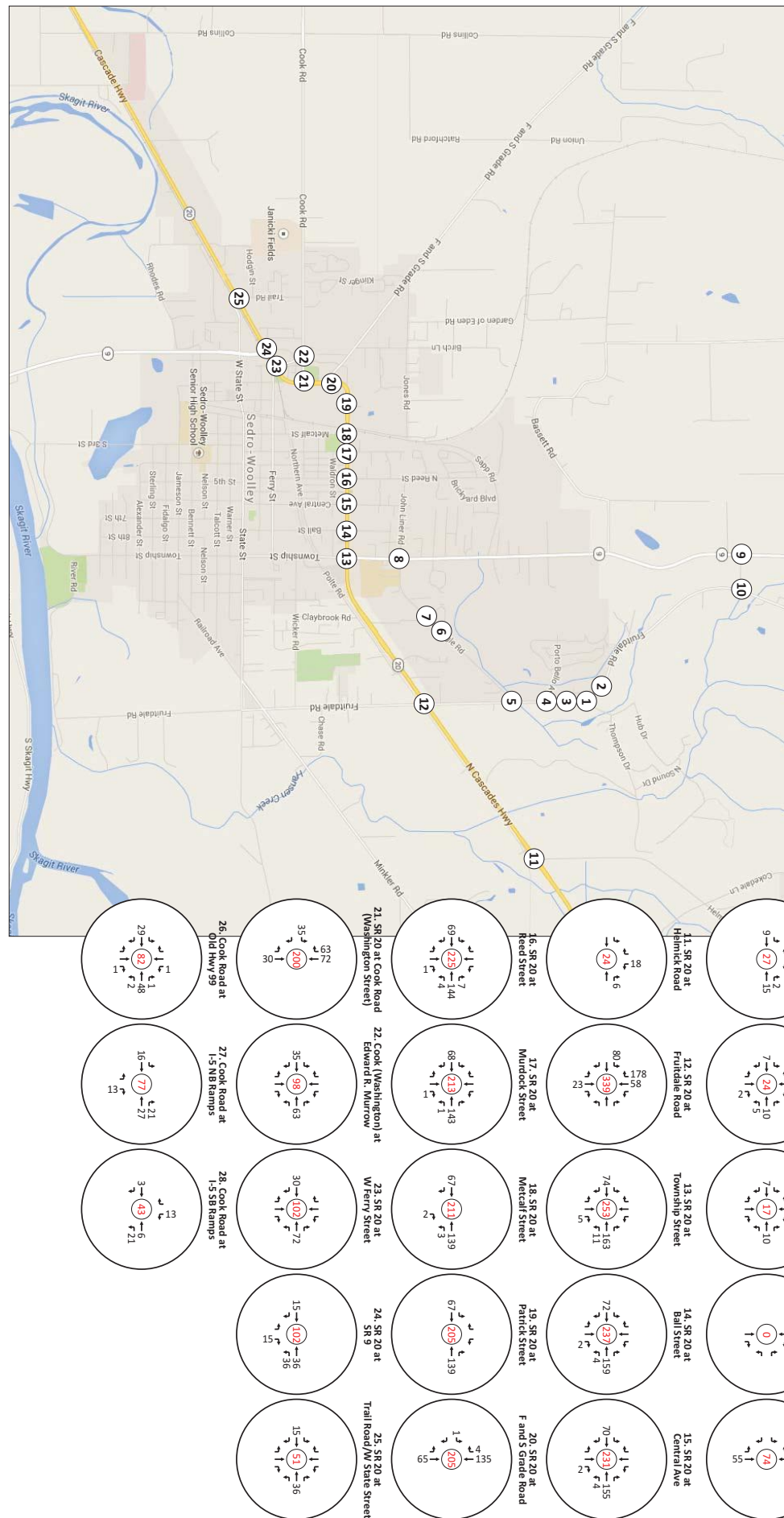
Start 1/1/2014  
 End 12/31/2018  
 Total Years 5.00

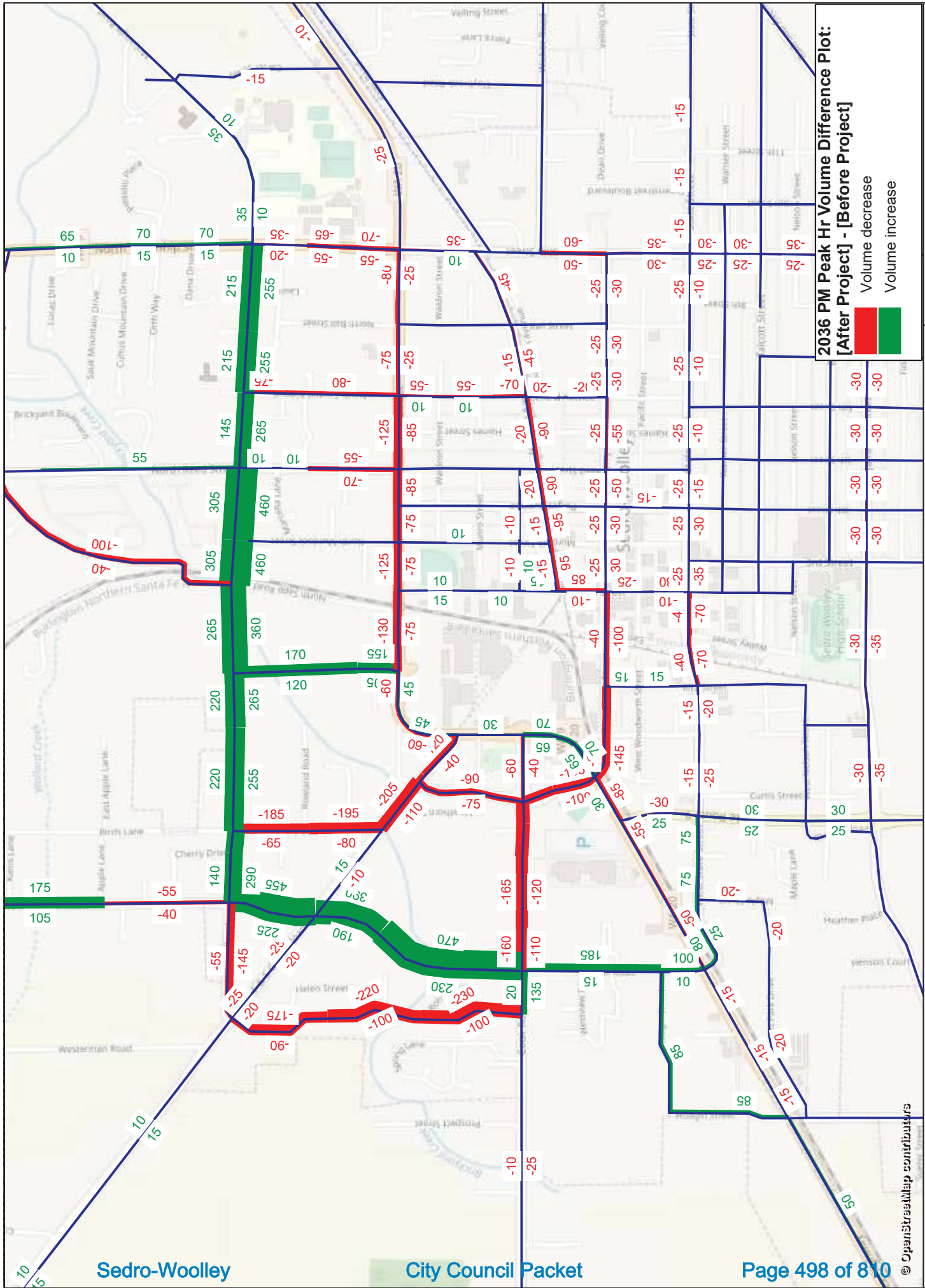
Intersection	No. Collisions	No. Injury Collisions	Estimated ADT	Collisions per Year	Collisions per MEV
#1: SR-9 @ John Liner Rd/McGarigle Rd	4	2	8,040	0.8	0.27
#2: McGarigle Rd @ Independence Blvd/Access	0	0	670	0	0.00
#3: McGarigle Rd @ Fruitdale Rd	0	0	2,770	0	0.00

# Pipeline Projects



# Intersection PM Peak Hour Trip Impact

























2036 PM Peak Hr Volume Difference Plot:  
[After Project] - [Before Project]  
Volume decrease  
Volume increase

# HCM 2010 Signalized Intersection Summary

208: N Township St. (SR 9) & John Liner Rd./McGarigle Rd.

12/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	30	110	65	70	35	80	350	50	15	240	150
Future Volume (veh/h)	185	30	110	65	70	35	80	350	50	15	240	150
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.97		0.98	1.00		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1743	1743	1900
Adj Flow Rate, veh/h	208	34	124	73	79	39	90	393	56	17	270	169
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	9	9	9
Cap, veh/h	499	108	395	454	371	183	454	781	111	451	495	310
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.50	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	1236	338	1234	1181	1158	572	933	1574	224	870	998	625
Grp Volume(v), veh/h	208	0	158	73	0	118	90	0	449	17	0	439
Grp Sat Flow(s),veh/h/ln	1236	0	1573	1181	0	1730	933	0	1799	870	0	1623
Q Serve(g_s), s	6.4	0.0	3.3	2.2	0.0	2.2	3.2	0.0	7.3	0.6	0.0	8.1
Cycle Q Clear(g_c), s	8.6	0.0	3.3	5.5	0.0	2.2	11.3	0.0	7.3	7.9	0.0	8.1
Prop In Lane	1.00		0.78	1.00		0.33	1.00		0.12	1.00		0.38
Lane Grp Cap(c), veh/h	499	0	503	454	0	554	454	0	893	451	0	806
V/C Ratio(X)	0.42	0.00	0.31	0.16	0.00	0.21	0.20	0.00	0.50	0.04	0.00	0.54
Avail Cap(c_a), veh/h	1040	0	1191	970	0	1310	1040	0	2023	998	0	1825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.9	0.0	11.2	13.3	0.0	10.8	11.5	0.0	7.4	10.0	0.0	7.6
Incr Delay (d2), s/veh	0.6	0.0	0.4	0.2	0.0	0.2	0.2	0.0	0.4	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.1	0.0	2.6	1.3	0.0	1.9	1.5	0.0	6.5	0.3	0.0	6.6
LnGrp Delay(d),s/veh	14.5	0.0	11.5	13.4	0.0	11.0	11.7	0.0	7.8	10.0	0.0	8.2
LnGrp LOS	B		B	B		B	B		A	B		A
Approach Vol, veh/h		366			191			539			456	
Approach Delay, s/veh		13.2			11.9			8.5			8.2	
Approach LOS		B			B			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		25.6		17.9		25.6		17.9				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		49.0		33.0		49.0		33.0				
Max Q Clear Time (g_c+I1), s		13.3		10.6		10.1		7.5				
Green Ext Time (p_c), s		8.3		2.9		8.4		2.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			9.9									
HCM 2010 LOS			A									

**Table 7. Left-Turn Lane Analysis**

Intersection	Approach Leg	Total DHV <sup>1</sup>	% Total DHV Turning Left	2036 PM LOS (Delay) <sup>2</sup>		Left-Turn Lane Warranted
				Without LT Lane	With LT Lane	
Trail Road & F&S Grade Road	West (EB)	50	10.0%	B (13.3)	B (14.7)	No
	East (WB)	125	24.0%	C (15.8)	B (14.5)	No
	South (NB)	665	0.8%	A (0.1)	A (0.1)	No
	North (SB)	645	3.1%	A (0.8)	A (0.8)	No
Trail Road & Jones Road	West (EB)	185	8.1%	A (1.1)	A (1.1)	No
	East (WB)	660	22.0%	A (4.5)	A (4.5)	<b>Yes</b>
	South (NB)	660	0.8%	D (27.1)	D (25.4)	No
	North (SB)	315	11.1%	D (32.7)	C (24.2)	No
Jones Road & Patrick Street	East (WB)	840	10.1%	A (2.1)	A (2.1)	<b>Yes</b>
	South (NB)	290	12.1%	B (16.1)	B (12.8)	No

<sup>1</sup>Design hourly volume (both directions)

<sup>2</sup>Average LOS and delay by approach

Left-turn lanes are warranted on the east (Jones Rd) approach of the Trail Road and Jones Road intersection, and the east (Jones Rd) approach of the Jones Road and Patrick Street intersection.

## FINDINGS AND RECOMMENDATIONS

Findings and recommendations are summarized below.

- Single-lane roundabouts are the preferred intersection control alternative at the intersections of:
  - Cook Road and Trail Road
  - N Township Road (SR 9) and John Liner Road/McGarigle Road.
- A left-turn lane is warranted at the following two locations:
  - East (Jones Rd) approach of Trail Road and Jones Road intersection.
  - East (Jones Rd) approach of Jones Road and Patrick Street intersection.

Attachment 1. 2036 PM Peak Hour Volume With Jones/John Liner Road Corridor

Attachment 2. 2036 PM Peak Hour Volume Difference, Before and After Jones/John Liner Road Corridor

Attachment 3. Conceptual Roundabout Layouts

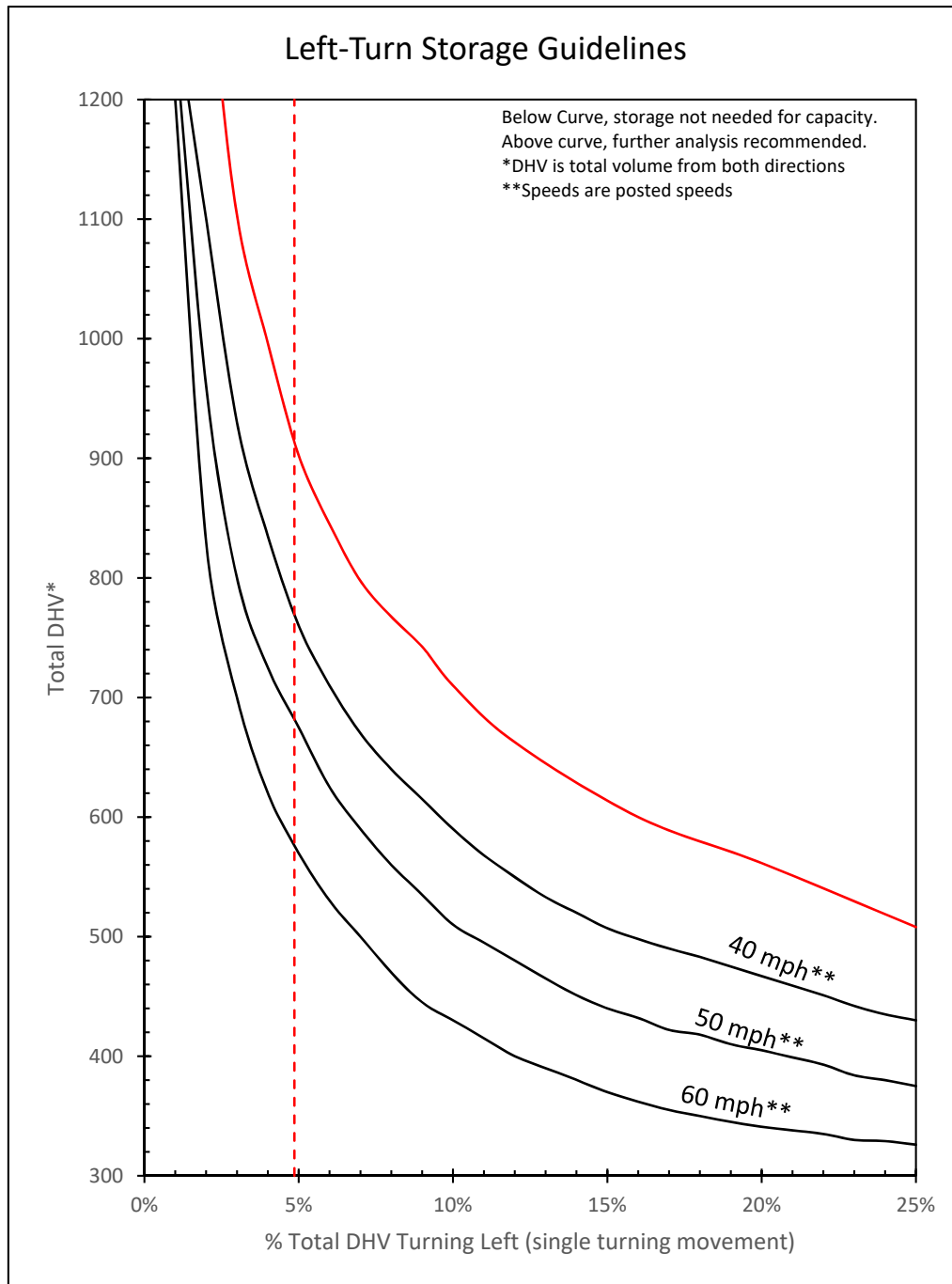
Attachment 4. Signal Warrant Reports

Attachment 5: Intersection LOS Reports

Attachment 6: Left-Turn Storage Guidelines

# **Channelization Warrants**

## McGarigle Road @ Site Access

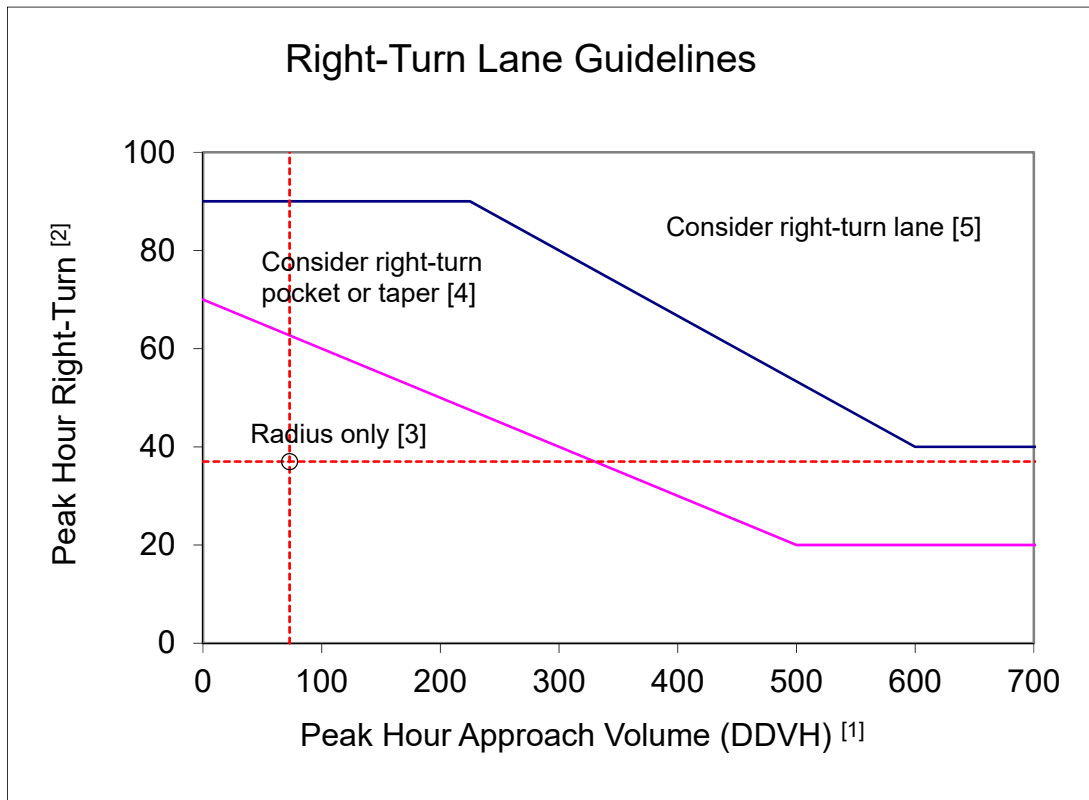


Total DHV: 144  
Left Turns: 7  
% Left: 4.9%

Posted Speed: 25 mph

Based on WSDOT July 2018 Design Manual: Exhibit 1310-7a, Page 1310-13.

**McGarigle Road @ Site Access**



Right Turn Volume: 37 [DDHV]  
 Adjusted Right Turn Volume: 37 [DDHV]  
 Pk Hr Curb Ln Approach Vol: 73 [DDHV]

Posted Speed: 25 mph

[1] For two-lane highways, use the peak hour DDHV (through + right turn).  
 For multilane, high speed highways (posted speed 45 mph or above), use the right-lane peak hour approach volume (through + right turn).

[2] When all three of the following conditions are met, reduce the right-turn DDHV by 20:

- The posted speed is 45 mph or less
- The right-turn volume is greater than 40 VPH
- The peak hour approach volume (DDHV) is less than 300 VPH.

[3] For right-turn corner design, see Exhibit 1310-6.

[4] For right-turn pocket or taper design, see Exhibit 1310-12.

[5] For right-turn lane design, see Exhibit 1310-13.

Based on WSDOT July 2018 Design Manual: Exhibit 1310-11, Page 1310-27.

# **Sedro Woolley Six-Year TIP**

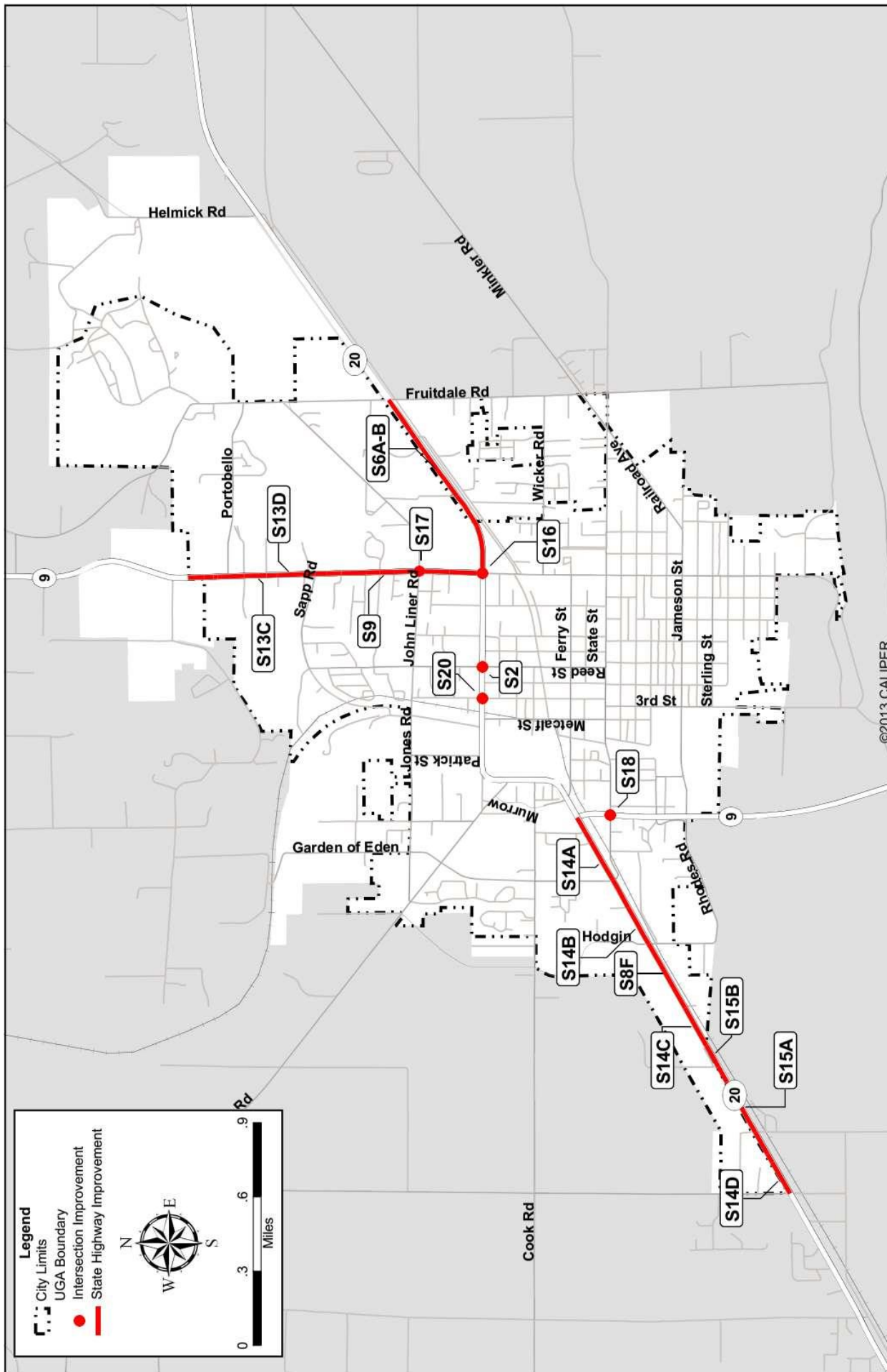


Figure 7

# State Highway Improvement Projects - Corrected 5/3/2018

City of Sedro-Woolley



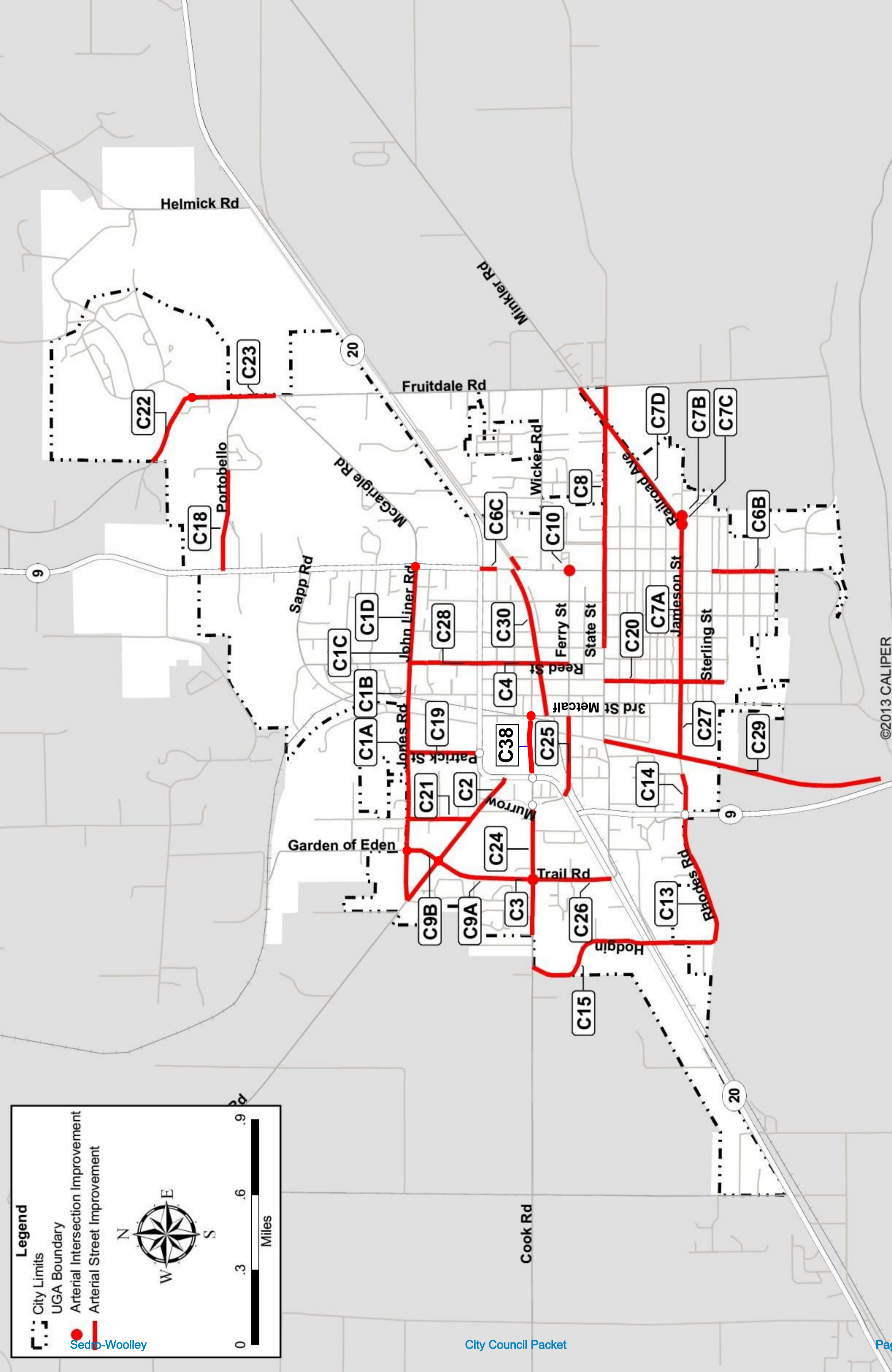


Figure 8

# Arterial Improvement Projects - 2017 Update

City of Sedro-Woolley





## 2019-2024 TIP PROJECT LIST

REVISED: 5/3/2018

### Sedro-Woolley Transportation Improvement Program and Projects

MAP ID <sup>(1)</sup>	2019 - 2024 TIP Project	2019 - 2024 TIP CN Year	2019 - 2024 TIP Priority No.	Project Name	Project Limits	Project Description	Priority	In Existing TIP (2019/20)	Total Cost 2018 (\$1,000's) (3/4)	Sedro-Woolley 2018 Cost (\$1,000's) (3)	TIP Eligible (Y/N)	JONES-JOHN LINER-TRAIL RD CORRIDOR PROJECT
C1E	SW53	2019	1	Jones/John Liner/Trail Road Corridor Scoping Study	Cook Road to SR9 MP 57.43 John Liner Road	Planning level project to define the scope of the Jones/John Liner/Trail Road Corridor in order to establish an alternative east-west corridor to relieve congestion on SR20 between SR9 South and SR9 North.	High	Yes	200	125	Yes	
C1C	SW08A	2020	2	John Liner Road, Reed to Township Bicycle/Pedestrian Improvements	Reed Street to SR9/Township Street (2,000 LF)	Construct shared use path on the north side of John Liner Road from Reed to Township, including drainage and illumination.	High	Yes	583	87	Yes	200
C1B	SW06	2019	3	Jones/John Liner RR Undercrossing	Sapp Road to Reed Street (1,000 ft)	New BNSF RR undercrossing and new major collector from East Jones Road to John Liner Road, including drainage, curbs, sidewalks, HMA, pavement markings and illumination.	High	Yes	7,700	1,925	Yes	
S15B	NEW SW59	2028	4	SR20 West Lane Widening & Safety Improvements Project 1	Holcamp Road / Hodgkin Street	Improve and widen to 3 lanes (2,400 LF); add Brickyard Creek crossing.	High	Yes	600	150	Yes	7,700
C33B	SW49	2023	5	Jamez Street Overlay Project 2	3rd Street to Township (2,800 LF)	Grind and overlay; upgrade ADA Ramps	High	Yes	476	119	No	
C19	SW20	2020	6	Patrick Street Arterial Extension	Michael Street to East Jones Road (1,200 LF)	New major collector with drainage, curbs, sidewalks, HMA, pavement markings, illumination.	Medium	Yes	2,100	2,100	Yes	
C26	SW38	2019	7	Trail Road Overlay	SR20 to Cook Road (1,600 LF)	Grind and overlay	High	Yes	272	41	No	2,100
NEW C13A	NEW SW54	NEW	8	Rhodes Road Overlay	SR20 to City Limits (510 LF)	Grind and overlay	High	No	54	8	No	
S16	SW33	2021	9	SR20/SR9N-Township Intersection Improvements	SR20 MP 66.08; SR9 MP 57.17	Intersection channelization improvements to allow concurrent north-south left turns and improve signal sequencing, including sidewalk/path improvements.	High	Yes	828	207	Yes	
S2	SW35	2021	10	SR20 / Reed Street Intersection Improvements	SR20 MP 65.70 to 65.72	Intersection improvements to restrict minor approach motions to right-in, right-out.	High	Yes	50	13	Yes	
C24	SW24	2020	11	Cook Road Overlay	West City Limits to Crossroads (2,200 LF)	Grind and overlay	High	Yes	449	67	No	
C3	SW25	2022	12	Cook Road / Trail Road Intersection Improvements	Trail Road to Trail Road	Reconstruct intersection with traffic signal or Roundabout.	High	Yes	1,000	250	Yes	
S14C	SW42	2023	13	SR20/Cascade Trail West Extension Phase 2A Holcamp Road to Hodgkin Road	SR20 MP 63.64 Holcamp Rd to SR20 MP 64.21 Hodgkin Road (3,000 LF)	Construct a shared use path along the north side of SR20 from Holcamp Road to Hodgkin Road	Medium	Yes	840.5	78	Yes	1,000
C28	SW40	2021	14	North Reed Street Overlay Project 1	SR20 to John Liner Road (1,400 ft)	Grind and overlay; upgrade ADA ramps.	High	Yes	315	47	No	
C1A	SW07	2023	15	Jones Road Arterial Improvements	F&S Grade Rd to Sapp Road (4,000 LF)	Reconstruct to major collector section including drainage, curbs, sidewalk, shared use path, HMA, pavement markings and illumination.	High	Yes	3,200	800	Yes	
S18	SW45	2023	16	SR 9 / W State Street Intersection Improvements	SR9 MP 55.75	Intersection improvements to add a dedicated right turn lane to the west leg.	High	Yes	250	63	Yes	3,200



## 2019-2024 TIP PROJECT LIST

REVISED: 5/3/2018

### Sedro-Woolley Transportation Improvement Program and Projects

MAP ID (i)	2019 - 2024 TIP Project	2018 - 2023 TIP CN Year	2019 - 2024 TIP CN Year	2019 - 2024 TIP Priority No.	Project Name	Project Limits	Project Description	Priority	In Existing TIP (2019)? (ii)	Total Cost 2018 (\$1,000's) (3)(4)	Sedro-Woolley 2018 Cost (\$1,000's) (3)	TIF Eligible (Y/N)	JONES-JOHN LINER-TRAIL RD CORRIDOR PROJECT
C18	SW21	2023	2023	17	Portobello Street Arterial Extension	SRSIN Township Street to Cascadia Drive (2,100 LF)	New major collector connecting Fruitdale to SRSIN Township, including drainage, curbs, sidewalks, HMA, pavement markings and illumination.	Medium	Yes	1,700	425	Yes	
C33A	SW48	2022	2023	18	Jameson Street Overlay Project 1	800' W of Baley to 3rd Street (800 LF)	Grind and overlay; upgrade ADA ramps.	High	Yes	213	32	No	
C9A	NEW SW55	2024	2024	19	Trail Road Arterial Extension	Cook Rd to F&S Grade (2,200 LF)	Construct new major collector.	High	Yes	4,000	1,000	Yes	
C9B	NEW SW56	2024	2024	20	Trail Rd - Garden of Eden Rd Extension	F&S Grade to Jones Rd (770 LF)	Construct new major collector (Will require Functional Classification).	High	Yes	850	213	Yes	4,000
C34	NEW SW57	2024	2024	21	Sapp Road Overlay	Road Street to SR 9/Township (2,000 LF)	Grind and overlay; upgrade ADA ramps.	High	Yes	266	40	No	850
					SUBTOTAL 2019-2024 ALL PROJECTS					25,947	7,789		19,050
					SUBTOTAL 2019-2024 - TIF ELIGIBLE PROJECTS					23,902	7,435		
					SUBTOTAL 2019-2024 - OTHER PROJECTS					2,045	354		



## 2025-2038 TIP PROJECT LIST

### Sedro-Woolley Transportation Improvement Program and Programs

REVISED: 5/1/2018

MAP ID (1)	2019 - 2024 TIP Project	2018 - 2023 TIP CN Year	2019 - 2024 TIP CN Year	2019 - 2024 TIP Priority No.	Project Name	Project Limits	Project Description	Priority	In Existing TIP (2018) (2)	Total Cost 2018 (\$1,000's) (3)	Sedro-Woolley 2018 Cost (\$1,000's) (3)	TIF Eligible (Y/N)	JONES-JOHN LINER-TRAIL RD CORRIDOR PROJECT
S17	SW41	2025	2025		SR9/Township St & John Liner/McGarigle Intersection Improvements	SR9 MP 57.43	Intersection Improvements, including signalization or Single Lane Roundabout.	Medium	Yes	1,000	250	Yes	
S13C	SW03B	2025	2025		SR9N Pedestrian/Bicycle Safety Improvements	West Side of SR9 M 57.99 Park Cottage to MP 58.30 North City Limits (1,240 LF)	Construct bicycle lane and sidewalk improvements on the west side of SR9 from Park Cottage Place to the North City Limits.	Medium	Yes	434	109	Yes	1,000
C35		2025	2025		West State Street Overlay	SR 20 to SR 9 (1,500 LF x 30 LF)	Grind and overlay.	High	Yes	259	65	No	
C1D		2026	2026		John Liner Road Arterial Improvements	Reed Street to SR9/Township Street (2,000 LF)	Reconstruct John Liner Road to major collector section including drainage, curbs, sidewalk, shared use path, HMA, pavement markings and illumination.	Medium	Yes	1,600	400	Yes	
C36		2026	2026		North Reed Street Overlay Project 2	John Liner Road to Sapp Road (2,200 LF)	Grind and overlay.	High	Yes	400	100	No	1,600
C7A	SW27	2027	2027		Jameson St Arterial Improvements	600' E of Baley to Railroad St (4,500 LF)	Widen and rebuild Jameson St to secondary standards including 3 lanes, curb & gutter, bike lanes, planter strip, and sidewalks. Some right-of-way may be required.	Medium	Yes	3,600	900	Yes	
C7B	SW29	2027	2027		Jameson St / 11th St Intersection Improvements	Intersection	Change access on 11th St to right-in right-out	Medium	Yes	70	18	Yes	
C37 NEW		2027	2027		Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
NEW-S15B		2028	2028		SR20 West Lane Widening & Safety Improvements	Holtcamp Road / Hodgkin Street	Improve and widen to 3 lanes (2,400 LF)	High	Yes	600	150	Yes	
C7C	SW28	2028	2028		Railroad St / Jameson St Intersection Improvements	Intersection	Improve intersection. Construct roundabout.	Medium	Yes	750	188	Yes	
NEW		2028	2028		Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
C38		2029	2029		Cook Road Arterial Extension	SR20 to Metcalf Street (1,050 LF)	New major collector with drainage, curbs, sidewalks, HMA, pavement markings, illumination	Medium	Yes	825	206	Yes	
S16A		2029	2029		SR20 West Lane Widening & Safety Improvements	Hospital Drive / Holtcamp Road	Improve and widen to 3 lanes (1,300 LF)	Medium	Yes	325	81	Yes	
C7D		2029	2029		Railroad St Arterial Improvements	Jameson St to Fruitdale Rd (3,600 lf)	Widen and rebuild Railroad St to secondary arterial standards including 3 lanes, curb & gutter, bike lanes, planter strip, and sidewalks. Some right-of-way may be required	Medium	Yes	2,880	720	Yes	
NEW		2029	2029		Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
C4	SW26	2030	2030		Reed Street Arterial Improvements	Ferry Street to SR 20 (1,800 LF)	Reconstruct street to arterial standards with new curbs, sidewalks, ADA facilities, HMA pavement and pavement markings.	Medium	Yes	1,440	360	Yes	



**2025-2038 TIP PROJECT LIST**  
**Sedro-Woolley Transportation Improvement Program and Programs**

REVISED: 5/1/2018

MAP ID (1)	2019 - 2024 TIP Project	2018 - 2023 TIP CN Year	2019 - 2024 TIP CN Priority No.	Project Name	Project Limits	Project Description	Priority	In Existing TIP (2018) (2)	Total Cost 2018 (\$1,000's) (3/4)	Sedro-Woolley 2018 Cost (\$1,000's) (3)	TIF Eligible (Y/N)	JONES-JOHN LINER-TRAIL RD CORRIDOR PROJECT
NEW		2030	2030	Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
C2	SW09	2031	2031	F&S Grade Rd Arterial Improvements	SR 20 MP 65.16 to West City Limits/Jones Road (3,700 LF)	Reconstruct F&S Grade Road to arterial standards including drainage, curbs, sidewalk, combined bicycle/pedestrian path, HMA, pavement markings and illumination.	Medium	Yes	2,960	740	Yes	
S20	SW44	2031	2031	SR20/Central Ave Intersection Improvements	SR20 MP 65.63	Intersection improvements or RISO	Medium	Yes	150	38	Yes	
NEW		2031	2031	Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
S14D	SW43	2032	2032	SR20/Cascade Trail West Extension Phase 2B Collins Road to Holcamp Road	SR20 MP 63.06 Collins Rd to MP 63.64 Holcamp Rd (3,100 LF)	Construct a shared use path along the north side of SR20 from Collins Road to Holcamp Road	Medium	Yes	620	155	Yes	
S8F	SW02F	2032	2032	SR 20 Stormwater Conveyance System Upgrade	SR20 MP 63.64 Holcamp Road to MP 64.21 Hodgkin Road (72 IN - 984 LF)	Upgrade the SR20 Stormwater Conveyance System from Holcamp Road to Hodgkin Road to correct existing capacity issues. Extends and completes undersized portions of the stormwater identified in the SR20/Cook Road Realignment and Grind and overlay.	Medium	Yes	300	300	No	
NEW		2032	2032	Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
C8		2033	2033	State St Sidewalks	Haines to E City Limits (3,000 LF)	Construct sidewalks, ADA ramps, and other pedestrian improvements along north side of State St.	Low	Yes	540	135	Yes	
NEW		2033	2033	Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
C10		2034	2034	Township St / Ferry St Intersection Improvements	Intersection	Construct intersection improvements to include an all-way stop.	Medium	Yes	50	13	No	
C13		2034	2034	Rhodes Rd Arterial Improvements	SR 9 to SR 20 (4,000 LF)	Reconstruct roadway to secondary arterial standards including curb & gutter, bike lanes, sidewalk, and stormwater facilities. (City portion 500 LF, County portion 3,500 LF)	Low	Yes	3,200	800	Yes	
NEW		2034	2034	Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
C15		2035	2035	Hodgkin Road Arterial Extension Project	SR 20 to Cook Rd (2,100 LF)	Construct new collector arterial including drainage, curbs, sidewalks, HMA, pavement markings and illumination. Grind and overlay.	Low	Yes	2,225	556	Yes	
NEW		2035	2035	Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
C20		2036	2036	4th Street, Alexander to State Arterial	Alexander to State (1,600 LF)	Reconstruct to major collector standards to replace 3rd Street as N-S Arterial	Low	Yes	1,300	325	Yes	
NEW		2036	2036	Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	



## 2025-2038 TIP PROJECT LIST

REVISED: 5/1/2018

### Sedro-Woolley Transportation Improvement Program and Programs

2019 - 2024 TIP Project ID (1)	2018 - 2023 TIP CN Year	2019 - 2024 TIP CN Priority No.	Project Name	Project Limits	Project Description	Priority	In Existing TIP (2018) (2)	Total Cost 2018 (\$1,000's) (3)(4)	Sedro- Woolley 2018 Cost (\$1,000's) (3)	TIF Eligible (Y/N)	JONES-JOHN LINER-TRAIL RD CORRIDOR PROJECT
S9	2037		SR9/North Township St Arterial Improvements	SR 20 to city limits (5,900 LF)	Planning Phase - Reconstruct to minor arterial standards including 3 lanes, curb & gutter, bike lanes, planter strip, sidewalks. Some right-of-way may be required. 2016 RTIP EST CN \$4.7M	Medium	Yes	100	25	Yes	
C6B	2037		South Township St Arterial Improvements Project	Dunlop to Sterling St (1,300 LF)	Reconstruct to major collector standards.	Low	Yes	1,040	260	No	
C21	2037		Garden of Eden Rd Arterial Improvements	F&S Grade Road to Jones Road (1,300 LF)	Reconstruct to major collector standards.	Low	Yes	1,040	260	Yes	
C29	2037		Centennial Trail South: County or BNSF RW	South City Limits to Ferry Street (3,700 LF)	County ROW south of Jameson - improve trail with gravel or pavement. BNSF ROW north of Jameson - remove abandoned rail and fees and improve as a trail. ROW acquisition or easement required.	Medium	Yes	500	125	No	
C30	2037		Cascade Trail East Extension	Melcalf Street to 400' East of Township Street (4,420 LF)	Construct a shared use path on former BNSF RW	Medium	Yes	100	25	No	
S13D	2037		SR9/Centennial Trail Pedestrian/Bicycle Safety Improvements	East Side of SR9 MP 57.59 Summer Meadows Place to MP 58.30 North City Limits (4,100 LF)	Construct bicycle lane and sidewalk improvements on the east side of SR9 from Summer Meadows Court to the North City Limits, including a pedestrian crossing bridge at Brickyard Creek.	Medium	Yes	1,700	425	Yes	
NEW	2037		Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
NEW	NEW	3038	NEW PROJECT TBD	TBD	TBD	Low		500	125		
NEW	NEW	3038	Annual Overlay Project	TBD	Grind and overlay.	High	Yes	400	100	No	
SUBTOTAL 2025-2038 PROJECTS								35,308	9,052		2,600
SUBTOTAL 2025-2038 - TIF ELIGIBLE PROJECTS								28,259	28,259		-
SUBTOTAL 2025-2038 - OTHER PROJECTS								7,049	1,987		-

# **Sedro Woolley Traffic Impact Fee Documents**



### Transportation Impact Fee Project List

ID	Project Name	Project Limits	Description	Total Est. Cost (\$)
C14	Jameson Arterial Extension	SR 9 / Batey Rd	New arterial segment	3,020,000
S14A	SR20/Cascade Trail West Extension Ph.1A	Trail Rd / SR 9 South	Shared use path	575,000
S14B	SR20/Cascade Trail West Extension Ph.1B	Hodgin Rd / Trail Rd	Shared use path	288,000
C22	Fruitdale Rd Arterial Improvements	Portobello / North City Limit	Reconstruct to arterial standards incl. roundabout at Northern State Rd	2,320,000
C1B	Jones/John Liner RR Undercrossing	Sapp Rd / Reed St	New BNSF undercrossing and new arterial from E Jones Rd to John Liner Rd	7,700,000
C1C	John Liner Bike/Ped Impr	Redd St / SR 9	Complete Streets completion	555,000
C19	Patrick St Extension	Michael St/E Jones St	New major collector w/sidewalks	2,100,000
C1A	Jones Rd Improvements	F&S Grade Rd / Sapp Rd	Reconstruct to arterial section including sidewalk & shared use path	3,200,000
S16	SR20 & SR9 (Township) Intersection Impr.		Channelization and signal improvements	1,000,000
C18	Portobello Arterial Extension	Township / Cascadia	New major collector connecting Fruitdale w/ SR 9	1,700,000
S2	SR20 & Reed St Intersection Impr.		RIRO access restriction	50,000
S18	SR 9 / W State St Intersection Impr		Intersection improvements	250,000
C3	Cook Rd / Trail Rd Intersection Improvements		Intersection improvements	1,000,000
C9A	Trail Rd Arterial Extension	Cook Rd / F&S Grade	Construct new minor arterial	4,000,000
C9B	Trail Rd – Garden of Eden Rd Extension	F&S Grade / Jones Rd	Construct new minor arterial	850,000
S13C	SR9N Ped/Bike Safety Improvements	Park Cottage / N City Limits	Bike lane & sidewalk improvements	434,000
S17	Township St (SR 9) & John Liner/McGarigle Rd Intersection Improvements		Intersection improvements	1,000,000
C1D	John Liner Rd Arterial Improvements	Reed St / Township St	Reconstruct to arterial section	1,600,000
S6 A-B	SR 20 East Lane Widening & Safety Improvements	SR 9 / Fruitdale Rd	Improve and widen to 3 lanes	960,000
C7A	Jameson St Arterial Improvements	600' e/o Batey to Railroad St	Widen to arterial standards w/3 lanes, bike lane, sidewalk	3,600,000
C7B	Jameson / 11 <sup>th</sup> St Intersection Improvements		Change access to RIRO	70,000
C7C	Railroad St / Jameson Intersection Improvements		Intersection improvements to include new roundabout	750,000
C7D	Railroad St Arterial Improvements	Jameson St / Fruitdale	Reconstruct to arterial standards incl. 3 lanes, bike lanes, sidewalks	2,880,000
C2	F&S Grade Rd Arterial Improvements	SR20 MP 65.16 / Jones Rd	Reconstruct to arterial standards	2,960,000
S14C	SR20/Cascade Trail West Extension Ph.2A	Holtcamp Rd/Hodgin Rd	Shared use path	600,000
S20	SR 20 / Central Ave Intersection Improvements		Intersection improvements or RIRO	150,000
S14D	SR20/Cascade Trail West Extension Ph.2B	Collins Rd/Holtcamp Rd	Shared use path	620,000

<b>ID</b>	<b>Project Name</b>	<b>Project Limits</b>	<b>Description</b>	<b>Total Est. Cost (\$)</b>
C13	Rhodes Rd Arterial Impr	SR 9 / SR 20	Reconstruct to arterial standards incl. bike lanes, sidewalks	3,200,000
C15	Hodgin Rd Arterial Ext.	SR 20 / Cook	New collector arterial	2,225,000
S9	SR9/N Township St Arterial Improvements	SR 20 / City limits	Planning phase – reconstruct to arterial standards incl. 3 lanes, bike lanes, sidewalk	100,000
S13D	SR9 / Centennial Trail Ped/Bike Safety Improvements	Summer Meadows Pl / North City Limits	Construct bicycle lane and sidewalk improvements incl. ped crossing bridge at Brickyard Crk	1,700,000

January 3, 2019

**TO:** Mark A. Freiburger, PE, City of Sedro-Woolley

**FROM:** Andrew L. Bratlien, PE, TSI

**COPY:** Nathan Zylstra, PE, Reichhardt & Ebe Engineering, Inc.

**SUBJECT: JONES / JOHN LINER / TRAIL ROAD CORRIDOR PROJECTS  
TRAFFIC ANALYSIS; UPDATED 2019-01-03**

The purpose of this memorandum is to document the traffic analysis for the Jones Road / John Liner Road / Trail Road corridor improvement projects in Sedro-Woolley, Washington.

## PROJECT DESCRIPTION

The City of Sedro-Woolley 2018-2023 Six-Year Transportation Improvement Program identifies six projects, summarized in **Table 1**, which will create a new arterial corridor. The new corridor will consist of Trail Road, a north-south connection between SR 20 and Jones Road, and Jones Road / John Liner Road, an east-west connection from F&S Grade Road to N Township Road (SR 9). The corridor will include a new grade-separated railroad crossing east of the existing Jones Road terminus.

**Table 1. Jones / John Liner / Trail Road Corridor Improvement Projects**

TIP ID	Project Name	Project Limits	Description
C1A	Jones Rd Improvements	F&S Grade Rd / Sapp Rd	Reconstruct to arterial section, including sidewalk & shared use path
C1B	Jones/John Liner RR Undercrossing	Sapp Rd / Reed St	New BNSF undercrossing and new arterial from E Jones Rd to John Liner Rd
C1D	John Liner Rd Arterial Improvement	Reed St / Township St	Reconstruct to arterial section
C9A	Trail Rd Arterial Extension	Cook Rd / F&S Grade	Construct new minor arterial
C9B	Trail Rd – Garden of Eden Rd Extension	F&S Grade / Jones Rd	Construct new minor arterial
C19	Patrick St Extension	Michael St / E Jones St	New major collector w/sidewalks

This analysis will consider the impacts of intersection control alternatives at the intersections of:

- Cook Road and Trail Road
- N Township Street (SR 9) and John Liner Road/McGarigle Road

This analysis will also evaluate the following three intersections for possible left turn lane improvements:

- Trail Road / F&S Grade Road
- Trail Road / Jones Road
- Jones Road / Patrick Street

## ANALYSIS METHODS AND ASSUMPTIONS

### Analysis Software

Signalized and stop-controlled intersections were evaluated in Synchro 9 software using Highway Capacity Manual 2010 (HCM2010) methods. Roundabouts were evaluated in Sidra Intersection 7 software using the HCM6 capacity model and HCM2000 LOS thresholds, per Washington State Department of Transportation (WSDOT) policy guidance.

### Travel Demand Forecasting

The travel demand forecasts used in this analysis were generated by the Sedro-Woolley 2036 citywide travel demand model, which includes all land use growth and transportation network improvements identified in the Sedro-Woolley 2016 Comprehensive Plan. Truck percentages are based on 2015 intersection turning movement counts.

The 2036 travel demand model forecasts traffic redistribution resulting from the improvement projects identified in Table 1. For the purposes of travel demand forecasting, the completed Jones/John Liner Road corridor was modeled as a fully built urban section.

By 2036, assuming completion of the corridor improvement projects, the Jones/John Liner Road corridor is anticipated to serve up to approximately 700 vehicles per hour (vph) during the PM peak hour, or approximately 7,000 vehicles per day (vpd) average daily traffic. Average daily traffic volume forecasts at each end of the corridor include:

- 7,000 vehicles per day (vpd) on Trail Road north of Cook Rd
- 6,300 vpd on John Liner Rd west of SR 9

By 2036, congestion along SR 20 through Sedro-Woolley will cause travel demand to spill over onto local east-west streets Ferry Street, State Street, and Jameson Road. The Jones/John Liner Road corridor will relieve congestion along SR 20 and through the local street network, reducing east-west demand by approximately 5,200 vpd.

By providing a continuous east-west connection, the Jones/John Liner Road corridor is also anticipated to reduce cross-street traffic along SR 20, improving safety and operations on the state route.

Attachment 1 shows raw 2036 PM peak hour volume after construction of the Jones/John Liner Road corridor improvements. Attachment 2 shows 2036 PM peak hour volume difference before and after construction of the corridor improvement projects. The volumes in Attachments 1 and 2 represent raw travel demand model volumes. These volumes were post-processed using observed traffic volumes for the purposes of this analysis.

### Analysis Period

Travel demand forecasts represent the PM peak hour, defined as the highest four consecutive 15-minute intervals from 4:00 – 6:00 PM.

## INTERSECTION CONTROL ANALYSIS

### Existing Conditions

#### *Cook Road and Trail Road*

Cook Road is an east-west three-lane minor arterial within city limits. It connects I-5 to the west with SR 20 within city limits. Posted speed limit is 35 mph within city limits. Cook Road currently serves approximately 13,000 vehicles per day.

Trail Road is currently a three-lane north-south major collector which connects SR 20 with Cook Road. Existing volume is approximately 4,300 vehicles per day.

The intersection of Cook Road and Trail Road currently includes stop control on the northbound (Trail Road) approach and a continuous two-way left-turn lane through the intersection along Cook Road.

#### *N Township Street (SR 9) and John Liner Road / McGarigle Road*

N Township Street (State Route 9) is a two-lane north-south principal arterial in the vicinity of John Liner Road. SR 9 connects Sedro-Woolley with Mount Vernon to the south and with Whatcom County to the north. SR 9 is classified a Highway of Statewide Significance (HSS) by WSDOT. The route is also a designated school zone in the vicinity of John Liner Road. Posted speed limit is 20 mph during school hours and 35 mph during non-school hours. N Township Street serves approximately 8,000 vehicles per day.

John Liner Road is a two-lane east-west major collector which begins at N Reed Street to the west. The street becomes McGarigle Road at the N Township Street intersection. John Liner Road includes a 24-foot paved width with unpaved shoulders. No sidewalk or curb & gutter currently exist. John Liner Road serves approximately 700 vehicles per day. Posted speed is 25 mph.

McGarigle Road is an east-west major collector which continues from John Liner Road at N Township Street to connect to Fruitdale Road to the east. McGarigle Road consists of two 12-foot paved travel lanes with curb and gutter on both sides, a five-foot sidewalk on the south side, and a 11-foot multi-use path on the north side. McGarigle Road serves approximately 2,000 vpd. Posted speed is 25 mph.

The intersection of SR 9 and John Liner Road / McGarigle Road includes stop control on the east and west approaches.

### Crash History

A collision history was compiled from incidents reported between January 1, 2013 and December 31, 2017 at both intersections.

#### *Cook Road and Trail Road*

Collision data for the intersection of Cook Road and Trail Road is summarized in **Table 2**. From 2013 through 2017, there were 13 collisions reported at the intersection. Two collisions resulted in possible injuries. No pedestrian or bicycle injuries and no fatalities were reported. The predominant collision type at the intersection is vehicles entering at angle.

**Table 2. Cook Road & Trail Road Crash History, 2013-2017**

Year	Fixed Object	Rear-End	Enter at Angle	Side-swipe	Backing	Ped/Bike	PDO	Injury	Fatal	Total
2013	0	1	2	0	1	0	4	0	0	4
2014	0	0	2	0	1	0	3	0	0	3
2015	0	0	0	0	0	0	0	0	0	0
2016	0	0	2	1	0	0	2	1	0	3
2017	1	2	0	0	0	0	2	1	0	3
<b>5-yr Total</b>	<b>1</b>	<b>3</b>	<b>6</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>11</b>	<b>1</b>	<b>0</b>	<b>13</b>
<b>Avg. Annual</b>	<b>0.2</b>	<b>0.6</b>	<b>1.2</b>	<b>0.2</b>	<b>0.4</b>	<b>0</b>	<b>2.2</b>	<b>0.2</b>	<b>0</b>	<b>2.6</b>

*N Township Street (SR 9) and John Liner Road / McGarigle Road*

Collision data for the intersection of N Township Street and John Liner Road / McGarigle Road is summarized in **Table 3**. From 2013 through 2017, there were 2 collisions reported at the intersection. Both collisions were related to vehicles entering at angle.

**Table 3. N Township St (SR 9) & John Liner Road / McGarigle Road Road Crash History, 2013-2017**

Year	Fixed Object	Rear-End	Enter at Angle	Side-swipe	Backing	Ped/Bike	PDO	Injury	Fatal	Total
2013	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0
2016	0	0	1	0	0	0	1	0	0	1
2017	0	0	1	0	0	0	0	1	0	1
<b>5-yr Total</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>2</b>
<b>Avg. Annual</b>	<b>0</b>	<b>0</b>	<b>0.4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.2</b>	<b>0.2</b>	<b>0</b>	<b>0.4</b>

Intersection Control Alternatives

Three future alternatives were studied at each intersection. All future alternatives assume construction of new street connections identified along the Trail Road / Jones Road / John Liner Road corridor, including Trail Road (Cook Road to Jones Road) and the Jones Road undercrossing.

Travel demand was assumed to be consistent across each of the alternatives, with only intersection control changing. Alternatives included:

- No Build (existing minor approach stop control)
- Roundabout
- Signal

The No Build Alternative assumes no change in intersection channelization or control. No Build delay and 95<sup>th</sup> percentile queues are summarized in **Table 4**.

**Table 4. Queuing and LOS, No Build Alternative (2036 PM Peak Hour)**

Intersection	Eastbound		Westbound		Northbound		Southbound		Overall <sup>1</sup>
	95 <sup>th</sup> Q (ft)	LOS (Delay) <sup>2</sup>	95 <sup>th</sup> Q (ft)	LOS (Delay) <sup>2</sup>	95 <sup>th</sup> Q (ft)	LOS (Delay) <sup>2</sup>	95 <sup>th</sup> Q (ft)	LOS (Delay) <sup>2</sup>	LOS (Delay)
Cook Rd & Trail Rd	25	A (9.1)	0	A (8.6)	1,450	F* (>999)	800	F* (>999)	F* (>999)
SR 9 & John Liner	775	F (691)	250	F (175)	0	A (8.7)	0	A (8.5)	F (691)

<sup>1</sup>For TWSC intersections, overall LOS and delay represent the worst (highest delay) movement. For all other intersection control types, overall LOS and delay represent the intersection average.

<sup>2</sup>Control delay in seconds per vehicle

\*Delay exceeds the limits of the HCM2010 methodology

Both intersections will operate with LOS F on the worst movement. Northbound and southbound delay at the intersection of Cook Road and Trail Road will exceed the limits of the Highway Capacity Manual delay calculation methodology. At SR 9 and John Liner Road, eastbound (John Liner Road) delay will exceed 11 minutes per entering vehicle. These delays will limit access to and from the new corridor during most of the PM peak hour.

#### *Roundabout*

The Roundabout alternative assumed single-lane roundabouts at both intersections. Roundabout analysis assumed a 120-foot inscribed circle diameter with a single 20-foot circulating lane for each roundabout. Conceptual roundabout layouts for each intersection are attached.

Under roundabout control, the intersection of Cook Road and Trail Road will operate at LOS B with 10.1 seconds of delay per vehicle. The intersection of SR 9 and John Liner Road will operate at LOS A with 7.2 seconds of delay per vehicle. 95<sup>th</sup> percentile queues will measure 150 feet (6 vehicles) or less on all approaches of both intersections. Roundabout delay and queuing for each intersection are summarized in **Table 5**.

**Table 5. Queuing and LOS, Roundabout Alternative (2036 PM Peak Hour)**

Intersection	Eastbound		Westbound		Northbound		Southbound		Overall <sup>1</sup>
	95 <sup>th</sup> Q (ft)	LOS (Delay) <sup>2</sup>	95 <sup>th</sup> Q (ft)	LOS (Delay) <sup>2</sup>	95 <sup>th</sup> Q (ft)	LOS (Delay) <sup>2</sup>	95 <sup>th</sup> Q (ft)	LOS (Delay) <sup>2</sup>	LOS (Delay)
Cook Rd & Trail Rd	125	A (7.6)	125	A (11.6)	150	B (13.9)	50	A (7.8)	B (10.1)
SR 9 & John Liner	50	A (9.1)	50	A (5.6)	75	A (6.3)	75	A (9.8)	A (7.2)

<sup>1</sup>For TWSC intersections, overall LOS and delay represent the worst (highest delay) movement. For all other intersection control types, overall LOS and delay represent the intersection average.

<sup>2</sup>Control delay in seconds per vehicle

The intersection of Cook Road and Trail Road will satisfy Manual on Uniform Traffic Control Devices Signal Warrant 1 (Eight Hour Volume), Signal Warrant 2 (Four Hour Volume), and Signal Warrant 3 (Peak Hour). The intersection of N Township Road (SR 9) and John Liner Road/McGarigle Road will satisfy MUTCD Signal Warrants 2 and 3. Signal warrant reports are attached.

Intersection capacity analysis for the Signal alternative assumed widening of the SR 9 and John Liner Road intersection to provide left-turn lanes on all approaches. At the Cook Road and Trail Road intersection, analysis indicated that left-turn lanes on the north and south (Trail Road) approaches are not warranted.

Delay and queueing for each signalized intersection are summarized in **Table 6**. The intersection of Cook Road and Trail Road operates at LOS B while the intersection of SR 9 and John Liner Road/McGarigle Road operates at LOS A.

**Table 6. Queuing and LOS, Signal Alternative (2036 PM Peak Hour)**

Intersection	Eastbound		Westbound		Northbound		Southbound		Overall <sup>1</sup>
	95 <sup>th</sup> Q (ft)	LOS (Delay) <sup>2</sup>	95 <sup>th</sup> Q (ft)	LOS (Delay) <sup>2</sup>	95 <sup>th</sup> Q (ft)	LOS (Delay) <sup>2</sup>	95 <sup>th</sup> Q (ft)	LOS (Delay) <sup>2</sup>	LOS (Delay)
Cook Rd & Trail Rd	L: 275 Th: 275	B (18.3)	L: 75 Th: 225	B (13.8)	400	C (26.6)	175	B (17.0)	B (19.1)
SR 9 & John Liner	L: 100 Th: 75	B (13.2)	L: 50 Th: 50	B (11.9)	L: 50 Th: 175	A (8.5)	L: 0 Th: 175	A (8.2)	A (9.9)

<sup>1</sup>For TWSC intersections, overall LOS and delay represent the worst (highest delay) movement. For all other intersection control types, overall LOS and delay represent the intersection average.

<sup>2</sup>Control delay in seconds per vehicle

## TURN LANE ANALYSIS

Left-turn lane warrants were analyzed for each of three planned stop-controlled intersections along the future Trail Road / Jones Road / John Liner Road corridor:

- Trail Road and F&S Grade Road (stop control on north and south approaches)
- Trail Road and Jones Road (stop control on east and west approaches)
- Jones Road and Patrick Street (stop control on south approach)

WSDOT Design Manual left-turn lane warrants (attached) were evaluated for each of the three intersections identified above. The turn lane analysis is summarized in **Table 7**.

**Table 7. Left-Turn Lane Analysis**

Intersection	Approach Leg	Total DHV <sup>1</sup>	% Total DHV Turning Left	2036 PM LOS (Delay) <sup>2</sup>		Left-Turn Lane Warranted
				Without LT Lane	With LT Lane	
Trail Road & F&S Grade Road	West (EB)	50	10.0%	B (13.3)	B (14.7)	No
	East (WB)	125	24.0%	C (15.8)	B (14.5)	No
	South (NB)	665	0.8%	A (0.1)	A (0.1)	No
	North (SB)	645	3.1%	A (0.8)	A (0.8)	No
Trail Road & Jones Road	West (EB)	185	8.1%	A (1.1)	A (1.1)	No
	East (WB)	660	22.0%	A (4.5)	A (4.5)	<b>Yes</b>
	South (NB)	660	0.8%	D (27.1)	D (25.4)	No
	North (SB)	315	11.1%	D (32.7)	C (24.2)	No
Jones Road & Patrick Street	East (WB)	840	10.1%	A (2.1)	A (2.1)	<b>Yes</b>
	South (NB)	290	12.1%	B (16.1)	B (12.8)	No

<sup>1</sup>Design hourly volume (both directions)

<sup>2</sup>Average LOS and delay by approach

Left-turn lanes are warranted on the east (Jones Rd) approach of the Trail Road and Jones Road intersection, and the east (Jones Rd) approach of the Jones Road and Patrick Street intersection.

## FINDINGS AND RECOMMENDATIONS

Findings and recommendations are summarized below.

- Single-lane roundabouts are the preferred intersection control alternative at the intersections of:
  - Cook Road and Trail Road
  - N Township Road (SR 9) and John Liner Road/McGarigle Road.
- A left-turn lane is warranted at the following two locations:
  - East (Jones Rd) approach of Trail Road and Jones Road intersection.
  - East (Jones Rd) approach of Jones Road and Patrick Street intersection.

Attachment 1. 2036 PM Peak Hour Volume With Jones/John Liner Road Corridor

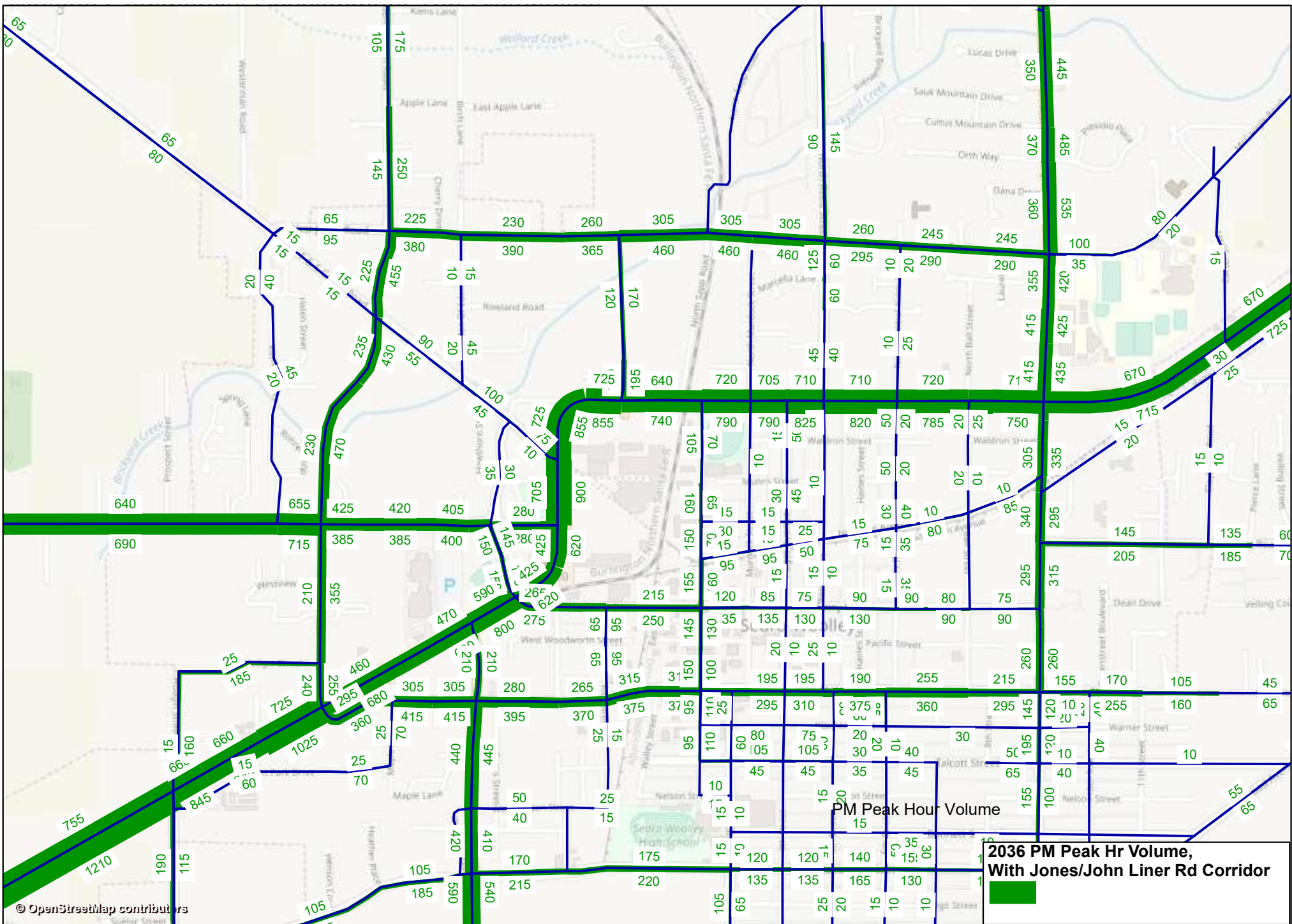
Attachment 2. 2036 PM Peak Hour Volume Difference, Before and After Jones/John Liner Road Corridor

Attachment 3. Conceptual Roundabout Layouts

Attachment 4. Signal Warrant Reports

Attachment 5: Intersection LOS Reports

Attachment 6: Left-Turn Storage Guidelines



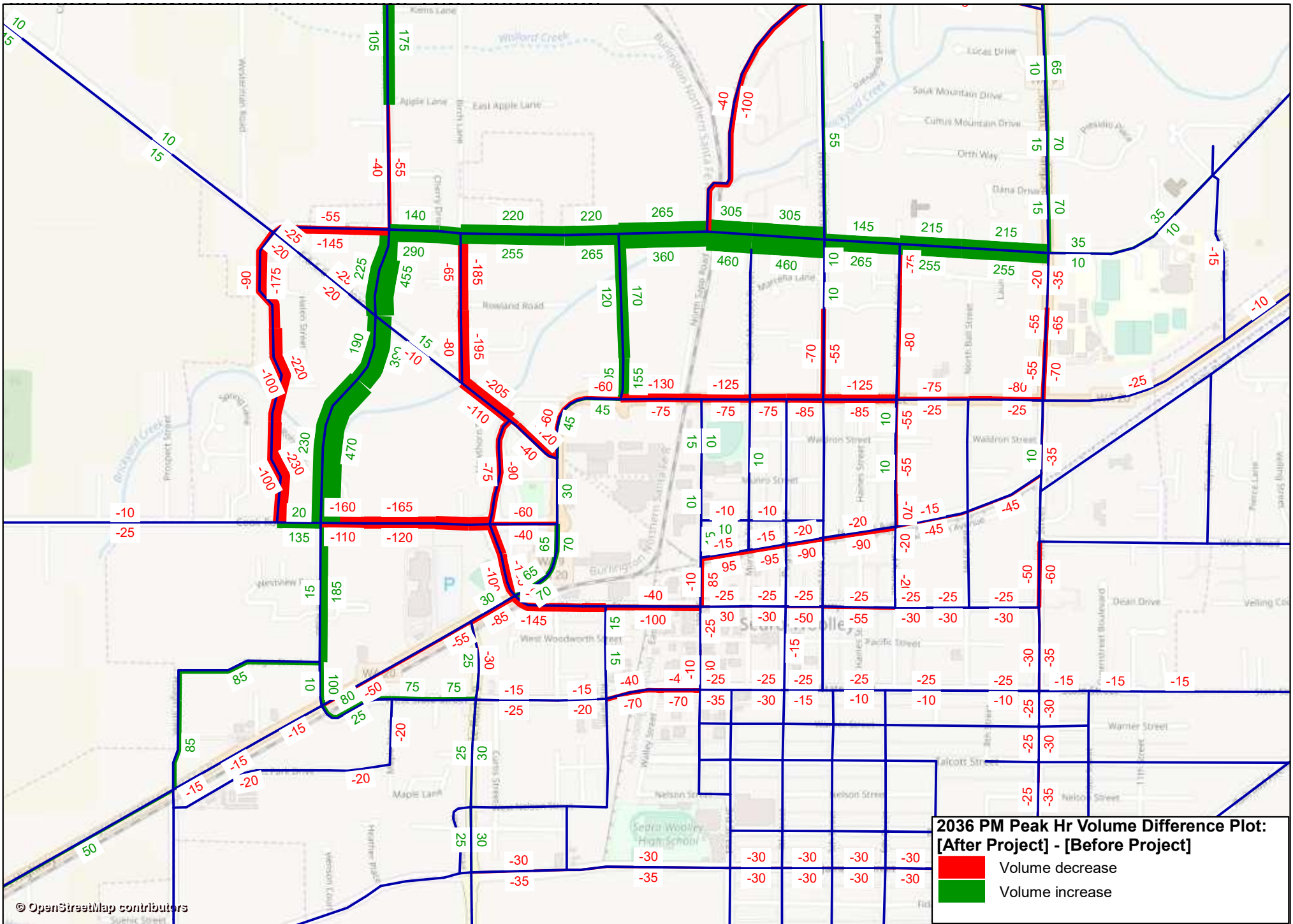
Total PM Peak Hour Volume with Jones/John Liner Rd Connection

1:13324

Transportation Solutions, Inc.

