CITY OF KIRKLAND

RECREATION & AQUATICS CENTERS FEASIBILITY STUDY

APPENDIX | MARCH 31, 2023

opsis

APPENDIX

CONCEPT DESIGN GRAPHIC MATERIALS

FEASIBILITY STUDY COST PLAN (COST ESTIMATE)

MARKET ASSESSMENT

OPERATIONAL PLAN HOUGHTON PARK & RIDE

OPERATIONAL PLAN NORTH KIRKLAND COMMUNITY CENTER PARK

CIVIL SITE ASSESSMENT

PRELIMINARY GEOTECHNICAL FINDINGS

PRELIMINARY ENVIRONMENTAL REVIEW

TRAFFIC & PARKING REPORT

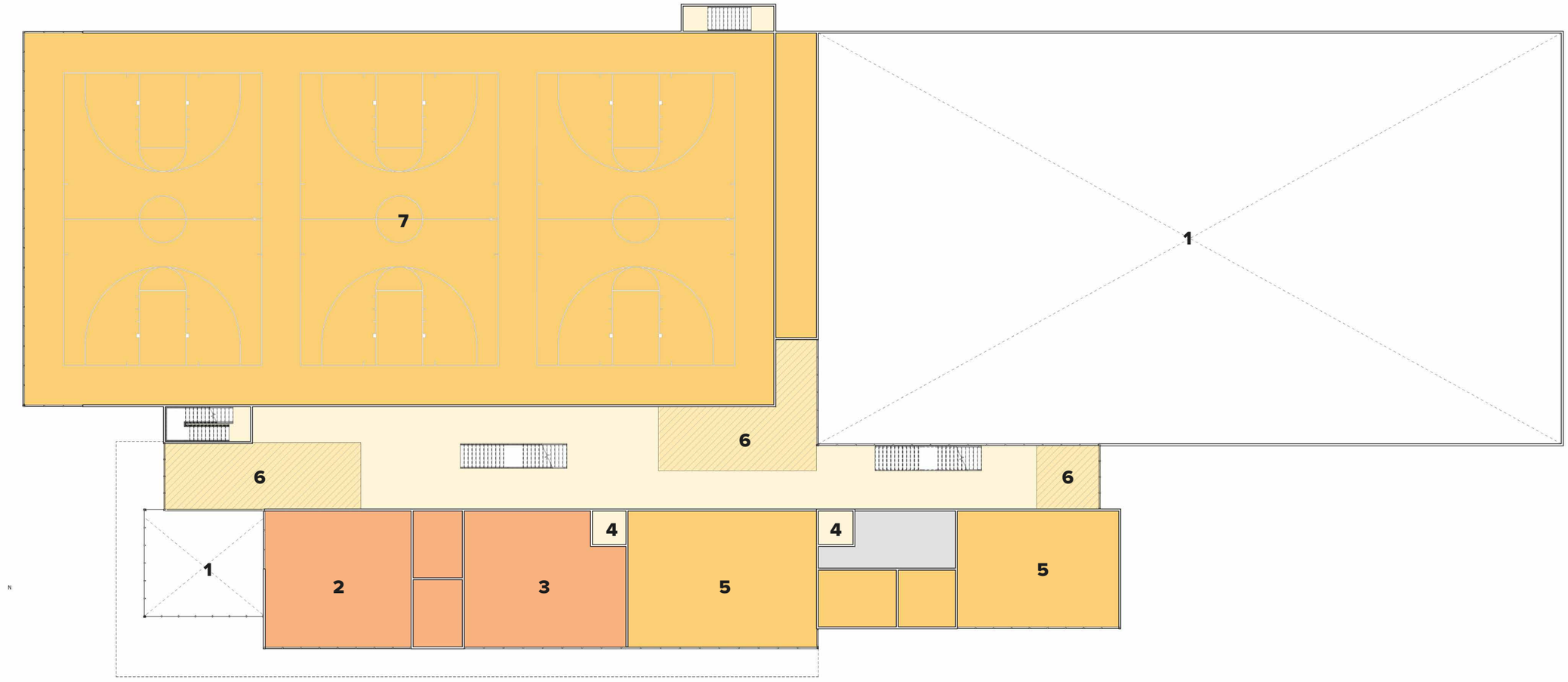
HOUGHTON PARK & RIDE RECREATION & AQUATICS CENTER - LEVEL 1
OPTION A

1. Entry Lobby
2. Multicultural Center
3. Administrative Offices
4. Elevator
5. Reception
6. Lounge/Social Space
7. Child Watch
8. Party Room
9. Courtyard
10. Lap Pool (8 lane 25 meter)
11. Recreation Pool
12. Spa (12-person)
13. Pool Storage
14. Pool Operations
15. Locker & Universal Changing Rooms
16. Pool Mechanical
17. Fitness Room
18. Maintenance

- RECREATION SPACES
- AQUATIC SPACES
- COMMUNITY SPACES
- FACILITY ADMINISTRATION
- BUILDING SUPPORT

HOUGHTON PARK & RIDE RECREATION & AQUATICS CENTER - LEVEL 2

OPTION A



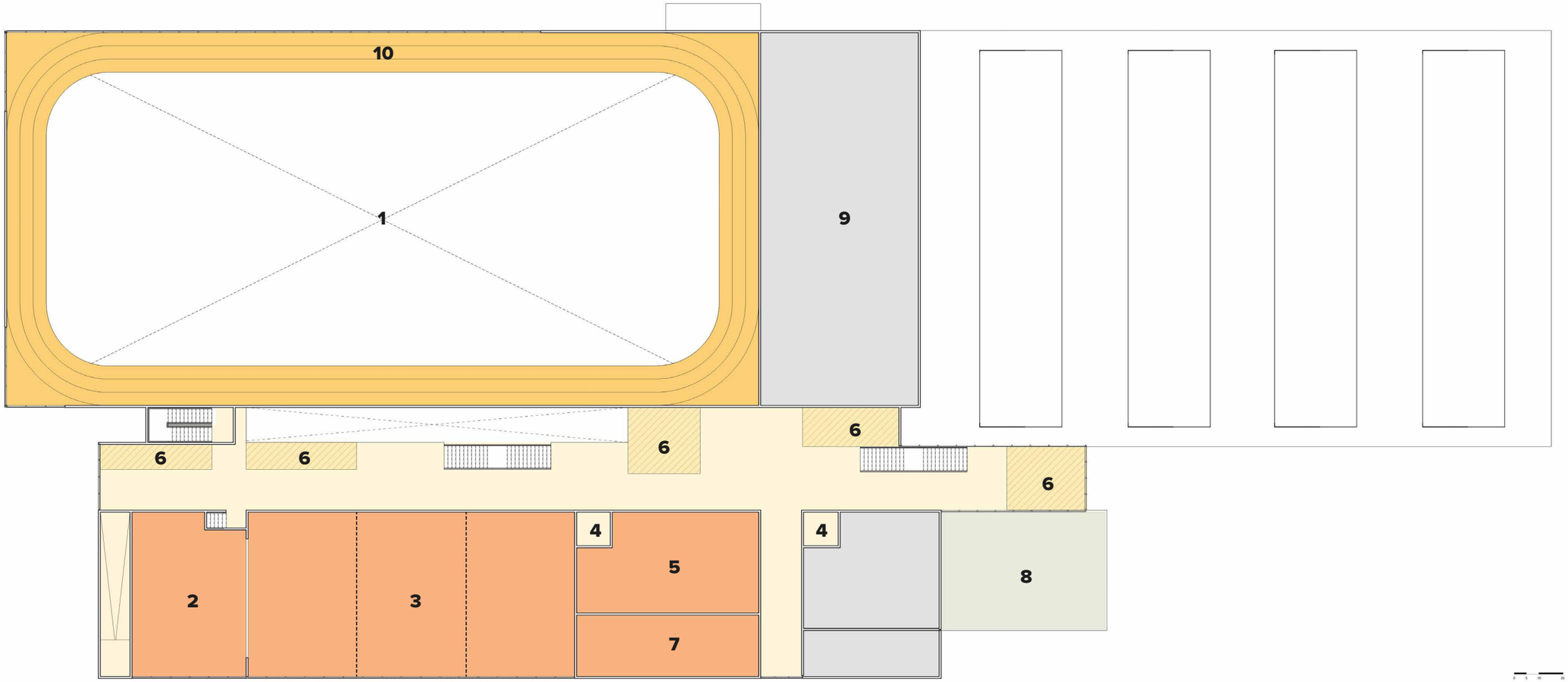
1. Open to Below
2. Arts / Crafts Studio
3. Makerspace
4. Elevator
5. Multi-purpose Exercise / Activity Room
6. Lounge / Social Space
7. Multi-purpose Gym

RECREATION SPACES

COMMUNITY SPACES

BUILDING SUPPORT

HOUGHTON PARK & RIDE RECREATION & AQUATICS CENTER - LEVEL 3
OPTION A



1. Open to Below
2. Stage / Classroom
3. Community / Event Room(s)
4. Elevator
5. Commercial / Catering Kitchen
6. Lounge / Social Space
7. Storage
8. Roof Terrace
9. Mechanical
10. Walk / Jog Track

RECREATION SPACES
COMMUNITY SPACES
BUILDING SUPPORT

HOUGHTON PARK & RIDE RECREATION & AQUATICS CENTER
OPTION A

HOUGHTON RECREATION & AQUATICS CENTER
OPTION A

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City of Kirkland

opsis

HOUGHTON RECREATION & AQUATICS CENTER
OPTION A

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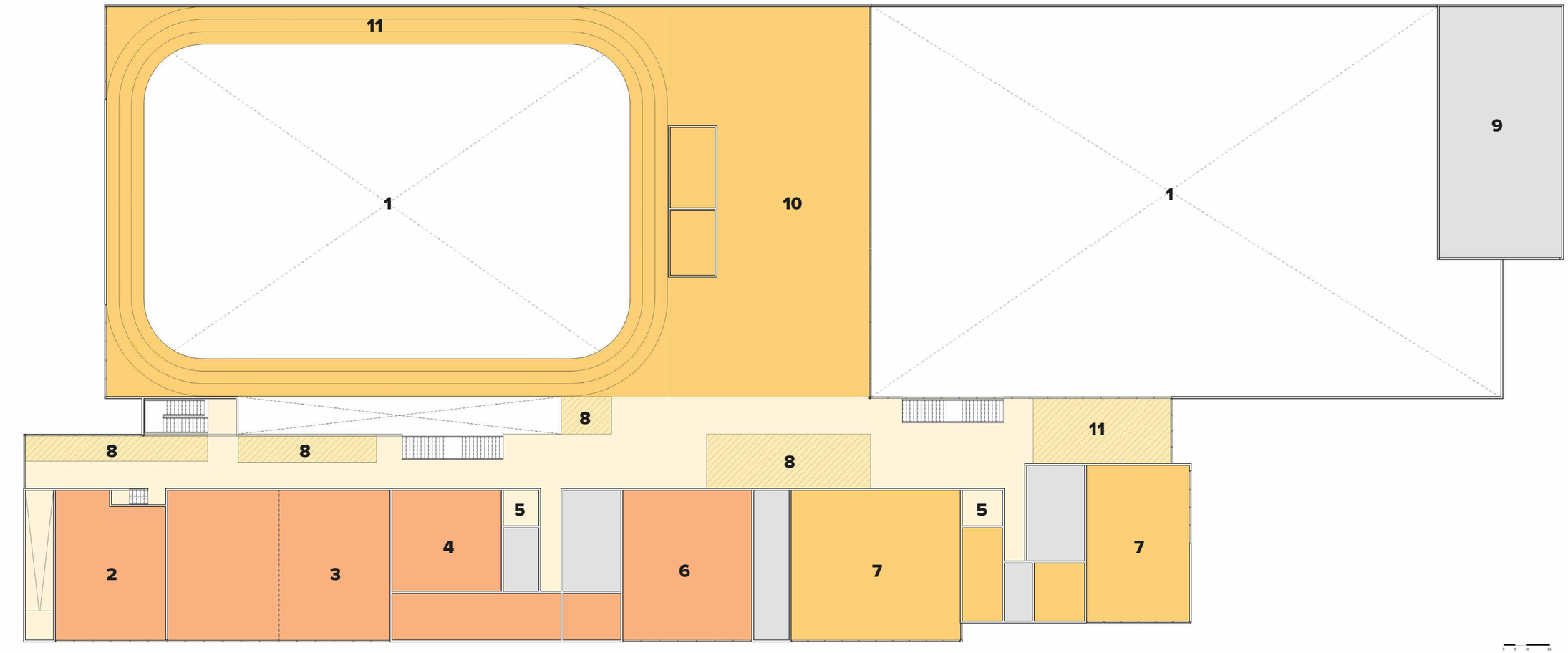
HOUGHTON PARK & RIDE RECREATION & AQUATICS CENTER - LEVEL 1

OPTION B

1. Entry Lobby
2. Multicultural Center
3. Administrative Offices
4. Elevator
5. Reception
6. Lounge/Social Space
7. Child Watch
8. Party Room
9. Courtyard
10. Lap Pool (8 lane 25 meter)
11. Recreation Pool
12. Spa (12-person)
13. Pool Storage
14. Pool Operations
15. Locker & Universal Changing Rooms
16. Pool Mechanical
17. Fitness Room
18. Maintenance

- RECREATION SPACES
- AQUATIC SPACES
- COMMUNITY SPACES
- FACILITY ADMINISTRATION
- BUILDING SUPPORT

HOUGHTON PARK & RIDE RECREATION & AQUATICS CENTER - LEVEL 2
OPTION B



1. Open to Below
2. Arts / Crafts Studio
3. Makerspace
4. Elevator
5. Multi-purpose Exercise / Activity Room
6. Lounge / Social Space
7. Multi-purpose Gym

