

Northeast Sammamish Sewer and Water District

Amendment to Sewer System Plan

April 2011

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APR 13 2011

King County DNRP
Waste Water Treatment Division

Prepared by:



**Northeast Sammamish
Sewer and Water District
3600 Sahalee Way NE
Sammamish, WA 98074**

**Contact: Laura Keough
425.868.1144**

**RH2 Engineering, Inc.
12100 NE 195th Street, Suite 100
Bothell, WA 98011**

**Contact: Doug Schlepp, P.E.
425.951.5400**



AMENDMENT TO NORTHEAST SAMMAMISH SEWER AND WATER DISTRICT SEWER SYSTEM PLAN

PURPOSE OF PLAN AMENDMENT

The Northeast Sammamish Sewer and Water District's 2006 Sewer System Plan (Sewer Plan) was approved by the Washington State Department of Ecology (Ecology) and King County (Ordinance No. 16196) on July 7, 2008. The Lake Washington School District (LWSD) recently requested sewer service for a proposed Science, Technology, Engineering, and Math (STEM) school in the lot immediately north of Alcott Elementary. Alcott currently receives sewer service from Northeast Sammamish Sewer and Water District (District).

Because the proposed site of the STEM school is located within King County's rural area and outside of the District's service area, the District is required to provide an amendment to the approved Sewer Plan. The amendment has four objectives: 1) to justify the District's plan to provide sewer service to the STEM school; 2) to analyze whether providing sewer service to the STEM school is consistent with the District's policies and design criteria; 3) to identify system deficiencies created by serving the school; and 4) to identify any necessary improvements.

AMENDED PLAN SECTIONS

Revisions to the impacted sections of the Sewer Plan are discussed below and are cross-referenced to the existing sewer plan, as necessary.

Land Use and Planning Area

The Sewer Plan evaluated the impacts of the City of Sammamish and King County Comprehensive Land Use planning. The system was analyzed based on the projected population of the District at full development of its service area, as shown on Page 7 of the Sewer Plan. Population projections, land use, study area, planning area, and service area were defined in **Chapter 2** of the Sewer Plan. Because future populations in the Sewer Plan were at full development and the school will add no new housing, there is no need to update the population projections with this amendment.

The study area and service areas are being revised with this amendment to include the STEM school property. **Figures 1 and 2** identify the STEM school property and how serving it will revise the study and service areas.

Service Agreements

Pages 8-11 of the Sewer Plan detail the District's various service agreements, and copies of the agreements are located in **Appendix B**. The District's existing and proposed agreements for school sites are discussed below.

The District has an agreement with LWSD to provide the existing Alcott Elementary with sewer service. The school was initially constructed with a septic system and drain field. In accordance with the initial Washington State Department of Health (DOH) approval, the school was required to connect once sewer service was available. The sewer was connected from the school in 2001.

An agreement will be developed with LWSD to provide sewer service to the proposed STEM school, which will be located on the lot north of Alcott. Sewer service will be provided through an existing stub to the STEM school property from the Alcott property. No extension of the District's sewer system is necessary to serve the property.

Consistency and Concurrency

The majority of the District is within the Urban Growth Boundary (UGB), where sewer service is unrestricted and required. On the other hand, with the exception of public schools, new connections in rural areas are restricted from service by public sewers.

The District's plan to provide sewer service within the UGB is consistent and concurrent with the aforementioned planning documents reviewed. A small portion of the District's facilities and customers are located outside the corporate boundary and the UGB, and they are discussed on page 5 of the Sewer Plan.

While the proposed STEM school will be located outside the UGB, it is consistent with King County Code Section 13.24.134 in that:

1. It is needed to address the needs of a public school with a design daily average flow of more than three thousand five hundred gallons per day. Based on Ecology Criteria for Sewage Works Design Manual, Table G2-1 "Design Basis for New Sewage Works," the STEM school without showers or a cafeteria will produce 7,200 gallons per day. A second flow calculation, based off existing water usage records at Alcott, which is similar in function to the proposed STEM school, results in a flow of approximately 3,700 gallons per day.
2. The connection from the STEM school will be tight-lined. No additional sewer customers will be able to connect to the sewer at this location. The STEM school will connect to an existing sewer stub that is located on the Alcott Elementary site, just south of the STEM school site.
3. No cost-effective alternative technologies are feasible, and an on-site sewer disposal system for the public school would not protect basic public health, safety, and the environment during the use of this site for a school or school facility. LWSD's consultant, LPD Engineering, provided the following estimates. Additional detail is provided in the attached letter.
 - a. The use of a Large Onsite Septic System (LOSS) is not feasible as the site is located within a Category II critical aquifer recharge area. This project is located in a lot likely to be considered "medium susceptibility to ground water contamination and located within a sole source aquifer." Per conversations with the DOH, as a sole source aquifer, the allowed dosing would make the size and cost of the facility infeasible. The estimated construction cost for the LOSS alternative is \$360,000. If extensive de-nitrification is required, the cost could easily double. In addition to cost, there would be extensive added site disturbance and clearing, as the system is expected to cover a large site area.
 - b. The use of holding tanks at the school site, although not categorically disallowed by the DOH, would likely not be approved. Per discussion with the DOH, these facilities are typically only allowed in locations where public sewer service is to be

constructed imminently. The size of the holding tank along with the frequency of the required pumping and disposal would make it a cost prohibitive solution for a school facility. The estimated cost for holding tank installation is \$75,000. Pumping costs would be between \$370,000 and \$720,000 annually.

- c. The option proposed in this amendment is to install private sewer main from the existing manhole on the south edge of the STEM school property (in an easement) to the new building. The estimated construction cost for the extension is \$23,300. Connection charges for King County will be approximately \$109,000 and will be payable over 15 years. The District's connection charge is estimated at \$42,000 and will be due at installation. The sewer fee will be between \$3,000 and \$5,800 annually.

Existing System

The District's existing sewer system that would serve the STEM school is comprised of a tight-line gravity sewer, lift station, and trunk sewer. The STEM school will not require change to the downstream system. Necessary improvements for service to the site will be private, and connection to the system will be made via an existing stub on the Alcott Elementary site.

System Analyses

Chapter 4 of the Sewer Plan includes the following analyses to assess the sewer system: 1) Pipeline Integrity; 2) Infiltration and Inflow; 3) Pipeline Capacity; 4) Lift Station; 5) Telemetry and Control System; and 6) Wastewater Quality.