City Council Packet

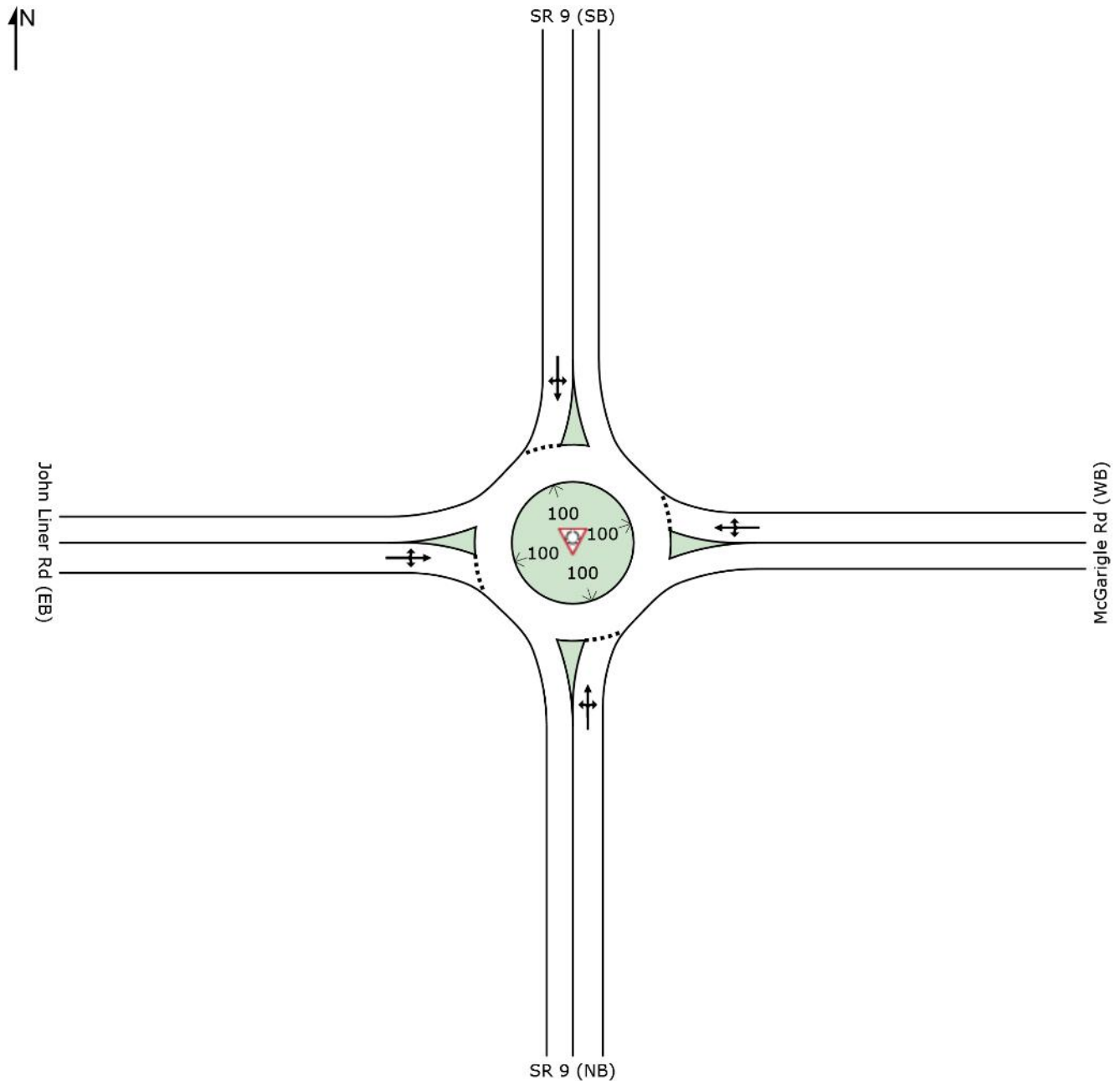
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## SITE LAYOUT

 Site: [208. SR 9 & John Liner Rd]

2036 With Improvement  
Roundabout



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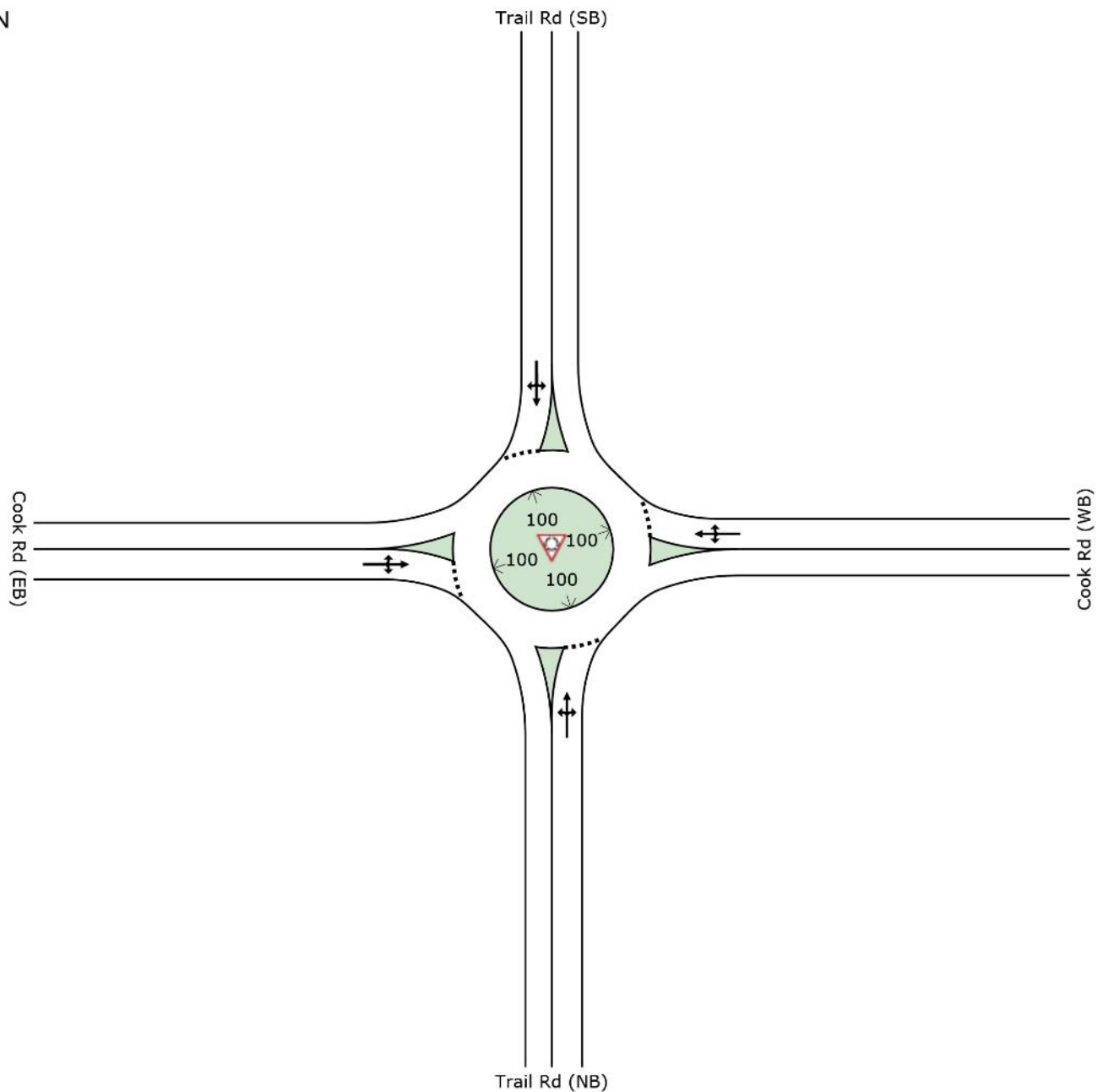
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## SITE LAYOUT



Site: [303. Cook Rd & Trail Rd]

2036 With Improvement  
Roundabout



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Project: C:\Users\jakep\Dropbox (TSI)\TSI Projects\2018\218023 Jones-John Liner Trail Road Corridor Scoping Study\analysis\Sidra\2036 Trail-Jones-John Liner.sip7

## Signal Warrants Report For Intersection 1: Cook Rd &amp; Trail Rd

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	430	740	450	225
2	413	710	432	216
3	404	696	423	212
4	344	592	360	180
5	327	562	342	171
6	292	503	306	153
7	271	466	284	142
8	258	444	270	135
9	206	355	216	108
10	194	333	203	101
11	194	333	203	101
12	185	318	194	97
13	168	289	176	88
14	155	266	162	81
15	155	266	162	81
16	151	259	158	79
17	86	148	90	45
18	47	81	50	25
19	43	74	45	23
20	17	30	18	9
21	13	22	14	7
22	13	22	14	7
23	9	15	9	5
24	9	15	9	5

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	1170	2	675	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	4	1123	2	648	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	4	1100	2	635	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	4	936	2	540	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	4	889	2	513	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
6	4	795	2	459	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
7	4	737	2	426	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
8	4	702	2	405	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
9	4	561	2	324	No	Yes	Yes	Yes	No	No	No	Yes	No	No
10	4	527	2	304	No	Yes	Yes	Yes	No	No	No	Yes	No	No
11	4	527	2	304	No	Yes	Yes	Yes	No	No	No	Yes	No	No
12	4	503	2	291	No	Yes	Yes	Yes	No	No	No	No	No	No
13	4	457	2	264	No	No	Yes	Yes	No	No	No	No	No	No
14	4	421	2	243	No	No	Yes	Yes	No	No	No	No	No	No
15	4	421	2	243	No	No	Yes	Yes	No	No	No	No	No	No
16	4	410	2	237	No	No	No	Yes	No	No	No	No	No	No
17	4	234	2	135	No	No	No	No	No	No	No	No	No	No
18	4	128	2	75	No	No	No	No	No	No	No	No	No	No
19	4	117	2	68	No	No	No	No	No	No	No	No	No	No
20	4	47	2	27	No	No	No	No	No	No	No	No	No	No
21	4	35	2	21	No	No	No	No	No	No	No	No	No	No
22	4	35	2	21	No	No	No	No	No	No	No	No	No	No
23	4	24	2	14	No	No	No	No	No	No	No	No	No	No
24	4	24	2	14	No	No	No	No	No	No	No	No	No	No
Hours Met					8	12	15	16	4	7	8	11	8	5

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	7302.8	10000
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	912:50	625:00
Delay Condition Met	Yes	Yes
Volume on Minor Street Approach During Same Hour	450	225
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	1845	1845
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	Yes	Yes
<b>Warrant Met for Intersection</b>	<b>Yes</b>	

## Signal Warrants Report For Intersection 2: SR 9 &amp; John Liner Rd

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

## Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	480	405	170	325
2	461	389	163	312
3	451	381	160	306
4	384	324	136	260
5	365	308	129	247
6	326	275	116	221
7	302	255	107	205
8	288	243	102	195
9	230	194	82	156
10	216	182	77	146
11	216	182	77	146
12	206	174	73	140
13	187	158	66	127
14	173	146	61	117
15	173	146	61	117
16	168	142	59	114
17	96	81	34	65
18	53	45	19	36
19	48	41	17	33
20	19	16	7	13
21	14	12	5	10
22	14	12	5	10
23	10	8	3	7
24	10	8	3	7

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	885	2	495	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
2	2	850	2	475	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
3	2	832	2	466	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
4	2	708	2	396	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
5	2	673	2	376	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No
6	2	601	2	337	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No
7	2	557	2	312	No	Yes	Yes	Yes	No	No	No	Yes	No	No
8	2	531	2	297	No	Yes	Yes	Yes	No	No	No	Yes	No	No
9	2	424	2	238	No	No	Yes	Yes	No	No	No	No	No	No
10	2	398	2	223	No	No	No	Yes	No	No	No	No	No	No
11	2	398	2	223	No	No	No	Yes	No	No	No	No	No	No
12	2	380	2	213	No	No	No	Yes	No	No	No	No	No	No
13	2	345	2	193	No	No	No	Yes	No	No	No	No	No	No
14	2	319	2	178	No	No	No	No	No	No	No	No	No	No
15	2	319	2	178	No	No	No	No	No	No	No	No	No	No
16	2	310	2	173	No	No	No	No	No	No	No	No	No	No
17	2	177	2	99	No	No	No	No	No	No	No	No	No	No
18	2	98	2	55	No	No	No	No	No	No	No	No	No	No
19	2	89	2	50	No	No	No	No	No	No	No	No	No	No
20	2	35	2	20	No	No	No	No	No	No	No	No	No	No
21	2	26	2	15	No	No	No	No	No	No	No	No	No	No
22	2	26	2	15	No	No	No	No	No	No	No	No	No	No
23	2	18	2	10	No	No	No	No	No	No	No	No	No	No
24	2	18	2	10	No	No	No	No	No	No	No	No	No	No
Hours Met					6	8	9	13	0	3	5	8	4	0

## Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	128.8	551.6
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	6:04	49:47
Delay Condition Met	Yes	Yes
Volume on Minor Street Approach During Same Hour	170	325
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	1380	1380
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	Yes	Yes
<b>Warrant Met for Intersection</b>	<b>Yes</b>	

## MOVEMENT SUMMARY

 **Site: [208. SR 9 & John Liner Rd]**

2036 With Improvement  
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: SR 9 (NB)											
3	L2	90	3.0	0.464	11.3	LOS B	3.2	82.4	0.55	0.57	35.9
8	T1	393	3.0	0.464	5.3	LOS A	3.2	82.4	0.55	0.57	35.8
18	R2	56	3.0	0.464	5.4	LOS A	3.2	82.4	0.55	0.57	34.7
Approach		539	3.0	0.464	6.3	LOS A	3.2	82.4	0.55	0.57	35.7
East: McGarigle Rd (WB)											
1	L2	73	3.0	0.228	13.5	LOS B	1.4	35.7	0.71	0.77	34.6
6	T1	79	3.0	0.228	7.5	LOS A	1.4	35.7	0.71	0.77	34.6
16	R2	39	3.0	0.228	7.6	LOS A	1.4	35.7	0.71	0.77	33.6
Approach		191	3.0	0.228	9.8	LOS A	1.4	35.7	0.71	0.77	34.4
North: SR 9 (SB)											
7	L2	17	9.0	0.410	11.3	LOS B	2.6	70.1	0.51	0.56	36.2
4	T1	270	9.0	0.410	5.3	LOS A	2.6	70.1	0.51	0.56	36.2
14	R2	169	9.0	0.410	5.4	LOS A	2.6	70.1	0.51	0.56	35.1
Approach		455	9.0	0.410	5.6	LOS A	2.6	70.1	0.51	0.56	35.8
West: John Liner Rd (EB)											
5	L2	208	3.0	0.339	11.7	LOS B	2.0	52.4	0.57	0.70	34.9
2	T1	34	3.0	0.339	5.7	LOS A	2.0	52.4	0.57	0.70	34.9
12	R2	124	3.0	0.339	5.8	LOS A	2.0	52.4	0.57	0.70	33.8
Approach		365	3.0	0.339	9.1	LOS A	2.0	52.4	0.57	0.70	34.5
All Vehicles		1551	4.8	0.464	7.2	LOS A	3.2	82.4	0.56	0.62	35.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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## MOVEMENT SUMMARY

 Site: [303. Cook Rd & Trail Rd]

2036 With Improvement  
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Trail Rd (NB)											
3	L2	214	7.0	0.601	17.1	LOS B	5.7	150.0	0.89	1.01	32.7
8	T1	141	7.0	0.601	11.1	LOS B	5.7	150.0	0.89	1.01	32.7
18	R2	115	7.0	0.601	11.2	LOS B	5.7	150.0	0.89	1.01	31.8
Approach		469	7.0	0.601	13.9	LOS B	5.7	150.0	0.89	1.01	32.5
East: Cook Rd (WB)											
1	L2	89	5.0	0.559	16.3	LOS B	5.0	128.8	0.86	0.96	33.8
6	T1	333	5.0	0.559	10.4	LOS B	5.0	128.8	0.86	0.96	33.8
16	R2	26	5.0	0.559	10.4	LOS B	5.0	128.8	0.86	0.96	32.8
Approach		448	5.0	0.559	11.6	LOS B	5.0	128.8	0.86	0.96	33.8
North: Trail Rd (SB)											
7	L2	21	2.0	0.278	13.2	LOS B	1.8	45.9	0.74	0.76	35.7
4	T1	57	2.0	0.278	7.3	LOS A	1.8	45.9	0.74	0.76	35.6
14	R2	156	2.0	0.278	7.3	LOS A	1.8	45.9	0.74	0.76	34.5
Approach		234	2.0	0.278	7.8	LOS A	1.8	45.9	0.74	0.76	34.9
West: Cook Rd (EB)											
5	L2	323	2.0	0.610	11.0	LOS B	5.2	132.7	0.55	0.59	35.4
2	T1	339	2.0	0.610	5.1	LOS A	5.2	132.7	0.55	0.59	35.3
12	R2	109	2.0	0.610	5.1	LOS A	5.2	132.7	0.55	0.59	34.2
Approach		771	2.0	0.610	7.6	LOS A	5.2	132.7	0.55	0.59	35.2
All Vehicles		1922	3.9	0.610	10.1	LOS B	5.7	150.0	0.73	0.80	34.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.









Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	10	5	30	10	35	5	405	20	20	190	5
Future Vol, veh/h	5	10	5	30	10	35	5	405	20	20	190	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	11	5	33	11	38	5	440	22	22	207	5

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	740	726	210	723	717	451	212	0	0	462	0	0
Stage 1	254	254	-	461	461	-	-	-	-	-	-	-
Stage 2	486	472	-	262	256	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	333	351	830	342	355	608	1358	-	-	1099	-	-
Stage 1	750	697	-	581	565	-	-	-	-	-	-	-
Stage 2	563	559	-	743	696	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	299	343	830	326	346	608	1358	-	-	1099	-	-
Mov Cap-2 Maneuver	299	343	-	326	346	-	-	-	-	-	-	-
Stage 1	747	683	-	579	563	-	-	-	-	-	-	-
Stage 2	516	557	-	712	682	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	14.7		14.5		0.1		0.8	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1358	-	-	299	426	326	520	1099	-	-
HCM Lane V/C Ratio	0.004	-	-	0.018	0.038	0.1	0.094	0.02	-	-
HCM Control Delay (s)	7.7	-	-	17.3	13.8	17.3	12.6	8.3	-	-
HCM Lane LOS	A	-	-	C	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.3	0.3	0.1	-	-

Intersection												
Int Delay, s/veh	16.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	85	5	145	65	40	5	150	290	35	65	10
Future Vol, veh/h	15	85	5	145	65	40	5	150	290	35	65	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	92	5	158	71	43	5	163	315	38	71	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	114	0	0	97	0	0	577	557	95	775	538	93
Stage 1	-	-	-	-	-	-	127	127	-	409	409	-
Stage 2	-	-	-	-	-	-	450	430	-	366	129	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1475	-	-	1496	-	-	428	439	962	315	450	964
Stage 1	-	-	-	-	-	-	877	791	-	619	596	-
Stage 2	-	-	-	-	-	-	589	583	-	653	789	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1475	-	-	1496	-	-	334	388	962	131	398	964
Mov Cap-2 Maneuver	-	-	-	-	-	-	334	388	-	131	398	-
Stage 1	-	-	-	-	-	-	867	782	-	612	533	-
Stage 2	-	-	-	-	-	-	452	521	-	344	780	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.1			4.5			25.4			24.2		
HCM LOS							D			C		





















  

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	334	639	1475	-	-	1496	-	-	131	432
HCM Lane V/C Ratio	0.016	0.748	0.011	-	-	0.105	-	-	0.29	0.189
HCM Control Delay (s)	16	25.5	7.5	-	-	7.7	-	-	43.4	15.3
HCM Lane LOS	C	D	A	-	-	A	-	-	E	C
HCM 95th %tile Q(veh)	0.1	6.7	0	-	-	0.4	-	-	1.1	0.7

# HCM 2010 Signalized Intersection Summary

208: N Township St. (SR 9) & John Liner Rd./McGarigle Rd.

12/21/2018






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	30	110	65	70	35	80	350	50	15	240	150
Future Volume (veh/h)	185	30	110	65	70	35	80	350	50	15	240	150
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.97		0.98	1.00		0.98	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1743	1743	1900
Adj Flow Rate, veh/h	208	34	124	73	79	39	90	393	56	17	270	169
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	9	9	9
Cap, veh/h	499	108	395	454	371	183	454	781	111	451	495	310
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.50	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	1236	338	1234	1181	1158	572	933	1574	224	870	998	625
Grp Volume(v), veh/h	208	0	158	73	0	118	90	0	449	17	0	439
Grp Sat Flow(s),veh/h/ln	1236	0	1573	1181	0	1730	933	0	1799	870	0	1623
Q Serve(g_s), s	6.4	0.0	3.3	2.2	0.0	2.2	3.2	0.0	7.3	0.6	0.0	8.1
Cycle Q Clear(g_c), s	8.6	0.0	3.3	5.5	0.0	2.2	11.3	0.0	7.3	7.9	0.0	8.1
Prop In Lane	1.00		0.78	1.00		0.33	1.00		0.12	1.00		0.38
Lane Grp Cap(c), veh/h	499	0	503	454	0	554	454	0	893	451	0	806
V/C Ratio(X)	0.42	0.00	0.31	0.16	0.00	0.21	0.20	0.00	0.50	0.04	0.00	0.54
Avail Cap(c_a), veh/h	1040	0	1191	970	0	1310	1040	0	2023	998	0	1825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.9	0.0	11.2	13.3	0.0	10.8	11.5	0.0	7.4	10.0	0.0	7.6
Incr Delay (d2), s/veh	0.6	0.0	0.4	0.2	0.0	0.2	0.2	0.0	0.4	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.1	0.0	2.6	1.3	0.0	1.9	1.5	0.0	6.5	0.3	0.0	6.6
LnGrp Delay(d),s/veh	14.5	0.0	11.5	13.4	0.0	11.0	11.7	0.0	7.8	10.0	0.0	8.2
LnGrp LOS	B		B	B		B	B		A	B		A
Approach Vol, veh/h	366		191				539				456	
Approach Delay, s/veh	13.2		11.9				8.5				8.2	
Approach LOS	B		B				A				A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	25.6		17.9		25.6		17.9					
Change Period (Y+Rc), s	4.0		4.0		4.0		4.0					
Max Green Setting (Gmax), s	49.0		33.0		49.0		33.0					
Max Q Clear Time (g_c+l1), s	13.3		10.6		10.1		7.5					
Green Ext Time (p_c), s	8.3		2.9		8.4		2.9					
Intersection Summary												
HCM 2010 Ctrl Delay	9.9											
HCM 2010 LOS	A											

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HCM 2010 analysis cannot be performed with phasing conflicts.

HCM 2010 Signalized Intersection Summary  
226: Old Hwy 99 & Cook Rd.

12/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	437	70	70	450	99	275	305	150	72	70	125
Future Volume (veh/h)	147	437	70	70	450	99	275	305	150	72	70	125
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1810	1810	1900	1792	1792	1900	1810	1810	1810
Adj Flow Rate, veh/h	155	460	74	74	474	104	289	321	158	76	74	132
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	5	5	5	6	6	6	5	5	5
Cap, veh/h	264	625	100	281	537	118	549	370	182	213	402	342
Arrive On Green	0.07	0.41	0.41	0.04	0.37	0.37	0.15	0.33	0.33	0.05	0.22	0.22
Sat Flow, veh/h	1740	1536	247	1723	1438	316	1707	1135	559	1723	1810	1538
Grp Volume(v), veh/h	155	0	534	74	0	578	289	0	479	76	74	132
Grp Sat Flow(s),veh/h/ln	1740	0	1783	1723	0	1754	1707	0	1694	1723	1810	1538
Q Serve(g_s), s	4.7	0.0	22.4	2.3	0.0	27.2	10.9	0.0	23.5	3.0	2.9	6.4
Cycle Q Clear(g_c), s	4.7	0.0	22.4	2.3	0.0	27.2	10.9	0.0	23.5	3.0	2.9	6.4
Prop In Lane	1.00		0.14	1.00		0.18	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	264	0	725	281	0	655	549	0	552	213	402	342
V/C Ratio(X)	0.59	0.00	0.74	0.26	0.00	0.88	0.53	0.00	0.87	0.36	0.18	0.39
Avail Cap(c_a), veh/h	273	0	788	288	0	715	604	0	710	213	512	436
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.7	0.0	22.2	18.2	0.0	25.9	19.7	0.0	28.0	26.1	27.9	29.2
Incr Delay (d2), s/veh	3.1	0.0	3.3	0.5	0.0	11.8	0.8	0.0	9.1	1.0	0.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.4	0.0	17.2	2.0	0.0	21.7	8.9	0.0	18.1	2.7	2.7	5.1
LnGrp Delay(d),s/veh	22.8	0.0	25.5	18.7	0.0	37.7	20.5	0.0	37.0	27.1	28.1	29.9
LnGrp LOS	C		C	B		D	C		D	C	C	C
Approach Vol, veh/h	689				652				768		282	
Approach Delay, s/veh	24.9				35.5				30.8		28.7	
Approach LOS	C				D				C		C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	32.8	7.6	39.9	17.2	23.6	10.5	37.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	4.0	37.0	4.0	39.0	16.0	25.0	7.0	36.0				
Max Q Clear Time (g_c+15), s	4.0	25.5	4.3	24.4	12.9	8.4	6.7	29.2				
Green Ext Time (p_c), s	0.0	3.3	0.0	6.3	0.3	4.0	0.0	3.8				
Intersection Summary												
HCM 2010 Ctrl Delay			30.1									
HCM 2010 LOS			C									

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↰		↰	↰				
Traffic Vol, veh/h	75	404	0	0	416	434	20	0	255	0	0	0
Future Vol, veh/h	75	404	0	0	416	434	20	0	255	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	50	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	4	4	0	0	7	7	7	0	7	0	0	0
Mvmt Flow	84	454	0	0	467	488	22	0	287	0	0	0

Major/Minor	Major1		Major2		Minor1					
Conflicting Flow All	955	0	-	-	-	0	1333	1577	454	
Stage 1	-	-	-	-	-	-	622	622	-	
Stage 2	-	-	-	-	-	-	711	955	-	
Critical Hdwy	4.14	-	-	-	-	-	6.47	6.5	6.27	
Critical Hdwy Stg 1	-	-	-	-	-	-	5.47	5.5	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	5.47	5.5	-	
Follow-up Hdwy	2.236	-	-	-	-	-	3.563	4	3.363	
Pot Cap-1 Maneuver	712	-	0	0	-	-	166	111	596	
Stage 1	-	-	0	0	-	-	526	482	-	
Stage 2	-	-	0	0	-	-	478	339	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	712	-	-	-	-	-	140	0	596	
Mov Cap-2 Maneuver	-	-	-	-	-	-	140	0	-	
Stage 1	-	-	-	-	-	-	443	0	-	
Stage 2	-	-	-	-	-	-	478	0	-	

Approach	EB	WB	NB
HCM Control Delay, s	1.7	0	17.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	140	596	712	-	-	-
HCM Lane V/C Ratio	0.161	0.481	0.118	-	-	-
HCM Control Delay (s)	35.6	16.5	10.7	0	-	-
HCM Lane LOS	E	C	B	A	-	-
HCM 95th %tile Q(veh)	0.6	2.6	0.4	-	-	-

Intersection

Int Delay, s/veh 74.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱			↱					↱	↱	
Traffic Vol, veh/h	0	250	5	324	107	0	0	0	0	229	0	20
Future Vol, veh/h	0	250	5	324	107	0	0	0	0	229	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	0	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	5	5	9	9	0	0	0	0	3	0	3
Mvmt Flow	0	269	5	348	115	0	0	0	0	246	0	22

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	274	0	0	1083	1085	115
Stage 1	-	-	-	-	-	-	811	811	-
Stage 2	-	-	-	-	-	-	272	274	-
Critical Hdwy	-	-	-	4.19	-	-	6.43	6.5	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	5.43	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.43	5.5	-
Follow-up Hdwy	-	-	-	2.281	-	-	3.527	4	3.327
Pot Cap-1 Maneuver	0	-	-	1250	-	0	~ 239	218	935
Stage 1	0	-	-	-	-	0	435	396	-
Stage 2	0	-	-	-	-	0	771	687	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1250	-	-	~ 168	0	935
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 168	0	-
Stage 1	-	-	-	-	-	-	435	0	-
Stage 2	-	-	-	-	-	-	542	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	6.8	267.1
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1250	-	168	935
HCM Lane V/C Ratio	-	-	0.279	-	1.466	0.023
HCM Control Delay (s)	-	-	9	0	289.7	8.9
HCM Lane LOS	-	-	A	A	F	A
HCM 95th %tile Q(veh)	-	-	1.1	-	15.7	0.1



















Notes





~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

# HCM 2010 Signalized Intersection Summary

## 303: Trail Rd. & Cook Rd.

12/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	325	105	85	320	25	205	135	110	20	55	150
Future Volume (veh/h)	310	325	105	85	320	25	205	135	110	20	55	150
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1810	1810	1900	1900	1776	1900	1900	1863	1900
Adj Flow Rate, veh/h	323	339	109	89	333	26	214	141	115	21	57	156
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	5	5	5	7	7	7	2	2	2
Cap, veh/h	477	676	217	398	834	65	298	172	131	80	191	441
Arrive On Green	0.50	0.50	0.50	0.50	0.50	0.50	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1018	1343	432	911	1657	129	586	436	331	75	483	1116
Grp Volume(v), veh/h	323	0	448	89	0	359	470	0	0	234	0	0
Grp Sat Flow(s),veh/h/ln	1018	0	1775	911	0	1787	1353	0	0	1675	0	0
Q Serve(g_s), s	22.7	0.0	13.2	5.6	0.0	9.8	17.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	32.5	0.0	13.2	18.8	0.0	9.8	25.3	0.0	0.0	7.8	0.0	0.0
Prop In Lane	1.00		0.24	1.00		0.07	0.46		0.24	0.09		0.67
Lane Grp Cap(c), veh/h	477	0	894	398	0	900	601	0	0	711	0	0
V/C Ratio(X)	0.68	0.00	0.50	0.22	0.00	0.40	0.78	0.00	0.00	0.33	0.00	0.00
Avail Cap(c_a), veh/h	534	0	994	449	0	1000	720	0	0	851	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.2	0.0	13.0	19.2	0.0	12.1	21.9	0.0	0.0	16.8	0.0	0.0
Incr Delay (d2), s/veh	2.9	0.0	0.4	0.3	0.0	0.3	4.7	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.0	0.0	10.6	2.6	0.0	8.5	15.4	0.0	0.0	6.5	0.0	0.0
LnGrp Delay(d),s/veh	25.2	0.0	13.4	19.5	0.0	12.4	26.6	0.0	0.0	17.0	0.0	0.0
LnGrp LOS	C		B	B		B	C			B		
Approach Vol, veh/h		771			448			470			234	
Approach Delay, s/veh		18.3			13.8			26.6			17.0	
Approach LOS		B			B			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		35.0		43.6		35.0		43.6				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		38.0		44.0		38.0		44.0				
Max Q Clear Time (g_c+l1), s		27.3		34.5		9.8		20.8				
Green Ext Time (p_c), s		3.8		5.1		5.8		8.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				19.1								
HCM 2010 LOS				B								

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	3	0	3	0	0	3	3	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	90	94	90	94	94	94	94	90
Heavy Vehicles, %	2	2	2	0	2	0	2	4	4	1	1	2
Mvmt Flow	0	0	0	0	0	0	0	0	0	0	0	0






Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	4	4	4	7	4	6	1	0	0	3	0	0
Stage 1	1	1	-	3	3	-	-	-	-	-	-	-
Stage 2	3	3	-	4	1	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.52	6.2	4.12	-	-	4.11	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4.018	3.3	2.218	-	-	2.209	-	-
Pot Cap-1 Maneuver	1017	891	1080	1018	891	1083	1622	-	-	1626	-	-
Stage 1	1022	895	-	1025	893	-	-	-	-	-	-	-
Stage 2	1020	893	-	1024	895	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1015	889	1078	1013	889	1078	1622	-	-	1622	-	-
Mov Cap-2 Maneuver	1015	889	-	1013	889	-	-	-	-	-	-	-
Stage 1	1022	895	-	1023	891	-	-	-	-	-	-	-
Stage 2	1018	891	-	1022	895	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0		0		0		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1622	-	-	-	1622	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	0	-	-
HCM Lane LOS	A	-	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	-	-

Intersection

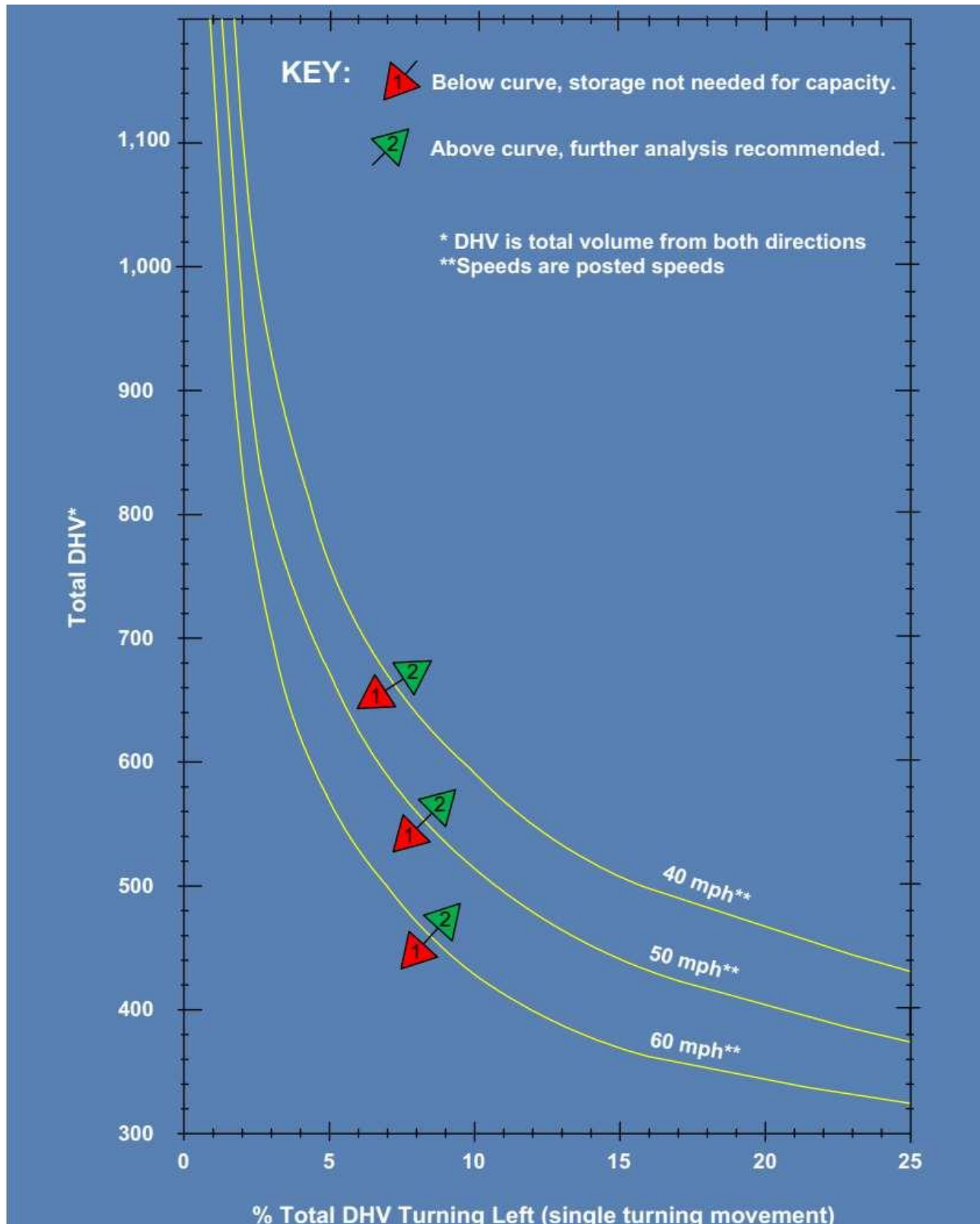
Int Delay, s/veh 3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	365	40	85	260	35	130
Future Vol, veh/h	365	40	85	260	35	130
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	150	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	397	43	92	283	38	141

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	440
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1120
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1120
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	413	634	-	-	1120	-
HCM Lane V/C Ratio	0.092	0.223	-	-	0.082	-
HCM Control Delay (s)	14.6	12.3	-	-	8.5	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	0.8	-	-	0.3	-



Left-Turn Storage Guidelines: Two-Lane, Unsignalized (Source: WSDOT Design Manual)



8250 - 165th Avenue NE  
Suite 100  
Redmond, WA 98052-6628  
T 425-883-4134  
F 425-867-0898  
www.tsinw.com

## Exhibit P

To Hearing Examiner Staff Report

January 7, 2020

**TO:** Mark Freiburger, PE  
Director of Public Works  
City of Sedro-Woolley

**FROM:** Andrew Bratlien, PE

**SUBJECT:** Citywide Transportation Concurrency Review

### INTRODUCTION

This memorandum describes the methods, assumptions, and findings of the Sedro-Woolley Citywide Transportation Concurrency Review. This includes a review of intersection and segment Levels of Service (LOS) in 2019 and for two pipeline (2025) development scenarios as well as mitigation recommendations to maintain minimum LOS standards.

### CONCURRENCY MANAGEMENT BACKGROUND

Concurrency is mandated under the 1990 Growth Management Act (GMA) passed by the Washington State legislature to address and mitigate problems associated with growth. The GMA requires that transportation improvements or strategies necessary to accommodate development must be made concurrently with land development. Concurrency requires transportation improvements to be either (a) in place at the time of development or (b) that a financial commitment is in place to complete the improvements within six years of development (RCW 36.70A.070(6)(b)).

Transportation concurrency requires that the transportation impacts of land use development actions do not reduce transportation Level of Service (LOS) below the responsible agency's adopted LOS standards. If it is determined during the development review process that the proposed land use action would reduce LOS below the adopted standard, the development must be modified to reduce its transportation impact or provide corrective transportation improvements. Transportation improvements, which may include project funding, must be identified and programmed within a six-year period from development permitting. Should any of these requirements fail to be met, the development proposal cannot be granted approval.

### 2019 CONDITIONS

#### Traffic Counts

Traffic counts were collected at 45 intersections in and near Sedro-Woolley on non-holiday weekdays in April 2015. Updated traffic counts were collected in 2019 at the following five intersections:

- SR 20 & Township St (October 2019)
- SR 20 & Fruitdale Rd (October 2019)
- SR 9 & John Liner Rd/McGarigle Rd (April 2019)
- Fruitdale Rd & McGarigle Rd (April 2019)
- Fruitdale Rd & Portobello Ave (October 2019)

Intersection turning movement counts were collected from 4:00 – 6:00 PM to capture the PM peak period of travel. Counts were then reviewed to identify the PM peak hour of travel, defined as the highest four consecutive fifteen-minute volume intervals during the PM peak period. The PM peak hour represents the one-hour period when traffic volumes are typically at their peak, and generally corresponds to the period of rush hour traffic with commuters returning home from work. The Sedro-Woolley travel demand and intersection LOS models reflect conditions during the PM peak hour of travel.

#### Travel Demand Model

The Sedro-Woolley travel demand model was most recently updated in 2015 to reflect PM peak hour traffic volumes in April 2015. As part of this analysis, the travel demand model was updated to include significant land use changes and transportation network improvements which occurred between April 2015 and November 2019.

A list of recently completed (2015-2019) developments was provided by City staff and input to the travel demand model. Recent development growth included a total of 215 new PM peak hour trips internal to the City of Sedro-Woolley. Regional (external) travel demand growth was updated based on 2019 PM peak hour traffic counts.

The updated travel demand model was used to estimate traffic volume growth at intersections which were most recently counted in April 2015.

#### 2019 Level of Service

##### *Level of Service Definition*

Level of service (LOS) is a qualitative description of the operating performance of an element of transportation infrastructure such as a roadway or an intersection. LOS is typically expressed as a letter score from LOS A, representing free flow conditions with minimal delays, to LOS F, representing breakdown flow with high delays.

Intersection LOS is based on the average delay experienced by a vehicle traveling through an intersection. Delay at a signalized intersection can be caused by waiting for the signal or waiting for the queue ahead to clear the signal. Delay at roundabouts and stop-controlled intersections is caused by waiting for a gap in traffic or waiting for a queue to clear the intersection or roundabout.

Delay for signalized and stop-controlled intersections was calculated in Synchro 9 software using Highway Capacity Manual 2010 (HCM2010) methodology. Roundabout delay was calculated in Sidra Intersection 8 software using the Sidra capacity model and signalized level of service thresholds, per WSDOT October 2019 Sidra policy guidelines.

Delay is defined differently for signalized and all-way stop controlled intersections than for two-way stop controlled (i.e. stop control on minor approach) intersections. For signalized and all-way stop controlled intersections, level of service thresholds are based upon average control delay for all vehicles (on all approach legs) entering the intersection. For minor-approach-only stop controlled intersections, delay is reported for the movement with the worst (highest) delay. **Table 1** shows the amount of delay used to determine LOS for signalized and unsignalized intersections.

**Table 1. Level of Service Thresholds**

LOS	Signalized and Roundabout Delay (sec/veh)	Unsignalized Delay (sec/veh)	Segment V/C Ratio
A	≤10	≤10	≤ 0.60
B	>10 – 20	>10 – 15	> 0.60 – 0.70
C	>20 – 35	>15 – 25	> 0.70 – 0.80
D	>35 – 55	>25 – 35	> 0.80 – 0.90
E	>55 – 80	>35 – 50	> 0.90 – 1.00
F	>80	>50	> 1.00

Segment LOS was evaluated for each of 75 arterial segments, as identified in the Transportation Element. Street segment LOS is based on the ratio of traffic volume to street capacity. The Transportation Element defines local standards for street capacity based on functional classification, number of lanes, and other physical characteristics, as shown in **Table 2**.

**Table 2. Sedro-Woolley Segment Capacity Standards**

Functional Classification	Base Peak Hr Capacity (vphpl)	Has Left-Turn Lane (vph)	Has Access Management (vph)	No Bike Lane (vph)	No Sidewalk (vph)	On-Street Parking (vph)
Principal Arterial	900	+450	+540	-90	-180	-45
Minor Arterial	800	+400	+480	-40	-80	-40
Major Collector	600	+300	+360	-30	-60	-30
Local Access	400	0	0	0	0	0

#### *Level of Service Policy*

The Sedro-Woolley Comprehensive Plan defines minimum LOS standards as LOS D on principal and LOS C on all other streets.

Minimum LOS standards for State facilities are set by the Washington State Department of Transportation (WSDOT). SR 20 and SR 9 are both designated by WSDOT as Highways of Statewide Significance (HSS) with minimum LOS D through Sedro-Woolley. In order to maintain consistency with WSDOT LOS standards, the City of Sedro-Woolley has similarly adopted a minimum LOS D standard for both routes.

#### *2019 Level of Service Deficiencies*

Existing LOS deficiencies are summarized in **Table 3**.

**Table 3. 2019 Intersection LOS Deficiencies**

ID	Location	Control Type <sup>1</sup>	2019 LOS (Delay) <sup>2</sup>
11	SR 20 & Reed St	TWSC	F (131)
17	Cook Rd & Trail Rd	TWSC	D (31.9)

<sup>1</sup>TWSC = minor approach stop control; AWSC = all-way stop control; Signal = signalized; RAB=roundabout  
<sup>2</sup>For TWSC intersections, delay is reported for the worst (i.e. highest-delay) movement; for all other control types, average intersection delay is reported.

The intersection of SR 20 and Reed St operates with high delay on the stop-controlled (Reed St) approaches during the PM peak hour due to high volumes along SR 20. Mitigation may include prohibition of left-turn

movements from Reed St during the PM peak hour. Mitigation options are described in greater detail later in this document.

The intersection of Cook Rd and Trail Rd currently operates at LOS D, which is below the minimum LOS C standard. The intersection will be impacted by the Trail Rd extension, identified as project C3 in the Sedro-Woolley Transportation Element.

The intersection of Township St (SR 9) and John Liner Rd/McGarigle Rd currently operates at LOS C with 20.5 seconds of delay on the westbound (McGarigle Rd) approach. Minimum LOS D is satisfied.

No street segments currently operate below minimum LOS standards. Full intersection and segment LOS summaries are provided in **Attachment 1**.

## 2025 PIPELINE CONDITIONS

### Scenario Design

Pipeline conditions were analyzed for two development scenarios, as shown below. The land use and network improvement assumptions for each scenario are described in greater detail in the following sections.

1. 2025 with Approved Development (**2025 Baseline**):
  - 1A. Without Jones Rd/John Liner Rd/Trail Rd corridor project
  - 1B. With Jones/John Liner/Trail Rd corridor project
2. 2025 with Additional Development (**2025 Pending Applications**):
  - 2A. Without Jones Rd/John Liner Rd/Trail Rd corridor project
  - 2B. With Jones/John Liner/Trail Rd corridor project

The 2025 Baseline land use scenario included developments which were permitted but not occupied as of November 2019. Two network improvement scenarios were evaluated under the 2025 Baseline development scenario: without (1A) and with (1B) the Jones/John Liner/Trail Rd corridor projects. Transportation network improvement assumptions are described in greater detail later in this document.

The 2025 Pending Applications land use scenario included developments which have submitted permit applications but have not been approved as of November 2019. The 2025 Pending Applications scenarios also included development-constructed transportation improvement projects which were identified by City staff, as described in the following section. Similar to the 2025 Baseline scenarios, the 2025 Pending Applications scenarios included two transportation network improvement scenarios: without (2A) and with (2B) the Jones/John Liner/Trail Rd corridor projects.

### Land Development

#### *2025 Baseline*

A 2025 Baseline travel demand forecast was calculated based on the sum of local (internal) and regional (external) growth forecasts. Sedro-Woolley staff developed a list of four “pipeline” developments which have permitted but not occupied as of November 2019, representing a total of 115 new PM peak hour trips in the City. Pipeline regional travel demand growth was calculated based on SCOG regional travel demand forecasts for arterials at the City boundaries.

#### *2025 Pending Applications*

Sedro-Woolley staff provided a list of five development applications which are pending approval. The developments, identified in **Table 4**, constitute a total of 362 new PM peak hour trips.

**Table 4. Pipeline Developments Pending Approval**

Name	Description	New PM Trips
Dukes Hill Subdivision	201 single-family units	179
McGarigle Subdivision	85 age-restricted single-family units	70
Gateway Golf Course Subdivision	99 single-family detached units; 16 townhome units	76
F&S Grade Rd Subdivision	31 single-family detached units	31
Debbie Dr Subdivision	6 single-family detached units	6
<b>Total New PM Peak Hour Trips</b>		<b>362</b>

Two of the developments identified in **Table 4** include construction of new roadways which are identified in the Sedro-Woolley Transportation Element. Dukes Hill Subdivision will construct project C18, an extension of Portobello Ave from its existing terminus west to Township St (SR 9). F&S Grade Rd Subdivision will construct project C9B, an extension of Garden of Eden Rd from Jones Rd to intersect F&S Grade Rd to the south. Transportation improvement project assumptions are described in greater detail in the following section.

#### Transportation Improvement Projects

Sedro-Woolley staff provided a list of 14 capacity-related transportation improvement projects which are planned for construction by 2026. Per Sedro-Woolley segment LOS policy, capacity-related projects include nonmotorized improvements on arterial routes. **Table 5** summarizes transportation improvement projects which were assumed for each scenario of this analysis.

Development-driven improvement projects, including the Trail Rd/Garden of Eden Rd extension and the Portobello Ave arterial extension, were assumed to be constructed in both 2025 Pending Applications scenarios (2A, 2B).

The six-year transportation improvement project list included four intersection improvements, as identified in **Table 5**, which were evaluated and modeled as necessary to mitigate intersection LOS deficiencies. The necessity of these intersection improvement projects is described in the following section.

**Table 5. 2020-2026 Transportation Capacity Improvement Projects by Scenario**

ID	Project Name	From/To	Description	Expected Cn Year
<i>2025 Baseline Transportation Capacity Improvement Projects (All Scenarios)</i>				
S16	SR 20 & Township St (SR 9) Intersection Imp.		Signal & channelization impr.	2021
S14C	SR 20/Cascade Trail West Extension Phase 2A	Holtcamp Rd to Hodgins Rd	Shared use path	2022
C1C	John Liner Rd Bike/Ped Imp.	Reed St to SR 9	Shared use path	2023
<i>Jones/John Liner/Trail Rd Corridor Projects (Scenarios 1B, 2B)</i>				
C19	Patrick St Arterial Extension	Michael St to Jones St	New major collector w/sidewalks	2021
C1B	Jones/John Liner RR Crossing	Sapp Rd to Reed St	New RR undercrossing and new major collector street	2022
C1D	John Liner Rd Arterial Imp.	Reed St to Township St	Reconstruct to major collector section	2024
C9A	Trail Rd Arterial Extension	Cook Rd to F&S Grade Rd	New major collector	2025
C1A	Jones Rd Arterial Imp.	F&S Grade Rd to Sapp Rd	Reconstruct to major collector including sidewalk	2026
<i>2025 Development-Driven Transportation Capacity Improvement Projects (Scenarios 2A, 2B)</i>				
C9B	Trail Rd – Garden of Eden Rd Extension	F&S Grade Rd to Jones Rd	New major collector	TBD
C18	Portobello Ave Arterial Extension	Township St to Cascadia Dr	New major collector	TBD
<i>Intersection Capacity Improvement Projects (Applied as Necessary)</i>				
S2	SR 20 & Reed St Intersection Imp.		Restrict minor approaches to right-in/right-out only	2021
S17	Township St (SR 9) & John Liner Rd/McGarigle Rd Intersection Imp.		New signal or roundabout	2023
S18	SR 9 & State St Intersection Imp.		Add dedicated right-turn lane on west leg	2024
C3	Cook Rd & Trail Rd Intersection Imp.		Intersection improvements	2025

## 2025 Level of Service

Intersection and segment LOS were analyzed for the 2025 Baseline and 2025 Pending Applications scenarios. Intersection LOS deficiencies are summarized in **Table 6**.

**Table 6. Pipeline (2025) Intersection Level of Service Deficiencies**

ID	Location	Control Type <sup>1</sup>	2025 Baseline LOS (Delay) <sup>2</sup>	2025 Pending LOS (Delay) <sup>2</sup>
11	SR 20 & Reed St			
	<i>w/o Jones/John Liner Rd Crossing</i>	TWSC	F (154)	F (204)
	<i>w/ Jones/John Liner Rd Crossing</i>	TWSC	F (54.8)	F (58.5)
	<i>w/ crossing + right-in/right-out (Project S2)</i>	RIRO	C (17.9)	C (17.8)
17	Cook Rd & Trail Rd			
	<i>w/o Trail Rd Extension / TWSC</i>	TWSC	E (35.3)	E (39.5)
	<i>w/ Trail Rd Extension / TWSC</i>	TWSC	F (493)	F (>999)
	<i>w/ Trail Rd Ext. / roundabout (Project C3)</i>	RAB	A (7.9)	B (9.6)
29	Township St (SR 9) & John Liner/McGarigle Rd			
	<i>w/o Jones/John Liner Rd Crossing</i>	TWSC	C (22.6)	D (28.5)
	<i>w/ crossing &amp; two-way stop control</i>	TWSC	F (50.2)	F (181)
	<i>w/ crossing &amp; roundabout (Project S17)</i>	RAB	A (7.5)	A (7.8)
	<i>w/ crossing &amp; signal control (Project S17)</i>	Signal	A (9.3)	B (10.7)

<sup>1</sup>TWSC = minor approach stop control; AWSC = all-way stop control; Signal = signalized; RAB=roundabout  
<sup>2</sup>For TWSC intersections, delay is reported for the worst (i.e. highest-delay) movement; for all other control types, average intersection delay is reported.

The intersection of SR 20 and Reed St will continue to operate at LOS F with high minor-approach delay during the PM peak hour. The traffic redistribution associated with the Jones/John Liner Rd undercrossing will reduce delay but will not mitigate the LOS deficiency. Prohibiting left-turns from Reed St onto SR 20 during the PM peak hour will allow the intersection to satisfy minimum LOS standards. This is consistent with improvement project S2 identified in Transportation Element.

The intersection of Cook Rd and Trail Rd will degrade to LOS E in the 2025 Baseline Without-Trail Rd scenario. The 2025 Pending Applications scenario will result in slightly higher delay but no reduction in LOS. After the construction of the Trail Rd extension, the intersection will operate at LOS F with very high delay on the north and south approaches. Mitigation may include a single-lane roundabout, which is consistent with improvement project C3 identified in the Transportation Element.

The intersection of Township St (SR 9) and John Liner Rd/McGarigle Rd will operate at LOS C in the 2025 Baseline Without Trail Rd scenario. The addition of pending applications will increase delay, resulting in LOS D, but will not trigger an LOS deficiency. The construction of the Jones/John Liner Rd undercrossing will result in LOS F, with very high delays on the John Liner Rd approach. Mitigation may include a single-lane roundabout or signal, which is consistent with project S17 identified in the Transportation Element.

The intersection of SR 9 and State St is identified for improvement in the Transportation Element, but the improvement will not be necessary in the six-year concurrency horizon. The intersection operates at LOS D in all 2025 analysis scenarios and satisfies the minimum LOS D standard for SR 9.

No segment LOS deficiencies will occur by 2025. 2025 Baseline intersection and segment LOS results are summarized in Attachment 2. 2025 Pending Applications LOS results are summarized in Attachment 3. Full intersection LOS reports may be provided upon request.

## **FINDINGS**

- Pending development will generate 362 new PM peak hour trips.
- Trips associated with pending development will increase delay at several intersections but will not cause any new LOS deficiencies.
- Township St (SR 9) and John Liner Rd/McGarigle Rd intersection:
  - The intersection of Township St (SR 9) and John Liner Rd/McGarigle Rd currently satisfies minimum LOS D standard but will reach LOS F by 2025, assuming the construction of the Jones/John Liner Rd corridor projects.
- Cook Rd and Trail Rd intersection:
  - Currently operates at LOS D, below the minimum LOS C standard.
  - Will degrade to LOS E by 2025, assuming no extension of Trail Rd
  - Will degrade to LOS F including very high minor-approach delays with the planned Trail Rd extension.
- SR 20 and Reed St intersection:
  - Currently operates at LOS F.
  - Will continue to operate at LOS F with high minor-approach delay during PM peak hour.
- All Comprehensive Plan street segments will satisfy minimum LOS standards through 2025.

## **RECOMMENDATIONS**

- Township St (SR 9) and John Liner Rd/McGarigle Rd intersection: A single-lane roundabout or signal is recommended concurrent with the Jones Rd/John Liner Rd undercrossing to maintain minimum LOS
- Cook Rd and Trail Rd intersection: A single-lane roundabout or traffic signal is recommended to mitigate the existing LOS deficiency.
- SR 20 and Reed St intersection: Prohibit left turn movements from Reed St during PM peak hour.

**Attachment 1.** 2019 LOS Results

**Attachment 2.** 2025 LOS Results

### 2019 Intersection LOS Results

ID	Location	Control Type <sup>1</sup>	2019 LOS (Delay) <sup>2</sup>	Deficient?
1	SR 20 & Collins Rd	Signal	B (11.3)	
2	SR 20 & Rhodes Rd	Signal	B (10.8)	
3	SR 20 & Trail Rd	Signal	C (26.7)	
4	SR 20 & SR 9 (west)	Signal	B (14.4)	
5	SR 20 & Ferry St	Signal	B (15.8)	
6	SR 20 & Cook Rd	RAB	A (9.5)	
7	SR 20 & F&S Grade Rd	TWSC	C (16.3)	
8	SR 20 & Patrick St	RAB	A (4.4)	
9	SR 20 & Metcalf St	TWSC	D (25.1)	
10	SR 20 & Murdock St	TWSC	D (26.1)	
11	SR 20 & Reed St	TWSC	D (31.3)	
12	SR 20 & Central Ave	TWSC	C (23.2)	
13	SR 20 & Ball St	TWSC	C (21.4)	
14	SR 20 & Township St (SR 9)	Signal	D (48.8)	
15	SR 20 & Fruitdale Rd	Signal	B (10.8)	
16	SR 20 & Helmick Rd	TWSC	B (10.4)	
17	Cook Rd & Trail Rd	TWSC	D (31.9)	Yes
18	Cook Rd & Ferry St	RAB	A (6.8)	
19	SR 9 & State St	Signal	D (40.9)	
20	State St & Metcalf St	AWSC	B (14.1)	
21	State St & Reed St	TWSC	B (13.2)	
22	State St & Township St	AWSC	B (13)	
23	State St & Railroad St	AWSC	A (8.1)	
24	Hoehn Rd & Fruitdale Rd	TWSC	A (9.3)	
26	Ferry St & Metcalf St	AWSC	B (12.2)	
27	Ferry St & Reed St	TWSC	B (11.8)	
28	Ferry St & Township St	TWSC	C (16.4)	
29	Township St (SR 9) & John Liner Rd	TWSC	C (20.5)	
30	SR 9 & Kalloch Rd	TWSC	B (11.2)	
31	Jameson St & 3rd St	AWSC	A (8.7)	
32	Jameson St & Township St	TWSC	B (12.7)	
33	John Liner Rd & Reed St	TWSC	B (10.7)	
34	McGarigle Rd & Carter St	TWSC	A (8.8)	
36	Fruitdale Rd & McGarigle Rd	TWSC	B (10)	
37	Fruitdale Rd & Portobello Ave	TWSC	B (10.6)	
41	Fruitdale Rd & Kalloch Rd	TWSC	A (8.6)	
42	Minkler Rd & Fruitdale Rd	TWSC	B (11.1)	
43	SR 9 & Jameson St	RAB	A (6.1)	

<sup>1</sup>TWSC = minor approach stop control; AWSC = all-way stop control; Signal = signalized; RAB = roundabout

<sup>2</sup>For TWSC intersections, delay is reported for the worst (i.e. highest-delay) movement; for all other control types, average intersection delay is reported.

### 2019 Segment LOS Results

ID	Name	Limits	Functional Classification	2019 V/C	2019 LOS
2001	SR 20	Collins Rd to Rhodes Rd	Principal Art.	0.82	D
2002	SR 20	Rhodes Rd to W State St	Principal Art.	0.80	D
2003	SR 20	State St to SR 9	Principal Art.	0.48	A
2004	SR 20	SR 9 to W Ferry St	Principal Art.	0.59	A
2005	SR 20	W Ferry St to Cook Rd	Principal Art.	0.45	A
2006	SR 20	Cook Rd to F&S Grade Rd	Principal Art.	0.76	C
2007	SR 20	F&S Grade Rd to Patrick St	Principal Art.	0.79	C
2008	SR 20	Patrick St to Metcalf St	Principal Art.	0.75	C
2009	SR 20	Metcalf St to Reed St	Principal Art.	0.80	D
2010	SR 20	Reed St to Township St	Principal Art.	0.73	C
3001	SR 20	Township St to Fruitdale	Minor Art.	0.57	A
3002	SR 20	Fruitdale Rd to Helmick Rd	Minor Art.	0.39	A
3003	SR 9	City Limit to W Nelson St	Minor Art.	0.76	C
3004	[reserved]			0.00	-
3005	SR 9	W Nelson St to W State St	Minor Art.	0.58	A
3006	SR 9	W State St to SR 20	Minor Art.	0.25	A
3007	[reserved]			0.00	-
3008	[reserved]			0.00	-
3009	[reserved]			0.00	-
3010	Cook Rd	City Limit to Trail Rd	Minor Art.	0.59	A
3011	Cook Rd	Trail Rd to Ferry St	Minor Art.	0.55	A
3012	Cook Rd	Ferry St to SR 20	Minor Art.	0.42	A
3013	F&S Grade Rd	City Limit to Murrow St	Minor Art.	0.09	A
3014	F&S Grade Rd	Murrow St to SR 20	Minor Art.	0.10	A
3015	[reserved]			0.00	-
3016	[reserved]			0.00	-
3017	Ferry St	SR 20 to Metcalf St	Minor Art.	0.42	A
3018	Ferry St	Metcalf St to Reed St	Minor Art.	0.28	A
3019	Ferry St	Reed St to Township St	Minor Art.	0.20	A
3020	State St	SR 20 to SR 9	Minor Art.	0.48	A
3021	State St	SR 9 to Metcalf St	Minor Art.	0.58	A
3022	State St	Metcalf St to 3rd St	Minor Art.	0.46	A
3023	State St	3rd St to Reed St	Minor Art.	0.45	A
3024	State St	Reed St to Township St	Minor Art.	0.45	A
3025	[reserved]			0.00	-
3026	Township St	State St to Ferry St	Minor Art.	0.32	A
3027	Township St	Ferry St to Wicker Rd	Minor Art.	0.38	A
3028	Township St	Wicker Rd to SR 20	Minor Art.	0.35	A
3029	Township St (SR 9)	SR 20 to McGarigle Rd	Minor Art.	0.51	A
3030	Township St (SR 9)	McGarigle Rd to Sapp Rd	Minor Art.	0.45	A
3031	Township St (SR 9)	Sapp Rd to Bassett Rd	Minor Art.	0.38	A
3032	Township St (SR 9)	Bassett Rd to Kalloch	Minor Art.	0.31	A
3033	[reserved]			0.00	-

ID	Name	Limits	Functional Classification	2019 V/C	2019 LOS
3034	[reserved]			0.00	-
4001	3rd St	Sterling St to Jameson St	Major Coll.	0.19	A
4002	3rd St	Jameson St to State St	Major Coll.	0.00	-
4003	Batey Rd	W Nelson St to Jameson St	Major Coll.	0.09	A
4004	Fruitdale Rd	River Rd to Hoehn Rd	Major Coll.	0.04	A
4005	Fruitdale Rd	Hoehn Rd to Minkler Rd	Major Coll.	0.05	A
4006	Fruitdale Rd	Minkler Rd to Wicker Rd	Major Coll.	0.14	A
4007	Fruitdale Rd	Wicker Rd to SR 20	Major Coll.	0.13	A
4008	Fruitdale Rd	SR 20 to McGarigle Rd	Major Coll.	0.18	A
4009	Fruitdale Rd	McGarigle to Thompson Dr	Major Coll.	0.20	A
4010	Fruitdale Rd	Thompson Dr to Kalloch	Major Coll.	0.01	A
4011	Jameson St	Batey Rd to 3rd St	Major Coll.	0.28	A
4012	Jameson St	3rd St to 6th St	Major Coll.	0.13	A
4013	Jameson St	6th St to Township St	Major Coll.	0.11	A
4014	Jameson St	Township St to Railroad Ave	Major Coll.	0.07	A
4015	John Liner Rd	Reed St to Township St	Major Coll.	0.06	A
4016	[reserved]			0.00	-
4017	McGarigle Rd	Township St to Fruitdale	Major Coll.	0.17	A
4018	Metcalf St	State St to Ferry St	Major Coll.	0.24	A
4019	Metcalf St	Ferry St to SR 20	Major Coll.	0.22	A
4020	Minkler Rd	State St to Fruitdale Rd	Major Coll.	0.13	A
4021	Nelson St	SR 9 to Batey Rd	Major Coll.	0.28	A
4022	Railroad Ave	Jameson St to State St	Major Coll.	0.20	A
4023	Reed St	State St to Ferry St	Major Coll.	0.02	A
4024	Reed St	Ferry St to SR 20	Major Coll.	0.02	A
4025	Reed St	SR 20 to John Liner Rd	Major Coll.	0.20	A
4026	Reed St	John Liner Rd to Sapp Rd	Major Coll.	0.18	A
4027	Rhodes Rd	SR 20 to SR 9	Major Coll.	0.05	A
4028	[reserved]			0.00	-
4029	Sapp Rd	Reed St to Township Rd	Major Coll.	0.09	A
4030	State St	Township to Railroad Ave	Major Coll.	0.19	A
4031	Sterling St	3rd St to 6th St	Major Coll.	0.09	A
4032	Sterling St	6th St to Township St	Major Coll.	0.02	A
4033	Township St	River Rd to Sterling St	Major Coll.	0.21	A
4034	Township St	Sterling St to Jameson St	Major Coll.	0.23	A
4035	Township St	Jameson St to State St	Major Coll.	0.25	A
4036	Trail Road	SR 20 to Cook Rd	Major Coll.	0.27	A
4037	Wicker Rd	Township St to Fruitdale	Major Coll.	0.30	A
4038	[reserved]			0.00	-
5001	Jones Rd	F&S Grade Rd to Garden of Eden	Local	0.24	A
5002	Jones Rd	Garden of Eden to Sapp Rd	Local	0.05	A
5003	Garden of Eden Rd	F&S Grade Rd to Jones Rd	Local	0.19	A
5004	Garden of Eden Rd	Jones Rd to Kiens Ln (Pvt)	Local	0.31	A
5005	[reserved]		Local	0.00	-

ID	Name	Limits	Functional Classification	2019 V/C	2019 LOS
5006	[reserved]			0.00	-
5007	Bassett Rd	Eikleberry Ct (Pvt) to SR 9	Local	0.03	A
5008	[reserved]			0.00	-
5009	[reserved]			0.00	-
5010	[reserved]			0.00	-
5011	[reserved]			0.00	-

### 2025 Intersection LOS Results

ID	Location	Control Type <sup>1</sup>	2025 LOS (Delay) <sup>2</sup>		Deficient?	
			Baseline	Alternative	Baseline	Alternative
1	SR 20 & Collins Rd	Signal	B (13.7)	B (13.6)		
2	SR 20 & Rhodes Rd	Signal	B (11.1)	B (10.7)		
3	SR 20 & Trail Rd	Signal	C (25.1)	C (23.8)		
4	SR 20 & SR 9 (west)	Signal	B (16.7)	B (16.8)		
5	SR 20 & Ferry St	Signal	B (15.6)	B (16.1)		
6	SR 20 & Cook Rd	RAB	B (11.8)	B (11.4)		
7	SR 20 & F&S Grade Rd	TWSC	C (16)	C (15.7)		
8	SR 20 & Patrick St	RAB	A (6.5)	A (6.5)		
9	SR 20 & Metcalf St	TWSC	D (25.7)	D (25.1)		
10	SR 20 & Murdock St	TWSC	C (23)	C (23)		
11	SR 20 & Reed St	TWSC	C (24.8)	D (25.3)		
12	SR 20 & Central Ave	TWSC	C (22.8)	C (22.6)		
13	SR 20 & Ball St	TWSC	C (21.2)	C (21)		
14	SR 20 & Township St (SR 9)	Signal	B (19.9)	C (21)		
15	SR 20 & Fruitdale Rd	Signal	B (11)	B (11.6)		
16	SR 20 & Helmick Rd	TWSC	B (10.6)	B (10.6)		
17	Cook Rd & Trail Rd	TWSC	F (492.8)	F (999)	Yes	Yes
18	Cook Rd & Ferry St	RAB	A (5.7)	A (5.6)		
19	SR 9 & State St	Signal	D (44.5)	D (43.6)		
20	State St & Metcalf St	AWSC	B (12.1)	B (12)		
21	State St & Reed St	TWSC	B (11.9)	B (11.9)		
22	State St & Township St	AWSC	B (11)	B (11.4)		
23	State St & Railroad St	AWSC	A (8.1)	A (8.1)		
24	Hoehn Rd & Fruitdale Rd	TWSC	A (9.4)	A (9.4)		
26	Ferry St & Metcalf St	AWSC	B (10.9)	B (10.6)		
27	Ferry St & Reed St	TWSC	B (11.4)	B (11.2)		
28	Ferry St & Township St	TWSC	B (12.7)	B (12.7)		
29	Township St & John Liner Rd	TWSC	F (50.2)	F (178.7)	Yes	Yes
30	SR 9 & Kalloch Rd	TWSC	B (12.1)	B (12.3)		
31	Jameson St & 3rd St	AWSC	A (8.2)	A (8.2)		
32	Jameson St & Township St	TWSC	B (11.6)	B (11.7)		
33	John Liner Rd & Reed St	TWSC	C (18.1)	C (21.8)		
34	McGarigle Rd & Carter St	TWSC	A (8.9)	A (9.8)		
36	Fruitdale Rd & McGarigle Rd	TWSC	B (10.3)	B (10.9)		
37	Fruitdale Rd & Portobello Ave	TWSC	B (13.9)	B (14.7)		
41	Fruitdale Rd & Kalloch Rd	TWSC	A (8.8)	A (8.8)		
42	Minkler Rd & Fruitdale Rd	TWSC	B (11.3)	B (11.2)		
43	SR 9 & Jameson St	RAB	A (6.7)	A (5.4)		
44	F&S Grade Rd & Trail Rd	TWSC	A (9.8)	C (15.2)		
45	Jones Rd & Garden of Eden Rd	TWSC	B (10.1)	C (16.4)		
46	Jones Rd & Patrick St	TWSC	B (11.6)	B (13.3)		

<sup>1</sup>TWSC = minor approach stop control; AWSC = all-way stop control; Signal = signalized; RAB = roundabout

<sup>2</sup>For TWSC intersections, delay is reported for the worst (i.e. highest-delay) movement; for all other control types, average intersection delay is reported.

### 2025 Segment LOS Results

ID	Name	Limits	Functional Classification	2025 V/C		2025 LOS	
				Base	Alt.	Base	Alt.
2001	SR 20	Collins Rd to Rhodes Rd	Principal Art.	0.72	0.72	C	C
2002	SR 20	Rhodes Rd to W State St	Principal Art.	0.80	0.80	D	D
2003	SR 20	State St to SR 9	Principal Art.	0.48	0.48	A	A
2004	SR 20	SR 9 to W Ferry St	Principal Art.	0.59	0.59	A	A
2005	SR 20	W Ferry St to Cook Rd	Principal Art.	0.45	0.45	A	A
2006	SR 20	Cook Rd to F&S Grade Rd	Principal Art.	0.76	0.76	C	C
2007	SR 20	F&S Grade Rd to Patrick St	Principal Art.	0.79	0.79	C	C
2008	SR 20	Patrick St to Metcalf St	Principal Art.	0.75	0.75	C	C
2009	SR 20	Metcalf St to Reed St	Principal Art.	0.80	0.80	D	D
2010	SR 20	Reed St to Township St	Principal Art.	0.73	0.73	C	C
3001	SR 20	Township St to Fruitdale	Minor Art.	0.57	0.57	A	A
3002	SR 20	Fruitdale Rd to Helmick Rd	Minor Art.	0.39	0.39	A	A
3003	SR 9	City Limit to W Nelson St	Minor Art.	0.76	0.76	C	C
3004	[reserved]			0.00	0.00	-	-
3005	SR 9	W Nelson St to W State St	Minor Art.	0.58	0.58	A	A
3006	SR 9	W State St to SR 20	Minor Art.	0.25	0.25	A	A
3007	[reserved]			0.00	0.00	-	-
3008	[reserved]			0.00	0.00	-	-
3009	[reserved]			0.00	0.00	-	-
3010	Cook Rd	City Limit to Trail Rd	Minor Art.	0.59	0.59	A	A
3011	Cook Rd	Trail Rd to Ferry St	Minor Art.	0.55	0.55	A	A
3012	Cook Rd	Ferry St to SR 20	Minor Art.	0.42	0.42	A	A
3013	F&S Grade Rd	City Limit to Murrow St	Minor Art.	0.09	0.09	A	A
3014	F&S Grade Rd	Murrow St to SR 20	Minor Art.	0.10	0.10	A	A
3015	[reserved]			0.00	0.00	-	-
3016	[reserved]			0.00	0.00	-	-
3017	Ferry St	SR 20 to Metcalf St	Minor Art.	0.42	0.42	A	A
3018	Ferry St	Metcalf St to Reed St	Minor Art.	0.28	0.28	A	A
3019	Ferry St	Reed St to Township St	Minor Art.	0.20	0.20	A	A
3020	State St	SR 20 to SR 9	Minor Art.	0.48	0.48	A	A
3021	State St	SR 9 to Metcalf St	Minor Art.	0.58	0.58	A	A
3022	State St	Metcalf St to 3rd St	Minor Art.	0.46	0.46	A	A
3023	State St	3rd St to Reed St	Minor Art.	0.45	0.45	A	A
3024	State St	Reed St to Township St	Minor Art.	0.45	0.45	A	A
3025	[reserved]			0.00	0.00	-	-
3026	Township St	State St to Ferry St	Minor Art.	0.32	0.32	A	A
3027	Township St	Ferry St to Wicker Rd	Minor Art.	0.38	0.38	A	A
3028	Township St	Wicker Rd to SR 20	Minor Art.	0.35	0.35	A	A
3029	Township St (SR 9)	SR 20 to McGarigle Rd	Minor Art.	0.51	0.51	A	A
3030	Township St (SR 9)	McGarigle Rd to Sapp Rd	Minor Art.	0.45	0.45	A	A
3031	Township St (SR 9)	Sapp Rd to Bassett Rd	Minor Art.	0.43	0.50	A	A
3032	Township St (SR 9)	Bassett Rd to Kalloch	Minor Art.	0.31	0.31	A	A
3033	[reserved]			0.00	0.00	-	-

ID	Name	Limits	Functional Classification	2025 V/C		2025 LOS	
				Base	Alt.	Base	Alt.
3034	[reserved]			0.00	0.00	-	-
4001	3rd St	Sterling St to Jameson St	Major Coll.	0.19	0.19	A	A
4002	3rd St	Jameson St to State St	Major Coll.	0.11	0.11	A	A
4003	Batey Rd	W Nelson St to Jameson St	Major Coll.	0.08	0.07	A	A
4004	Fruitdale Rd	River Rd to Hoehn Rd	Major Coll.	0.04	0.04	A	A
4005	Fruitdale Rd	Hoehn Rd to Minkler Rd	Major Coll.	0.05	0.05	A	A
4006	Fruitdale Rd	Minkler Rd to Wicker Rd	Major Coll.	0.14	0.14	A	A
4007	Fruitdale Rd	Wicker Rd to SR 20	Major Coll.	0.13	0.13	A	A
4008	Fruitdale Rd	SR 20 to McGarigle Rd	Major Coll.	0.18	0.18	A	A
4009	Fruitdale Rd	McGarigle to Thompson Dr	Major Coll.	0.20	0.20	A	A
4010	Fruitdale Rd	Thompson Dr to Kalloch	Major Coll.	0.01	0.01	A	A
4011	Jameson St	Batey Rd to 3rd St	Major Coll.	0.28	0.28	A	A
4012	Jameson St	3rd St to 6th St	Major Coll.	0.13	0.13	A	A
4013	Jameson St	6th St to Township St	Major Coll.	0.11	0.11	A	A
4014	Jameson St	Township St to Railroad Ave	Major Coll.	0.07	0.07	A	A
4015	John Liner Rd	Reed St to Township St	Major Coll.	0.06	0.06	A	A
4016	[reserved]			0.00	0.00	-	-
4017	McGarigle Rd	Township St to Fruitdale	Major Coll.	0.17	0.17	A	A
4018	Metcalf St	State St to Ferry St	Major Coll.	0.24	0.24	A	A
4019	Metcalf St	Ferry St to SR 20	Major Coll.	0.22	0.22	A	A
4020	Minkler Rd	State St to Fruitdale Rd	Major Coll.	0.13	0.13	A	A
4021	Nelson St	SR 9 to Batey Rd	Major Coll.	0.28	0.28	A	A
4022	Railroad Ave	Jameson St to State St	Major Coll.	0.20	0.20	A	A
4023	Reed St	State St to Ferry St	Major Coll.	0.02	0.02	A	A
4024	Reed St	Ferry St to SR 20	Major Coll.	0.02	0.02	A	A
4025	Reed St	SR 20 to John Liner Rd	Major Coll.	0.20	0.20	A	A
4026	Reed St	John Liner Rd to Sapp Rd	Major Coll.	0.18	0.18	A	A
4027	Rhodes Rd	SR 20 to SR 9	Major Coll.	0.05	0.05	A	A
4028	[reserved]			0.00	0.00	-	-
4029	Sapp Rd	Reed St to Township Rd	Major Coll.	0.07	0.07	A	A
4030	State St	Township to Railroad Ave	Major Coll.	0.19	0.19	A	A
4031	Sterling St	3rd St to 6th St	Major Coll.	0.09	0.09	A	A
4032	Sterling St	6th St to Township St	Major Coll.	0.02	0.02	A	A
4033	Township St	River Rd to Sterling St	Major Coll.	0.21	0.21	A	A
4034	Township St	Sterling St to Jameson St	Major Coll.	0.23	0.23	A	A
4035	Township St	Jameson St to State St	Major Coll.	0.25	0.25	A	A
4036	Trail Road	SR 20 to Cook Rd	Major Coll.	0.27	0.27	A	A
4037	Wicker Rd	Township St to Fruitdale	Major Coll.	0.35	0.33	A	A
4038	[reserved]			0.00	0.00	-	-
5001	Jones Rd	F&S Grade Rd to Garden of Eden Rd	Local	0.24	0.10	A	A
5002	Jones Rd	Garden of Eden to Sapp Rd	Local	0.25	0.38	A	A
5003	Garden of Eden Rd	F&S Grade Rd to Jones Rd	Local	0.48	0.14	A	A

ID	Name	Limits	Functional Classification	2025 V/C		2025 LOS	
				Base	Alt.	Base	Alt.
5004	Garden of Eden Rd	Jones Rd to Kiens Ln (Pvt)	Local	0.24	0.26	A	A
5005	[reserved]		Local	0.00	0.00	-	-
5006	[reserved]			0.00	0.00	-	-
5007	Bassett Rd	Eikleberry Ct (Pvt) to SR 9	Local	0.03	0.03	A	A
5008	[reserved]			0.00	0.00	-	-
5009	[reserved]			0.00	0.00	-	-
5010	[reserved]			0.00	0.00	-	-
5011	[reserved]			0.00	0.00	-	-

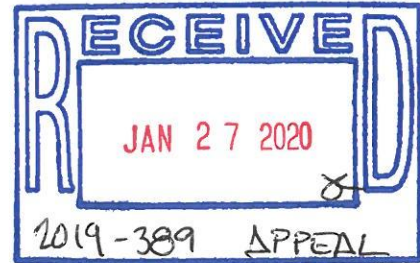
<sup>A</sup>  
FRANK BRESNAN <sup>sr</sup>  
ALLEN EMERSON  
LINDA EMERSON  
CELESTE WEAVER

ROGER WEAVER  
JAMES L JOHNSON  
MARILYN KENNEY  
ROBERT MATAYA

DONNA MATAYA  
LARRY STILES  
MARGARET MILLER

January 24th, 2020

City of Sedro Woolley  
Planning Department  
325 Metcalf Street  
Sedro Woolley, WA 98284



Re: SEPA Threshold Determination

## Exhibit Q

To Hearing Examiner Staff Report

Attention Planning Department:

This letter is intended to appeal the SEPA Threshold Determination regarding the PRD on a vacant 12.7 acre property which has an intended ingress/egress onto McGarigle Road. We will first turn our attention to page one (1) of the traffic impact analysis authored by Gibson Traffic Consultants. Under point two (2) Methodology it lists three intersections that were analyzed; SR-9 at John Liner Road/McGarigle Road; McGarigle Road at Independence Boulevard and McGarigle Road at Fruitdale. The TIA fails to address McGarigle at Carter Road; McGarigle Road to SR-9 and McGarigle from SR-9 to Site access.