RECREATION SPACES

COMMUNITY SPACES

BUILDING SUPPORT

HOUGHTON PARK & RIDE RECREATION & AQUATICS CENTER
OPTION B

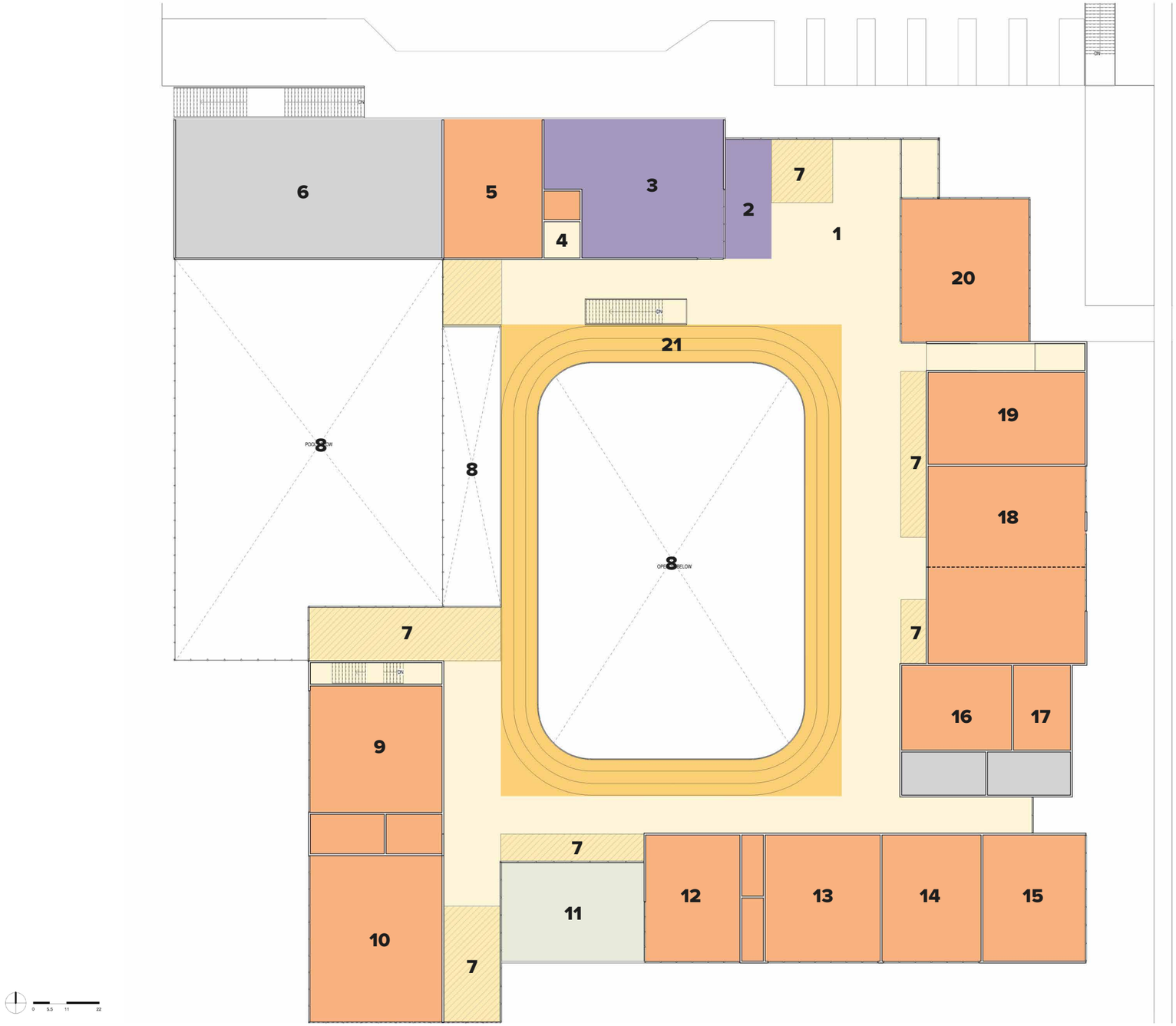
HOUGHTON PARK & RIDE RECREATION & AQUATICS CENTER
OPTION B

NORTH KIRKLAND COMMUNITY CENTER & PARK - ENTRY LEVEL

OPTION A

- RECREATION SPACES
- COMMUNITY SPACES
- FACILITY ADMINISTRATION
- BUILDING SUPPORT

1. Entry Lobby
2. Reception
3. Administrative Offices
4. Elevator
5. Child Watch
6. Mechanical
7. Lounge / Social Space
8. Open to Below
9. Arts / Crafts Studio
10. Multicultural Center
11. Roof Terrace
12. Multi-purpose Classroom
13. Teen Lounge
14. Game Room
15. Music Room
16. Commercial / Catering Kitchen
17. Storage
18. Community / Event Room(s)
19. Stage / Classroom
20. Senior Lounge
21. Walk / Jog Track

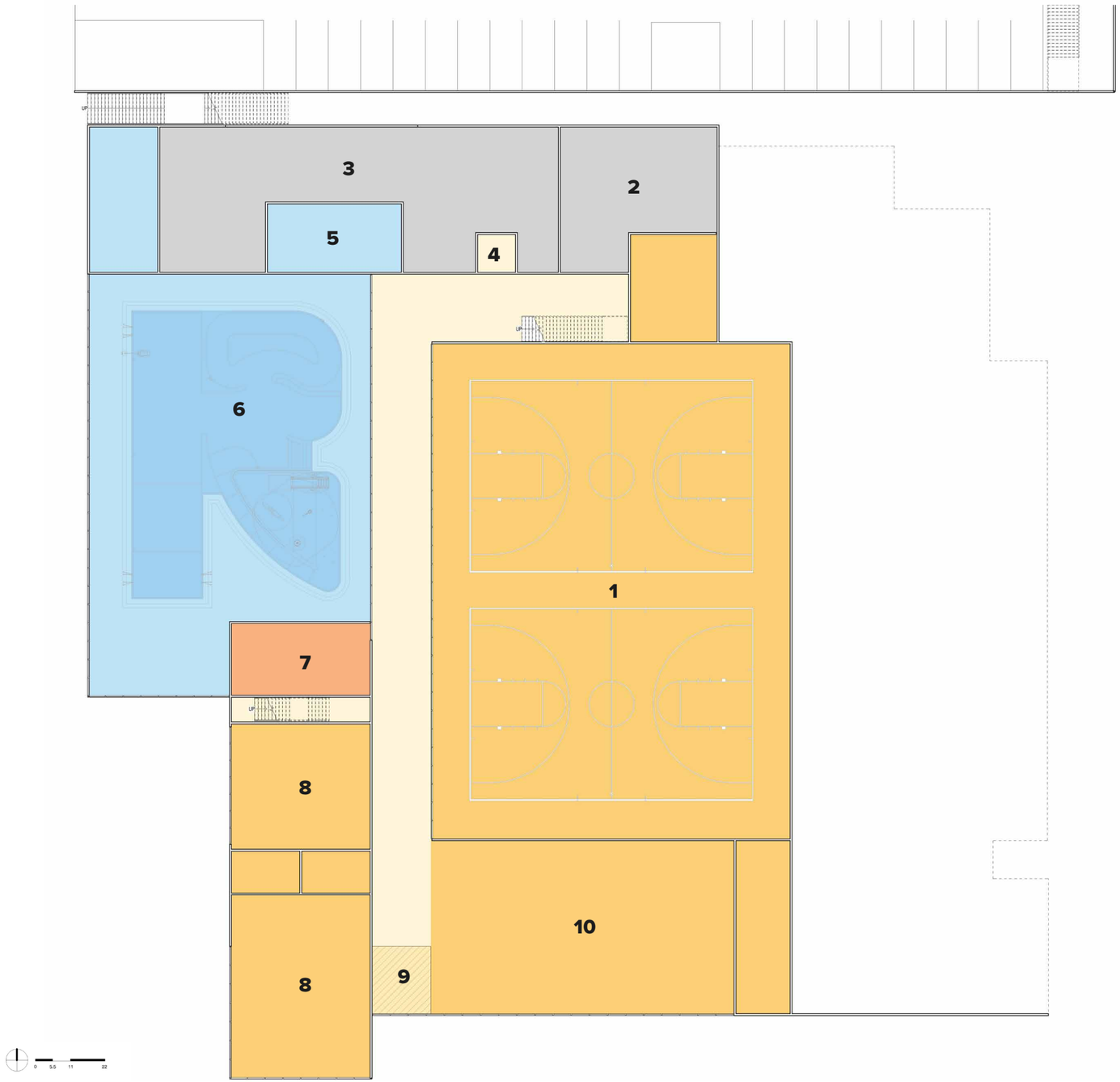


NORTH KIRKLAND COMMUNITY CENTER & PARK - LOWER LEVEL

OPTION A

- RECREATION SPACES
- AQUATIC SPACES
- COMMUNITY SPACES
- FACILITY ADMINISTRATION

1. Multi-puporse Gym
2. Pool Mechanical
3. Locker & Universal Changing Rooms
4. Elevator
5. Aquatics Operation
6. Recreation Pool
7. Party / Meeting Room
8. Multi-purpose Exercise Activity Room
9. Lounge / Social Space
10. Fitness Room



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NORTH KIRKLAND COMMUNITY CENTER & PARK
OPTION A

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NORTH KIRKLAND COMMUNITY CENTER & PARK
OPTION A

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City of Kirkland

opsis

NORTH KIRKLAND COMMUNITY CENTER & PARK - ENTRY LEVEL

OPTION B1

- RECREATION SPACES
- COMMUNITY SPACES
- FACILITY ADMINISTRATION
- BUILDING SUPPORT

1. Entry Lobby
2. Reception
3. Administrative Offices
4. Elevator
5. Open to Below
6. Arts / Crafts Studio
7. Roof Terrace
8. Lounge / Social Space
9. Game Room
10. Commercial / Catering Kitchen
11. Storage
12. Community / Event Room(s)
13. Stage / Classroom

NORTH KIRKLAND COMMUNITY CENTER & PARK - LOWER LEVEL

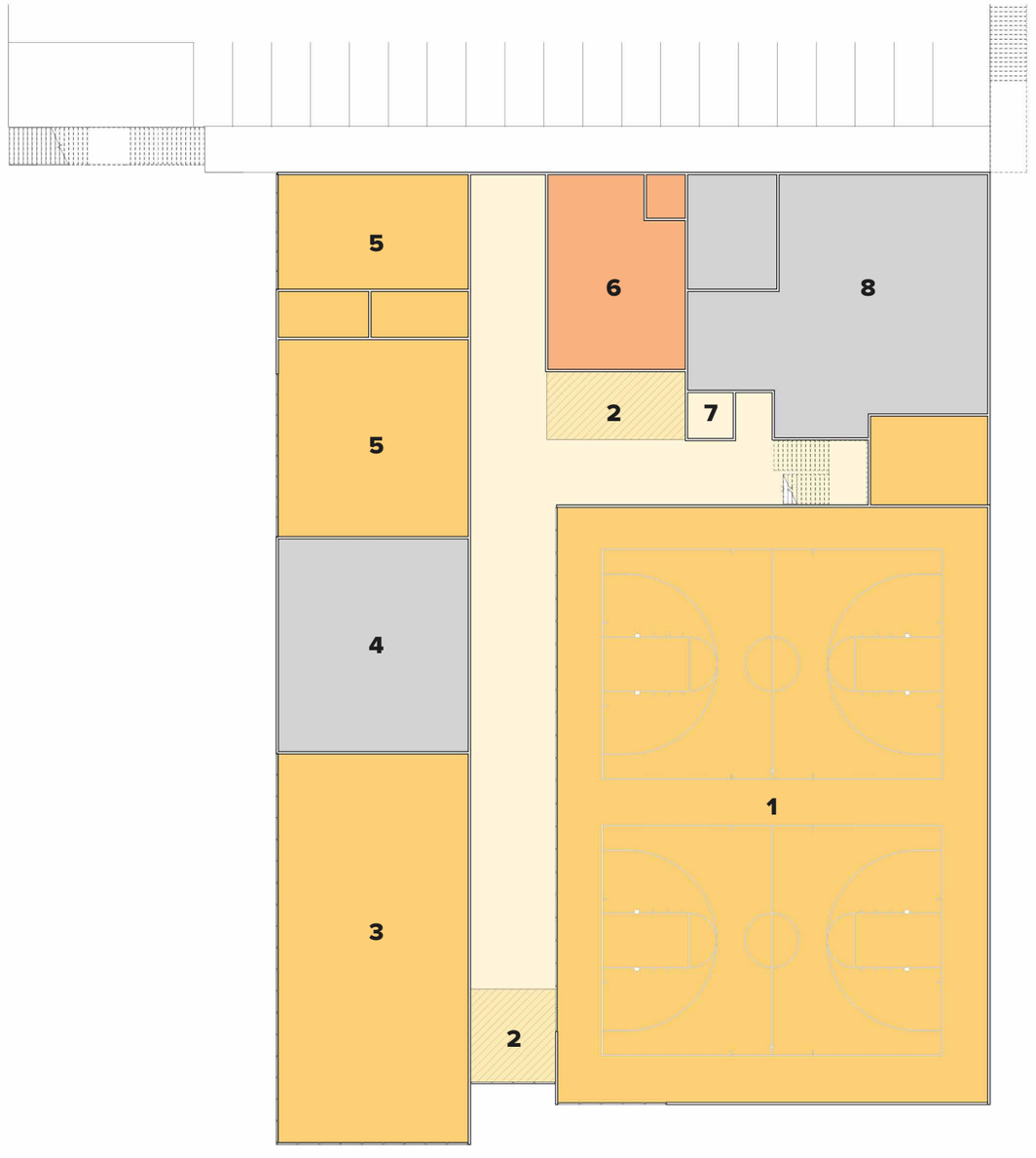
OPTION B1

RECREATION SPACES

COMMUNITY SPACES

BUILDING SUPPORT

1. Multi-purpose Gym
2. Lounge / Social Space
3. Fitness Room
4. Locker & Universal Changing Rooms
5. Multi-purpose Exercise Activity Room
6. Child Watch
7. Elevator
8. Mechanical