The addition of the STEM school does not necessitate revisions to the system analyses. Even with a conservative estimated flow of 7,200 gpd, the proposed equivalent residential units (ERUs) and areas are less than the conditions modeled and planned for during the development of the 2006 Sewer Plan.

Capital Improvement Program

The Capital Improvement Plan (CIP) in **Chapter 5** of Sewer Plan identifies six improvements, none of which are impacted by the addition of the STEM school site. A sewer connection for the STEM school is available on the Alcott school site. Because there is sufficient capacity in the basin and downstream for full-development, no off-site improvements are necessary for service to the STEM school.

Operation and Maintenance Analysis Results

Chapter 6 of Sewer Plan details the District's Operation and Maintenance (O&M) Program. The addition of the STEM school does not necessitate revisions to the O&M Plan because all necessary sewer improvements will be privately owned and maintained by the LWSD.

Financial Analysis Results

The District's financial records were evaluated in **Chapter 7** of the Sewer Plan to identify the financial performance and the need for additional revenue, if any. Since there will be no revisions to the CIP or O&M Plan, the financial analysis will not change with the addition of the STEM school. LWSD will finance, build, and maintain the necessary private sewer improvements.

Agency Review and Comments

The District will submit the draft amendment to the following jurisdictions.

- Washington State Department of Ecology
- King County Water and Land Resources, UTRC
- King County Department of Natural Resources, WDT
- City of Redmond
- City of Sammamish
- Sammamish Plateau Water and Sewer District

Review comments will be included and addressed in the final planning document.



7936 Seward Park Ave. S.
Seattle, Washington 98118
p. 206.725.1211
f. 206.973.5344
lpdengineering.com

April 12, 2011

Steve Hirschey
King County UTRC Chair
King County Wastewater Treatment Division
900 Oakesdale Avenue Southwest
Renton, WA 98057

**Re: Draft Proposed Amendment to the General Sewer Plan
Secondary STEM School (A10P0086)**

Dear Mr. Hirschey:

This letter is to provide back-up information associated with the request for sewer service area modification to include the STEM School property. The subject property is located on parcel #1625069020 near the intersection of NE Redmond - Fall City Road & 228th Ave NE. The property is owned by the Lake Washington School District, which is proposing to construct a new secondary STEM School.

As per the KCC 13.24.134, the following criteria must be met for consideration of sewer service:

- A. Sewer service shall be expanded to serve uses in the rural and natural resource areas only if the facilities are:
 1. Needed to address:
 - a) Specific health and safety problems threatening the existing uses of structures; or
 - b) The needs of public school systems with design daily average flows of more than three thousand five hundred gallons per day;
 2. Tightlined; and
 3. A finding is made by the utilities technical review committee that no cost-effective alternative technologies are feasible and that an on-site sewer disposal system for the public school or public school facility would not protect basic public health, safety, and the environment during the use of this site for a school or school facility.
- B. Decisions on sewer service expansions in rural or resource areas shall be made by King County in the form of approval of a sewer comprehensive plan or approval of an amendment to a sewer comprehensive plan. (Ord. 16265 § 9, 2008; Ord. 14049 § 5, 2001; Ord. 13625 § 12, 1999; Ord. 11616 § 11, 1994)

Per the 2008 DOE Criteria for Sewage Works Design Manual, Table G2-1 "Design Basis for New Sewage Works," for a school without showers and with a cafeteria the design flow is 10 gallons day per person. The proposed new school will be designed to accommodate 675 students and 30 faculty members, for a total flow of approximately 7,200 gallons per day which would meet the criteria of KCC 13.24.134 (A)(1)(b).

Connection to Existing Sewer Main

The adjacent sewer utility purveyor is the Northeast Sammamish Sewer and Water District. There is an existing 8-inch private sewer main located onsite along the southern boundary of the project parcel. This 8-inch private sewer main provides sewer service to the Alcott Elementary School located to the

south of the project site. The 8-inch private sewer main continues southwest and connects with the 8-inch public sewer main located within NE Redmond - Fall City Road.

The sewer main proposed to serve the STEM School property would be tightlined from the new school building and connected into an existing sewer manhole on this private sewer main. This meets the criteria of KCC 13.24.134 (A)(2).

The estimated construction cost to connect to the existing onsite sanitary sewer is provided below.

Connection to Existing Sewer Cost Estimate

No.	Item Description	Quantity	Units	Unit Price	Total
1	6-inch Sanitary Sewer Pipe	150	LF	\$ 38.00	\$ 5,700.00
2	8-inch Sanitary Sewer Pipe	300	LF	\$ 42.00	\$12,600.00
3	Sanitary Sewer Cleanout	1	EA	\$ 250.00	\$ 250.00
4	Sanitary Sewer Manhole	1	EA	\$2,500.00	\$ 2,500.00
5	Connection to Building	1	EA	\$ 250.00	\$ 250.00
6	Connection to Existing Manhole	1	EA	\$2,000.00	\$ 2,000.00
	Total Estimated Cost				\$23,300.00

Evaluation of Onsite Sewer Alternatives

Two alternative technologies were evaluated for this site in lieu of connecting to the adjacent sewer system: A large onsite septic system (LOSS) and a sewage holding tank. The alternative technologies are discussed below and preliminary cost estimates have been provided.

Large Onsite Septic System

The project site is located approximately 350 feet to the east of a potable water well source utilized by Union Hill Water Association in a Category II Critical Aquifer Recharge Area (CARA) for a sole source aquifer. In addition, the soils on the site are primarily Vashon Recessional Outwash which is a gravelly sandy soil with high permeability. DOH also restricts loading to a maximum of 900 gpd/acre in soil types 1 and 2. This loading restriction would likely apply to this site, and result in a larger drainfield size, significantly increasing the total disturbed area on the site.

In addition, a site risk survey (SRS) would be required to assess the potential impacts to the groundwater. Depending on the findings of the SRS, additional studies and/or reports may be required to determine if additional treatment will be necessary to protect groundwater. There have been several studies indicating that gravity septic systems are ineffective in treating domestic wastewater in coarse textured soils and that wastewater constituents can be transported to the lower regions of the soils posing a treatment concern in systems that are close to groundwater. The submittal requirements for the SRS, additional studies, and the resulting treatment requirements taken together can significantly increase the design and construction costs.