A second key point of disagreement listed on page 1 of the TIA is the peak-hour traffic, which was identified as 4-6 PM using, quote a "typical afternoon commuter peak period". I refer to you what has been marked as exhibit 3, a letter from SWSD No. 101 dated 1/17/20 and signed by Superintendent Phil Brockman. The letter speaks for itself but let me single out the peak-hour times at Evergreen Elementary that are addressed in the second paragraph of this letter, quote: "The school begins at 9:00 AM with the peak arrival time in the morning for the students beginning at 8:30 AM and ending at 9:00 AM", end quote. Mr. Brockman continues on in that same second paragraph, quote: "In the afternoon the Evergreen STEM school day ends at 3:30 PM. In anticipation of picking the children up, parents and guardians begin to line their vehicles up about 3:00 PM. Again, the backup impacts McGarigle Road in both directions. The nine school district busses arrive to the school and line up just after 3:00 PM. There is quite a bit of congestion as both busses and private vehicles leave the school beginning at 3:30 PM until about 4:00 PM", end quote. Let me direct you to the third paragraph of Mr. Brockman's letter referencing Cascade Middle School and I quote: "Private family vehicles turn into the parking lot for student drop-off from McGarigle Road with a steady stream beginning about 7:30 AM and ending about 8:00 AM. The congestion on McGarigle Road and SR-9 is much greater at this time of day because of the location of the middle school. The entry to the middle school is only one block from Highway 9 waiting for their turn to enter the parking lot and student drop-off area for the school. The afternoon is very similar to the morning session. The busses are loaded on the south side of the school and exit onto Highway 20. The private vehicles begin lining up to pick up their children about 2:00 PM for a 2:15 PM end of school day. The congestion lasts until about 2:30 PM", end of quote.

In addition to failing to identify the incorrect peak-hour commuter time the SEPA Threshold Determination fails to address the environmental issues cited in RCW 43.21C.010, which reads as follows: "The purposes of this chapter are: (1) To declare a state policy which will encourage productive and enjoyable harmony between humankind and the environment; (2) to promote efforts which will prevent or eliminate damage to the environment and biosphere; (3) and [to] stimulate the health and welfare of human beings; and (4) to enrich the understanding of the ecological systems and natural resources important to the state and nation". In addressing this RCW please let me draw your attention to <https://www.epa.gov/schools/idle-free-schools-toolkit-healthy-school-environment> Under RCW 43.21C.010(2)(3) the Gibson TIA fails to address not only the future potential of idling vehicles because of congestion on McGarigle Road caused by ingress and egress from the PRD but, in fact, an already existing, serious situation from idling vehicles between SR-9 and Carter Road.

Let me refer you again to exhibit 3, Mr. Brockman's letter, quote: "In addition to the nine buses, there are many families driving their children in private vehicles to and from school that can back up traffic on McGarigle east to Fruitdale Road and west to Highway 9". "In anticipation of picking their children up, parents and guardians begin to line their vehicles up about 3:00 PM. Again, the back-up impacts McGarigle Road in both directions". To confirm the accuracy of what is stated in exhibit #3, please find attached exhibits 1 & 2. Exhibit #1 was taken by Linda Emerson when she was in her car on 11/1/19 at 3:30 PM while her car was parked on John Liner Road and this time can be proven. You will see from exhibit #1 that the cars heading east on McGarigle towards Evergreen and Cascade Schools are back up to Highway 9. For traffic heading westbound on McGarigle you will see a truck that is stopped on McGarigle waiting for the opportunity to enter Highway 9. **All of these vehicles are idling.** I also submit exhibit #2 taken at the same time as exhibit #1 on 11/1/19. Linda could not go forward to McGarigle Road and so she turned right onto SR-9 only to find a line of vehicles that were back up on SR-9 from McGarigle Road to the stoplight on Highway 20. The time was 3:32 PM on 11/1/19 providing clear evidence that the peak-hour commuter time identified as existing between 4 – 6 PM in The Gibson TIA was not only incorrect but grossly incorrect.

There is, therefore, a constant daily idling of vehicles that the Gibson TIA fails to address in accordance with RCW 43.21C.010 (2)(3) and here is a quote from the website I cited in paragraph one. "Idling vehicles contribute to air pollution and emit **air toxins**, which are pollutants known or suspected to cause cancer or other serious health effects. Monitoring at schools has shown elevated levels of benzene, formaldehyde, acetaldehyde and other air toxics during the afternoon hour coinciding with parents **picking up their children**. Children's lungs are still developing, and when they are exposed to elevated levels of these pollutants, children have an increased risk of developing asthma, respiratory problems and other adverse health effects. Limiting a vehicle's idling time can dramatically reduce these pollutants and children's exposure to them".

In this same website please let me direct your attention to the video Idle-Free Schools Introductory Video In this video the opening comments made by Rebecca Russo were as follows: "Many idling vehicles in one place can create a hot spot of pollution and, in fact, air monitoring quality at schools has shown that elevated levels of air toxins during the 3- 4 PM hour coincides with when the parents are picking up their children from school" Ms. Russo goes on further to say, "Vehicle exhaust, that's the stuff that comes out of your vehicle's tailpipe, contains over a thousand different compounds including air toxics. Air toxics from mobile sources of pollution are responsible for about fifty percent of the cancer risk nationwide".

I would now like to address the matter of the safety of our students. Two of the signers of this written appeal are Larry Stiles and Margaret Miller. I will quote a portion of what they commented on. 'There are also extracurricular activities such as soccer, basketball and baseball just to name a few on evenings and weekends'. 'Safety and the health of our children is our main issue not to mention the overall quality of life in the neighborhood. The added noise, air pollution and congestion from the increased vehicle traffic must be avoided'. 'There is an ongoing campaign to get more kids walking to school. This foot traffic needs to be taken into account as it is important and growing and will not show up on the conventional traffic study as described, not to mention the regular pedestrian foot and bicycle traffic we have up and down McGarigle and Carter'.

Continuing with the matter of safety, SW School Superintendent Brockman further added in a separate comment and I quote: "Evergreen Elementary -- 600 students -- 9 busses with an average 30 of students per bus totaling about 300, 150 - 200 student walkers and 150 students that have parent pick-up or drop off" Everyone who has signed this letter have seen what Mr. Brockman was alluding to, student walkers. Some of the student walkers are heading west on McGarigle towards SR-9 and some are heading east on McGarigle Road in the direction of the PRD Site Access.

Mr. Robert Mataya who lives on Independence Boulevard noted and I quote: "The pollution concerns of the cars with motors continuing to run while parked in front of the school has an adverse effect on the close residential homes'. He goes on to say, quote, 'Also the traffic that will be using Carter Street brings on a whole new set of problems for the residents along that byway not only for the school children who walk along Carter and McGarigle Roads but also for residents and pedestrians along that route. Mr. Mataya also notes: "The other traffic concern, which we all discussed, is the severe and problematic traffic just outside the school where student pickup is taking place. It is unsafe for other residential traffic trying to pass in the oncoming lane to get to their destination farther along on McGarigle". Mr. Mataya concludes by saying, "Hopefully we can persuade the city planners to re-examine the traffic evaluation at the actual time when traffic is at it's peak between 2:00 PM and 4:00 PM. It would be, of course, much safer if they could find a different ingress and egress from the proposed development such as. Highway 20.

Mrs. Celeste Weaver who lives on Independence Boulevard stated, quote, "Last week I was coming south on Highway 9. When I got to McGarigle heading to my house I was unable to make a left hand turn onto McGarigle. The parent pick-up line for Evergreen Elementary was back up two blocks all the way to SR-9. There needs to be either fewer houses built in the BYK development or another entrance and exit, for example, onto Highway 20 with a right-of-way. Another problem is idling cars. This produces pollution. The more cars on McGarigle the more idling cars will be stuck in traffic, the more pollution will result. Why do we want pollution so close to an elementary school and a middle school.. The traffic study that was done had an erroneous peak traffic times. It was done incorrectly and the record needs to be set straight".

Mr. Frank Bresnan who lives on McGarigle Road across from Evergreen School stated that the line-up of cars bringing students to school in the morning and picking up students in the afternoon is consistent day after day causing a potential for traffic accidents between other cars and walking students. Mr. Bresnan stated that he has seen on several occasions near accidents happening in front of his home during the peak commuter times identified in Mr. Brockman's letter, exhibit 3. Mr. Bresnan has stated that during these peak commuter times it is difficult if not impossible for him to get out of his driveway. Mr. Bresnan further states that if ingress and egress is allowed on McGarigle Road from the proposed development that it will greatly compound the traffic congestion on McGarigle and Carter Roads.

Marilyn Kenney and James L. Johnson who live on the corner of McGarigle and Carter Road commented on current and existing safety concerns, quote: "At the time McGarigle was reworked the northern end of Carter Street was modified to better line up with Independence Street. Curbs were installed on both sides of the street. It is not uncommon for west bound drivers on McGarigle wishing to turn left onto Carter to cut that corner next to the stop sign on Carter. Lack of a center line may not give them a clear perspective. When crossing the street to get mail we are always very careful to listen for sounds of vehicles and to let them pass before crossing to street. If caught at the mailbox when there is a string of vehicles going east on McGarigle and making a right onto Carter I wave them past so not to leave them in a dangerous position on McGarigle while I return to my home. I have some mobility issues and don't always move very fast. We encourage our visitors to NEVER back out of our driveway. We've nearly been clipped leaving our home with our headlights first by folks cutting the corner short. Carter Street has no sidewalks. In the middle of Carter pedestrians can step onto asphalt strips or dirt strips along the side of the street. At the north where Carter intersects with McGarigle curbing means one must step up into the curb. For kids on bikes, parents with strollers and folks with walkers that does not happen. Adding untold numbers of vehicles makes all of this an accident waiting to happen.

Mrs. Linda Emerson who lives at 1226 McGarigle Road comments, quote "On two different occasions I found it impossible to drive down McGarigle to get to my home because of the traffic backup from parent pick-up on McGarigle Road and, therefore, I had to take SR-20 to Carter Road and turn left off of SR-20 onto Carter Road and proceed on Carter Road to my McGarigle Road home. On another occasion on December 1, 2019 I was leaving our home on McGarigle between 7:30 and 8:00 AM. I went my usual way turning left onto Carter Road to avoid the school traffic congestion westbound on McGarigle. On that particular morning traffic was backed up one quarter of the entire length of Carter Road. It took me a solid 8 minutes to get from where I was stopped on Carter Road to the stop sign at the entrance of SR-20. I can only assume that if ingress and egress from the proposed development is permitted onto McGarigle Road that many of those cars will be turning left onto McGarigle and then quickly turning left onto Carter Road, thereby compounding many times over what I experience traveling from my home to Carter Road.

In conclusion we find that the TIA authored by Gibson Traffic Consultants has erred in that the land use decision is quote "not supported by evidence that is substantial when viewed in light of the whole record before the court" and we reference RCW 36.70C.130(1)(c). The standard is whether evidence is sufficient to persuade a fair-minded person that the declared premise is true. It is, therefore, respectfully requested that a new TIA be ordered based on the factual evidence provided in this written appeal. The authors of this written appeal want the city planning department to know that our written appeal to the SEPA Threshold determination is a community/people-funded effort.

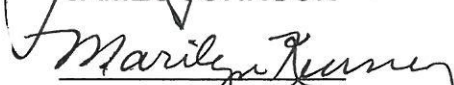
Sincerely,

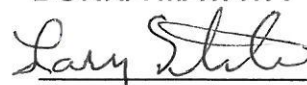
  
ALLEN EMERSON

  
JAMES JOHNSON

  
DONNA MATAYA

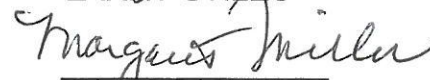
  
LINDA EMERSON

  
MARILYN KENNEY

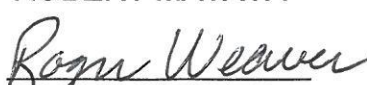
  
LARRY STILES

  
FRANK BRESNAN Sr  
A

  
ROBERT MATAYA

  
MARGARET MILLER

  
CELESTE WEAVER

  
ROGER WEAVER

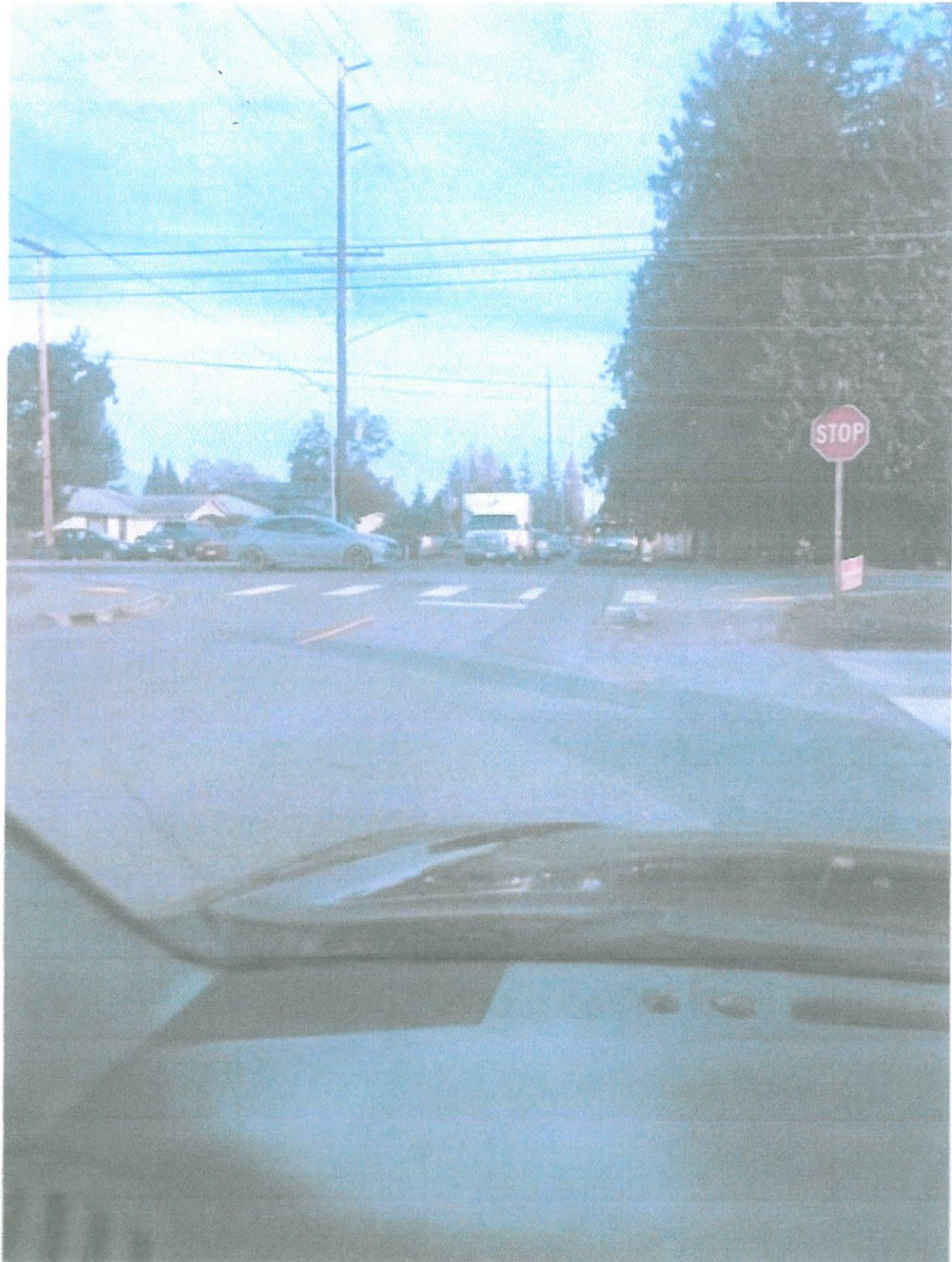
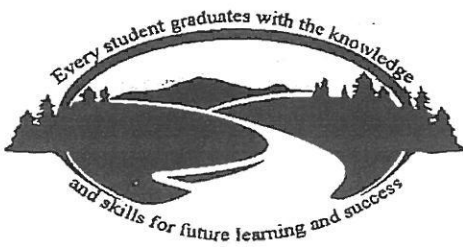


EXHIBIT  
2  
Sedro  
Appeal





## *Sedro-Woolley School District No. 101*

801 Trail Road, Sedro-Woolley, WA 98284 • (360) 855-3500 • FAX (360) 855-3574



January 17, 2020

Dear Mr. Emerson,

Per our conversation, the Sedro-Woolley School District has two schools within the Evergreen School region, both having McGarigle Street adjacent to the schools.

Evergreen STEM Elementary School has nearly 600 students attending the school. The campus also houses the Northwest Educational Service District Discovery School, as well as the Skagit Valley College Head Start pre-school program. There are nine busses that transport students during both the morning and afternoon routes. The school begins at 9:00 a.m. with the peak arrival time in the morning for students beginning at 8:30 a.m. and ending at 9:00 a.m. In addition to the nine busses, there are many families driving their children in private vehicles to and from school that can back up traffic on McGarigle east to Fruitdale Road and west to Highway 9. In the afternoon, the Evergreen STEM school day ends at 3:30 p.m. In anticipation of picking their children up, parents and guardians begin to line their vehicles up about 3:00 p.m. Again, the back-up impacts McGarigle Road in both directions. The nine school district busses arrive to the school and line up just after 3:00 p.m. There is quite a bit of congestion as both busses and private vehicles leave the school beginning at 3:30 p.m. until about 4:00 p.m.

Cascade Middle School has nearly 700 students attending the school and their school day begins at 7:43 a.m. There are 15 busses that travel on Highway 9 and turn into the bus lane located on the south side of the school. The exit point for the busses is Highway 20. Private family vehicles turn into the parking lot for student drop-off from McGarigle Road with a steady stream beginning about 7:30 a.m. and ending about 8:00 a.m. The congestion on McGarigle Road and Highway 9 is much greater at this time of day because of the location of the middle school. The entry to the middle school is only one block from Highway 9 and the private vehicles are backed up to Highway 9 waiting for their turn to enter the parking lot and student drop-off area for the school. The afternoon is very similar to the morning session. The busses are loaded on the south side of the school and exit onto Highway 20. The private vehicles begin lining up to pick up their children about 2:00 p.m. for a 2:15 p.m. end of school day. The congestion lasts until about 2:30 p.m.

Thank you for your inquiry, it is appreciated.

Phil Brockman  
Superintendent  
Sedro-Woolley School District

Phil Brockman, Superintendent • Michael S. Olson, Assistant Superintendent  
Darrell R. Heisler, Executive Director of Human Resources & Technology • Brett Greenwood, Executive Director of Business & Operations  
An Equal Opportunity Employer

**BYK Construction**

# Project Narrative Written Statements

702 Metcalf Suite A  
Sedro-Woolley, WA 98284  
Office and Fax: (360) 755-3101

## Brickyard Park

We are Proposing a 55+ age restricted development utilizing the PRD Provision in the Code and was submitted concurrently with the Planned Residential Development Checklist Application. The Project is located in the R-7 Zone and is 12.7 acres. The allowed density is 88 units. This Project consists of 52 single Family Lots and 33 Fee Simple Townhome Lots for a total of 85 units, which meets the density requirement.

The single family lots vary in size from 4,673 sf to 14,090 sf. The townhome lots vary in size from 3,675 sf – 5,122 sf. The average lot size in the project including the townhome lots is 4,869.08 sf which exceeds the minimum requirement of 4,800 sf. The ratio of Single Family lots to Townhome lots is 61.18% which exceeds the minimum 60% requirement. There are 33 lots under 4800 sf which meets the 50% requirement. The Table Shown below illustrates these requirements.

Setbacks for the Project under the PRD Code Provisions are proposed as follows. Setbacks for the lots are shown on the plat map. All setbacks are Minimum.

Typical Setbacks are as follows:

Front with Garage	25'
Front non Garage	10'
Side (1 story and 2 story)	5'
Rear	10'

Setback Exceptions from the Typical Setbacks:

Lots 1-4, 25-30 and 48-51 will have 20' front setbacks with garage and 10' front setbacks non garage. These setbacks will be from the Easement lines as shown on plat map.

Lots 62-85 will have a zero (0') rear setback that abuts the Tract 900 Lot as shown on plat map.

Lots 1-3, 6-8, 13-14, 15-16, 22-23, 35-38, 42-44, 49-51, 53-54, 59-60, 75-77, and 78-81 will have zero (0') side setbacks as shown on the plat map.

Lots 18,19,62,70,71 and 85 are corner lots and shall have two front setbacks. The Front setbacks for each of these will be the Typical Setbacks above.

The Property doesn't have any present wetlands according to the Wetland Report that was prepared on the site.

The Project features a 55,532 sf Usable Open Space Park with the intention of building clubhouse and creating a community park for the residents that will be used day in and day out. This will meet the 10% usable open space requirement of 55,321 sf. We are proposing a 6' wide sidewalk loop on the outside of the park area creating a great pedestrian flow. we believe the inside loop will be utilized daily for exercise, walking the dog and just strolling through the park, or to meet some friends for some cards at the clubhouse. We believe that the design is conducive to a great community amenity that will actually be used by the Homeowners. The HOA will maintain the front street landscaping on all homes as well as the rear yards of the interior lots backed up to the park. the park and clubhouse will also be owned and maintained by the HOA so all visible points from the ROW or the Park will be in pristine condition. We believe it is Sedro Woolley's time to build a great 55+ Active Community for people to retire in.

This project will not be utilizing any bonus density.

This Project will include two phases of construction. Phase 1 will be lots 1-19,48-70 for a total of 42 Lots. Phase 2 will consist of lots 20-47,71-85 for a total of 43 lots. Phase 1 will start development first when Phase 1 is recorded and we are comfortable enough to start Phase 2 development we would start Phase 2. Phase 2 would be anticipated to start development within 1-6 years of Phase 1 with a hopeful goal of 12-18 months after Phase 1 records final plat.

Upon completion of all development, including both phases and until the last home is sold, the Developer will relinquish control of the HOA and the HOA will own and maintain the Tract 900. Inside Tract 900 there will be an optional clubhouse. The road will be dedicated to the City of Sedro-Woolley at time of recording final plat for each phase.

The HOA will have CC&R's. The HOA will own and maintain the drainage facility that will be located underneath the Park. There will be an Operation and Maintenance Manual that will be recorded on each subdivided property. The HOA will not be able to remove or amend this Operation and Maintenance Manual without the approval of the City of Sedro-Woolley. The HOA will own and maintain the front landscaping of each home as well as the rear and side yards of lots 62-85. The HOA will maintain the Park and planter strips between the sidewalk and curb. The HOA will own and maintain the clubhouse (if built) and pay all utilities for the clubhouse and all water bills, and maintenance for irrigation for the Park and for the planter strips. The developer is unsure at this point if the HOA will maintain all exteriors of the homes as well as the

rear and side yards of lots 1-61. There will also be restrictions regarding RV's, Sheds, inoperable parked cars, ect...

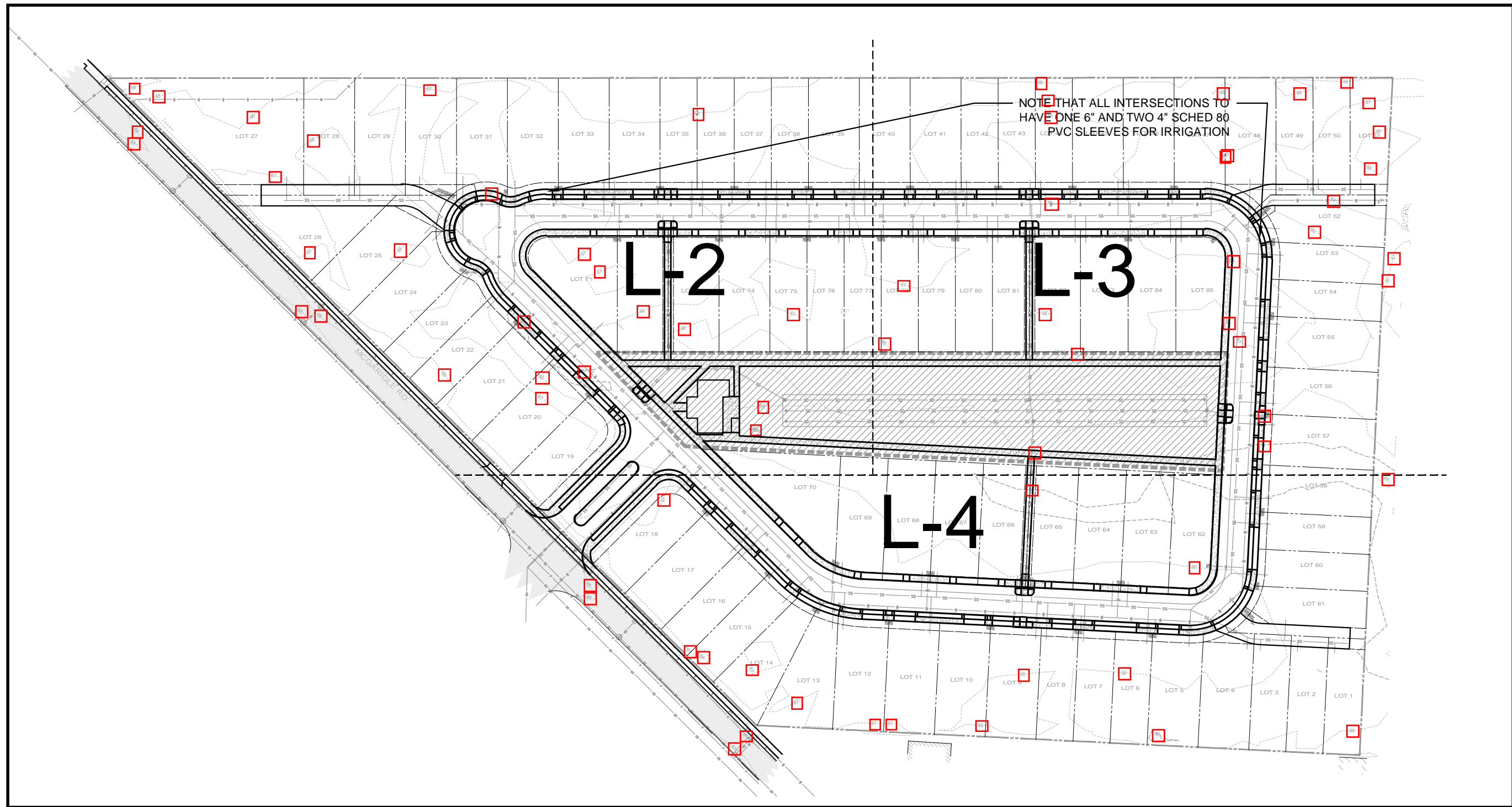
Lot Table				
Lot #	Lot size	Single Family	Townhome	Lots below 4800 sf
1	3846		1	1
2	3850		1	
3	3850		1	1
4	5304	1		
5	5049	1		
6	3675		1	1
7	3675		1	1
8	3675		1	1
9	5040	1		
10	5040	1		
11	5040	1		
12	5056	1		
13	5122		1	
14	4587		1	1
15	3865		1	1
16	3850		1	1
17	5280	1		
18	5146	1		
19	5146	1		
20	5280	1		
21	5280	1		
22	3855		1	1
23	3969		1	1
24	5395	1		
25	6564	1		
26	6442	1		
27	14090	1		
28	5292	1		
29	5284	1		
30	5302	1		
31	5143	1		
32	5146	1		
33	5040	1		
34	5040	1		
35	3675		1	1
36	3675		1	1
37	3675		1	1
38	3675		1	1
39	5040	1		
40	5040	1		
41	5040	1		
42	3675		1	1
43	3675		1	1
44	3675		1	1
45	5040	1		
46	5040	1		
47	5056	1		
48	5514	1		
49	3850		1	1
50	3850		1	1
51	4148		1	1
52	5399	1		
53	3687		1	1
54	3675		1	1
55	5040	1		
56	4673	1		1
57	5040	1		
58	4673	1		1
59	3675		1	1
60	3681		1	1
61	5296	1		
62	5045	1		
63	5175	1		
64	5175	1		
65	5175	1		
66	5175	1		
67	5175	1		
68	5175	1		
69	5131	1		
70	7660	1		
71	7171	1		
72	5520	1		
73	5520	1		
74	5520	1		
75	4025		1	1
76	4025		1	1
77	4025		1	1
78	4025		1	1
79	4025		1	1
80	4025		1	1
81	4025		1	1
82	5520	1		
83	5175	1		
84	5175	1		
85	5810	1		
	Average	Single Family	Townhome	33
Total	4869,08235	52	33	85
Single Family Ratio	52/85	61.18%		
Lots 4800 sf or above	52/85	61.18%		
Lots below 4800 sf	33/85	39%		

# Brickyard Park

## LANDSCAPE PLAN

### SHEET LIST

- L-1 COVERSHEET, KEY MAP, AND NOTES
- L-2 PLANTING PLAN AND PLANTING DETAILS
- L-3 PLANTING PLAN
- L-4 PLANTING PLAN
- L-5 PARK LAYOUT, PARK PERIMETER PLANTING AND FENCE DETAIL



### KEY MAP

1" = 100'-0" (CHECK SCALE BAR FOR ACCURACY)

### GENERAL NOTES

- ALL WORK SHALL BE PERFORMED BY PERSONS FAMILIAR WITH THIS KIND OF WORK AND UNDER THE SUPERVISION OF A QUALIFIED FOREMAN.
- ALL PLANT MATERIAL SIZES AND QUALITY TO CONFORM TO AMERICAN ASSOC. OF NURSERYMEN, AMERICAN STANDARD FOR NURSERY STOCK, 2002.
- PLANT LOCATIONS ON THE PLANS ARE DIAGRAMMATIC AND MAY BE SUBJECT TO ADJUSTMENT IN THE FIELD BY THE LANDSCAPE CONTRACTOR.
- ALL PLANT MATERIAL SHALL BE OF NURSERY STOCK AND SHALL BE OF THE TYPE, SIZE AND CONDITION SPECIFIED. THE PLANT MATERIAL SHALL EXHIBIT NORMAL HABITS OF GROWTH FOR THE SPECIES. SHALL HAVE BUDS INTACT AND SHALL BE FREE OF DISEASE, INSECTS, SCARS, BRUISES, BREAKS, SEED AND WEED ROOTS.
- SEE NOTES THIS SHEET FOR TOPSOIL DEPTH AND SPECIFICATION.
- FINE BARK MULCH IS TO BE INSTALLED AT ALL NEW PLANTING AREAS WITH A MINIMUM OF 3 INCHES.
- ALL NON IRRIGATED LANDSCAPE AREAS SHALL HAVE PLANTING BACKFILL AMENDED WITH A TRANSPLANT AMENDMENT (SUPERTHRIVE OR EQUAL) AND WETTING AGENT (TERAWET OR EQUAL) APPLIED AT MANUFACTURES RECOMMENDED RATE.
- LANDSCAPE CONTRACTOR SHALL VERIFY LOCATION OF ALL SITE UTILITIES PRIOR TO LANDSCAPE IMPLEMENTATION. PLANT LOCATIONS MAY BE ADJUSTED TO AVOID CONFLICT.
- LANDSCAPE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT EXISTING SITE IMPROVEMENTS, PAVING, WALLS, AND UNDERGROUND UTILITIES. DAMAGE SHALL BE REPAIRED TO THE OWNER'S SATISFACTION AND AT NO ADDITIONAL COST.
- PLANT COUNT IS FOR THE CONTRACTOR'S CONVENIENCE; IF THERE IS A DISCREPANCY, THE PLAN SHALL GOVERN. ACTUAL PLANT QUANTITIES TO BE DETERMINED BY REQUIRED PLANT SPACING.
- ALL AREAS TO BE PLANTED WITH GROUNDCOVER ARE INDICATED ON THE PLAN WITH A HATCH PATTERN. SEE PLANT LIST FOR PLANT TYPE, SIZE, AND SPACING.
- SUBSTITUTION OF PLANT VARIETIES DUE TO LACK OF AVAILABILITY SUBJECT TO APPROVAL BY THE LANDSCAPE ARCHITECT AND THE CITY OF MOUNT VERNON.
- ALL DIMENSIONS ARE ASSUMED TO BE PARALLEL OR PERPENDICULAR UNLESS OTHERWISE NOTED.
- ALL SOIL GRADES TO BE A MINIMUM SIX INCHES BELOW ADJACENT FINISH FLOOR ELEVATIONS UNLESS NOTED OTHERWISE. ALL GRADES ADJACENT TO A BUILDING SHALL HAVE A MAXIMUM SLOPE OF 5% 3' FROM FOUNDATION.
- ALL GRADES, DIMENSIONS AND EXISTING CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT.
- AN AUTOMATED IRRIGATION SYSTEM WILL BE PROVIDED ON ALL COMMON AREAS. SYSTEM TO BE BIDDER DESIGNED.
- BASEMAP PROVIDED BY SOUND DEVELOPMENT, MOUNT VERNON, WA.

### SOIL NOTES

- FINAL SOIL ORGANIC CONTENT
  - MINIMUM 10%
- CONTRACTOR MAY STOCKPILE SITE TOPSOIL FOR POSSIBLE RE-USE IN LANDSCAPE BEDS. STOCKPILED TOPSOIL TO BE TESTED BY SOILS LABORATORY FOR 'NURSERY' USE. ALL RECOMMENDATIONS ARE TO BE FOLLOWED. REPORT AND USE OF STOCKPILED SOIL TO BE APPROVED BY OWNER.
- SITE TOPSOIL THAT IS TO BE USED IN PLANTER BED AREAS MUST BE TREATED TO INSURE THAT IT IS WEED FREE. CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING ALL HORSETAIL AND ANY OTHER WEED PLANTS OR WEED SEEDS THAT MAY BE PRESENT IN SITE TOPSOIL. CONTRACTOR TO SUBMIT PLAN FOR INSURING TOPSOIL IS WEED FREE AND PLAN TO BE APPROVED BY THE OWNER.
- SITE TOPSOIL TO BE SCREENED TO REMOVE ALL GRASS CLODS AND DEBRIS LARGER THAN ONE INCH.
- EXISTING SITE TOPSOIL TO BE AMENDED WITH COMPOST AT A THE **MINIMUM** PRE-APPROVED RATE OF 3:1. THREE UNITS OF SITE TOPSOIL TO ONE UNIT OF COMPOST. IF SOIL TEST REQUIRES MORE COMPOST THAN THE 3:1 RATIO, THAT THE SOIL TEST RECOMMENDATION IS TO BE FOLLOWED.
- IN LIEU OF AMENDING SITE TOPSOIL CONTRACTORS MAY CHOOSE TO USE IMPORTED 2-WAY TOPSOIL. 2-WAY SOIL TO BE COMPLIANT WITH DOE BMP 5.13.
- AMENDED TOPSOIL DEPTHS
  - PLANTER BEDS TO HAVE A MINIMUM OF 6 INCHES OF TOPSOIL. 3 INCHES OF AMENDED SOIL IS TO BE INCORPORATED INTO PLANTER AREAS AND THEN AN ADDITIONAL 3 INCHES OF AMENDED SOIL IS TO BE PLACED FOR A TOTAL AMENDED DEPTH OF 6 INCHES.
  - LAWNS AREAS TO HAVE A MINIMUM OF FOUR INCHES OF TOPSOIL. TOPSOIL TO BE ROTOTILLED INTO EXISTING SUBGRADE.
  - STREET TREE PLANTER STRIPS TO HAVE A MINIMUM OF 12 INCHES OF TOPSOIL FOR A LENGTH OF 6 FEET IMMEDIATELY UNDER THE CENTER OF THE TREE. 3 INCHES OF AMENDED TOPSOIL IS TO BE INCORPORATED INTO PLANTER STRIPS AND THEN AN ADDITIONAL 9 INCHES OF AMENDED SOIL IS TO BE PLACED FOR A TOTAL DEPTH OF 12 INCHES
  - STREET TREE PLANTER STRIPS, BEYOND THE 6 FOOT LONG PLANTING PIT, IS TO HAVE A MINIMUM OF 6 INCHES OF TOPSOIL. 3 INCHES OF AMENDED TOPSOIL IS TO BE INCORPORATED INTO PLANTER STRIPS AND THEN AN ADDITIONAL 3 INCHES OF AMENDED SOIL IS TO BE PLACED FOR A TOTAL DEPTH OF 6 INCHES
- IMPORTED TOPSOIL DEPTHS
  - SAME AS ABOVE
- SEE PLANS FOR LOCATIONS WHERE ADDITIONAL TOPSOIL DEPTHS ARE REQUIRED.

### MAINTENANCE NOTES

- UNDER NO CIRCUMSTANCE ARE STREET TREES TO BE TOPPED OR PRUNED WITHOUT PERMISSION OF THE CITY ARBORIST.
- UNDER NO CIRCUMSTANCE ARE SHRUBS TO BE SHEARED OR SHAPED WITHOUT EXPLICIT PERMISSION FROM THE OWNER. SHRUBS ARE DESIGNED TO FILL AND GROW IN TO A PERMANENT MATURE SIZE.
- GROUNDCOVER THAT GROWS 'OUT' OF BEDS AND INTO ADJACENT WALKS OR ROADS ARE TO BE CUT-BACK AS NEEDED.
- PERENNIAL AND GRASSES WHICH ARE DECIDUOUS MAY BE CUT BACK AT OWNERS DISCRETION, ONCE PER YEAR, DURING THE MONTHS OF FEBRUARY, MARCH OR APRIL.
- LAWN TO BE FERTILIZED ONCE PER YEAR MIN PER PRODUCT INSTRUCTIONS.
- WEEDS TO BE REMOVED IN A TIMELY MANNER BY MECHANICAL OR CHEMICAL MEANS, IN COMPLIANCE WITH ALL LOCAL AND STATE GUIDELINES AND REQUIREMENTS.
- BARK MULCH IN PLANTER BEDS TO BE TOPPED OFF WITH 1" LIFT MIN, ONCE PER YEAR IN THE SPRING.

Landscape Statistics		
	S.F.	
GROSS ACREAGE	551,793	
Landscape Area Required (10%)	55,176	
Landscape Area Provided	60,368	>11%
Park (not including clubhouse)	51,769	
Buffer on McGargle	4,135	
Boulevard Plater and Tree Strips	4,468	
STREET FRONTAGE	3" caliper approved tree every 30' o.c. required	provided per code
	Trees shown in legend that are not 3" are used in other locations within the project	

one inch



NORTH

NO.	DATE	REVISION	BY	REV.

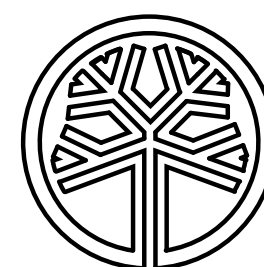
prepared for:

BYK  
702A Metcalf St  
Sedro-Woolley, WA 98284  
contact: Tim Woodmansee

prepared by:



eccosDesign  
Landscape Architecture and Planning  
Mount Vernon, WA 98273  
p. 360.419.7400  
f. 800.508.2017  
www.eccosdesign.com



STATE OF WASHINGTON  
REGISTERED  
LANDSCAPE ARCHITECT  
PATRIK DYLAN  
CERTIFICATE NO. 793

Brickyard Park  
A Planned Residential Development  
Sedro-Woolley, WA

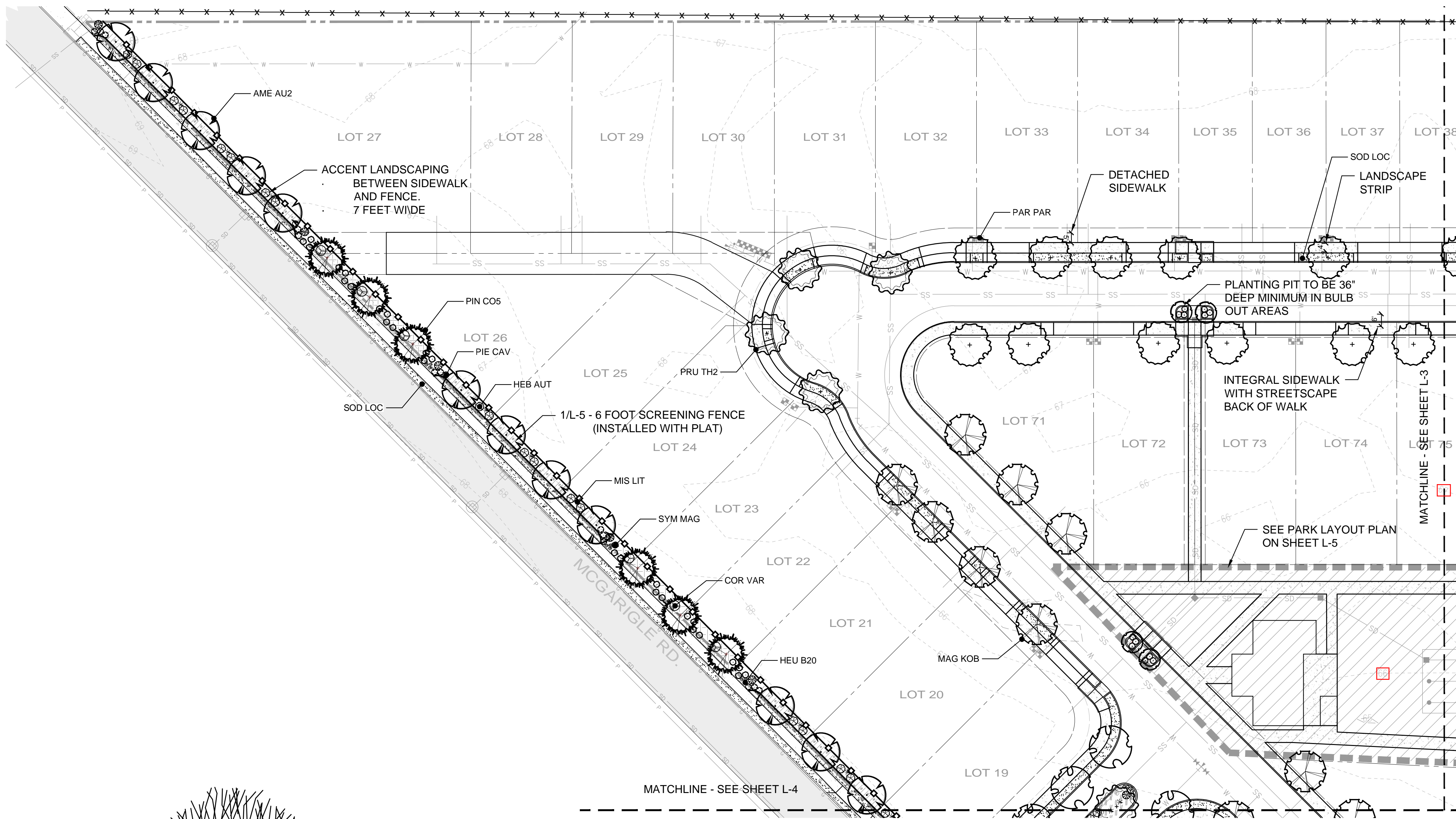
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HORIZONTAL :  
VERTICAL : N/A

DESIGNED: PD  
DRAWN: PD  
CHECKED: PD



























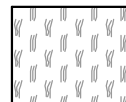

COVERSHEET, KEY MAP  
AND NOTES

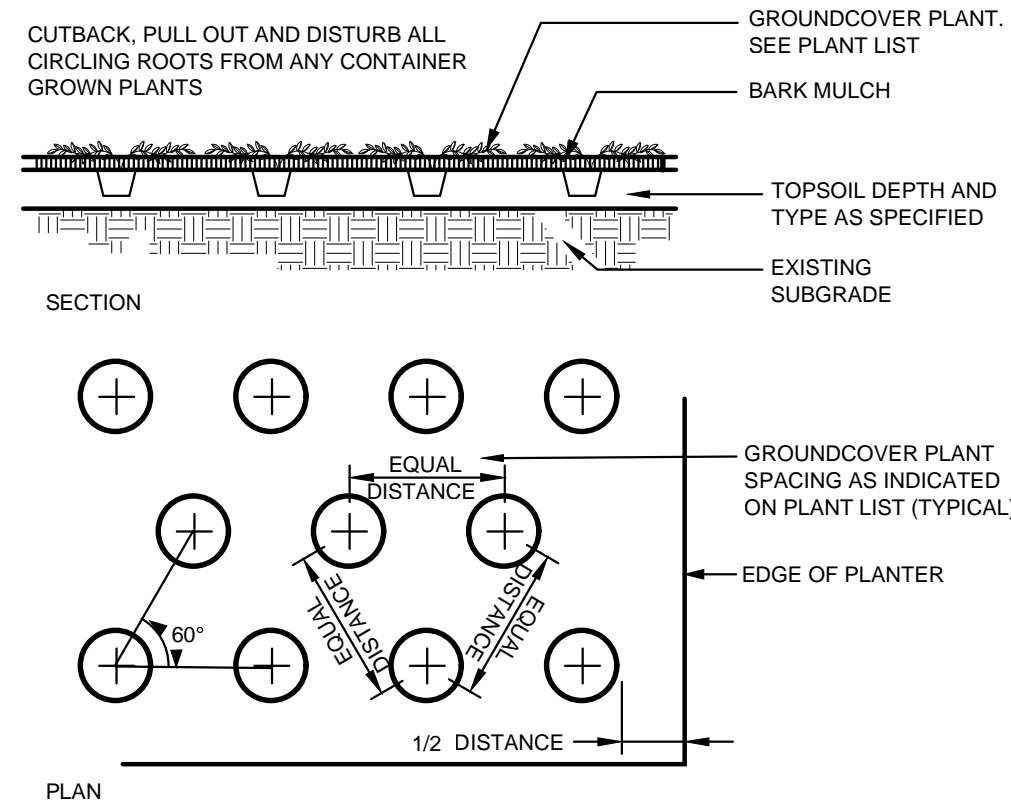
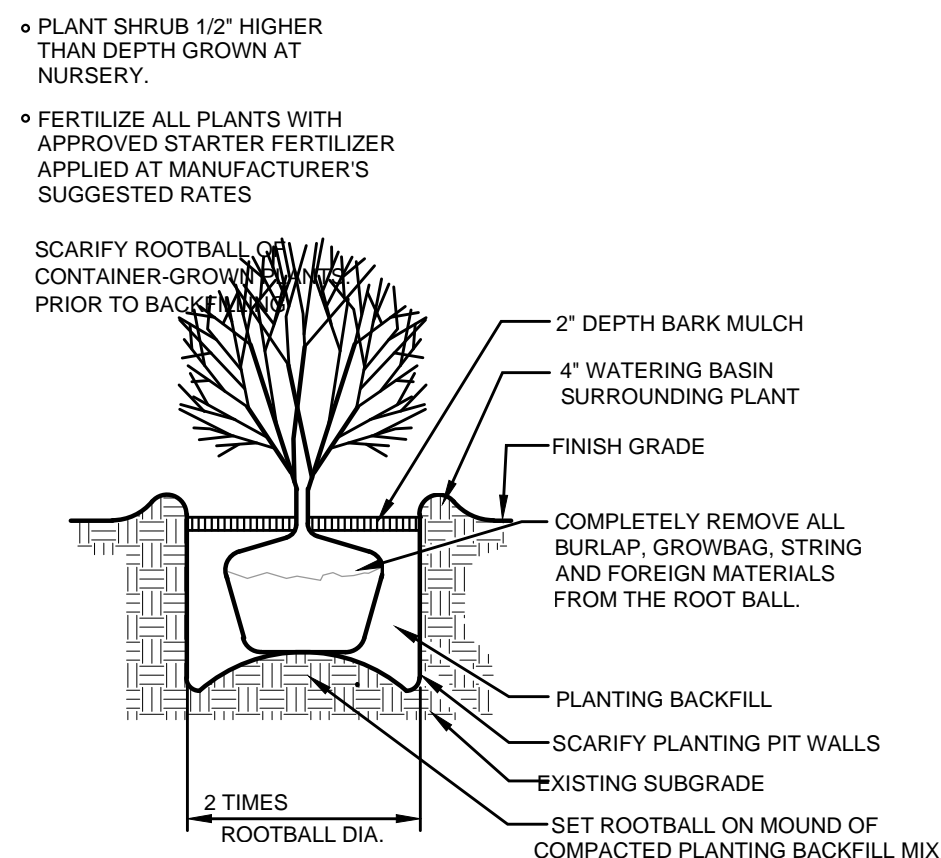
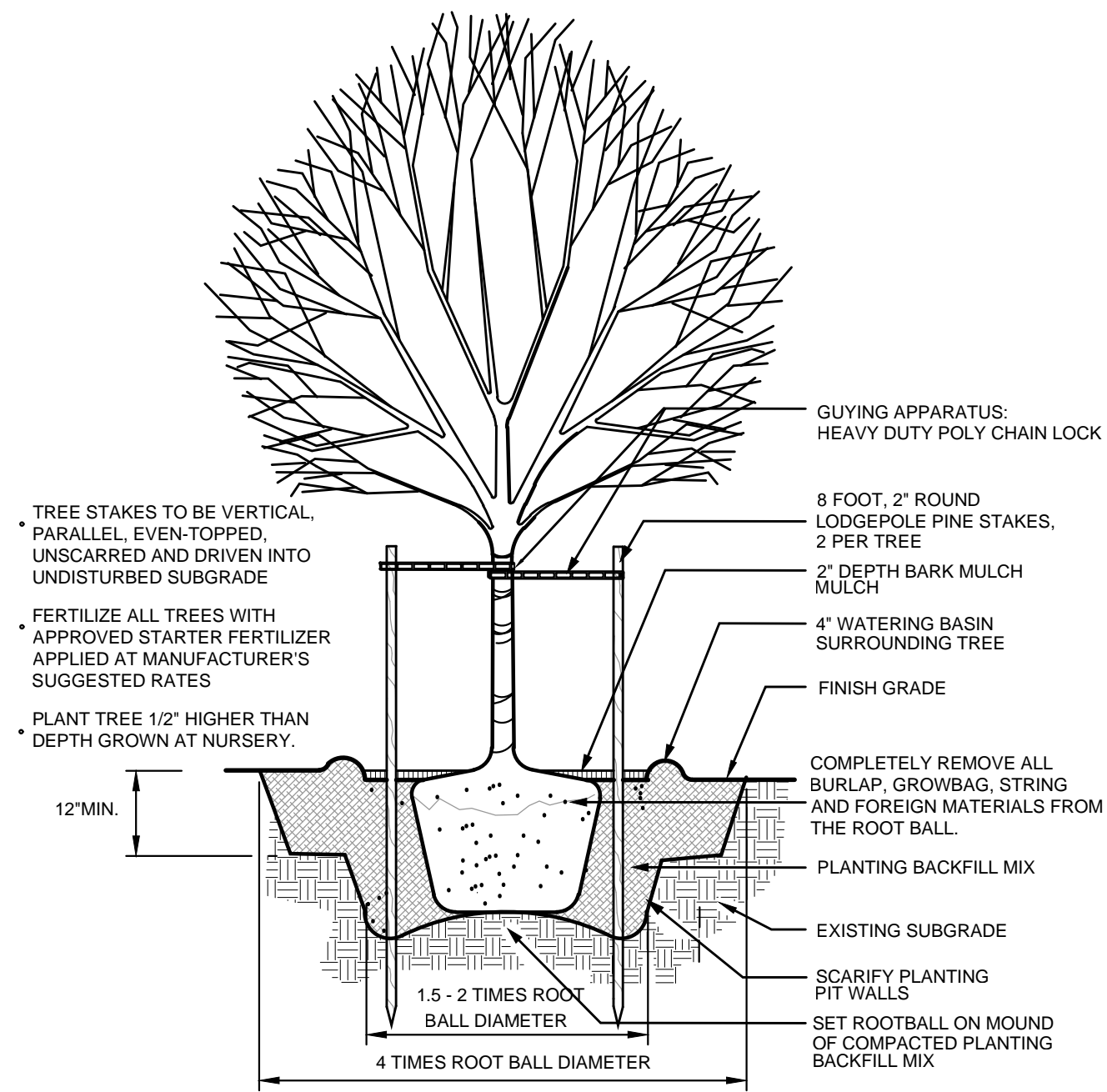
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JOB NO.: 1934  
SHEET: L-1



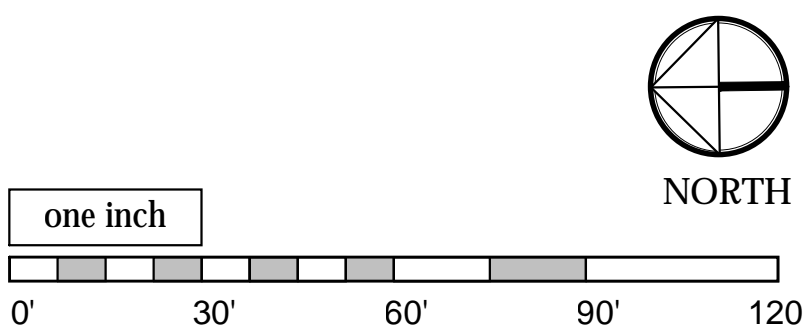
STREET TREE PLANTING PLAN  
1" = 30'-0" (CHECK SCALE BAR FOR ACCURACY)

PLANTING LEGEND (THIS LIST IS FOR ENTIRE DRAWING SET)

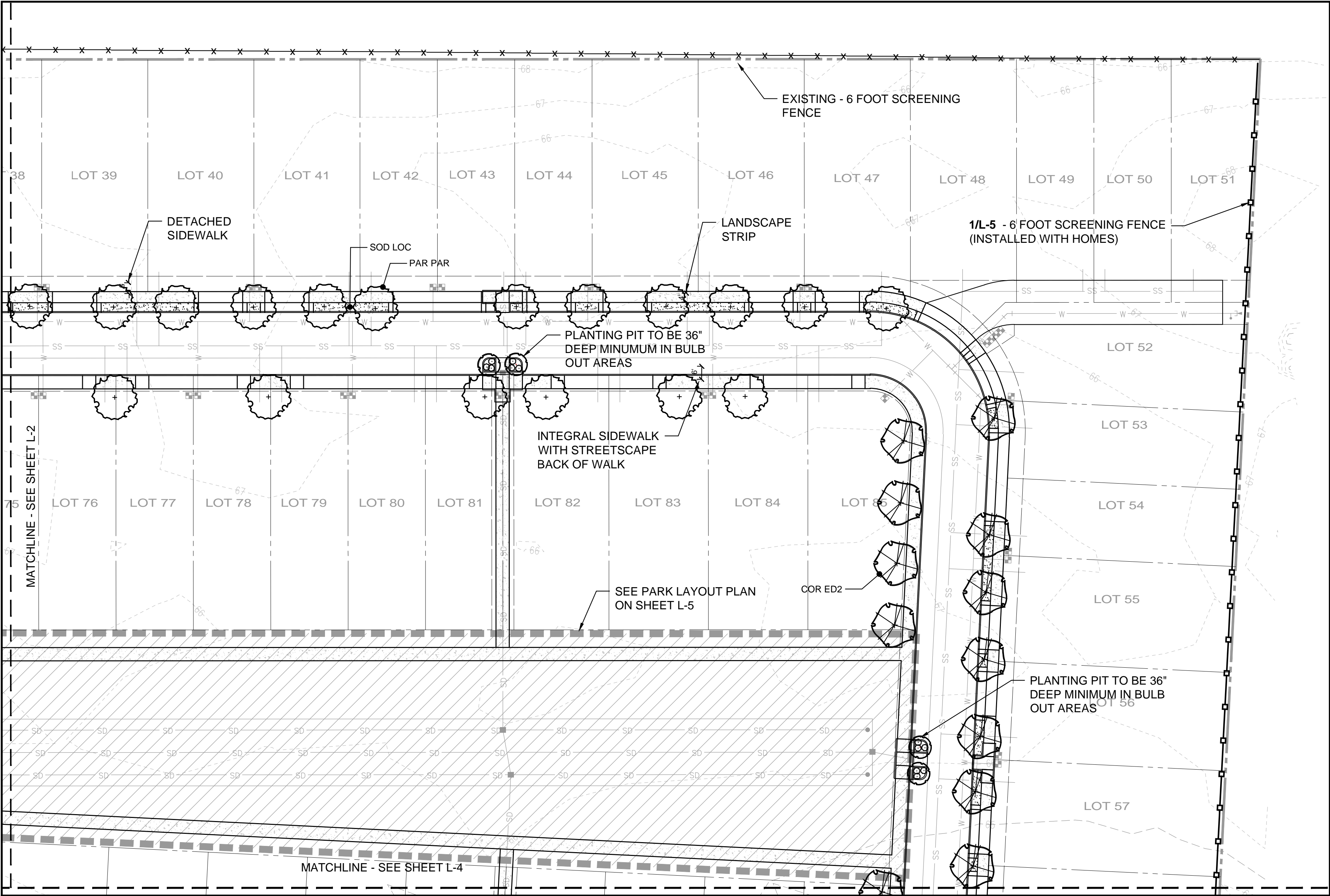
TREES	CODE	BOTANICAL NAME	COMMON NAME	SIZE	
	ACE CI2	Acer circinatum	Vine Maple	5 gal.	
	ACE BL2	Acer japonicum 'Bloodgood'	Bloodgood Amur Maple	2" Cal.	
	AME AU2	Amelanchier canadensis 'Autumn Brilliance'	Autumn Brilliance Serviceberry	3" Cal.	
	BET RIV	Betula nigra	River Birch	2" Cal.	
	CHA ARR	Chamaecyparis nootkatensis 'Green Arrow'	Green Arrow Nootka Cypress	8' Ht.	
	COR ED2	Cornus nuttallii x florida 'Eddie's White Wonder'	Eddie's White Wonder Dogwood	3" Cal.	
	FAG PUR	Fagus sylvatica 'Purpurea Pendula'	Weeping Purple Beech	2" Cal.	
	FRA JUN	Fraxinus americana 'Junginger' TM	Autumn Purple White Ash	3" Cal.	
	LIQ FAS	Liquidambar styraciflua 'Fastigiata'	Sweetgum 'Fastigiata'	2" Cal.	
	MAG KOB	Magnolia kobus	Kobus Magnolia	3" Cal.	
	PAR PAR	Parrotia persica	Persian Parrotia	3" Cal.	
	PIN CO5	Pinus contorta contorta	Shore Pine	8' Ht.	
	PRU TH2	Prunus cerasifera 'Thundercloud'	Thundercloud Plum	3" Cal.	
	ULM N21	Ulmus americana 'New Horizon'	New Horizon American Elm	2" Cal.	
SHRUBS	CODE	BOTANICAL NAME	COMMON NAME	SIZE	
	COR VAR	Cornus stolonifera 'Elegantissima'	Variegated Redtwig Dogwood	2 gal.	
	FOR FIE	Forsythia x intermedia 'Fiesta'	Fiesta Forsythia	2 gal.	
	HEB AUT	Hebe x 'Autumn Glory'	Autumn Glory Hebe	2 gal.	
	HYD WAV	Hydrangea macrophylla 'Blue Wave'	Blue Wave Lacecap Hydrangea	2 gal.	
	MAH REP	Mahonia repens	Creeping Mahonia	2 gal.	
	NAN MOO	Nandina domestica 'Moon Bay' TM	Heavenly Bamboo	2 gal.	
	PIE CAV	Pieris japonica 'Cavatine'	Lily of the Valley Bush	2 gal.	
	PRU OTT	Prunus laurocerasus 'Otto Luyken'	Luykens Laurel	2 gal.	
	RHO EJM	Rhododendron x 'P.J.M.'	PJM Rhododendron	2 gal.	
	SYM MAG	Symphoricarpos albus 'Magic Berry'	Compact Snowberry	2 gal.	
	VIB DAV	Viburnum davidii	David Viburnum	2 gal.	
PERENNIALS	CODE	BOTANICAL NAME	COMMON NAME	SIZE	
	HEM YH2	Hemerocallis x	Hybrid Daylily	1 gal.	
	HEU B20	Heuchera x 'Black Beauty'	Coral Bells	1 gal.	
	MIS LIT	Miscanthus sinensis 'Little Kitten'	Little Kitten Eulalia Grass	1 gal.	
	POL MUN	Polystichum munitum	Western Sword Fern	1 gal.	
GROUND COVERS	CODE	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
	AJU RCC	Ajuga reptans 'Black Scallop'	Black Scallop Carpet Bugle	4"	36" o.c.
	GAU SH2	Gaultheria shallon	Salal	6"	36" o.c.
	MAH RE2	Mahonia repens	Creeping Mahonia	6"	36" o.c.



1 TYPICAL PLANTING DETAILS  
L-2 NO SCALE







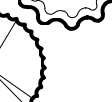
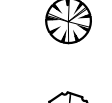

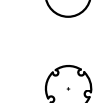
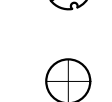
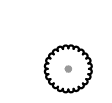
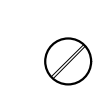
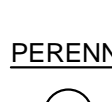
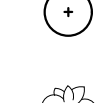


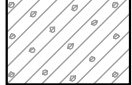


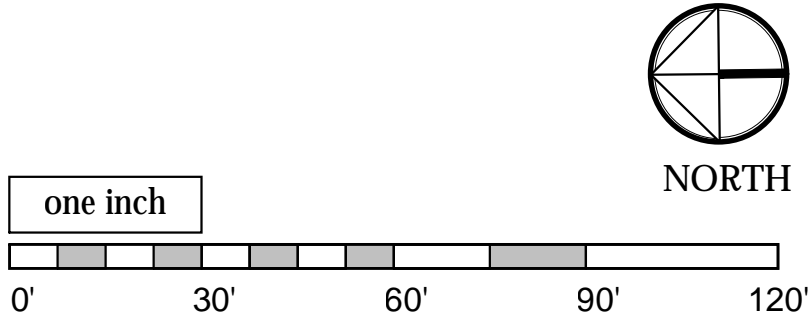
NO.	DATE	REVISION	BY	REV.	prepared for:	prepared by:	STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT	Brickyard Park A Planned Residential Development Sedro-Woolley, WA	SCALES: HORIZONTAL : 1" = 30' VERTICAL : N/A	DESIGNED: PD DRAWN: PD CHECKED: PD	STREET TREE PLANTING PLAN	ISSUE DATE: 2.17.2020 DRAWING: 1934 site JOB NO.: 1934 SHEET: L-2
					BYK 702A Metcalf St Sedro-Woolley, WA 98284 contact: Tim Woodmansee	eccosDesign Landscape Architecture and Planning Mount Vernon, WA 98273 p. 360.419.7400 f. 800.508.2017 www.eccosdesign.com						



STREET TREE PLANTING PLAN  
1" = 30'-0" (CHECK SCALE BAR FOR ACCURACY)

PLANTING LEGEND (THIS LIST IS FOR ENTIRE DRAWING SET)

TREES	CODE	BOTANICAL NAME	COMMON NAME	SIZE	QTY	
	ACE C12	Acer circinatum	Vine Maple	5 gal.	1	
	ACE BL2	Acer japonicum 'Bloodgood'	Bloodgood Amur Maple	2" Cal.	4	
	AME AU2	Amelanchier canadensis 'Autumn Brilliance'	Autumn Brilliance Serviceberry	3" Cal.	18	
	BET RIV	Betula nigra	River Birch	2" Cal.	3	
	CHA ARR	Chamaecyparis nootkatensis 'Green Arrow'	Green Arrow Nootka Cypress	8' Ht.	9	
	COR ED2	Cornus nuttali x florida 'Eddie's White Wonder'	Eddie's White Wonder Dogwood	3" Cal.	18	
	FAG PUR	Fagus sylvatica 'Purpurea Pendula'	Weeping Purple Beech	2" Cal.	1	
	FRA JUN	Fraxinus americana 'Junginger' TM	Autumn Purple White Ash	3" Cal.	8	
	LIQ FAS	Liquidambar styraciflua 'Fastigiata'	Sweetgum 'Fastigiata'	2" Cal.	10	
	MAG KOB	Magnolia kobus	Kobus Magnolia	3" Cal.	33	
	PAR PAR	Parrotia persica	Persian Parrotia	3" Cal.	29	
	PIN CO5	Pinus contorta contorta	Shore Pine	8' Ht.	9	
	PRU TH2	Prunus cerasifera 'Thundercloud'	Thundercloud Plum	3" Cal.	7	
	ULM N21	Ulmus americana 'New Horizon'	New Horizon American Elm	2" Cal.	1	
SHRUBS	CODE	BOTANICAL NAME	COMMON NAME	SIZE	QTY	
	COR VAR	Cornus stolonifera 'Elegantissima'	Variegated Redtwig Dogwood	2 gal.	9	
	FOR FIE	Forsythia x intermedia 'Fiesta'	Fiesta Forsythia	2 gal.	13	
	HEB AUT	Hebe x 'Autumn Glory'	Autumn Glory Hebe	2 gal.	38	
	HYD WAV	Hydrangea macrophylla 'Blue Wave'	Blue Wave Lacecap Hydrangea	2 gal.	4	
	MAH REP	Mahonia repens	Creeping Mahonia	2 gal.	34	
	NAN MOO	Nandina domestica 'Moon Bay' TM	Heavenly Bamboo	2 gal.	6	
	PIE CAV	Pieris japonica 'Cavatine'	Lily of the Valley Bush	2 gal.	34	
	PRU OTT	Prunus laurocerasus 'Otto Luyken'	Luykens Laurel	2 gal.	11	
	RHO E.JN	Rhododendron x 'P.J.M.'	PJM Rhododendron	2 gal.	5	
	SYM MAG	Symphoricarpos albus 'Magic Berry'	Compact Snowberry	2 gal.	44	
	VIB DAV	Viburnum davidii	David Viburnum	2 gal.	3	
PERENNIALS	CODE	BOTANICAL NAME	COMMON NAME	SIZE	QTY	
	HEM YH2	Hemerocallis x	Hybrid Daylily	1 gal.	35	
	HEU B20	Heuchera x 'Black Beauty'	Coral Bells	1 gal.	57	
	MIS LIT	Miscanthus sinensis 'Little Kitten'	Little Kitten Eulalia Grass	1 gal.	27	
	POL MUN	Polystichum munitum	Western Sword Fern	1 gal.	8	
GROUND COVERS	CODE	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QTY
	AJU RCC	Ajuga reptans 'Black Scallop'	Black Scallop Carpet Bugle	4"	36" o.c.	78
	GAU SH2	Gaultheria shallon	Salal	6"	36" o.c.	173
	MAH RE2	Mahonia repens	Creeping Mahonia	6"	36" o.c.	140



NO.	DATE	REVISION	BY	REV.

prepared for:

BYK

702A Metcalf St  
Sedro-Woolley, WA 98284

contact: Tim Woodmansee

prepared by:

eccosDesign  
Landscape Architecture and Planning  
Mount Vernon, WA 98273  
p. 360.419.7400  
f. 800.508.2017  
www.eccosdesign.com

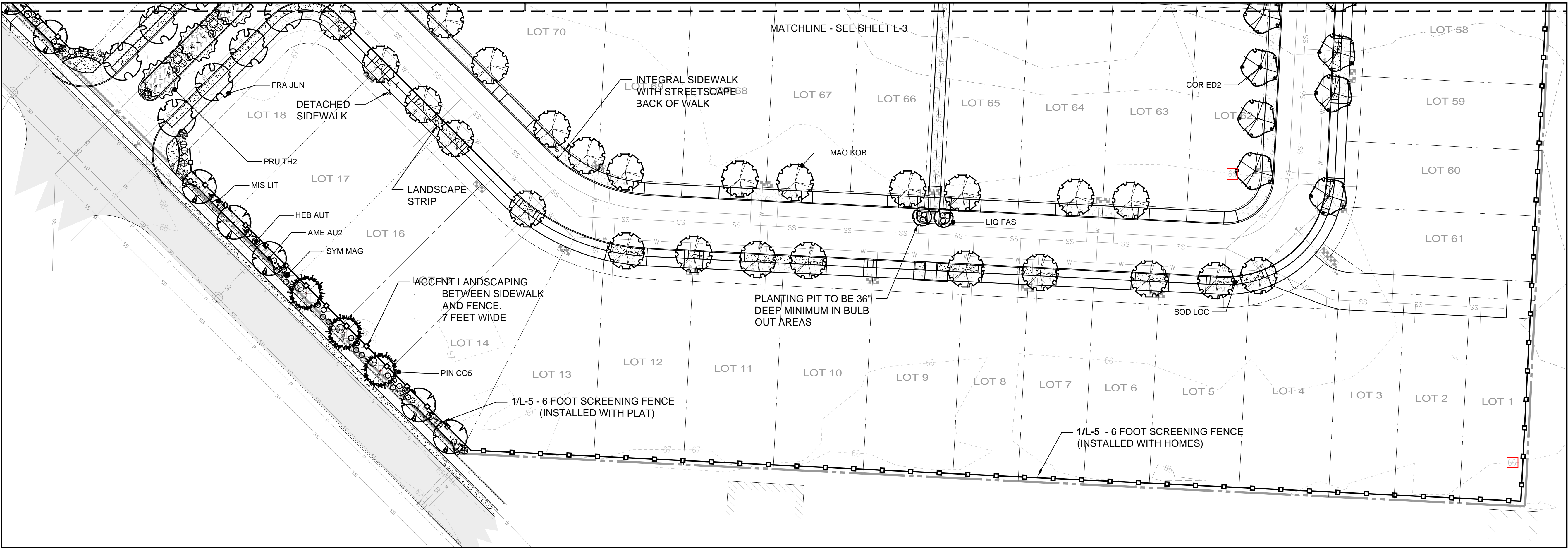
Brickyard Park  
A Planned Residential Development  
Sedro-Woolley, WA

SCALES:  
HORIZONTAL : 1" = 30'  
VERTICAL : N/A

DESIGNED: PD  
DRAWN: PD  
CHECKED: PD

STREET TREE  
PLANTING PLAN

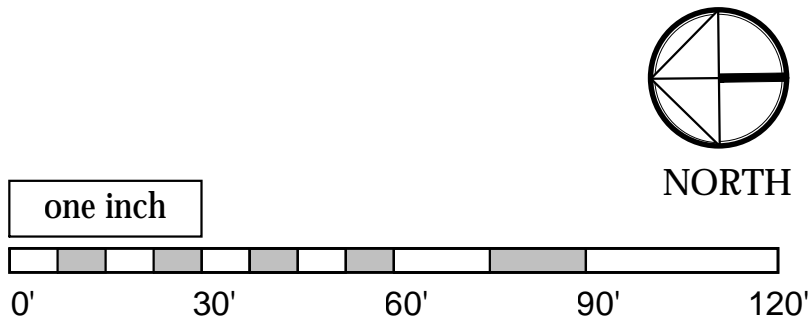
ISSUE DATE:	2.17.2020
DRAWING:	1934 site
JOB NO.:	1934
SHEET:	L-3



STREET TREE PLANTING PLAN  
1" = 30'-0" (CHECK SCALE BAR FOR ACCURACY)

PLANTING LEGEND (THIS LIST IS FOR ENTIRE DRAWING SET)

TREES	CODE	BOTANICAL NAME	COMMON NAME	SIZE	QTY	SHRUBS	CODE	BOTANICAL NAME	COMMON NAME	SIZE	QTY	GROUND COVERS	CODE	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QTY
	ACE CI2	Acer circinatum	Vine Maple	5 gal.	1		COR VAR	Cornus stolonifera 'Elegantissima'	Variegated Redtwig Dogwood	2 gal.	9		AJU RCC	Ajuga reptans 'Black Scallop'	Black Scallop Carpet Bugle	4"	36" o.c.	78
	ACE BL2	Acer japonicum 'Bloodgood'	Bloodgood Amur Maple	2" Cal.	4		FOR FIE	Forsythia x intermedia 'Fiesta'	Fiesta Forsythia	2 gal.	13		GAU SH2	Gaultheria shallon	Salal	6"	36" o.c.	173
	AME AU2	Amelanchier canadensis 'Autumn Brilliance'	Autumn Brilliance Serviceberry	3" Cal.	18		HEB AUT	Hebe x 'Autumn Glory'	Autumn Glory Hebe	2 gal.	38		MAH RE2	Mahonia repens	Creeping Mahonia	6"	36" o.c.	140
	BET RIV	Betula nigra	River Birch	2" Cal.	3		HYD WAV	Hydrangea macrophylla 'Blue Wave'	Blue Wave Lacecap Hydrangea	2 gal.	4		SOD/SEED					
	CHA ARR	Chamaecyparis nootkatensis 'Green Arrow'	Green Arrow Nootka Cypress	8' Ht.	9		MAH REP	Mahonia repens	Creeping Mahonia	2 gal.	34		SOD LOC	Sod Locally Proven	Turf	---		35,445 sf
	COR ED2	Cornus nuttallii x florida 'Eddie's White Wonder'	Eddie's White Wonder Dogwood	3" Cal.	18		NAN MOO	Nandina domestica 'Moon Bay' TM	Heavenly Bamboo	2 gal.	6							
	FAG PUR	Fagus sylvatica 'Purpurea Pendula'	Weeping Purple Beech	2" Cal.	1		PIE CAV	Pieris japonica 'Cavatine'	Lily of the Valley Bush	2 gal.	34							
	FRA JUN	Fraxinus americana 'Junginger' TM	Autumn Purple White Ash	3" Cal.	8		PRU OTT	Prunus laurocerasus 'Otto Luyken'	Luykens Laurel	2 gal.	11							
	LIQ FAS	Liquidambar styraciflua 'Fastigiata'	Sweetgum 'Fastigiata'	2" Cal.	10		RHO EJM	Rhododendron x 'P.J.M.'	PJM Rhododendron	2 gal.	5							
	MAG KOB	Magnolia kobus	Kobus Magnolia	3" Cal.	33		SYM MAG	Symphoricarpos albus 'Magic Berry'	Compact Snowberry	2 gal.	44							
	PAR PAR	Parrotia persica	Persian Parrotia	3" Cal.	29		VIB DAV	Viburnum davidii	David Viburnum	2 gal.	3							
	PIN CO5	Pinus contorta contorta	Shore Pine	8' Ht.	9		HEM YH2	Hemerocallis x	Hybrid Daylily	1 gal.	35							
	PRU TH2	Prunus cerasifera 'Thundercloud'	Thundercloud Plum	3" Cal.	7		HEU B20	Heuchera x 'Black Beauty'	Coral Bells	1 gal.	57							
	ULM N21	Ulmus americana 'New Horizon'	New Horizon American Elm	2" Cal.	1		MIS LIT	Miscanthus sinensis 'Little Kitten'	Little Kitten Eulalia Grass	1 gal.	27							
							POL MUN	Polystichum munitum	Western Sword Fern	1 gal.	8							



NO.	DATE	REVISION	BY	REV.

prepared for:

BYK

702A Metcalf St  
Sedro-Woolley, WA 98284

contact: Tim Woodmansee

prepared by:

eccosDesign  
Landscape Architecture and Planning  
Mount Vernon, WA 98273  
p. 360.419.7400  
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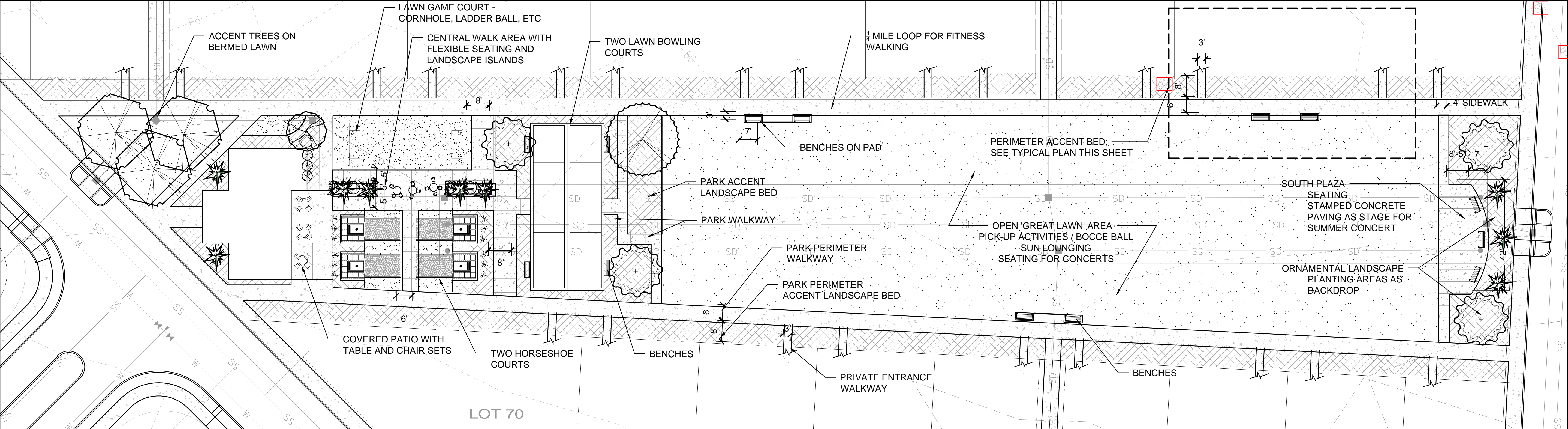
Brickyard Park  
A Planned Residential Development  
Sedro-Woolley, WA