NORTH KIRKLAND COMMUNITY CENTER & PARK
OPTION B1

NORTH KIRKLAND COMMUNITY CENTER & PARK
OPTION B1

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City of Kirkland

opsis

NORTH KIRKLAND COMMUNITY CENTER & PARK - ENTRY LEVEL
OPTION B2

RECREATION SPACES

COMMUNITY SPACES

FACILITY ADMINISTRATION

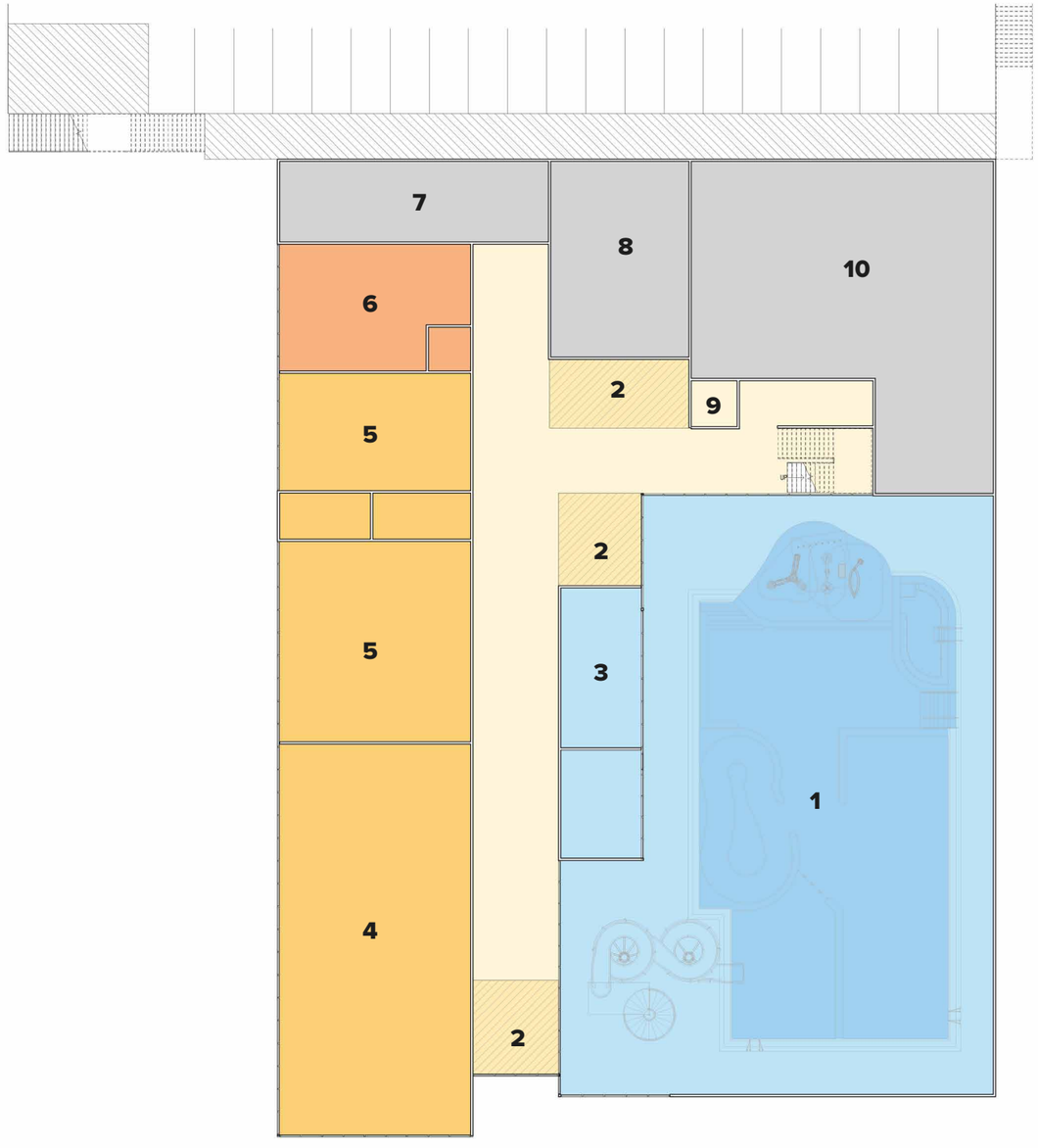
BUILDING SUPPORT

1. Entry Lobby
2. Reception
3. Administrative Offices
4. Elevator
5. Open to Below
6. Arts / Crafts Studio
7. Roof Terrace
8. Lounge / Social Space
9. Party / Meeting Room(s)
10. Game Room
11. Commercial / Catering Kitchen
12. Storage
13. Community / Event Room(s)
14. Stage / Classroom

NORTH KIRKLAND COMMUNITY CENTER & PARK - LOWER LEVEL
OPTION B2

- RECREATION SPACES
- AQUATIC SPACES
- COMMUNITY SPACES
- FACILITY ADMINISTRATION

1. Recreation Pool
2. Lounge / Social Space
3. Aquatic Operation
4. Fitness Room
5. Multi-purpose Exercise / Activity Room
6. Child Watch
7. Mechanical
8. Pool Mechanical
9. Elevator
10. Locker & Universal Changing Rooms



City of Kirkland, Washington
Recreation & Aquatics Centers

City of Kirkland, Washington
Recreation & Aquatics Centers

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City of Kirkland, Washington
Recreation & Aquatics Centers

Contents

City of Kirkland, Washington
Recreation & Aquatics Centers

Overall Summary

	SF	$/SF	TOTAL
Houghton Park & Ride			
Houghton (Building) - Option 1	109,705	798.55	87,605,079
Houghton (Sitework) - Option 1	226,601	62.71	14,209,651
TOTAL OPTION 1 CONSTRUCTION COST			101,814,731
Houghton (Building) - Option 2	91,463	824.51	75,412,207
Houghton (Sitework) - Option 2	226,601	33.85	7,670,000
TOTAL OPTION 2 CONSTRUCTION COST			83,082,207
North Kirkland Community Center & Park			
North Kirkland (Building) - Option 1	78,700	772.41	60,788,391
North Kirkland (Sitework) - Option 1	187,854	119.80	22,504,592
TOTAL OPTION 1 CONSTRUCTION COST			83,292,983
North Kirkland (Building) - Option 2	51,712	793.57	41,037,315
North Kirkland (Sitework) - Option 2	187,854	120.65	22,664,355
TOTAL OPTION 2 CONSTRUCTION COST			63,701,669

ALTERNATES	
Alt 1: Houghton Option 1 - Steel Structure in lieu of Mass Timber	2,625,553
Alt 2: Houghton Option 2 - Steel Structure in lieu of Mass Timber	2,173,875
Alt 3: North Kirkland Option 1 - Steel Structure in lieu of Mass Timber	1,841,728
Alt 4: North Kirkland Option 2 - Steel Structure in lieu of Mass Timber	1,242,559
Alt 5: North Kirkland Option 2 - Pool in lieu of Basketball Court	3,330,114

City of Kirkland, Washington
Recreation & Aquatics Centers

Scope of Work

Project Scope Description

The project comprises cost planning for the Kirkland Recreation & Aquatics feasibility study. The scope of work consists of two possible designs each at two locations for a total of four options under review. The first location is Houghton Park & Ride located southeast of the intersection of NE 70th Pl and 116th Ave NE, immediately adjacent to I-405. The second location is North Kirkland Community Center & Park located north of NE 124th St at 103rd Ave NE.

The nominal program size ranges from 45,000 to 110,000 SF. All concepts include a gymnasium, cardio/weights and multi-purpose fitness & community/cultural spaces with associated support/admin spaces. A variety of aquatics spaces are represented across all options. Refer to the facility program spaces slides for additional specificity.

Site improvements consist primarily of revised/new parking, drive aisles and landscaping (TBD). Existing mature trees will be preserved when possible if outside of the building footprint. Electrical, telecom, water, sewer and storm services are assumed to be available at the nearest right-of-way.

Project Design Documents

The cost report is based on the following documents including supplemental information:
- Kirkland Narrative, dated 12.9.22
- Cost Estimate Package_r, dated 12.9.22

Procurement

It is anticipated that the project will be delivered by traditional low bid procurement with a minimum of 4 qualified General Contractors for competitive market pricing. The start date is anticipated for: Q1 2024.

City of Kirkland, Washington
Recreation & Aquatics Centers

Basis of Estimate

Assumptions and Clarifications

This estimate is based on the following assumptions and clarifications:

1. Hazardous materials abatement is **NOT** included.
2. The majority of work will be performed during typical daytime hours.
3. Project locations will be made unoccupied during construction.
4. **Excludes** jurisdiction fees and Owner's contingency**.**
5. Corporate Tax is included.
6. Excludes any ROW work. TBD.

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 1 Summary

			%	$/SF	TOTAL
			Gross Area:	109,705 SF	
A10	Foundations		2%	14.33	1,572,608
A	Substructure		2%	14.33	1,572,608
B10	Superstructure		11%	83.96	9,211,342
B20	Exterior Enclosure		7%	54.33	5,959,829
B30	Roofing		3%	26.04	2,857,214
B	Shell		21%	164.34	18,028,384
C10	Interior Construction		3%	26.37	2,892,494
C20	Stairways		1%	4.78	524,000
C30	Interior Finishes		3%	23.60	2,589,457
C	Interiors		7%	54.75	6,005,951
D10	Conveying Systems		0%	3.09	339,000
D20	Plumbing Systems		2%	18.01	1,975,402
D30	Heating, Ventilation & Air Conditioning		11%	86.29	9,466,692
D40	Fire Protection		1%	6.12	671,296
D50	Electrical Lighting, Power & Communications		8%	60.99	6,691,042
D	Services		22%	174.50	19,143,432
E10	Equipment		1%	4.37	479,419
E20	Furnishings		0%	1.88	206,189
E	Equipment & Furnishings		1%	6.25	685,608
F10	Special Construction		5%	43.14	4,732,520
F20	Selective Demolition		0%	0.00	0
F	Special Construction & Demolition		5%	43.14	4,732,520
BUILDING ELEMENTAL COST BEFORE CONTINGENCIES			57%	457.30	50,168,504
	Design Contingency	15.00%	9%	68.60	7,525,276
	Construction Contingency	5.00%	3%	26.29	2,884,689
BUILDING ELEMENTAL COST INCLUDING CONTINGENCIES			69%	552.19	60,578,469
	General Conditions	7.00%	5%	38.65	4,240,493
	General Requirements	7.50%	6%	44.31	4,861,422
	Corporate Tax	0.57%	0%	3.62	397,178
	SDI	1.75%	1%	11.18	1,226,357
	Office Overhead & Profit	4.50%	4%	29.25	3,208,676
	Bonds and Insurance	1.50%	1%	10.19	1,117,689
	Permit				*By Owner*
BUILDING CONSTRUCTION COST BEFORE ESCALATION			86%	689.40	75,630,284
	Escalation to Start Date (May 2025)	15.83%	14%	109.15	11,974,795
RECOMMENDED BUDGET			100%	798.55	87,605,079

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 1

	Quantity	Unit	Rate	Total
Controls				
Building Footprint	51,670	SF		
Level 1	51,670	SF		
Level 2	32,115	SF		
Level 3	24,650	SF		
Roof Terrace - Unconditioned Space	1,270	SF		
Building ht. Total, Average	44	LF		
Exterior Enclosure Total	46,248	LF		
Cladding	30,061	LF		
Glazing	16,187	LF		
Roof, typ	51,670	SF		
Soffit	2,980	SF		
Total Building Area	**109,705**	**SF**		
A10 Foundations	**109,705**	**SF**	**14.33**	**1,572,608**
A1010 Standard Foundations	109,705	SF	5.61	615,198
Building excavation	5,856	CY	18.00	105,401
Haul and dispose	5,856	CY	20.00	117,112
Reinforced footings				
Continuous footing - 2' x 2'	163	CY	690.00	112,470
Spread footing - 4' x 4'	36	CY	690.00	24,856
Perimeter insulation	2,188	SF	4.00	8,752
Perimeter drainage and bedding	1,144	LF	32.00	36,608
Elevator pit - complete	2	EA	22,500.00	45,000
Anchors and connections, allow	1	LS	15,000.00	15,000
Temp shoring, allow	1	LS	150,000.00	150,000
A1030 Slab On Grade	109,705	SF	8.73	957,410
Slab on grade - 4" thk., reinforced	51,670	SF	13.10	676,877
Vapor barrier	51,670	SF	3.00	155,010
Miscellaneous concrete specialties	51,670	SF	1.15	59,421
Waterproofing	2,188	SF	12.50	27,350
Allowance for blockouts	51,670	SF	0.75	38,753
A20 Basement Construction	**109,705**	**SF**		
A2010 Basement Excavation	109,705	SF		
No work anticipated				*NIC*