Based on the design usage at the school of 7,200 gallons per day and working with the project cost estimator, The Robinson Company, who has experience with estimating other LOSS facilities, a construction cost estimate for the LOSS is provided below.

LOSS Construction Cost Estimate

No.	Item Description	Quantity	Units	Unit Price	Total
1	Septic System and Drainfield	7,200	GPD	\$50.00	\$360,000
	Total Estimated Cost				\$360,000

If additional treatment such as de-nitrification is required, the construction cost of the LOSS facility could easily double. The Board of the Union Hill Water Association has also raised concerns regarding the school development due to the proximity to their sole source aquifer. The Board will be scrutinizing any proposed design alternatives that could have a negative impact on their aquifer. Therefore, this alternative may not be possible, regardless of cost due to the potential groundwater impacts and opposition by the Union Hill Water Association Board.

Sewage Holding Tank

The second option is the installation of a sewage holding tank that can be pumped out and disposed of offsite. This would reduce the likelihood of groundwater contamination since the wastewater would be removed from the site of instead of relying on native soil drainfields for final waste disposal and treatment.

The sewage holding tank size is based on the estimated design flows of 7,200 gallons per day and the assumption that the tank would be pumped out every other day so it would require a minimum capacity of 14,400 gallons. To provide a factor of safety, we propose installing a 20,000 gallon holding tank. Cost estimates for the holding tank and pumps were also provided by The Robinson Company, who is the project cost estimator.

Sewage Holding Tank Construction Cost Estimate

No.	Item Description	Quantity	Units	Unit Price	Total
1	Sewage Holding Tank/Vault	20,000	Gallons	\$ 3.00	\$60,000.00
2	Alarms/Pumps/Misc	1	LS	\$15,000.00	\$15,000.00
	Total Estimated Cost				\$75,000.00

Lake Washington School District is currently pumping sewage out of holding tanks at Evergreen Junior High, Bear Creek School, and Dickinson Elementary School and they have provided us with their actual costs for pumping and disposal. Based on the invoices that we were provided, the pumping and disposal cost average approximately \$0.50 per gallon. Copies of these invoices are provided for your reference.

We have provided a range of annual sewage pumping and disposal costs using the design flows of 7,200 gallons per day and also using the actual flows for the adjacent Alcott Elementary School of 3,700 gallons per day. Alcott Elementary has 627 students which is slightly less than the proposed 675 students at the STEM School so the flow rates of the two schools would likely be comparable.

Annual Pumping Cost Estimate – Using Design Flow Rate

No.	Item Description	Quantity	Units	Unit Price	Total
1a	Annual Pumping Cost*	1,440,000	Gallons	\$0.50	\$720,000.00
	Total Annual Pumping Cost				\$720,000.00

*Assumes school year is 40 weeks with the tank pumped out an average of 2.5 times per week for a total 100 times per year. 14,400 gallons*100 times per year = 1,440,000 gallons per year

Annual Pumping Cost Estimate – Using Alcott Elementary Rate

No.	Item Description	Quantity	Units	Unit Price	Total
1	Annual Pumping Cost*	740,000	Gallons	\$0.50	\$370,000.00
	Total Annual Pumping Cost				\$370,000.00

*Assumes school year is 40 weeks with the tank pumped out an average of 2.5 times per week for a total 100 times per year. 7,400 gallons*100 times per year = 740,000 gallons per year

Although the initial construction cost for the tank installation is relatively minor, the estimated range of annual pumping and disposal costs of between \$370,000 and \$720,000 per year make this alternative cost prohibitive.

Summary

Based on the information provided above, there are no cost effective alternative technologies that will protect basic public health and the environment. Construction of a LOSS facility is not a viable alternative due to the potential groundwater impacts resulting from the highly permeable soils on site and the likely opposition by the Union Hill Water Association Board. In addition, installation of an onsite septic tank that is pumped out on a regular basis is not a cost effective solution because the annual pumping costs based on the estimated flows make this alternative cost prohibitive. Therefore, we recommend that a finding is made by the Utilities Technical Review Committee that no cost-effective alternative technologies are feasible and that an on-site sewer disposal system would not protect basic public health, safety, and the environment.

The Northeast Sammamish Sewer and Water District's engineering consultant, RH2 Engineering has provided a draft proposed amendment to their general sewer plan that includes providing sewer service to this parcel. This would meet the criteria described in KCC 13.24.134 (B) since King County can approve a sewer comprehensive plan amendment for sewer service expansion in a rural resource area.

We look forward to your response and are happy to answer any questions you have regarding this request for a modification of the sewer service area.

Sincerely,
LPD Engineering, PLLC



Laurie Pfarr, PE
Principal

OPERATED BY TANDEM SERVICE CORP., INC.

P.O. BOX 259, LAKE STEVENS, WA 98258

- FRONTIER SEPTIC SERVICE 304-1093
- COASTAL ENVIRONMENTAL 327-0290 426-1922 622-7070 588-0967 888-6518
- LONG SEPTIC SERVICE 822-0550
- EVERGREEN SANITATION, INC. 743-1957 327-1857 AAA SEPTIC SERVICE 362-6998 VAN'S SEPTIC SERVICE 483-7788 LYON SEPTIC SERVICE OR EASTSIDE SEPTIC SERVICE 652-1300
- SANDHART SEPTIC SERVICE 353-7284 783-0550 604-9245
- A SEPTIC PUMPER 1-800-773-5074 483-8414 353-1943 724-0832 632-9288 745-0954
- SEPTIC SERVICES MAPLE VALLEY SEPTIC SVC. 422-0831 626-5265 322-7889 271-9363 723-5428
- EAST HILL SEPTIC SERVICE
- BRACQUAM SEPTIC SERVICE
- RENTON SEPTIC SERVICE
- SHANCLAW SEPTIC SERVICE
- J.J. JACKSON SEPTIC SVC. 888-4884 847-4822 258-9242