SCALES:  
HORIZONTAL : 1" = 30'  
VERTICAL : N/A

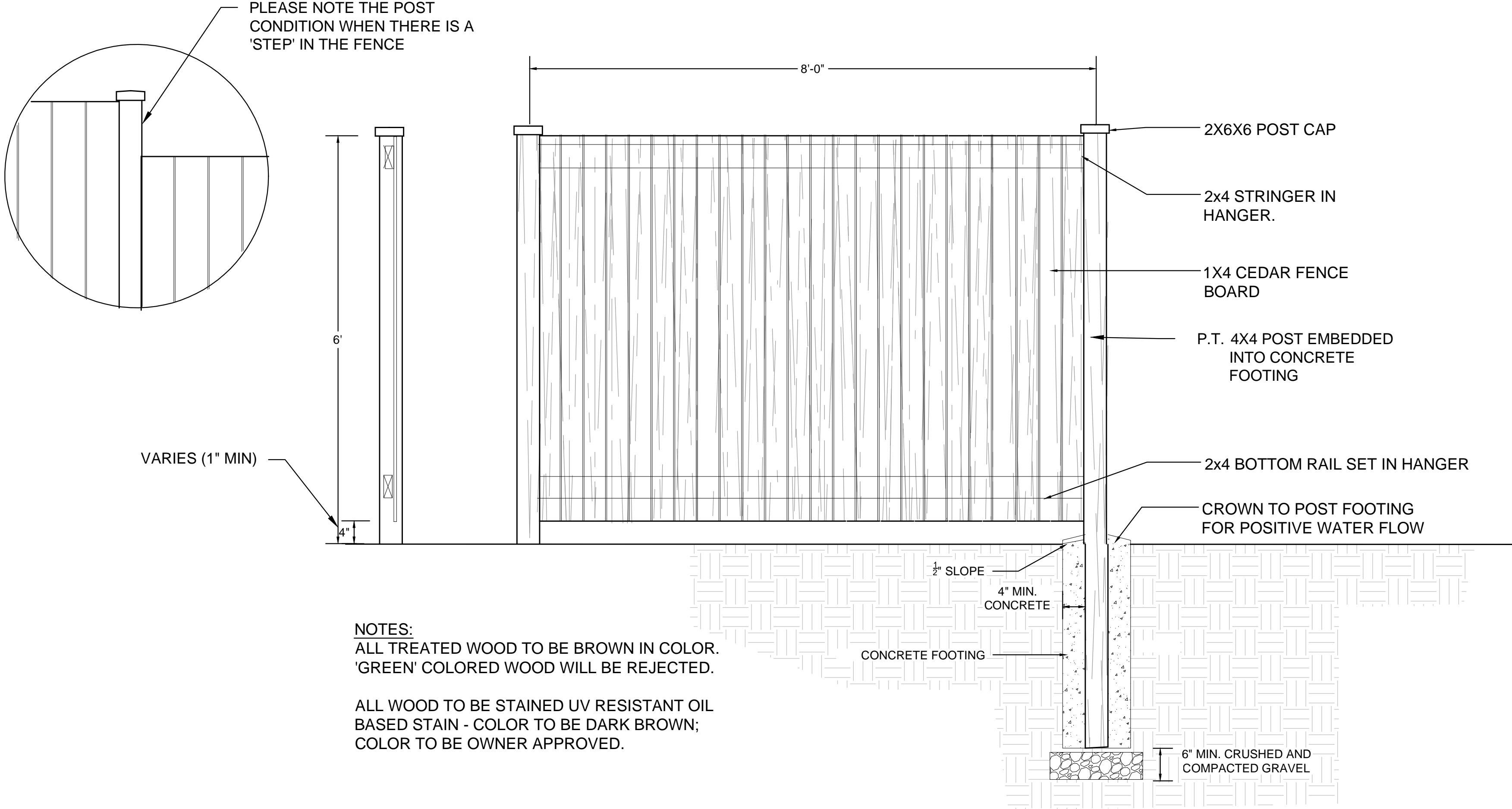
DESIGNED: PD  
DRAWN: PD  
CHECKED: PD

STREET TREE  
PLANTING PLAN

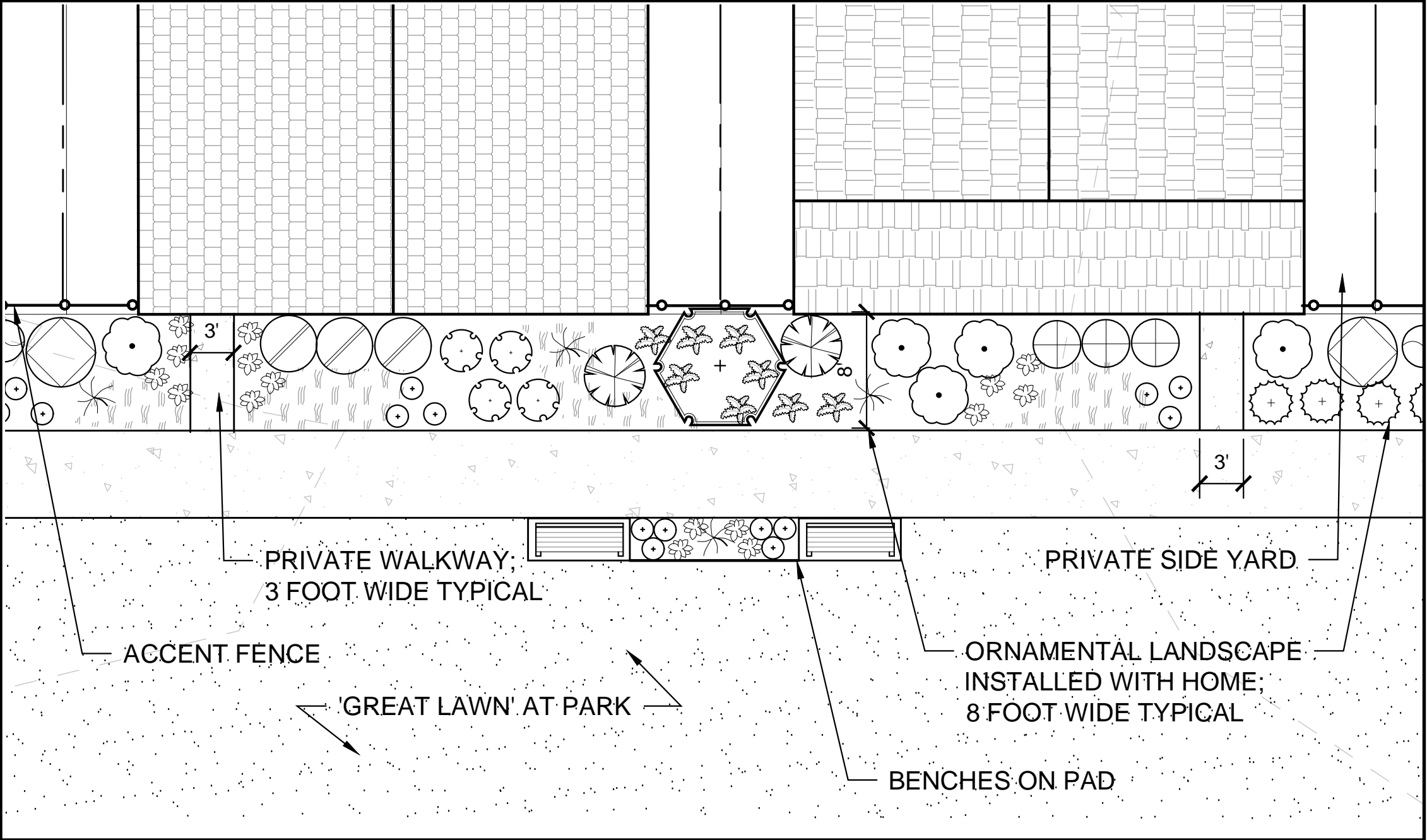
ISSUE DATE:	2.17.2020
DRAWING:	1934 site
JOB NO.:	1934
SHEET:	L-4



PARK ENLARGMENT PLAN  
1" = 20'-0" (CHECK SCALE BAR FOR ACCURACY)



1 FENCE - 6 FOOT SCREENING  
L-5 NO SCALE



2 TYPICAL PLANTING AT PARK PERIMETER  
L-5 NO SCALE

NO.	DATE	REVISION	BY	REV.

prepared for:  
  
BYK  
702A Metcalf St  
Sedro-Woolley, WA 98284  
contact: Tim Woodmansee

prepared by:  
  
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STATE OF WASHINGTON  
REGISTERED  
LANDSCAPE ARCHITECT  
  
PATRIK DYLAN  
CERTIFICATE NO. 793

Brickyard Park  
A Planned Residential Development  
Sedro-Woolley, WA

SCALES:  
HORIZONTAL : 1" = 20'  
VERTICAL : N/A  
DESIGNED: PD  
DRAWN: PD  
CHECKED: PD

PARK ENLARGEMENT PLAN

ISSUE DATE: 2.17.2020  
DRAWING: 1934 site  
JOB NO.: 1934  
SHEET: L-5

A PLANNED RESIDENTIAL DEVELOPMENT  
A PORTION OF THE NE1/4 & SE 1/4 OF THE SW1/4 OF SECTION 18, TOWNSHIP 35 N., RANGE 5 E, WM  
FILE NO. PRD #LP-2019-389

THAT PORTION OF THE EAST HALF OF THE SOUTHWEST QUARTER OF SECTION 18, TOWNSHIP 35 NORTH, RANGE 5 EAST OF WILLAMETTE MERIDIAN, LYING EASTERLY OF THE PLAT OF "KNOWLTON'S FIRST ADDITION", ACCORDING TO THE RECORDED PLAT THEREOF IN THE OFFICE OF THE AUDITOR OF SAID SKAGIT COUNTY, AND SOUTHERLY OF RAILWAY, NOW COUNTY ROAD;

BEGINNING AT THE SOUTHWEST CORNER OF SAID SUBDIVISION; THENCE NORTH 88° 35' 14" WEST ALONG THE SOUTH LINE OF SAID SUBDIVISION A DISTANCE OF 666.57 FEET TO THE SOUTHWEST CORNER OF THE PLAT OF KNOWLTON'S FIRST ADDITION PER PLAT RECORDED UNDER A.F.N. 535315, RECORDS OF SKAGOT COUNTY, WASHINGTON; THENCE NORTH 1° 27' 05" EAST ALONG THE EAST LINE OF SAID PLAT, A DISTANCE OF 336.01 FEET; THENCE SOUTH 88° 35' 14" EAST A DISTANCE OF 639.81 FEET TO THE EAST LINE OF SAID SUBDIVISION; THENCE SOUTH 1° 24' 18" EAST A DISTANCE OF 336.42 FEET TO THE POINT OF BEGINNING.

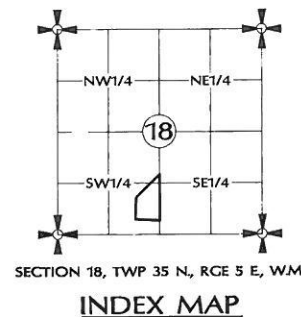
LOTS 1-4, 25-30 AND 48-51 WILL HAVE 20' FRONT SETBACKS WITH GARAGE AND 10' FRONT SETBACKS NON GARAGE. THESE SETBACKS WILL BE FROM THE EASEMENT LINES AS SHOWN ON PLAT MAP.

LOTS 62-85 WILL HAVE A ZERO (0') REAR SETBACK THAT ABUTS THE TRACT 900 LOT AS SHOWN ON PLAT MAP.

LOTS 1-3, 6-8, 13-16, 22, 33, 35-38, 42-44, 49-51, 53, 54, 59, 60, 75-77, AND 78-81 WILL HAVE ZERO (0') SIDE SETBACKS AS SHOWN ON THE PLAT MAP.

LOTS 18, 19, 62, 70, 71 AND 85 ARE CORNER LOTS AND SHALL HAVE TWO TYPICAL FRONT SETBACKS AS NOTED ABOVE.

SIGNATURE \_\_\_\_\_  
 NOTARY PUBLIC \_\_\_\_\_  
 MY APPOINTMENT EXPIRES : \_\_\_\_\_  
 RESIDING AT : \_\_\_\_\_



MYLES J. STANDISH, PLS  
CERTIFICATE No. 52089

DATE \_\_\_\_\_

A diagram showing a cross-section of a mechanical device. It features a horizontal bar with a central vertical rod passing through it. The bar is supported by two vertical pillars. The entire assembly is housed within a curved, dome-like structure.

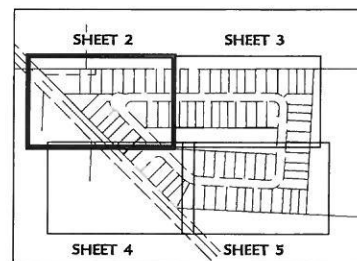
P.O. Box 1705 • 1111 Cleveland Avenue, Suite 202  
Mount Vernon, WA 98273  
Tel: 360-404-2010 Fax: 360-404-2013

## SHEET 1 OF 7

## PROJECT NO. 19066

FILE: 19066PRE.dwg

A PLANNED RESIDENTIAL DEVELOPMENT  
A PORTION OF THE NE1/4 & SE 1/4 OF THE SW1/4 OF SECTION 18, TOWNSHIP 35 N., RANGE 5 E., W.M.  
FILE NO. PRD #LP-2019-389



## KEY MAP

## FIELD EQUIPMENT

THIS SURVEY WAS ACCOMPLISHED BY FIELD TRAVERSE USING A "TRIMBLE S6" AND A TRIMBLE DUAL FREQUENCY GPS SURVEY RECEIVER, STANDARD DISTANCE +/- 2CM (+ 1 PPM) AND MEETS OR EXCEEDS STANDARDS AS SET FORTH IN W.A.C. CH. 332.






### BASIS OF BEARING

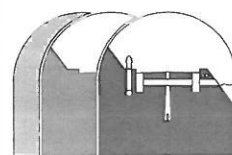
THE FOUND MONUMENTED CENTERLINE OF MCGARGILE ROAD  
BEARS S 44°58'35" W AS SHOWN HEREON.

**OCCUPATION NOTE**

THIS SURVEY HAS DEPICTED EXISTING OCCUPATIONAL  
INDICATORS IN ACCORDANCE WITH W.A.C. CH. 332.130. THESE  
OCCUPATIONAL INDICATORS MAY INDICATE A POTENTIAL FOR  
CLAIMS OF UNWRITTEN TITLE OWNERSHIP. THE LEGAL  
RESOLUTION OF OWNERSHIP BASED UPON UNWRITTEN TITLE  
CLAIMS HAS NOT BEEN RESOLVED BY THIS BOUNDARY SURVEY.

### LEGEND

-  SET BABAR & CAP LS#52089  
 SET STREET MONUMENT IN CASE STAMPED "SDG LS 52089"  
 SURVEY CORNER SET PREVIOUSLY  
 PREVIOUSLY SET STREET MONUMENT IN CASE OR AS NOTED  
 **321** LOT ADDRESS ON LOOP ROAD



*Sound Development Group*

**ENGINEERING, SURVEYING & LAND DEVELOPMENT SERVICES**  
P.O. Box 1705 • 1111 Cleveland Avenue, Suite 202  
Mount Vernon, WA 98273  
Tel: 360-404-2010 Fax: 360-404-2013

## BRICKYARD PARK

**BRICKYARD PARK**  
A PLANNED RESIDENTIAL DEVELOPMENT

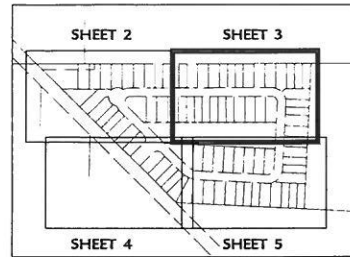
FILE NO. PRD #LP-2019-389

A PORTION OF THE NE 1/4 & THE SE 1/4 OF THE SW 1/4 OF SECTION 18, TOWNSHIP 35 NORTH, RANGE 5 E., W.M., COUNTY OF SKAGIT, STATE OF WASHINGTON

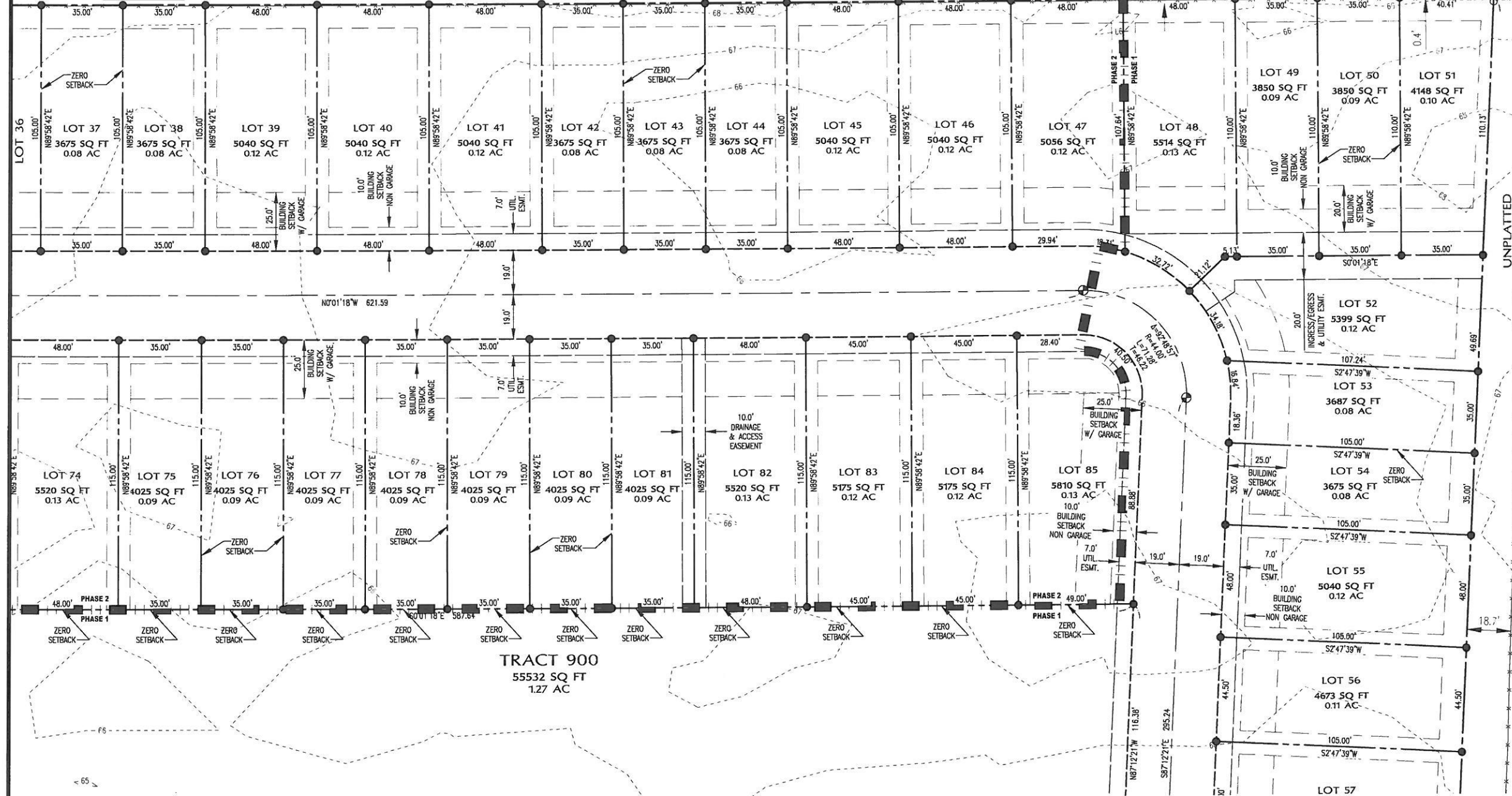
OWNERS  
BRICKYARD PARK, LLC

DATE: 02.14.20	BY: MJS	SCALE: AS NOTED
PROJECT NO. 19066		FILE: 19066PRE.dwg

A PLANNED RESIDENTIAL DEVELOPMENT  
A PORTION OF THE NE1/4 & SE 1/4 OF THE SW1/4 OF SECTION 18, TOWNSHIP 35 N., RANGE 5 E., W.M.  
FILE NO. PRD #LP-2019-389

SEE SHEET 2 FOR  
CONTINUATION

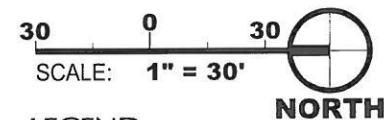
### KEY MAP



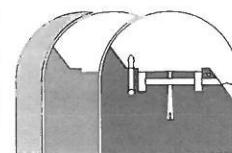
THIS SURVEY WAS ACCOMPLISHED BY FIELD TRAVERSE USING A "TRIMBLE S6" AND A TRIMBLE DUAL FREQUENCY GPS SURVEY RECEIVER, STANDARD DISTANCE  $\pm 2\text{CM}$  ( $\pm 1\text{PPM}$ ) AND MEETS OR EXCEEDS STANDARDS AS SET FORTH IN W.A.C. CH. 332.

THE FOUND MONUMENTED CENTERLINE OF MCGARIGLE ROAD  
BEARS S 44°58'35" W AS SHOWN HEREON.

THIS SURVEY HAS DEPICTED EXISTING OCCUPATIONAL INDICATORS IN ACCORDANCE WITH W.A.C. CH. 332.130. THESE OCCUPATIONAL INDICATORS MAY INDICATE A POTENTIAL FOR CLAIMS OF UNWRITTEN TITLE OWNERSHIP. THE LEGAL RESOLUTION OF OWNERSHIP BASED UPON UNWRITTEN TITLE CLAIMS HAS NOT BEEN RESOLVED BY THIS BOUNDARY SURVEY.



- SET RABAR & CAP LS#52089
- ⊗ SET STREET MONUMENT IN CASE STAMPED "SDG LS 52089"
- SURVEY CORNER SET PREVIOUSLY
- ⊕ PREVIOUSLY SET STREET MONUMENT IN CASE OR AS NOTED
- 321** LOT ADDRESS ON LOOP ROAD



P.O. Box 1705 • 1111 Cleveland Avenue, Suite 202  
Mount Vernon, WA 98273  
Tel: 360-404-2010 Fax: 360-404-2013

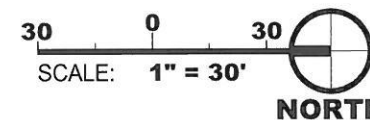
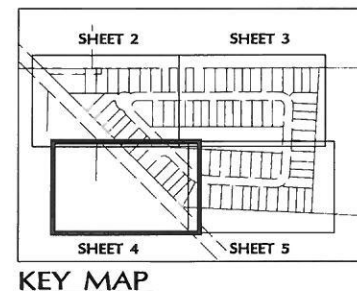
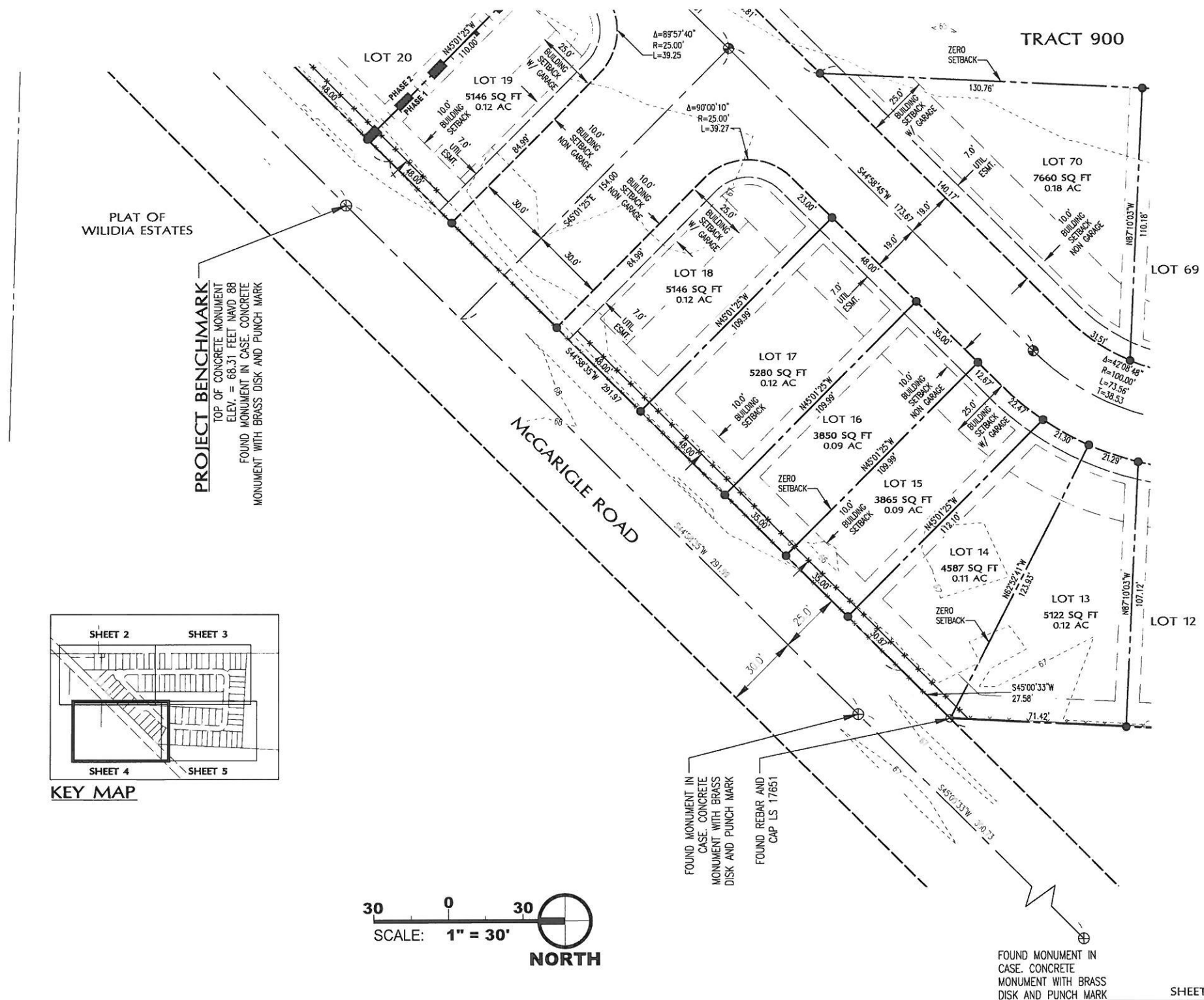
A PORTION OF THE NE 1/4 & THE SE 1/4 OF THE SW 1/4 OF SECTION 18, TOWNSHIP 35 NORTH, RANGE 5 E., W.M., COUNTY OF SKAGIT, STATE OF WASHINGTON

DATE:	02.14.20	BY: MJS	SCALE: AS NOTED
PROJECT NO.	19066		FILE: 19066PRE.dwg

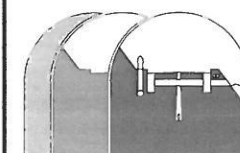
# BRICKYARD PARK

A PLANNED RESIDENTIAL DEVELOPMENT

A PORTION OF THE NE1/4 & SE 1/4 OF THE SW1/4 OF SECTION 18, TOWNSHIP 35 N., RANGE 5 E., W.M.  
FILE NO. PRD #LP-2019-389



- LEGEND**
- SET RABAR & CAP LS#52089
  - ⊙ SET STREET MONUMENT IN CASE STAMPED "SDG LS 52089"
  - ⊕ SURVEY CORNER SET PREVIOUSLY
  - ⊕ PREVIOUSLY SET STREET MONUMENT IN CASE OR AS NOTED
  - 321 LOT ADDRESS ON LOOP ROAD



**Sound Development Group**  
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Mount Vernon, WA 98273  
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## BRICKYARD PARK

A PLANNED RESIDENTIAL DEVELOPMENT

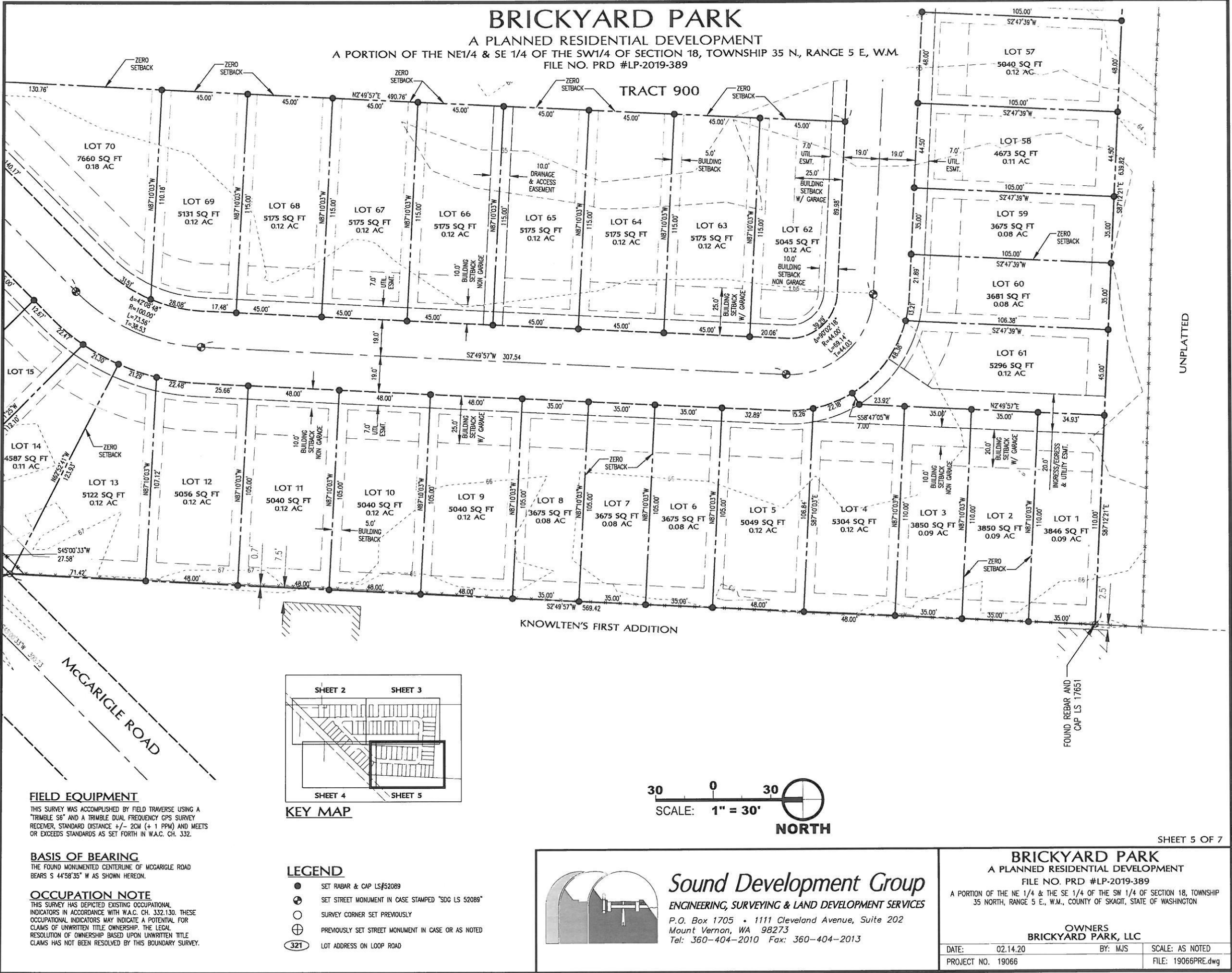
FILE NO. PRD #LP-2019-389

A PORTION OF THE NE 1/4 & THE SE 1/4 OF THE SW 1/4 OF SECTION 18, TOWNSHIP 35 NORTH, RANGE 5 E., W.M., COUNTY OF SKAGIT, STATE OF WASHINGTON

OWNERS  
**BRICKYARD PARK, LLC**

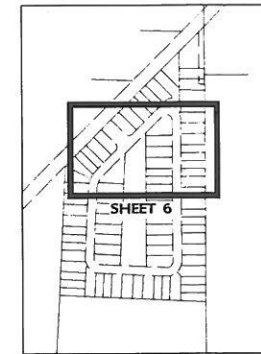
DATE: 02.14.20	BY: MJS	SCALE: AS NOTED
PROJECT NO. 19066	FILE: 19066PRE.dwg	

SHEET 4 OF 7

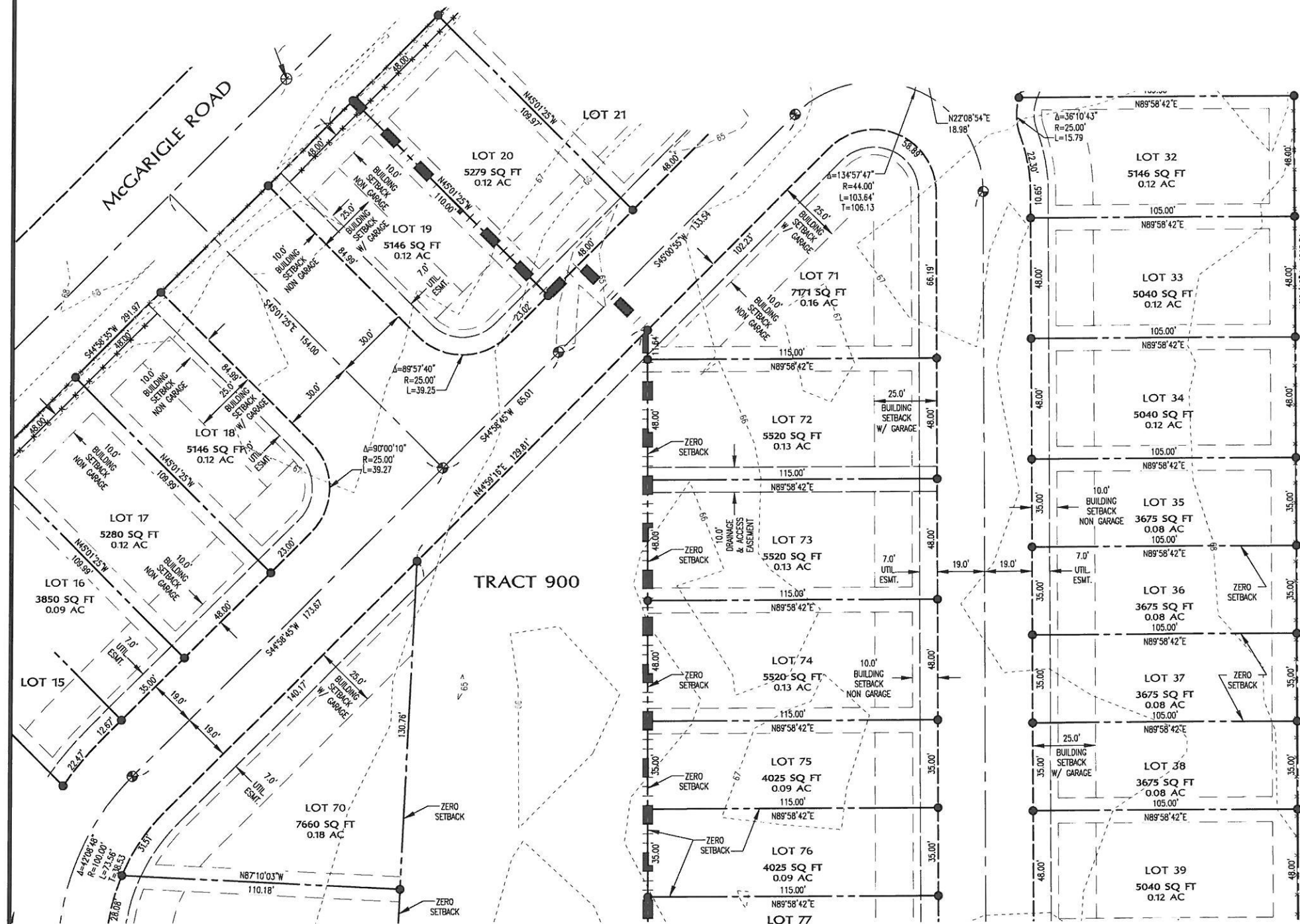


# BRICKYARD PARK

A PLANNED RESIDENTIAL DEVELOPMENT  
A PORTION OF THE NE1/4 & SE 1/4 OF THE SW1/4 OF SECTION 18, TOWNSHIP 35 N, RANGE 5 E, W.M.  
FILE NO. PRD #LP-2019-389



KEY MAP



## FIELD EQUIPMENT

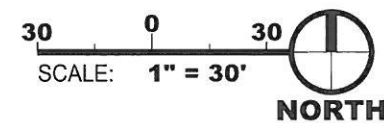
THIS SURVEY WAS ACCOMPLISHED BY FIELD TRAVERSE USING A TRIMBLE S6 AND A TRIMBLE DUAL FREQUENCY GPS SURVEY RECEIVER, STANDARD DISTANCE +/- 2CM (+1 PPM) AND MEETS OR EXCEEDS STANDARDS AS SET FORTH IN W.A.C. CH. 332.

## BASIS OF BEARING

THE FOUND MONUMENTED CENTERLINE OF MCGARIGLE ROAD BEARS S 44°58'35" W AS SHOWN HEREON.

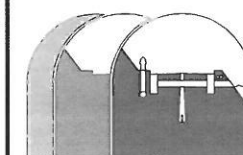
## OCCUPATION NOTE

THIS SURVEY HAS DEPICTED EXISTING OCCUPATIONAL INDICATORS IN ACCORDANCE WITH W.A.C. CH. 332.130. THESE OCCUPATIONAL INDICATORS MAY INDICATE A POTENTIAL FOR CLAIMS OF UNWRITTEN TITLE OWNERSHIP. THE LEGAL RESOLUTION OF OWNERSHIP BASED UPON UNWRITTEN TITLE CLAIMS HAS NOT BEEN RESOLVED BY THIS BOUNDARY SURVEY.



## LEGEND

- SET RABAR & CAP LS#52089
- SET STREET MONUMENT IN CASE STAMPED "SDG LS 52089"
- ⊙ SURVEY CORNER SET PREVIOUSLY
- ⊕ PREVIOUSLY SET STREET MONUMENT IN CASE OR AS NOTED
- 321 LOT ADDRESS ON LOOP ROAD



**Sound Development Group**  
ENGINEERING, SURVEYING & LAND DEVELOPMENT SERVICES

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Mount Vernon, WA 98273  
Tel: 360-404-2010 Fax: 360-404-2013

SHEET 6 OF 7

## BRICKYARD PARK

A PLANNED RESIDENTIAL DEVELOPMENT

FILE NO. PRD #LP-2019-389

A PORTION OF THE NE 1/4 & THE SE 1/4 OF THE SW 1/4 OF SECTION 18, TOWNSHIP 35 NORTH, RANGE 5 E, W.M., COUNTY OF SKAGIT, STATE OF WASHINGTON

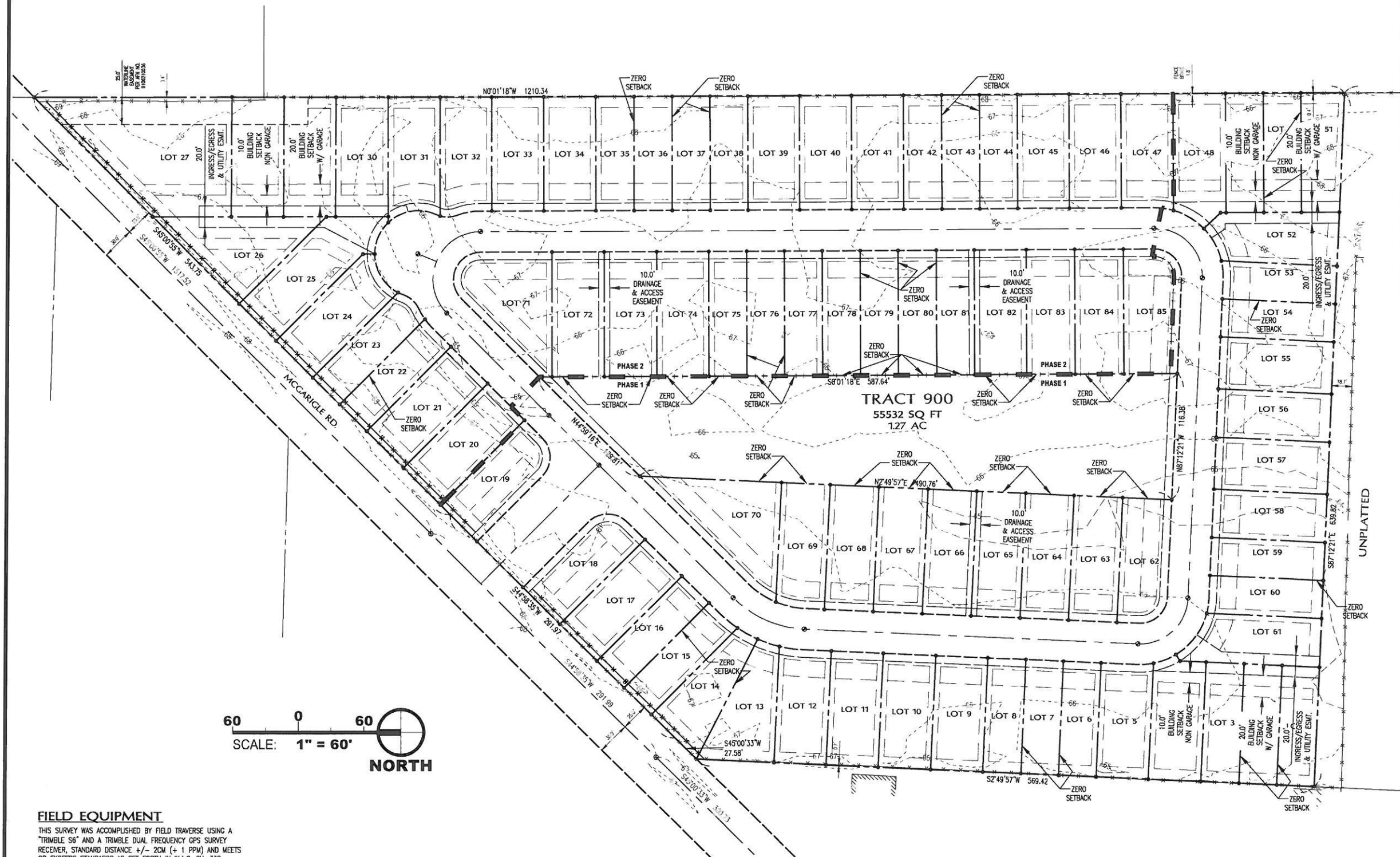
OWNERS  
**BRICKYARD PARK, LLC**

DATE: 02.14.20	BY: MJS	SCALE: AS NOTED
PROJECT NO. 19066		FILE: 19066PRE.dwg

# BRICKYARD PARK

A PLANNED RESIDENTIAL DEVELOPMENT

A PORTION OF THE NE 1/4 & SE 1/4 OF THE SW 1/4 OF SECTION 18, TOWNSHIP 35 N., RANGE 5 E., W.M.  
FILE NO. PRD #LP-2019-389



## FIELD EQUIPMENT

THIS SURVEY WAS ACCOMPLISHED BY FIELD TRAVERSE USING A TRIMBLE S6\* AND A TRIMBLE DUAL FREQUENCY GPS SURVEY RECEIVER, STANDARD DISTANCE +/- 20M (+1 PPM) AND MEETS OR EXCEEDS STANDARDS AS SET FORTH IN W.A.C. CH. 332.

## BASIS OF BEARING

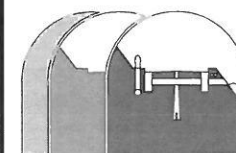
THE FOUND MONUMENTED CENTERLINE OF MCCARGILE ROAD BEARS S 44°58'35" W AS SHOWN HEREON.

## OCCUPATION NOTE

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## LEGEND

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- SET STREET MONUMENT IN CASE STAMPED "SDG LS 52089"
- SURVEY CORNER SET PREVIOUSLY
- ⊕ PREVIOUSLY SET STREET MONUMENT IN CASE OR AS NOTED
- ③21 LOT ADDRESS ON LOOP ROAD



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SHEET 7 OF 7

## BRICKYARD PARK

A PLANNED RESIDENTIAL DEVELOPMENT

FILE NO. PRD #LP-2019-389

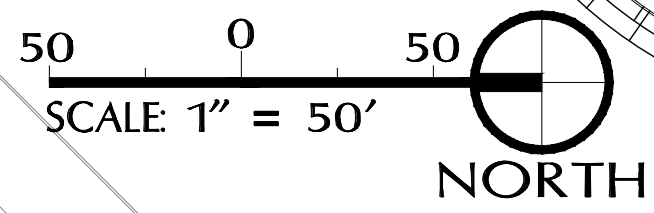
A PORTION OF THE NE 1/4 & THE SE 1/4 OF THE SW 1/4 OF SECTION 18, TOWNSHIP 35 NORTH, RANGE 5 E., W.M., COUNTY OF SKAGIT, STATE OF WASHINGTON

OWNERS  
**BRICKYARD PARK, LLC**

DATE: 02.14.20 BY: MJS SCALE: AS NOTED  
PROJECT NO. 19066 FILE: 19066PRE.dwg

39 TOTAL  
ON-STREET PARKING  
STALLS PROVIDED

**Exhibit U**  
to Hearing  
Examiner Staff  
Report  
- Parking Plan



**Sound Development Group**  
ENGINEERING, SURVEYING & LAND  
DEVELOPMENT SERVICES  
P.O. Box 17061111 Cleveland Avenue, Suite 202  
Mount Vernon, WA 98273  
Tel: 360-404-2010 Fax: 360-404-2013

**SHEET DESCRIPTION**  
**STREET PARKING EXHIBIT**

**SCALE** 1" = 50'  
**DRAWN BY:** PLA  
**JOB NUMBER:** 19066  
**DATE:** 02/14/20

**PROJECT**  
**BIRCKYARD PARK**  
FOR  
**BIRICKYARD PARK, LLC**

**DRAWING NAME**  
19066ENG.dwg  
**SHEET**  
**ATTACHMENT**

## **Exhibit V**

To Hearing Examiner Findings

# **The Park at Brickyard Creek For BYK Construction Preliminary Stormwater Site Plan**

**City of Sedro-Woolley, WA**

**October 18, 2019**

**Prepared By:**

**Sound Development Group, L.L.C.  
P.O. Box 1705  
Mount Vernon, WA 98273  
Phone: (360) 404-2010  
Fax: (360) 404-2013  
Email: office@sdg-llc.com**

**Project No.: 19066**

**I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WASHINGTON. I FURTHER CERTIFY THAT THIS REPORT AND ITS INFORMATION, DESIGN AND CALCULATIONS, COMPLY WITH AND MEET THE INTENT OF THE 2014 STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON (2014 SWM) AND THE REQUIREMENTS OF THE CITY OF SEDRO-WOOLLEY.**

**DATE:** \_\_\_\_\_





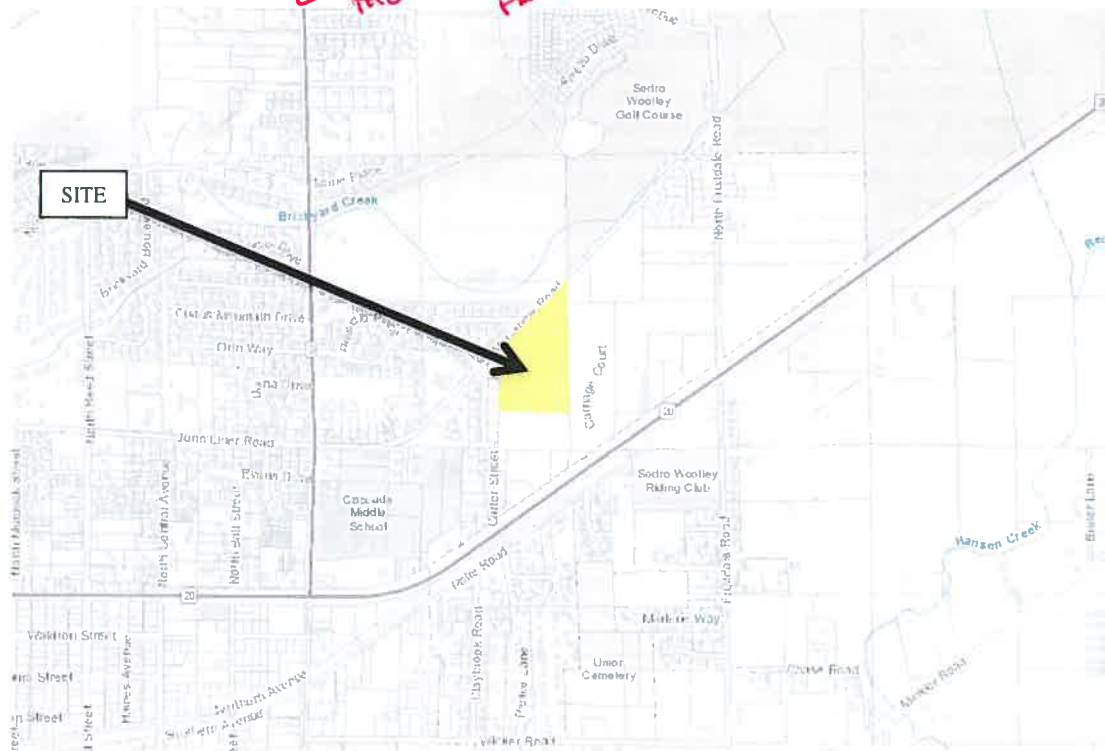
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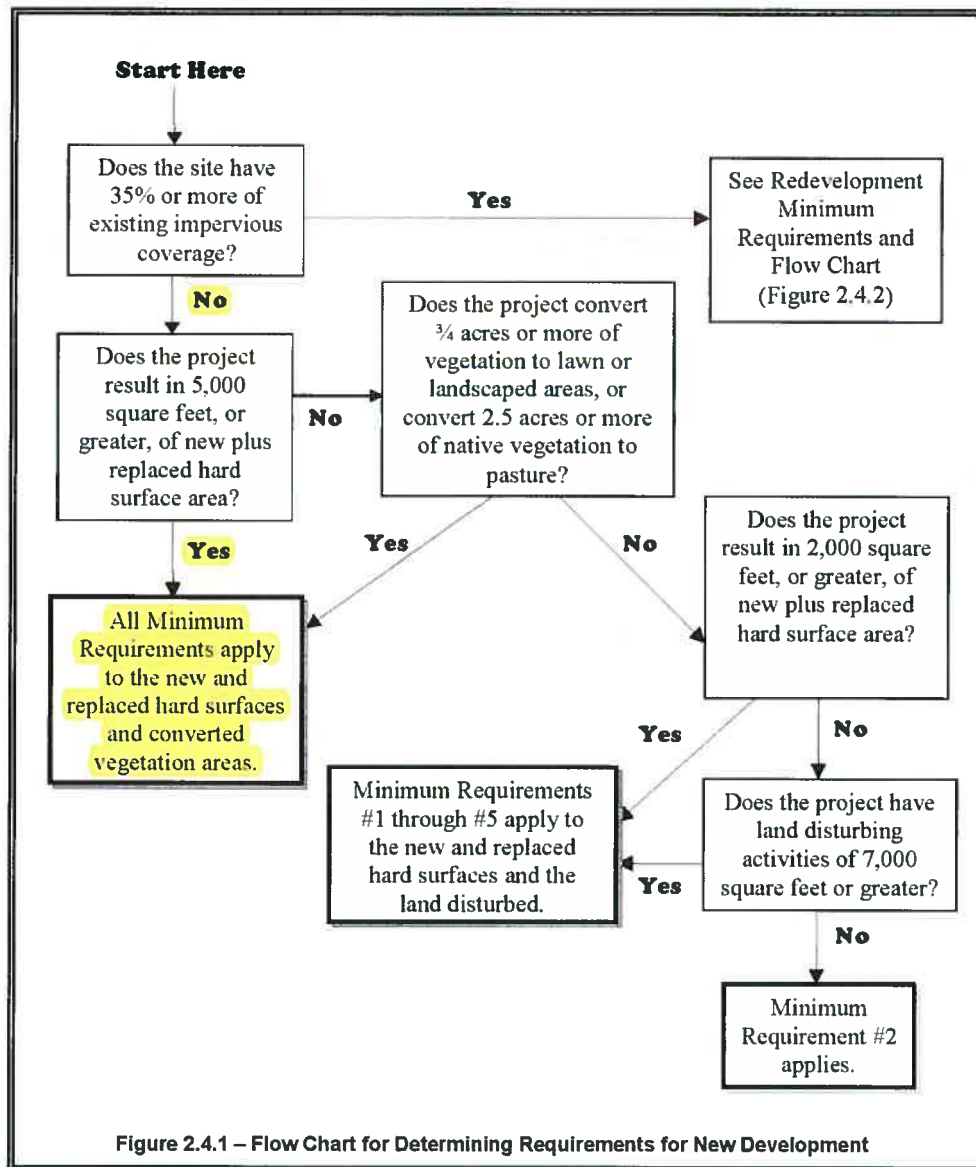
## Executive Summary:

This stormwater site plan report examines stormwater runoff for the proposed McGarigle 85-lot plat project, in the SW quarter of Section 18, Township 35 North, Range 5 East, City of Sedro-Woolley, Skagit County, Washington. The site is located immediately south of the north intersection of Independence Boulevard and McGarigle Road. The 12.66-acre site is bordered by single-family residences to the north, west and east, and an existing storage facility to the south. McGarigle road borders the north property line of the site. See **Attachment 1- Vicinity Map**.



The proposed development will include 85 new residential lots, a clubhouse building, all associated concrete walks, outdoor eating, asphalt drives, permeable and impermeable asphalt drive lanes/parking areas and park areas/landscaping requirements. All proposed utilities will be installed underground, including an underground infiltration facility.

The site development will result in 5,000 square feet or more of new/replaced hard surface area; the site must comply with Minimum Requirements 1-9, see below and Minimum Requirements Section.



The sanitary sewer will be connected to the existing Sedro-Woolley sewer system in McGarigle Road. The proposed water system will be connected to the existing Skagit PUD #1 water main in McGarigle Road.

The Civil Construction Plans and Stormwater Site plan, have been prepared to meet the 2014 SWM **M** "Stormwater Site Plan" requirements.

### **Calculation Methodology**

This project was designed utilizing the 2014 DOE SWMM, the 2012 LID manual and WWHM2012. The developed stormwater model was created based on the recommended design methodology within the 2012 LID manual.

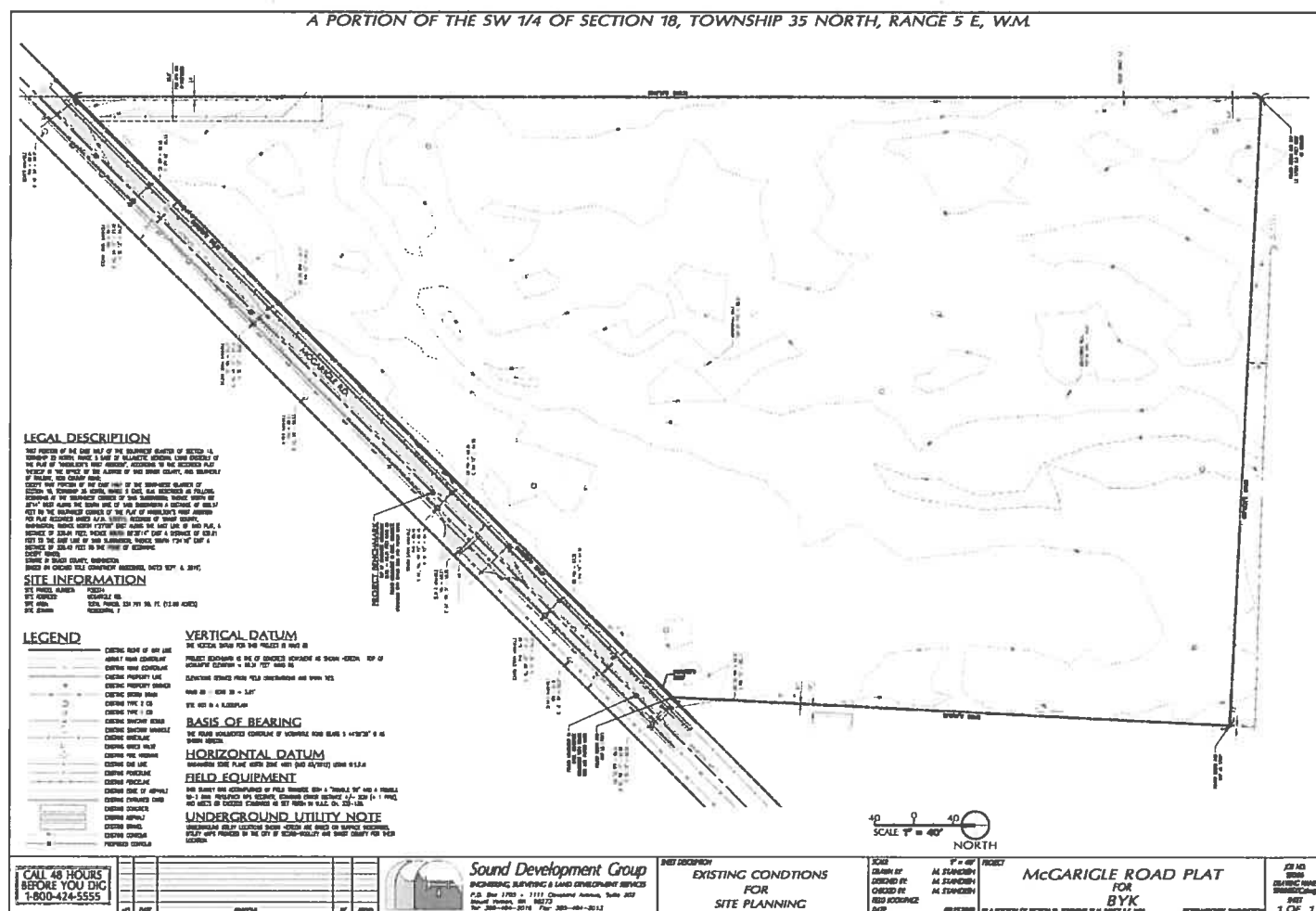
The 12.66 acre site, is currently vacant, residential zoned R-7 property with rolling slopes ranging from <1% to 4% +/-, see **Attachment 2**. Existing ground cover onsite includes native scrub brush, grasses and deciduous trees.

There is one Threshold Development Area considered onsite:

- the proposed project area TDA1 includes all areas to be impacted by the development and captured by the proposed stormwater collection system.

Table 1 summarizes the existing cover and soil conditions onsite.

Table 1 – Existing Soil and Ground Cover Types			
Development Basin (TDA 1)			
Type	Area (acres)	Cover Type	Soil Hydrologic Group
<b>Total Onsite Basin Evaluated</b>	<b>12.66</b>	<b>12.66 Existing Vegetation</b>	<b>B</b>





## Soils Information

Soils on site are classified as a Nargar Loam, with a hydrologic group of "B", per the Web Soil Survey of Skagit County by the Natural Resources Conservation Service. See **Attachment 5-Soils Information**.



Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
34	Cokedale silt loam	B/D	0.8	1.4%
100	Nargar loam, 0 to 8 percent slopes	B	52.5	94.0%
152	Urban land-Mt. Vernon-Field complex		2.5	4.5%
Totals for Area of Interest			55.8	100.0%

The soils investigation by Materials Testing & Consulting, Inc can be found in Attachment 6. In general, they determined the water table to be approximately 8.5-9' below the ground surface. Their recommended infiltration rate of 10 in/hour within the coarse grained layers, and 1.5 inches per hour within the sandy silt were determined utilizing the Simplified Approach, and not applicable to this project.

See MR #7 for the 2014 SWMM Detailed Approach for determining the onsite infiltration rates.

<b>Table 2 – Site Characterization Criteria</b>			
Type	Applicable/Completed	Non-Applicable	Comments
<b>Surface Features</b>			
Topography – 500 feet	x		Overall topography was identified/explored. Nothing recognized as impeding the project proposed use, drainage, or infiltration of stormwater.
Site Use	x		Site Use is anticipated to be a residential.
Water Well Supply – 500 feet	x		There are no water wells within approximately 500'.
Groundwater Protection Areas	x		There is no known groundwater protection area near the site, two historical dewatering wells were located more than 500' from the proposed development.
Description of Local Site Geology	x		See Geotechnical Report
<b>Subsurface Characterization</b>			
<b>Subsurface Explorations</b>	<b>x</b>		<b>14 total Exploration pits completed. See geotechnical report.</b>
Proposed infiltration rate	x		Soil Grain Analysis Proposed, 14 test pits provided, Detailed Approach utilized, <b>2.398 in/hr</b>
Detailed Logs of soil test pits	x		See Geotechnical report.
Groundwater monitoring		X	Historical groundwater, as noted in geotechnical report is expected to be below 8.5-9' BGS.
Soils testing @ 2.5 times facility depth of 10.	x		Soils testing was completed in proposed infiltration layer, to a depth of 5-6', 3-4 to the approximate water table.
<b>Soils Testing (See Geotechnical report)</b>			
Grain Size Distribution	x		Completed at or below expected facility depth.
Visual Grain Size classification	x		Completed in each test pit.
Percent Clay content	x		Completed for each sample at or below expected facility depth.
Color / Mottling	x		Completed in each test pit.

Variations and nature of stratification	x		Completed in each test pit.
CEC	x		Four tests provided, none met the required 5.0, the geotech will need to verify soils CEC and/or treatment capability, or soils will be required to be amended, per plan.
<b>Infiltration Receptor</b>			
Groundwater monitoring		X	Historical groundwater is 8.5-9' deep, as noted in geotechnical report.
Ambient Groundwater quality		X	No issues known
Volumetric water holding capacity	x		Per SCS available water storage is high, with capacity of the most limiting layer to transmit water (Ksat) ranging from moderately high to high.
Depth to groundwater	X		More than 80" per SCS and 8.5-9' per geotechnical report
Seasonal variation of groundwater	x		See above and geotechnical report.
Existing ground water flow direction and gradient.	x		Gradient not determined, flow direction is south, toward the nearby Skagit River.
Lateral Extent of infiltration receptor		X	Not completed, see geotechnical report and memos for additional information.
Horizontal hydraulic conductivity	x		Similar soils across the site, horizontal approx. equivalent to vertical.
Impact of the infiltration rate and volume on existing soils		x	Geotechnical Engineer did not complete a mounding study.



### **Developed Conditions Summary:**

The proposed development will create 85 residential lots with all associated concrete walks, asphalt drives, and landscaping requirements. All proposed utilities will be installed underground, including stormwater collection gravel trench beds and permeable pavements.

The site development will result in 5,000 square feet or more of new hard surface area; the site must comply with Minimum Requirements 1-9, see Figure 2.4.2 within Executive Summary Section. See the 2014 SWM excerpt, and Attachment 4.

The stormwater runoff from the proposed looped roadway, as well as approximately 72 driveways, will be captured and conveyed to a new underground infiltration trench within the center park area. Stormwater runoff from the three shared access roads, and 13 associated driveways, will be captured through those permeable pavement access roads. The proposed rooftops will discharge to new infiltration trenches, per BMP T5.10.

No tree retention or planting credit has been claimed at this time, for which impervious reduction credits are given through tree retention or planting, though onsite trees will be planted.

No discharge is proposed offsite, from this development.

Three basins were evaluated onsite; Basin 1 encompasses the main loop road and associated driveways and center park area, Basin 2 the proposed landscape area that will flow to the Basin 1 gravel trench bed, and Basin 3 evaluates the proposed permeable pavement access roads and associated driveways and landscaping expected to be captured by the permeable pavement.

Basin 4 will not be evaluated, it includes the proposed rooftops of the 85 lots, and the associated lot landscaping. Each lot will provide full infiltration onsite.

**Table 3 – Developed Ground Cover Types**

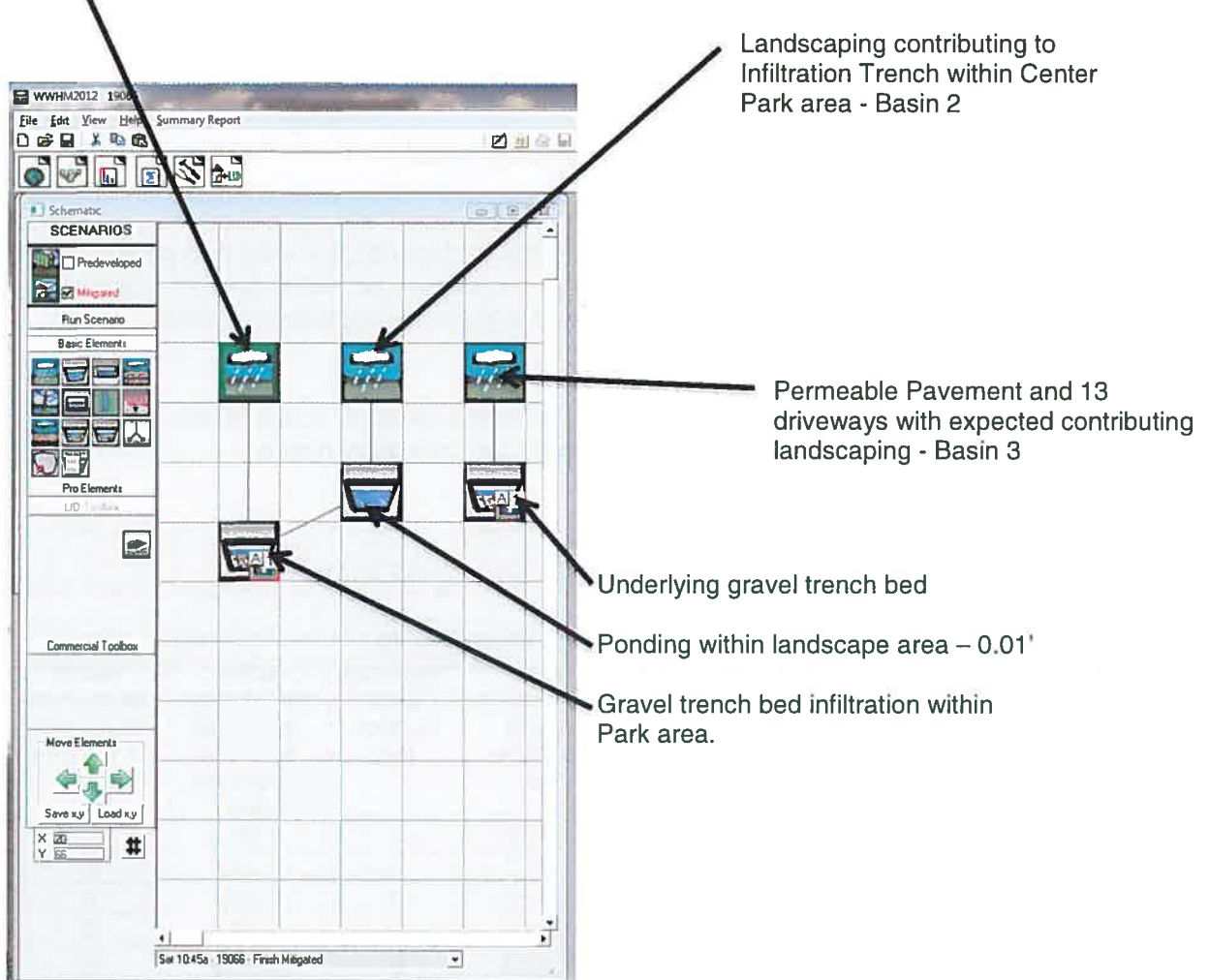
Onsite Basins (TDA 1)							
Basin	Area of Basin (acres)	PreDevelopment HS (Hard Surface) (75% per design) (ac)	New Impervious (Hard) Surface (ac)	Replaced Hard Surface (ac)	Native Vegetation converted to Lawn/ Landscape (ac)	Native Vegetation Converted to Pasture	Total Area of Disturbance (acres)
1	3.127	0	3.127	0	0	0	3.127
2	1.239	0	0	0	1.239	0	1.239
3	0.790	0	0.383	0	0.407	0	0.790
4	7.511	0	5.854	0	1.657	0	7.511
<b>Total Onsite Sub-Basins Evaluated</b>	<b>12.667</b>	<b>0</b>	<b>9.364</b>	<b>0</b>	<b>3.303</b>	<b>0</b>	<b>12.667</b>

## WWHM2012 Developed Basins and Descriptions:

The development TDA was divided into three separate Basins:

- The proposed looped road that provides access to the individual lots, as well as 72 of the proposed driveways that will flow towards the roadway. (Basin 1/ Gravel Trench Bed 1).
- The proposed landscaped areas (park area) that will flow towards and possibly contribute to the large infiltration trench (Basin 2/ Pond 1).
- The permeable pavement access roads as well as 13 driveways that will flow towards the access roads (Basin 3/Gravel Trench Bed 2).

Loop Road and 72 Driveways –  
Basin 1



**Basin 1** : The proposed basin includes 72 driveways, as well as the main loop road that serves the plat. The water will be collected from the roadway at five different locations, and discharged to the underground trench bed. The gravel trench bed has been sized to infiltrate fully, the storm events that flow to it.

**Basin 1 Mitigated**

Subbasin Name:  Designate as Bypass for POC ☐

Flows To: Surface  Inflow  Groundwater

Area in Basin ☒ Show Only Selected

Available Pervious	Acres	Available Impervious	Acres
<input checked="" type="checkbox"/> A/S Pasture Flat	0	<input checked="" type="checkbox"/> ROADS/FLAT	2.135
		<input checked="" type="checkbox"/> DRIVEWAYS/FLAT	352

Pervious Total:  Acres

Impervious Total:  Acres

Basin Total:  Acres

Precipitation Gage:  PREC | Burlington

**Gravel Trench Bed 1 Mitigated**

Facility Name:

Outlet 1:  Outlet 2:  Outlet 3:

Downstream Connection:

Facility Type:

☐ Precipitation Applied to Facility

☐ Evaporation Applied to Facility

**Facility Dimensions**

Trench Length (ft)	1100
Trench Bottom Width (ft)	11
Effective Total Depth (ft)	4
Top and bottom slope (ft/ft)	0.0001
Left Side Slope (ft/ft)	0.0001
Right Side Slope (ft/ft)	0.0001

**Outlet Structure Data**

Riser Height (ft)	Riser Diameter (in)	Riser Type	Notch Type
3.98	12	Flat	

**Material Layers for Trench/Bed**

Layer	Thickness (ft)	porosity (0-1)
Layer 1	4	0.35
Layer 2	0	0
Layer 3	0	0

**Infiltration** ☒ Yes

Measured Infiltration Rate (in/hr)	2.398
Reduction Factor (infiltrator)	1
Use Wetted Surface Area (sidewalls)	NO
Total Volume Infiltrated (ac-ft)	421.657
Total Volume Through Riser (ac-ft)	0

**Orifice**

Number	Diameter (in)	Height (ft)
1	0	0
2	0	0
3	0	0

Trench Volume at Riser Head (ac-ft): 399

Initial Stage (ft):

Total Volume Through Facility (ac-ft): 421.657

Percent Infiltrated: 100

Target %:

**Basin 2:** The proposed basin includes the landscaped and vegetated area that will flow to the main gravel trench bed within Basin 1. The Pond 1 reflects the total landscape area, with a ponding depth of 0.01' (0.12"). All stormwater is infiltrated before reaching the overflow.