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 1

	Quantity	Unit	Rate	Total
B10 Superstructure	**109,705**	**SF**	**83.96**	**9,211,342**
B1010 Floor Construction	**109,705**	**SF**	**82.49**	**9,049,171**
Transfer beams	162	CY	1,040.00	168,557
Stem wall - 1' ht.	41	CY	910.00	36,872
Mass timber construction - columns and beams				
Wood timber package				
CLT panels, spline ends and side joints	109,705	SF	28.00	3,071,740
Glu-lam beams	4,313	LF	130.00	560,625
Glu-lam blocking	61	EA	554.00	33,677
Glu-lam columns	2,675	LF	124.00	331,661
Layout/installation	109,705	SF	18.50	2,029,543
Lifting system	1	LS	50,000.00	50,000
Hardware	1	LS	200,000.00	200,000
Shop drawings	1	LS	75,000.00	75,000
Transport	1	LS	185,000.00	185,000
Decking				
Mass plywood panels - see "Wood timber package"				*incl. above*
Acoustic mat	56,765	SF	6.21	352,511
2" gypcrete	56,765	SF	5.00	283,825
Firestopping	56,765	SF	0.75	42,574
Sealants	56,765	SF	0.55	31,221
Shear wall	10,511	SF	85.00	893,435
Shear wall - interior	7,635	SF	85.00	648,933
Channels and angels	1	LS	30,000.00	30,000
Structural steel				
Elevator hoist beams	1.00	TNs	16,500.00	16,500
Misc. steel angles and connections	1	LS	7,500.00	7,500
B1020 Roof Construction	**109,705**	**SF**	**1.48**	**162,170**
Mass timber construction - beams and decking				*Incl. above*
Beams - glu-lam				*incl.*
CLT decking				*incl.*
Hardware				*incl.*
PV support system - not required				*NIC*
Soffit	2,980	SF	35.00	104,300
Strapping, blocking and connections, add	51,670	SF	1.12	57,870

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 1

	Quantity	Unit	Rate	Total
B20 Exterior Enclosure	**109,705**	**SF**	**54.33**	**5,959,829**
B2010 Exterior Walls	109,705	SF	37.29	4,090,588
Wood stud framing	46,248	SF		
Framing	46,248	SF	19.10	883,344
Sheathing	30,061	SF	6.50	195,399
Batt insulation R-21	30,061	SF	6.20	186,381
Weather barrier	30,061	SF	7.20	216,443
Cladding				
Metal panel system	15,031	SF	65.00	976,997
Stained wood system	9,018	SF	75.00	676,383
Terracotta system	6,012	SF	88.00	529,082
Facias, bands and screens	3,282	SF	35.00	114,870
Caps, flashing and sealants, allow	109,705	SF	2.75	301,689
Louvers, allow	1	LS	10,000.00	10,000
B2020 Exterior Windows	109,705	SF	16.57	1,817,960
Curtainwall	4,662	SF	140.00	652,701
Storefront	10,058	SF	102.00	1,025,895
Clerestory	1,467	SF	95.00	139,365
B2030 Exterior Doors	109,705	SF	0.47	51,280
Storefront, double	4	EA	5,425.00	21,700
Storefront, single	6	EA	3,500.00	21,000
HM flush, single	3	EA	2,860.00	8,580
B30 Roofing	**109,705**	**SF**	**26.04**	**2,857,214**
B3010 Roof Coverings	109,705	SF	20.22	2,218,214
TPO membrane system	51,670	SF	18.55	958,479
Coverboard - 7" thk.	51,670	SF	6.80	351,356
Insulation - R-30	51,670	SF	8.00	413,360
Vapor barrier	51,670	SF	2.00	103,340
Fall protection, allow	1	LS	50,000.00	50,000
Caps, flashing and sealants	51,670	SF	3.50	180,845
Roof walking pads, allow	1,500	SF	28.50	42,750
Roof terrace	1,270	SF	38.00	48,260
Parapet	1,641	LF	42.55	69,825

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 1

	Quantity	Unit	Rate	Total
B3020 Roof Openings	109,705	SF	5.82	639,000
Roof monitor, incl. skylight	2,880	SF	210.00	604,800
Skylights	200	SF	171.00	34,200
C10 Interior Construction	**109,705**	**SF**	**26.37**	**2,892,494**
C1010 Partitions	109,705	SF	26.37	2,892,494
Solid and glazed walls				
Wood stud framing - 2x4				
Framing	60,123	SF	13.50	811,659
Acoustical batt insulation	60,123	SF	4.50	270,553
GWB, 2x	120,246	SF	4.85	583,192
Shaft wall, metal stud - 4"	1,892	SF		
Framing, 2x	3,784	SF	20.40	77,194
Acoustical batt insulation	1,892	SF	4.50	8,514
GWB, 2x	3,784	SF	4.85	18,352
Operable partition	80	LF	1,000.00	80,000
Folding glass wall	50	LF	1,500.00	75,000
Interior of exterior walls	30,061	SF	8.50	255,522
Storefront, allow	1,500	SF	98.00	147,000
Doors and frames				
Storefront, double	4	EA	4,750.00	19,000
HM, glass panel - single	15	EA	2,885.00	43,275
HM, flush - single	24	EA	2,385.00	57,240
Fittings				
Window treatment - roller shades	8,093	SF	11.50	93,075
Wayfinding and signage	109,705	SF	0.66	71,966
Whiteboards and writable surfaces, allow	400	SF	36.50	14,600
Corner guards and kick plates	1	LS	10,000.00	10,000
Mirrors - restroom	6	EA	280.00	1,680
Restroom fitout	6	EA	1,500.00	9,000
Lockers, allow	50	EA	375.00	18,750
Benches, allow	10	EA	750.00	7,500
Guardrail, glazed	954	LF	230.00	219,420
C20 Stairways	**109,705**	**SF**	**4.78**	**524,000**
C2010 Stair Construction	109,705	SF	4.78	524,000
Feature stair	6	FLT	75,000.00	450,000
Egress stairs	4	FLT	18,500.00	74,000

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 1

	Quantity	Unit	Rate	Total
C30 Interior Finishes	**109,705**	**SF**	**23.60**	**2,589,457**
C3010 Wall Finishes	109,705	SF	5.81	636,872
Paint	154,091	SF	2.10	323,592
Tile to 7' ht.	3,164	SF	20.00	63,280
Acoustic paneling, allow	1	LS	150,000.00	150,000
Misc. graphics and special finishes, allow	1	LS	100,000.00	100,000
C3020 Floor Finishes	109,705	SF	12.60	1,382,317
Walk-off mat	200	SF	15.00	3,000
Carpet tile	8,755	SF	6.50	56,908
Linoleum	6,857	SF	9.50	65,142
Polished concrete	17,583	SF	8.50	149,456
Sealed concrete	10,687	SF	3.90	41,679
Epoxy resinous flooring	5,205	SF	22.00	114,510
Tile	1,810	SF	20.00	36,200
Rubber sport flooring	16,025	SF	18.30	293,258
Sprung hardwood flooring	2,887	SF	31.60	91,229
Hardwood sport flooring	18,962	SF	28.00	530,936
C3030 Ceiling Finishes	109,705	SF	5.20	570,269
ACT	15,612	SF	8.50	132,702
ACT, washable	1,092	SF	13.50	14,742
Acoustic treatment, allow	1	LS	100,000.00	100,000
Open to structure, painted	74,029	SF	1.85	136,954
GWB, painted	17,702	SF	10.50	185,871
D10 Conveying Systems	**109,705**	**SF**	**3.09**	**339,000**
D1010 Elevators & Lifts	109,705	SF	3.09	339,000
4500 LB - elevator w/ SS finish system	6	ST	56,500.00	339,000
D20 Plumbing Systems	**109,705**	**SF**	**18.01**	**1,975,402**
D2010 Plumbing Fixtures	109,705	SF	3.50	383,968
Sanitary fixtures, allow	109,705	SF	3.50	383,968
Water closets				*incl.*
Lavatories				*incl.*
Mop sink				*incl.*
Kitchen sinks				*incl.*
Hose bib				*incl.*

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 1

	Quantity	Unit	Rate	Total
Deck-mounted eye wash				*incl.*
Drinking fountain				*incl.*
Connections				*incl.*
D2020 Domestic Water Distribution	109,705	SF	7.20	789,876
Domestic water, allow	109,705	SF	7.20	789,876
Piping and drainage				*incl.*
Domestic water, 2" HW/CW				*incl.*
Insulation				*incl.*
Seismic bracing				*incl.*
Shut off valves and specialties				*incl.*
Hot water heaters				*incl.*
Expansion tanks				*incl.*
HW circulation pump				*incl.*
Mixing valves				*incl.*
Reduced pressure backflow preventer, allow				*incl.*
D2030 Sanitary Waste	109,705	SF	6.92	759,159
Sanitary waste, allow	109,705	SF	6.92	759,159
Sanitary and vent piping				*incl.*
Floor drains				*incl.*
Sanitary filtration				*incl.*
Ancillaries				*incl.*
D2040 Rain Water Drainage	109,705	SF	0.39	42,400
Gutters and downspouts	1,408	LF	25.00	35,200
Roof drains	6	EA	1,200.00	7,200
D30 Heating, Ventilation & Air Conditioning	**109,705**	**SF**	**86.29**	**9,466,692**
D3020 Heat Generating Systems	109,705	SF	44.26	4,855,471
VRF system w/ heat recovery, complete	109,965	SF	36.50	4,013,723
Energy recovery unit-integrated	2	EA	15,000.00	30,000
Piping and insulation, incl. VRF refrigerant piping	109,965	SF	7.20	791,748
Ancillaries	1	LS	20,000.00	20,000
D3040 Distribution Systems	109,705	SF	24.44	2,680,825
Ductwork including flex	120,676	LBs	13.50	1,629,119
Electric duct heaters	241	EA	1,350.00	325,824

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 1

	Quantity	Unit	Rate	Total
Diffusers and grilles	731	EA	190.00	138,960
Exhaust - general	109,705	SF	5.35	586,922
D3090 Other HVAC Systems & Equipment	109,705	SF	17.60	1,930,397
DDC controls	109,705	SF	14.50	1,590,723
Dehumidification system.	109,705	SF	1.10	120,676
Seismic bracing	109,705	SF	1.70	186,499
Testing and balancing	160	HR	130.00	20,800
Commissioning assist	90	HR	130.00	11,700
D40 Fire Protection	**109,705**	**SF**	**6.12**	**671,296**
D4010 Sprinklers	109,705	SF	6.09	668,296
Fire sprinkler system, complete	109,705	SF	5.85	641,774
Dry system - soffit	2,980	SF	8.90	26,522
D4030 Fire Protection Specialties	109,705	SF	0.03	3,000
Fire extinguisher boxes	8	EA	375.00	3,000
CO2 alarm system - not required				*NIC*
D50 Electrical Lighting, Power & Communications	**109,705**	**SF**	**60.99**	**6,691,042**
D5010 Electrical Service & Distribution	109,705	SF	11.66	1,279,412
Main distribution board	1	LS	250,000.00	250,000
Distribution panels	1	LS	60,000.00	60,000
Transformers	1	LF	50,000.00	50,000
Secondary conduit and feeder - allow	109,705	SF	4.50	493,673
Grounding	1	LS	20,000.00	20,000
Metering	109,705	SF	0.55	60,338
Receptacles, typ.	549	EA	575.00	315,402
PV system - not required				*NIC*
Ancillaries and equipment	1	LS	30,000.00	30,000
D5020 Lighting & Branch Wiring	109,705	SF	24.23	2,657,920
Lighting controls	109,705	SF	4.50	493,673
Branch wiring and conduit	109,705	SF	5.00	548,525
LED lighting	109,705	SF	14.50	1,590,723
Exterior lighting on building	1	LS	25,000.00	25,000

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 1

	Quantity	Unit	Rate	Total
D5030 Communications & Security	109,705	SF	22.03	2,416,448
Phone and data including wiring and conduit	109,705	SF	4.30	471,732
Wireless access points	6	EA	1,650.00	9,900
Fire alarm system	109,705	SF	3.00	329,115
DAS	1	LS	50,000.00	50,000
PA system	109,705	SF	1.21	132,743
A/V and sound system - infrastructure only	109,705	SF	3.85	422,364
Projection screen, recessed	4	EA	4,850.00	19,400
Speakers	8	EA	2,600.00	20,800
Additional equipment, allow	1	LS	500,000.00	500,000
CCTV - infrastructure only	109,705	SF	3.75	411,394
Access control	6	EA	5,500.00	33,000
ADA button	4	EA	4,000.00	16,000
D5040 Electrical Specialty	109,705	SF	3.07	337,263
Electrical to mechanical systems - equipment connections	109,705	SF	2.50	274,263
PV systems, allow	15	KW	4,200.00	63,000
E10 Equipment	**109,705**	**SF**	**4.37**	**479,419**
E1010 Commercial Equipment	109,705	SF	1.10	121,000
Type 1 hood - cultural kitchen	1	EA	121,000.00	121,000
Refrigerator/freezer				*by Owner*
Microwave				*by Owner*
Coffer maker				*by Owner*
E1090 Other Equipment	109,705	SF	3.27	358,419
Basketball backboards - retractable	6	EA	8,500.00	51,000
Court divider curtain	2	EA	17,300.00	34,600
Wall padding	4,165	SF	8.60	35,819
Scoreboard	2	EA	18,500.00	37,000
Food service equipment, allow	1	LS	200,000.00	200,000
E20 Furnishings	**109,705**	**SF**	**1.88**	**206,189**
E2010 Fixed Furnishings	109,705	SF	1.88	206,189
Mirror wall - 8' ht.	1,228	SF	36.15	44,392
Ballet barre	154	LF	69.20	10,622
Reception desk, allow	1	LS	12,500.00	12,500
Chair rail, allow	200	LF	85.00	17,000
Uppers, PLAM (allow)	100	LF	380.00	38,000

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 1

	Quantity	Unit	Rate	Total
Counters incl. cabinets, PLAM (allow)	125	LF	425.00	53,125
Counters incl. cabinets, solid surface (allow)	50	LF	475.00	23,750
Cubbies, allow	20	LF	340.00	6,800
E2020 Movable Furnishings	109,705	SF		
FF&E - by Owner				*FF&E*
F10 Special Construction	**109,705**	**SF**	**43.14**	**4,732,520**
F1010 Special Structures	109,705	SF	43.14	4,732,520
New pool construction, allow	11,512	SF	390.00	4,489,680
Pool equipment, allow	1	LS	75,000.00	75,000
Pool mech/plumbing				*incl. above*
Natatorium decking	9,222	SF	18.20	167,840