COUNTY: King
PAGE: 537
GRID: F.2

PLEASE VISIT OUR WEBSITE AT WWW.EVERGREENSANITATION.COM FOR INFORMATION AND CUSTOMER SATISFACTION SURVEY

CUSTOMER NAME: LAKE Washington School DIST. RES. COMM. DATE: 11/18/09

ADDRESS: PO Box 97039 NEXT SERVICE DUE: 1/1

CITY: Redmond STATE: WA ZIP: 98073

SERVICE	AMOUNT
GALLON SEPTIC TANK - PUMPING	\$ 875.00
GALLON PUMP CHAMBER - PUMPING	
3500 GALLONS AT - DISPOSAL FEE	\$ 665.00
CHECKED BAFFLES - OK	
LEVEL HIGH BACK FLOW	
GRAVITY SYSTEM	
PUMP SYSTEM	
EFFLUENT FILTER	
ALL LIDS HAVE RISERS	
MAINTENANCE CONTRACT	
DIGGING	
BAFFLE INSTALL	
D/F VACUUM	
LABOR	
MATERIALS	
OPER. REPORT	
SUB TOTAL	\$ 1540.00
TAX	146.30
TOTAL	\$ 1686.30

PH #1 (206) 427-0490 PH #2 (425) 864-0781 3500

E-MAIL: Kelly Reggie

JOB AT: Bear Creek School
8905 208th Ave NE
Redmond WA

CALLER IN BY:

COMMENTS: Pumped Floated
Lift Station for release.

RECEIVED

WORK APPROVED BY: NOV 18 2009 PO: 209203 DRIVER: Justin

TERMS: FULL PAYMENT UPON COMPLETION UNLESS PREVIOUS ARRANGEMENTS HAVE BEEN MADE.

ACCOUNTING DEPT. (OK Charge)

INVOICE NO. 1096813

IT IS THE SOLE RESPONSIBILITY OF THE CUSTOMER TO PROVIDE SUBSTANTIAL ACCESS TO THE SEPTIC SYSTEM COMPONENTS. THE CUSTOMER HEREBY GRANTS PERMISSION TO THE COMPANY, ITS REPRESENTATIVES

OPERATED BY TANDEM SERVICE CORP., INC.

P.O. BOX 259, LAKE STEVENS, WA 98258

- FRONTIER SEPTIC SERVICE 304-1093
- COASTAL ENVIRONMENTAL 327-0290 426-1922 622-7070 588-0967 888-6518
- LONG SEPTIC SERVICE 822-0550
- EVERGREEN SANITATION, INC. 743-1957 327-1857 AAA SEPTIC SERVICE 362-6998 VAN'S SEPTIC SERVICE 483-7788 LYON SEPTIC SERVICE OR EASTSIDE SEPTIC SERVICE 652-1300
- SANDHART SEPTIC SERVICE 353-7284 783-0550 604-9245
- A SEPTIC PUMPER 1-800-773-5074 483-8414 353-1943 724-0832 632-9288 745-0954
- SEPTIC SERVICES MAPLE VALLEY SEPTIC SVC. 422-0831 626-5265 322-7889 271-9363 723-5428
- EAST HILL SEPTIC SERVICE
- BRACQUAM SEPTIC SERVICE
- RENTON SEPTIC SERVICE
- SHANCLAW SEPTIC SERVICE
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COUNTY: KING
PAGE: 537
GRID: H.5

PLEASE VISIT OUR WEBSITE AT WWW.EVERGREENSANITATION.COM FOR INFORMATION AND CUSTOMER SATISFACTION SURVEY

CUSTOMER NAME: LAKE WASHINGTON School Dist. RES. COMM. DATE: 11/15/09

ADDRESS: PO Box 97039 NEXT SERVICE DUE: 1/1

CITY: Redmond STATE: WA ZIP: 98073

SERVICE	AMOUNT
GALLON SEPTIC TANK - PUMPING	\$ 250.00
GALLON PUMP CHAMBER - PUMPING	
700 GALLONS AT - DISPOSAL FEE	\$ 190.00
CHECKED BAFFLES - OK	
LEVEL HIGH BACK FLOW	
GRAVITY SYSTEM	
PUMP SYSTEM	
EFFLUENT FILTER	
ALL LIDS HAVE RISERS	
MAINTENANCE CONTRACT	
DIGGING	
BAFFLE INSTALL	
D/F VACUUM	
LABOR	
MATERIALS	
OPER. REPORT	
SUB TOTAL	\$ 440.00
TAX	41.80
TOTAL	\$ 481.80

PH #1 425-864-0781 PH #2 425-964-0781 700

E-MAIL:

JOB AT: Dickerson Elm School
7040 208th Ave NE
Redmond WA, 98053

CALLER IN BY: Reggie

COMMENTS: Pump one 2000 Gallon
Lift Station for release.

RECEIVED

WORK APPROVED BY: NOV 18 2009 PO # 0100020 DRIVER: Brian Nalley

TERMS: FULL PAYMENT UPON COMPLETION UNLESS PREVIOUS ARRANGEMENTS HAVE BEEN MADE.

ACCOUNTING DEPT. (OK CHARGE)

INVOICE NO. 1096785

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OPERATED BY TANDEM SERVICE CORP., INC. RECEIVED P.O. BOX 269, LAKE STEVENS, WA 98258

- FRONTIER SEPTIC SERVICE 334-1093
- EVERGREEN SANITATION, INC. 743-1887 337-1887
AAA SEPTIC SERVICE 343-8898
VAIS SEPTIC SERVICE 465-7788
- SAM-HART SEPTIC SERVICE 363-7611 784-0900
0018-0215 2009
- SEPTIC SERVICES
MAPLE VALLEY SEPTIC SVC. 432-8831
EAST HILL SEPTIC SERVICE 619-4283
ISAACQUAH SEPTIC SERVICE 382-7838
RENTON SEPTIC SERVICE 271-3303
BREMEN/CLAY SEPTIC SERVICE 625-9425
- COASTAL ENVIRONMENTAL 337-3300 485-1000 822-7070
868-0997 628-9318
- LYON SEPTIC SERVICE OR
EASTSIDE SEPTIC SERVICE 465-1900
- A SEPTIC PUMPER 1-800-778-4874
1-800-778-4874
- J.J. JACKSON SEPTIC SVC. 888-4554
847-4822
255-6245
- LONG SEPTIC SERVICE 682-0550

COUNTY: King
PAGE: 537
GRID: H-5

ACCOUNTING DEPT.