Basin 2 Mitigated

Subbasin Name:  ☐ Designate as Bypass for POC

Flows To:

Area in Basin ☒ Show Only Selected

Available Pervious Acres

Available Impervious Acres

Pervious Total  Acres

Impervious Total  Acres

Basin Total  Acres

Precipitation Gage

Trapezoidal Pond 1 Mitigated

Facility Name:  Facility Type:

Outlet 1:  Outlet 2:  Outlet 3:

Downstream Connections:

☐ Precipitation Applied to Facility

☐ Evaporation Applied to Facility

Facility Dimensions

Facility Bottom Elevation (ft)

Bottom Length (ft)

Bottom Width (ft)

Effective Depth (ft)

Left Side Slope (H/V)

Bottom Side Slope (H/V)

Right Side Slope (H/V)

Top Side Slope (H/V)

Infiltration ☒ Yes ☐ No

Measured Infiltration Rate (in/hr)

Reduction Factor (infiltrator)

Use Wetted Surface Area (sidewalls)

Total Volume Infiltrated (ac-ft)

Total Volume Through Riser (ac-ft)

Total Volume Through Facility (ac-ft)

Percent Infiltrated

Orifice Diameter Height (ft)

Orifice Number	Diameter (in)	Height (ft)
1	<input type="text" value="0"/>	<input type="text" value="0"/>
2	<input type="text" value="0"/>	<input type="text" value="0"/>
3	<input type="text" value="0"/>	<input type="text" value="0"/>

Pond Volume at Riser Head (ac-ft)

Show Pond Table

Initial

Size Infiltration Pond

Target %:

Tide Gate ☐ Time Series ☐ Demand ☐

Determine Outlet With Tide Gate

☐ Use Tide Gate

Tide Gate Elevation (ft)  Downstream Connection

Overflow Elevation (ft)  Iterations

**Basin 3:** The proposed basin includes the permeable pavement, 13 driveways and approximate contributing landscape areas. The Gravel Trench Bed 2 reflects all stormwater being infiltrated before reaching the overflow. The lower infiltration rate, provided by the MTC, was utilized for this infiltration basin, for ease of calculations.

perm pave Mitigated

Subbasin Name:  Designate as Bypass for POC: ☐

Flows To: Surface  Interflow  Groundwater

Area in Basin ☒ Show Only Selected

Available Pervious	Acres	Available Impervious	Acres
<input checked="" type="checkbox"/> A/B, Pasture, Flat	407	<input checked="" type="checkbox"/> ROADS/FLAT	204
		<input checked="" type="checkbox"/> DRIVEWAYS/FLAT	179

Pervious Total:  Acres  
 Impervious Total:  Acres  
 Basin Total:  Acres

Precipitation Gage:  2 PREC | Burlington

Gravel Trench Bed 2 Mitigated

Facility Name:

Outlet 1:  Outlet 2:  Outlet 3:

Downstream Connection:

Facility Type:

☐ Precipitation Applied to Facility  
☐ Evaporation Applied to Facility

**Facility Dimensions**

Trench Length (ft):  887.3  
 Trench Bottom Width (ft):  10  
 Effective Total Depth (ft):  1  
 Top and bottom slope (H/V):  0.0001  
 Left Side Slope (H/V):  0.0001  
 Right Side Slope (H/V):  0.0001

**Material Layers for Trench/Bed**

Layer	Thickness (ft)	porosity (0-1)
Layer 1	<input type="text"/> 1	<input type="text"/> 0.35
Layer 2	<input type="text"/> 0	<input type="text"/> 0
Layer 3	<input type="text"/> 0	<input type="text"/> 0

**Outlet Structure Data**

Orifice Number	Diameter (in)	Height (ft)
1	<input type="text"/> 0	<input type="text"/> 0
2	<input type="text"/> 0	<input type="text"/> 0
3	<input type="text"/> 0	<input type="text"/> 0

Trench Volume at Riser Head (ac-ft):  068

**Infiltration** ☒ Yes

Measured Infiltration Rate (in/hr):  2.398  
 Reduction Factor (infiltration factor):  1  
 Use Wetted Surface Area (sidewalls):  NO

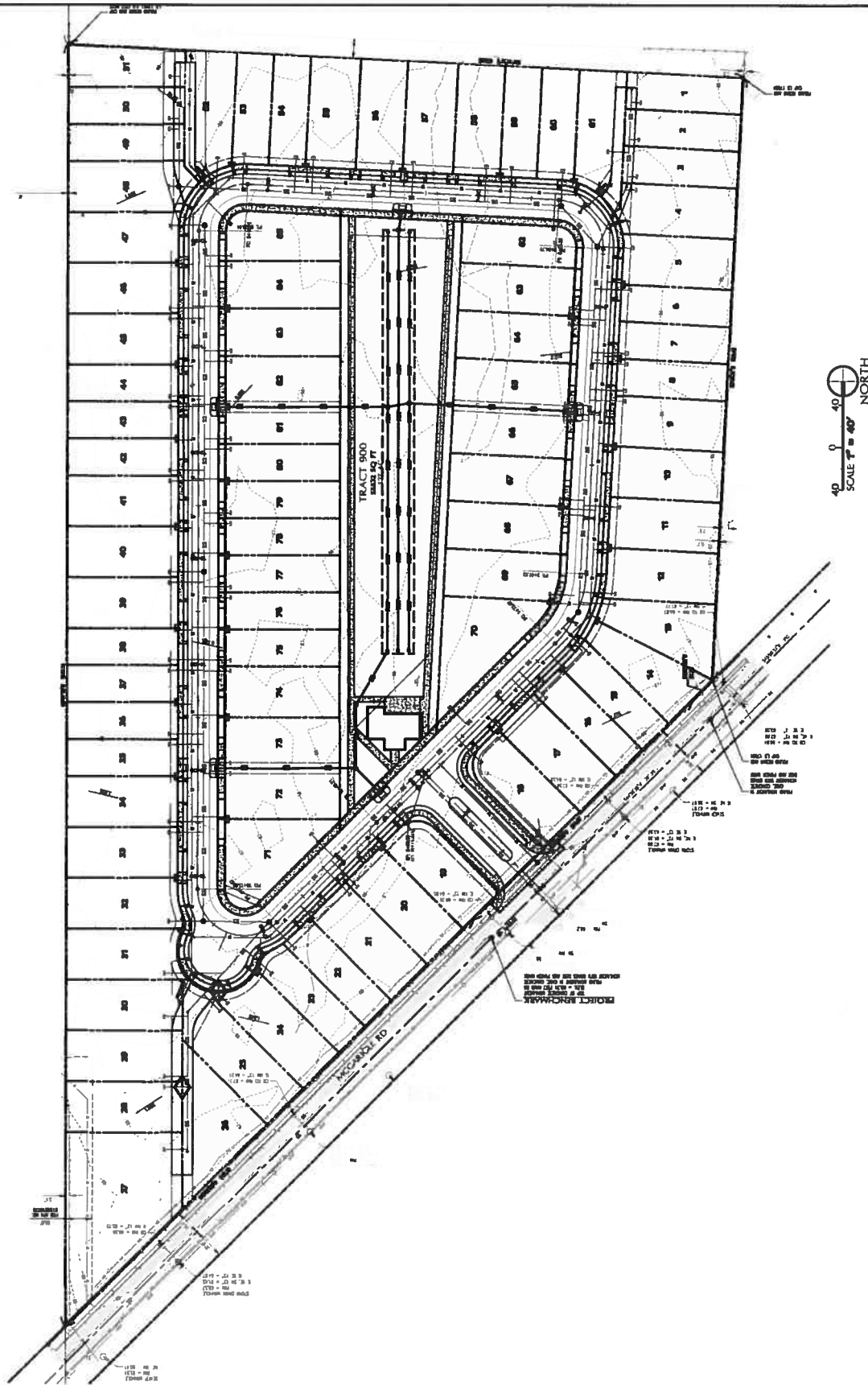
Total Volume Infiltrated (ac-ft):  51.36  
 Total Volume Through Riser (ac-ft):  0

Target %:  100

Show Trench:

Initial Stage (ft):  0  
 Total Volume Through Facility (ac-ft):  51.36  
 Percent Infiltrated:  100

A PORTION OF THE SW 1/4 OF SECTION 18, TOWNSHIP 35 NORTH, RANGE 5 E, WM.



40' 0 40' NORTH  
SCALE 1" = 40'

<p>CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555</p>		<p><b>Sound Development Group</b> INCORPORATING SURVEYING &amp; LAND DEVELOPMENT SERVICES P.O. Box 1700 • 1111 Cleveland Avenue, Suite 207 Fargo, ND 58103-0700 Tel: 701-785-2010 Fax: 701-785-2013</p>	<p><b>McGARICLE ROAD PLAT</b> FOR BYK</p>	<p>2014 DRAWN BY CHECKED BY DATE</p>	<p>2014 PROJECT AS EXISTING AS EXISTING AS EXISTING DATE</p>	<p>2014 DRAWN BY CHECKED BY DATE</p>	<p>2014 PROJECT AS EXISTING AS EXISTING AS EXISTING DATE</p>
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## **Minimum Requirement Summary**

<b>Minimum Requirement Summary Large Parcel New Development</b>					
<b>#</b>	<b>Description</b>	<b>Not Applicable</b>	<b>Variance Req'd</b>	<b>Standard Requirements Incorporated</b>	<b>Comments (Report Section Reference or BMP Identifier)</b>
1	Preparation of Stormwater Site Plans			Yes	Provided by this entire document.
2	Construction Stormwater Pollution Prevention Plan			Yes	See Minimum Requirement #2 section.
3	Source Control of Pollution			Yes	See Minimum Requirement #3 section.
4	Preservation of Natural Drainage Systems and Outfall			Yes	See Minimum Requirement #4 section.
5	On-Site Stormwater Management			Yes	See Minimum Requirement #5 section.
6	Runoff Treatment			Yes	See Minimum Requirement #6 section.
7	Flow Control			Yes	See Minimum Requirement #7 section.
8	Wetlands Protection	X		No	See Minimum Requirement #8 section.
9	Operation and Maintenance			Yes	See Minimum Requirement #9 section.
Additional Comments: See notes in following sections.					

### **Minimum Requirement #1 – Stormwater Site Plan**

The proposed project will result in greater than 5,000 square feet of new plus replaced impervious surface area, exceeding the thresholds in Section 2.4 of the 2014 SWM, resulting in the requirement of a Stormwater Site Plan (SSP). The Civil Construction Plans and Stormwater Site plan prepared for the McGarigle Plat, have been prepared to meet the Stormwater Site Plan requirements.

The SSP includes Best Management Practices, stormwater collection and conveyance calculations and design, for the final permanent overall development of the project.

## **Minimum Requirement #2 – Construction Stormwater Pollution Prevention**

The proposed project will result in greater than 2,000 square feet of new plus replaced impervious surface area, will disturb greater than 7,000 square feet, and is required to provide a Construction Stormwater Pollution Prevention Plan (SWPPP), per Section 2.5.2 of the 2014 SWM. The Civil Construction Plans, the Notice of Intent to discharge construction stormwater, and the SWPPP provided in conjunction with the DOE NOI to discharge stormwater under the Construction Stormwater General Permit have been prepared to meet these requirements.

There are thirteen (13) minimum requirements for stormwater management during construction. These thirteen items will be addressed both in the Civil Construction Plans, Construction Stormwater Pollution Prevention, Elements 1-13 below, and within the bound SWPPP document maintained by the CESCL onsite, during construction.

The SWPPP prepared in conjunction with the NOI, will provide all necessary narratives, Best Management Practices, reporting and testing requirements, as well as the prepared drainage report and calculations, and construction plans for onsite review/modification.

The Civil Construction plans will be prepared with an Erosion and Sediment control plan. Best Management Practices, as defined by the 2014 SWM, will be denoted/designed to capture and prevent the movement of silt and dust, as well as reducing erosion.

The project will meet the required testing and reporting for turbidity for all stormwater discharged offsite.

All areas that will support proposed LID development onsite, will be noted on the SWPPP and shown with appropriate protection during construction. Construction limits fencing, or other notable demarcation will be provided to those areas to prevent compaction of installed subgrade.

A CESCL will maintain, modify and update the SWPPP documents as site construction progresses, and will maintain those records onsite for review.

A copy of the construction SWPPP that will complement the discharge of stormwater under the NPDES (Permit #WAR\_\_\_\_\_) can be requested.

## **Construction Stormwater Pollution Prevention, Elements 1-13**

### **Element #1 – Mark Clearing Limits**

To protect adjacent properties and to reduce the area of soil exposed to construction, the limits of construction will be clearly marked before land-disturbing activities begin. Trees that are to be preserved, as well as all sensitive areas and their buffers, shall be clearly delineated, both in the field and on the plans. In general, natural vegetation and native topsoil shall be retained in an undisturbed state to the maximum extent possible, as long as possible. The BMPs relevant to marking the clearing limits that will be applied for this project may include:

- Preserving Natural Vegetation (BMP C101)

Vegetation bounding the roadway will be retained in phases. These areas are within the existing property, and are well vegetated with grasses, brush and trees.

- High Visibility Plastic or Metal Fence (BMP C103)

Vegetation to be retained, steep slopes to be protected and clearing limits will be marked with the orange construction fence, or silt fence, (BMP C233) may be used to replace BMP103.

Proposed BMPs are included the Stormwater Site Plan (SSP) as a quick reference tool for onsite inspection in the event the BMP(s) listed above are deemed ineffective or inappropriate during construction to satisfy the requirements. To avoid potential erosion and sediment control issues, the inspector will promptly initiate the implementation of one or more of the alternative BMPs after the first sign that existing BMPs are ineffective or failing.

### **Element #2 – Establish Construction Access**

Construction access or activities occurring on unpaved areas shall be minimized, yet where necessary, access points shall be stabilized to minimize the tracking of sediment onto public roads, and wheel washing, street sweeping, and street cleaning shall be employed to prevent sediment from entering state waters. All wash wastewater shall be controlled on site. The specific BMPs related to establishing construction access that may be used on this project include:

- Stabilized Construction Entrance (BMP C105)

One stabilized construction entrance will be installed at the access point.

- Construction Road/Parking Area Stabilization (BMP C107)

Early gravel base will be installed to provide temporary parking / construction road access in any area that requires clearing.

To avoid potential erosion and sediment control issues, the inspector will promptly initiate the implementation of one or more of the alternative BMPs after the first sign that existing BMPs are ineffective or failing.

### **Element #3 – Control Flow Rates**

The site has a large amount of existing native vegetation that will remain in place during construction. The majority of construction will happen during the dry season, when flow rates are not expected to need controlling. Upon wet season arrival, the flow rates may need to be revisited, depending on the amount of water that infiltrates on site prior to flowing to the existing wetland.

Flow control is not expected to be required. A temporary sediment pond will be sized, if required.

#### **Element #4 – Install Sediment Controls**

All stormwater runoff from disturbed areas shall pass through an appropriate sediment removal BMP before leaving the construction site or prior to being discharged to an infiltration facility. The specific required and potential BMPs to be used for controlling sediment on this project may include:

- Silt Fence (BMP C233)

Silt fencing may be installed onsite where the existing grade might allow sediment laden runoff to leave the site untreated. This is unexpected.

- Straw Wattles (BMP C235)

Straw wattles may be utilized to minimize sediment transport where sheet flow occurs.

- Vegetated Strip (BMP C234)

Where feasible, vegetation shall be retained as an additional filter for sheet flow.

- Materials on Hand (BMP C150) may also be applicable

In addition, sediment will be removed from hard areas in and adjacent to construction work areas manually or using mechanical sweepers, as needed, to minimize tracking of sediments on vehicle tires away from the site and to minimize wash-off of sediments from adjacent streets in runoff.

Whenever possible, sediment laden water shall be discharged into onsite, relatively level, vegetated areas (BMP C240 paragraph 5, page 4-101 of the 2014 SWM).

#### **Element #5 – Stabilize Soils**

Exposed and unworked soils shall be stabilized with the application of effective BMPs to prevent erosion throughout the life of the project. The specific required and potential BMPs for soil stabilization that shall be used on this project include:

- Temporary and Permanent Seeding (BMP C120)

Temporary and permanent seeding shall occur where feasible on site, and shall be utilized as a temporary protective measure when the soil is to be unworked as defined in the manual.

- Mulching (BMP C121)

Mulching shall occur in unison with temporary or permanent seeding, and can also be utilized to stabilize areas to be unworked as prescribed in the manual.

- Plastic Covering (BMP C123)

Stockpiles shall be covered with plastic or temporary seeding as soon as possible.

- Surface Roughening (BMP C130)

Any surface to be left unworked over the weekend, or as prescribed in the manual, shall be roughened.

- Dust Control (BMP C140)

During warm weather, water shall be applied to the unworked areas to prevent sediment movement through the air.

- Early application of gravel base on areas to be paved

Early gravel base will be installed to provide temporary parking / construction road access.

- Materials on Hand (BMP C150) may also be applicable.

### **Element #6 – Protect Slopes**

All cut and fill slopes will be designed, constructed, and protected in a manner than minimizes erosion. The following required and potential specific BMPs for protecting slopes on this project include:

- Temporary and Permanent Seeding (BMP C120)

Temporary and permanent seeding shall occur where feasible on site, and shall be utilized as a temporary protective measure when the soil is to be unworked as defined in the manual.

- Mulching (BMP C121)

Mulching shall occur in unison with temporary or permanent seeding, and can also be utilized to stabilize areas to be unworked as prescribed in the manual.

### **Element #7 – Protect Drain Inlets**

All storm drain inlets and culverts made operable during construction shall be protected to prevent unfiltered or untreated water from entering the drainage conveyance system. However, the first priority is to keep all access roads clean of sediment and keep street wash water separate from entering storm drains until treatment can be provided. Storm Drain Inlet Protection (BMP C220) will be implemented for all existing and new drainage inlets and culverts that could potentially be impacted by sediment-laden runoff on and near the project site.

### **Element #8 – Stabilize Channels and Outlets**

Where site runoff is to be conveyed in channels, or discharged to a stream or some other natural drainage point, efforts will be taken to prevent downstream erosion. The specific BMPs for channel and outlet stabilization that shall be used on this project include:

- Temporary and Permanent Seeding (BMP C120)

Temporary and permanent seeding shall occur where feasible on site, and shall be utilized as a temporary protective measure when the soil is to be unworked as defined in the manual.

### **Element #9 – Control Pollutants**

All pollutants, including waste materials and demolition debris, that occur onsite shall be handled and disposed of in a manner that does not cause contamination of stormwater. Good housekeeping and preventative measures will be taken to ensure that the site will be kept clean, well organized, and free of debris. If required, BMPs to be implemented to control specific sources of pollutants are discussed below.

Vehicles, construction equipment, and/or petroleum product storage/dispensing:

- ☐ All vehicles, equipment, and petroleum product storage/dispensing areas will be inspected regularly to detect any leaks or spills, and to identify maintenance needs to prevent leaks or spills.
- ☐ On-site fueling tanks and petroleum product storage containers shall include secondary containment.
- ☐ Spill prevention measures, such as drip pans, will be used when conducting maintenance and repair of vehicles or equipment.
- ☐ In order to perform emergency repairs on site, temporary plastic will be placed beneath and, if raining, over the vehicle.
- ☐ Contaminated surfaces shall be cleaned immediately following any discharge or spill incident.

Demolition:

- ☐ Dust released from demolished sidewalks, buildings, or structures will be controlled using Dust Control measures (BMP C140).
- ☐ Storm drain inlets vulnerable to stormwater discharge carrying dust, soil, or debris will be protected using Storm Drain Inlet Protection (BMP C220 as described above for Element 7).
- ☐ Process water and slurry resulting from sawcutting and surfacing operations will be prevented from entering the waters of the State by implementing Sawcutting and Surfacing Pollution Prevention measures (BMP C152).

Concrete and grout:

- ☐ Process water and slurry resulting from concrete work will be prevented from entering the waters of the State by implementing Concrete Handling measures (BMP C151).

Sanitary wastewater:

- ☐ Portable sanitation facilities will be firmly secured, regularly maintained, and emptied when necessary.
- ☐ Wheel wash or tire bath wastewater shall be discharged to a separate on-site treatment system or to the sanitary sewer as part of Wheel Wash implementation (BMP C106).

**Solid Waste:**

- ☐ Solid waste will be stored in secure, clearly marked containers.

**Other:**

- ☐ Other BMPs will be administered as necessary to address any additional pollutant sources on site.

The facility does not require a Spill Prevention, Control, and Countermeasure (SPCC) Plan under the Federal regulations of the Clean Water Act (CWA).

**Element #10 – Control Dewatering**

All dewatering water from open cut excavation, tunneling, foundation work, trench, or underground vaults shall be discharged into a controlled conveyance system prior to discharge to a sediment trap or sediment pond.

No dewatering is expected.

**Element #11 – Maintain BMPs**

All temporary and permanent erosion and sediment control BMPs shall be maintained and repaired as needed to assure continued performance of their intended function. Maintenance and repair shall be conducted in accordance with each particular BMP's specifications. Visual monitoring of the BMPs will be conducted at least once every calendar week and within 24 hours of any rainfall event that causes a discharge from the site. If the site becomes inactive, and is temporarily stabilized, the inspection frequency will be reduced to once every month.

All temporary erosion and sediment control BMPs shall be removed within 30 days after the final site stabilization is achieved or after the temporary BMPs are no longer needed. Trapped sediment shall be removed or stabilized on site. Disturbed soil resulting from removal of BMPs or vegetation shall be permanently stabilized.

**Element #12 – Manage the Project**

Erosion and sediment control BMPs for this project have been designed based on the following principles:

- ☐ Design the project to fit the existing topography, soils, and drainage patterns.
- ☐ Emphasize erosion control rather than sediment control.
- ☐ Minimize the extent and duration of the area exposed.
- ☐ Keep runoff velocities low.
- ☐ Retain sediment on site.
- ☐ Thoroughly monitor site and maintain all ESC measures.
- ☐ Schedule major earthwork during the dry season.

### **Element #13 – Protect Low Impact Development BMP's**

All areas to be utilized for Low Impact Development, specifically infiltration areas and pervious asphalt, shall be protected from overcompaction, sediment contamination, or other type of pollutions that may harm the ability of the BMP to function properly in the future. The specific BMPs for LID protection that shall be used on this project include area protection, minimizing of disturbance and minimizing heave equipment and vibratory equipment on the proposed LID areas.

### **Minimum Requirement #3 – Source Control of Pollution**

The proposed McGarigle Plat project will not pose any non-typical source of pollution for a single-family project. The site is not considered a high-use site, no oil control is required. The site is served by public sanitary sewer; there is no possible septic or drainfield contamination. All waste will be disposed of in the waste containers.

BMP's will be included in the Maintenance Manual, including those for Landscaping and Lawn/Vegetation Management (S411 BMP), Maintenance of Stormwater Drainage and Treatment Systems (S417 BMP), Roof / Building Drains at Manufacturing and Commercial Buildings (S424 BMP), and Spills of Oil and Hazardous Substances (S426 BMP).

### **Minimum Requirement #4 – Preservation of Natural Drainage Systems and Outfalls**

The proposed McGarigle Plat project will discharge it's storm water runoff through infiltration into native soils. Historically the water sheet flows across the site and infiltrates; there appears to be no outlet or conveyance path on site.

### **Minimum Requirement #5 – On-Site Stormwater Management**

The proposed McGarigle Plat triggers minimum requirements 1-9; the site meets the LID performance standard, and the required BMP T5.13, Post Construction Soil Quality and Depth. Lid performance standard is seen below, and within the WWHM2012 calculations, Attachment 18, page 24.

#### **LID Report**

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Gravel Trench Bed 1 POC	<input type="checkbox"/>	363.74			<input type="checkbox"/>	100.00			
Trapezoidal Pond 1	<input type="checkbox"/>	0.04			<input type="checkbox"/>	100.00			
Gravel Trench Bed 2 POC	<input type="checkbox"/>	46.74			<input type="checkbox"/>	100.00			
Total Volume Infiltrated		430.52	0.00	0.00		100.00	0.00	0%	No Treat Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

### **Minimum Requirement #6 – Runoff Treatment**

The proposed McGarigle Plat project will create more than 5,000 square feet of pollution generating impervious surfaces. The proposed developed site is not considered a high-use site, per the 2014 SWM, Section 2, Volume V.

Stormwater runoff from pollution generating hard surfaces will be conveyed to an underground infiltration facility, both within the park area, and underlying the permeable pavements. The proposed gravel trench bed collecting stormwater from Basin 1 and basin 3, will be underlain with a minimum of 18" of amended soils.

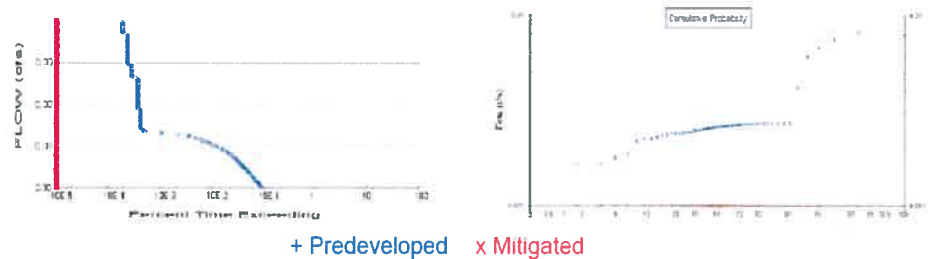
The stormwater runoff from the roof area is not required to be addressed for treatment.

### **Minimum Requirement #7 – Flow Control**

The proposed project creates more than 10,000 square feet of effective impervious surfaces; Flow Control is required onsite.

All stormwater runoff will be infiltrated on site, within the multiple infiltration systems, including underground gravel trench beds, permeable asphalt and downspout infiltration. See WWHM2012 calculations within Attachment 18. The permeable pavement and infiltration trench sections can be found within Attachment 11. Downspout Infiltration excerpt from the 2014 DOE SWMM can be found within Attachment 15. No further detention is proposed.

#### *Analysis Results* *POC 1*



The proposed downspout trenches will be required to meet the length specified within the 2014 DOE SWMM, as follows:

1. The following minimum lengths (linear feet) per 1,000 square feet of roof area based on soil type may be used for sizing downspout infiltration trenches.

Coarse sands and cobbles	20 LF
Medium sand	30 LF
Fine sand, loamy sand	75 LF
Sandy loam	125 LF
Loam	190 LF

USDA Triangle designation calculators can be found within Attachment 7. All test pits and sieve analyses, EXCEPT TP-6, will require 30 LF of trench, per 1000 sf of roof area (Lots 1-18 and 27-85). TP-6 will require 125 LF of trench area per 1000 sf of roof area (Lots 19-26). The geotechnical engineer may provide further onsite evaluation of the specific soils, to reduce the trench length in the vicinity of TP-6.

### **Minimum Requirement #7 – Flow Control**

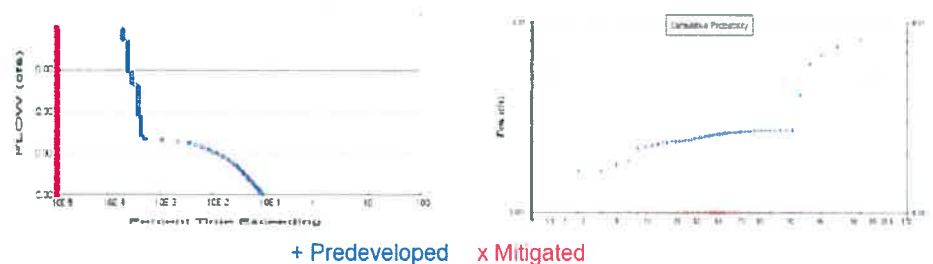
The proposed project creates more than 10,000 square feet of effective impervious surfaces; Flow Control is required onsite.

All stormwater runoff will be infiltrated on site, within the multiple infiltration systems, including underground gravel trench beds, permeable asphalt and downspout infiltration. See WWHM2012 calculations within Attachment 18. The permeable pavement and infiltration trench sections can be found within Attachment 11. Downspout Infiltration excerpt from the 2014 DOE SWMM can be found within Attachment 15.

The infiltration rates for the proposed infiltration trench within the park area, and for the permeable pavement, was determined utilizing the Detailed Approach, as prescribed by the 2014 DOE SWMM Volume 3, Section 3.3.8. The rate, as determined by this approach, is **2.398 in/hr**. The Detailed Approach infiltration rate calculator, can be found in Attachment 19. Due to the consistency of the USDA designations, as can be found in Attachment 7, the safety factor for Site Variation ( $CF_v$ ) utilized was 1, Method of rate determination ( $CF_t$ ) is 0.4, and Influent Control ( $CF_m$ ) is 0.9.

No further detention is proposed.

### ***Analysis Results*** ***POC 1***



The proposed downspout trenches will be required to meet the length specified within the 2014 DOE SWMM, as follows:

1. The following minimum lengths (linear feet) per 1,000 square feet of roof area based on soil type may be used for sizing downspout infiltration trenches.

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Loam	190 LF

USDA Triangle designation calculators can be found within Attachment 7. All test pits and sieve analyses, EXCEPT TP-6, will require 30 LF of trench, per 1000 sf of roof area (Lots 1-18 and 27-85). TP-6 will require 125 LF of trench area per 1000 sf of roof area (Lots 19-26). The geotechnical engineer may provide further onsite evaluation of the specific soils, to reduce the trench length in the vicinity of TP-6.

If drywells will be utilized by any lots, the sizing requirements can be found in Attachment 15.

### **Minimum Requirement #8 – Wetlands Protection**

The development area (TDA#1) currently discharges to a wetland, but will not include disturbance to a wetland area or its buffer. This Minimum Requirement applies only to projects that discharge into a wetland, directly or indirectly. Per Appendix I-D of the 2014 SWM Volume I, the following guidelines must be applied to the project:

**Guide Sheet 1:** The site is not utilizing a wetland for treatment or flow control facilities, this guideline is **not applicable**.

**Guide Sheet 2:** The site is not utilizing a wetland for treatment or flow control facilities, this guideline is **not applicable**.

**Guide Sheet 3:** This guideline provides information and management practices to protect and maintain the integrity of an existing wetland from human impacts (3A) and stormwater flow impacts (3B). **Not applicable**.

**Guide Sheet 4:** This guideline provides information and management practices to jurisdictions for planning purposes, and implementation ideas of the previous three guidance sheets. This guideline is **not applicable** to this project.

### **Minimum Requirement #9 – Operation and Maintenance**

Operation and Maintenance recommendations are provided in Attachment 16. A complete O & M manual will be prepared per City requirements, at the time of construction plan approval.

### **Offsite Analysis and Mitigation**

An offsite qualitative analysis was conducted and a field inspection completed, per the Optional Guidance #2 of the 2014 SWM, Volume I, Section 2.6.2, see **Attachment 17 – Downstream Qualitative Off-site Analysis and Aerial Map**.

The site naturally slopes to the south, with no apparent flow path or conveyance system. No onsite overground flow was observed on site.

It is assumed by the onsite visit and the existing soils on site, that rainfall is infiltrated into the native soils.

### **Conveyance Sizing:**

The onsite conveyance system will be designed to convey the developed conditions stormwater runoff. The calculations provided will utilize Manning's equation for pipes flowing full, and based on several assumptions:

- The Basin 1 will flow through the pipe design provided, with a flow rate as calculated by the WWHM 2012 software.
- The proposed site outlet pipe will be installed at minimum slope of 0.005
- The pipe sized, will be located immediately prior to the outfall to the proposed infiltration trench.

The calculations provided utilize Manning's equation for pipes flowing full. See **Attachment 12**, for the ability of a smooth walled pipe, laid at a slope of 0.0022 to 0.005, to convey the site's runoff during a 25-year storm event.

The infiltration system, collecting the majority of the PGHS and overflows from pervious pavement systems has 4 contributory pipes discharging to it, all of which can convey 1/4 of the 25-year storm flow.

<b>Table 4 – Pipe Capacity</b>				
	25-year Storm Event (cfs)	100-year Storm Event (cfs)	12" Pipe Capacity (cfs)	8" Pipe Capacity (cfs)
Assumed Flow (From WWHM for total site)	<b>3.09</b> <b>(0.77 each pipe)</b>	<b>4.11</b> <b>(1.03 each pipe)</b>	<b>1.67</b>	<b>0.87</b>

### **Conclusions:**

The proposed development will increase stormwater runoff from hard surfaces. This increase will be mitigated by localized infiltration systems, throughout the site, and will discharge to ground as it historically does.

No localized downstream conveyance or capacity issues were discovered in the off-site Analysis. The resulting stormwater impact of this development is negligible.



## **Attachment 1 – Vicinity Map**



# Park @ Brickyard Creek

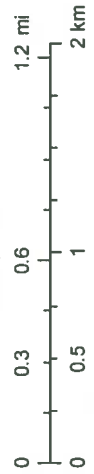


October 29, 2019

Legend

 County Boundary

1:36,112



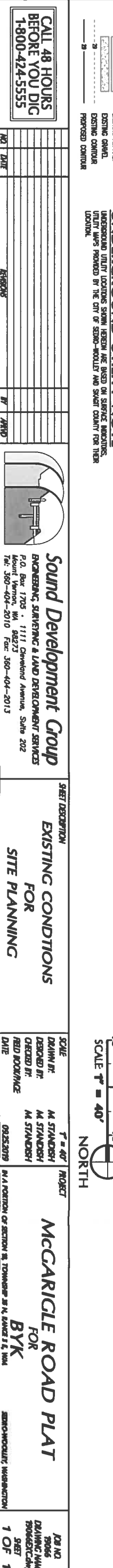
Data Accuracy Warning: All GIS data was created from available public records and existing map sources. Map features have been adjusted to achieve a best-fit registration. While great care was taken in this process, maps from different sources rarely agree as to the precise location of geographic features. Map discrepancies can be as great as 300 feet.

Copyright 2016

211E  
↓  
[diagonal lines]

## **Attachment 2 - Existing Conditions**

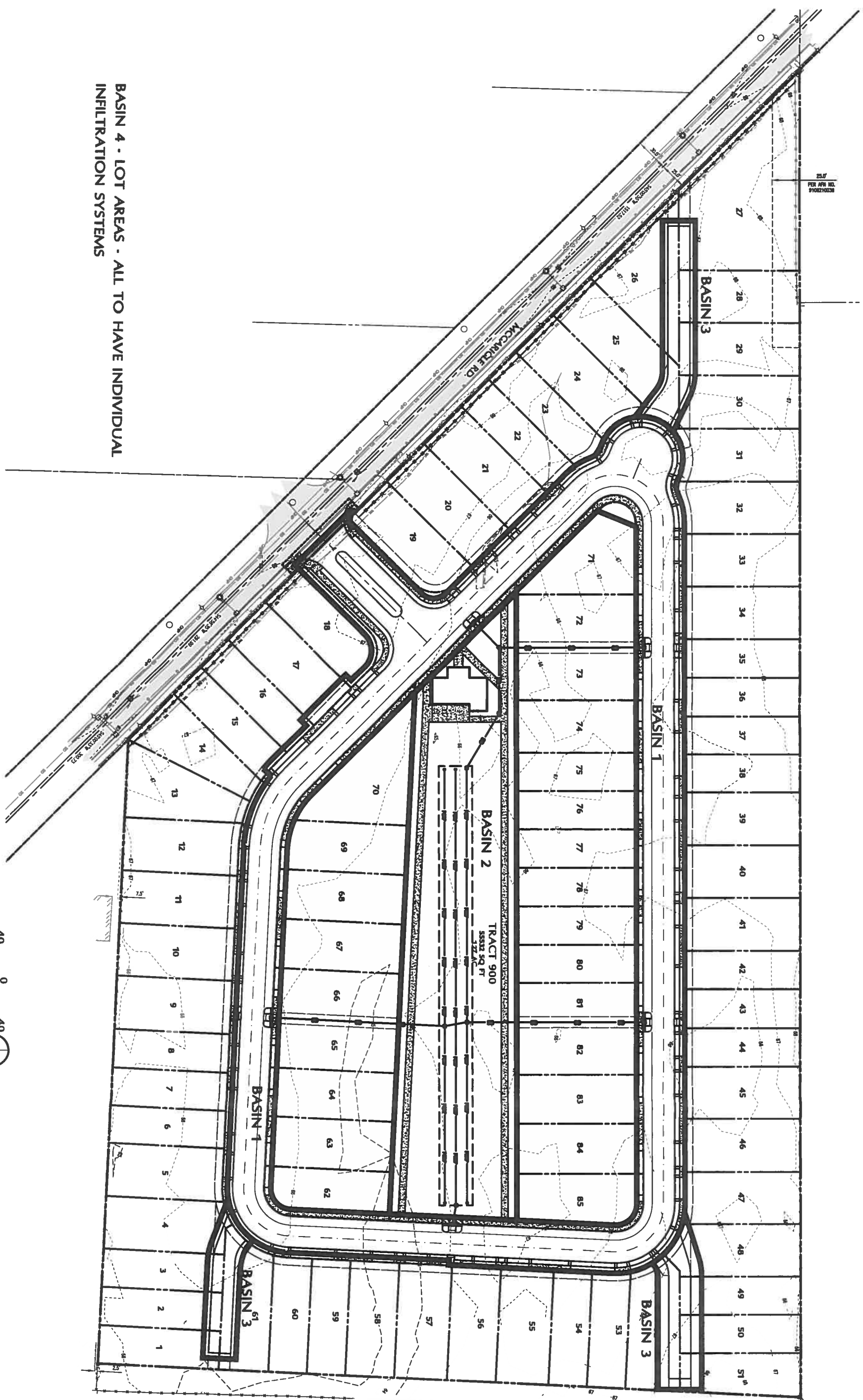






### **Attachment 3 – Developed Conditions**





**BASIN 4 - LOT AREAS - ALL TO HAVE INDIVIDUAL INFILTRATION SYSTEMS**

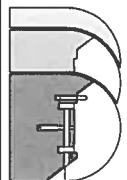
**CALL 48 HOURS  
BEFORE YOU DIG  
1-800-424-5555**

NO DATE

**1650**

44

174



**Sound Development Group**  
ENGINEERING, SURVEYING & LAND DEVELOPMENT SERVICES  
P.O. Box 1705 • 1111 Cleveland Avenue, Suite 202  
Mount Vernon, WA 98275  
Tel: 360-404-2010 Fax: 360-404-2013

### SHEET DESCRIPTION

## BASIN PLAN

SCALE	1" = 40'
DRAWN BY:	M. STANDISH
DESIGNED BY:	M. STANDISH
CHECKED BY:	M. STANDISH
FIELD BOOK/PAGE	
DATE	09/25/2019

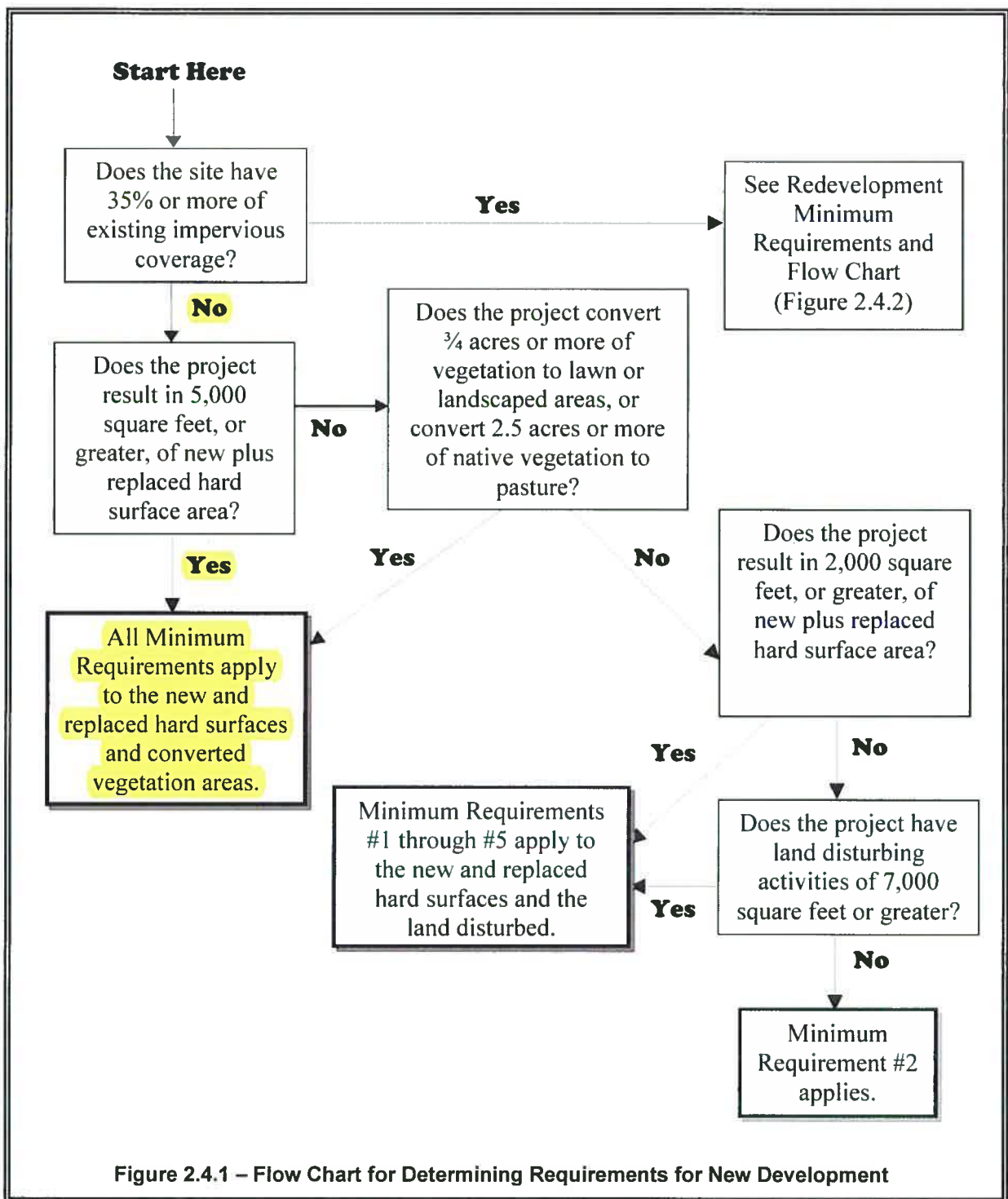
PROJECT  
**PARK AT BRICKYARD CREEK**  
FOR  
**BYK**  
IN A PORTION OF SECTION 28, TOWNSHIP 35 N., RANGE 1 E., N4M  
SEBIO-HOOLLEY HAS

JOB NO.  
19066  
DRAWING NAME  
19066ENC.dwg  
SHEET  
1 OF 1



**Attachment 4 – DOE SWM 2014 Excerpt – Figure 2.4.1 - Flow Chart for  
Determining Requirements for New Development**



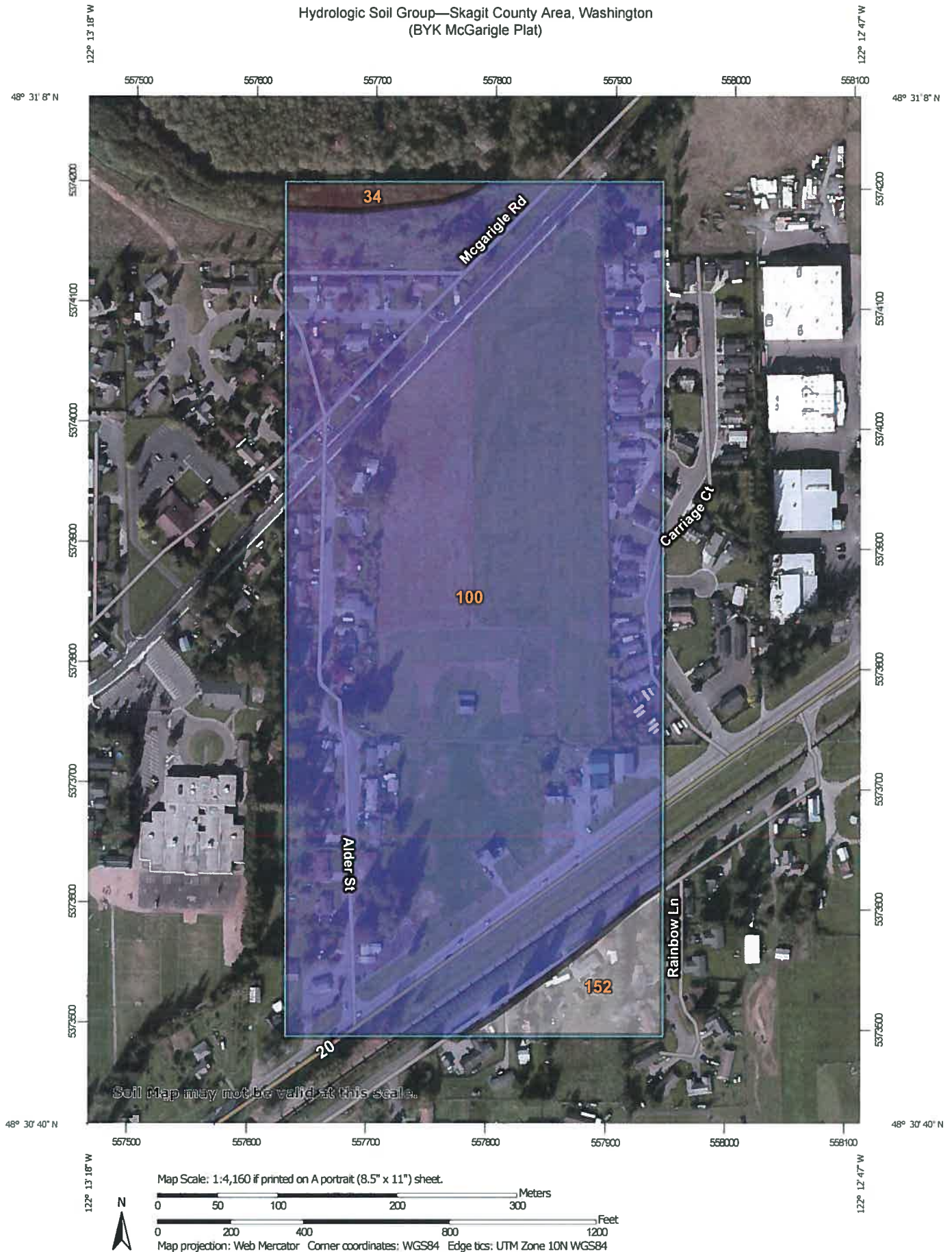












































**Attachment 5 – SCS Soils Information**



# Hydrologic Soil Group—Skagit County Area, Washington (BYK McGarigle Plat)



## MAP LEGEND

 Area of Interest (AOI)	 C
 Area of Interest (AOI)	 C/D
 Soils	 D
 Soil Rating Polygons	 Not rated or not available
 A	 Water Features
 A/D	 Streams and Canals
 B	 Transportation
 B/D	 Rails
 C	 Interstate Highways
 C/D	 US Routes
 D	 Major Roads
 Not rated or not available	 Local Roads
 Soil Rating Lines	 Background
 A	 Aerial Photography
 A/D	
 B	
 B/D	
 C	
 C/D	
 D	
 Not rated or not available	
 Soil Rating Points	
 A	
 A/D	
 B	
 B/D	

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Skagit County Area, Washington  
Survey Area Data: Version 19, Sep 16, 2019

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

Date(s) aerial images were photographed: Jul 9, 2010—Aug 28, 2011

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

## Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
34	Cokedale silt loam	B/D	0.8	1.4%
100	Nargar loam, 0 to 8 percent slopes	B	52.5	94.0%
152	Urban land-Mt. Vernon-Field complex		2.5	4.5%
<b>Totals for Area of Interest</b>			<b>55.8</b>	<b>100.0%</b>

## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

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

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

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

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

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

## Map Unit Description

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

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

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

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

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

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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

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

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

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

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

## Report—Map Unit Description

### Skagit County Area, Washington

#### 34—Cokedale silt loam

##### Map Unit Setting

National map unit symbol: 2hvj

Elevation: 120 to 1,200 feet

*Mean annual precipitation:* 45 to 80 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 160 to 220 days  
*Farmland classification:* Prime farmland if drained

**Map Unit Composition**

*Cokedale and similar soils:* 95 percent  
*Minor components:* 5 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Cokedale****Setting**

*Landform:* Flood plains  
*Parent material:* Alluvium derived from phyllite

**Typical profile**

*H1 - 0 to 4 inches:* silt loam  
*H2 - 4 to 27 inches:* silt loam  
*H3 - 27 to 45 inches:* sand  
*H4 - 45 to 60 inches:* stratified loamy sand to very channery loamy sand

**Properties and qualities**

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification  
*Natural drainage class:* Somewhat poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):*  
Moderately high to high (0.57 to 1.98 in/hr)  
*Depth to water table:* About 6 to 24 inches  
*Frequency of flooding:* Occasional  
*Frequency of ponding:* None  
*Available water storage in profile:* Low (about 5.1 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4w  
*Hydrologic Soil Group:* B/D  
*Forage suitability group:* Seasonally Wet Soils (G002XN202WA)  
*Hydric soil rating:* No

**Minor Components****Sumas, undrained**

*Percent of map unit:* 5 percent  
*Landform:* Tidal flats  
*Hydric soil rating:* Yes

## 100—Nargar loam, 0 to 8 percent slopes

### Map Unit Setting

*National map unit symbol:* 2hrl

*Elevation:* 400 to 1,100 feet

*Mean annual precipitation:* 50 to 75 inches

*Mean annual air temperature:* 46 to 50 degrees F

*Frost-free period:* 120 to 200 days

*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Nargar and similar soils:* 100 percent

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

### Description of Nargar

#### Setting

*Landform:* Terraces

*Parent material:* Alluvium, loess, volcanic ash

#### Typical profile

*H1 - 0 to 3 inches:* loam

*H2 - 3 to 33 inches:* loam

*H3 - 33 to 60 inches:* sand

#### Properties and qualities

*Slope:* 0 to 8 percent

*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification

*Natural drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):*

Moderately high to high (0.57 to 1.98 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water storage in profile:* Moderate (about 6.9 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* B

*Forage suitability group:* Soils with Few Limitations  
(G002XN502WA)

*Hydric soil rating:* No

## 152—Urban land-Mt. Vernon-Field complex

### Map Unit Setting

*National map unit symbol:* 2htf

*Elevation:* 10 to 50 feet



*Mean annual precipitation:* 32 to 40 inches

*Mean annual air temperature:* 50 degrees F

*Frost-free period:* 160 to 210 days

*Farmland classification:* Not prime farmland

#### **Map Unit Composition**

*Urban land:* 40 percent

*Mt. vernon and similar soils:* 30 percent

*Field and similar soils:* 20 percent

*Minor components:* 10 percent

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

#### **Description of Urban Land**

##### **Typical profile**

*H1 - 0 to 6 inches:* variable

##### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 8s

*Hydric soil rating:* No

#### **Description of Mt. Vernon**

##### **Setting**

*Landform:* Natural levees, flood plains

*Parent material:* Alluvium and volcanic ash

##### **Typical profile**

*H1 - 0 to 10 inches:* ashy very fine sandy loam

*H2 - 10 to 29 inches:* stratified ashy sand to very fine sandy loam

*H3 - 29 to 60 inches:* stratified fine sand to silt loam

##### **Properties and qualities**

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):*

*Moderately high to high (0.57 to 1.98 in/hr)*

*Depth to water table:* About 24 to 48 inches

*Frequency of flooding:* Occasional

*Frequency of ponding:* None

*Available water storage in profile:* High (about 10.2 inches)

##### **Interpretive groups**

*Land capability classification (irrigated):* 3w

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* C

*Forage suitability group:* Soils with Few Limitations  
(G002XN502WA)

*Hydric soil rating:* No

**Description of Field****Setting**

*Landform:* Flood plains, natural levees

*Parent material:* Alluvium and volcanic ash

**Typical profile**

*H1 - 0 to 13 inches:* silt loam

*H2 - 13 to 21 inches:* silt loam

*H3 - 21 to 40 inches:* stratified sand to loamy fine sand

*H4 - 40 to 60 inches:* stratified sand to very fine sandy loam

**Properties and qualities**

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):*

Moderately high to high (0.57 to 1.98 in/hr)

*Depth to water table:* About 24 to 60 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water storage in profile:* High (about 10.2 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* B

*Forage suitability group:* Seasonally Wet Soils (G002XN202WA)

*Hydric soil rating:* No

**Minor Components****Mt. vernon**

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

**Data Source Information**

Soil Survey Area: Skagit County Area, Washington

Survey Area Data: Version 19, Sep 16, 2019

**Attachment 6 – Geotechnical Soils Report by Materials Testing & Consulting, Inc**





October 15, 2019

**Tim Woodmansee**

*BYK Construction Inc.*

133 West State Street, Suite 101

Sedro-Woolley, WA 98284

**Subject: Stormwater Infiltration Feasibility Assessment**  
McGarigle Residential Plat Development  
McGarigle Road (Parcel # P39374) Sedro-Woolley, Washington

MTC Project No.: **19B018-10**

Dear Mr. Woodmansee:

At your request, Materials Testing & Consulting, Inc. (MTC) has completed a site-wide characterization for infiltration feasibility assessment at the above referenced project site. The site is proposed for an 85-unit residential plat development including on-site stormwater infrastructure and other exterior improvements. MTC understands the majority of the site will be developed with residential lots accessed by a central roadway loop. The middle interior of the site is planned to contain a central park where the primary stormwater feature is proposed. Additional smaller stormwater features are planned intermittently along the perimeter portions of the site to service outer residential lots. The client has requested this infiltration feasibility assessment be performed in support of stormwater facility planning and civil design options for the proposed development during the due diligence period of project consideration. Additionally, the client has requested that MTC assess and provide initial commentary on the viability for reuse of native soils during general site preparations and construction.

MTC has performed this infiltration assessment in accordance with site characterization guidelines presented in the Washington Department of Ecology *Stormwater Management Manual for Western Washington*, 2012/2014 edition (SMMWW, 2012/2014) and its application to the local jurisdiction of the project site. A summary of MTC's field findings, laboratory results, interpretations, and recommendations pertaining to potential infiltration facilities including preliminary long-term design rates based on grain-size analysis methods are provided herein. In addition, the results of Cation Exchange Capacity (CEC) and Organic Content (OC) analyses conducted on representative soil samples from the potential infiltration areas are attached at the end of this report.

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***Site Exploration and Assessment Methodology:***

On September 18th, 2019, an MTC Project Geologist visited the site to observe and direct excavation of test pits for infiltration assessment and to collect soil samples for laboratory gradation analysis. MTC personnel observed excavation of test pits at fourteen (14) locations as determined by MTC geotechnical personnel on site and in coordination with the client. Test pits were arranged in a general grid pattern to provide optimum coverage of the project site and the proposed facility locations. Test pits were typically spaced between 150 and 220 feet apart with TP-1 through TP-5 on the eastern portion of the site and TP-6 through TP-8 on the northern portion. Test pits TP-9 through TP-11 were excavation within the central portion of the site where the larger facility is planned. TP-12 through TP-14 were excavated within the southern and western portions of the site.

Explorations were field located by MTC and arranged for optimum coverage of the overall site as well as target areas for infiltration design with respect to the proposed layout. Excavator test pits were completed to termination depths ranging from approximately 8.1 to 11.5 feet below present grade (BPG). Explorations were terminated upon reaching planned depth and approximate extent of machinery. Additional depth was achieved within the planned central facility location where deeper systems may be expected. Explorations were monitored by MTC personnel, who examined and classified the materials encountered in accordance with the Unified Soil Classification System (USCS) and ASTM D2487, obtained representative soil samples, and recorded pertinent information including soil stratigraphy, soil engineering characteristics, and indications of groundwater occurrences. Upon completion, test pits were backfilled with excavated native soils.

Grab soil samples were collected from representative soil horizons during test pit excavation and at likely infiltration depths, as depicted on the attached logs. All samples were placed in plastic bags to limit moisture loss, labeled, and returned to MTC's laboratory for analysis and storage. Select samples were tested in MTC's laboratory for gradation, and representative samples were delivered to an analytical agricultural lab for testing of soil chemical and organic treatment properties. Samples not analyzed within the current scope of work will be retained for a minimum of 90 days from the date of collection, and can be tested upon request of the client.

A site location and vicinity map are provided in Figure 1, Appendix A1. Appendix A2 contains the proposed site plan indicating development layout with approximate test locations as Figure 2. Attached in Appendix B are photos of the site and explorations in progress. Exploration logs are presented in Appendix C, with a USCS classification chart provided as Figure 3. Results of MTC's laboratory analyses on soil samples collected during the explorations are attached in Appendix D. The results of subcontracted laboratory testing are also provided in Appendix D.

### ***Site Conditions:***

The project site is located in a predominantly residential area among the northeast margin of Sedro-Woolley, Washington. The site is presently bordered to the west and east by similarly large-acreage residential subdivisions, each with single-family lots of 20 to 40 units in total. The site is bound to the north by McGarigle Road, with undeveloped land to the northeast and more residential to the northwest. To the south of the site, a small agricultural parcel contains an old barn structure with a new Self-Storage facility further south before reaching the heavily trafficked Moore Street. Janicki Industries buildings are located approximately 500 feet to the east from the property, separated by the residential subdivision.

Within the subject property, topography is generally flat with minor undulating terrain on the northern boundary. Previous site use appears to have been agricultural; no large trees or native vegetation remain on the site. Tall grasses cover the entirety of the site. The eastern and western boundaries are defined by tall privacy fencing while the north and south borders have barbed-wire fences.

### ***Subsurface Soil Conditions:***

Subsurface soils were observed and catalogued during test pit excavations. This section summarizes our general understanding of soil conditions gained from field explorations and laboratory analyses. Identified units, in order of increasing depth below the surface, are summarized in Table 1.

Soil profiles were broadly consistent with depth throughout the site below some variations in shallow deposits, including generally thicker upper fine-grained soils on the north end. Topsoil was observed throughout the site from the surface to depths ranging from 0.5 to 2.1 feet. Below topsoil, silty sand alluvial deposits were observed typically to depths of 1.3 to 3.9 feet BPG, but extended locally as deep as 6.0 feet BPG (TP-6 – north-central area). Finer-grained deposits were not observed at locations TP-1 and TP-2; coarse-grained soils began directly below the topsoil. Below the upper conditions at all locations, native coarse-grained sandy alluvial deposits were found through termination depths.

**Table 1. Generalized Soil Stratigraphy**

<b>SOIL UNIT</b>	<b>DEPTH (BPG - feet)</b>	<b>DESCRIPTION</b>
<b>Topsoil &amp; Cover Soil:</b> Sandy Silt (ML)	0 – 0.5/1.2	Dark brown SANDY SILT with local minor gravel. Soft and moist with strong organics (roots and grass at surface). Encountered at all test pits locations.
<b>Shallow FG Deposits:</b> Silty Sand (SM)	0.5/1.2 – 1.3/3.9 (- 6.0 @ TP-6)	Light brown to gray SILTY SAND with minor gravel ~1-inch size. Moist and medium dense. Some scattered orange mottling throughout. Not present at TP-1 or TP-2.
<b>Lower CG Deposits:</b> Sand (SP)	1.3/3.9 – 11.5+	Light to medium gray SAND with minor silt. Some local gravel with depth. Moist, loose to medium dense. Minor local silty sand lenses, discontinuous. At all test pits.

### ***Geologic Literature:***

The *Geologic Map of the Sedro-Woolley North and Lyman 7.5-minute Quadrangles, western Skagit County, Washington* published by the Washington Division of Geology and Earth Resources (Dragovich, et al., 1999) indicates the project site is mapped regionally as older Quaternary Alluvium (Qoa). Quaternary older alluvium is described as older probable lahar deposits and volcanoclastic fluvial deposits typically containing clay, silt, sand, and gravel of volcanic origin. Deposits are generally well-sorted and stratified with variations dependent on relation to the source.

Shallow subsurface conditions are mapped by the USDA NRCS *Web Soil Survey* as *Nargar loam* (Unit#100, 100% of area). *Nargar loam* is found on terrace landforms with a parent material of alluvium, loess, and volcanic ash. A typical profile includes loam to 33 inches, and sand to 60+ inches. The soil is listed as well drained with a typically moderately high to high capacity to transmit water. Depth to the water table and restrictive features is listed as greater than 80 inches, while a depth of 20 to 40 inches is listed to a strongly contrasting textural change. It is a member of Hydrologic Soil Group B.

Native soil conditions encountered in the field below locally altered surface conditions consisted of sand deposits with silt and low but varying amounts of silt and gravel. Soils explored with the subject property correspond closely with available geologic and soil survey resources mapped for the vicinity.

### ***Surface and Subsurface Water Conditions:***

No natural surface water features were present within the project area at the time of this study. The closest major surface water feature is Hansen Creek, approximately 3,500 feet to the southeast. The Skagit River present-day channel flows approximately 1.8 miles to the south of the subject property.

A groundwater table was not contacted within the majority of test pit explorations on the site. However, at the location of TP-9, within the north-center of the site, groundwater was observed at a depth of 10.5 feet BPG. Light seepage was observed at this location near end depth, and stabilization of the groundwater conditions was confirmed after 3 hours open time at the same depth. Given the timeframe of the explorations in the early fall season following higher than normal levels of precipitation, conditions are interpreted to be representative of shoulder season level, increased from dry season conditions, but not necessarily indicative of wet season conditions. Shallow scattered mottling observed in the finer-grained cover soils are interpreted to be due to downward infiltration of surface water. Within test pits TP-9 and TP-10, sharp mottling boundaries were observed at depths of 8.5 feet and 9.0 feet BPG, respectively. It is our opinion that these mottling patterns may indicate that seasonally elevated groundwater levels are present at approximately these depths, at least in parts of the site. A cursory review of nearby well log data, maintained by the Washington Department of Ecology, indicates that groundwater is commonly contacted between 10 to 60 feet BPG.

MTC's current scope of investigation did not include observation and determination of seasonal groundwater variations, conclusive measurement or monitoring of groundwater elevations at the time of exploration, or assessment of groundwater conditions past the depths feasibly explored by test pit excavation. Groundwater conditions noted on the logs are considered valid only for the date of exploration. Estimated seasonal high groundwater levels gained from mottling evidence shall be understood as an interpretation for general planning, not a conclusive statement of wet season conditions.

At direction of the client, monitoring standpipes were installed at the locations of TP-9 and TP-11 for future use in collecting winter season groundwater measurements. MTC can provide groundwater monitoring services during the upcoming wet season at the request of the client.

***Infiltration Assessment & Commentary:***

***Gradation Analysis Method & Results***

During test pit excavations, MTC collected representative samples of soils among native strata at potential infiltration facility areas and depths. No specific target depths were prescribed prior to field work. MTC understands that infiltration is intended to be primarily in the central park of the site, although other perimeter or interspersed areas may be utilized for smaller features as part of the overall site stormwater management system. MTC also understands that the final locations and depths of the infiltration facilities will be defined following the results of this study, and thus the strategy may change. Laboratory gradation analyses were completed including sieve tests for preliminary rate determination to supplement field observations. Results of laboratory testing are summarized below.

Laboratory results were interpreted to hydraulic conductivity (Ksat) values in accordance with methods of the Washington State Department of Ecology *Stormwater Management Manual for Western Washington* (SMMWW), 2012/2014. Standard correction factors were applied as noted in the reference documents. Data and Ksat values are summarized in Table 2.

Gradation results were applied to the Massmann (2003) equation (1) to calculate Ksat representing the initial saturated hydraulic conductivity, as described in the 2012 DOE SMMWW Volume III 3.3.6.3.

(1) 
$$\log_{10}(K_{sat}) = -1.57 + 1.90 \cdot D_{10} + 0.015 \cdot D_{60} - 0.013 \cdot D_{90} - 2.08 \cdot ff$$

Table 2 reports for each sample the input laboratory values and calculated Ksat. Corrected Ksat values presented below are a product of the initial Ksat and correction factor CFT. For a generalized design situation, we have applied an average site variability factor of  $CF_v = 0.5$  along with typical values of  $CF_t = 0.4$  (for the Grain Size Method) and  $CF_m = 0.9$  (assuming standard influent control).

(2) 
$$CFT = CF_v \times CF_t \times CF_m = 0.5 \times 0.4 \times 0.9 = 0.18$$

**Table 2. Results of Massmann Analysis**

TP #	Depth (BPG)	USCS	D10	D60	D90	Ff (%)	Ksat (inches/hour)	Corrected Ksat (inches/hour)
1	4.0	SP	0.161	5.24	1.644	4.8	59.43	10.70
2	2.0	SP	0.139	0.995	1.812	5.6	52.54	9.46
4	3.2	SP	0.162	0.94	3.228	1.1	68.95	12.41
6	4.2	SM	0.022	0.215	0.377	34.2	8.13	1.46
7	2.5	SM	0.054	0.269	.395	13.8	24.88	4.48
9	3.5	SP	0.163	1.087	1.832	6.4	56.30	10.13
10	5.8	SP	0.232	1.235	3.36	0.4	97.45	17.54
11	4.0	SP	0.226	1.068	1.773	1.4	94.35	16.98
13	3.8	SP	0.155	0.354	1.289	2.1	66.20	11.92

#### Facility Design Discussion and Rates

MTC understands the infiltration system is undergoing design at this time and is pending the results of this assessment to confirm general site feasibility as well as design rates. Based on discussions with the client and considering the subsurface conditions found during this study, the system is anticipated to consist of a central infiltration facility or series of facilities placed in the central park area of the site to service roadways and central homes. Smaller localized features are planned on the perimeter of the site with facilities servicing outer lots. No other design information was available at the time of this report.

Grain size analysis methods based on *SMMWW 2012/2014* standard calculation criteria yielded Corrected Ksat values of ranging from 1.5 to 17.5 inches/hour for native alluvial soils at the project site. The lower derived rates of 1.5 and 4.5 in/hr from TP-6 and TP-7, respectively, correspond to the upper finer-grained alluvial deposits that tend to thicken on the northern portion of the property. The remainder of rates from 9.5 to 17.5 in/hr correspond to the lower, coarse-grained unit typically found at depths of 2 to 3 feet BPG, verified to extend through 11.5 feet BPG (maximum depth explored). Based on laboratory testing and concurring field observations, fines content in the lower unit was at or below about 5% to 6%, whereas the upper unit recorded fines of 13.8% and 34.2%, varying locally. *For generalized application of infiltration into the lower coarse-grained deposits, we recommend applying a maximum design Ksat value of 10.0 inches/hour.* This value represents the lower end average of calculated Ksat values from samples near presumed facility depths. For shallow systems on the north end of the site placed within the *upper silty sand, if utilized, we recommend a reduced maximum design Ksat value of 1.5 inches/hour.*

These derived rates are meant to provide a general characterization of shallow subsurface transmission potential for the designer's consideration in civil stormwater design. These values are not necessarily intended to be applied as a final infiltration rate for facilities of a large size/volume and/or limited separation to groundwater. Large centralized facilities, if utilized, may require additional assessment to meet design and approval requirements, especially in the case of limited vertical separation to an underlying groundwater table. In addition, the limiting factor of separation should be accounted for in design, and rates adjusted accordingly. The facility designer should also review assumed correction factors per reference literature to ensure applicability with the proposed system, level of anticipated controls, and long-term maintenance plan. The designer may make reasonable adjustments to correction factors and resulting design values based on these criteria to ensure design and operational intent is met.

The project may be eligible for an increase in design rate if Pilot Infiltration Testing (PIT) methods are conducted, which are considered generally more reliable as a confirmation of actual field conditions and therefore can be applied less conservatively. It is our opinion that grain size analysis methods should be suitable for general design use at this site, in accordance with DoE SMMWW 2012/2014 requirements, given that native soils are not considered to be compacted by prior development or consolidated by glacial ice, and were observed to be relatively uniform with no significant cementation or local variations. If final design needs or elects in-situ assessment by PIT testing, MTC can provide additional PIT services upon request. The client should be aware that final design approval for large facilities may require in-situ PIT verification, depending on the style of system and local jurisdiction requirements.

While on site for field explorations, MTC observed the construction of two groundwater monitoring standpipes within the central stormwater area by the client. Standpipes were placed within test pit TP-9 and TP-11, at the north and south ends of the planned facility. Standpipes were constructed of 6-inch PVC with a screened cap and lower 10-foot section. This screen section was also wrapped in filter fabric to prevent soil intrusion. The upper 5 feet of both used solid PVC. Base depths were 11.5 feet at TP-9 on the north end and 11.0 feet at TP-11 on the south end. Coarse-grained test pit spoils were used as backfill, with fine-grained soils and topsoil capping along the upper solid PVC section. MTC can provide additional monitoring services during winter months upon request from the client.

#### Treatment Suitability

MTC subcontracted Cation Exchange Coefficient (CEC) and Organic Content (OC) testing of representative samples of the native alluvial deposits planned for infiltration. Soil samples yielded CEC values of 2.1 to 3.8 milliequivalents per 100 grams of soil (meq/100g). Organic content testing yielded values of 0.9% to 1.6% organic matter. Table 3 shows the results of subcontracted laboratory testing of treatment properties. In our experience, values appear typical for the deposits encountered.

**Table 3. Results of Cation Exchange Coefficient and Organic Content Analysis**

TP #	Depth (BPG)	USCS	Organic Content (%)	CEC (meq/100g)
2	2.0	SP	1.3	2.1
6	4.2	SM	1.6	3.8
7	2.5	SM	1.0	2.8
9	3.5	SP	0.9	2.1

The Department of Ecology 2012/2014 SMMWW, Volume III, Section 3.3.7 addresses minimum requirements for treatment soils under Site Suitability Criteria. According to SSC-6, soils with CECs of less than 5 meq/100g and 1% OC should typically not be used as treatment media without modification. The addition of soil amendments or the import of treatment-specific soil media may be used to achieve a higher CEC and produce a soil more suitable for treatment if required for design. Therefore, if treatment is required as part of this design, we anticipate that *soil amendment or treatment media will be necessary to meet the treatment standards for CEC*. Minimum depth for treatment-suitable soils is cited as 18 inches. If soils are amended or imported treatment media is installed, the LTIR of the facility must be adjusted accordingly if these modifications will negatively affect the infiltration rate cited above.

***Native Soils Reuse Commentary:***

At the client's request, MTC considered the potential for reuse of native soils as fill during construction activities. Our understanding of on-site soils is based off field observations and the attached laboratory results. Native soils are typically composed of silty sand in the upper 1.5 to 3.9 feet, 2.5 feet on average. Below, poorly graded sand with minor silt and gravel is present to depth. Lower sandy soils were locally observed to nominally increase in gravel content below depths of 4.0 to 5.0 feet BPG.

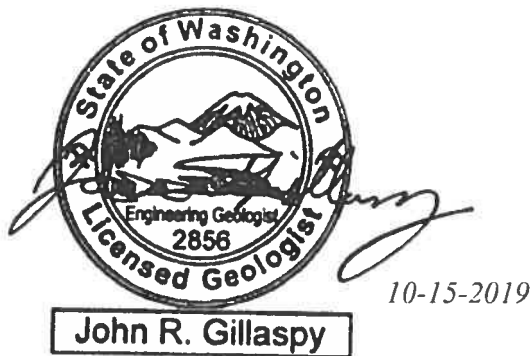
Native soils appear to be acceptable for common lot grading (i.e. outside of foundation locations) in areas where shallow grading is required for leveling lot topography. These soils also have potential for reuse as native soil for trench backfill in landscape areas (silty sand), as well as beneath pavements (sand) if the local jurisdiction allows. If the shallow silty sand soils are to be reused for general grading, we recommend that construction occur during dry weather periods due to the moisture sensitivity and difficulty of reworking soils with higher fines content when wet. The overall lack of gravel in the native soils means that these materials are not considered suitable as a substitute for structural fill below foundations if required, or for inclusion into the designed structural road section. For these applications we recommend use of an imported structural fill such as WSDOT Gravel Borrow Specification 9-03.14(1), or approved equivalent.

***Closing Remarks:***

MTC recommends that we be contacted to review proposed infiltration facility design, site preparation plans, and project specifications, to ensure they are consistent with the intent of the recommendations provided herein. In addition, MTC recommends that we be contacted for construction phase testing, observation, and engineering consultation services as may be needed. Such services may include but are not limited to earthwork support consulting, subgrade bearing and infiltration soil verifications, laboratory materials analysis, and special inspections if required.

Mr. Woodmansee, we trust this report presents the information you require. If you have questions, please do not hesitate to call.

Respectfully Submitted;



John Gillaspy, L.E.G.  
NW Region Geotechnical Division Manager

Cass Dimitroff, G.I.T.  
Senior Project Geologist

Attached:     *Limitations and Use of this Report*  
                  *Appendix A1. Location and Vicinity Map*  
                  *Appendix A2. Site Plans with Test Locations*  
                  *Appendix B. Photos of Site Exploration*  
                  *Appendix C. Exploration Logs*  
                  *Appendix D. Laboratory Results*

## REFERENCES CITED

Dragovich et al., 1999, *Geologic map of the Sedro-Woolley North and Lyman 7.5-minute quadrangles*, western Skagit County, WA: Washington Division of Geology and Earth Resources, scale 1:24:000.  
[https://ngmdb.usgs.gov/Prodesc/proddesc\\_53861.htm](https://ngmdb.usgs.gov/Prodesc/proddesc_53861.htm)

United States Department of Agriculture, 2019, Web Soil Survey:  
<https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

Washington State Department of Natural Resources, Division of Geology and Earth Resources,  
<https://geologyportal.dnr.wa.gov/>

WA State Department of Ecology, Well Log Data  
<https://fortress.wa.gov/ecy/wellconstruction/map/wclswbMap/WellConstructionMapSearch.aspx>

## Limitations and Use of This Report

Recommendations contained in this report are based on our understanding of the proposed development and construction activities, our field observations and explorations, and our laboratory test results. It is possible that soil and groundwater conditions could vary and differ between or beyond the points explored. If soil or groundwater conditions are encountered during construction that vary or differ from those described herein, we should be notified immediately in order to review and provide supplemental recommendations. If the scope of the proposed construction, including the proposed loads or structural locations, changes from that described in this report, we should be notified to review and provide supplemental recommendations.

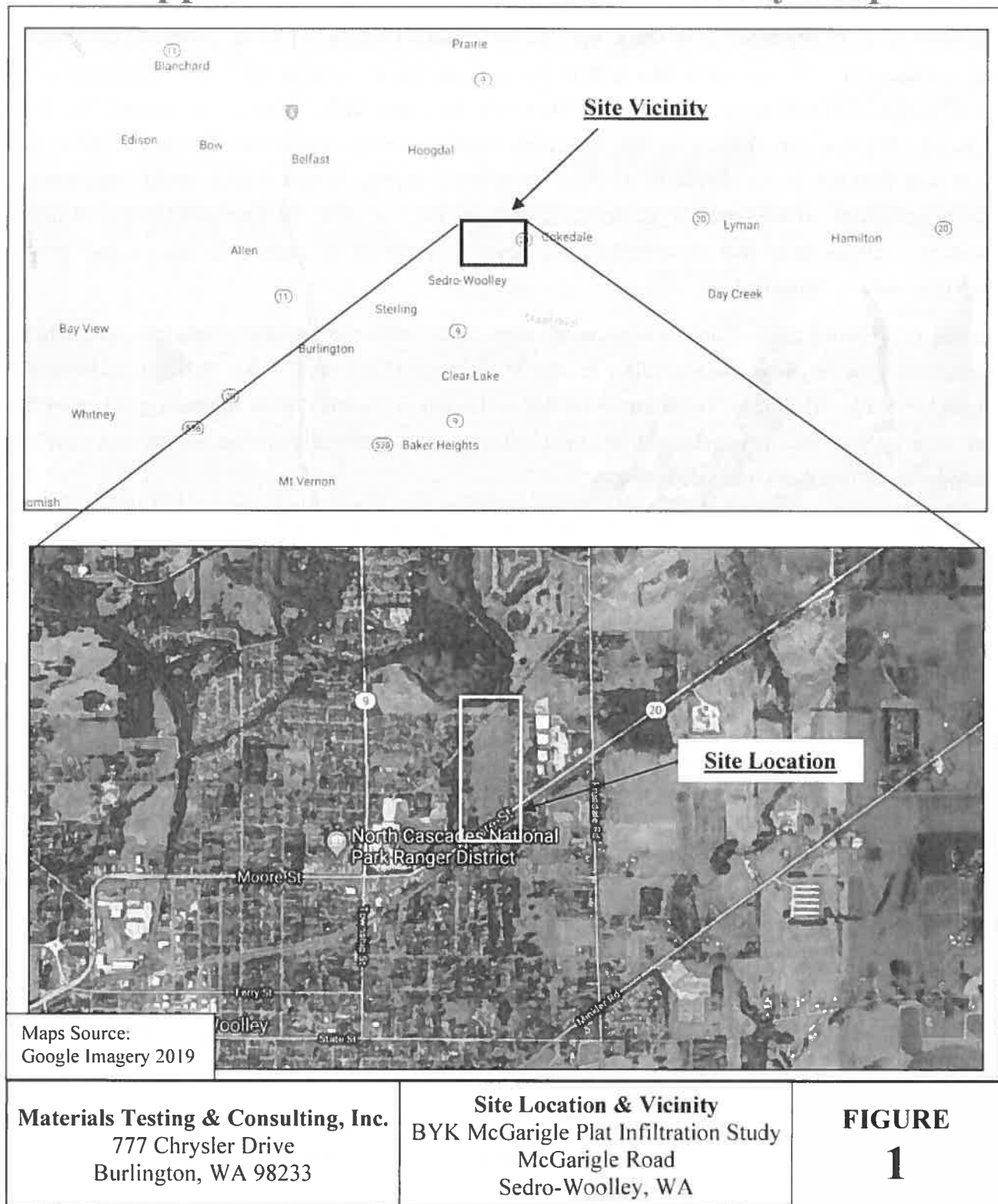
We have prepared this report in substantial accordance with the generally accepted geotechnical engineering practice as it exists in the site area at the time of our study. No warranty, expressed or implied, is made. The recommendations provided in this report assume that an adequate program of tests and observations will be conducted by MTC during the construction phase in order to evaluate compliance with our recommendations.

This report may be used only by the Client and their design consultants and only for the purposes stated within a reasonable time from its issuance, but in no event later than 18 months from the date of the report. It is the Client's responsibility to ensure that the Designer, Contractor, Subcontractors, etc. are made aware of this report in its entirety. Note that if another firm assumes Geotechnical Engineer of Record responsibilities, they need to review this report and either concur with the findings, conclusions, and recommendations or provide alternate findings, conclusions and recommendation under the guidance of a professional engineer registered in the State of Washington.