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Sitework) - Option 1 Summary

			%	$/SF	TOTAL
			Gross Area:	226,601 SF	
G10	Site Preparation		8%	5.28	1,197,394
G20	Site Improvements		38%	23.83	5,399,837
G30	Site Mechanical Utilities		9%	5.47	1,239,562
G40	Site Electrical Utilities		2%	1.33	300,600
G	Building Sitework		57%	35.91	8,137,393
SITE ELEMENTAL COST BEFORE CONTINGENCIES			57%	35.91	8,137,393
	Design Contingency	15.00%	9%	0.00	1,220,609
	Construction Contingency	5.00%	0%	2.06	467,900
SITE ELEMENTAL COST INCLUDING CONTINGENCIES			69%	43.36	9,825,902
	General Conditions	7.00%	5%	3.04	687,813
	General Requirements	7.50%	6%	3.48	788,529
	Corporate Tax (OR)	0.57%	0%	0.28	64,423
	Subcontractor Default Insurance (OR)	1.75%	0%	0.88	198,917
	Office Overhead & Profit	4.50%	4%	2.30	520,451
	Bonds and Insurance	1.50%	1%	0.80	181,291
	Permit				*By Owner*
SITE CONSTRUCTION COST BEFORE ESCALATION			86%	54.14	12,267,325
	Escalation to Start Date (May 2025)	15.83%	14%	8.57	1,942,326
RECOMMENDED BUDGET			100%	62.71	14,209,651

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Sitework) - Option 1

	Quantity	Unit	Rate	Total
Control Quantities				
Program Areas	226,601	SF		
Building footprint	*51,670*	*SF*		
Parking Lot	82,875	SF		
Asphalt	*82,875*	*SF*		
Pedestrian Paving	22,740	SF		
Concrete - sidewalk	*18,090*	*SF*		
Concrete w/ integral color - courtyard	*4,650*	*SF*		
Site Development	19,540	SF		
Raised parking structure	*19,540*	*SF*		
Landscape	49,776	SF		
Planting area	*49,776*	*SF*		
G10 Site Preparation	**226,601**	**SF**	**5.28**	**1,197,394**
G1010 Site Clearing	226,601	SF	0.79	178,615
Construction entrance	1	EA	5,000.00	5,000
Construction fence	2,170	LF	13.50	29,295
Erosion control w/ catch basin filters and monitoring	226,601	SF	0.20	45,320
Tree protection, allow	1	LS	15,000.00	15,000
Utility protection, allow	1	LS	10,000.00	10,000
Temp facilities	16	MO	1,500.00	24,000
Dewatering	1	LS	15,000.00	15,000
Construction survey, incl. layout	1	LS	35,000.00	35,000
G1020 Site Demolition and Relocations	226,601	SF	2.07	468,867
Clear and grub - existing vegetation	33,990	SF	0.75	25,493
Demo - hardscape	192,611	SF	2.25	433,374
Demo - misc. site obstructions, allow	1	LS	10,000.00	10,000
G1030 Site Earthwork	226,601	SF	2.43	549,912
Mass excavation - building, see 'Building"				*incl.*
Mass excavation	6,479	CY	18.00	116,621
Haul and dispose	6,479	CY	20.00	129,579
Grading - incl. compaction	226,601	SF	0.50	113,301
Base aggregates				
Building footprint - 12" depth	1,914	CY	45.00	86,117
Vehicular paving - 6" depth	1,897	CY	45.00	85,346
Pedestrian paving - 6" depth	421	CY	45.00	18,950

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Sitework) - Option 1

	Quantity	Unit	Rate	Total
G1040 Hazardous Waste Remediation	226,601	SF		
No work anticipated				*NIC*
G20 Site Improvements	**226,601**	**SF**	**23.83**	**5,399,837**
G2010 Roadways	226,601	SF		
No work anticipated				*NIC*
G2020 Parking Lots	226,601	SF	2.60	590,025
Asphalt	82,875	SF	4.75	393,656
Striping	82,875	SF	0.25	20,719
Concrete curb - 6"	4,670	LF	35.00	163,450
ADA curb ramp	4	EA	1,550.00	6,200
ADA sign	8	EA	750.00	6,000
G2030 Pedestrian Paving	18,090	SF	15.74	284,760
Concrete - sidewalk	18,090	SF	11.50	208,035
Concrete w/ integral color - courtyard	4,650	SF	16.50	76,725
G2040 Site Development	226,601	SF	17.10	3,875,100
Site structures				
Raised parking structure incl. SOG, allow	19,540	SF	190.00	3,712,600
Site walls, stairs & railings				
Seat wall - CIP conc w/ wood top	100	LF	275.00	27,500
Ramps and stairs, allow	1	LS	85,000.00	85,000
Site furnishing				
Café tables, bike racks, trash receptacles (etc.)	1	ALW	50,000.00	50,000
Park improvements - no work anticipated				*NIC*
G2050 Landscaping	226,601	SF	2.87	649,952
Trees - 3" Cal., deciduous	50	EA	650.00	32,500
Tree grates - not required				*NIC*
Planting area	49,776	SF		
Top soil - 24" depth	3,687	CY	45.00	165,920
Mulch - 3" depth	461	CY	40.00	18,436
Planting - 2 gallon, 24" O.C.	12,444	EA	25.00	311,100
Irrigation				
Planting area	49,776	SF	2.25	111,996
Devices and controls	1	LS	10,000.00	10,000

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Sitework) - Option 1

	Quantity	Unit	Rate	Total
G30 Site Mechanical Utilities	**226,601**	**SF**	**5.47**	**1,239,562**
G3010 Water Supply	226,601	SF	0.41	92,000
Water line	200	LF	55.00	11,000
Fire service line	200	LF	95.00	19,000
FD connection	1	EA	10,000.00	10,000
Vault structure	1	EA	30,000.00	30,000
Fire hydrants	2	EA	7,500.00	15,000
Connection to existing service	2	EA	3,500.00	7,000
G3020 Sanitary Sewer	226,601	SF	0.15	33,500
SS - 8" pipe, incl. trenching and backfill	250	LF	105.00	26,250
SS - cleanout	5	EA	750.00	3,750
Connection to existing service	1	EA	3,500.00	3,500
G3030 Storm Sewer	226,601	SF	4.92	1,114,062
SW - 8" pipe, incl. trenching and backfill	650	LF	85.00	55,250
Devices and controls - allow	1	EA	50,000.00	50,000
Detention vault, allow	837,760	GAL	1.20	1,005,312
Connection to existing service	1	EA	3,500.00	3,500
Stormwater vault - not required				*NIC*
G3060 Fuel Distribution	226,601	SF		
No work anticipated				*NIC*
G40 Site Electrical Utilities	**226,601**	**SF**	**1.33**	**300,600**
G4010 Electrical Distribution	226,601	SF	0.20	45,000
Transformer - by franchise utility				*NIC*
Power distribution - to building	1	LS	45,000.00	45,000
G4020 Site Lighting	226,601	SF	1.13	255,600
Pedestrian - light poles	15	EA	6,000.00	90,000
Parking - light poles	18	EA	9,200.00	165,600
G4090 Other Site Electrical Utilities	226,601	SF		
No work anticipated				*NIC*

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 2 Summary

			%	$/SF	TOTAL
			Gross Area:	91,463 SF	
A10	Foundations		2%	18.31	1,674,825
A	Substructure		2%	18.31	1,674,825
B10	Superstructure		10%	80.75	7,385,647
B20	Exterior Enclosure		6%	51.97	4,752,907
B30	Roofing		5%	41.84	3,827,116
B	Shell		21%	174.56	15,965,669
C10	Interior Construction		3%	25.44	2,327,091
C20	Stairways		0%	3.68	337,000
C30	Interior Finishes		3%	24.94	2,280,642
C	Interiors		7%	54.06	4,944,733
D10	Conveying Systems		0%	2.47	226,000
D20	Plumbing Systems		2%	18.08	1,653,253
D30	Heating, Ventilation & Air Conditioning		10%	86.46	7,908,156
D40	Fire Protection		1%	6.29	575,376
D50	Electrical Lighting, Power & Communications		8%	62.24	5,692,683
D	Services		21%	175.54	16,055,468
E10	Equipment		1%	4.78	437,534
E20	Furnishings		0%	2.26	206,548
E	Equipment & Furnishings		1%	7.04	644,082
F10	Special Construction		5%	42.65	3,901,277
F20	Selective Demolition		0%	0.00	0
F	Special Construction & Demolition		5%	42.65	3,901,277
BUILDING ELEMENTAL COST BEFORE CONTINGENCIES			57%	472.17	43,186,053
	Design Contingency	15.00%	9%	70.83	6,477,908
	Construction Contingency	5.00%	3%	27.15	2,483,198
BUILDING ELEMENTAL COST INCLUDING CONTINGENCIES			69%	570.14	52,147,159
	General Conditions	7.00%	5%	39.91	3,650,301
	General Requirements	7.50%	6%	45.75	4,184,810
	Corporate Tax	0.57%	0%	3.74	341,899
	SDI	1.75%	1%	11.54	1,055,673
	Office Overhead & Profit	4.50%	4%	30.20	2,762,093
	Bonds and Insurance	1.50%	1%	10.52	962,129
	Permit				*By Owner*
BUILDING CONSTRUCTION COST BEFORE ESCALATION			86%	711.81	65,104,064
	Escalation to Start Date (May 2025)	15.83%	14%	112.70	10,308,143
RECOMMENDED BUDGET			100%	824.51	75,412,207

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 2

	Quantity	Unit	Rate	Total
Controls				
Building Footprint	57,100	SF		
Level 1	57,100	SF		
Level 2	33,128	SF		
Roof Terrace - Unconditioned Space	1,235	SF		
Building ht. Total, Average	28	LF		
Exterior Enclosure Total	36,498	LF		
Cladding	23,724	LF		
Glazing	12,774	LF		
Roof, typ	57,100	SF		
Soffit	4,193	SF		
Total Building Area	**91,463**	**SF**		
A10 Foundations	**91,463**	**SF**	**18.31**	**1,674,825**
A1010 Standard Foundations	91,463	SF	6.76	618,000
Building excavation	5,627	CY	18.00	101,279
Haul and dispose	5,627	CY	20.00	112,533
Reinforced footings				
Continuous footing - 2' x 2'	172	CY	690.00	118,680
Spread footing - 4' x 4'	40	CY	690.00	27,468
Perimeter insulation	2,322	SF	4.00	9,288
Perimeter drainage and bedding	1,211	LF	32.00	38,752
Elevator pit - complete	2	EA	22,500.00	45,000
Anchors and connections, allow	1	LS	15,000.00	15,000
Temp shoring, allow	1	LS	150,000.00	150,000
A1030 Slab On Grade	91,463	SF	11.55	1,056,825
Slab on grade - 4" thk., reinforced	57,100	SF	13.10	748,010
Vapor barrier	57,100	SF	3.00	171,300
Miscellaneous concrete specialties	57,100	SF	1.15	65,665
Waterproofing	2,322	SF	12.50	29,025
Allowance for blockouts	57,100	SF	0.75	42,825
A20 Basement Construction	**91,463**	**SF**		
A2010 Basement Excavation	91,463	SF		
No work anticipated				*NIC*

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 2

	Quantity	Unit	Rate	Total
B10 Superstructure	**91,463**	**SF**	**80.75**	**7,385,647**
B1010 Floor Construction	**91,463**	**SF**	**78.45**	**7,174,940**
Transfer beams	172	CY	1,040.00	178,880
Stem wall - 1' ht.	43	CY	910.00	39,130
Mass timber construction - columns and beams				
Wood timber package				
CLT panels, spline ends and side joints	91,463	SF	28.00	2,560,964
Glu-lam beams	3,555	LF	130.00	462,150
Glu-lam blocking	67	EA	554.00	37,216
Glu-lam columns	1,881	LF	124.00	233,237
Layout/installation	91,463	SF	18.50	1,692,066
Lifting system	1	LS	42,000.00	42,000
Hardware	1	LS	167,000.00	167,000
Shop drawings	1	LS	63,000.00	63,000
Transport	1	LS	155,000.00	155,000
Decking				
Mass plywood panels - see "Wood timber package"				*incl. above*
Acoustic mat	33,128	SF	6.21	205,725
2" gypcrete	33,128	SF	5.00	165,640
Firestopping	33,128	SF	0.75	24,846
Sealants	33,128	SF	0.55	18,220
Shear wall	8,295	SF	85.00	705,075
Shear wall - interior	4,362	SF	85.00	370,791
Channels and angels	1	LS	30,000.00	30,000
Structural steel				
Elevator hoist beams	1.00	TNs	16,500.00	16,500
Misc. steel angles and connections	1	LS	7,500.00	7,500
B1020 Roof Construction	**91,463**	**SF**	**2.30**	**210,707**
Mass timber construction - beams and decking				*incl. above*
Beams - glu-lam				*incl.*
CLT decking				*incl.*
Hardware				*incl.*
PV support system - not required				*NIC*
Soffit	4,193	SF	35.00	146,755
Strapping, blocking and connections, add	57,100	SF	1.12	63,952