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CUSTOMER NAME: LAKE WASHINGTON SCHOOL DIST RES. COMM. DATE: 9/24/09
 ADDRESS: PO Box 97039 NEXT SERVICE DUE 1/1
 CITY: Redmond STATE: WA ZIP: 98073
 PH #1 425-836-2260 PH #2 425-864-0781 10,000 GALLON SEPTIC TANK - PUMPING 2,500.00
 E-MAIL: 425-836-6650 reggie GALLON PUMP CHAMBER - PUMPING
 JOB AT: Evergreen Jr High 10,000 GALLONS AT - DISPOSAL FEE 10,000.00
 6900 208 Ave NE
 Redmond WA 98053
 CHECKED BAFFLES - OK DIGGING
 LEVEL HIGH BACK FLOW BAFFLE INSTALL
 GRAVITY SYSTEM COORDINATOR OF VACUUM DATE 10-2-09
 PUMP SYSTEM MANAGER DATE
 EFFLUENT FILTER MATERIALS
 ALL LIDS HAVE RISERS OPER. REPORT
 MAINTENANCE CONTRACT
 OK CHARGE

WORK APPROVED BY:

TERMS: FULL PAYMENT UPON COMPLETION UNLESS PREVIOUS ARRANGEMENTS HAVE BEEN MADE.

INVOICE NO. 1095598

DRIVER BRIAN VALLEY

IT IS THE SOLE RESPONSIBILITY OF THE CUSTOMER TO PROVIDE SUBSTANTIAL ACCESS TO THE SEPTIC SYSTEM COMPONENTS. THE CUSTOMER HEREBY GRANTS PERMISSION TO THE COMPANY, ITS REPRESENTATIVES AND/OR ASSIGNS, TO ACCESS THE DESCRIBED PROPERTY AND GUARANTEES TO HOLD HARMLESS THE COMPANY, ITS REPRESENTATIVES AND/OR ASSIGNS, AGAINST ANY AND ALL DAMAGES TO PROPERTY WHICH INCLUDES, BUT IS NOT LIMITED TO, DRIVEWAYS, UTILITIES, LAWNS, TREES, SHRUBS, AND SEPTIC SYSTEM OR LIFT STATION STRUCTURAL INTEGRITY. A REASONABLE FEE OF \$3500 WILL BE POSSED ON ALL NSF CHECKS. DIFFERENT RATE ON ANY UNPAID BALANCE WILL BE CHARGED AT 1.5% PER MONTH. CUSTOMER AGREES TO PAY REASONABLE COLLECTION AND ATTORNEY FEES.

OPERATED BY TANDEM SERVICE CORP., INC. RECEIVED P.O. BOX 269, LAKE STEVENS, WA 98258

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- EVERGREEN SANITATION, INC. 743-1887 337-1887
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- COASTAL ENVIRONMENTAL 337-3300 485-1000 822-7070
868-0997 628-9318
- LYON SEPTIC SERVICE OR
EASTSIDE SEPTIC SERVICE 465-1900
- A SEPTIC PUMPER 1-800-778-4874
1-800-778-4874
- J.J. JACKSON SEPTIC SVC. 888-4554
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255-6245
- LONG SEPTIC SERVICE 682-0550

COUNTY: King
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ACCOUNTING DEPT.

PLEASE VISIT OUR WEBSITE AT WWW.EVERGREENSANITATION.COM FOR INFORMATION AND CUSTOMER SATISFACTION SURVEY

CUSTOMER NAME: Lake Washington School District RES. COMM. DATE: 9/24/09
 ADDRESS: PO BOX 97039 NEXT SERVICE DUE 1/1
 CITY: Redmond STATE: WA ZIP: 98073
 PH #1 425-836-2260 PH #2 425-864-0781 10,000 GALLON SEPTIC TANK - PUMPING 2,500.00
 E-MAIL: School reggie GALLON PUMP CHAMBER - PUMPING
 JOB AT: Evergreen Jr High 10,000 GALLONS AT - DISPOSAL FEE 19,000.00
 6900 208 AVE NE
 Redmond WA 98053
 CHECKED BAFFLES - OK DIGGING
 LEVEL HIGH BACK FLOW BAFFLE INSTALL
 GRAVITY SYSTEM D/F VACUUM
 PUMP SYSTEM LABOR
 EFFLUENT FILTER MATERIALS
 ALL LIDS HAVE RISERS OPER. REPORT
 MAINTENANCE CONTRACT
 OK Charge

WORK APPROVED BY:

TERMS: FULL PAYMENT UPON COMPLETION UNLESS PREVIOUS ARRANGEMENTS HAVE BEEN MADE.

INVOICE NO. 1095492

DRIVER [Signature]

IT IS THE SOLE RESPONSIBILITY OF THE CUSTOMER TO PROVIDE SUBSTANTIAL ACCESS TO THE SEPTIC SYSTEM COMPONENTS. THE CUSTOMER HEREBY GRANTS PERMISSION TO THE COMPANY, ITS REPRESENTATIVES AND/OR ASSIGNS, TO ACCESS THE DESCRIBED PROPERTY AND GUARANTEES TO HOLD HARMLESS THE COMPANY, ITS REPRESENTATIVES AND/OR ASSIGNS, AGAINST ANY AND ALL DAMAGES TO PROPERTY WHICH INCLUDES, BUT IS NOT LIMITED TO, DRIVEWAYS, UTILITIES, LAWNS, TREES, SHRUBS, AND SEPTIC SYSTEM OR LIFT STATION STRUCTURAL INTEGRITY. A REASONABLE FEE OF \$3500 WILL BE POSSED ON ALL NSF CHECKS. DIFFERENT RATE ON ANY UNPAID BALANCE WILL BE CHARGED AT 1.5% PER MONTH. CUSTOMER AGREES TO PAY REASONABLE COLLECTION AND ATTORNEY FEES.