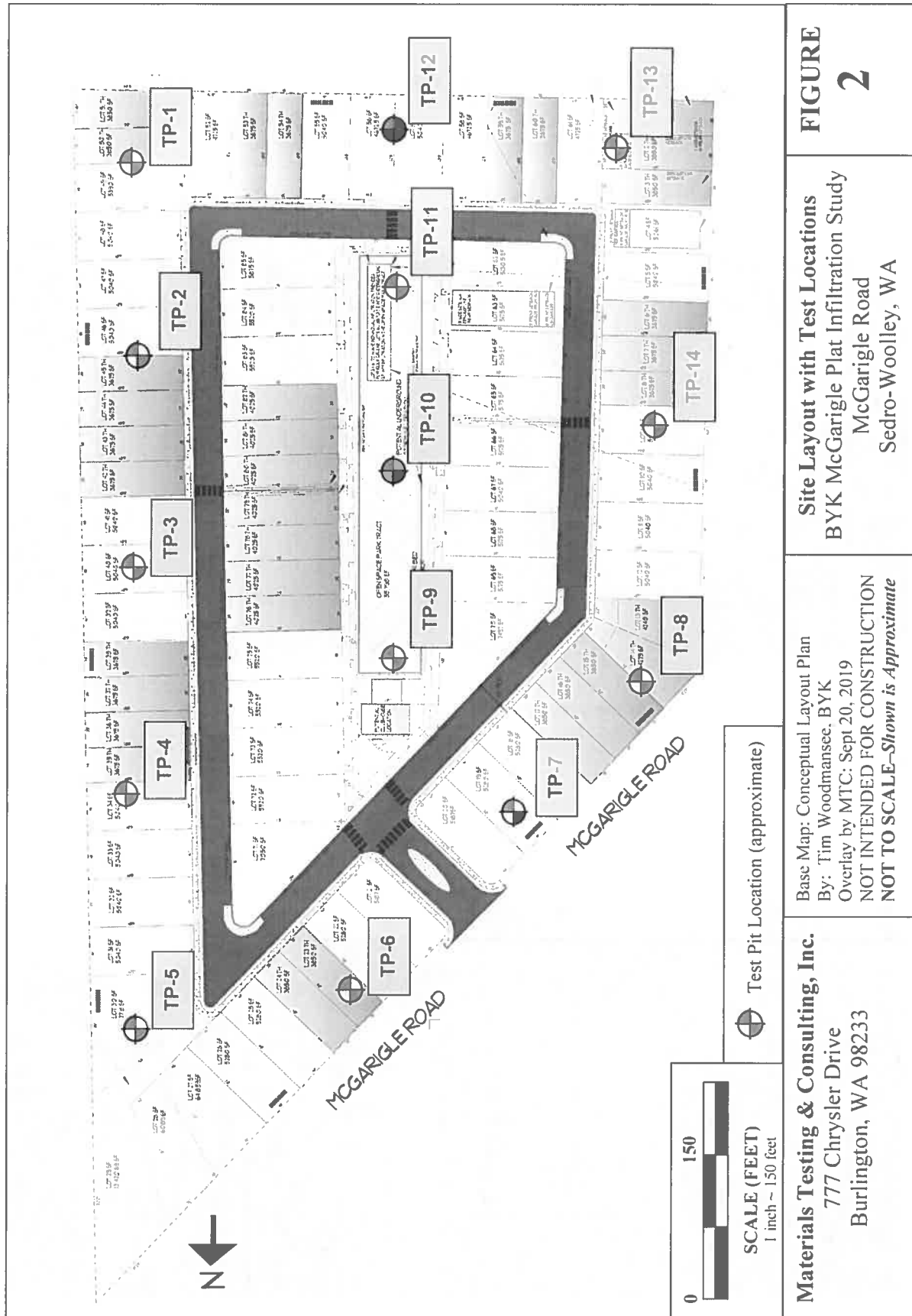
Land or facility use, on- and off-site conditions, regulations, or other factors may change over time, and additional work may be required. Based on the intended use of the report, MTC may recommend that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the Client or anyone else will release MTC from any liability resulting from the use of this report. The Client, the design consultants, and any unauthorized party, agree to defend, indemnify, and hold harmless MTC from any claim or liability associated with such unauthorized use or non-compliance. We recommend that MTC be given the opportunity to review the final project plans and specifications to evaluate if our recommendations have been properly interpreted. We assume no responsibility for misinterpretation of our recommendations.

The scope of work for this subsurface exploration and geotechnical report did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil, surface water, or groundwater at this site.

## Appendix A1. Location and Vicinity Map



## Appendix A2. Site Plan with Test Locations



**FIGURE 2**

**Site Layout with Test Locations**  
BYK McGarigle Plat Infiltration Study  
McGarigle Road  
Sedro-Woolley, WA

## Appendix B. Photos of Site Exploration



**Photo A:** Photo of central interior of the project site. View looking south-southwest from the approximate north-center of the property. Test pit TP-9 in progress.



**Photo B:** Photo of the northern portion of the property. View facing west-northwest from east-central side of the site.



<b>MATERIALS TESTING</b>		Date Received:	9/20/2019
777 CHRYSLER DR		Grower:	BYK MCGARGILE PLAT
Burlington, WA 98233		Sampled By:	
Laboratory #: S19-17517		Field:	B19-0863 TP2 AT 2.0FT
		Customer Account #:	
		Customer Sample ID:	

**Soil Test Results**

Cation Exchange CEC	meq/100g	2.1	pH 1:1	
			E.C. 1:1	m.mhos/cm
			Est Sat Paste E.C.	m.mhos/cm
			Effervescence	
				<u>Lbs/Acre</u>
			Ammonium - N	mg/kg
			Organic Matter W.B.	%
				ENR:

**Other Tests:**


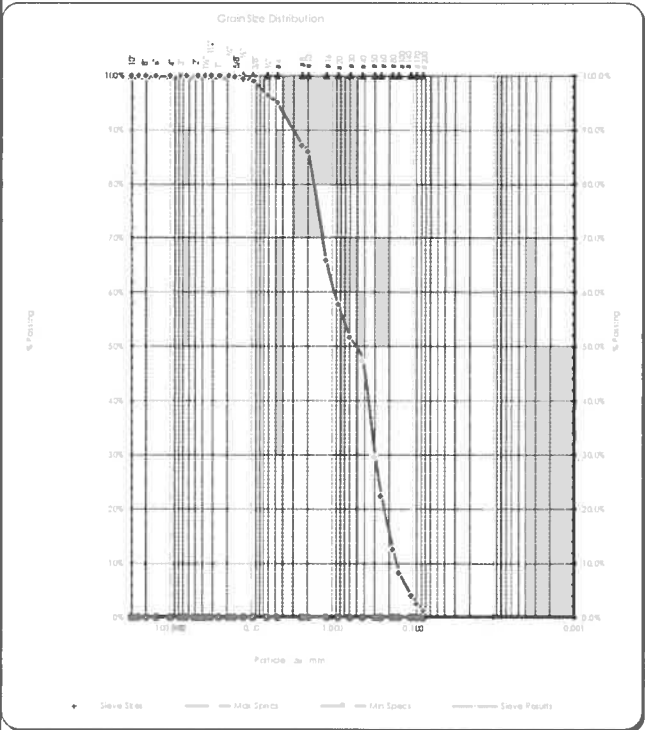
Organic Matter (LOI): 1.3 %:

**Materials Testing & Consulting, Inc.**  
777 Chrysler Drive  
Burlington, WA 98233

**CEC/OC Sample: TP-2 @ 2.0'**  
BYK McGarigle Plat Infiltration  
McGarigle Road  
Sedro-Woolley, WA


**FIGURE**  
**5b**

## Sieve Report

<b>Project:</b> BYK McGarigle Plat Infiltration Evaluation <b>Project #:</b> 19B018-10 <b>Client:</b> BYK Construction <b>Source:</b> TP-4 @ 3.2' <b>Sample#:</b> B19-0864		<b>Date Received:</b> 18-Sep-19 <b>Sampled By:</b> C. Dimitroff <b>Date Tested:</b> 19-Sep-19 <b>Tested By:</b> A. Efrig / J. Acuna		<b>ASTM D-2487 Unified Soils Classification System</b> <b>SP: Poorly graded Sand</b> <b>Sample Color:</b> gray			
<b>ASTM D-2216, ASTM D-2419, ASTM D-4318, ASTM D-5821</b>							
<b>Specifications</b> No Specs Sample Meets Specs ? N/A		D <sub>15</sub> = 0.116 mm D <sub>30</sub> = 0.162 mm D <sub>60</sub> = 0.198 mm D <sub>100</sub> = 0.303 mm D <sub>200</sub> = 0.532 mm D <sub>425</sub> = 0.940 mm D <sub>600</sub> = 3.228 mm		% Gravel = 5.0% % Sand = 93.8% % Silt & Clay = 1.1% Liquid Limit = n/a Plasticity Index = n/a Sand Equivalent = n/a Fracture % <sub>a, 1 Face</sub> = n/a Fracture % <sub>a, 2+ Faces</sub> = n/a		Coeff. of Curvature, C <sub>c</sub> = 0.60 Coeff. of Uniformity, C <sub>u</sub> = 5.79 Fineness Modulus = 2.63 Plastic Limit = n/a Moisture % <sub>a, as sampled</sub> = 3.2% Req'd Sand Equivalent = Req'd Fracture % <sub>a, 1 Face</sub> = Req'd Fracture % <sub>a, 2+ Faces</sub> =	
<b>ASTM C-136, ASTM D-6913</b>							
<b>Sieve Size</b> US      Metric		<b>Actual Cumulative</b> Percent Passing	<b>Interpolated Cumulative</b> Percent Passing	<b>Specs</b> Max	<b>Specs</b> Min		
12.00"	300.00		100%	100.0%	0.0%		
10.00"	250.00		100%	100.0%	0.0%		
8.00"	200.00		100%	100.0%	0.0%		
6.00"	150.00		100%	100.0%	0.0%		
4.00"	100.00		100%	100.0%	0.0%		
3.00"	75.00		100%	100.0%	0.0%		
2.50"	63.00		100%	100.0%	0.0%		
2.00"	50.00		100%	100.0%	0.0%		
1.75"	45.00		100%	100.0%	0.0%		
1.50"	37.50		100%	100.0%	0.0%		
1.25"	31.50		100%	100.0%	0.0%		
1.00"	25.00	100%	100%	100.0%	0.0%		
3/4"	19.00	100%	100%	100.0%	0.0%		
5/8"	16.00		100%	100.0%	0.0%		
1/2"	12.50	99%	99%	100.0%	0.0%		
3/8"	9.50	99%	99%	100.0%	0.0%		
1/4"	6.30		96%	100.0%	0.0%		
#4	4.75	95%	95%	100.0%	0.0%		
#8	2.36		87%	100.0%	0.0%		
#10	2.00	86%	86%	100.0%	0.0%		
#16	1.18		66%	100.0%	0.0%		
#20	0.850		58%	100.0%	0.0%		
#30	0.600		52%	100.0%	0.0%		
#40	0.425	47%	47%	100.0%	0.0%		
#50	0.300		30%	100.0%	0.0%		
#60	0.250		22%	100.0%	0.0%		
#80	0.180		13%	100.0%	0.0%		
#100	0.150	8%	8%	100.0%	0.0%		
#140	0.106		4%	100.0%	0.0%		
#170	0.090		3%	100.0%	0.0%		
#200	0.075	1.1%	1.1%	100.0%	0.0%		


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**Comments:** \_\_\_\_\_

Reviewed by:   
 Meghan Blodgett-Carrillo

<b>Materials Testing &amp; Consulting, Inc.</b> 777 Chrysler Drive Burlington, WA 98233	<b>Lab Sample: TP-4 @ 3.2'</b> BYK McGarigle Plat Infiltration McGarigle Road Sedro-Woolley, WA	<b>FIGURE</b> <span style="font-size: 2em; font-weight: bold;">6</span>
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## Sieve Report

<b>Project:</b> BYK McGarigle Plat Infiltration Evaluation <b>Project #:</b> 19B018-10 <b>Client:</b> BYK Construction <b>Source:</b> TP-6 @ 4.2' <b>Sample#:</b> B19-0865	<b>Date Received:</b> 18 Sep 19 <b>Sampled By:</b> C. Dimitroff <b>Date Tested:</b> 19-Sep-19 <b>Tested By:</b> A. Firing / J. Acuna	<b>ASTM:</b> D-2487 Unified Soils Classification System <b>SM:</b> Silty Sand <b>Sample Color:</b> brown-gray	
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### ASTM D-2216, ASTM D-2419, ASTM D-4318, ASTM D-5821

Specifications

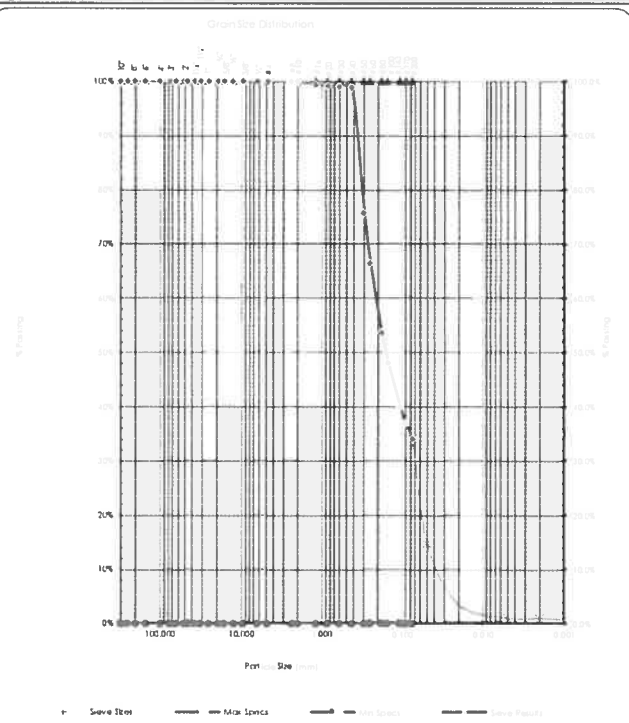
No Specs

Sample Meets Specs ? N/A

D <sub>10</sub> = 0.011 mm	% Gravel = 0.0%	Coef. of Curvature, C <sub>u</sub> = 0.0
D <sub>30</sub> = 0.022 mm	% Sand = 65.8%	Coef. of Uniformity, C <sub>u</sub> = 9.79
D <sub>60</sub> = 0.033 mm	% Silt & Clay = 34.2%	Fineness Modulus = 0.78
D <sub>100</sub> = 0.066 mm	Liquid Limit = n/a	Plastic Limit = n/a
D <sub>200</sub> = 0.161 mm	Plasticity Index = n/a	Moisture % = as sampled = 8.1%
D <sub>425</sub> = 0.215 mm	Sand Equivalent = n/a	Req'd Sand Equivalent =
D <sub>850</sub> = 0.377 mm	Fracture % - 1 Face = n/a	Req'd Fracture % - 1 Face =
Dust Ratio = 9/26	Fracture % - 2+ Faces = n/a	Req'd Fracture % - 2+ Faces =

### ASTM C-136, ASTM D-6913

Sieve Size		Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
US	Metric				
12.00"	300.00		100%	100.0%	0.0%
10.00"	250.00		100%	100.0%	0.0%
8.00"	200.00		100%	100.0%	0.0%
6.00"	150.00		100%	100.0%	0.0%
4.00"	100.00		100%	100.0%	0.0%
3.00"	75.00		100%	100.0%	0.0%
2.50"	63.00		100%	100.0%	0.0%
2.00"	50.00		100%	100.0%	0.0%
1.75"	45.00		100%	100.0%	0.0%
1.50"	37.50		100%	100.0%	0.0%
1.25"	31.50		100%	100.0%	0.0%
1.00"	25.00	100%	100%	100.0%	0.0%
3/4"	19.00	100%	100%	100.0%	0.0%
5/8"	16.00		100%	100.0%	0.0%
1/2"	12.50	100%	100%	100.0%	0.0%
3/8"	9.50	100%	00%	100.0%	0.0%
1/4"	6.30		100%	100.0%	0.0%
#4	4.75	100%	00%	100.0%	0.0%
#8	2.36		100%	100.0%	0.0%
#10	2.00	100%	100%	100.0%	0.0%
#16	1.18		99%	100.0%	0.0%
#20	0.850		99%	100.0%	0.0%
#30	0.600		99%	100.0%	0.0%
#40	0.425	99%	99%	100.0%	0.0%
#50	0.300		76%	100.0%	0.0%
#60	0.250		66%	100.0%	0.0%
#80	0.180		54%	100.0%	0.0%
#100	0.150		48%	100.0%	0.0%
#140	0.106		40%	100.0%	0.0%
#170	0.090		37%	100.0%	0.0%
#200	0.075	34.2%	34.2%	100.0%	0.0%



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Comments:

Reviewed by:


Meghan Blodgett-Carrillo

**Materials Testing & Consulting, Inc.**  
777 Chrysler Drive  
Burlington, WA 98233

**Lab Sample: TP-6 @ 4.2'**  
BYK McGarigle Plat Infiltration  
McGarigle Road  
Sedro-Woolley, WA

**FIGURE**  
**7a**

## Hydrometer Report

<b>Project:</b> BYK McGarigle Plat Infiltration Feasibility Study <b>Project #:</b> 19B018-10 <b>Client:</b> BYK Construction <b>Source:</b> TP-6 @ 4.2' <b>Sample#:</b> B19-0865		<b>Date Received:</b> 18-Sep-19 <b>Sampled By:</b> C. Dimitroff <b>Date Tested:</b> 23-Sep-19 <b>Tested By:</b> A. Eifrig / J. Adams		<b>ASTM D 2487 Soils Classification</b> SM, Silty Sand <b>Sample Color:</b> brown-gray																																																																						
<b>ASTM D-422, HYDROMETER ANALYSIS</b>				<b>ASTM C-136</b>																																																																						
<b>Assumed Sp Gr:</b> 2.70 <b>Sample Weight:</b> 100.31 grams <b>Hydrosopic Moist.:</b> 0.61% <b>Adj. Sample Wgt:</b> 99.70 grams				<b>Sieve Analysis</b> <b>Grain Size Distribution</b>																																																																						
				<table border="1"> <thead> <tr> <th>Sieve Size</th> <th>Percent Passing</th> <th>Soils Particle Diameter</th> </tr> </thead> <tbody> <tr><td>3.0"</td><td>100%</td><td>75.000 mm</td></tr> <tr><td>2.0"</td><td>100%</td><td>50.000 mm</td></tr> <tr><td>1.5"</td><td>100%</td><td>37.500 mm</td></tr> <tr><td>1.25"</td><td>100%</td><td>31.500 mm</td></tr> <tr><td>1.0"</td><td>100%</td><td>25.000 mm</td></tr> <tr><td>3/4"</td><td>100%</td><td>19.000 mm</td></tr> <tr><td>5/8"</td><td>100%</td><td>16.000 mm</td></tr> <tr><td>1/2"</td><td>100%</td><td>12.500 mm</td></tr> <tr><td>3/8"</td><td>100%</td><td>9.500 mm</td></tr> <tr><td>1/4"</td><td>100%</td><td>6.300 mm</td></tr> <tr><td>#4</td><td>100%</td><td>4.750 mm</td></tr> <tr><td>#10</td><td>100%</td><td>2.000 mm</td></tr> <tr><td>#20</td><td>99%</td><td>0.850 mm</td></tr> <tr><td>#40</td><td>99%</td><td>0.425 mm</td></tr> <tr><td>#100</td><td>48%</td><td>0.150 mm</td></tr> <tr><td>#200</td><td>34.2%</td><td>0.075 mm</td></tr> <tr><td colspan="2"><b>Silts</b></td><td>33.4%</td></tr> <tr><td colspan="2"></td><td>14.8%</td></tr> <tr><td colspan="2"></td><td>3.4%</td></tr> <tr><td colspan="2"><b>Clays</b></td><td>1.0%</td></tr> <tr><td colspan="2"></td><td>1.0%</td></tr> <tr><td><b>Colloids</b></td><td>0.7%</td><td>0.001 mm</td></tr> </tbody> </table>		Sieve Size	Percent Passing	Soils Particle Diameter	3.0"	100%	75.000 mm	2.0"	100%	50.000 mm	1.5"	100%	37.500 mm	1.25"	100%	31.500 mm	1.0"	100%	25.000 mm	3/4"	100%	19.000 mm	5/8"	100%	16.000 mm	1/2"	100%	12.500 mm	3/8"	100%	9.500 mm	1/4"	100%	6.300 mm	#4	100%	4.750 mm	#10	100%	2.000 mm	#20	99%	0.850 mm	#40	99%	0.425 mm	#100	48%	0.150 mm	#200	34.2%	0.075 mm	<b>Silts</b>		33.4%			14.8%			3.4%	<b>Clays</b>		1.0%			1.0%	<b>Colloids</b>	0.7%	0.001 mm
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<b>% Gravel:</b> 0.0% <b>% Sand:</b> 65.8% <b>% Silt:</b> 33.2% <b>% Clay:</b> 1.0%				<b>Liquid Limit:</b> n/a <b>Plastic Limit:</b> n/a <b>Plasticity Index:</b> n/a																																																																						
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<table border="1"> <thead> <tr> <th></th> <th>Particle Size</th> </tr> </thead> <tbody> <tr><td><b>% Sand:</b></td><td>2.0 - 0.05 mm</td></tr> <tr><td><b>% Silt:</b></td><td>0.05 - 0.002 mm</td></tr> <tr><td><b>% Clay:</b></td><td>&lt; 0.002 mm</td></tr> </tbody> </table>							Particle Size	<b>% Sand:</b>	2.0 - 0.05 mm	<b>% Silt:</b>	0.05 - 0.002 mm	<b>% Clay:</b>	< 0.002 mm																																																													
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<b>% Clay:</b>	< 0.002 mm																																																																									
<b>USDA Soil Textural Classification</b> Loamy Sand																																																																										

All results apply only to actual locations and materials tested. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Reviewed by:** \_\_\_\_\_  
 Meghan Blodgett-Carrillo

**Materials Testing & Consulting, Inc.**  
 777 Chrysler Drive  
 Burlington, WA 98233

**Lab Sample: TP-6 @ 4.2'**  
 BYK McGarigle Plat Infiltration  
 McGarigle Road  
 Sedro-Woolley, WA

**FIGURE**  
**7b**



<b>MATERIALS TESTING</b>		Date Received:	9/20/2019
777 CHRYSLER DR		Grower:	BYK MCGARGILE PLAT
Burlington, WA 98233		Sampled By:	
Laboratory #: S19-17518		Field:	B19-0865 TP6 AT 4.2FT
		Customer Account #:	
		Customer Sample ID:	

**Soil Test Results**

Cation Exchange CEC	meq/100g	3.8	pH 1:1	
			E.C. 1:1	m.mhos/cm
			Est Sat Paste E.C.	m.mhos/cm
			Effervescence	
				<u>Lbs/Acre</u>
			Ammonium - N	mg/kg
			Organic Matter W.B.	% ENR:

Other Tests:


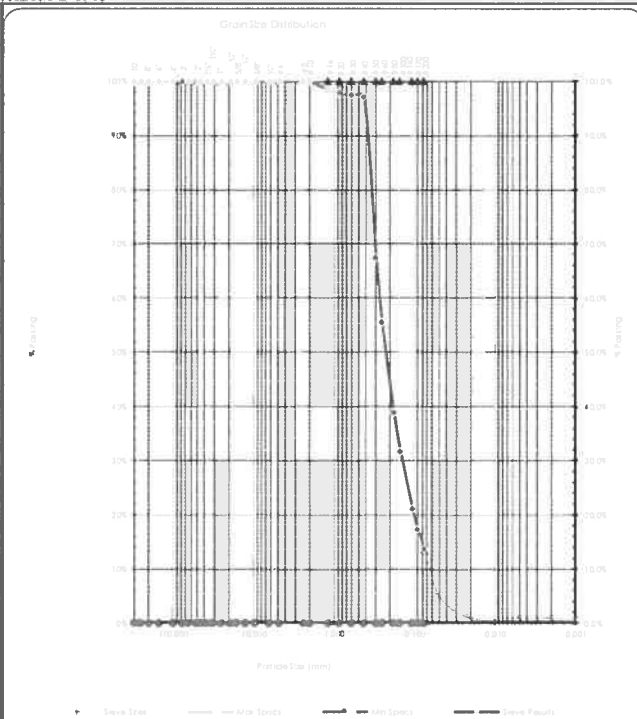
Organic Matter (LOI): 1.6 %:

**Materials Testing & Consulting, Inc.**  
777 Chrysler Drive  
Burlington, WA 98233


**CEC/OC Sample: TP-6 @ 4.2'**  
BYK McGarigle Plat Infiltration  
McGarigle Road  
Sedro-Woolley, WA

**FIGURE**  
**7c**

## Sieve Report

<b>Project:</b> BYK McGarigle Plat Infiltration Evaluation <b>Project #:</b> 19B018-10 <b>Client:</b> BYK Construction <b>Source:</b> TP-7 @ 2.5' <b>Sample#:</b> B19-0866		<b>Date Received:</b> 18-Sep-19 <b>Sampled By:</b> C. Dimitroff <b>Date Tested:</b> 19-Sep-19 <b>Tested By:</b> A. Efring / J. Acuna		<b>ASTM D-2487 Unified Soils Classification System</b> SM, Silty Sand Sample Color: brown-gray		 ACCREDITED <small>Certificate # 1366 01, 1366 02 &amp; 1366 04</small>																																																																																																																																																													
<b>ASTM D-2216, ASTM D-2419, ASTM D-4318, ASTM D-5821</b>																																																																																																																																																																			
<b>Specifications</b> No Specs Sample Meets Specs ? N/A		D <sub>10</sub> = 0.027 mm D <sub>30</sub> = 0.054 mm D <sub>40</sub> = 0.083 mm D <sub>60</sub> = 0.143 mm D <sub>80</sub> = 0.227 mm D <sub>100</sub> = 0.263 mm D <sub>200</sub> = 0.395 mm Dust Ratio = 1.7		% Gravel = 0.0% % Sand = 86.2% % Silt & Clay = 13.8% Liquid Limit = n/a Plasticity Index = n/a Sand Equivalent = n/a Fracture % 1 Face = n/a Fracture % 2+ Faces = n/a		Coef. of Curvature, C <sub>c</sub> = 1.40 Coef. of Uniformity, C <sub>u</sub> = 4.95 Fineness Modulus = 1.05 Plastic Limit = n/a Moisture % as sampled = 3.3% Req'd Fracture % 1 Face = Req'd Fracture % 2+ Faces =																																																																																																																																																													
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## Hydrometer Report

<b>Project:</b> BYK McGarigle Plat Infiltration Feasibility Study <b>Project #:</b> 19B018-10 <b>Client:</b> BYK Construction <b>Source:</b> TP-7 @ 2.5' <b>Sample#:</b> B19-0866		<b>Date Received:</b> 18-Sep-19 <b>Sampled By:</b> C. Dimitroff <b>Date Tested:</b> 23-Sep-19 <b>Tested By:</b> A. Eifrig / J. Adams		<b>ASTM D 2487 Soils Classification</b> SM, Silty Sand <b>Sample Color:</b> brown-gray																																																																																																						
<b>ASTM D-422, HYDROMETER ANALYSIS</b>			<b>ASTM C-136</b>																																																																																																							
<b>Assumed Sp Gr:</b> 2.70 <b>Sample Weight:</b> 100.69 grams <b>Hydrosopic Moist.:</b> 0.26% <b>Adj. Sample Wgt:</b> 100.43 grams																																																																																																										
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Hydrometer Reading</th> <th>Corrected Reading</th> <th>Percent Passing</th> <th>Soils Particle Diameter</th> </tr> </thead> <tbody> <tr><td>2</td><td>1</td><td>1.0%</td><td>0.0381 mm</td></tr> <tr><td>5</td><td>1</td><td>1.0%</td><td>0.0241 mm</td></tr> <tr><td>15</td><td>1</td><td>1.0%</td><td>0.0139 mm</td></tr> <tr><td>30</td><td>1</td><td>1.0%</td><td>0.0098 mm</td></tr> <tr><td>60</td><td>1</td><td>1.0%</td><td>0.0070 mm</td></tr> <tr><td>250</td><td>1</td><td>1.0%</td><td>0.0034 mm</td></tr> <tr><td>1440</td><td>1</td><td>1.0%</td><td>0.0014 mm</td></tr> </tbody> </table>			Hydrometer Reading	Corrected Reading	Percent Passing	Soils Particle Diameter	2	1	1.0%	0.0381 mm	5	1	1.0%	0.0241 mm	15	1	1.0%	0.0139 mm	30	1	1.0%	0.0098 mm	60	1	1.0%	0.0070 mm	250	1	1.0%	0.0034 mm	1440	1	1.0%	0.0014 mm	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Sieve Size</th> <th>Percent Passing</th> <th>Soils Particle Diameter</th> </tr> </thead> <tbody> <tr><td>3.0"</td><td>100%</td><td>75.000 mm</td></tr> <tr><td>2.0"</td><td>100%</td><td>50.000 mm</td></tr> <tr><td>1.5"</td><td>100%</td><td>37.500 mm</td></tr> <tr><td>1.25"</td><td>100%</td><td>31.500 mm</td></tr> <tr><td>1.0"</td><td>100%</td><td>25.000 mm</td></tr> <tr><td>3/4"</td><td>100%</td><td>19.000 mm</td></tr> <tr><td>5/8"</td><td>100%</td><td>16.000 mm</td></tr> <tr><td>1/2"</td><td>100%</td><td>12.500 mm</td></tr> <tr><td>3/8"</td><td>100%</td><td>9.500 mm</td></tr> <tr><td>1/4"</td><td>100%</td><td>6.300 mm</td></tr> <tr><td>#4</td><td>100%</td><td>4.750 mm</td></tr> <tr><td>#10</td><td>100%</td><td>2.000 mm</td></tr> <tr><td>#20</td><td>98%</td><td>0.850 mm</td></tr> <tr><td>#40</td><td>97%</td><td>0.425 mm</td></tr> <tr><td>#100</td><td>32%</td><td>0.150 mm</td></tr> <tr><td>#200</td><td>13.8%</td><td>0.075 mm</td></tr> <tr><td>Silts</td><td>13.4%</td><td>0.074 mm</td></tr> <tr><td></td><td>5.1%</td><td>0.050 mm</td></tr> <tr><td></td><td>1.0%</td><td>0.020 mm</td></tr> <tr><td>Clays</td><td>1.0%</td><td>0.005 mm</td></tr> <tr><td></td><td>1.0%</td><td>0.002 mm</td></tr> <tr><td>Colloids</td><td>0.7%</td><td>0.001 mm</td></tr> </tbody> </table>			Sieve Size	Percent Passing	Soils Particle Diameter	3.0"	100%	75.000 mm	2.0"	100%	50.000 mm	1.5"	100%	37.500 mm	1.25"	100%	31.500 mm	1.0"	100%	25.000 mm	3/4"	100%	19.000 mm	5/8"	100%	16.000 mm	1/2"	100%	12.500 mm	3/8"	100%	9.500 mm	1/4"	100%	6.300 mm	#4	100%	4.750 mm	#10	100%	2.000 mm	#20	98%	0.850 mm	#40	97%	0.425 mm	#100	32%	0.150 mm	#200	13.8%	0.075 mm	Silts	13.4%	0.074 mm		5.1%	0.050 mm		1.0%	0.020 mm	Clays	1.0%	0.005 mm		1.0%	0.002 mm	Colloids	0.7%	0.001 mm
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Although we apply our best efforts to actual locations and materials tested, as a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Reviewed by:** \_\_\_\_\_  
 Meghan Blodgett-Camilo

**Materials Testing & Consulting, Inc.**  
 777 Chrysler Drive  
 Burlington, WA 98233

**Lab Sample: TP-4 @ 5.5'**  
 BYK McGarigle Plat Infiltration  
 McGarigle Road  
 Sedro-Woolley, WA

**FIGURE**  
**8b**

PAP Accredited



**soiltest**  
farm consultants

2925 Driggs Dr. Moses Lake, WA 98837 • www.soiltestlab.com  
Office (509)765-1822 • Fax (509)765-0314 • (800)764-1822

Soil & Plant Program

2019



Particulate  
Laboratory

**MATERIALS TESTING**

777 CHRYSLER DR

Burlington, WA 98233

Laboratory #: S19-17519

Date Received: 9/20/2019

Grower: BYK MCGARGILE PLAT

Sampled By:

Field: B19-0866 TP7 AT 2.5FT

Customer Account #:

Customer Sample ID:

**Soil Test Results**

Cation Exchange CEC meq/100g 2.8 pH 1:1  
E.C. 1:1 m.mhos/cm  
Est Sat Paste E.C. m.mhos/cm  
Effervescence

Lbs/Acre

Ammonium - N mg/kg

Organic Matter W.B. %

ENR:

Other Tests:

Organic Matter (LOI): 1.0 %:

**Materials Testing & Consulting, Inc.**  
777 Chrysler Drive  
Burlington, WA 98233

**CEC/OC Sample: TP-7 @ 2.5'**  
BYK McGarigle Plat Infiltration  
McGarigle Road  
Sedro-Woolley, WA

**FIGURE**  
**8c**

## Sieve Report

Project: BYK McGarigle Plat Infiltration Evaluation Date Received: 18-Sep-19  
Project #: 19B018-10 Sampled By: C. Dimitroff  
Client: BYK Construction Date Tested: 19-Sep-19  
Source: TP-9 @ 3.5' Tested By: A. Efring / J. Acuna  
Sample #: B19-0867

ASTM D-2487 Unified Soils Classification System  
SP-SM, Poorly graded Sand with Silt  
Sample Color: gray



### ASTM D-2216, ASTM D-2419, ASTM D-4318, ASTM D-5821

Specifications  
No Specs

Sample Meets Specs ? N/A

$D_{15} = 0.039$ mm	% Gravel = 0.2%	Coeff. of Curvature, $C_c = 0.85$
$D_{30} = 0.163$ mm	% Sand = 93.4%	Coeff. of Uniformity, $C_u = 6.68$
$D_{60} = 0.211$ mm	% Silt & Clay = 6.4%	Fineness Modulus = 2.68
$D_{100} = 0.388$ mm	Liquid Limit = n/a	Plastic Limit = n/a
$D_{200} = 0.833$ mm	Plasticity Index = n/a	Moisture % <sub>w</sub> , as sampled = 3.5%
$D_{425} = 1.087$ mm	Sand Equivalent = n/a	Req'd Sand Equivalent = n/a
$D_{600} = 1.812$ mm	Fracture % <sub>w</sub> , 1 Face = n/a	Req'd Fracture % <sub>w</sub> , 1 Face = n/a
Dust Ratio = 5.26	Fracture % <sub>w</sub> , 2+ Faces = n/a	Req'd Fracture % <sub>w</sub> , 2+ Faces = n/a

### ASTM C-136, ASTM D-6913

Sieve Size		Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
US	Metric				
12 00"	300.00		100%	100 0%	0 0%
10 00"	250.00		100%	100 0%	0 0%
8 00"	200.00		100%	100 0%	0 0%
6 00"	150.00		100%	100 0%	0 0%
4 00"	100.00		100%	100 0%	0 0%
3 00"	75.00		100%	100 0%	0 0%
2 50"	63.00		100%	100 0%	0 0%
2 00"	50.00		100%	100 0%	0 0%
1 75"	45.00		100%	100 0%	0 0%
1 50"	37.50		100%	100 0%	0 0%
1 25"	31.50		100%	100 0%	0 0%
1 00"	25.00	100%	100%	100 0%	0 0%
3/4"	19.00	100%	100%	100 0%	0 0%
5/8"	16.00		100%	100 0%	0 0%
1/2"	12.50	100%	100%	100 0%	0 0%
3/8"	9.50	100%	100%	100 0%	0 0%
1/4"	6.30		100%	100 0%	0 0%
#4	4.75	100%	100%	100 0%	0 0%
#8	2.36		97%	100 0%	0 0%
#10	2.00	97%	97%	100 0%	0 0%
#16	1.18		64%	100 0%	0 0%
#20	0.850		50%	100 0%	0 0%
#30	0.600		40%	100 0%	0 0%
#40	0.425	33%	33%	100 0%	0 0%
#50	0.300		22%	100 0%	0 0%
#60	0.250		18%	100 0%	0 0%
#80	0.180		12%	100 0%	0 0%
#100	0.150	9%	9%	100 0%	0 0%
#140	0.106		7%	100 0%	0 0%
#170	0.090		7%	100 0%	0 0%
#200	0.075	6.4%	6.4%	100 0%	0 0%

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All results apply only to actual locations and materials tested. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or using our reports is reserved pending our written approval.

Comments:

Reviewed by:

Meghan Blodgett-Carrillo

Materials Testing & Consulting, Inc.  
777 Chrysler Drive  
Burlington, WA 98233

Lab Sample: TP-9 @ 3.5'  
BYK McGarigle Plat Infiltration  
McGarigle Road  
Sedro-Woolley, WA

FIGURE  
9a

PAP-Accredited



Soil & Plant Program  
2018



**MATERIALS TESTING**

777 CHRYSLER DR

Burlington, WA 98233

Laboratory #: S19-17520

Date Received: 9/20/2019

Grower: BYK MCGARGILE PLAT

Sampled By:

Field: B19-0867 TP9 AT 3.5FT

Customer Account #:

Customer Sample ID:

**Soil Test Results**

Cation Exchange CEC meq/100g

2.1 pH 1:1

E.C. 1:1 m.mhos/cm

Est Sat Paste E.C. m.mhos/cm

Effervescence

Lbs/Acre

Ammonium - N mg/kg

Organic Matter W.B. %

ENR:

Other Tests:

Organic Matter (LOI): .9 %:

**Materials Testing & Consulting, Inc.**  
777 Chrysler Drive  
Burlington, WA 98233

**CEC/OC Sample: TP-9 @ 3.5'**  
BYK McGarigle Plat Infiltration  
McGarigle Road  
Sedro-Woolley, WA

**FIGURE**  
**9b**

## Sieve Report

Project: BYK McGarigle Plat Infiltration Evaluation Date Received: 18-Sep-19  
Project #: 19B018-10 Sampled By: C. Dimitroff  
Client: BYK Construction Date Tested: 19-Sep-19  
Source: TP-10 @ 5.8' Tested By: A. Eifrig / J. Acuna  
Sample #: B19-0868

ASTM D-2487 Unified Soils Classification System  
SP, Poorly graded Sand  
Sample Color: gray



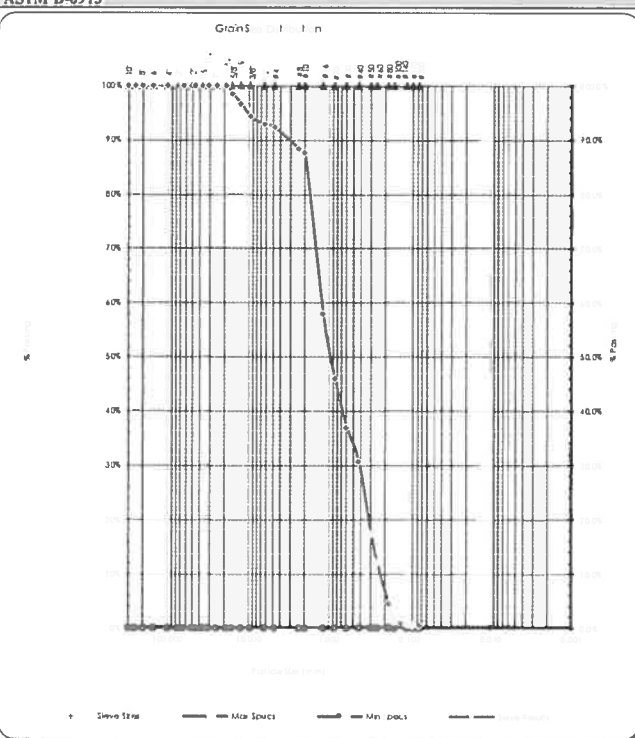
ASTM D-2216, ASTM D-2419, ASTM D-4318, ASTM D-5821

Specifications  
No Specs  
Sample Meets Specs ? N/A

D <sub>10</sub> = 0.185 mm	% Gravel = 7.7%	Coef. of Curvature, C <sub>u</sub> = 0.1
D <sub>30</sub> = 0.232 mm	% Sand = 91.9%	Coef. of Uniformity, C <sub>u</sub> = 5.32
D <sub>50</sub> = 0.279 mm	% Silt & Clay = 0.4%	Plasticity Index = 3.12
D <sub>60</sub> = 0.419 mm	Liquid Limit = n/a	Plastic Limit = n/a
D <sub>75</sub> = 0.959 mm	Plasticity Index = n/a	Moisture % <sub>as sampled</sub> = 4.3%
D <sub>100</sub> = 1.235 mm	Sand Equivalent = n/a	Req'd Sand Equivalent =
D <sub>200</sub> = 3.360 mm	Fracture % <sub>1 Face</sub> = n/a	Req'd Fracture % <sub>1 Face</sub> =
Dist. Rat. = 1/77	Fracture % <sub>2 Faces</sub> = n/a	Req'd Fracture % <sub>2 Faces</sub> =

ASTM C-136, ASTM D-6913

Sieve Size		Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
US	Metric				
12.00"	300.00		100%	100.0%	0.0%
10.00"	250.00		100%	100.0%	0.0%
8.00"	200.00		100%	100.0%	0.0%
6.00"	150.00		100%	100.0%	0.0%
4.00"	100.00		100%	100.0%	0.0%
3.00"	75.00		100%	100.0%	0.0%
2.50"	63.00		100%	100.0%	0.0%
2.00"	50.00		100%	100.0%	0.0%
1.75"	45.00		100%	100.0%	0.0%
1.50"	37.50		100%	100.0%	0.0%
1.25"	31.50		100%	100.0%	0.0%
1.00"	25.00	100%	100%	100.0%	0.0%
3/4"	19.00	100%	100%	100.0%	0.0%
5/8"	16.00		98%	100.0%	0.0%
1/2"	12.50	97%	97%	100.0%	0.0%
3/8"	9.50	94%	94%	100.0%	0.0%
1/4"	6.30		93%	100.0%	0.0%
#4	4.75	92%	92%	100.0%	0.0%
#8	2.36		88%	100.0%	0.0%
#10	2.00	88%	88%	100.0%	0.0%
#16	1.18		58%	100.0%	0.0%
#20	0.850		46%	100.0%	0.0%
#30	0.600		37%	100.0%	0.0%
#40	0.425	31%	31%	100.0%	0.0%
#50	0.300		17%	100.0%	0.0%
#60	0.250		12%	100.0%	0.0%
#80	0.180		4%	100.0%	0.0%
#100	0.150	1%	1%	100.0%	0.0%
#140	0.106		1%	100.0%	0.0%
#170	0.090		1%	100.0%	0.0%
#200	0.075	0.4%	0.4%	100.0%	0.0%



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Comments:

Reviewed by:


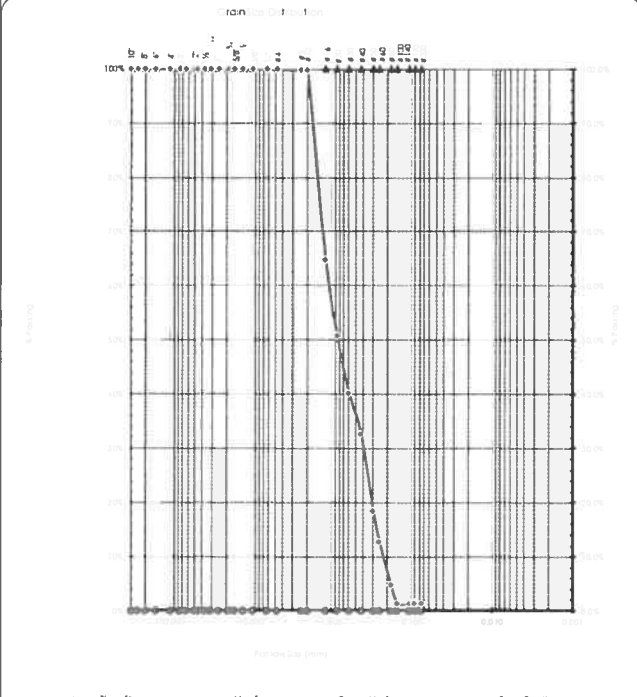
Meghan Blodgett-Carrillo

Materials Testing & Consulting, Inc.  
777 Chrysler Drive  
Burlington, WA 98233

Lab Sample: TP-10 @ 5.8'  
BYK McGarigle Plat Infiltration  
McGarigle Road  
Sedro-Woolley, WA

FIGURE  
10

## Sieve Report

<b>Project:</b> BYK McGarigle Plat Infiltration Evaluation <b>Project #:</b> 19B018-10 <b>Client:</b> BYK Construction <b>Source:</b> TP-11 @ 4.0' <b>Sample#:</b> B19-0869		<b>Date Received:</b> 18-Sep-19 <b>Sampled By:</b> C. Dimitroff <b>Date Tested:</b> 19-Sep-19 <b>Tested By:</b> A. Uifrig, J. Acuna		<b>ASTM D-2487 Unified Soils Classification System</b> SP: Poorly graded Sand <b>Sample Color:</b> Gray		 ACCREDITED <small>Certificate # 1266 01, 1266 02 &amp; 1266 04</small>																									
<b>ASTM D-2216, ASTM D-2419, ASTM D-4318, ASTM D-5821</b>																															
<b>Specifications</b> No Specs Sample Meets Specs ? <input checked="" type="checkbox"/>				<table style="width: 100%; font-size: small;"> <tr> <td>D<sub>10</sub> = 0.182 mm</td> <td>% Gravel = 0.0%</td> <td>Coeff. of Curvature, C<sub>u</sub> = 0.7</td> </tr> <tr> <td>D<sub>30</sub> = 0.226 mm</td> <td>% Sand = 98.6%</td> <td>Coeff. of Uniformity, C<sub>u</sub> = 4.3</td> </tr> <tr> <td>D<sub>40</sub> = 0.270 mm</td> <td>% Silt &amp; Clay = 1.4%</td> <td>Plasticity Index = 0.0</td> </tr> <tr> <td>D<sub>60</sub> = 0.402 mm</td> <td>Liquid Limit = n/a</td> <td>Plastic Limit = n/a</td> </tr> <tr> <td>D<sub>85</sub> = 0.832 mm</td> <td>Plasticity Index = n/a</td> <td>Moisture % as sampled = 7.4%</td> </tr> <tr> <td>D<sub>100</sub> = 1.068 mm</td> <td>Sand Equivalent = n/a</td> <td>Req'd Sand Equivalent = 7.0</td> </tr> <tr> <td>D<sub>200</sub> = 1.773 mm</td> <td>Fracture % = 1 Face = n/a</td> <td>Req'd Fracture % = 1 Face = 0.0</td> </tr> <tr> <td>D<sub>425</sub> = 3/71</td> <td>Fracture % = 2 Faces = n/a</td> <td>Req'd Fracture % = 2 Faces = 0.0</td> </tr> </table>				D <sub>10</sub> = 0.182 mm	% Gravel = 0.0%	Coeff. of Curvature, C <sub>u</sub> = 0.7	D <sub>30</sub> = 0.226 mm	% Sand = 98.6%	Coeff. of Uniformity, C <sub>u</sub> = 4.3	D <sub>40</sub> = 0.270 mm	% Silt & Clay = 1.4%	Plasticity Index = 0.0	D <sub>60</sub> = 0.402 mm	Liquid Limit = n/a	Plastic Limit = n/a	D <sub>85</sub> = 0.832 mm	Plasticity Index = n/a	Moisture % as sampled = 7.4%	D <sub>100</sub> = 1.068 mm	Sand Equivalent = n/a	Req'd Sand Equivalent = 7.0	D <sub>200</sub> = 1.773 mm	Fracture % = 1 Face = n/a	Req'd Fracture % = 1 Face = 0.0	D <sub>425</sub> = 3/71	Fracture % = 2 Faces = n/a	Req'd Fracture % = 2 Faces = 0.0
D <sub>10</sub> = 0.182 mm	% Gravel = 0.0%	Coeff. of Curvature, C <sub>u</sub> = 0.7																													
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D <sub>40</sub> = 0.270 mm	% Silt & Clay = 1.4%	Plasticity Index = 0.0																													
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<b>ASTM C-136, ASTM D-6913</b>																															
<b>Sieve Size</b> US      Metric		<b>Actual Cumulative Percent Passing</b>	<b>Interpolated Cumulative Percent Passing</b>	<b>Specs Max</b>	<b>Specs Min</b>																										
12.00"	300.00		100%	100.0%	0.0%																										
10.00"	250.00		100%	100.0%	0.0%																										
8.00"	200.00		100%	100.0%	0.0%																										
6.00"	150.00		100%	100.0%	0.0%																										
4.00"	100.00		100%	100.0%	0.0%																										
3.00"	75.00		100%	100.0%	0.0%																										
2.50"	63.00		100%	100.0%	0.0%																										
2.00"	50.00		100%	100.0%	0.0%																										
1.75"	45.00		100%	100.0%	0.0%																										
1.50"	37.50		100%	100.0%	0.0%																										
1.25"	31.50		100%	100.0%	0.0%																										
1.00"	25.00	100%	100%	100.0%	0.0%																										
3/4"	19.00	100%	100%	100.0%	0.0%																										
5/8"	16.00		100%	100.0%	0.0%																										
1/2"	12.50	100%	100%	100.0%	0.0%																										
3/8"	9.50	100%	100%	100.0%	0.0%																										
1/4"	6.30		100%	100.0%	0.0%																										
#4	4.75	100%	100%	100.0%	0.0%																										
#8	2.36		100%	100.0%	0.0%																										
#10	2.00	100%	100%	100.0%	0.0%																										
#16	1.18		65%	100.0%	0.0%																										
#20	0.850		51%	100.0%	0.0%																										
#30	0.600		40%	100.0%	0.0%																										
#40	0.425	33%	33%	100.0%	0.0%																										
#50	0.300		18%	100.0%	0.0%																										
#60	0.250		13%	100.0%	0.0%																										
#80	0.180		5%	100.0%	0.0%																										
#100	0.150	1%	1%	100.0%	0.0%																										
#140	0.106		1%	100.0%	0.0%																										
#170	0.090		1%	100.0%	0.0%																										
#200	0.075	1.4%	1.4%	100.0%	0.0%																										

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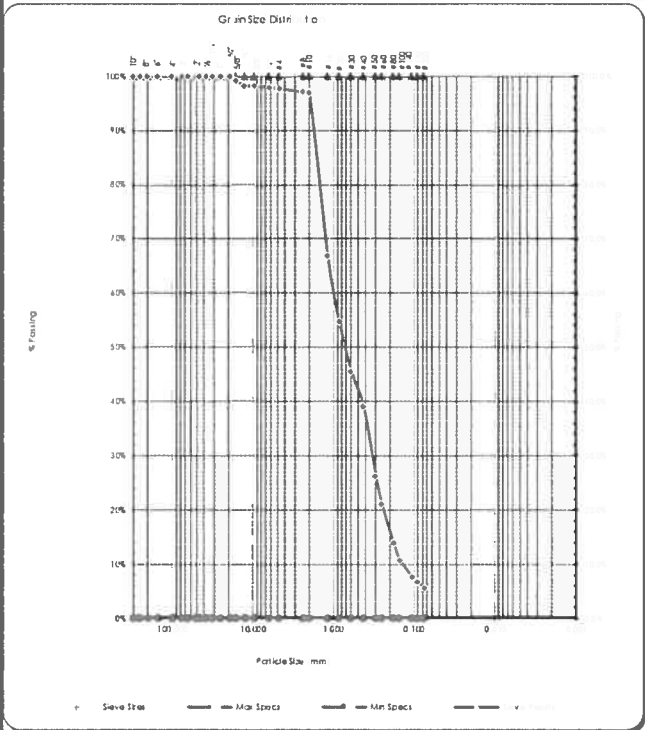
**Comments:**

**Reviewed by:** \_\_\_\_\_  
 Meghan Blodgett-Carrillo

<b>Materials Testing &amp; Consulting, Inc.</b> 777 Chrysler Drive Burlington, WA 98233	<b>Lab Sample: TP-11 @ 4.0'</b> BYK McGarigle Plat Infiltration McGarigle Road Sedro-Woolley, WA	<b>FIGURE 11</b>
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## Sieve Report

<b>Project:</b> BYK McGarigle Plat Infiltration Evaluation <b>Project #:</b> 19B018-10 <b>Client:</b> BYK Construction <b>Source:</b> TP-2 @ 2.0' <b>Sample#:</b> B19-0863		<b>Date Received:</b> 18-Sep-19 <b>Sampled By:</b> C. Dimitroff <b>Date Tested:</b> 19-Sep-19 <b>Tested By:</b> A. Efrig / J. Acuna		<b>ASTM D-2487 Unified Soils Classification System</b> SP-SM, Poorly graded Sand with Silt <b>Sample Color:</b> brown-gray		 1368 62 & 1368 64																									
<b>ASTM D-2216, ASTM D-2419, ASTM D-4318, ASTM D-5821</b>																															
<b>Specifications</b> No Specs Sample Meets Specs ? <b>N/A</b>				<table style="width: 100%; font-size: small;"> <tr> <td>D = 0.067 mm</td> <td>Gravel % = 2.3%</td> <td>Coeff. of Curvature, C<sub>u</sub> = 0.82</td> </tr> <tr> <td>D = 0.139 mm</td> <td>Sand % = 92.1%</td> <td>Coeff. of Uniformity, C<sub>u</sub> = 1.4</td> </tr> <tr> <td>D = 0.192 mm</td> <td>Silt &amp; Clay % = 5.6%</td> <td>Plasticity Modulus = 2.58</td> </tr> <tr> <td>D = 0.337 mm</td> <td>Liquid Limit = n/a</td> <td>Plastic Limit = n/a</td> </tr> <tr> <td>D = 0.723 mm</td> <td>Plasticity Index = n/a</td> <td>Shrinkage % = n/a</td> </tr> <tr> <td>D = 0.995 mm</td> <td>Sand Equivalent = n/a</td> <td>Reqd. Sand Equivalent = 2.9%</td> </tr> <tr> <td>D = 1.812 mm</td> <td>Fracture = 1 Face = n/a</td> <td>Reqd. Fracture % = 1 Face =</td> </tr> <tr> <td>Test at 17</td> <td>Fracture = 2 Faces = n/a</td> <td>Reqd. Fracture % = 2 Faces =</td> </tr> </table>				D = 0.067 mm	Gravel % = 2.3%	Coeff. of Curvature, C <sub>u</sub> = 0.82	D = 0.139 mm	Sand % = 92.1%	Coeff. of Uniformity, C <sub>u</sub> = 1.4	D = 0.192 mm	Silt & Clay % = 5.6%	Plasticity Modulus = 2.58	D = 0.337 mm	Liquid Limit = n/a	Plastic Limit = n/a	D = 0.723 mm	Plasticity Index = n/a	Shrinkage % = n/a	D = 0.995 mm	Sand Equivalent = n/a	Reqd. Sand Equivalent = 2.9%	D = 1.812 mm	Fracture = 1 Face = n/a	Reqd. Fracture % = 1 Face =	Test at 17	Fracture = 2 Faces = n/a	Reqd. Fracture % = 2 Faces =
D = 0.067 mm	Gravel % = 2.3%	Coeff. of Curvature, C <sub>u</sub> = 0.82																													
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<b>ASTM C-136, ASTM D-6913</b>																															
<b>Sieve Size</b> US      Metric		<b>Actual Cumulative</b> Percent Passing	<b>Interpolated Cumulative</b> Percent Passing	<b>Specs</b> Max	<b>Specs</b> Min																										
12.00"	300.00		100%	100.0%	0.0%																										
10.00"	250.00		100%	100.0%	0.0%																										
8.00"	200.00		100%	100.0%	0.0%																										
6.00"	150.00		100%	100.0%	0.0%																										
4.00"	100.00		100%	100.0%	0.0%																										
3.00"	75.00		100%	100.0%	0.0%																										
2.50"	63.00		100%	100.0%	0.0%																										
2.00"	50.00		100%	100.0%	0.0%																										
1.75"	45.00		100%	100.0%	0.0%																										
1.50"	37.50		100%	100.0%	0.0%																										
1.25"	31.50		100%	100.0%	0.0%																										
1.00"	25.00	100%	100%	100.0%	0.0%																										
3/4"	19.00	100%	100%	100.0%	0.0%																										
5/8"	16.00		99%	100.0%	0.0%																										
1/2"	12.50	98%	98%	100.0%	0.0%																										
3/8"	9.50	98%	98%	100.0%	0.0%																										
1/4"	6.30		98%	100.0%	0.0%																										
#4	4.75	98%	98%	100.0%	0.0%																										
#8	2.36		97%	100.0%	0.0%																										
#10	2.00	97%	97%	100.0%	0.0%																										
#16	1.18		67%	100.0%	0.0%																										
#20	0.850		55%	100.0%	0.0%																										
#30	0.600		45%	100.0%	0.0%																										
#40	0.425	39%	39%	100.0%	0.0%																										
#50	0.300		26%	100.0%	0.0%																										
#60	0.250		21%	100.0%	0.0%																										
#80	0.180		14%	100.0%	0.0%																										
#100	0.150	11%	11%	100.0%	0.0%																										
#140	0.106		8%	100.0%	0.0%																										
#170	0.090		7%	100.0%	0.0%																										
#200	0.075	5.6%	5.6%	100.0%	0.0%																										

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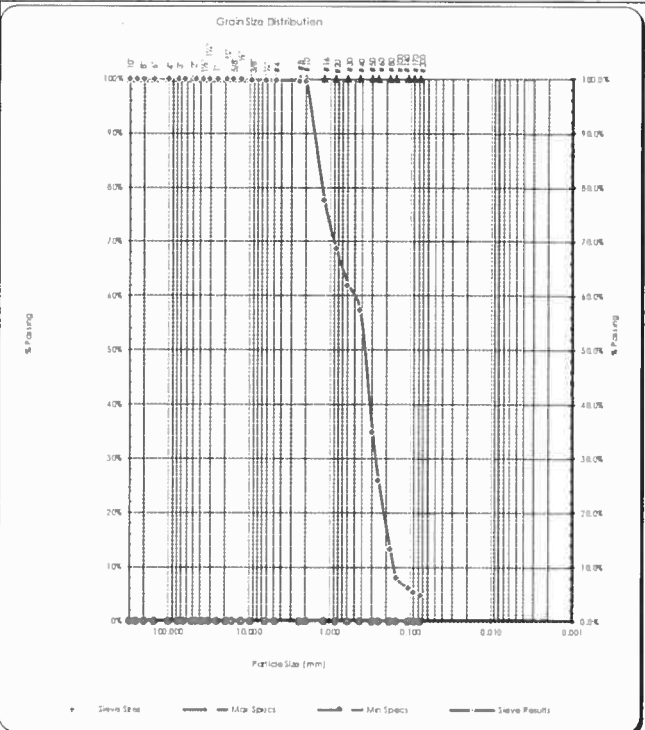
**Comments:** \_\_\_\_\_

Reviewed by:   
Meghan Blodgett-Carrillo

<b>Materials Testing &amp; Consulting, Inc.</b> 777 Chrysler Drive Burlington, WA 98233	<b>Lab Sample: TP-2 @ 2.0'</b> BYK McGarigle Plat Infiltration McGarigle Road Sedro-Woolley, WA	<b>FIGURE</b> <span style="font-size: 2em; font-weight: bold;">5a</span>
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## Appendix D. Laboratory Results

### Sieve Report




<b>Project:</b> BYK McGarigle Plat Infiltration Evaluation <b>Project #:</b> 19B018-10 <b>Client:</b> BYK Construction <b>Source:</b> TP-1 @ 4.0' <b>Sample#:</b> B19-0862		<b>Date Received:</b> 18-Sep-19 <b>Sampled By:</b> C. Dimitroff <b>Date Tested:</b> 19-Sep-19 <b>Tested By:</b> A. Eifrig / J. Acuna		<b>ASTM D-248</b> U.F.S. 100% Clean, Washed, & Sieved <b>SP:</b> Poorly graded Sand <b>Sample Color:</b> gray			
<b>ASTM D-2216, ASTM D-2419, ASTM D-4318, ASTM D-5821</b>							
<b>Specifications</b> No Specs Sample Meets Specs ? N/A				D <sub>5</sub> 0.080 mm D <sub>10</sub> 0.161 mm D <sub>30</sub> 0.189 mm D <sub>40</sub> 0.273 mm D <sub>60</sub> 0.384 mm D <sub>75</sub> 0.524 mm D <sub>100</sub> 1.644 mm D <sub>150</sub> 1.12 mm			
<b>ASTM C-136, ASTM D-6913</b>							
<b>Sieve Size</b>		<b>Actual Cumulative Percent Passing</b>	<b>Interpolated Cumulative Percent Passing</b>	<b>Specs Max</b>	<b>Specs Min</b>		
<b>US</b>	<b>Metric</b>						
12.00"	300.00		100%	100.0%	0.0%		
10.00"	250.00		100%	100.0%	0.0%		
8.00"	200.00		100%	100.0%	0.0%		
6.00"	150.00		100%	100.0%	0.0%		
4.00"	100.00		100%	100.0%	0.0%		
3.00"	75.00		100%	100.0%	0.0%		
2.50"	63.00		100%	100.0%	0.0%		
2.00"	50.00		100%	100.0%	0.0%		
1.75"	45.00		100%	100.0%	0.0%		
1.50"	37.50		100%	100.0%	0.0%		
1.25"	31.50		100%	100.0%	0.0%		
1.00"	25.00	100%	100%	100.0%	0.0%		
3/4"	19.00	100%	100%	100.0%	0.0%		
5/8"	16.00		100%	100.0%	0.0%		
1/2"	12.50	100%	100%	100.0%	0.0%		
3/8"	9.50	100%	100%	100.0%	0.0%		
1/4"	6.30		100%	100.0%	0.0%		
#4	4.75	100%	100%	100.0%	0.0%		
#8	2.36		100%	100.0%	0.0%		
#10	2.00	100%	100%	100.0%	0.0%		
#16	1.18		78%	100.0%	0.0%		
#20	0.850		69%	100.0%	0.0%		
#30	0.600		62%	100.0%	0.0%		
#40	0.425	57%	57%	100.0%	0.0%		
#50	0.300		35%	100.0%	0.0%		
#60	0.250		26%	100.0%	0.0%		
#80	0.180		13%	100.0%	0.0%		
#100	0.150	8%	8%	100.0%	0.0%		
#140	0.106		6%	100.0%	0.0%		
#170	0.090		5%	100.0%	0.0%		
#200	0.075	4.8%	4.8%	100.0%	0.0%		

Reviewed by: \_\_\_\_\_  
Meghan Blodgett-Carrillo

**Materials Testing & Consulting, Inc.**  
777 Chrysler Drive  
Burlington, WA 98233

**Lab Sample: TP-1 @ 4.0'**  
BYK McGarigle Plat Infiltration  
McGarigle Road  
Sedro-Woolley, WA




**FIGURE**  
**4**

Materials Testing And Consulting Burlington, WA Geotechnical Engineering Services			Log of Test Pit TP-14						
BYK McGarigle Plat Infiltration Assessment 2400 Block McGarigle Road Sedro-Woolley, WA			Date Started	9/18/19					
			Date Completed	9/18/19					
			Sampling Method	Grab Samples					
			Location	W Center of Site, see site map					
MTC Job # 19B018-10			Logged By	CD					
Depth in Feet	USCS	GRAPHIC	DESCRIPTION			Water Level	Sample	% Finer than #200	% Moisture
0	ML		SANDY SILT, soft, moist, strong organics (roots, organic silt, grass surface). Dark BROWN						
			Topsoil						
	SM		SILTY SAND, fine-grained sand, medium dense, moist, minor organic content (thin roots). Light BROWN to GRAY, minor scattered mottling				X		
2			Poorly Graded SAND, minor silt and gravel up to 1" subrounded, medium-to coarse grained sand, loose to medium dense, moist. Light to Medium GRAY						
			Minor Silty Sand interbeds, 1-2" thick, discontinuous				X		
4									
	SP						X		
6									
8									
T.D. 8.5' BPG Excavation terminated at planned depths. No free-water or seepage observed during excavation.									

10-14-2019 \\MTC-APP\MTC Files\Burlington Office\Geotechnical Services\1 Burl2019\BYK McGarigle Plat\TP logs\TP-14 bor

Materials Testing And Consulting Burlington, WA Geotechnical Engineering Services			Log of Test Pit TP-13			
BYK McGarigle Plat Infiltration Assessment 2400 Block McGarigle Road Sedro-Woolley, WA MTC Job # 19B018-10			Date Started	9/18/19		
			Date Completed	9/18/19		
			Sampling Method	Grab Samples		
			Location	SW Corner of Site, see site map		
			Logged By	CD		
Depth in Feet	USCS	GRAPHIC	DESCRIPTION		Water Level	% Moisture
0	ML		SANDY SILT, soft, moist, strong organics (roots, organic silt, grass surface). Dark BROWN Topsoil			
	SM		SILTY SAND, fine-grained sand, medium dense, moist, minor organic content (thin roots). Light BROWN to GRAY, minor scattered mottling			
2			Poorly Graded SAND, minor silt and gravel up to 1" subrounded, medium-to coarse grained sand, loose to medium dense, moist. Light to Medium GRAY			
			Thin discontinuous lens of SILTY SAND at 3' 5" BPG, 1-2" thick			
4	SP					
6						
8						
			T.D. 8.1' BPG Excavation terminated at planned depths. No free-water or seepage observed during excavation.			

10-14-2019 \\MTC-APPMTC Files\Burlington Office\Geotechnical Services\1 Burl\2019\BYK McGarigle Plat\TP Log\TP-13 bor

Materials Testing And Consulting Burlington, WA Geotechnical Engineering Services			Log of Test Pit TP-12						
BYK McGarigle Plat Infiltration Assessment 2400 Block McGarigle Road Sedro-Woolley, WA			Date Started 9/18/19 Date Completed 9/18/19 Sampling Method Grab Samples Location S - Center of Site, see site map MTC Job # 19B018-10 Logged By CD						
Depth in Feet	USCS	GRAPHIC	DESCRIPTION			Water Level	Sample	% Finer than #200	% Moisture
0	ML		SANDY SILT, soft, moist, strong organics (roots, organic silt, grass surface). Dark BROWN  Topsoil						
	SM		SILTY SAND, fine-grained sand, medium dense, moist, minor organic content (thin roots). Light BROWN to GRAY, minor scattered mottling				X		
2	SP		Poorly Graded SAND, minor silt and gravel up to 1" subrounded, medium- to coarse grained sand, loose to medium dense, moist. Light to Medium GRAY						
			Thin discontinuous lens of SILTY SAND at 3.5' BPG, 2-3" thick				X		
4			Increase in gravel below 5.0' BPG, approx. 15%						
6									
8							X		
T.D. 8.1' BPG Excavation terminated at planned depths. No free-water or seepage observed during excavation.									

10-14-2019 \\MTC-APP\MTC Files\Burlington Office\Geotechnical Services\1 Burl2019\BYK McGarigle Plat\TP Log\TP-12.bor

Materials Testing And Consulting Burlington, WA Geotechnical Engineering Services			Log of Test Pit TP-11					
BYK McGarigle Plat Infiltration Assessment 2400 Block McGarigle Road Sedro-Woolley, WA			Date Started	9/18/19				
			Date Completed	9/18/19				
			Sampling Method	Grab Samples				
			Location	S End of Central Facility, see site map				
MTC Job # 19B018-10			Logged By	CD				
Depth in Feet	USCS	GRAPHIC	DESCRIPTION		Water Level	Sample	% Finer than #200	% Moisture
0	ML		SANDY SILT, soft, moist, strong organics (roots, organic silt, grass surface). Dark BROWN					
			Topsoil					
	SM		SILTY SAND, fine-grained sand, medium dense, moist, minor organic content (thin roots). Light BROWN to GRAY, minor scattered mottling		X			
2			Poorly Graded SAND, minor silt and gravel up to 1" subrounded, medium- to coarse grained sand, loose to medium dense, moist. Light to Medium GRAY					
4					X		1.4	2.4
6	SP							
8					X			
10								
12			T.D. 11.0' BPG Excavation terminated at planned depths. No free-water or seepage observed during excavation.					

10-11-2019 11MTC-APPMTC Files\Burlington Office\Geotechnical Services\1 Burl2019\BYK McGarigle Plat\TP logs\TP-11.bor

10-11-2019 \\MTC-APPMTC Files\Burlington Office\Geotechnical Services\1 Burl\2019\BYK McGarigle Plat\TP Log\TP-11.bor

Materials Testing And Consulting Burlington, WA Geotechnical Engineering Services			Log of Test Pit TP-10					
BYK McGarigle Plat Infiltration Assessment 2400 Block McGarigle Road Sedro-Woolley, WA			Date Started	9/18/19				
			Date Completed	9/18/19				
			Sampling Method	Grab Samples				
			Location	Center of Central Facility, see site map				
MTC Job # 19B018-10			Logged By	CD				
Depth in Feet	USCS	GRAPHIC	DESCRIPTION		Water Level	Sample	% Finer than #200	% Moisture
0	ML		SANDY SILT, soft, moist, strong organics (roots, organic silt, grass surface). Dark BROWN					
			Topsoil					
	SM		SILTY SAND, fine-grained sand, medium dense, moist, minor organic content (thin roots). Light BROWN to GRAY, minor scattered mottling					
2								
			Poorly Graded SAND, minor silt and gravel up to 1" subrounded, medium- to coarse grained sand, loose to medium dense, moist. Light to Medium GRAY					
4								
6	SP						0.4	4.3
8								
10			Light oxidation banding observed at 9.0' BPG					
12								




T.D. 10.8' BPG

Excavation terminated at planned depths.

No free-water or seepage observed during excavation.

Materials Testing And Consulting Burlington, WA Geotechnical Engineering Services			Log of Test Pit TP-9			
BYK McGarigle Plat Infiltration Assessment 2400 Block McGarigle Road Sedro-Woolley, WA			Date Started	9/18/19		
MTC Job # 19B018-10			Date Completed	9/18/19		
			Sampling Method	Grab Samples		
			Location	N End of Central Facility, see site map		
			Logged By	CD		
Depth in Feet	USCS	GRAPHIC	DESCRIPTION		Water Level	% Moisture
0	ML		SANDY SILT, soft, moist, strong organics (roots, organic silt, grass surface). Dark BROWN			
			Topsoil			
	SM		SILTY SAND, fine-grained sand, medium dense, moist, minor organic content (thin roots). Light BROWN to GRAY, minor scattered mottling			
2						
			Poorly Graded SAND, minor silt and gravel up to 1" subrounded, medium-to coarse grained sand, loose to medium dense, moist. Light to Medium GRAY			
4						
6						
	SP					
8						
			Light oxidation observed at 8.5' BPG			
10						
			Light Seepage observed at 10.5' BPG			
12			T.D. 11.5' BPG Excavation terminated at planned depths. Groundwater stabilized at 10.5' BPG after 3 hrs.			

10-11-2019 \\MTC-APP\MTC Files\Burlington Office\Geotechnical Services\1 Burf2019\BYK McGarigle Plat\TP logs\TP 9 bor

Materials Testing And Consulting Burlington, WA Geotechnical Engineering Services			Log of Test Pit TP-8						
BYK McGarigle Plat Infiltration Assessment 2400 Block McGarigle Road Sedro-Woolley, WA MTC Job # 19B018-10			Date Started	9/18/19					
			Date Completed	9/18/19					
			Sampling Method	Grab Samples					
			Location	Approx 150' W of TP-7, NW Corner , see site map					
			Logged By	CD					
Depth in Feet	USCS	GRAPHIC	DESCRIPTION			Water Level	Sample	% Finer than #200	% Moisture
0	ML		SANDY SILT, soft, moist, strong organics (roots, organic silt, grass surface). Dark BROWN						
			Topsoil						
	SM		SILTY SAND, medium dense, moist, minor organic content (thin roots). Light BROWN to GRAY, minor scattered mottling				X		
2	SP		Poorly Graded SAND, minor silt, trace gravel up to 1" subrounded, medium- to coarse grained sand, loose to medium dense, moist. Light to Medium GRAY				X		
4									
6									
8			Light oxidation observed at 7.5' BPG in coarse-grained SAND pocket						
T.D. 8.5' BPG Excavation terminated at planned depths. No free water seepage or groundwater observed.									
10									

10-11-2019 \\MTC-APP\MTC Files\Burlington Office\Geotechnical Services\1 Bur\2019\BYK McGarigle Plat\TP logs\TP-8 bor

Materials Testing And Consulting Burlington, WA Geotechnical Engineering Services			Log of Test Pit TP-7			
BYK McGarigle Plat Infiltration Assessment 2400 Block McGarigle Road Sedro-Woolley, WA			Date Started	9/18/19		
			Date Completed	9/18/19		
			Sampling Method	Grab Samples		
			Location	Approx 150' W of TP-6, NW-Center, see site map		
MTC Job # 19B018-10			Logged By	CD		
Depth in Feet	USCS	GRAPHIC	DESCRIPTION		Water Level	% Moisture
0	ML		SANDY SILT, soft, moist, strong organics (roots, organic silt, grass surface). Dark BROWN			
			Topsoil			
			SILTY SAND, medium dense, moist, minor organic content (thin roots). Light BROWN to GRAY, minor scattered mottling			
2	SM					
			Poorly Graded SAND WITH SILT, minor gravel up to 1" subrounded, medium- to coarse grained sand, loose to medium dense, moist. Light to Medium GRAY			
4			Thin lens of SILTY SAND at 4.2' BPG, approx. 2" thick			
			Decrease in fines to <10%			
6	SP-SM					
8						
10			T.D. 9.0' BPG Excavation terminated at planned depths. No free water seepage or groundwater observed.			
















10-11-2019 11MTC-APP\MTC Files\Burlington Office\Geotechnical Services\1 Burl2019\BYK McGarigle Plat\TP logs\TP-7.bor

Materials Testing And Consulting Burlington, WA Geotechnical Engineering Services			Log of Test Pit TP-6			
BYK McGarigle Plat Infiltration Assessment 2400 Block McGarigle Road Sedro-Woolley, WA			Date Started	9/18/19		
			Date Completed	9/18/19		
			Sampling Method	Grab Samples		
			Location	Approx 200' W of TP-5, NE-Center, see site map		
MTC Job # 19B018-10			Logged By	CD		
Depth in Feet	USCS	GRAPHIC	DESCRIPTION		Water Level	% Moisture
0	ML		SANDY SILT, trace gravel up to 1" subrounded, soft, moist, strong organics (roots, organic silt, grass surface). Dark BROWN Topsoil			
2			SILTY SAND, trace gravel up to 1/2" subrounded, medium dense, moist, minor organic content (thin roots) in upper 1.0'. Light BROWN to GRAY, minor scattered mottling			
4	SM					
6			Poorly Graded SAND, minor silt, trace gravel up to 1" subrounded, medium-to coarse grained sand, loose to medium dense, moist. Light to Medium GRAY			
8	SP					
10			T.D. 9.0' BPG Excavation terminated at planned depths. No free water seepage or groundwater observed.			




10-11-2019 \\MTC-APPMTC Files\Burlington Office\Geotechnical Services\1 Burl2019\BYK McGarigle Plat\TP logs\TP-6 bor

Materials Testing And Consulting Burlington, WA Geotechnical Engineering Services			Log of Test Pit TP-5					
BYK McGarigle Plat Infiltration Assessment 2400 Block McGarigle Road Sedro-Woolley, WA MTC Job # 19B018-10			Date Started	9/18/19				
			Date Completed	9/18/19				
			Sampling Method	Grab Samples				
			Location	Approx 200' N of TP-4, NE Corner see site map				
			Logged By	CD				
Depth in Feet	USCS	GRAPHIC	DESCRIPTION		Water Level	Sample	% Finer than #200	% Moisture
0	ML		SANDY SILT, soft, moist, strong organics (roots, organic silt, grass surface). Dark BROWN  Topsoil					
2	SM		SILTY SAND, trace gravel up to 1/2" subrounded, medium dense, moist, minor organic content (thin roots). Light BROWN to GRAY, minor scattered mottling					
4			Poorly Graded SAND WITH SILT, trace gravel up to 1" subrounded, medium- to coarse-grained sand, loose to medium dense, moist. Light to Medium GRAY, faint mottling in upper 1.0' Decrease in fines to <10% below 4.0'				1.1	3.2
6	SP-SM							
8								
T.D. 8.5' BPG Excavation terminated at planned depths. No free water seepage or groundwater observed.								






10-11-2019 \\MTC-APPMTC Files\Burlington Office\Geotechnical Services\1 Burl2019\BYK McGarigle Plat\TP logs\TP-5.bor

Materials Testing And Consulting Burlington, WA Geotechnical Engineering Services			Log of Test Pit TP-4						
BYK McGarigle Plat Infiltration Assessment 2400 Block McGarigle Road Sedro-Woolley, WA MTC Job # 19B018-10			Date Started		9/18/19				
			Date Completed		9/18/19				
			Sampling Method		Grab Samples				
			Location		Approx. 200' N of TP-3 , see site map				
			Logged By		CD				
Depth in Feet	USCS	GRAPHIC	DESCRIPTION			Water Level	Sample	% Finer than #200	% Moisture
0	ML		SANDY SILT, soft to medium stiff, moist, strong organics (roots, organic silt, grass surface). Dark BROWN						
			Topsoil						
	SM		SILTY SAND, trace gravel up to 1/2" subrounded, medium dense, moist, minor organic content (thin roots). Light BROWN to GRAY, minor scattered mottling						
2			Poorly Graded SAND, minor silt and gravel up to 1" subrounded, medium- to coarse-grained sand, loose to medium dense, moist. Light to Medium GRAY						
	SP							1.1	3.2
4									
	SP								
6									
	SP								
8									
T.D. 8.5' BPG Excavation terminated at planned depths. No free water seepage or groundwater observed.									