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 2

	Quantity	Unit	Rate	Total
B20 Exterior Enclosure	**91,463**	**SF**	**51.97**	**4,752,907**
B2010 Exterior Walls	91,463	SF	35.81	3,274,982
Wood stud framing	36,498	SF		
Framing	36,498	SF	19.10	697,112
Sheathing	23,724	SF	6.50	154,204
Batt insulation R-21	23,724	SF	6.20	147,087
Weather barrier	23,724	SF	7.20	170,811
Cladding				
Metal panel system	11,862	SF	65.00	771,020
Stained wood system	7,117	SF	75.00	533,783
Terracotta system	4,745	SF	88.00	417,537
Facias, bands and screens	3,483	SF	35.00	121,905
Caps, flashing and sealants, allow	91,463	SF	2.75	251,523
Louvers, allow	1	LS	10,000.00	10,000
B2020 Exterior Windows	91,463	SF	15.60	1,426,644
Curtainwall	3,525	SF	140.00	493,444
Storefront	7,783	SF	102.00	793,835
Clerestory	1,467	SF	95.00	139,365
B2030 Exterior Doors	91,463	SF	0.56	51,280
Storefront, double	4	EA	5,425.00	21,700
Storefront, single	6	EA	3,500.00	21,000
HM flush, single	3	EA	2,860.00	8,580
B30 Roofing	**91,463**	**SF**	**41.84**	**3,827,116**
B3010 Roof Coverings	91,463	SF	26.59	2,432,116
TPO membrane system	57,100	SF	18.55	1,059,205
Coverboard - 7" thk.	57,100	SF	6.80	388,280
Insulation - R-30	57,100	SF	8.00	456,800
Vapor barrier	57,100	SF	2.00	114,200
Fall protection, allow	1	LS	50,000.00	50,000
Caps, flashing and sealants	57,100	SF	3.50	199,850
Roof walking pads, allow	1,500	SF	28.50	42,750
Roof terrace	1,235	SF	38.00	46,930
Parapet	1,742	LF	42.55	74,101

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 2

	Quantity	Unit	Rate	Total
B3020 Roof Openings	91,463	SF	15.25	1,395,000
Roof monitor, incl. skylight	6,480	SF	210.00	1,360,800
Skylights	200	SF	171.00	34,200
C10 Interior Construction	**91,463**	**SF**	**25.44**	**2,327,091**
C1010 Partitions	91,463	SF	25.44	2,327,091
Solid and glazed walls				
Wood stud framing - 2x4				
Framing	47,447	SF	13.50	640,540
Acoustical batt insulation	47,447	SF	4.50	213,513
GWB, 2x	94,895	SF	4.85	460,240
Shaft wall, metal stud - 4"	1,204	SF		
Framing, 2x	2,408	SF	20.40	49,123
Acoustical batt insulation	1,204	SF	4.50	5,418
GWB, 2x	2,408	SF	4.85	11,679
Operable partition	80	LF	1,000.00	80,000
Folding glass wall	50	LF	1,500.00	75,000
Interior of exterior walls	23,724	SF	8.50	201,651
Storefront, allow	1,000	SF	98.00	98,000
Doors and frames				
Storefront, double	4	EA	4,750.00	19,000
HM, glass panel - single	15	EA	2,885.00	43,275
HM, flush - single	24	EA	2,385.00	57,240
Fittings				
Window treatment - roller shades	6,387	SF	11.50	73,452
Wayfinding and signage	91,463	SF	0.66	60,000
Whiteboards and writable surfaces, allow	400	SF	36.50	14,600
Corner guards and kick plates	1	LS	10,000.00	10,000
Mirrors - restroom	7	EA	280.00	1,960
Restroom fitout	7	EA	1,500.00	10,500
Lockers, allow	40	EA	375.00	15,000
Benches, allow	10	EA	750.00	7,500
Guardrail, glazed	780	LF	230.00	179,400
C20 Stairways	**91,463**	**SF**	**3.68**	**337,000**
C2010 Stair Construction	91,463	SF	3.68	337,000
Feature stair	4	FLT	75,000.00	300,000
Egress stairs	2	FLT	18,500.00	37,000

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 2

	Quantity	Unit	Rate	Total
C30 Interior Finishes	**91,463**	**SF**	**24.94**	**2,280,642**
C3010 Wall Finishes	91,463	SF	6.62	605,096
Paint	121,027	SF	2.10	254,156
Tile to 7' ht.	5,047	SF	20.00	100,940
Acoustic paneling, allow	1	LS	150,000.00	150,000
Misc. graphics and special finishes, allow	1	LS	100,000.00	100,000
C3020 Floor Finishes	91,463	SF	12.96	1,185,385
Walk-off mat	200	SF	15.00	3,000
Carpet tile	4,280	SF	6.50	27,820
Linoleum	8,496	SF	9.50	80,712
Polished concrete	16,285	SF	8.50	138,423
Sealed concrete	10,526	SF	3.90	41,051
Epoxy resinous flooring	2,368	SF	22.00	52,096
Tile	2,028	SF	20.00	40,560
Rubber sport flooring	8,225	SF	18.30	150,518
Sprung hardwood flooring	8,566	SF	31.60	270,686
Hardwood sport flooring	13,590	SF	28.00	380,520
C3030 Ceiling Finishes	91,463	SF	5.36	490,161
ACT	12,776	SF	8.50	108,596
ACT, washable	790	SF	13.50	10,665
Acoustic treatment, allow	1	LS	100,000.00	100,000
Open to structure, painted	61,740	SF	1.85	114,219
GWB, painted	14,922	SF	10.50	156,681
D10 Conveying Systems	**91,463**	**SF**	**2.47**	**226,000**
D1010 Elevators & Lifts	91,463	SF	2.47	226,000
4500 LB - elevator w/ SS finish system	4	ST	56,500.00	226,000
D20 Plumbing Systems	**91,463**	**SF**	**18.08**	**1,653,253**
D2010 Plumbing Fixtures	91,463	SF	3.50	320,121
Sanitary fixtures, allow	91,463	SF	3.50	320,121
Water closets				*incl.*
Lavatories				*incl.*
Mop sink				*incl.*
Lab sink				*incl.*
Kitchen sink, two compartment				*incl.*

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 2

	Quantity	Unit	Rate	Total
Hose bib				*incl.*
Deck-mounted eye wash				*incl.*
Drinking fountain				*incl.*
Connections				*incl.*
D2020 Domestic Water Distribution	91,463	SF	7.20	658,534
Domestic water, allow	91,463	SF	7.20	658,534
Piping and drainage				*incl.*
Domestic water, 2" HW/CW				*incl.*
Insulation				*incl.*
Seismic bracing				*incl.*
Shut off valves and specialties				*incl.*
Hot water heaters				*incl.*
Expansion tanks				*incl.*
HW circulation pump				*incl.*
Mixing valves				*incl.*
Reduced pressure backflow preventer, allow				*incl.*
D2030 Sanitary Waste	91,463	SF	6.92	632,924
Sanitary waste, allow	91,463	SF	6.92	632,924
Sanitary and vent piping				*incl.*
Floor drains				*incl.*
Sanitary filtration				*incl.*
Ancillaries				*incl.*
D2040 Rain Water Drainage	91,463	SF	0.46	41,675
Gutters and downspouts	1,379	LF	25.00	34,475
Roof drains	6	EA	1,200.00	7,200
D30 Heating, Ventilation & Air Conditioning	**91,463**	**SF**	**86.46**	**7,908,156**
D3020 Heat Generating Systems	91,463	SF	44.37	4,058,295
VRF system w/ heat recovery, complete	91,723	SF	36.50	3,347,890
Energy recovery unit-integrated	2	EA	15,000.00	30,000
Piping and insulation, incl. VRF refrigerant piping	91,723	SF	7.20	660,406
Ancillaries	1	LS	20,000.00	20,000
D3040 Distribution Systems	91,463	SF	24.44	2,235,051
Ductwork including flex	100,609	LBs	13.50	1,358,226
Electric duct heaters	201	EA	1,350.00	271,645

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 2

	Quantity	Unit	Rate	Total
Diffusers and grilles	610	EA	190.00	115,853
Exhaust - general	91,463	SF	5.35	489,327
D3090 Other HVAC Systems & Equipment	91,463	SF	17.66	1,614,810
DDC controls	91,463	SF	14.50	1,326,214
Dehumidification system.	91,463	SF	1.10	100,609
Seismic bracing	91,463	SF	1.70	155,487
Testing and balancing	160	HR	130.00	20,800
Commissioning assist	90	HR	130.00	11,700
D40 Fire Protection	**91,463**	**SF**	**6.29**	**575,376**
D4010 Sprinklers	91,463	SF	6.26	572,376
Fire sprinkler system, complete	91,463	SF	5.85	535,059
Dry system - soffit	4,193	SF	8.90	37,318
D4030 Fire Protection Specialties	91,463	SF	0.03	3,000
Fire extinguisher boxes	8	EA	375.00	3,000
CO2 alarm system - not required				*NIC*
D50 Electrical Lighting, Power & Communications	**91,463**	**SF**	**62.24**	**5,692,683**
D5010 Electrical Service & Distribution	91,463	SF	11.64	1,064,844
Main distribution board	1	LS	210,000.00	210,000
Distribution panels	1	LS	50,000.00	50,000
Transformers	1	LF	40,000.00	40,000
Secondary conduit and feeder - allow	91,463	SF	4.50	411,584
Grounding	1	LS	20,000.00	20,000
Metering	91,463	SF	0.55	50,305
Receptacles, typ.	457	EA	575.00	262,956
PV system - not required				*NIC*
Ancillaries and equipment	1	LS	20,000.00	20,000
D5020 Lighting & Branch Wiring	91,463	SF	24.20	2,213,612
Lighting controls	91,463	SF	4.50	411,584
Branch wiring and conduit	91,463	SF	5.00	457,315
LED lighting	91,463	SF	14.50	1,326,214
Exterior lighting on building	1	LS	18,500.00	18,500

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 2

	Quantity	Unit	Rate	Total
D5030 Communications & Security	91,463	SF	23.21	2,122,569
Phone and data including wiring and conduit	91,463	SF	4.30	393,291
Wireless access points	6	EA	1,650.00	9,900
Fire alarm system	91,463	SF	3.00	274,389
DAS	1	LS	50,000.00	50,000
PA system	91,463	SF	1.21	110,670
A/V and sound system - infrastructure only	91,463	SF	3.85	352,133
Projection screen, recessed	4	EA	4,850.00	19,400
Speakers	8	EA	2,600.00	20,800
Additional equipment, allow	1	LS	500,000.00	500,000
CCTV - infrastructure only	91,463	SF	3.75	342,986
Access control	6	EA	5,500.00	33,000
ADA button	4	EA	4,000.00	16,000
D5040 Electrical Specialty	91,463	SF	3.19	291,658
Electrical to mechanical systems - equipment connections	91,463	SF	2.50	228,658
PV systems, allow	15	KW	4,200.00	63,000
E10 Equipment	**91,463**	**SF**	**4.78**	**437,534**
E1010 Commercial Equipment	91,463	SF	1.32	121,000
Type 1 hood - cultural kitchen	1	EA	121,000.00	121,000
Refrigerator/freezer				*by Owner*
Microwave				*by Owner*
Coffer maker				*by Owner*
E1090 Other Equipment	91,463	SF	3.46	316,534
Basketball backboards - retractable	4	EA	8,500.00	34,000
Court divider curtain	1	EA	17,300.00	17,300
Wall padding	3,283	SF	8.60	28,234
Scoreboard	2	EA	18,500.00	37,000
Food service equipment, allow	1	LS	200,000.00	200,000
E20 Furnishings	**91,463**	**SF**	**2.26**	**206,548**
E2010 Fixed Furnishings	91,463	SF	2.26	206,548
Mirror wall - 8' ht.	1,236	SF	36.15	44,681
Ballet barre	155	LF	69.20	10,691
Reception desk, allow	1	LS	12,500.00	12,500
Chair rail, allow	200	LF	85.00	17,000
Uppers, PLAM (allow)	100	LF	380.00	38,000

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Building) - Option 2

	Quantity	Unit	Rate	Total
Counters incl. cabinets, PLAM (allow)	125	LF	425.00	53,125
Counters incl. cabinets, solid surface (allow)	50	LF	475.00	23,750
Cubbies, allow	20	LF	340.00	6,800
E2020 Movable Furnishings	91,463	SF		
FF&E - by Owner				*FF&E*
F10 Special Construction	**91,463**	**SF**	**42.65**	**3,901,277**
F1010 Special Structures	91,463	SF	42.65	3,901,277
New pool construction, allow	9,464	SF	390.00	3,690,960
Pool equipment, allow	1	LS	75,000.00	75,000
Pool mech/plumbing				*incl. above*
Natatorium decking	7,435	SF	18.20	135,317

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Sitework) - Option 2 Summary

			%	$/SF	TOTAL
			Gross Area:	226,601 SF	
G10	Site Preparation		14%	4.85	1,099,359
G20	Site Improvements		23%	7.74	1,752,832
G30	Site Mechanical Utilities		16%	5.47	1,239,562
G40	Site Electrical Utilities		4%	1.33	300,600
G	Building Sitework		57%	19.38	4,392,353
SITE ELEMENTAL COST BEFORE CONTINGENCIES			57%	19.38	4,392,353
	Design Contingency	15.00%	9%	0.00	658,853
	Construction Contingency	5.00%	0%	1.11	252,560
SITE ELEMENTAL COST INCLUDING CONTINGENCIES			69%	23.41	5,303,766
	General Conditions	7.00%	5%	1.64	371,264
	General Requirements	7.50%	6%	1.88	425,627
	Corporate Tax (OR)	0.57%	0%	0.15	34,774
	Subcontractor Default Insurance (OR)	1.75%	0%	0.47	107,370
	Office Overhead & Profit	4.50%	4%	1.24	280,926
	Bonds and Insurance	1.50%	1%	0.43	97,856
	Permit				*By Owner*
SITE CONSTRUCTION COST BEFORE ESCALATION			86%	29.22	6,621,582
	Escalation to Start Date (May 2025)	15.83%	14%	4.63	1,048,417
RECOMMENDED BUDGET			100%	33.85	7,670,000