OPERATED BY TANDEM SERVICE CORP., INC. P.O. BOX 259, LAKE STEVENS, WA 98258

FRONTIER SEPTIC SERVICE 394-1093
 COASTAL ENVIRONMENTAL 337-3309 485-1000 822-7070 825-0987 828-9718
 LONG SEPTIC SERVICE 872-0550

EVERGREEN SANITATION, INC. 743-1887 339-1857 353-7674 789-0560 626-0248
 AAA SEPTIC SERVICE 352-6896
 VARS SEPTIC SERVICE 416-7788
 LYON SEPTIC SERVICE
 OR
 EASTSIDE SEPTIC SERVICE 665-1300

SAN-MART SEPTIC SERVICE 353-7674 789-0560 626-0248
 A SEPTIC PUMPER 1-800-773-6874 489-8444 338-4843 784-0832 692-0608 716-0051
 J.J. JACKSON SEPTIC SVC. 888-4534 847-4822 252-6242

SEPTIC SERVICES
 MAPLE VALLEY SEPTIC SVC. 432-0831 690-0282
 EAST HILL SEPTIC SERVICE 392-7884
 ISSAQUAH SEPTIC SERVICE 371-3308
 RENTON SEPTIC SERVICE 428-5485
 ENUKWILAY SEPTIC SERVICE

COUNTY K
PAGE 537
GRID H-5

PLEASE VISIT OUR WEBSITE AT WWW.EVERGREENSANITATION.COM FOR INFORMATION AND CUSTOMER SATISFACTION SURVEY

CUSTOMER NAME: Lake Washington School Dist RES. COMM. DATE: 11/11/09

ADDRESS: PO Box 97039 STATE: WA ZIP: 98073

CITY: Redmond NEXT SERVICE DUE: 1/1

PH #1 425-864-0781 PH #2 6000 GALLON SEPTIC TANK - PUMPING SERVICE AMOUNT

E-MAIL: 6000 GALLON PUMP CHAMBER - PUMPING 1500.00

JOB AT: Dickinson, Elem. School. DISPOSAL FEE 1140.00

10410 208th AVE NE DIGGING

Redmond WA 98053 BAFFLE INSTALL

D/F VACUUM

LABOR 150.00

MATERIALS

OPER. REPORT

COMMENTS: Pumped 1x 1500 gallon

septic tanks. Mat 24"

studs 36" Back Flush 10 times.

DUO TO HEAVY MAT, EXTRA CHARGE OKING

WORK APPROVED BY: PO: 209203

TERMS: FULL PAYMENT UPON COMPLETION UNLESS PREVIOUS ARRANGEMENTS HAVE BEEN MADE.

INVOICE NO. 1096724 DRIVER Siarhei Shaban

SUB TOTAL	2790.00
TAX	265.05
TOTAL	3055.05

OPERATED BY TANDEM SERVICE CORP., INC. P.O. BOX 259, LAKE STEVENS, WA 98258

FRONTIER SEPTIC SERVICE 394-1093
 COASTAL ENVIRONMENTAL 337-3309 485-1000 822-7070 825-0987 828-9718
 LONG SEPTIC SERVICE 872-0550

EVERGREEN SANITATION, INC. 743-1887 339-1857 353-7674 789-0560 626-0248
 AAA SEPTIC SERVICE 352-6896
 VARS SEPTIC SERVICE 416-7788
 LYON SEPTIC SERVICE
 OR
 EASTSIDE SEPTIC SERVICE 665-1300

SAN-MART SEPTIC SERVICE 353-7674 789-0560 626-0248
 A SEPTIC PUMPER 1-800-773-6874 489-8444 338-4843 784-0832 692-0608 716-0051
 J.J. JACKSON SEPTIC SVC. 888-4534 847-4822 252-6242

SEPTIC SERVICES
 MAPLE VALLEY SEPTIC SVC. 432-0831 690-0282
 EAST HILL SEPTIC SERVICE 392-7884
 ISSAQUAH SEPTIC SERVICE 371-3308
 RENTON SEPTIC SERVICE 428-5485
 ENUKWILAY SEPTIC SERVICE

COUNTY K
PAGE 537
GRID H-3

PLEASE VISIT OUR WEBSITE AT WWW.EVERGREENSANITATION.COM FOR INFORMATION AND CUSTOMER SATISFACTION SURVEY

CUSTOMER NAME: Lake Washington School Dist RES. COMM. DATE: 11/10/09

ADDRESS: PO Box 97039 STATE: WA ZIP: 98073

CITY: Redmond NEXT SERVICE DUE: 1/1

PH #1 425-882-5103 PH #2 206-427-0490 6000 GALLON SEPTIC TANK - PUMPING SERVICE AMOUNT

E-MAIL: 6000 GALLON PUMP CHAMBER - PUMPING 1500.00

JOB AT: Bear Creek School DISPOSAL FEE 1140.00

8905 208th AVE NE DIGGING

Redmond WA 98053 BAFFLE INSTALL

D/F VACUUM

LABOR

MATERIALS

OPER. REPORT

COMMENTS: Pumped 6000 gallon

from Lift Station

WORK APPROVED BY: NOV 18 2009

TERMS: FULL PAYMENT UPON COMPLETION UNLESS PREVIOUS ARRANGEMENTS HAVE BEEN MADE.

INVOICE NO. 1096720 DRIVER Siarhei Shaban

ACCOUNTING DEPT OK CHANGE

SUB TOTAL	2640.00
TAX	150.80
TOTAL	2890.80

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OPERATED BY TANDEM SERVICE CORP., INC.

P.O. BOX 259, LAKE STEVENS, WA 98258

- FRONTIER SEPTIC SERVICE 334-1083
- EVERGREEN SANITATION, INC. 743-1857 337-1887
AAA SEPTIC SERVICE 382-9998
WIND SEPTIC SERVICE 415-7768
- BANLMART SEPTIC SERVICE 352-7824 780-0280
688-0245
- SEPTIC SERVICES
MAPLE VALLEY SEPTIC SVCS. 432-0891
EAST HILL SEPTIC SERVICE 846-8888
REBACUM SEPTIC SERVICE 395-7888
RENTON SEPTIC SERVICE 271-3303
BRUNCLAW SEPTIC SERVICE 818-6428
- COASTAL ENVIRONMENTAL 337-3399 685-1000 622-7070
688-0187 688-9318
- LYON SEPTIC SERVICE
OR
EASTSIDE SEPTIC SERVICE 385-1100
- A SEPTIC PUMPER 3-806-773-8874
882-8444 336-1643 734-0832
852-8904 745-0984
- J.J. JACKSON SEPTIC SVCS. 888-4884
847-8882
286-8242
- LONG SEPTIC SERVICE 892-0830