10-11-2019 \\MTC-APPMTC Files\Burlington Office\Geotechnical Services\1 Burl2019\BYK McGarigle Plat\TP logs\TP-4 bor

Materials Testing And Consulting Burlington, WA Geotechnical Engineering Services			Log of Test Pit TP-3					
BYK McGarigle Plat Infiltration Assessment 2400 Block McGarigle Road Sedro-Woolley, WA			Date Started	9/18/19				
			Date Completed	9/18/19				
			Sampling Method	Grab Samples				
			Location	Approx 200' N of TP-2, see site map				
MTC Job # 19B018-10			Logged By	CD				
Depth in Feet	USCS	GRAPHIC	DESCRIPTION		Water Level	Sample	% Finer than #200	% Moisture
0	ML		SANDY SILT, soft to medium stiff, moist, strong organics (roots, organic silt, grass surface). Dark BROWN  Topsoil					
	SM		SILTY SAND, trace gravel up to 1/2" subrounded, medium dense, moist, trace organic content (thin roots). Light BROWN to GRAY, minor scattered mottling					
2			Poorly Graded SAND, minor silt and gravel up to 1" subrounded, medium- to coarse-grained sand, loose to medium dense, moist. Medium GRAY					
			Thin discontinuous lens of SILTY SAND at 3.0' Approx. 2-3" thick, some scattered mottling					
4	SP							
6								
8								
T.D. 8.1' BPG Excavation terminated at planned depths. No free water seepage or groundwater observed.								

10-11-2019 \\MTC-APP\MTC Files\Burlington Office\Geotechnical Services\1 Burl2019\BYK McGarigle Plat\TP logs\TP-3 bor

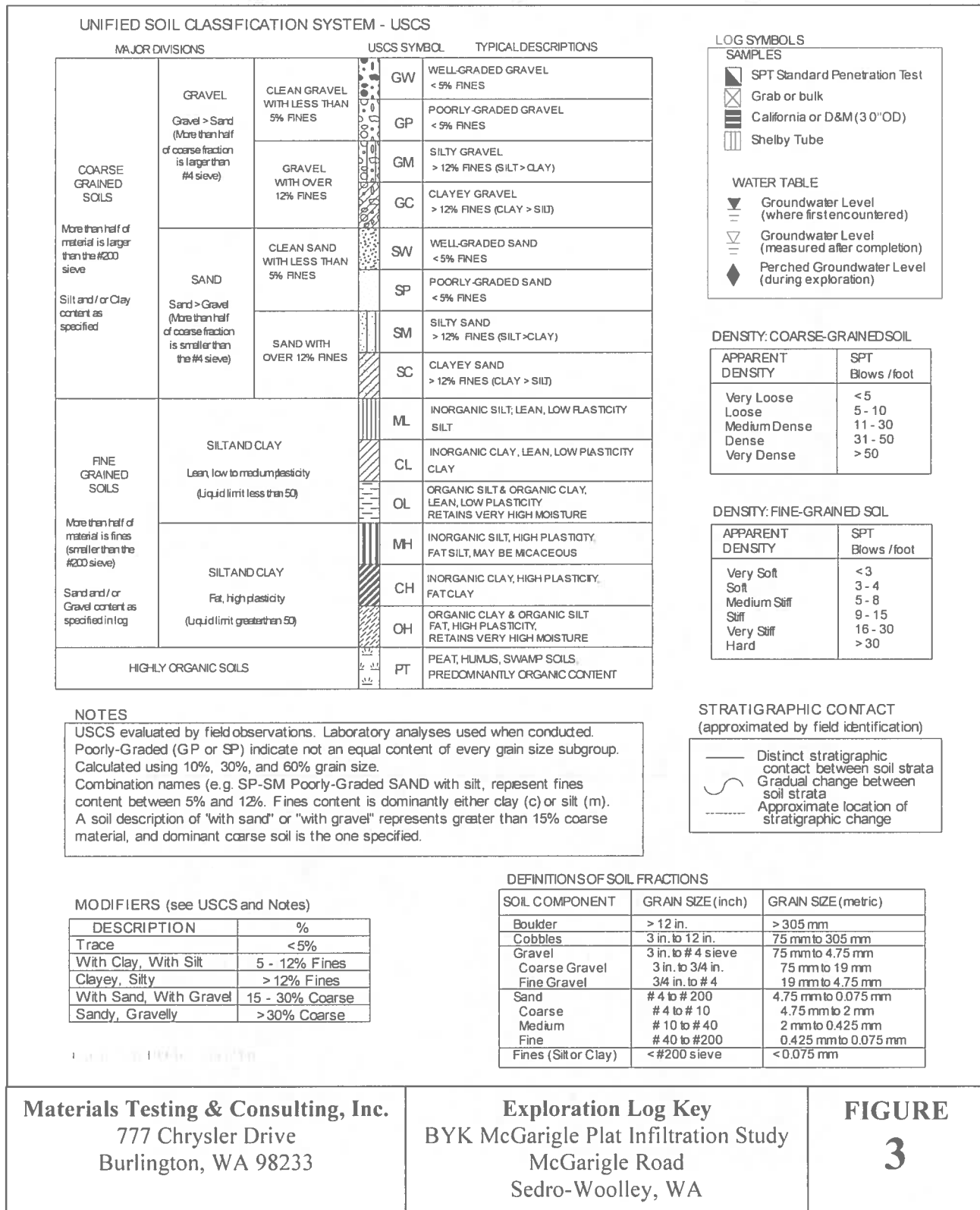
Materials Testing And Consulting Burlington, WA Geotechnical Engineering Services			Log of Test Pit TP-2						
BYK McGarigle Plat Infiltration Assessment 2400 Block McGarigle Road Sedro-Woolley, WA MTC Job # 19B018-10			Date Started	9/18/19					
			Date Completed	9/18/19					
			Sampling Method	Grab Samples					
			Location	Approx 220' N of TP-1 , see site map					
			Logged By	CD					
Depth in Feet	USCS	GRAPHIC	DESCRIPTION			Water Level	Sample	% Finer than #200	% Moisture
0	ML		SANDY SILT, soft, moist, strong organics (roots, organic silt, grass surface). Dark BROWN  Topsoil						
			Poorly Graded SAND, minor silt, trace gravel up to 1" subrounded, medium- to coarse-grained sand, loose to medium dense, moist. Medium GRAY						
2	SP		Thin discontinuous lens of SILTY SAND at 2.5' Approx 2-3" thick, some scattered mottling					56	29
4									
6									
									
8			T.D. 7.8' BPG Excavation terminated at planned depths. No free water seepage or groundwater observed.						

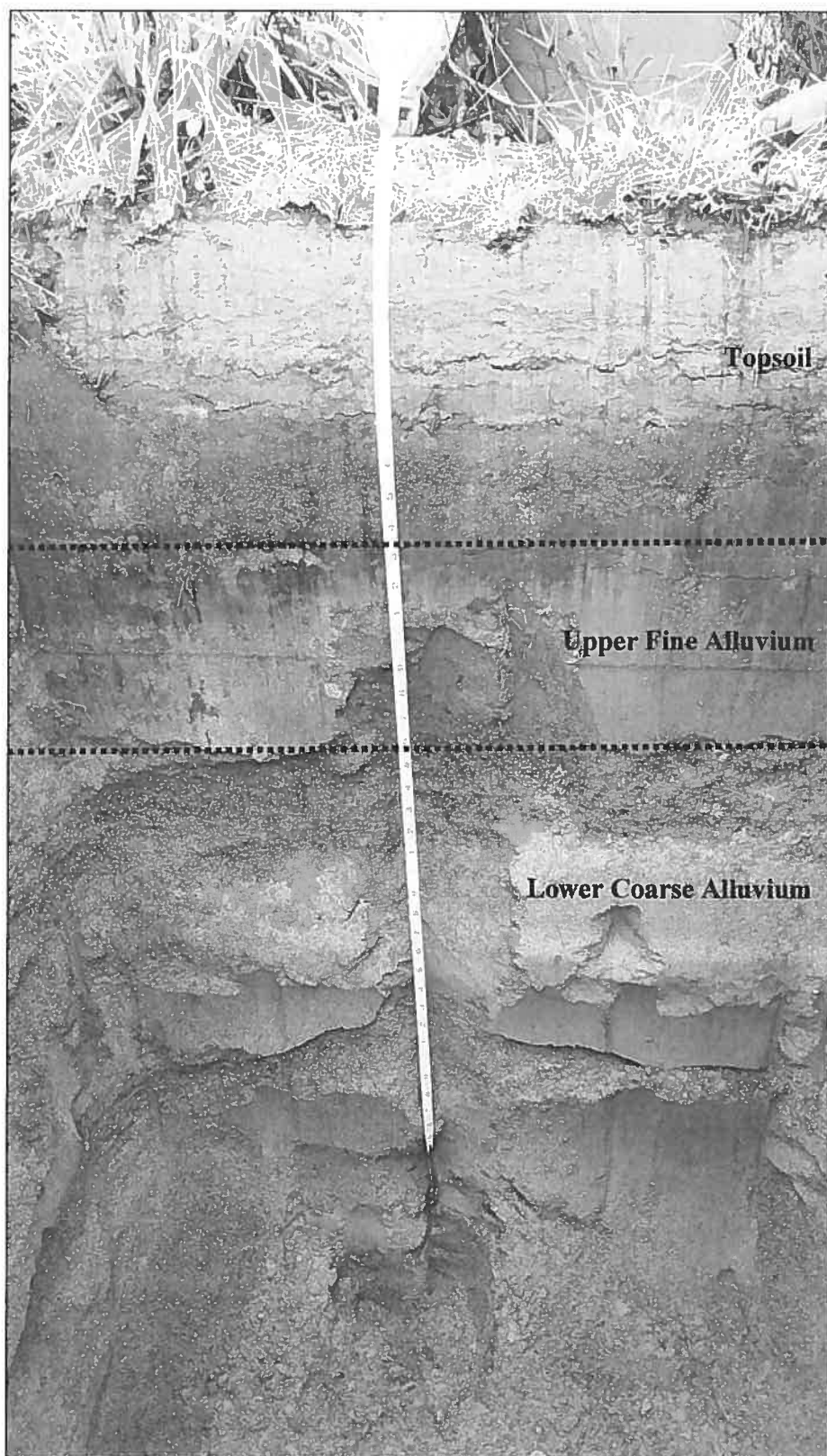
10-08-2019 \\MTC-APPMTC Files\Burlington Office\Geotechnical Services\1 Burl\2019\BYK McGarigle Plat\TP logs\TP-2 bor

Materials Testing And Consulting Burlington, WA Geotechnical Engineering Services			Log of Test Pit TP-1			
BYK McGarigle Plat Infiltration Assessment 2400 Block McGarigle Road Sedro-Woolley, WA			Date Started	9/18/19		
MTC Job # 19B018-10			Date Completed	9/18/19		
			Sampling Method	Grab Samples		
			Location	SE Corner of Site see site map		
			Logged By	CD		
Depth in Feet	USCS	GRAPHIC	DESCRIPTION		Water Level	% Moisture
0	SM		SILTY SAND loose, moist, strong organics (roots, organic silt, grass surface). Dark BROWN  Topsoil			
2			Poorly Graded SAND, minor silt, minor gravel up to 1" subrounded, medium- to coarse-grained sand, loose to medium dense, moist. Medium GRAY, faint mottling in upper 0.5'.			
4	SP		Increase in gravel content to approximately 15%			
6						
8			T.D. 8.0' BPG Excavation terminated at planned depths No free water seepage or groundwater observed.			

10-11-2019 \\MTC-APP\MTC Files\Burlington Office\Geotechnical Services\1 Burf2019\BYK McGarigle Plat\TP logs\TP-1.bor

## Appendix C. Exploration Logs


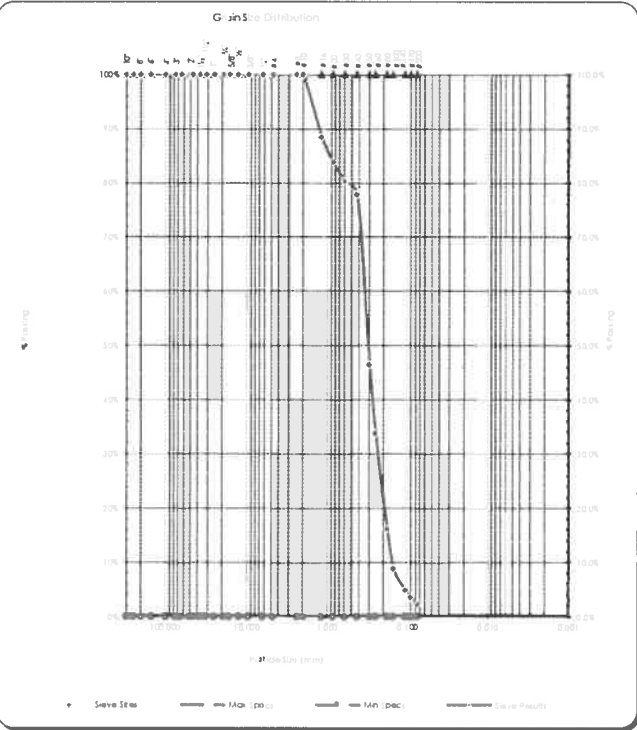




**Photo C:** Photo showing sidewall in TP-2. Soil column observed here is typical for majority of test pit locations. Variations in thicknesses of units attributed to complex fluvial deposition.



## Sieve Report

<b>Project:</b> BYK McGarigle Plat Infiltration Evaluation <b>Project #:</b> 19B018-10 <b>Client:</b> BYK Construction <b>Source:</b> TP-13 @ 3.8' <b>Sample#:</b> B19-0870		<b>Date Received:</b> 18-Sep-19 <b>Sampled By:</b> C. Dmitroff <b>Date Tested:</b> 19-Sep-19 <b>Tested By:</b> A. Efring / J. Acuna		<b>ASTM D-2487 Unified Soils Classification System</b> SP, Poorly graded Sand <b>Sample Color:</b> gray			
<b>ASTM D-2216, ASTM D-2419, ASTM D-4318, ASTM D-5821</b>							
<b>Specifications</b> No Specs Sample Meets Specs ? N/A		D <sub>10</sub> = 0.108 mm D <sub>30</sub> = 0.155 mm D <sub>60</sub> = 0.175 mm D <sub>85</sub> = 0.235 mm D <sub>100</sub> = 0.314 mm D <sub>200</sub> = 0.354 mm D <sub>425</sub> = 1.289 mm		% Gravel = 0.0% % Sand = 97.9% % Silt & Clay = 2.1% Liquid Limit = n/a Plasticity Index = n/a Sand Equivalent = n/a Fracture %s, 1 Face = n/a		Coeff. of Curvature, C <sub>u</sub> = 1.00 Coeff. of Uniformity, C <sub>u</sub> = 2.28 Fineness Modulus = 1.76 Plastic Limit = n/a Moisture %s, as sampled = 2.8% Reqd Sand Equivalent = Reqd Fracture %s, 1 Face = Reqd Fracture %s, 2+ Faces =	
<b>ASTM C-136, ASTM D-6913</b>							
<b>Sieve Size</b> US      Metric		<b>Actual Cumulative Percent Passing</b>	<b>Interpolated Cumulative Percent Passing</b>	<b>Specs Max</b>	<b>Specs Min</b>		
12.00"	300.00		100%	100.0%	0.0%		
10.00"	250.00		100%	100.0%	0.0%		
8.00"	200.00		100%	100.0%	0.0%		
6.00"	150.00		100%	100.0%	0.0%		
4.00"	100.00		100%	100.0%	0.0%		
3.00"	75.00		100%	100.0%	0.0%		
2.50"	63.00		100%	100.0%	0.0%		
2.00"	50.00		100%	100.0%	0.0%		
1.75"	45.00		100%	100.0%	0.0%		
1.50"	37.50		100%	100.0%	0.0%		
1.25"	31.50		100%	100.0%	0.0%		
1.00"	25.00	100%	100%	100.0%	0.0%		
3/4"	19.00	100%	100%	100.0%	0.0%		
5/8"	16.00		100%	100.0%	0.0%		
1/2"	12.50	100%	100%	100.0%	0.0%		
3/8"	9.50	100%	100%	100.0%	0.0%		
1/4"	6.30		100%	100.0%	0.0%		
#4	4.75	100%	100%	100.0%	0.0%		
#8	2.36		100%	100.0%	0.0%		
#10	2.00	100%	100%	100.0%	0.0%		
#16	1.18		88%	100.0%	0.0%		
#20	0.850		84%	100.0%	0.0%		
#30	0.600		80%	100.0%	0.0%		
#40	0.425	78%	78%	100.0%	0.0%		
#50	0.300		46%	100.0%	0.0%		
#60	0.250		34%	100.0%	0.0%		
#80	0.180		16%	100.0%	0.0%		
#100	0.150	9%	9%	100.0%	0.0%		
#140	0.106		5%	100.0%	0.0%		
#170	0.090		3%	100.0%	0.0%		
#200	0.075	2.1%	2.1%	100.0%	0.0%		

Copyright: Spear Engineering & Technical Services P.S. 1996-98  
 All results apply only to actual test conditions and materials tested. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, results, conclusions, or recommendations regarding test reports is reserved pending our written approval.

**Comments:** \_\_\_\_\_

Reviewed by: \_\_\_\_\_  
 Meghan Blodgett-Carrillo

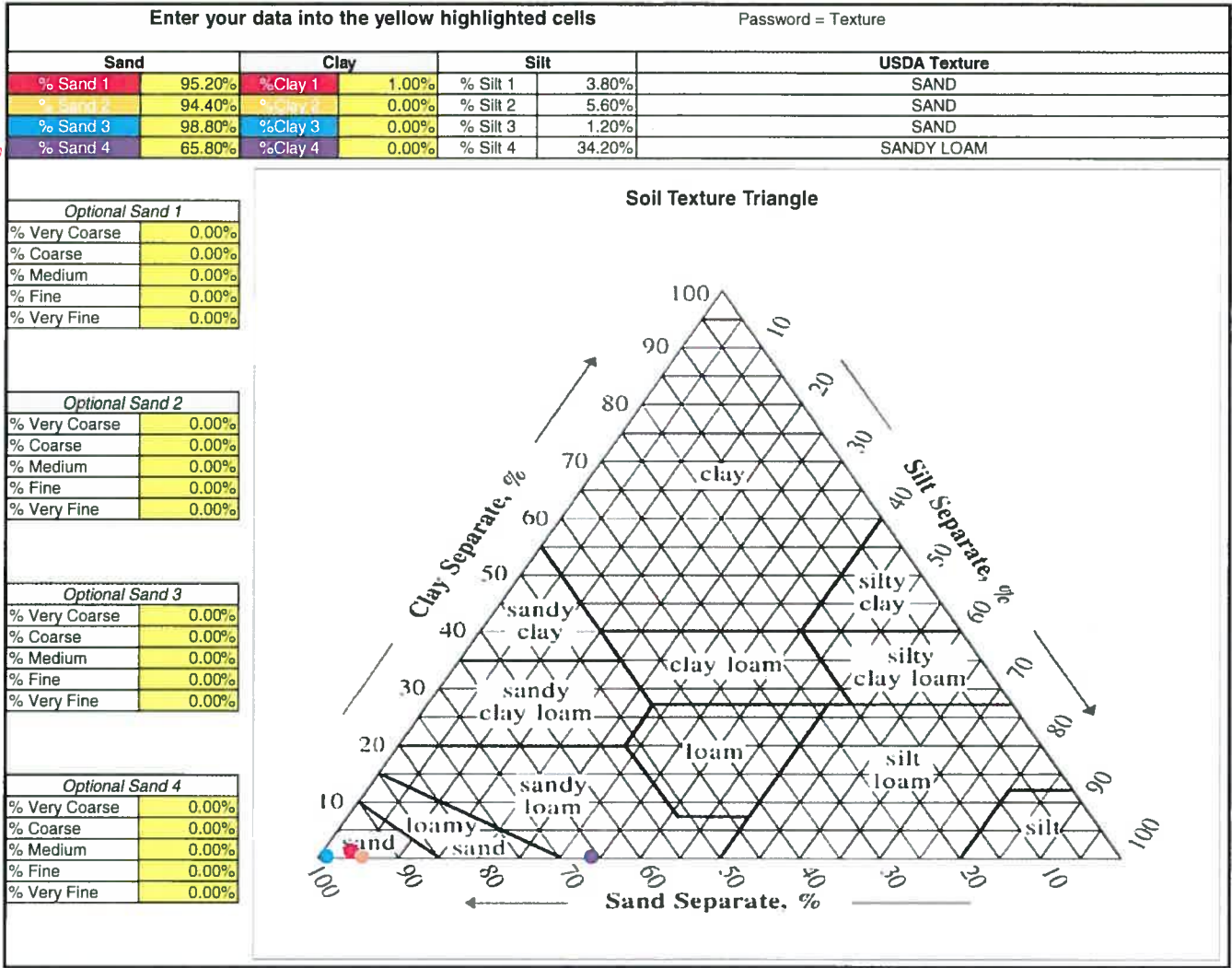
<b>Materials Testing &amp; Consulting, Inc.</b> 777 Chrysler Drive Burlington, WA 98233	<b>Lab Sample: TP-13 @ 3.8'</b> BYK McGarigle Plat Infiltration McGarigle Road Sedro-Woolley, WA	<b>FIGURE</b> <span style="font-size: 2em; font-weight: bold;">12</span>
---	---	---

## **Attachment 7 – USDA Triangle Designation Calculators**



1,2,4,6

276





Enter your data into the yellow highlighted cells

Password = Texture

7  
9  
10  
11

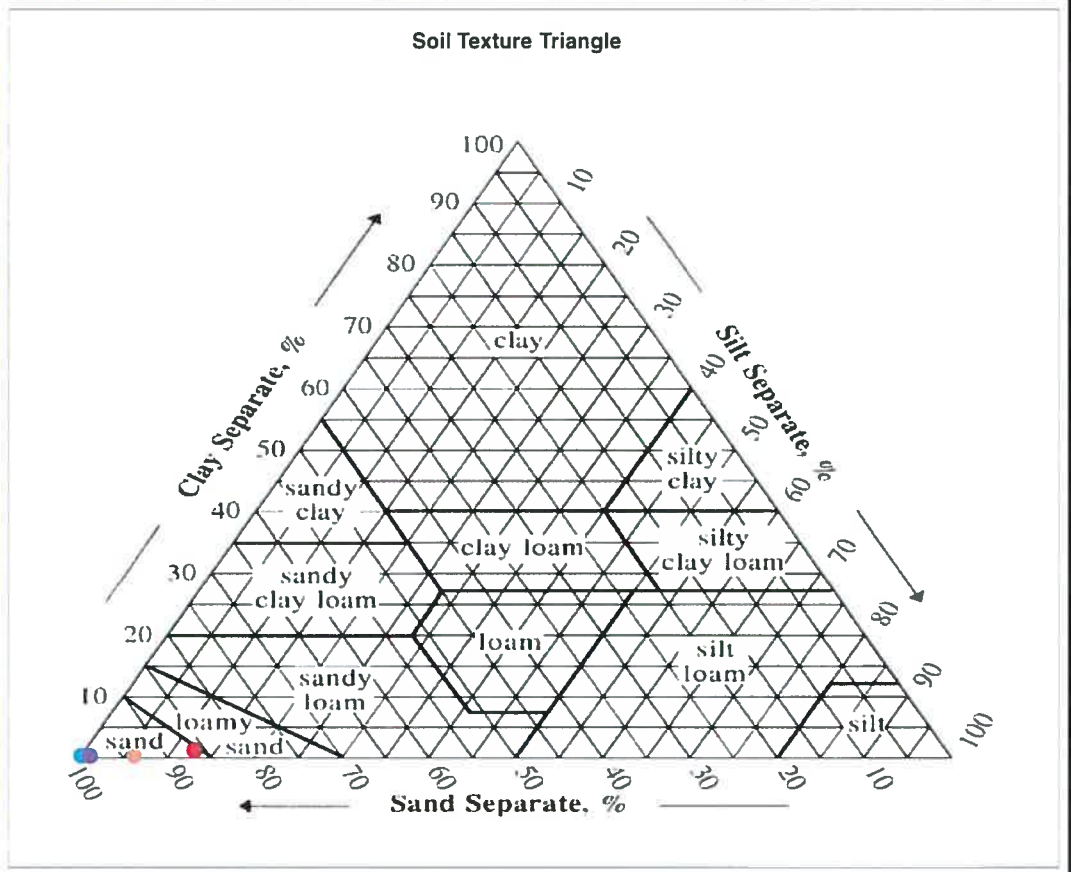
Sand		Clay		Silt		USDA Texture
% Sand 1	86.20%	% Clay 1	1.00%	% Silt 1	12.80%	SAND
% Sand 2	93.60%	% Clay 2	0.00%	% Silt 2	6.40%	SAND
% Sand 3	99.60%	% Clay 3	0.00%	% Silt 3	0.40%	SAND
% Sand 4	98.60%	% Clay 4	0.00%	% Silt 4	1.40%	SAND

Optional Sand 1	
% Very Coarse	0.00%
% Coarse	0.00%
% Medium	0.00%
% Fine	0.00%
% Very Fine	0.00%

Optional Sand 2	
% Very Coarse	0.00%
% Coarse	0.00%
% Medium	0.00%
% Fine	0.00%
% Very Fine	0.00%

Optional Sand 3	
% Very Coarse	0.00%
% Coarse	0.00%
% Medium	0.00%
% Fine	0.00%
% Very Fine	0.00%

Optional Sand 4	
% Very Coarse	0.00%
% Coarse	0.00%
% Medium	0.00%
% Fine	0.00%
% Very Fine	0.00%





Enter your data into the yellow highlighted cells

Password = Texture

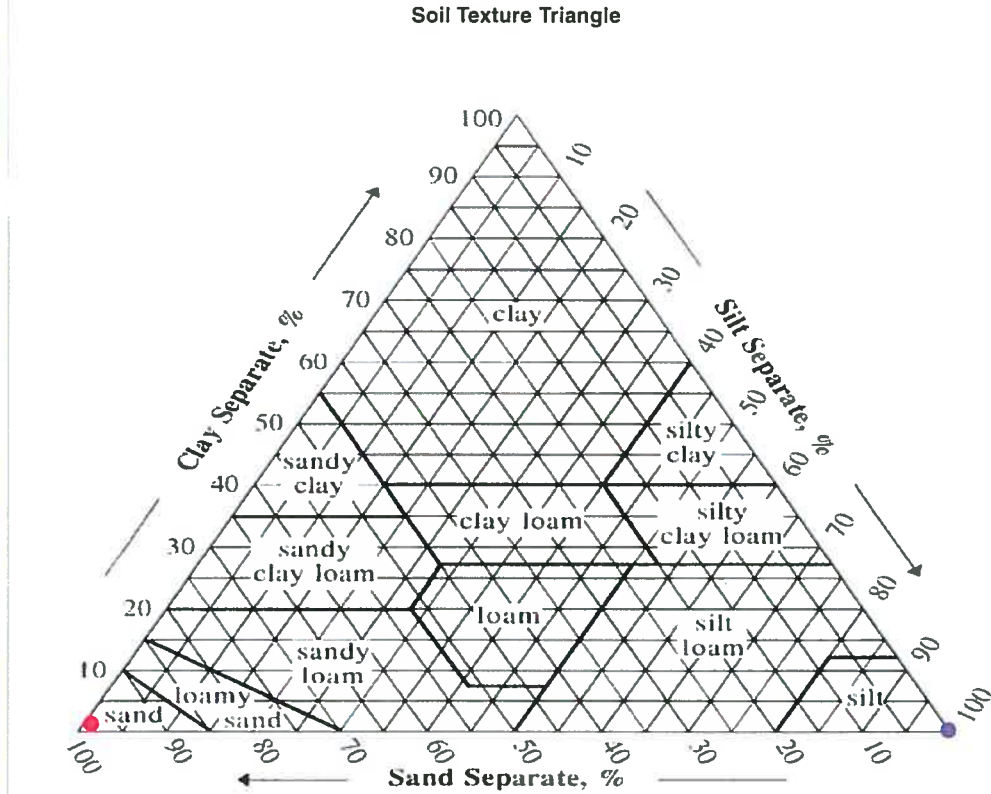
Sand		Clay		Silt		USDA Texture
% Sand 1	97.90%	% Clay 1	1.00%	% Silt 1	1.10%	SAND
% Sand 2	0.00%	% Clay 2	0.00%	% Silt 2	100.00%	SILT
% Sand 3	0.00%	% Clay 3	0.00%	% Silt 3	100.00%	SILT
% Sand 4	0.00%	% Clay 4	0.00%	% Silt 4	100.00%	SILT

Optional Sand 1	
% Very Coarse	0.00%
% Coarse	0.00%
% Medium	0.00%
% Fine	0.00%
% Very Fine	0.00%

Optional Sand 2	
% Very Coarse	0.00%
% Coarse	0.00%
% Medium	0.00%
% Fine	0.00%
% Very Fine	0.00%

Optional Sand 3	
% Very Coarse	0.00%
% Coarse	0.00%
% Medium	0.00%
% Fine	0.00%
% Very Fine	0.00%

Optional Sand 4	
% Very Coarse	0.00%
% Coarse	0.00%
% Medium	0.00%
% Fine	0.00%
% Very Fine	0.00%



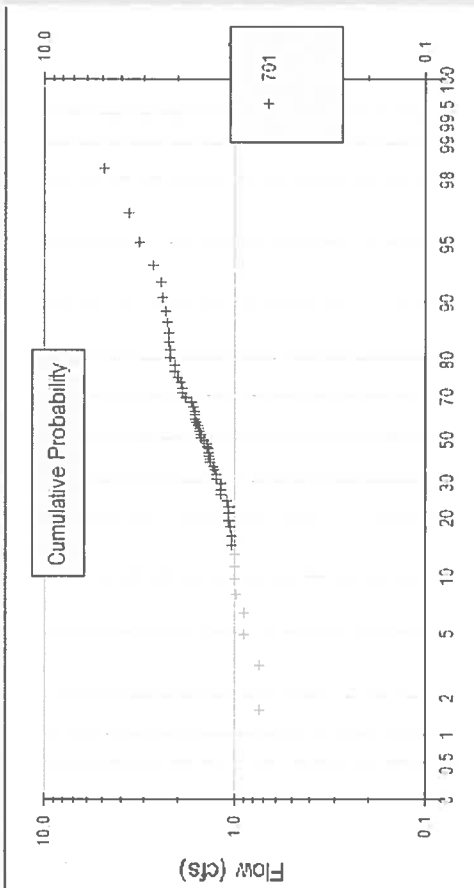


**Attachment 8 – SSP Summary**  
To be provided at time of Civil Construction Plans



## **Attachment 9 – Sediment Pond Sizing**





Stream Protection Duration LID Duration Flow Frequency Water Quality  
Welland Input Volumes LID Report Recharge Duration Recharge Predeveloped Recharge Mitigated  
Analyze datasets Compact WDM Delete Selected Monthly FF

1 PUYALLUP DAILY EVAP W/JENSEN-HAIS  
2 Burlington  
501 POC 1 Predeveloped flow  
701 Follow to POC 1 Mitigated  
801 POC 1 Mitigated flow  
1000 Gravel Trench Bed 1 ALL OUTLETS Mitigated  
1001 Gravel Trench Bed 1 OUTLET 1 Mitigated  
1002 Gravel Trench Bed 1 OUTLET 2 Mitigated

All Datasets Flow Stage Precip Evap POC 1

Flood Frequency Method  
Log Pearson Type III 17B  
Weibull  
Gumbel  
Gingorten

Flow Frequency 0701 15m  
2 Year = 1.4612  
5 Year = 2.0544  
10 Year = 2.4920  
25 Year = 3.0976  
50 Year = 3.5882  
100 Year = 4.1136

Annual Peaks

1949	2.2244
1950	1.0926
1951	1.8887
1952	2.0662
1953	2.3269
1954	1.0754
1955	1.0386
1956	0.7420
1957	2.2847
1958	0.9887
1959	1.1909
1960	1.6223
1961	0.9980
1962	1.6998
1963	1.0777
1964	1.2702
1965	3.1570
1966	1.2953
1967	2.4323
1968	1.9079
1969	1.0831
1970	2.4157
1971	1.4102
1972	0.8929
1973	1.5993
1974	1.1811
1975	2.2187
1976	2.7092

Outlet 3

0

Quick Pond

ension Diagram

re Data

0.01  
200

ater Height (ft)

0  
0  
0

Head (ac-ft) .012

Open Table

0

tion

X 10  
Y 12

Sat 11:10a - 19066 - Finish Mitigated

English

ENGL

SINGLE

10/26/2019

1:04 PM



## SEDIMENTATION POND DESIGN

Q2 =  
SURFACE AREA REQUIRED =  $\frac{1.46 \text{ CFS}}{3041.667} \text{ SF}$

DEWATERING ORIFICE SIZE: 3.939 SI  
ORIFICE SIZE = 2.239



**Attachment 10 – DOE BMP T5.13**



## **BMP T5.13: Post-Construction Soil Quality and Depth**

### ***Purpose and Definition***

Naturally occurring (undisturbed) soil and vegetation provide important stormwater functions including: water infiltration; nutrient, sediment, and pollutant adsorption; sediment and pollutant biofiltration; water interflow storage and transmission; and pollutant decomposition. These functions are largely lost when development strips away native soil and vegetation and replaces it with minimal topsoil and sod. Not only are these important stormwater functions lost, but such landscapes themselves become pollution generating pervious surfaces due to increased use of pesticides, fertilizers and other landscaping and household/industrial chemicals, the concentration of pet wastes, and pollutants that accompany roadside litter.

Establishing soil quality and depth regains greater stormwater functions in the post development landscape, provides increased treatment of pollutants and sediments that result from development and habitation, and minimizes the need for some landscaping chemicals, thus reducing pollution through prevention.

### ***Applications and Limitations***

Establishing a minimum soil quality and depth is not the same as preservation of naturally occurring soil and vegetation. However, establishing a minimum soil quality and depth will provide improved on-site management of stormwater flow and water quality.

Soil organic matter can be attained through numerous materials such as compost, composted woody material, biosolids, and forest product residuals. It is important that the materials used to meet the soil quality and depth BMP be appropriate and beneficial to the plant cover to be established. Likewise, it is important that imported topsoils improve soil conditions and do not have an excessive percent of clay fines.

This BMP can be considered infeasible on till soil slopes greater than 33 percent.

### ***Design Guidelines***

- Soil retention. Retain, in an undisturbed state, the duff layer and native topsoil to the maximum extent practicable. In any areas requiring grading remove and stockpile the duff layer and topsoil on site in a designated, controlled area, not adjacent to public resources and critical areas, to be reapplied to other portions of the site where feasible.
- Soil quality. All areas subject to clearing and grading that have not been covered by impervious surface, incorporated into a drainage facility or engineered as structural fill or slope shall, at project completion, demonstrate the following:
  1. A topsoil layer with a minimum organic matter content of 10% dry weight in planting beds, and 5% organic matter content in turf areas, and a pH from 6.0 to 8.0 or matching the pH of the undisturbed soil. The topsoil layer shall have a minimum depth of

eight inches except where tree roots limit the depth of incorporation of amendments needed to meet the criteria. Subsoils below the topsoil layer should be scarified at least 4 inches with some incorporation of the upper material to avoid stratified layers, where feasible.

2. Mulch planting beds with 2 inches of organic material
3. Use compost and other materials that meet these organic content requirements:
  - a. The organic content for “pre-approved” amendment rates can be met only using compost meeting the compost specification for Bioretention (BMP T7.30), with the exception that the compost may have up to 35% biosolids or manure.

The compost must also have an organic matter content of 40% to 65%, and a carbon to nitrogen ratio below 25:1.

The carbon to nitrogen ratio may be as high as 35:1 for plantings composed entirely of plants native to the Puget Sound Lowlands region.
  - b. Calculated amendment rates may be met through use of composted material meeting (a.) above; or other organic materials amended to meet the carbon to nitrogen ratio requirements, and not exceeding the contaminant limits identified in Table 220-B, Testing Parameters, in WAC 173-350-220.

The resulting soil should be conducive to the type of vegetation to be established.

- Implementation Options: The soil quality design guidelines listed above can be met by using one of the methods listed below:
  1. Leave undisturbed native vegetation and soil, and protect from compaction during construction.
  2. Amend existing site topsoil or subsoil either at default “pre-approved” rates, or at custom calculated rates based on tests of the soil and amendment.
  3. Stockpile existing topsoil during grading, and replace it prior to planting. Stockpiled topsoil must also be amended if needed to meet the organic matter or depth requirements, either at a default “pre-approved” rate or at a custom calculated rate.
  4. Import topsoil mix of sufficient organic content and depth to meet the requirements.

More than one method may be used on different portions of the same site. Soil that already meets the depth and organic matter quality standards, and is not compacted, does not need to be amended.

***Planning/Permitting/Inspection/Verification Guidelines & Procedures***

- Local governments are encouraged to adopt guidelines and procedures similar to those recommended in *Guidelines and Resources For Implementing Soil Quality and Depth BMP T5.13 in WDOE Stormwater Management Manual for Western Washington*. This document is available at:  
[http://www.soilsforsalmon.org/pdf/Soil\\_BMP\\_Manual.pdf](http://www.soilsforsalmon.org/pdf/Soil_BMP_Manual.pdf)

***Maintenance***

- Establish soil quality and depth toward the end of construction and once established, protect from compaction, such as from large machinery use, and from erosion.
- Plant vegetation and mulch the amended soil area after installation.
- Leave plant debris or its equivalent on the soil surface to replenish organic matter.
- Reduce and adjust, where possible, the use of irrigation, fertilizers, herbicides and pesticides, rather than continuing to implement formerly established practices.

***Runoff Model Representation***

Areas meeting the design guidelines may be entered into approved runoff models as “Pasture” rather than “Lawn.”

Flow reduction credits can be taken in runoff modeling when BMP T5.13 is used as part of a dispersion design under the conditions described in:

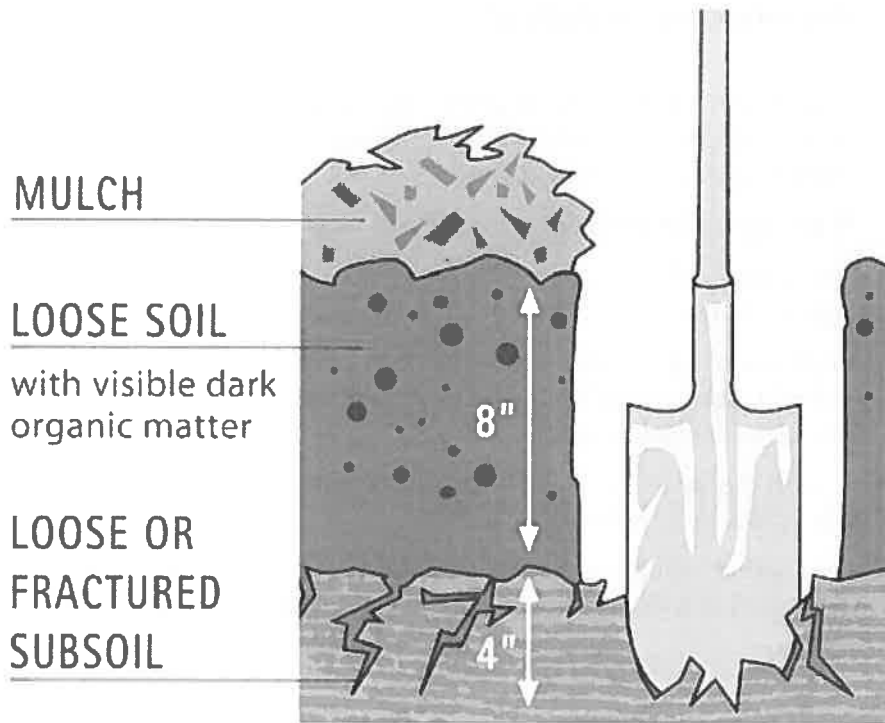
[BMP T5.10B Downspout Dispersion](#)

[BMP T5.11 Concentrated Flow Dispersion](#)

[BMP T5.12 Sheet Flow Dispersion](#)

[BMP T5.18 Reverse Slope Sidewalks](#)

[BMP T5.30 Full Dispersion](#) (for public road projects)

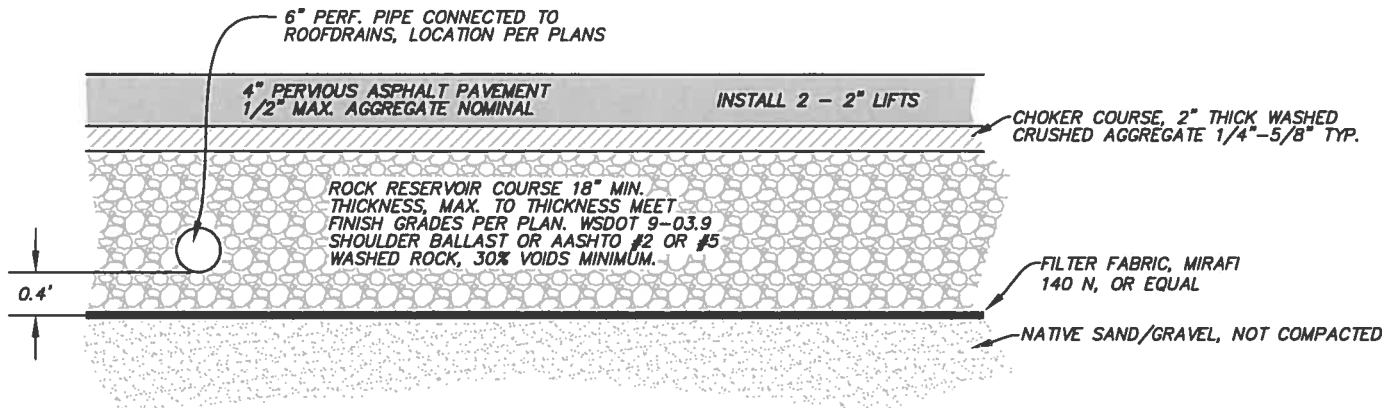


**Figure 5.3.3 – Planting bed Cross-Section**

(Reprinted from *Guidelines and Resources For Implementing Soil Quality and Depth BMP T5.13 in WDOE Stormwater Management Manual for Western Washington*, 2010, Washington Organic Recycling Council)

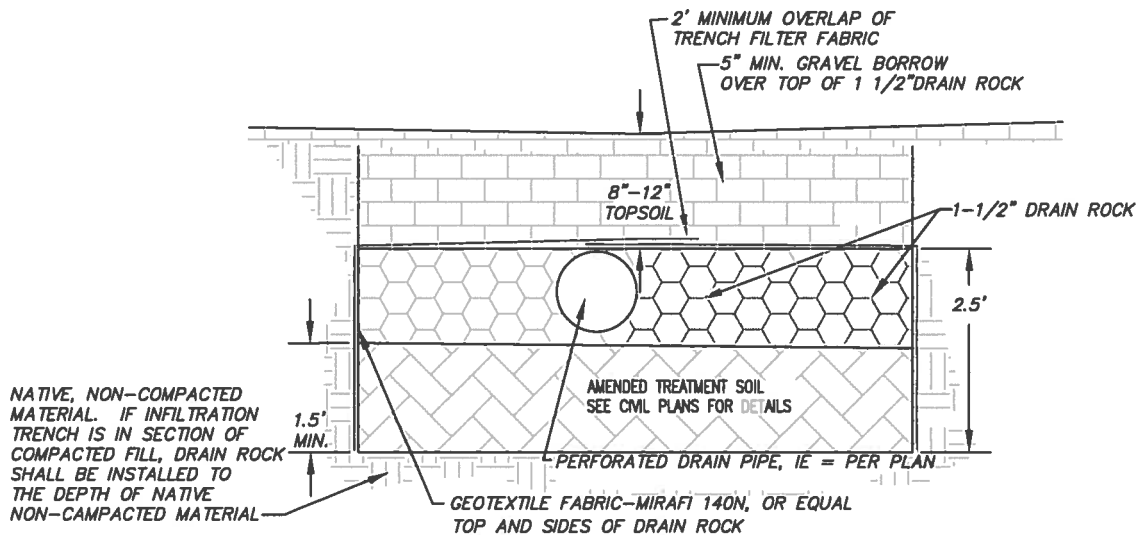
**Attachment 11 – Infiltration Trench and Permeable Pavement Cross  
Section**





### **PERVIOUS ASPHALT PAVEMENT SECTION**

NO SCALE



**NOTE 1. SEE PLAN VIEW FOR WIDTH AND LENGTH OF TRENCH.**

### **UNDERGROUND GRAVEL TRENCH BED**

NTS



## **Attachment 12 – Onsite Pipe Conveyance Calculations**



**McGarigle Plat**

Pipe capacity velocity calculations

Date: 10.25.19

25 year storm flow = 3.09      4 inlet pipes =      0.77      cfs

**Maximum pipe Capacity - assume hydraulic flow line**

Segment	Mannings "n"	dia. ft.	slope	area sq.ft.	Rh	Q cfs	V fps	Length ft.	Time (min.)
12" pipe	0.013	1.00	0.0022	0.79	0.25	1.67	2.1	25	0.20
8" Pipe	0.013	0.67	0.0050	0.35	0.17	0.87	2.5	25	0.17



**Attachment 13 –Basin Spreadsheet**



## ***Park at Brickyard Creek***

Job # 19066

Total site 551791 12.67

### **Existing Project Area Basin**

12555

B soil (sf) (ac)

Ex landscaping (Forest)	551791	12.667
Total	551791	12.667

### **DEV AREA BASIN to TRENCH - BASIN 1 & 2**

190197

B soil (sf) (ac)

ASPHALT/CONCRETE	93009	2.135
NEW LANDSCAPING	53988	1.239
DRIVEWAYS	43200	0.992
Total	190197	4.366

### **ACCESS RD PERMEABLE PAVEMENT BASIN**

34419

B soil (sf) (ac)

Permeable pave	8873	0.204
NEW LANDSCAPING	17746	0.407
DRIVEWAYS	7800	0.179
Total	34419	0.790

### **Lot and yard areas - Onsite Infiltration**

327175

B soil (sf) (ac)

Homes	255000	5.854
NEW LANDSCAPING	72175	1.657
Total	327175	7.511



## **Attachment 14 – ConstructionStormwater BMP's**

To be provided at time of Civil Construction Plans



**Attachment 15 – BMP T5.10A Downspout Infiltration**



### 3.1.1 Downspout Full Infiltration Systems (BMP T5.10A)

Downspout full infiltration systems are trench or drywell designs intended only for use in infiltrating runoff from roof downspout drains. They are not designed to directly infiltrate runoff from pollutant-generating impervious surfaces.

#### *Application*

Projects subject to Minimum Requirement #5 (Section 2.5.5, Volume I) must provide for individual downspout full infiltration systems or full dispersion if feasible. Evaluate the feasibility, or applicability, of downspout full infiltration unless full dispersion is proposed. Use the evaluation procedure below to determine the feasibility of downspout full infiltration.

#### *Runoff Modeling for Roof Downspout Full Infiltration*

If roof runoff is infiltrated according to the requirements of this section, the roof area may be discounted from the project area used for sizing stormwater facilities.

#### *Procedure for Evaluating Feasibility*

1. Have one of the following prepare a soils report to determine if soils suitable for infiltration are present on the site:
  - A professional soil scientist certified by the Soil Science Society of America (or an equivalent national program)
  - A locally licensed on-site sewage designer
  - A suitably trained person working under the supervision of a professional engineer, geologist, hydrogeologist, or engineering geologist registered in the State of Washington.

The report shall reference a sufficient number of soils logs to establish the type and limits of soils on the project site. The report should at a minimum identify the limits of any outwash type soils (i.e., those meeting USDA soil texture classes ranging from coarse sand and cobbles to medium sand) versus other soil types and include an inventory of topsoil depth.

2. If the lots or site does not have outwash or loam soils, and full dispersion is not feasible, then consider a rain garden or bioretention BMPs (the next lower priority on-site stormwater management system).
3. Complete additional site-specific testing on lots or sites containing outwash (coarse sand and cobbles to medium sand) and loam type soils.

Individual lot or site tests must consist of at least one soils log at the location of the infiltration system, a minimum of 4 feet in depth from the proposed grade and at least 1 foot below the expected bottom elevation of the infiltration trench or dry well.

Identify the NRCS series of the soil and the USDA textural class of the soil horizon through the depth of the log, and note any evidence of high ground water level, such as mottling.

4. Downspout infiltration is considered feasible on lots or sites that meet all of the following:
  - 3 feet or more of permeable soil from the proposed final grade to the seasonal high ground water table.
  - At least 1-foot of clearance from the expected bottom elevation of the infiltration trench or dry well to the seasonal high ground water table.
  - The downspout full infiltration system can be designed to meet the minimum design criteria specified below.

***Design Criteria  
for Infiltration  
Trenches***

Figure 3.1.2 shows a typical downspout infiltration trench system, and Figure 3.1.3 presents an alternative infiltration trench system for sites with coarse sand and cobble soils. These systems are designed as specified below.

**General**

1. The following minimum lengths (linear feet) per 1,000 square feet of roof area based on soil type may be used for sizing downspout infiltration trenches.

Coarse sands and cobbles	20 LF
Medium sand	30 LF
Fine sand, loamy sand	75 LF
Sandy loam	125 LF
Loam	190 LF

2. Maximum length of trench shall not exceed 100 feet from the inlet sump.
3. Minimum spacing between trench centerlines shall be 6 feet.
4. Filter fabric shall be placed over the drain rock as shown on Figure 3.1.2 prior to backfilling.
5. Infiltration trenches may be placed in fill material if the fill is placed and compacted under the direct supervision of a geotechnical engineer or professional civil engineer with geotechnical expertise, and if the measured infiltration rate is at least 8 inches per hour. Trench length in fill must be 60 linear feet per 1,000 square feet of roof area. Infiltration rates can be tested using the methods described in Section 3.3.
6. Infiltration trenches should not be built on slopes steeper than 25% (4:1). A geotechnical analysis and report may be required on slopes over 15 percent or if located within 200 feet of the top of slope steeper than 40%, or in a landslide hazard area.

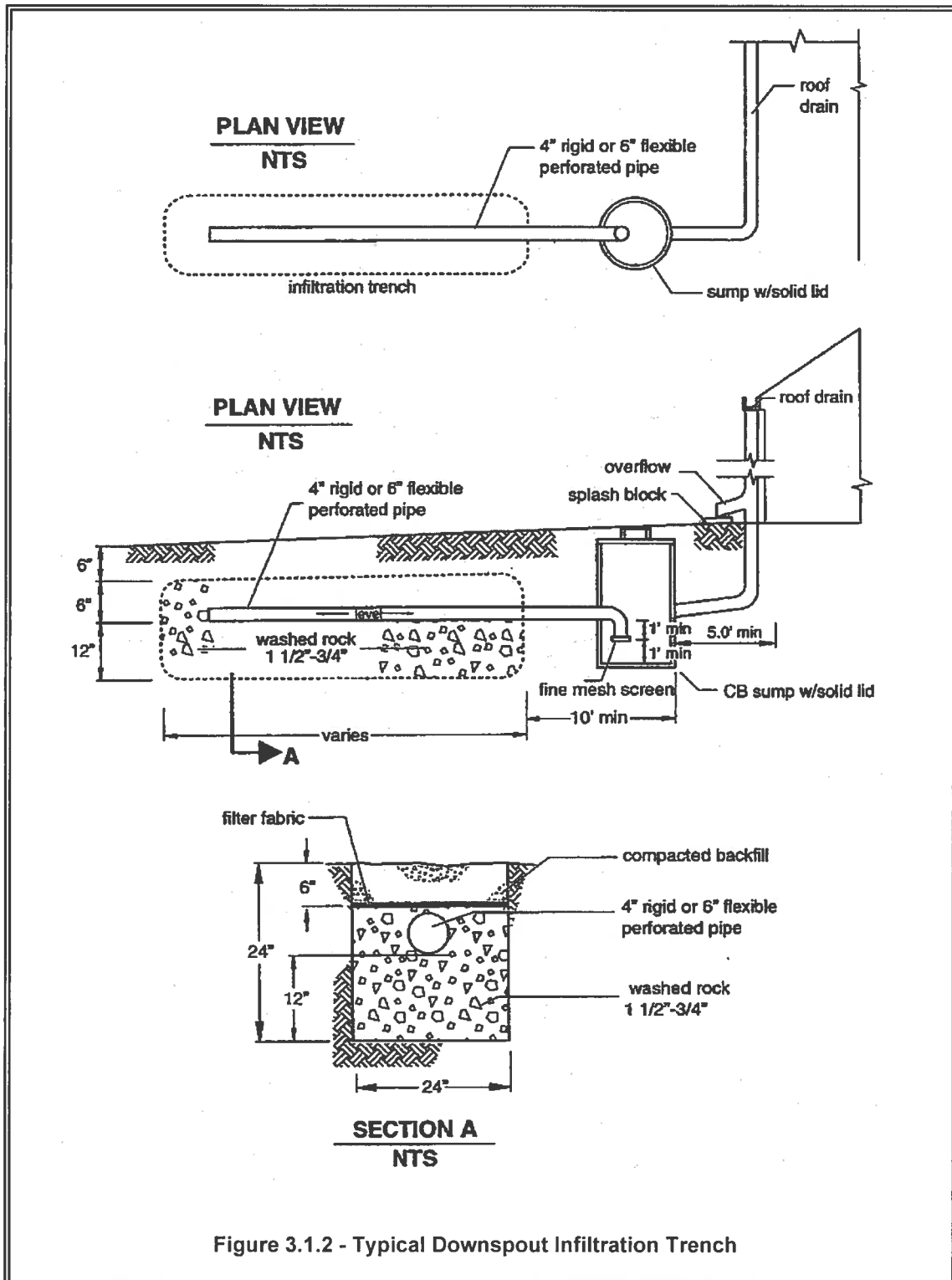
***Design Criteria  
for Infiltration  
Drywells***

7. Trenches may be located under pavement if a small yard drain or catch basin with grate cover is placed at the end of the trench pipe such that overflow would occur out of the catch basin at an elevation at least one foot below that of the pavement, and in a location which can accommodate the overflow without creating a significant adverse impact to downhill properties or drainage systems. This is intended to prevent saturation of the pavement in the event of system failure.

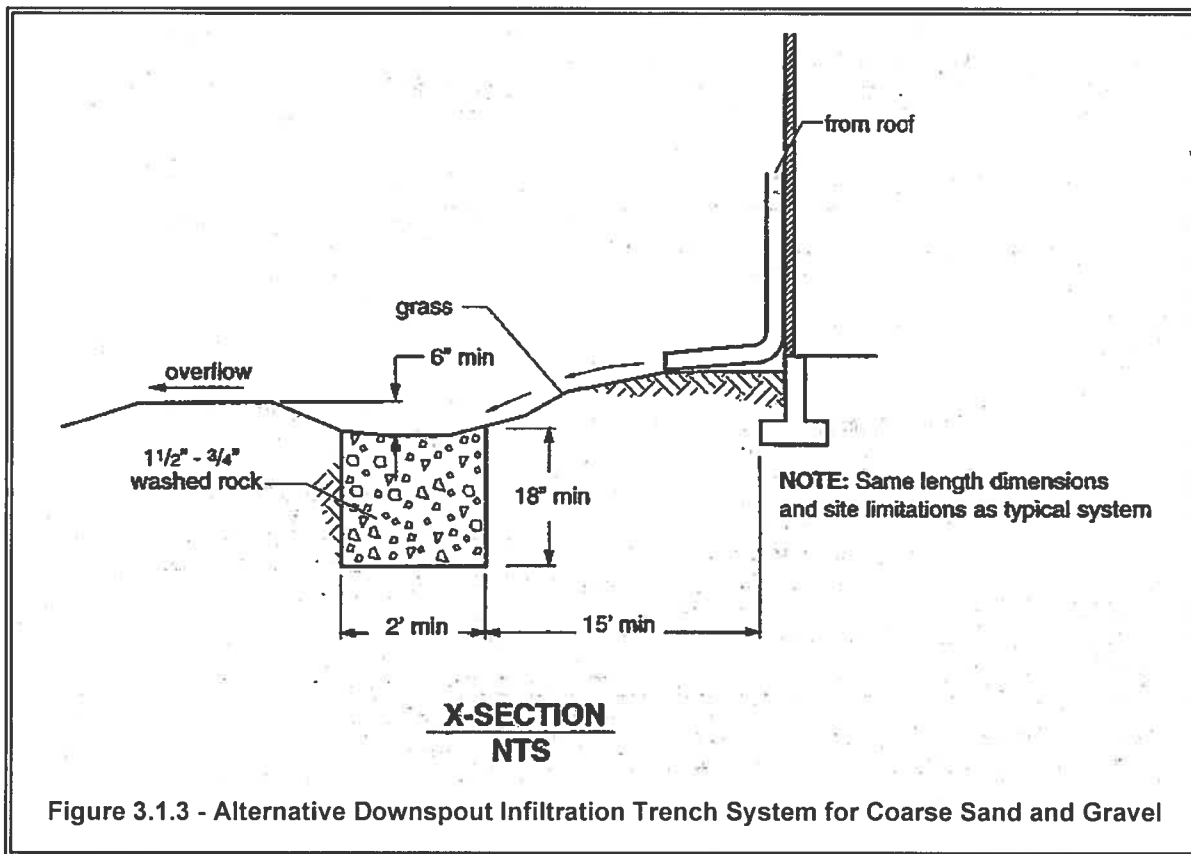
Figure 3.1.4 shows a typical downspout infiltration drywell system. These systems are designed as specified below.

**General**

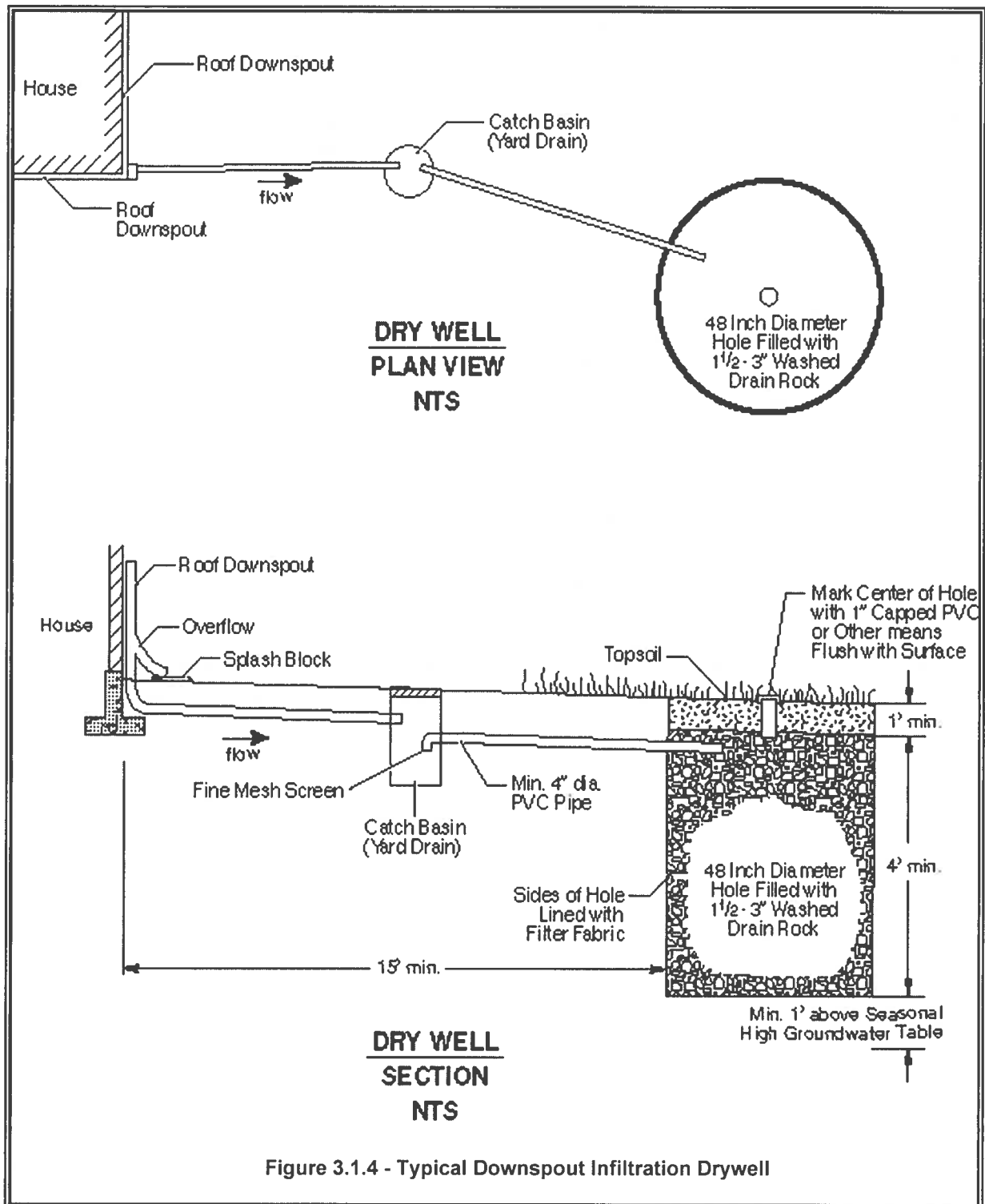
1. Drywell bottoms must be a minimum of 1 foot above seasonal high ground water level or impermeable soil layers.
2. When located in coarse sands and cobbles, drywells must contain a volume of gravel equal to or greater than 60 cubic feet per 1000 square feet of impervious surface served. When located in medium sands, drywells must contain at least 90 cubic feet of gravel per 1,000 square feet of impervious surface served.
3. Drywells must be at least 48 inches in diameter (minimum) and deep enough to contain the gravel amounts specified above for the soil type and impervious surface served.
4. Filter fabric (geotextile) must be placed on top of the drain rock and on trench or drywell sides prior to backfilling.
5. Spacing between drywells must be a minimum of 10 feet.
6. Downspout infiltration drywells must not be built on slopes greater than 25% (4:1). Drywells may not be placed on or above a landslide hazard area or on slopes greater than 15% without evaluation by a professional engineer with geotechnical expertise or a licensed geologist, hydrogeologist, or engineering geologist, and with jurisdiction approval.



Source: King County



Source: King County



Source: King County

### **Setbacks**

Local governments may require specific setbacks in sites with slopes over 40%, land slide areas, open water features, springs, wells, and septic tank drain fields. Adequate room for maintenance access and equipment should also be considered. Examples of setbacks commonly used include the following:

1. All infiltration systems should be at least 10 feet from any structure, property line, or sensitive area (except slopes over 40%).
2. All infiltration systems must be at least 50 feet from the top of any slope over 40%. This setback may be reduced to 15 feet based on a geotechnical evaluation, but in no instances may it be less than the buffer width.
3. For sites with septic systems, infiltration systems must be downgradient of the drainfield unless the site topography clearly prohibits subsurface flows from intersecting the drainfield.



## **Attachment 16 - Operation and Maintenance**

To be provided at time of Civil Construction Plans



## **Attachment 17 – Downstream Qualitative Off-site Analysis**























**Attachment 18 – WWHM2012 Calculations**



**WWHM2012**  
**PROJECT REPORT**

19066  
McGarigle Plat

## *General Model Information*

Project Name: 19066  
Site Name:  
Site Address:  
City:  
Report Date: 10/26/2019  
Gage: Burlington  
Data Start: 1948/10/01  
Data End: 2009/09/30  
Timestep: 15 Minute  
Precip Scale: 1.000  
Version Date: 2019/09/13  
Version: 4.2.17

## *POC Thresholds*

---

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

---

## *Landuse Basin Data*

### *Predeveloped Land Use*

Basin 1

Bypass: No

GroundWater: No

Pervious Land Use acre  
A B, Forest, Flat 3.375

Pervious Total 3.375

Impervious Land Use acre

Impervious Total 0

Basin Total 3.375

Element Flows To:  
Surface

Interflow

Groundwater

### *Mitigated Land Use*

Basin 1

Bypass: No

GroundWater: No

Pervious Land Use acre

Pervious Total 0

Impervious Land Use acre

ROADS FLAT 2.135

DRIVEWAYS FLAT 0.992

Impervious Total 3.127

Basin Total 3.127

Element Flows To:

Surface Interflow Groundwater

Gravel Trench Bed 1 Gravel Trench Bed 1

Basin 2

Bypass: No

GroundWater: No

Pervious Land Use acre  
A B, Pasture, Flat 1.239

Pervious Total 1.239

Impervious Land Use acre

Impervious Total 0

Basin Total 1.239

Element Flows To:

Surface Interflow Groundwater  
Trapezoidal Pond 1

perm pave

Bypass: No

GroundWater: No

Pervious Land Use acre  
A B, Pasture, Flat 0.407

Pervious Total 0.407

Impervious Land Use acre  
ROADS FLAT 0.204  
DRIVEWAYS FLAT 0.179

Impervious Total 0.383

Basin Total 0.79

Element Flows To:

Surface	Interflow	Groundwater
Gravel Trench Bed 2	Gravel Trench Bed 2	

*Routing Elements*  
*Predeveloped Routing*

## Mitigated Routing

### Gravel Trench Bed 1

Bottom Length: 1100.00 ft.  
Bottom Width: 11.00 ft.  
Trench bottom slope 1: 0.0001 To 1  
Trench Left side slope 0: 0.0001 To 1  
Trench right side slope 2: 0.0001 To 1  
Material thickness of first layer: 4  
Pour Space of material for first layer: 0.35  
Material thickness of second layer: 0  
Pour Space of material for second layer: 0  
Material thickness of third layer: 0  
Pour Space of material for third layer: 0  
Infiltration On  
Infiltration rate: 2.398  
Infiltration safety factor: 1  
Total Volume Infiltrated (ac-ft.): 421.697  
Total Volume Through Riser (ac-ft.): 0  
Total Volume Through Facility (ac-ft.): 421.697  
Percent Infiltrated: 100  
Total Precip Applied to Facility: 0  
Total Evap From Facility: 0  
Discharge Structure  
Riser Height: 3.98 ft.  
Riser Diameter: 12 in.  
Element Flows To:  
Outlet 1                      Outlet 2

Gravel Trench Bed Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.277	0.000	0.000	0.000
0.0444	0.277	0.004	0.000	0.671
0.0889	0.277	0.008	0.000	0.671
0.1333	0.277	0.013	0.000	0.671
0.1778	0.277	0.017	0.000	0.671
0.2222	0.277	0.021	0.000	0.671
0.2667	0.277	0.025	0.000	0.671
0.3111	0.277	0.030	0.000	0.671
0.3556	0.277	0.034	0.000	0.671
0.4000	0.277	0.038	0.000	0.671
0.4444	0.277	0.043	0.000	0.671
0.4889	0.277	0.047	0.000	0.671
0.5333	0.277	0.051	0.000	0.671
0.5778	0.277	0.056	0.000	0.671
0.6222	0.277	0.060	0.000	0.671
0.6667	0.277	0.064	0.000	0.671
0.7111	0.277	0.069	0.000	0.671
0.7556	0.277	0.073	0.000	0.671
0.8000	0.277	0.077	0.000	0.671
0.8444	0.277	0.082	0.000	0.671
0.8889	0.277	0.086	0.000	0.671
0.9333	0.277	0.090	0.000	0.671
0.9778	0.277	0.095	0.000	0.671
1.0222	0.277	0.099	0.000	0.671

1.0667	0.277	0.103	0.000	0.671
1.1111	0.277	0.108	0.000	0.671
1.1556	0.277	0.112	0.000	0.671
1.2000	0.277	0.116	0.000	0.671
1.2444	0.277	0.121	0.000	0.671
1.2889	0.277	0.125	0.000	0.671
1.3333	0.277	0.129	0.000	0.671
1.3778	0.277	0.134	0.000	0.671
1.4222	0.277	0.138	0.000	0.671
1.4667	0.277	0.142	0.000	0.671
1.5111	0.277	0.146	0.000	0.671
1.5556	0.277	0.151	0.000	0.671
1.6000	0.277	0.155	0.000	0.671
1.6444	0.277	0.159	0.000	0.671
1.6889	0.277	0.164	0.000	0.671
1.7333	0.277	0.168	0.000	0.671
1.7778	0.277	0.172	0.000	0.671
1.8222	0.277	0.177	0.000	0.671
1.8667	0.277	0.181	0.000	0.671
1.9111	0.277	0.185	0.000	0.671
1.9556	0.277	0.190	0.000	0.671
2.0000	0.277	0.194	0.000	0.671
2.0444	0.277	0.198	0.000	0.671
2.0889	0.277	0.203	0.000	0.671
2.1333	0.277	0.207	0.000	0.671
2.1778	0.277	0.211	0.000	0.671
2.2222	0.277	0.216	0.000	0.671
2.2667	0.277	0.220	0.000	0.671
2.3111	0.277	0.224	0.000	0.671
2.3556	0.277	0.229	0.000	0.671
2.4000	0.277	0.233	0.000	0.671
2.4444	0.277	0.237	0.000	0.671
2.4889	0.277	0.242	0.000	0.671
2.5333	0.277	0.246	0.000	0.671
2.5778	0.277	0.250	0.000	0.671
2.6222	0.277	0.254	0.000	0.671
2.6667	0.277	0.259	0.000	0.671
2.7111	0.277	0.263	0.000	0.671
2.7556	0.277	0.267	0.000	0.671
2.8000	0.277	0.272	0.000	0.671
2.8444	0.277	0.276	0.000	0.671
2.8889	0.277	0.280	0.000	0.671
2.9333	0.277	0.285	0.000	0.671
2.9778	0.277	0.289	0.000	0.671
3.0222	0.277	0.293	0.000	0.671
3.0667	0.277	0.298	0.000	0.671
3.1111	0.277	0.302	0.000	0.671
3.1556	0.277	0.306	0.000	0.671
3.2000	0.277	0.311	0.000	0.671
3.2444	0.277	0.315	0.000	0.671
3.2889	0.277	0.319	0.000	0.671
3.3333	0.277	0.324	0.000	0.671
3.3778	0.277	0.328	0.000	0.671
3.4222	0.277	0.332	0.000	0.671
3.4667	0.277	0.337	0.000	0.671
3.5111	0.277	0.341	0.000	0.671
3.5556	0.277	0.345	0.000	0.671
3.6000	0.277	0.350	0.000	0.671

3.6444	0.277	0.354	0.000	0.671
3.6889	0.277	0.358	0.000	0.671
3.7333	0.277	0.363	0.000	0.671
3.7778	0.277	0.367	0.000	0.671
3.8222	0.277	0.371	0.000	0.671
3.8667	0.277	0.375	0.000	0.671
3.9111	0.277	0.380	0.000	0.671
3.9556	0.277	0.384	0.000	0.671
4.0000	0.277	0.388	0.030	0.671

# Trapezoidal Pond 1

Bottom Length: 5000.00 ft.  
 Bottom Width: 10.00 ft.  
 Depth: 0.02 ft.  
 Volume at riser head: 0.0115 acre-feet.  
 Infiltration On  
 Infiltration rate: 1  
 Infiltration safety factor: 1  
 Total Volume Infiltrated (ac-ft.): 0.045  
 Total Volume Through Riser (ac-ft.): 0  
 Total Volume Through Facility (ac-ft.): 0.045  
 Percent Infiltrated: 100  
 Total Precip Applied to Facility: 0  
 Total Evap From Facility: 0  
 Side slope 1: 3 To 1  
 Side slope 2: 3 To 1  
 Side slope 3: 3 To 1  
 Side slope 4: 3 To 1  
 Discharge Structure  
 Riser Height: 0.01 ft.  
 Riser Diameter: 200 in.  
 Element Flows To:  
 Outlet 1                      Outlet 2  
 Gravel Trench Bed 1

Pond Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	1.147	0.000	0.000	0.000
0.0002	1.148	0.000	0.000	1.157
0.0004	1.148	0.000	0.000	1.157
0.0007	1.148	0.000	0.000	1.157
0.0009	1.148	0.001	0.000	1.157
0.0011	1.148	0.001	0.000	1.157
0.0013	1.148	0.001	0.000	1.157
0.0016	1.148	0.001	0.000	1.157
0.0018	1.149	0.002	0.000	1.157
0.0020	1.149	0.002	0.000	1.157
0.0022	1.149	0.002	0.000	1.157
0.0024	1.149	0.002	0.000	1.157
0.0027	1.149	0.003	0.000	1.157
0.0029	1.149	0.003	0.000	1.157
0.0031	1.150	0.003	0.000	1.157
0.0033	1.150	0.003	0.000	1.157
0.0036	1.150	0.004	0.000	1.157
0.0038	1.150	0.004	0.000	1.157
0.0040	1.150	0.004	0.000	1.157
0.0042	1.150	0.004	0.000	1.157
0.0044	1.150	0.005	0.000	1.157
0.0047	1.151	0.005	0.000	1.157
0.0049	1.151	0.005	0.000	1.157
0.0051	1.151	0.005	0.000	1.157
0.0053	1.151	0.006	0.000	1.157
0.0056	1.151	0.006	0.000	1.157
0.0058	1.151	0.006	0.000	1.157
0.0060	1.152	0.006	0.000	1.157
0.0062	1.152	0.007	0.000	1.157

0.0064	1.152	0.007	0.000	1.157
0.0067	1.152	0.007	0.000	1.157
0.0069	1.152	0.007	0.000	1.157
0.0071	1.152	0.008	0.000	1.157
0.0073	1.152	0.008	0.000	1.157
0.0076	1.153	0.008	0.000	1.157
0.0078	1.153	0.008	0.000	1.157
0.0080	1.153	0.009	0.000	1.157
0.0082	1.153	0.009	0.000	1.157
0.0084	1.153	0.009	0.000	1.157
0.0087	1.153	0.010	0.000	1.157
0.0089	1.154	0.010	0.000	1.157
0.0091	1.154	0.010	0.000	1.157
0.0093	1.154	0.010	0.000	1.157
0.0096	1.154	0.011	0.000	1.157
0.0098	1.154	0.011	0.000	1.157
0.0100	1.154	0.011	0.000	1.157
0.0102	1.154	0.011	0.000	1.157
0.0104	1.155	0.012	0.001	1.157
0.0107	1.155	0.012	0.003	1.157
0.0109	1.155	0.012	0.004	1.157
0.0111	1.155	0.012	0.006	1.157
0.0113	1.155	0.013	0.008	1.157
0.0116	1.155	0.013	0.010	1.157
0.0118	1.156	0.013	0.013	1.157
0.0120	1.156	0.013	0.015	1.157
0.0122	1.156	0.014	0.018	1.157
0.0124	1.156	0.014	0.021	1.157
0.0127	1.156	0.014	0.024	1.157
0.0129	1.156	0.014	0.027	1.157
0.0131	1.156	0.015	0.030	1.157
0.0133	1.157	0.015	0.034	1.157
0.0136	1.157	0.015	0.037	1.157
0.0138	1.157	0.015	0.041	1.157
0.0140	1.157	0.016	0.044	1.157
0.0142	1.157	0.016	0.048	1.157
0.0144	1.157	0.016	0.052	1.157
0.0147	1.158	0.016	0.056	1.157
0.0149	1.158	0.017	0.060	1.157
0.0151	1.158	0.017	0.064	1.157
0.0153	1.158	0.017	0.069	1.157
0.0156	1.158	0.017	0.073	1.157
0.0158	1.158	0.018	0.077	1.157
0.0160	1.158	0.018	0.082	1.157
0.0162	1.159	0.018	0.086	1.157
0.0164	1.159	0.019	0.091	1.157
0.0167	1.159	0.019	0.096	1.157
0.0169	1.159	0.019	0.101	1.157
0.0171	1.159	0.019	0.106	1.157
0.0173	1.159	0.020	0.111	1.157
0.0176	1.160	0.020	0.116	1.157
0.0178	1.160	0.020	0.121	1.157
0.0180	1.160	0.020	0.126	1.157
0.0182	1.160	0.021	0.132	1.157
0.0184	1.160	0.021	0.137	1.157
0.0187	1.160	0.021	0.142	1.157
0.0189	1.160	0.021	0.148	1.157
0.0191	1.161	0.022	0.154	1.157

0.0193	1.161	0.022	0.159	1.157
0.0196	1.161	0.022	0.165	1.157
0.0198	1.161	0.022	0.171	1.157
0.0200	1.161	0.023	0.177	1.157
0.0202	1.161	0.023	0.183	1.157