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Sitework) - Option 2

	Quantity	Unit	Rate	Total
Control Quantities				
Program Areas	226,601	SF		
Building footprint	*57,100*	*SF*		
Roadwork				
No work anticipated				
Parking Lot	99,565	SF		
Asphalt	*99,565*	*SF*		
Pedestrian Paving	20,458	SF		
Concrete - sidewalk	*15,853*	*SF*		
Concrete w/ integral color - courtyard	*4,605*	*SF*		
Landscape	49,478	SF		
Planting area	*49,478*	*SF*		
G10 Site Preparation	**226,601**	**SF**	**4.85**	**1,099,359**
G1010 Site Clearing	226,601	SF	0.79	178,615
Construction entrance	1	EA	5,000.00	5,000
Construction fence	2,170	LF	13.50	29,295
Erosion control w/ catch basin filters and monitoring	226,601	SF	0.20	45,320
Tree protection, allow	1	LS	15,000.00	15,000
Utility protection, allow	1	LS	10,000.00	10,000
Temp facilities	16	MO	1,500.00	24,000
Dewatering	1	LS	15,000.00	15,000
Construction survey, incl. layout	1	LS	35,000.00	35,000
G1020 Site Demolition and Relocations	226,601	SF	2.07	468,867
Clear and grub - existing vegetation	33,990	SF	0.75	25,493
Demo - hardscape	192,611	SF	2.25	433,374
Demo - misc. site obstructions, allow	1	LS	10,000.00	10,000
G1030 Site Earthwork	226,601	SF	1.99	451,877
Mass excavation - building, see 'Building"				*incl.*
Mass excavation	6,278	CY	18.00	113,001
Haul and dispose	6,278	CY	20.00	125,556
Grading - incl. compaction	226,601	SF	0.50	113,301
Base aggregates				
Building footprint - 12" depth	2,115	CY	45.00	*incl.*
Vehicular paving - 6" depth	1,844	CY	45.00	82,971
Pedestrian paving - 6" depth	379	CY	45.00	17,048

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Sitework) - Option 2

	Quantity	Unit	Rate	Total
G1040 Hazardous Waste Remediation	226,601	SF		
No work anticipated				*NIC*
G20 Site Improvements	**226,601**	**SF**	**7.74**	**1,752,832**
G2010 Roadways	226,601	SF		
No work anticipated				*NIC*
G2020 Parking Lots	226,601	SF	3.03	685,725
Asphalt	99,565	SF	4.75	472,934
Striping	99,565	SF	0.25	24,891
Concrete curb - 6"	5,020	LF	35.00	175,700
ADA curb ramp	4	EA	1,550.00	6,200
ADA sign	8	EA	750.00	6,000
G2030 Pedestrian Paving	15,853	SF	16.29	258,292
Concrete - sidewalk	15,853	SF	11.50	182,310
Concrete w/ integral color - courtyard	4,605	SF	16.50	75,983
G2040 Site Development	226,601	SF	0.72	162,500
Site walls, stairs & railings				
Seat wall - CIP conc w/ wood top	100	LF	275.00	27,500
Ramps and stairs, allow	1	LS	85,000.00	85,000
Site furnishing				
Café tables, bike racks, trash receptacles (etc.)	1	ALW	50,000.00	50,000
Park improvements - no work anticipated				*NIC*
G2050 Landscaping	226,601	SF	2.85	646,315
Trees - 3" Cal., deciduous	50	EA	650.00	32,500
Tree grates - not required				*NIC*
Planting area	49,478	SF		
Top soil - 24" depth	3,665	CY	45.00	164,927
Mulch - 3" depth	458	CY	40.00	18,325
Planting - 2 gallon, 24" O.C.	12,370	EA	25.00	309,238
Irrigation				
Planting area	49,478	SF	2.25	111,326
Devices and controls	1	LS	10,000.00	10,000

City of Kirkland, Washington
Recreation & Aquatics Centers

Houghton (Sitework) - Option 2

	Quantity	Unit	Rate	Total
G30 Site Mechanical Utilities	**226,601**	**SF**	**5.47**	**1,239,562**
G3010 Water Supply	226,601	SF	0.41	92,000
Water line	200	LF	55.00	11,000
Fire service line	200	LF	95.00	19,000
FD connection	1	EA	10,000.00	10,000
Vault structure	1	EA	30,000.00	30,000
Fire hydrants	2	EA	7,500.00	15,000
Connection to existing service	2	EA	3,500.00	7,000
G3020 Sanitary Sewer	226,601	SF	0.15	33,500
SS - 8" pipe, incl. trenching and backfill	250	LF	105.00	26,250
SS - cleanout	5	EA	750.00	3,750
Connection to existing service	1	EA	3,500.00	3,500
G3030 Storm Sewer	226,601	SF	4.92	1,114,062
SW - 8" pipe, incl. trenching and backfill	650	LF	85.00	55,250
Devices and controls - allow	1	EA	50,000.00	50,000
Detention vault, allow	837,760	GAL	1.20	1,005,312
Connection to existing service	1	EA	3,500.00	3,500
Stormwater vault - not required				*NIC*
G3060 Fuel Distribution	226,601	SF		
No work anticipated				*NIC*
G40 Site Electrical Utilities	**226,601**	**SF**	**1.33**	**300,600**
G4010 Electrical Distribution	226,601	SF	0.20	45,000
Transformer - by franchise utility				*NIC*
Power distribution - to building	1	LS	45,000.00	45,000
G4020 Site Lighting	226,601	SF	1.13	255,600
Pedestrian light poles	15	EA	6,000.00	90,000
Parking - light poles	18	EA	9,200.00	165,600
G4090 Other Site Electrical Utilities	226,601	SF		
No work anticipated				*NIC*

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 1 Summary

			%	$/SF	TOTAL
			Gross Area:	78,700 SF	
A10	Foundations		2%	17.59	1,384,008
A	Substructure		2%	17.59	1,384,008
B10	Superstructure		11%	85.04	6,692,972
B20	Exterior Enclosure		6%	48.70	3,832,633
B30	Roofing		4%	30.09	2,368,180
B	Shell		21%	163.83	12,893,785
C10	Interior Construction		3%	23.74	1,868,380
C20	Stairways		0%	2.86	225,000
C30	Interior Finishes		3%	26.03	2,048,169
C	Interiors		7%	52.62	4,141,549
D10	Conveying Systems		0%	2.87	226,000
D20	Plumbing Systems		2%	18.06	1,421,119
D30	Heating, Ventilation & Air Conditioning		11%	86.63	6,817,728
D40	Fire Protection		1%	7.58	596,308
D50	Electrical Lighting, Power & Communications		8%	65.11	5,124,205
D	Services		23%	180.25	14,185,359
E10	Equipment		1%	5.54	436,390
E20	Furnishings		0%	2.19	172,679
E	Equipment & Furnishings		1%	7.74	609,069
F10	Special Construction		3%	20.30	1,597,712
F20	Selective Demolition		0%	0.00	0
F	Special Construction & Demolition		3%	20.30	1,597,712
BUILDING ELEMENTAL COST BEFORE CONTINGENCIES			57%	442.33	34,811,482
	Design Contingency	15.00%	9%	66.35	5,221,722
	Construction Contingency	5.00%	3%	25.43	2,001,660
BUILDING ELEMENTAL COST INCLUDING CONTINGENCIES			69%	534.12	42,034,865
	General Conditions	7.00%	5%	37.39	2,942,441
	General Requirements	7.50%	6%	42.86	3,373,298
	Corporate Tax	0.57%	0%	3.50	275,598
	SDI	1.75%	1%	10.81	850,959
	Office Overhead & Profit	4.50%	4%	28.29	2,226,472
	Bonds and Insurance	1.50%	1%	9.85	775,554
	Permit				*By Owner*
BUILDING CONSTRUCTION COST BEFORE ESCALATION			86%	666.83	52,479,187
	Escalation to Start Date (May 2025)	15.83%	14%	105.58	8,309,205
RECOMMENDED BUDGET			100%	772.41	60,788,391

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 1

	Quantity	Unit	Rate	Total
Controls				
Building Footprint	39,610	SF		
Level 1	39,610	SF		
Level 2	37,985	SF		
Roof Terrace - Unconditioned Space	1,105	SF		
Building ht. Total, Average	28	LF		
Exterior Enclosure Total	29,337	LF		
Cladding	19,069	LF		
Glazing	10,268	LF		
Roof, typ	39,610	SF		
Soffit	14,934	SF		
Total Building Area	**78,700**	**SF**		
A10 Foundations	**78,700**	**SF**	**17.59**	**1,384,008**
A1010 Standard Foundations	78,700	SF	8.25	649,253
Building excavation	2,902	CY	18.00	52,235
Haul and dispose	2,902	CY	20.00	58,039
Reinforced footings				
Continuous footing - 2' x 2'	130	CY	690.00	89,700
Spread footing - 4' x 4'	28	CY	690.00	19,054
Perimeter insulation	1,742	SF	4.00	6,968
Perimeter drainage and bedding	921	LF	32.00	29,472
Elevator pit - complete	2	EA	22,500.00	45,000
Anchors and connections, allow	1	LS	15,000.00	15,000
Rammed aggregate piers	2,641	VLF	98.00	258,785
Temp shoring, allow	1	LS	75,000.00	75,000
A1030 Slab On Grade	78,700	SF	9.34	734,755
Slab on grade - 4" thk., reinforced	39,610	SF	13.10	518,891
Vapor barrier	39,610	SF	3.00	118,830
Miscellaneous concrete specialties	39,610	SF	1.15	45,552
Waterproofing	1,742	SF	12.50	21,775
Allowance for blockouts	39,610	SF	0.75	29,708
A20 Basement Construction	**78,700**	**SF**		
A2010 Basement Excavation	78,700	SF		
No work anticipated				*NIC*

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 1

	Quantity	Unit	Rate	Total
B10 Superstructure	**78,700**	**SF**	**85.04**	**6,692,972**
B1010 Floor Construction	**78,700**	**SF**	**77.84**	**6,125,918**
Transfer beams	129	CY	1,040.00	134,199
Stem wall - 1' ht.	32	CY	910.00	29,356
Mass timber construction - columns and beams				
Wood timber package				
CLT panels, spline ends and side joints	78,700	SF	28.00	2,203,600
Glu-lam beams	2,858	LF	130.00	371,475
Glu-lam blocking	47	EA	554.00	25,816
Glu-lam columns	1,305	LF	124.00	161,795
Layout/installation	78,700	SF	18.50	1,455,950
Lifting system	1	LS	36,000.00	36,000
Hardware	1	LS	144,000.00	144,000
Shop drawings	1	LS	54,000.00	54,000
Transport	1	LS	133,000.00	133,000
Decking				
Mass plywood panels - see "Wood timber package"				*incl. above*
Acoustic mat	37,985	SF	6.21	235,887
2" gypcrete	37,985	SF	5.00	189,925
Firestopping	37,985	SF	0.75	28,489
Sealants	37,985	SF	0.55	20,892
Shear wall	6,668	SF	85.00	566,738
Shear wall - interior	3,304	SF	85.00	280,798
Channels and angels	1	LS	30,000.00	30,000
Structural steel				
Elevator hoist beams	1.00	TNs	16,500.00	16,500
Misc. steel angles and connections	1	LS	7,500.00	7,500
B1020 Roof Construction	**78,700**	**SF**	**7.21**	**567,053**
Mass timber construction - beams and decking				*incl. above*
Beams - glu-lam				*incl.*
CLT decking				*incl.*
Hardware				*incl.*
PV support system - not required				*NIC*
Soffit	14,934	SF	35.00	522,690
Strapping, blocking and connections, add	39,610	SF	1.12	44,363

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 1

	Quantity	Unit	Rate	Total
B20 Exterior Enclosure	**78,700**	**SF**	**48.70**	**3,832,633**
B2010 Exterior Walls	78,700	SF	33.57	2,642,104
Wood stud framing	29,337	SF		
Framing	29,337	SF	19.10	560,337
Sheathing	19,069	SF	6.50	123,949
Batt insulation R-21	19,069	SF	6.20	118,228
Weather barrier	19,069	SF	7.20	137,297
Cladding				
Metal panel system	9,535	SF	65.00	619,744
Stained wood system	5,721	SF	75.00	429,054
Terracotta system	3,814	SF	88.00	335,615
Facias, bands and screens	2,613	SF	35.00	91,455
Caps, flashing and sealants, allow	78,700	SF	2.75	216,425
Louvers, allow	1	LS	10,000.00	10,000
B2020 Exterior Windows	78,700	SF	14.48	1,139,250
Curtainwall	2,689	SF	140.00	376,481
Storefront	6,112	SF	102.00	623,404
Clerestory	1,467	SF	95.00	139,365
B2030 Exterior Doors	78,700	SF	0.65	51,280
Storefront, double	4	EA	5,425.00	21,700
Storefront, single	6	EA	3,500.00	21,000
HM flush, single	3	EA	2,860.00	8,580
B30 Roofing	**78,700**	**SF**	**30.09**	**2,368,180**
B3010 Roof Coverings	78,700	SF	21.97	1,729,180
TPO membrane system	39,610	SF	18.55	734,766
Coverboard - 7" thk.	39,610	SF	6.80	269,348
Insulation - R-30	39,610	SF	8.00	316,880
Vapor barrier	39,610	SF	2.00	79,220
Fall protection, allow	1	LS	50,000.00	50,000
Caps, flashing and sealants	39,610	SF	3.50	138,635
Roof walking pads, allow	1,500	SF	28.50	42,750
Roof terrace	1,105	SF	38.00	41,990
Parapet	1,307	LF	42.55	55,592