COUNTY: KING
PAGE: 537
ORD: F.2

334-9696 Tasha

PLEASE VISIT OUR WEBSITE AT WWW.EVERGREENSANITATION.COM FOR INFORMATION AND CUSTOMER SATISFACTION SURVEY

CUSTOMER NAME: LAKE WASHINGTON SCHOOL DIST. RES. COMM. DATE: 11/17/09

ADDRESS: PO Box 97039 NEXT SERVICE DUE: 1 1

CITY: Redmond STATE: WA ZIP: 98073-9739 SERVICE: AMOUNT

PH #1: 425-864-0767 PH #2: 206-427-0490 500 GALLON SEPTIC TANK - PUMPING 256.00

E-MAIL: 500 GALLON PUMP CHAMBER - PUMPING. DISPOSAL FEE. 95.00

JOB AT: Bear Creek School
8905 NORTH AVE. NE
Redmond WA, 98053

CHECKED BAFFLES - OK
LEVEL HIGH BACK FLOW
GRAVITY SYSTEM
PUMP SYSTEM
EPFLUENT FILTER
ALL LIDS HAVE RISERS
MAINTENANCE CONTRACT

CALL BY: COMMENTS: PUMP ONE 4,500
LEFT STATION - ONLY
PUMP 500 GALLONS

RECEIVED
NOV 9 0 2009
OK CHAROC ✓

WORK APPROVED BY: SUB TOTAL 345.00
TAX 32.77
TOTAL 377.77

TERMS: FULL PAYMENT UPON COMPLETION UNLESS PREVIOUS ARRANGEMENTS OTHERWISE.
ACCOUNTING DEPT.

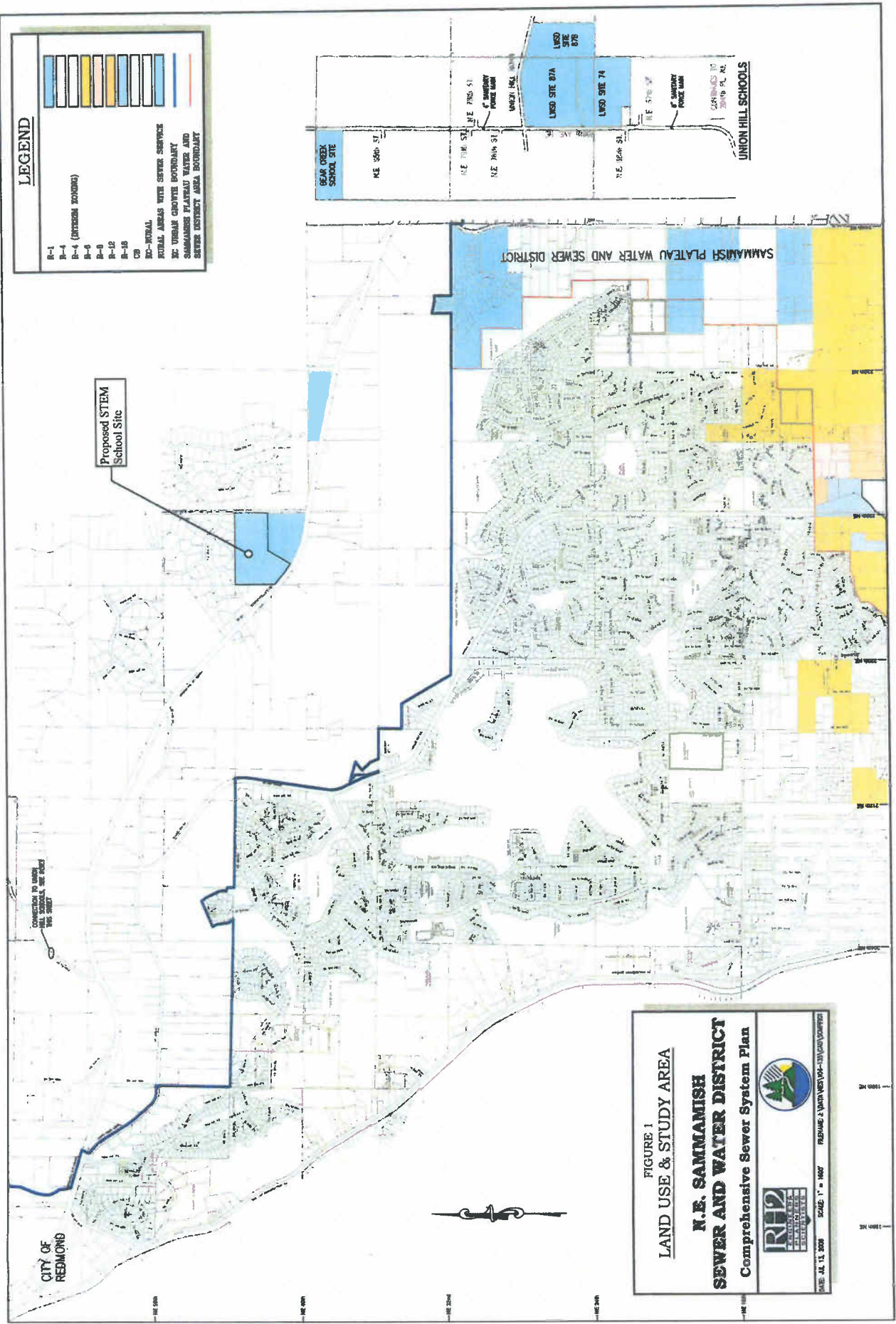
INVOICE NO. 1096815 DRIVER: Brian Nalley / Larry

IT IS THE SOLE RESPONSIBILITY OF THE CUSTOMER TO PROVIDE SUBSTANTIAL ACCESS TO THE SEPTIC SYSTEM COMPONENTS. THE CUSTOMER HEREBY GRANTS PERMISSION TO THE COMPANY, ITS REPRESENTATIVES AND/OR ASSIGNS, TO ACCESS THE DESCRIBED PROPERTY AND GUARANTEES TO HOLD HARMLESS THE COMPANY, ITS REPRESENTATIVES AND/OR ASSIGNS, AGAINST ANY AND ALL DAMAGES TO PROPERTY WHICH INCLUDES, BUT IS NOT LIMITED TO, DRIVEWAYS, UTILITIES, LAWNS, TREES, SHRUBS, AND SEPTIC SYSTEM OR LIFT STATION STRUCTURAL INTEGRITY. A REASONABLE FEE OF \$35.00 WILL BE IMPOSED ON ALL NSF CHECKS. INTEREST RATE ON ANY UNPAID BALANCE WILL BE COMPUTED AT 1.25% PER MONTH. CUSTOMER AGREES TO PAY REASONABLE COLLECTION AND ATTORNEY FEES.