## Gravel Trench Bed 2

Bottom Length: 887.30 ft.  
 Bottom Width: 10.00 ft.  
 Trench bottom slope 1: 0.0001 To 1  
 Trench Left side slope 0: 0.0001 To 1  
 Trench right side slope 2: 0.0001 To 1  
 Material thickness of first layer: 1  
 Pour Space of material for first layer: 0.35  
 Material thickness of second layer: 0  
 Pour Space of material for second layer: 0  
 Material thickness of third layer: 0  
 Pour Space of material for third layer: 0  
 Infiltration On  
 Infiltration rate: 2.398  
 Infiltration safety factor: 1  
 Total Volume Infiltrated (ac-ft.): 51.36  
 Total Volume Through Riser (ac-ft.): 0  
 Total Volume Through Facility (ac-ft.): 51.36  
 Percent Infiltrated: 100  
 Total Precip Applied to Facility: 0  
 Total Evap From Facility: 0  
 Discharge Structure  
 Riser Height: 0.95 ft.  
 Riser Diameter: 8 in.  
 Element Flows To:  
 Outlet 1                      Outlet 2

Gravel Trench Bed Hydraulic Table

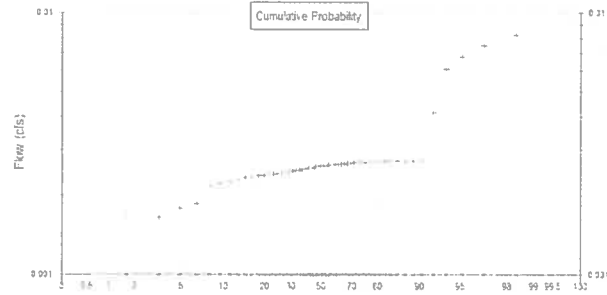
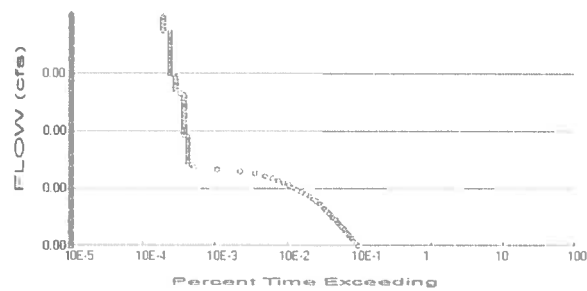
Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.203	0.000	0.000	0.000
0.0111	0.203	0.000	0.000	0.492
0.0222	0.203	0.001	0.000	0.492
0.0333	0.203	0.002	0.000	0.492
0.0444	0.203	0.003	0.000	0.492
0.0556	0.203	0.004	0.000	0.492
0.0667	0.203	0.004	0.000	0.492
0.0778	0.203	0.005	0.000	0.492
0.0889	0.203	0.006	0.000	0.492
0.1000	0.203	0.007	0.000	0.492
0.1111	0.203	0.007	0.000	0.492
0.1222	0.203	0.008	0.000	0.492
0.1333	0.203	0.009	0.000	0.492
0.1444	0.203	0.010	0.000	0.492
0.1556	0.203	0.011	0.000	0.492
0.1667	0.203	0.011	0.000	0.492
0.1778	0.203	0.012	0.000	0.492
0.1889	0.203	0.013	0.000	0.492
0.2000	0.203	0.014	0.000	0.492
0.2111	0.203	0.015	0.000	0.492
0.2222	0.203	0.015	0.000	0.492
0.2333	0.203	0.016	0.000	0.492
0.2444	0.203	0.017	0.000	0.492
0.2556	0.203	0.018	0.000	0.492
0.2667	0.203	0.019	0.000	0.492
0.2778	0.203	0.019	0.000	0.492

0.2889	0.203	0.020	0.000	0.492
0.3000	0.203	0.021	0.000	0.492
0.3111	0.203	0.022	0.000	0.492
0.3222	0.203	0.023	0.000	0.492
0.3333	0.203	0.023	0.000	0.492
0.3444	0.203	0.024	0.000	0.492
0.3556	0.203	0.025	0.000	0.492
0.3667	0.203	0.026	0.000	0.492
0.3778	0.203	0.026	0.000	0.492
0.3889	0.203	0.027	0.000	0.492
0.4000	0.203	0.028	0.000	0.492
0.4111	0.203	0.029	0.000	0.492
0.4222	0.203	0.030	0.000	0.492
0.4333	0.203	0.030	0.000	0.492
0.4444	0.203	0.031	0.000	0.492
0.4556	0.203	0.032	0.000	0.492
0.4667	0.203	0.033	0.000	0.492
0.4778	0.203	0.034	0.000	0.492
0.4889	0.203	0.034	0.000	0.492
0.5000	0.203	0.035	0.000	0.492
0.5111	0.203	0.036	0.000	0.492
0.5222	0.203	0.037	0.000	0.492
0.5333	0.203	0.038	0.000	0.492
0.5444	0.203	0.038	0.000	0.492
0.5556	0.203	0.039	0.000	0.492
0.5667	0.203	0.040	0.000	0.492
0.5778	0.203	0.041	0.000	0.492
0.5889	0.203	0.042	0.000	0.492
0.6000	0.203	0.042	0.000	0.492
0.6111	0.203	0.043	0.000	0.492
0.6222	0.203	0.044	0.000	0.492
0.6333	0.203	0.045	0.000	0.492
0.6444	0.203	0.045	0.000	0.492
0.6556	0.203	0.046	0.000	0.492
0.6667	0.203	0.047	0.000	0.492
0.6778	0.203	0.048	0.000	0.492
0.6889	0.203	0.049	0.000	0.492
0.7000	0.203	0.049	0.000	0.492
0.7111	0.203	0.050	0.000	0.492
0.7222	0.203	0.051	0.000	0.492
0.7333	0.203	0.052	0.000	0.492
0.7444	0.203	0.053	0.000	0.492
0.7556	0.203	0.053	0.000	0.492
0.7667	0.203	0.054	0.000	0.492
0.7778	0.203	0.055	0.000	0.492
0.7889	0.203	0.056	0.000	0.492
0.8000	0.203	0.057	0.000	0.492
0.8111	0.203	0.057	0.000	0.492
0.8222	0.203	0.058	0.000	0.492
0.8333	0.203	0.059	0.000	0.492
0.8444	0.203	0.060	0.000	0.492
0.8556	0.203	0.061	0.000	0.492
0.8667	0.203	0.061	0.000	0.492
0.8778	0.203	0.062	0.000	0.492
0.8889	0.203	0.063	0.000	0.492
0.9000	0.203	0.064	0.000	0.492
0.9111	0.203	0.065	0.000	0.492
0.9222	0.203	0.065	0.000	0.492

0.9333	0.203	0.066	0.000	0.492
0.9444	0.203	0.067	0.000	0.492
0.9556	0.203	0.068	0.002	0.492
0.9667	0.203	0.068	0.015	0.492
0.9778	0.203	0.069	0.032	0.492
0.9889	0.203	0.070	0.054	0.492
1.0000	0.203	0.071	0.078	0.492

# Analysis Results

## POC 1



+ Predeveloped x Mitigated

### Predeveloped Landuse Totals for POC #1

Total Pervious Area: 3.375  
Total Impervious Area: 0

### Mitigated Landuse Totals for POC #1

Total Pervious Area: 1.646  
Total Impervious Area: 3.51

Flow Frequency Method: Log Pearson Type III 17B

### Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.002551
5 year	0.003358
10 year	0.003972
25 year	0.004841
50 year	0.005561
100 year	0.006346

### Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0
5 year	0
10 year	0
25 year	0
50 year	0
100 year	0

### Annual Peaks

#### Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.008	0.000
1950	0.003	0.000
1951	0.003	0.000
1952	0.002	0.000
1953	0.003	0.000
1954	0.003	0.000
1955	0.002	0.000
1956	0.003	0.000
1957	0.003	0.000
1958	0.002	0.000

1959	0.003	0.000
1960	0.002	0.000
1961	0.003	0.000
1962	0.002	0.000
1963	0.003	0.000
1964	0.003	0.000
1965	0.003	0.000
1966	0.003	0.000
1967	0.002	0.000
1968	0.003	0.000
1969	0.003	0.000
1970	0.002	0.000
1971	0.008	0.000
1972	0.003	0.000
1973	0.003	0.000
1974	0.003	0.000
1975	0.004	0.000
1976	0.003	0.000
1977	0.002	0.000
1978	0.003	0.000
1979	0.003	0.000
1980	0.003	0.000
1981	0.002	0.000
1982	0.003	0.000
1983	0.002	0.000
1984	0.003	0.000
1985	0.003	0.000
1986	0.003	0.000
1987	0.003	0.000
1988	0.003	0.000
1989	0.002	0.000
1990	0.003	0.000
1991	0.007	0.000
1992	0.002	0.000
1993	0.003	0.000
1994	0.002	0.000
1995	0.001	0.000
1996	0.003	0.000
1997	0.006	0.000
1998	0.003	0.000
1999	0.002	0.000
2000	0.002	0.000
2001	0.002	0.000
2002	0.002	0.000
2003	0.003	0.000
2004	0.002	0.000
2005	0.003	0.000
2006	0.003	0.000
2007	0.002	0.000
2008	0.003	0.000
2009	0.002	0.000

#### Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.0082	0.0000
2	0.0075	0.0000
3	0.0068	0.0000

4	0.0061	0.0000
5	0.0042	0.0000
6	0.0027	0.0000
7	0.0027	0.0000
8	0.0027	0.0000
9	0.0027	0.0000
10	0.0027	0.0000
11	0.0027	0.0000
12	0.0027	0.0000
13	0.0027	0.0000
14	0.0027	0.0000
15	0.0027	0.0000
16	0.0027	0.0000
17	0.0027	0.0000
18	0.0027	0.0000
19	0.0027	0.0000
20	0.0027	0.0000
21	0.0026	0.0000
22	0.0026	0.0000
23	0.0026	0.0000
24	0.0026	0.0000
25	0.0026	0.0000
26	0.0026	0.0000
27	0.0026	0.0000
28	0.0026	0.0000
29	0.0026	0.0000
30	0.0026	0.0000
31	0.0026	0.0000
32	0.0026	0.0000
33	0.0026	0.0000
34	0.0026	0.0000
35	0.0026	0.0000
36	0.0026	0.0000
37	0.0025	0.0000
38	0.0025	0.0000
39	0.0025	0.0000
40	0.0025	0.0000
41	0.0025	0.0000
42	0.0025	0.0000
43	0.0025	0.0000
44	0.0024	0.0000
45	0.0024	0.0000
46	0.0024	0.0000
47	0.0024	0.0000
48	0.0024	0.0000
49	0.0024	0.0000
50	0.0024	0.0000
51	0.0024	0.0000
52	0.0023	0.0000
53	0.0023	0.0000
54	0.0023	0.0000
55	0.0022	0.0000
56	0.0022	0.0000
57	0.0019	0.0000
58	0.0018	0.0000
59	0.0017	0.0000
60	0.0017	0.0000
61	0.0015	0.0000



Duration Flows  
The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0013	2092	0	0	Pass
0.0013	1950	0	0	Pass
0.0014	1828	0	0	Pass
0.0014	1710	0	0	Pass
0.0014	1605	0	0	Pass
0.0015	1509	0	0	Pass
0.0015	1425	0	0	Pass
0.0016	1342	0	0	Pass
0.0016	1248	0	0	Pass
0.0017	1166	0	0	Pass
0.0017	1096	0	0	Pass
0.0018	1025	0	0	Pass
0.0018	947	0	0	Pass
0.0018	883	0	0	Pass
0.0019	831	0	0	Pass
0.0019	770	0	0	Pass
0.0020	719	0	0	Pass
0.0020	665	0	0	Pass
0.0021	611	0	0	Pass
0.0021	556	0	0	Pass
0.0021	507	0	0	Pass
0.0022	451	0	0	Pass
0.0022	398	0	0	Pass
0.0023	347	0	0	Pass
0.0023	297	0	0	Pass
0.0024	262	0	0	Pass
0.0024	233	0	0	Pass
0.0024	194	0	0	Pass
0.0025	164	0	0	Pass
0.0025	137	0	0	Pass
0.0026	106	0	0	Pass
0.0026	77	0	0	Pass
0.0027	48	0	0	Pass
0.0027	23	0	0	Pass
0.0027	11	0	0	Pass
0.0028	10	0	0	Pass
0.0028	9	0	0	Pass
0.0029	9	0	0	Pass
0.0029	9	0	0	Pass
0.0030	9	0	0	Pass
0.0030	9	0	0	Pass
0.0031	9	0	0	Pass
0.0031	9	0	0	Pass
0.0031	9	0	0	Pass
0.0032	9	0	0	Pass
0.0032	9	0	0	Pass
0.0033	9	0	0	Pass
0.0033	9	0	0	Pass
0.0034	8	0	0	Pass
0.0034	8	0	0	Pass
0.0034	8	0	0	Pass
0.0035	8	0	0	Pass
0.0035	8	0	0	Pass

0.0036	8	0	0	Pass
0.0036	8	0	0	Pass
0.0037	8	0	0	Pass
0.0037	8	0	0	Pass
0.0037	8	0	0	Pass
0.0038	8	0	0	Pass
0.0038	8	0	0	Pass
0.0039	8	0	0	Pass
0.0039	8	0	0	Pass
0.0040	8	0	0	Pass
0.0040	8	0	0	Pass
0.0040	8	0	0	Pass
0.0041	8	0	0	Pass
0.0041	7	0	0	Pass
0.0042	6	0	0	Pass
0.0042	6	0	0	Pass
0.0043	6	0	0	Pass
0.0043	6	0	0	Pass
0.0043	6	0	0	Pass
0.0044	6	0	0	Pass
0.0044	6	0	0	Pass
0.0045	5	0	0	Pass
0.0045	5	0	0	Pass
0.0046	5	0	0	Pass
0.0046	5	0	0	Pass
0.0047	5	0	0	Pass
0.0047	5	0	0	Pass
0.0047	5	0	0	Pass
0.0048	5	0	0	Pass
0.0048	5	0	0	Pass
0.0049	5	0	0	Pass
0.0049	5	0	0	Pass
0.0050	5	0	0	Pass
0.0050	5	0	0	Pass
0.0050	5	0	0	Pass
0.0051	5	0	0	Pass
0.0051	5	0	0	Pass
0.0052	5	0	0	Pass
0.0052	5	0	0	Pass
0.0053	5	0	0	Pass
0.0053	4	0	0	Pass
0.0053	4	0	0	Pass
0.0054	4	0	0	Pass
0.0054	4	0	0	Pass
0.0055	4	0	0	Pass
0.0055	4	0	0	Pass
0.0056	4	0	0	Pass

## Water Quality

### Water Quality BMP Flow and Volume for POC #1

On-line facility volume: 0 acre-feet

On-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

Off-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

## LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Gravel Trench Bed 1 POC	<input type="checkbox"/>	383.74			<input type="checkbox"/>	100.00			
Trapezoidal Pond 1	<input type="checkbox"/>	0.04			<input type="checkbox"/>	100.00			
Gravel Trench Bed 2 POC	<input type="checkbox"/>	46.74			<input type="checkbox"/>	100.00			
Total Volume Infiltrated		430.52	0.00	0.00		100.00	0.00	0%	No Treat Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

## *Model Default Modifications*

Total of 0 changes have been made.

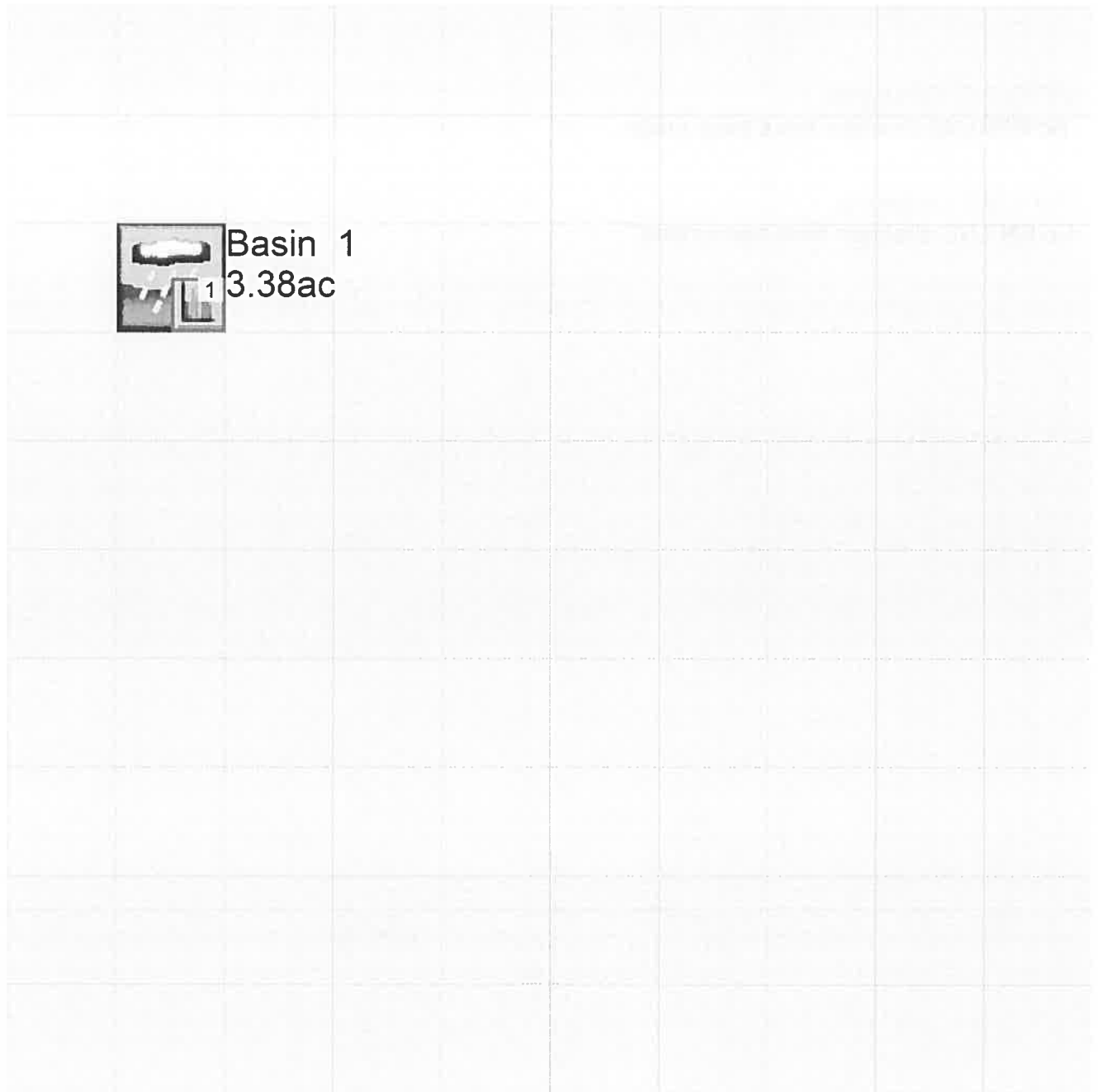
### *PERLND Changes*

No PERLND changes have been made.

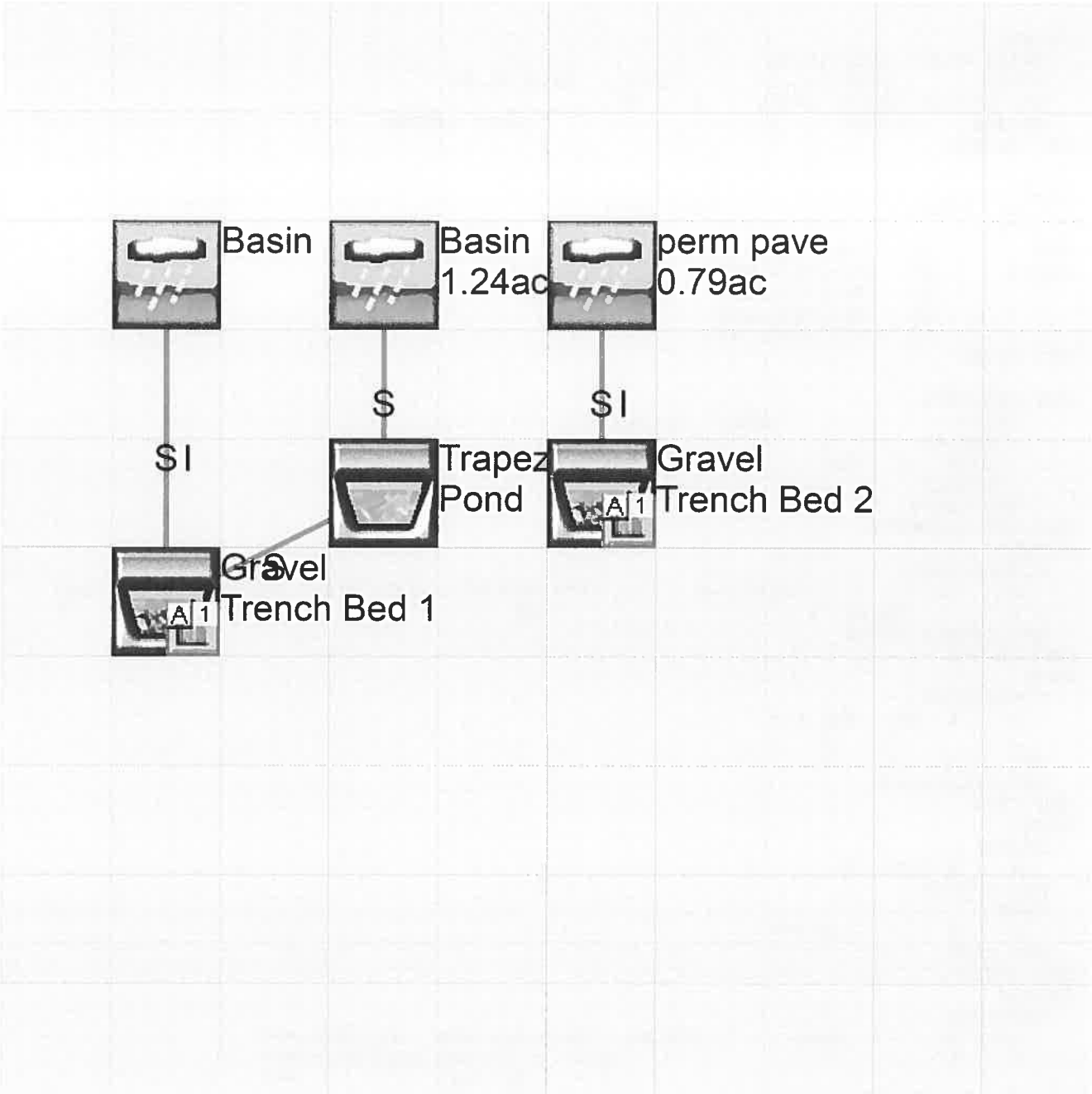
### *IMPLND Changes*

No IMPLND changes have been made.

*Appendix*  
*Predeveloped Schematic*



Mitigated Schematic



## Predeveloped UCI File

RUN

### GLOBAL

```
WVHM4 model simulation
START      1948 10 01      END      2009 09 30
RUN INTERP OUTPUT LEVEL    3      0
RESUME     0 RUN          1      UNIT SYSTEM      1
END GLOBAL
```

### FILES

```
<File>  <Un#>  <-----File Name----->***
<-ID->                                     ***
WDM      26     19066.wdm
MESSU    25     Pre19066.MES
          27     Pre19066.L61
          28     Pre19066.L62
          30     POC190661.dat
```

END FILES

### OPN SEQUENCE

```
INGRP                      INDELT 00:15
  PERLND                    1
  COPY                      501
  DISPLY                    1
END INGRP
```

END OPN SEQUENCE

### DISPLY

```
DISPLY-INFO1
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1      Basin 1      MAX      1      2      30      9
```

END DISPLY-INFO1

END DISPLY

### COPY

```
TIMESERIES
# - #  NPT  NMN ***
1      1      1
501    1      1
```

END TIMESERIES

END COPY

### GENER

```
OPCODE
#      # OPCD ***
END OPCODE
PARM
#      #      K ***
END PARM
```

END GENER

### PERLND

```
GEN-INFO
<PLS ><-----Name----->NBLKS      Unit-systems      Printer ***
# - #      User  t-series Engl Metr ***
          in  out      ***
1      A/B, Forest, Flat      1      1      1      1      27      0
END GEN-INFO
*** Section PWATER***
```

### ACTIVITY

```
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
1      0      0      1      0      0      0      0      0      0      0      0
```

END ACTIVITY

### PRINT-INFO

```
<PLS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC *****
1      0      0      4      0      0      0      0      0      0      0      0      1      9
```

END PRINT-INFO

```

PWAT-PARM1
<PLS > PWATER variable monthly parameter value flags ***
# - # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
1 0 0 0 0 0 0 0 0 0 0 0
END PWAT-PARM1

PWAT-PARM2
<PLS > PWATER input info: Part 2 ***
# - # ***FOREST LZSN INFILT LSUR SLSUR KVARY AGWRC
1 0 5 2 400 0.05 0.3 0.996
END PWAT-PARM2

PWAT-PARM3
<PLS > PWATER input info: Part 3 ***
# - # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
1 0 0 2 2 0 0 0
END PWAT-PARM3

PWAT-PARM4
<PLS > PWATER input info: Part 4 ***
# - # CEPSC UZSN NSUR INTFW IRC LZETP ***
1 0.2 0.5 0.35 0 0.7 0.7
END PWAT-PARM4

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS SURS UZS IFWS LZS AGWS GWVS
1 0 0 0 0 3 1 0
END PWAT-STATE1

END PERLND

IMPLND
GEN-INFO
<PLS ><-----Name-----> Unit-systems Printer ***
# - # User t-series Engl Metr ***
in out ***

END GEN-INFO
*** Section IWATER***

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW IWAT SLD IWG IQAL ***
END ACTIVITY

PRINT-INFO
<ILS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW IWAT SLD IWG IQAL *****
END PRINT-INFO

IWAT-PARM1
<PLS > IWATER variable monthly parameter value flags ***
# - # CSNO RTOP VRS VNN RTLI ***
END IWAT-PARM1

IWAT-PARM2
<PLS > IWATER input info: Part 2 ***
# - # *** LSUR SLSUR NSUR RETSC
END IWAT-PARM2

IWAT-PARM3
<PLS > IWATER input info: Part 3 ***
# - # ***PETMAX PETMIN
END IWAT-PARM3

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
# - # *** RETS SURS
END IWAT-STATE1

```

END IMPLND

SCHEMATIC

<-Source->		<--Area-->		<-Target->	MBLK	***
<Name>	#	<-factor->		<Name>	#	Tbl#
Basin	1	***				
PERLND	1	3.375		COPY	501	12
PERLND	1	3.375		COPY	501	13

\*\*\*\*\*Routing\*\*\*\*\*

END SCHEMATIC

NETWORK

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name>	#	<Name>	#	<-factor->	strg	<Name>	#	<Name>
COPY	501	OUTPUT	MEAN	1	1	48.4	DISPLY	1
							INPUT	TIMSER
								1

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name>	#	<Name>	#	<-factor->	strg	<Name>	#	<Name>
								***

END NETWORK

RCHRES

GEN-INFO

RCHRES	Name	Nexits	Unit	Systems	Printer	***
# - #	<----->	<---->	User	T-series	Engl Metr LKFG	***
			in	out		***

END GEN-INFO

\*\*\* Section RCHRES\*\*\*

ACTIVITY

<PLS > \*\*\*\*\* Active Sections \*\*\*\*\*

# - #	HYFG	ADFG	CNFG	HTFG	SDFG	GQFG	OXFG	NUFG	PKFG	PHFG	***
-------	------	------	------	------	------	------	------	------	------	------	-----

END ACTIVITY

PRINT-INFO

<PLS > \*\*\*\*\* Print-flags \*\*\*\*\*

# - #	HYDR	ADCA	CONS	HEAT	SED	GQL	OXRX	NUTR	PLNK	PHCB	PIVL	PYR	*****
-------	------	------	------	------	-----	-----	------	------	------	------	------	-----	-------

END PRINT-INFO

HYDR-PARM1

RCHRES	Flags	for each HYDR Section	***	ODGTFG	for each	FUNCT	for each
# - #	VC	A1	A2	A3	ODFVFG	for each	***
	FG	FG	FG	FG	possible	exit	***
					possible	exit	***
							***

END HYDR-PARM1

HYDR-PARM2

# - #	FTABNO	LEN	DELTH	STCOR	KS	DB50	***
<----->	<----->	<----->	<----->	<----->	<----->	<----->	***

END HYDR-PARM2

HYDR-INIT

RCHRES	Initial	conditions	for each HYDR section	***
# - #	***	VOL	Initial value of COLIND	Initial value of OUTDGT
	***	ac-ft	for each possible exit	for each possible exit
<----->	<----->	<----->	<----->	<----->

END HYDR-INIT

END RCHRES

SPEC-ACTIONS

END SPEC-ACTIONS

FTABLES

END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name>	#	<Name>	#	tem	strg	<-factor->	strg	<Name>
WDM	2	PREC	ENGL	1	PERLND	1	999	EXTNL
WDM	2	PREC	ENGL	1	IMPLND	1	999	EXTNL
								PREC

WDM	1	EVAP	ENGL	0.76	PERLND	1	999	EXTNL	PETINP
WDM	1	EVAP	ENGL	0.76	IMPLND	1	999	EXTNL	PETINP

END EXT SOURCES

EXT TARGETS

<-Volume->	<-Grp>	<-Member->	<-Mult-->	Tran	<-Volume->	<Member>	Tsys	Tgap	Amd	***
<Name>	#	<Name>	#	#<-factor->	strg	<Name>	#	<Name>	tem	strg
COPY	501	OUTPUT	MEAN	1	1	48.4	WDM	501	FLOW	ENGL
										REPL

END EXT TARGETS

MASS-LINK

<Volume>	<-Grp>	<-Member->	<-Mult-->	<Target>	<-Grp>	<-Member->	***
<Name>		<Name>	#	#<-factor->	<Name>		<Name>
MASS-LINK		12					
PERLND	PWATER	SURO		0.083333	COPY	INPUT	MEAN
END MASS-LINK		12					

MASS-LINK		13					
PERLND	PWATER	IFWO		0.083333	COPY	INPUT	MEAN
END MASS-LINK		13					

END MASS-LINK

END RUN

## Mitigated UCI File

RUN

### GLOBAL

```
WVHM4 model simulation
START      1948 10 01      END      2009 09 30
RUN INTERP OUTPUT LEVEL    3      0
RESUME     0 RUN          1
UNIT SYSTEM                1
END GLOBAL
```

### FILES

```
<File>  <Un#>  <-----File Name----->***
<-ID->                                     ***
WDM      26     19066.wdm
MESSU    25     Mit19066.MES
          27     Mit19066.L61
          28     Mit19066.L62
          30     POC190661.dat
```

END FILES

### OPN SEQUENCE

```
INGRP                                INDELT 00:15
  IMPLND      1
  IMPLND      5
  PERLND      4
  RCHRES      1
  RCHRES      2
  RCHRES      3
  COPY        1
  COPY      501
  DISPLY      1
```

END INGRP

END OPN SEQUENCE

### DISPLY

```
DISPLY-INFO1
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1      Gravel Trench Bed 2      MAX      1      2      30      9
```

END DISPLY-INFO1

END DISPLY

### COPY

```
TIMESERIES
# - #  NPT  NMN ***
1      1      1
501    1      1
END TIMESERIES
```

END COPY

### GENER

```
OPCODE
#      #  OPCODE ***
END OPCODE
PARM
#      #      K ***
END PARM
```

END GENER

### PERLND

```
GEN-INFO
<PLS ><-----Name----->NBLKS  Unit-systems  Printer ***
# - #      User  t-series  Engr Metr ***
          in  out      ***
4      A/B, Pasture, Flat      1      1      1      1      27      0
END GEN-INFO
*** Section PWATER***
```

### ACTIVITY

```
<PLS > ***** Active Sections *****
# - #  ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL PEST NITR PHOS TRAC ***
4      0      0      1      0      0      0      0      0      0      0      0
END ACTIVITY
```

```

PRINT-INFO
<PLS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC *****
4      0      0      4      0      0      0      0      0      0      0      0      0      1      9
END PRINT-INFO

```

```

PWAT-PARM1
<PLS > PWATER variable monthly parameter value flags ***
# - # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
4      0      0      0      0      0      0      0      0      0      0      0
END PWAT-PARM1

```

```

PWAT-PARM2
<PLS > PWATER input info: Part 2          ***
# - # ***FOREST LZSN INFILT LSUR SLSUR KVARY AGWRC
4      0      5      1.5      400      0.05      0.3      0.996
END PWAT-PARM2

```

```

PWAT-PARM3
<PLS > PWATER input info: Part 3          ***
# - # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
4      0      0      2      2      0      0      0
END PWAT-PARM3

```

```

PWAT-PARM4
<PLS > PWATER input info: Part 4          ***
# - # CEPSC UZSN NSUR INTFW IRC LZETP ***
4      0.15      0.5      0.3      0      0.7      0.4
END PWAT-PARM4

```

```

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS SURS UZS IFWS LZS AGWS GWVS
4      0      0      0      0      3      1      0
END PWAT-STATE1

```

END PERLND

IMPLND

```

GEN-INFO
<PLS ><-----Name-----> Unit-systems Printer ***
# - # User t-series Engl Metr ***
in out ***
1      ROADS/FLAT      1      1      1      27      0
5      DRIVEWAYS/FLAT  1      1      1      27      0
END GEN-INFO
*** Section IWATER***

```

```

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW IWAT SLD IWG IQAL ***
1      0      0      1      0      0      0
5      0      0      1      0      0      0
END ACTIVITY

```

```

PRINT-INFO
<ILS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW IWAT SLD IWG IQAL *****
1      0      0      4      0      0      0      1      9
5      0      0      4      0      0      0      1      9
END PRINT-INFO

```

```

IWAT-PARM1
<PLS > IWATER variable monthly parameter value flags ***
# - # CSNO RTOP VRS VNN RTLI ***
1      0      0      0      0      0
5      0      0      0      0      0
END IWAT-PARM1

```

IWAT-PARM2

```

      <PLS >          IWATER input info: Part 2          ***
      # - # ***      LSUR      SLSUR      NSUR      RETSC
      1              400        0.01        0.1        0.1
      5              400        0.01        0.1        0.1
END IWAT-PARM2

IWAT-PARM3
      <PLS >          IWATER input info: Part 3          ***
      # - # ***      PETMAX      PETMIN
      1              0          0
      5              0          0
END IWAT-PARM3

IWAT-STATE1
      <PLS > ***      Initial conditions at start of simulation
      # - # ***      RETS      SURS
      1              0          0
      5              0          0
END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->          <--Area-->          <-Target->          MBLK          ***
<Name> #          <-factor->          <Name> #          Tbl#          ***
Basin 1***
IMPLND 1          2.135          RCHRES 3          5
IMPLND 5          0.992          RCHRES 3          5
Basin 2***
PERLND 4          1.239          RCHRES 1          2
perm pave ***
PERLND 4          0.407          RCHRES 2          2
PERLND 4          0.407          RCHRES 2          3
IMPLND 1          0.204          RCHRES 2          5
IMPLND 5          0.179          RCHRES 2          5

*****Routing*****
IMPLND 1          2.135          COPY 1          15
IMPLND 5          0.992          COPY 1          15
RCHRES 1          1          RCHRES 3          7
RCHRES 1          1          COPY 1          17
PERLND 4          0.407          COPY 1          12
IMPLND 1          0.204          COPY 1          15
IMPLND 5          0.179          COPY 1          15
PERLND 4          0.407          COPY 1          13
RCHRES 3          1          COPY 501          17
RCHRES 2          1          COPY 501          17
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-> <--Mult--> Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # # <-factor-> strg <Name> # # <Name> # # ***
COPY 501 OUTPUT MEAN 1 1 48.4 DISPLY 1 INPUT TIMSER 1

<-Volume-> <-Grp> <-Member-> <--Mult--> Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # # <-factor-> strg <Name> # # <Name> # # ***
END NETWORK

RCHRES
GEN-INFO
      RCHRES          Name          Nexits          Unit Systems          Printer          ***
      # - # <-----> <----> User T-series Engl Metr LKFG          ***
      1 Trapezoidal Pond-009 2 1 1 1 28 0 1          ***
      2 Gravel Trench Be-011 2 1 1 1 28 0 1          ***
      3 Gravel Trench Be-007 2 1 1 1 28 0 1          ***
END GEN-INFO
*** Section RCHRES***

```

END ACTIVITY

END PRINT-INFO

END HYDR-PARM1

END HYDR-PARM2

END HYDR-INIT

END RCHRES

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0.800000	0.277782	0.077778	0.000000	0.671662
0.844444	0.277782	0.082099	0.000000	0.671662
0.888889	0.277782	0.086420	0.000000	0.671662
0.933333	0.277783	0.090742	0.000000	0.671662
0.977778	0.277783	0.095063	0.000000	0.671662
1.022222	0.277783	0.099384	0.000000	0.671662
1.066667	0.277783	0.103705	0.000000	0.671662
1.111111	0.277783	0.108026	0.000000	0.671662
1.155556	0.277784	0.112347	0.000000	0.671662
1.200000	0.277784	0.116668	0.000000	0.671662
1.244444	0.277784	0.120989	0.000000	0.671662
1.288889	0.277784	0.125310	0.000000	0.671662
1.333333	0.277785	0.129631	0.000000	0.671662
1.377778	0.277785	0.133952	0.000000	0.671662
1.422222	0.277785	0.138273	0.000000	0.671662
1.466667	0.277785	0.142595	0.000000	0.671662
1.511111	0.277785	0.146916	0.000000	0.671662
1.555556	0.277786	0.151237	0.000000	0.671662
1.600000	0.277786	0.155558	0.000000	0.671662
1.644444	0.277786	0.159879	0.000000	0.671662
1.688889	0.277786	0.164200	0.000000	0.671662
1.733333	0.277787	0.168521	0.000000	0.671662
1.777778	0.277787	0.172842	0.000000	0.671662
1.822222	0.277787	0.177163	0.000000	0.671662
1.866667	0.277787	0.181485	0.000000	0.671662
1.911111	0.277788	0.185806	0.000000	0.671662
1.955556	0.277788	0.190127	0.000000	0.671662
2.000000	0.277788	0.194448	0.000000	0.671662
2.044444	0.277788	0.198769	0.000000	0.671662
2.088889	0.277788	0.203090	0.000000	0.671662
2.133333	0.277789	0.207411	0.000000	0.671662
2.177778	0.277789	0.211733	0.000000	0.671662
2.222222	0.277789	0.216054	0.000000	0.671662
2.266667	0.277789	0.220375	0.000000	0.671662
2.311111	0.277790	0.224696	0.000000	0.671662
2.355556	0.277790	0.229017	0.000000	0.671662
2.400000	0.277790	0.233338	0.000000	0.671662
2.444444	0.277790	0.237660	0.000000	0.671662
2.488889	0.277790	0.241981	0.000000	0.671662
2.533333	0.277791	0.246302	0.000000	0.671662
2.577778	0.277791	0.250623	0.000000	0.671662
2.622222	0.277791	0.254944	0.000000	0.671662
2.666667	0.277791	0.259266	0.000000	0.671662
2.711111	0.277792	0.263587	0.000000	0.671662
2.755556	0.277792	0.267908	0.000000	0.671662
2.800000	0.277792	0.272229	0.000000	0.671662
2.844444	0.277792	0.276550	0.000000	0.671662
2.888889	0.277793	0.280872	0.000000	0.671662
2.933333	0.277793	0.285193	0.000000	0.671662
2.977778	0.277793	0.289514	0.000000	0.671662
3.022222	0.277793	0.293835	0.000000	0.671662
3.066667	0.277793	0.298157	0.000000	0.671662
3.111111	0.277794	0.302478	0.000000	0.671662
3.155556	0.277794	0.306799	0.000000	0.671662
3.200000	0.277794	0.311120	0.000000	0.671662
3.244444	0.277794	0.315441	0.000000	0.671662
3.288889	0.277795	0.319763	0.000000	0.671662
3.333333	0.277795	0.324084	0.000000	0.671662
3.377778	0.277795	0.328405	0.000000	0.671662
3.422222	0.277795	0.332727	0.000000	0.671662
3.466667	0.277795	0.337048	0.000000	0.671662
3.511111	0.277796	0.341369	0.000000	0.671662
3.555556	0.277796	0.345690	0.000000	0.671662
3.600000	0.277796	0.350012	0.000000	0.671662
3.644444	0.277796	0.354333	0.000000	0.671662
3.688889	0.277797	0.358654	0.000000	0.671662
3.733333	0.277797	0.362975	0.000000	0.671662
3.777778	0.277797	0.367297	0.000000	0.671662
3.822222	0.277797	0.371618	0.000000	0.671662
3.866667	0.277798	0.375939	0.000000	0.671662

3.911111	0.277798	0.380261	0.000000	0.671662
3.955556	0.277798	0.384582	0.000000	0.671662
4.000000	0.277798	0.388903	0.030011	0.671662
4.044444	0.277798	0.401250	0.173226	0.671662

END FTABLE 3

FTABLE 1

91 5

Depth (ft)	Area (acres)	Volume (acre-ft)	Outflow1 (cfs)	Outflow2 (cfs)	Velocity (ft/sec)	Travel Time*** (Minutes)***
0.000000	1.147842	0.000000	0.000000	0.000000		
0.000222	1.147995	0.000255	0.000000	1.157407		
0.000444	1.148149	0.000510	0.000000	1.157407		
0.000667	1.148302	0.000765	0.000000	1.157407		
0.000889	1.148455	0.001021	0.000000	1.157407		
0.001111	1.148609	0.001276	0.000000	1.157407		
0.001333	1.148762	0.001531	0.000000	1.157407		
0.001556	1.148916	0.001786	0.000000	1.157407		
0.001778	1.149069	0.002042	0.000000	1.157407		
0.002000	1.149222	0.002297	0.000000	1.157407		
0.002222	1.149376	0.002552	0.000000	1.157407		
0.002444	1.149529	0.002808	0.000000	1.157407		
0.002667	1.149682	0.003063	0.000000	1.157407		
0.002889	1.149836	0.003319	0.000000	1.157407		
0.003111	1.149989	0.003574	0.000000	1.157407		
0.003333	1.150142	0.003830	0.000000	1.157407		
0.003556	1.150296	0.004086	0.000000	1.157407		
0.003778	1.150449	0.004341	0.000000	1.157407		
0.004000	1.150602	0.004597	0.000000	1.157407		
0.004222	1.150756	0.004853	0.000000	1.157407		
0.004444	1.150909	0.005108	0.000000	1.157407		
0.004667	1.151062	0.005364	0.000000	1.157407		
0.004889	1.151216	0.005620	0.000000	1.157407		
0.005111	1.151369	0.005876	0.000000	1.157407		
0.005333	1.151523	0.006132	0.000000	1.157407		
0.005556	1.151676	0.006388	0.000000	1.157407		
0.005778	1.151829	0.006643	0.000000	1.157407		
0.006000	1.151983	0.006899	0.000000	1.157407		
0.006222	1.152136	0.007155	0.000000	1.157407		
0.006444	1.152289	0.007412	0.000000	1.157407		
0.006667	1.152443	0.007668	0.000000	1.157407		
0.006889	1.152596	0.007924	0.000000	1.157407		
0.007111	1.152749	0.008180	0.000000	1.157407		
0.007333	1.152903	0.008436	0.000000	1.157407		
0.007556	1.153056	0.008692	0.000000	1.157407		
0.007778	1.153209	0.008949	0.000000	1.157407		
0.008000	1.153363	0.009205	0.000000	1.157407		
0.008222	1.153516	0.009461	0.000000	1.157407		
0.008444	1.153669	0.009717	0.000000	1.157407		
0.008667	1.153823	0.009974	0.000000	1.157407		
0.008889	1.153976	0.010230	0.000000	1.157407		
0.009111	1.154130	0.010487	0.000000	1.157407		
0.009333	1.154283	0.010743	0.000000	1.157407		
0.009556	1.154436	0.011000	0.000000	1.157407		
0.009778	1.154590	0.011256	0.000000	1.157407		
0.010000	1.154743	0.011513	0.000000	1.157407		
0.010222	1.154896	0.011770	0.000586	1.157407		
0.010444	1.155050	0.012026	0.001659	1.157407		
0.010667	1.155203	0.012283	0.003047	1.157407		
0.010889	1.155356	0.012540	0.004692	1.157407		
0.011111	1.155510	0.012796	0.006557	1.157407		
0.011333	1.155663	0.013053	0.008619	1.157407		
0.011556	1.155816	0.013310	0.010861	1.157407		
0.011778	1.155970	0.013567	0.013270	1.157407		
0.012000	1.156123	0.013824	0.015834	1.157407		
0.012222	1.156277	0.014081	0.018545	1.157407		
0.012444	1.156430	0.014338	0.021395	1.157407		
0.012667	1.156583	0.014595	0.024378	1.157407		
0.012889	1.156737	0.014852	0.027488	1.157407		
0.013111	1.156890	0.015109	0.030720	1.157407		
0.013333	1.157043	0.015366	0.034070	1.157407		

0.013556	1.157197	0.015623	0.037533	1.157407
0.013778	1.157350	0.015880	0.041106	1.157407
0.014000	1.157503	0.016137	0.044786	1.157407
0.014222	1.157657	0.016395	0.048569	1.157407
0.014444	1.157810	0.016652	0.052454	1.157407
0.014667	1.157963	0.016909	0.056436	1.157407
0.014889	1.158117	0.017167	0.060515	1.157407
0.015111	1.158270	0.017424	0.064687	1.157407
0.015333	1.158424	0.017681	0.068952	1.157407
0.015556	1.158577	0.017939	0.073306	1.157407
0.015778	1.158730	0.018196	0.077748	1.157407
0.016000	1.158884	0.018454	0.082276	1.157407
0.016222	1.159037	0.018711	0.086889	1.157407
0.016444	1.159190	0.018969	0.091585	1.157407
0.016667	1.159344	0.019227	0.096362	1.157407
0.016889	1.159497	0.019484	0.101220	1.157407
0.017111	1.159650	0.019742	0.106157	1.157407
0.017333	1.159804	0.020000	0.111172	1.157407
0.017556	1.159957	0.020257	0.116263	1.157407
0.017778	1.160110	0.020515	0.121430	1.157407
0.018000	1.160264	0.020773	0.126671	1.157407
0.018222	1.160417	0.021031	0.131985	1.157407
0.018444	1.160571	0.021289	0.137372	1.157407
0.018667	1.160724	0.021547	0.142830	1.157407
0.018889	1.160877	0.021805	0.148358	1.157407
0.019111	1.161031	0.022063	0.153956	1.157407
0.019333	1.161184	0.022321	0.159623	1.157407
0.019556	1.161337	0.022579	0.165357	1.157407
0.019778	1.161491	0.022837	0.171159	1.157407
0.020000	1.161644	0.023095	0.177027	1.157407

END FTABLE 1

FTABLE 2

92	5	Depth (ft)	Area (acres)	Volume (acre-ft)	Outflow1 (cfs)	Outflow2 (cfs)	Velocity (ft/sec)	Travel Time*** (Minutes)***
0.000000	0.203696	0.000000	0.000000	0.000000	0.000000	0.492534		
0.011111	0.203696	0.000792	0.000000	0.492534				
0.022222	0.203696	0.001584	0.000000	0.492534				
0.033333	0.203696	0.002376	0.000000	0.492534				
0.044444	0.203696	0.003169	0.000000	0.492534				
0.055556	0.203696	0.003961	0.000000	0.492534				
0.066667	0.203696	0.004753	0.000000	0.492534				
0.077778	0.203696	0.005545	0.000000	0.492534				
0.088889	0.203696	0.006337	0.000000	0.492534				
0.100000	0.203696	0.007129	0.000000	0.492534				
0.111111	0.203697	0.007922	0.000000	0.492534				
0.122222	0.203697	0.008714	0.000000	0.492534				
0.133333	0.203697	0.009506	0.000000	0.492534				
0.144444	0.203697	0.010298	0.000000	0.492534				
0.155556	0.203697	0.011090	0.000000	0.492534				
0.166667	0.203697	0.011882	0.000000	0.492534				
0.177778	0.203697	0.012674	0.000000	0.492534				
0.188889	0.203697	0.013467	0.000000	0.492534				
0.200000	0.203697	0.014259	0.000000	0.492534				
0.211111	0.203697	0.015051	0.000000	0.492534				
0.222222	0.203697	0.015843	0.000000	0.492534				
0.233333	0.203697	0.016635	0.000000	0.492534				
0.244444	0.203697	0.017427	0.000000	0.492534				
0.255556	0.203697	0.018220	0.000000	0.492534				
0.266667	0.203697	0.019012	0.000000	0.492534				
0.277778	0.203697	0.019804	0.000000	0.492534				
0.288889	0.203697	0.020596	0.000000	0.492534				
0.300000	0.203697	0.021388	0.000000	0.492534				
0.311111	0.203697	0.022180	0.000000	0.492534				
0.322222	0.203697	0.022972	0.000000	0.492534				
0.333333	0.203697	0.023765	0.000000	0.492534				
0.344444	0.203697	0.024557	0.000000	0.492534				
0.355556	0.203698	0.025349	0.000000	0.492534				
0.366667	0.203698	0.026141	0.000000	0.492534				
0.377778	0.203698	0.026933	0.000000	0.492534				

0.388889	0.203698	0.027725	0.000000	0.492534
0.400000	0.203698	0.028518	0.000000	0.492534
0.411111	0.203698	0.029310	0.000000	0.492534
0.422222	0.203698	0.030102	0.000000	0.492534
0.433333	0.203698	0.030894	0.000000	0.492534
0.444444	0.203698	0.031686	0.000000	0.492534
0.455556	0.203698	0.032478	0.000000	0.492534
0.466667	0.203698	0.033271	0.000000	0.492534
0.477778	0.203698	0.034063	0.000000	0.492534
0.488889	0.203698	0.034855	0.000000	0.492534
0.500000	0.203698	0.035647	0.000000	0.492534
0.511111	0.203698	0.036439	0.000000	0.492534
0.522222	0.203698	0.037231	0.000000	0.492534
0.533333	0.203698	0.038023	0.000000	0.492534
0.544444	0.203698	0.038816	0.000000	0.492534
0.555556	0.203698	0.039608	0.000000	0.492534
0.566667	0.203698	0.040400	0.000000	0.492534
0.577778	0.203698	0.041192	0.000000	0.492534
0.588889	0.203698	0.041984	0.000000	0.492534
0.600000	0.203699	0.042776	0.000000	0.492534
0.611111	0.203699	0.043569	0.000000	0.492534
0.622222	0.203699	0.044361	0.000000	0.492534
0.633333	0.203699	0.045153	0.000000	0.492534
0.644444	0.203699	0.045945	0.000000	0.492534
0.655556	0.203699	0.046737	0.000000	0.492534
0.666667	0.203699	0.047529	0.000000	0.492534
0.677778	0.203699	0.048322	0.000000	0.492534
0.688889	0.203699	0.049114	0.000000	0.492534
0.700000	0.203699	0.049906	0.000000	0.492534
0.711111	0.203699	0.050698	0.000000	0.492534
0.722222	0.203699	0.051490	0.000000	0.492534
0.733333	0.203699	0.052282	0.000000	0.492534
0.744444	0.203699	0.053075	0.000000	0.492534
0.755556	0.203699	0.053867	0.000000	0.492534
0.766667	0.203699	0.054659	0.000000	0.492534
0.777778	0.203699	0.055451	0.000000	0.492534
0.788889	0.203699	0.056243	0.000000	0.492534
0.800000	0.203699	0.057035	0.000000	0.492534
0.811111	0.203699	0.057828	0.000000	0.492534
0.822222	0.203699	0.058620	0.000000	0.492534
0.833333	0.203699	0.059412	0.000000	0.492534
0.844444	0.203700	0.060204	0.000000	0.492534
0.855556	0.203700	0.060996	0.000000	0.492534
0.866667	0.203700	0.061788	0.000000	0.492534
0.877778	0.203700	0.062581	0.000000	0.492534
0.888889	0.203700	0.063373	0.000000	0.492534
0.900000	0.203700	0.064165	0.000000	0.492534
0.911111	0.203700	0.064957	0.000000	0.492534
0.922222	0.203700	0.065749	0.000000	0.492534
0.933333	0.203700	0.066541	0.000000	0.492534
0.944444	0.203700	0.067334	0.000000	0.492534
0.955556	0.203700	0.068126	0.002931	0.492534
0.966667	0.203700	0.068918	0.015217	0.492534
0.977778	0.203700	0.069710	0.032721	0.492534
0.988889	0.203700	0.070502	0.054157	0.492534
1.000000	0.203700	0.071294	0.078856	0.492534
1.011111	0.203700	0.073558	0.106353	0.492534

END FTABLE 2

END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap<--Mult-->	Tran	<-Target	vols>	<-Grp>	<-Member->	***
<Name>	#	<Name>	#	tem strg<-factor->	strg	<Name>	#	#
WDM	2	PREC	ENGL	1	PERLND	1	999	EXTNL
WDM	2	PREC	ENGL	1	IMPLND	1	999	EXTNL
WDM	1	EVAP	ENGL	0.76	PERLND	1	999	EXTNL
WDM	1	EVAP	ENGL	0.76	IMPLND	1	999	EXTNL

END EXT SOURCES

```

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name> # <Name> # #<-factor->strg <Name> # <Name> tem strg strg***
RCHRES 3 HYDR RO 1 1 1 WDM 1000 FLOW ENGL REPL
RCHRES 3 HYDR O 1 1 1 WDM 1001 FLOW ENGL REPL
RCHRES 3 HYDR O 2 1 1 WDM 1002 FLOW ENGL REPL
RCHRES 3 HYDR STAGE 1 1 1 WDM 1003 STAG ENGL REPL
COPY 1 OUTPUT MEAN 1 1 48.4 WDM 701 FLOW ENGL REPL
COPY 501 OUTPUT MEAN 1 1 48.4 WDM 801 FLOW ENGL REPL
RCHRES 2 HYDR RO 1 1 1 WDM 1004 FLOW ENGL REPL
RCHRES 2 HYDR O 1 1 1 WDM 1005 FLOW ENGL REPL
RCHRES 2 HYDR O 2 1 1 WDM 1006 FLOW ENGL REPL
RCHRES 2 HYDR STAGE 1 1 1 WDM 1007 STAG ENGL REPL
END EXT TARGETS

```

```

MASS-LINK
<Volume> <-Grp> <-Member-><--Mult--> <Target> <-Grp> <-Member->***
<Name> # #<-factor-> <Name> # #***
MASS-LINK 2
PERLND PWATER SURO 0.083333 RCHRES INFLOW IVOL
END MASS-LINK 2

MASS-LINK 3
PERLND PWATER IFWO 0.083333 RCHRES INFLOW IVOL
END MASS-LINK 3

MASS-LINK 5
IMPLND IWATER SURO 0.083333 RCHRES INFLOW IVOL
END MASS-LINK 5

MASS-LINK 7
RCHRES OFLOW OVOL 1 RCHRES INFLOW IVOL
END MASS-LINK 7

MASS-LINK 12
PERLND PWATER SURO 0.083333 COPY INPUT MEAN
END MASS-LINK 12

MASS-LINK 13
PERLND PWATER IFWO 0.083333 COPY INPUT MEAN
END MASS-LINK 13

MASS-LINK 15
IMPLND IWATER SURO 0.083333 COPY INPUT MEAN
END MASS-LINK 15

MASS-LINK 17
RCHRES OFLOW OVOL 1 COPY INPUT MEAN
END MASS-LINK 17

END MASS-LINK
END RUN

```

*Predeveloped HSPF Message File*

*Mitigated HSPF Message File*

## *Disclaimer*

### *Legal Notice*

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Clear Creek Solutions, Inc.  
6200 Capitol Blvd. Ste F  
Olympia, WA. 98501  
Toll Free 1(866)943-0304  
Local (360)943-0304

[www.clearcreeksolutions.com](http://www.clearcreeksolutions.com)



**Attachment 19 – Infiltration Rate Determination by Detailed Approach**



# Infiltration Rate as Determined by the Detailed Approach

## Roadway Infiltration

Volume 3 - Section 3.3.8 2014SWM

**Project Name:** BYK McGarigle Plat

Project No. 19066

Date: 10.16.19

Water table elevation Utilizing Water Table Surface	=	-9
Safety Factors per ( 1, 0.4, 0.9)	=	0.36
$D_{wt}$ : Depth from bottom of infiltration facility to the water table (ft)	=	8
K : Saturated Hydraulic Conductivity (in/hr)	=	82.70
K : Saturated Hydraulic Conductivity (ft/day)	=	165.40
Kcf : Saturated Hydraulic Conductivity with Correction Factors applied (in/hr)	=	29.77
Kcf : Saturated Hydraulic Conductivity with Correction Factors applied (ft/day)	=	59.54
$D_{pond}$ : maximum depth of water in infiltration facility (ft)	=	4
$CF_{size}$ : Pond size correction (<2/3 acre)	=	1
$CF_{aspect}$ : Correction factor for the effect of the pond aspect ratio	=	1.40
$A_{pond}$ : Bottom area of the proposed infiltration facility (ac)	=	0.25
i: hydraulic gradient	=	0.057527
$A_r$ : Aspect ratio of the infiltration facility bottom (length/width)	=	107
f: Infiltration rate using Darcy's Law	=	<b>2.398</b>

### Pond Design Information

Length =	1070	Depth =	4
Width =	10		
Bottom elev. =	-2		

### Gradient information:

$$i = \frac{D_{wt} + D_{pond}}{138.62 (K^{0.1})} CF_{size} = 0.057527$$

### Preliminary Infiltration rate:

$$f_{pre} = K i = 4.757481$$

### Infiltration Rate with Correction Factor applied:

$$CF_{aspect} = 0.02A_r + 0.98 = 3.12$$

$$f_{Final} = K * i * CF_{aspect} = \mathbf{2.398}$$

### Safety Factors

$$CF_{aspect} = 0.02A_r + 0.98$$

$$f_{Final} = K * i * CF_{aspect}$$



**Exhibit W**

To Hearing Examiner  
Findings

October 15, 2019

Tim Woodmansee  
BYK Construction Inc.  
PO Box 619  
Sedro Woolley, WA 98284

**RE: McGarigle Road, P39374  
Proposed Development - 55 and Older Residences  
Water Availability**


Dear Mr. Woodmansee:

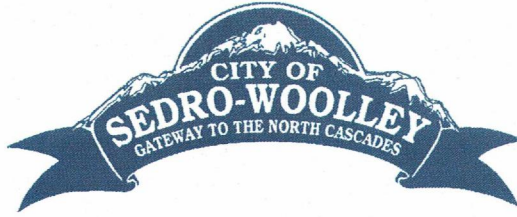
In response to your request, Public Utility District No. 1 of Skagit County (District) has reviewed the above location for water availability and offers the following comments:

- The District presently owns and operates an 8-inch diameter water pipeline on McGarigle Road fronting the above-referenced property.
- In order to fully serve your proposed development with water, a waterline extension into and through the property is required. Costs related to the design and construction of waterline extensions are the responsibility of the customer. If desired, please contact me for additional information and requirements related to waterline extensions.
- Line extensions through private property require the granting of a twenty-foot wide utility easement to the District for operation, maintenance, and replacement purposes. The standard format for a utility easement is available upon request.
- The District has sufficient supply to furnish domestic water to the property. The District's ability to supply water in excess of domestic use for fire flow demand is dependent on a hydraulic analysis of the water system related to your proposed project, as well as the extent of the project's anticipated needs.
- Upon District acceptance of the completed waterline extension, receipt of the necessary application information, fees, easement, permit, site and billing address, and parcel number, a domestic metered water service to each of the anticipated 85 lots can be obtained in accordance with the District's Water Policy Manual. District fees can be found in Appendix A of the Water Policy Manual, which can be viewed at the District office or online at <http://www.skagitpud.org/resources/document-repository/water-policy-manual/>.
- Upon request and receipt of sufficient information related to the project, the District can provide an estimate of water service fees and specific requirements at the above-referenced property.
- Upon request, the District can provide an estimate of the pressure in the existing waterline. Normal pressure is between 40 and 80 pounds per square inch.

The comments in this letter are based on information available at the time of writing. Modification to the water system or policy changes can make the information provided herein outdated. A re-evaluation of the comments is necessary one year after the date of this letter.

Sincerely,

  
Michael E. Demers  
Engineering Technician  
Sedro-Woolley



## COMMENT SHEET

### Exhibit X

To Hearing Examiner  
Findings

DATE: 9-3-19

APP. NUMBER: 2019-298

PROJECT NAME: 85 Unit PRD

LOCATION: Tim Woodmansee

#### STAFF COMMENTS:

- This development will require a mainline extension with manhole additions.
- Per short plat standards, each lot shall be provided with a single connection to the Sedro-Woolley sanitary sewer system, no shared side sewers allowed. Every sewer connection shall have clean-outs at the property line and foundation.
- Upon acceptance, the sewer lines will be considered public and shall be turned over to the City for ownership and maintenance.
- Sewer system shall comply with the Sedro-Woolley Public Works Department Standard Manual.
- Current sewer fees are \$6995 per dwelling unit.

SIGNATURE

*Debbie Allen*

DEPARTMENT

*Sewer Dept.*

*OK for  
w/ C.O. @  
end for  
last 34 homes  
Dylan*

## Exhibit Y

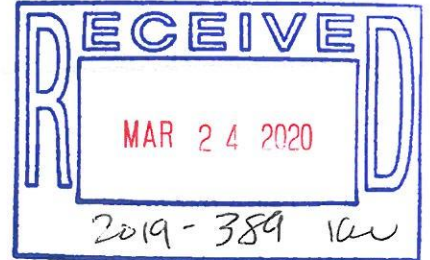
To Hearing Examiner Findings

**From:** Frank Alan Bresnan Sr  
**Sent:** Monday, March 23, 2020 8:54 PM  
**To:** Frank Alan Bresnan Sr  
**Subject:** Fwd: The Hearing

from Allen

Get [Outlook for Android](#)

**From:** Allen Emerson <[allen.emerson@comcast.net](mailto:allen.emerson@comcast.net)>  
**Sent:** Wednesday, February 26, 2020, 10:37 AM  
**To:** 'Frank Alan Bresnan Sr'  
**Cc:** [allen.emerson@comcast.net](mailto:allen.emerson@comcast.net)  
**Subject:** The Hearing



Hi Frank:

Hope this email finds you and your wife doing better. The appellants to the SEPA decision and the proposed rural development are currently gathering information to present at the March 24<sup>th</sup> hearing. If you have anything that you think would be an effective exhibit to present at the hearing such as pictures or videos and you would like to share them with the appellants at a meeting please let us know. We will reimburse you for any costs incurred. In the meantime we are currently setting up a videographer to record the key traffic times on the west end of McGarigle.

Best,

A. Emerson  
CCR #2367  
WA

3-22-2020 My Name is Frank Black Emerson  
F L Black 1004 McGargile Rd SW, WA 98284  
My cell No is 360-740-1077 This is my opinion  
on this appeal to fix problems

Good Morning Ladies & Gentlemen **COPY**

This appeal we are here for is ~~the~~ what  
is in the works for McGargile Road is going  
to be a high impact traffic area East & West to  
Northern State to Fruite Ave Road to 20 East &  
West then to Carter Road North & South to Hwy 20  
also to Hwy 9 North & South to Hwy 20 East & West  
then to John Linder East & West and West to  
Jones Road to R & S grade road and then the new  
bus garage Road to New Roundabout at Cook  
Road ~~on Fraser Road~~ to North South East & West  
to Hwy 20 N S E W to Hwy 9 North & South to  
Cook Road East & West to Hwy 9 North & South  
East & West on Cook Road to I 5 North & South  
So there will be an impact on McGargile Rd  
that the city said you can not stop progress

ByK is not the problem the city council has  
to have a work shop on the roads also the over  
ride dot department of highways in the city limits

I am Filing a class Action Law Suit Against  
Allen & Linda Emerson & people on witness list.  
I will also find out if Allen is practicing law  
and giving witnesses the wrong information

Thank you For Reading


COPY

Settlement Agreement (LP 2019 389)  
Appeal of 21 PA Determination

Pursuant to subsection 7 of the Hearing Examiner's pre hearing order, the parties have met and discussed settlement. Parties hereby agree as follows: (1) appellant agrees to withdraw its appeal of matter.

DATED this 11<sup>th</sup> day of March, 2020.

For the APPELLANTS:

  
Mark Bresnan, Sr.

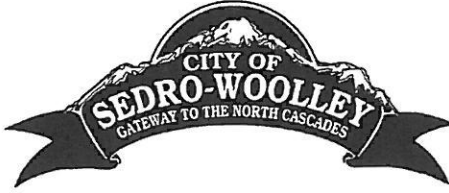
Allen Emerson

For the CITY:

Doug Merriman, City Supervisor

CITY COUNCIL AGENDA  
REGULAR MEETING

JUN 10 2020



5:00 P.M. COUNCIL CHAMBER  
AGENDA NO. 0-7

**CITY OF SEDRO-WOOLLEY**

Sedro-Woolley Municipal Building  
325 Metcalf Street  
Sedro-Woolley, WA 98284  
Phone (360) 855-9922  
Fax (360) 855-9923

Doug Merriman, Ph.D  
City Supervisor

---

MEMO TO: City Council  
FROM: Doug Merriman, Ph.D, City Supervisor  
RE: Library Project Cost Summary  
DATE: June 10, 2020

INFORMATION ITEM

ISSUE: A financial status report and cost breakdown on the Library Construction project.

BACKGROUND: As of 6/2/2020 we are 295 days into the 356 day project (82%). This does not include delays attributable to the stay at home order related to COVID-19 currently estimated to be 27 days, nor days lost due to inclement weather earlier this year which are estimated to be 9.5 days. At this time, the estimated substantial completion date is approximately September 20, 2020.

From a financial perspective, we have spent a total of \$4,788,499 of a total project budget of \$9,017,028, roughly 46.89% of budget. This is not unusual as the larger construction components are occurring from this time to the estimated project completion date. Of this total, the project contingency balance is approximately \$383,500 to cover unanticipated costs that may occur.

A short horizon project schedule is attached for your review.

LIBRARY CONSTRUCTION PROJECT  
SUMMARY OF PROJECT REVENUES AND EXPENSE BUDGETS  
4-Jun-20

**PROJECT REVENUES**

CITY OF SEDRO-WOLLEY REVENUES	Original Budget	Adjustments	Adjusted Budget	Actual Receipts	Revenues Remaining	Percent Remaining
COMMERCE GRANT	\$ 1,455,000.00	\$ 970,000.00	\$ 2,425,000.00	\$ 2,425,000.00	\$ -	0.00%
GO BOND ISSUE	5,150,000.00	0.00	5,150,000.00	1,295,500.00	3,854,500.00	74.84%
CONSTRUCTION RESERVE	720,000.00	(90,000.00)	630,000.00	630,000.00	0.00	0.00%
CITY-IRON SKILLET CONTRIBUTION	226,033.35	0.00	226,033.35	0.00	226,033.35	100.00%
SALE OF FIXED ASSETS/RENT	7,700.00	0.00	7,700.00	7,700.11	(0.11)	0.00%
Subtotal: New revenues	7,558,733.35	880,000.00	8,438,733.35	4,358,200.11	4,080,533.24	48.35%
District reimb-Iron Skillet	325,219.51	0.00	325,219.51	316,562.87	8,656.64	2.66%
District reimb - FFE	146,940.00	41,850.00	188,790.00	12,213.11	176,576.89	93.53%
District reimb IT/AV, Design	13,000.00	15,000.00	28,000.00	0.00	28,000.00	100.00%
Subtotal: Reimbursement revenues	485,159.51	56,850.00	542,009.51	328,775.98	213,233.53	39.34%
<b>TOTAL CITY OF SEDRO-WOLLEY REVENUES</b>	<b>8,043,892.86</b>	<b>936,850.00</b>	<b>8,980,742.86</b>	<b>4,686,976.09</b>	<b>4,293,766.77</b>	<b>47.81%</b>

LIBRARY DISTRICT REVENUES	Original Budget	Adjustments	Adjusted Budget	Actual Receipts	Revenues Remaining	Percent Remaining
Library Reserve	1,500,000.00	0.00	1,500,000.00	0.00	1,500,000.00	100.00%
<b>TOTAL LIBRARY DISTRICT REVENUES</b>	<b>1,500,000.00</b>	<b>0.00</b>	<b>1,500,000.00</b>	<b>0.00</b>	<b>1,500,000.00</b>	<b>100.00%</b>

LESS: LIBRARY DISTRICT RIMB TO CITY	(485,159.51)	(56,850.00)	(542,009.51)	(328,775.98)	(213,233.53)	39.34%
<b>TOTAL PROJECT REVENUES</b>	<b>9,058,733.35</b>	<b>880,000.00</b>	<b>9,938,733.35</b>	<b>4,358,200.11</b>	<b>5,580,533.24</b>	<b>56.15%</b>

**PROJECT EXPENSE BUDGETS**

CITY PROJECT EXPENSE BUDGET	Original Budget	Adjustments	Adjusted Budget	Actual Expenses	Budget Remaining	Percent Remaining
SITE ACQUISITION	\$ 821,500.00	\$ 10,391.74	\$ 831,891.74	\$ 831,891.74	\$ -	0.00%
ARCHITECTUAL & ENGINEERING	\$ 693,900.00	\$ 176,532.00	\$ 870,432.00	\$ 749,039.18	\$ 121,392.82	13.95%
CONSTRUCTION	\$ 5,946,886.95	\$ 125,813.93	\$ 6,072,700.88	\$ 2,546,659.08	\$ 3,526,041.80	58.06%
CONSTRUCTION MANAGEMENT	\$ 325,923.50	\$ (23,748.36)	\$ 302,175.14	\$ 11,388.47	\$ 290,786.67	96.23%
OTHER	\$ 335,829.12	\$ 604,000.00	\$ 939,829.12	\$ 649,521.43	\$ 290,307.69	30.89%
<b>TOTAL CITY PROJECT EXPENSE BUDGET</b>	<b>\$ 8,124,039.57</b>	<b>\$ 892,989.31</b>	<b>\$ 9,017,028.88</b>	<b>\$ 4,788,499.90</b>	<b>\$ 4,228,528.98</b>	<b>46.89%</b>

LIBRARY DISTRICT PROJECT BUDGET	Original Budget	Adjustments	Adjusted Budget	Actual Expenses	Budget Remaining	Percent Remaining
LIBRARY DISTRICT COSTS - DIRECT	\$ 960,000.00	\$ (5,565.98)	\$ 954,434.02	\$ -	\$ 954,434.02	100.00%
LIBRARY DISTRICT COSTS - REIMB TO CITY	\$ 338,219.51	\$ 207,346.47	\$ 545,565.98	\$ 328,775.98	\$ 216,790.00	39.74%
<b>TOTAL LIBRARY DISTRICT PROJECT EXPENSE BUDGET</b>	<b>\$ 1,298,219.51</b>	<b>\$ 201,780.49</b>	<b>\$ 1,500,000.00</b>	<b>\$ 328,775.98</b>	<b>\$ 1,171,224.02</b>	<b>78.08%</b>

LESS: LIBRARY DISTRICT REIMBURSED TO THE CITY	(338,219.51)	(207,346.47)	(545,565.98)	(328,775.98)	(216,790.00)	39.74%
<b>TOTAL COMBINED PROJECT EXPENSE BUDGETS</b>	<b>\$ 9,084,039.57</b>	<b>\$ 887,423.33</b>	<b>\$ 9,971,462.90</b>	<b>\$ 4,788,499.90</b>	<b>\$ 5,182,963.00</b>	<b>51.98%</b>

<b>PROJECT REVENUES LESS PROJECT EXPENSES</b>	<b>\$ (25,306.22)</b>	<b>\$ (7,423.33)</b>	<b>\$ (32,729.55)</b>	<b>\$ (430,299.79)</b>	<b>\$ 397,570.24</b>	<b>N/A</b>
---	-----------------------	----------------------	-----------------------	------------------------	----------------------	------------

Completed Line Items with Remaining Budget Amounts:

Preload 3,277.86  
Permits, plan chack fees, impact fees 20,984.39  
City demolition, cleanup 8,467.30

ADJUSTED PROJECT REVENUES LESS PROJECT EXPENSES

City Council Packet

Central Skagit-Sedro Woolley Library

			5/24/2020	5/25/2020	5/26/2020	5/27/2020	5/28/2020	5/29/2020	5/30/2020	5/31/2020	6/1/2020	6/2/2020	6/3/2020	6/4/2020	6/5/2020	6/6/2020	6/7/2020	6/8/2020	6/9/2020	6/10/2020	6/11/2020	6/12/2020	6/13/2020	6/14/2020	6/15/2020	6/16/2020	6/17/2020	6/18/2020	6/19/2020	6/20/2020	6/21/2020	6/22/2020	6/23/2020	6/24/2020	6/25/2020	6/26/2020	6/27/2020	6/28/2020	
	Activity Description	SUBCONTRACTOR	SUN	MON	TUE	WED	THUR	FRI	SAT	SUN	MON	TUE	WED	THUR	FRI	SAT	SUN	MON	TUE	WED	THUR	FRI	SAT	SUN	MON	TUE	WED	THUR	FRI	SAT	SUN	MON	TUE	WED	THUR	FRI	SAT	SUN	
1	CS-SWL																																						
2																																							
3	Electrical 103,105,106	Mills																																					
4	Fire Alarm 103,105,106	Mills																																					
5	Mech Lids only	DK Systems																																					
6	Install Metal flashing	Lake Pointe																																					
7	Building Insulation	A&E																																					
8	Fluid Applied Air Barriers flashing	Found Rest																																					
9	install 2x2s	VALDEZ																																					
10	Excavate outdoor early learning	Valdez																																					
11	Prep outdoor early learning	Valdez																																					
12	install exterior flashing	VALDEZ																																					
13	F/P north sidewalk	Langco																																					
14	Install Storefront	GSF																																					
15	Drywall	Alliance																																					
16	Mud and tape GWB	Alliance																																					
17	Primer/1st coat	Meher																																					
18	Install cedar Siding	VALDEZ																																					
19	Exterior Bldg Insulation	A&E																																					
20	Install curtain wall	GSF																																					
21	Install Metal flashing and siding	Lake Pointe																																					
22	finish cedar siding	Meher																																					
23																																							
24	Progress Meeting 10:00am	Vladez/CS-SWL																																					
25	Subcontractor metting 9:00am	Vladez/Subs																																					
26	Delivery																																						
27	Inspection																																						
28																																							

# City of Sedro-Woolley Fire Department

## Monthly Incident Data

### MAY 2020

CITY COUNCIL AGENDA  
REGULAR MEETING

JUN 10 2020

:00 P.M. COUNCIL CHAMBER.  
AGENDA NO. 17-2

EMERGENCY RESPONSES	TOTALS
FALSE ALARM (FALSE CALLS)	15
FIRE	3
GOOD INTENT CALLS	25
HAZARDOUS CONDITIONS (NO FIRE)	6
RESCUE & EMERGENCY MEDICAL INCIDENTS	209
SERVICE CALLS	9
SPECIAL INCIDENT TYPE	1
TOTAL	268
TOTAL RESPONSES 2020	1373
TRANSPORTS FOR THE MONTH	TOTALS
ISLAND HOSPITAL	0
PEACEHEALTH UNITED GENERAL MEDICAL CENTER	86
SKAGIT VALLEY HOSPITAL	33
St Josephs Bellingham	0
AIRLIFT NW	0
Total Month	119
Total Transports for 2020	623
LOCATION / ZONE # INCIDENTS	TOTALS
Burlington- City of Burlington	0
Fire District 2- McLean	0
Fire District 3- Conway/Cedardale	1
Fire District 4- Clear Lake	10
Fire District 5- Allen/Edison/Bow	0
Fire District 6- Bayview	1
Fire District 7- Lake McMurray	0
Fire District 8E- Outside of City Limits East D8	14
Fire District 8N- Outside of City Limits North D8	11
Fire District 8S- Outside of City Limits South D8	49
Fire District 9- Big Lake	0
Fire District 10- Birdsvie	5
Fire District 13- Hope Island	0
Fire District 14- Alger	1
Fire District 15- Lake Cavanaugh	0
Fire District 16- Day Creek	4
Hamilton- Town of Hamilton	6
MV- City of Mount Vernon	6
SW- Inside the City of Limits of Sedro-Woolley	156
Town of Concrete	3
Fire District 19- Marblemount	1
Newhalem	0
TOTAL:	268
MUTUAL AID	TOTALS
Given	0
Received	0