COORDINATOR: [Signature]
MANAGER: [Signature]
DIRECTOR: [Signature]
DATE: 12-3-09

LEGEND

[Blue Box]	R-1
[Light Blue Box]	R-4
[Yellow Box]	R-4 (Interim Scheme)
[Light Green Box]	R-9
[Light Blue Box]	R-8
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[Light Blue Box]	DC TOWN CENTER WATER AND SEWER DISTRICT AREA BOUNDARY
[Light Blue Box]	SEWER DISTRICT AREA BOUNDARY



Proposed STEM School Site

SAMMAMISH PLATEAU WATER AND SEWER DISTRICT

UNION HILL SCHOOLS

SEAR CREEK SCHOOL SITE

LUSD SITE 67A

LUSD SITE 67B

LUSD SITE 74

LUSD SITE 74

LUSD SITE 74

LUSD SITE 74



CONNECTION TO UNDER
THE SURFACE OF ROAD
AND STREET

CITY OF
REDMOND

FIGURE 1
LAND USE & STUDY AREA

**K.E. SAMMAMISH
SEWER AND WATER DISTRICT**

Comprehensive Sewer System Plan

DATE: JUL 15, 2009 SCALE: 1" = 600' DRAWING: 2 WATER USE PLAN - STUDY AREA



LEGEND

BASIN	BASIN AREA (ACRES)	NAME	PEAK HOUR FLOW AT FULL DEVELOPMENT
1	281.0	LEFT STATION 5	2,250 GPM
2	701.2	LEFT STATION 5	1,750 GPM
3	186.6	LEFT STATION 6	545 GPM
4	38.7	LEFT STATION 8	150 GPM
5	44.5	LEFT STATION 9	60 GPM
6	52.4	LEFT STATION 10	70 GPM
7	168.6	LEFT STATION 13	270 GPM
8	62.9	LEFT STATION 14	775 GPM
9	9.6	LEFT STATION 15	N/A
10	14.2	REMOND - FALL CITY	N/A
11	82.3	HAPPY VALLEY - UNION HILL	N/A
12	244.0	EAST LAKE SAMMAMISH	1,080 GPM

MODIFIED SYSTEMS
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OTHER SEWER
CORPORATE BOUNDARY
AC URBAN GROWTH AREA BOUNDARY

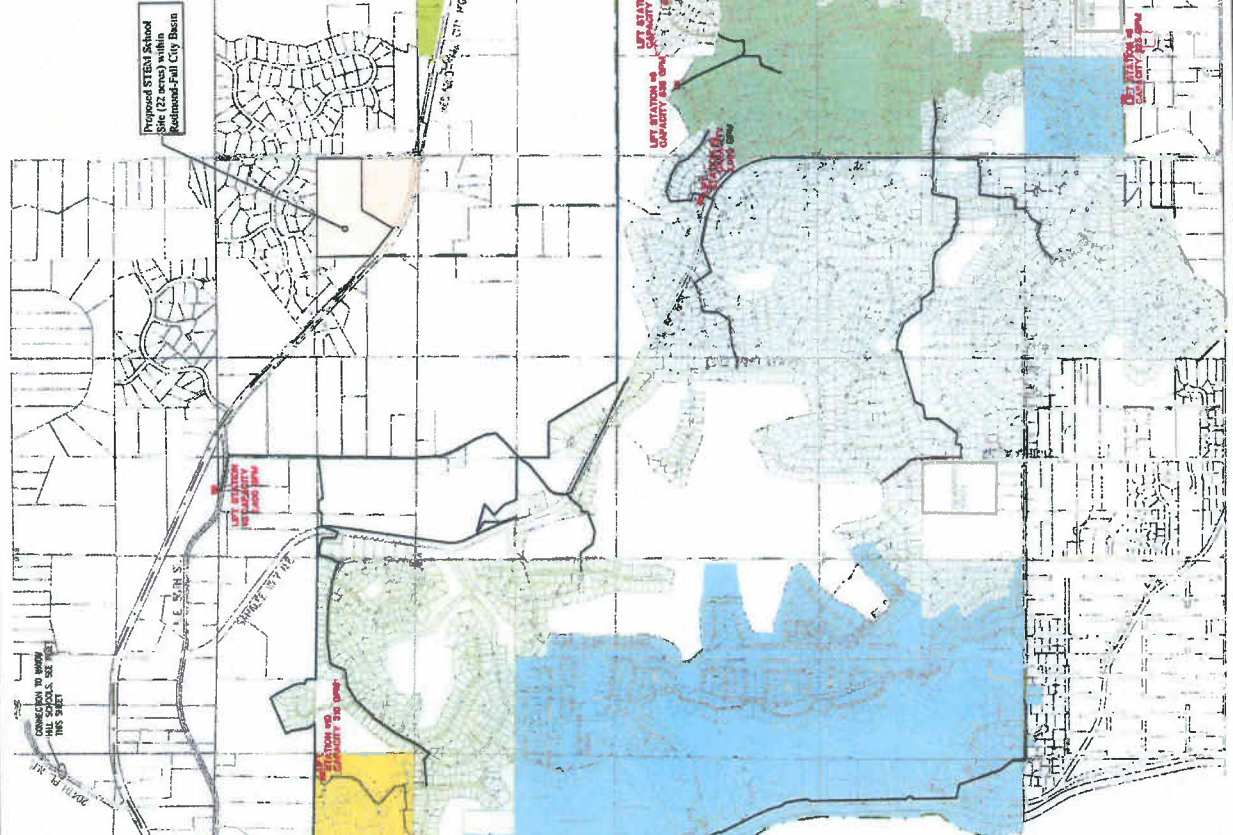


FIGURE 2
SEWER BASINS
N.B. SAMMAMISH
SEWER AND WATER DISTRICT
Comprehensive Sewer System Plan

DATE: JUL 13, 2008 SCALE: 1" = 1500'

PREPARED BY: RFP2
RFP2 ENGINEERS & ARCHITECTS
1000 1ST AVENUE, SUITE 200
SEASIDE, WA 98138
TEL: 206.451.1000
WWW.RFP2.COM

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