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 1

	Quantity	Unit	Rate	Total
B3020 Roof Openings	78,700	SF	8.12	639,000
Roof monitor, incl. skylight	2,880	SF	210.00	604,800
Skylights	200	SF	171.00	34,200
C10 Interior Construction	**78,700**	**SF**	**23.74**	**1,868,380**
C1010 Partitions	78,700	SF	23.74	1,868,380
Solid and glazed walls				
Wood stud framing - 2x4				
Framing	38,138	SF	13.50	514,864
Acoustical batt insulation	38,138	SF	4.50	171,621
GWB, 2x	76,276	SF	4.85	369,940
Shaft wall, metal stud - 4"	1,204	SF		
Framing, 2x	2,408	SF	20.40	49,123
Acoustical batt insulation	1,204	SF	4.50	5,418
GWB, 2x	2,408	SF	4.85	11,679
Operable partition	80	LF	1,000.00	80,000
Folding glass wall	50	LF	1,500.00	75,000
Interior of exterior walls	19,069	SF	8.50	162,087
Storefront, allow	500	SF	98.00	49,000
Doors and frames				
Storefront, double	4	EA	4,750.00	19,000
HM, glass panel - single	12	EA	2,885.00	34,620
HM, flush - single	18	EA	2,385.00	42,930
Fittings				
Window treatment - roller shades	5,134	SF	11.50	59,041
Wayfinding and signage	78,700	SF	0.66	51,627
Whiteboards and writable surfaces, allow	400	SF	36.50	14,600
Corner guards and kick plates	1	LS	10,000.00	10,000
Mirrors - restroom	3	EA	280.00	840
Restroom fitout	3	EA	1,500.00	4,500
Lockers, allow	30	EA	375.00	11,250
Benches, allow	10	EA	750.00	7,500
Guardrail, glazed	538	LF	230.00	123,740
C20 Stairways	**78,700**	**SF**	**2.86**	**225,000**
C2010 Stair Construction	78,700	SF	2.86	225,000
Feature stair	3	FLT	75,000.00	225,000

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 1

	Quantity	Unit	Rate	Total
C30 Interior Finishes	**78,700**	**SF**	**26.03**	**2,048,169**
C3010 Wall Finishes	78,700	SF	6.59	518,562
Paint	97,753	SF	2.10	205,282
Tile restroom walls to 7' ht.	3,164	SF	20.00	63,280
Acoustic paneling, allow	1	LS	150,000.00	150,000
Misc. graphics and special finishes, allow	1	LS	100,000.00	100,000
C3020 Floor Finishes	78,700	SF	13.43	1,056,786
Walk-off mat	200	SF	15.00	3,000
Carpet tile	12,349	SF	6.50	80,269
Linoleum	6,644	SF	9.50	63,118
Polished concrete	16,094	SF	8.50	136,799
Sealed concrete	7,018	SF	3.90	27,370
Epoxy resinous flooring	3,220	SF	22.00	70,840
Tile	700	SF	20.00	14,000
Rubber sport flooring	4,380	SF	18.30	80,154
Sprung hardwood flooring	2,959	SF	31.60	93,504
Hardwood sport flooring	17,419	SF	28.00	487,732
C3030 Ceiling Finishes	78,700	SF	6.01	472,821
ACT	18,993	SF	8.50	161,441
ACT, washable	717	SF	13.50	9,680
Acoustic treatment, allow	1	LS	100,000.00	100,000
Open to structure, painted	46,947	SF	1.85	86,852
GWB, painted	10,938	SF	10.50	114,849
D10 Conveying Systems	**78,700**	**SF**	**2.87**	**226,000**
D1010 Elevators & Lifts	78,700	SF	2.87	226,000
4500 LB - elevator w/ SS finish system	4	ST	56,500.00	226,000
D20 Plumbing Systems	**78,700**	**SF**	**18.06**	**1,421,119**
D2010 Plumbing Fixtures	78,700	SF	3.50	275,450
Sanitary fixtures, allow	78,700	SF	3.50	275,450
Water closets				*incl.*
Lavatories				*incl.*
Mop sink				*incl.*
Lab sink				*incl.*
Kitchen sink, two compartment				*incl.*

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 1

	Quantity	Unit	Rate	Total
Hose bib				*incl.*
Deck-mounted eye wash				*incl.*
Drinking fountain				*incl.*
Connections				*incl.*
D2020 Domestic Water Distribution	**78,700**	**SF**	**7.20**	**566,640**
Domestic water, allow	78,700	SF	7.20	566,640
Piping and drainage				*incl.*
Domestic water, 2" HW/CW				*incl.*
Insulation				*incl.*
Seismic bracing				*incl.*
Shut off valves and specialties				*incl.*
Hot water heaters				*incl.*
Expansion tanks				*incl.*
HW circulation pump				*incl.*
Mixing valves				*incl.*
Reduced pressure backflow preventer, allow				*incl.*
D2030 Sanitary Waste	**78,700**	**SF**	**6.92**	**544,604**
Sanitary waste, allow	78,700	SF	6.92	544,604
Sanitary and vent piping				*incl.*
Floor drains				*incl.*
Sanitary filtration				*incl.*
Ancillaries				*incl.*
D2040 Rain Water Drainage	**78,700**	**SF**	**0.44**	**34,425**
Gutters and downspouts	1,089	LF	25.00	27,225
Roof drains	6	EA	1,200.00	7,200
D30 Heating, Ventilation & Air Conditioning	**78,700**	**SF**	**86.63**	**6,817,728**
D3020 Heat Generating Systems	**78,700**	**SF**	**44.48**	**3,500,552**
VRF system w/ heat recovery, complete	78,960	SF	36.50	2,882,040
Energy recovery unit-integrated	2	EA	15,000.00	30,000
Piping and insulation, incl. VRF refrigerant piping	78,960	SF	7.20	568,512
Ancillaries	1	LS	20,000.00	20,000
D3040 Distribution Systems	**78,700**	**SF**	**24.44**	**1,923,166**
Ductwork including flex	86,570	LBs	13.50	1,168,695
Electric duct heaters	173	EA	1,350.00	233,739

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 1

	Quantity	Unit	Rate	Total
Diffusers and grilles	525	EA	190.00	99,687
Exhaust - general	78,700	SF	5.35	421,045
D3090 Other HVAC Systems & Equipment	78,700	SF	17.71	1,394,010
DDC controls	78,700	SF	14.50	1,141,150
Dehumidification system.	78,700	SF	1.10	86,570
Seismic bracing	78,700	SF	1.70	133,790
Testing and balancing	160	HR	130.00	20,800
Commissioning assist	90	HR	130.00	11,700
D40 Fire Protection	**78,700**	**SF**	**7.58**	**596,308**
D4010 Sprinklers	78,700	SF	7.54	593,308
Fire sprinkler system, complete	78,700	SF	5.85	460,395
Dry system - soffit	14,934	SF	8.90	132,913
D4030 Fire Protection Specialties	78,700	SF	0.04	3,000
Fire extinguisher boxes	8	EA	375.00	3,000
CO2 alarm system - not required				*NIC*
D50 Electrical Lighting, Power & Communications	**78,700**	**SF**	**65.11**	**5,124,205**
D5010 Electrical Service & Distribution	78,700	SF	13.13	1,033,698
Main distribution board	1	LS	250,000.00	250,000
Distribution panels	1	LS	60,000.00	60,000
Transformers	1	LF	50,000.00	50,000
Secondary conduit and feeder - allow	78,700	SF	4.50	354,150
Grounding	1	LS	20,000.00	20,000
Metering	78,700	SF	0.55	43,285
Receptacles, typ.	394	EA	575.00	226,263
PV system - not required				*NIC*
Ancillaries and equipment	1	LS	30,000.00	30,000
D5020 Lighting & Branch Wiring	78,700	SF	24.32	1,913,800
Lighting controls	78,700	SF	4.50	354,150
Branch wiring and conduit	78,700	SF	5.00	393,500
LED lighting	78,700	SF	14.50	1,141,150
Exterior lighting on building	1	LS	25,000.00	25,000

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 1

	Quantity	Unit	Rate	Total
D5030 Communications & Security	78,700	SF	24.36	1,916,957
Phone and data including wiring and conduit	78,700	SF	4.30	338,410
Wireless access points	6	EA	1,650.00	9,900
Fire alarm system	78,700	SF	3.00	236,100
DAS	1	LS	50,000.00	50,000
PA system	78,700	SF	1.21	95,227
A/V and sound system - infrastructure only	78,700	SF	3.85	302,995
Projection screen, recessed	4	EA	4,850.00	19,400
Speakers	8	EA	2,600.00	20,800
Additional equipment, allow	1	LS	500,000.00	500,000
CCTV - infrastructure only	78,700	SF	3.75	295,125
Access control	6	EA	5,500.00	33,000
ADA button	4	EA	4,000.00	16,000
D5040 Electrical Specialty	78,700	SF	3.30	259,750
Electrical to mechanical systems - equipment connections	78,700	SF	2.50	196,750
PV systems, allow	15	KW	4,200.00	63,000
E10 Equipment	**78,700**	**SF**	**5.54**	**436,390**
E1010 Commercial Equipment	78,700	SF	1.54	121,000
Type 1 hood - cultural kitchen	1	EA	121,000.00	121,000
Refrigerator/freezer				*by Owner*
Microwave				*by Owner*
Coffer maker				*by Owner*
E1090 Other Equipment	78,700	SF	4.01	315,390
Basketball backboards - retractable	4	EA	8,500.00	34,000
Court divider curtain	1	EA	17,300.00	17,300
Wall padding	3,150	SF	8.60	27,090
Scoreboard	2	EA	18,500.00	37,000
Food service equipment, allow	1	LS	200,000.00	200,000
E20 Furnishings	**78,700**	**SF**	**2.19**	**172,679**
E2010 Fixed Furnishings	78,700	SF	2.19	172,679
Mirror wall - 8' ht.	480	SF	36.15	17,352
Ballet barre	60	LF	69.20	4,152
Reception desk, allow	1	LS	12,500.00	12,500
Chair rail, allow	200	LF	85.00	17,000
Uppers, PLAM (allow)	100	LF	380.00	38,000

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 1

	Quantity	Unit	Rate	Total
Counters incl. cabinets, PLAM (allow)	125	LF	425.00	53,125
Counters incl. cabinets, solid surface (allow)	50	LF	475.00	23,750
Cubbies, allow	20	LF	340.00	6,800
E2020 Movable Furnishings	78,700	SF		
FF&E - by Owner				*FF&E*

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Sitework) - Option 1 Summary

			%	$/SF	TOTAL
			Gross Area:	187,854 SF	
G10	Site Preparation		7%	7.80	1,465,934
G20	Site Improvements		47%	55.91	10,502,032
G30	Site Mechanical Utilities		3%	3.97	746,662
G40	Site Electrical Utilities		1%	0.92	173,000
G	Building Sitework		57%	68.60	12,887,628
SITE ELEMENTAL COST BEFORE CONTINGENCIES			57%	68.60	12,887,628
	Design Contingency	15.00%	9%	0.00	1,933,144
	Construction Contingency	5.00%	0%	3.94	741,039
SITE ELEMENTAL COST INCLUDING CONTINGENCIES			69%	82.84	15,561,811
	General Conditions	7.00%	5%	5.80	1,089,327
	General Requirements	7.50%	6%	6.65	1,248,835
	Corporate Tax (OR)	0.57%	0%	0.54	102,030
	Subcontractor Default Insurance (OR)	1.75%	0%	1.68	315,035
	Office Overhead & Profit	4.50%	4%	4.39	824,267
	Bonds and Insurance	1.50%	1%	1.53	287,120
	Permit				*By Owner*
SITE CONSTRUCTION COST BEFORE ESCALATION			86%	103.42	19,428,424
	Escalation to Start Date (May 2025)	15.83%	14%	16.38	3,076,167
RECOMMENDED BUDGET			100%	119.80	22,504,592

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Sitework) - Option 1

	Quantity	Unit	Rate	Total
Control Quantities				
Program Areas	187,854	SF		
Building footprint	*39,610*	*SF*		
Roadwork				
No work anticipated				
Site Development	44,165	SF		
Raised parking structure	*44,165*	*SF*		
Pedestrian Paving	13,784	SF		
Concrete - sidewalk	*12,694*	*SF*		
Concrete w/ integral color - courtyard	*1,090*	*SF*		
Landscape	90,295	SF		
Planting area	*90,295*	*SF*		
G10 Site Preparation	**187,854**	**SF**	**7.80**	**1,465,934**
G1010 Site Clearing	**187,854**	**SF**	**0.81**	**153,074**
Construction entrance	1	EA	5,000.00	5,000
Construction fence	1,778	LF	13.50	24,003
Erosion control w/ catch basin filters and monitoring	187,854	SF	0.20	37,571
Tree protection, allow	1	LS	12,500.00	12,500
Utility protection, allow	1	LS	7,500.00	7,500
Temp facilities	16	MO	1,500.00	24,000
Dewatering	1	LS	15,000.00	15,000
Construction survey, incl. layout	1	LS	27,500.00	27,500
G1020 Site Demolition and Relocations	**187,854**	**SF**	**1.13**	**212,247**
Clear and grub - existing vegetation	150,283	SF	0.75	112,712
Demo - hardscape	37,571	SF	2.25	84,534
Demo - misc. site obstructions, allow	1	LS	15,000.00	15,000
G1030 Site Earthwork	**187,854**	**SF**	**5.86**	**1,100,614**
Mass excavation - building, see 'Building"				*incl.*
Mass excavation	23,484	CY	18.00	422,706
Haul and dispose	23,484	CY	20.00	469,673
Grading - incl. compaction	187,854	SF	0.50	93,927
Base aggregates				
Building footprint - 12" depth	1,467	CY	45.00	66,017
Vehicular paving - 6" depth	818	CY	45.00	36,804
Pedestrian paving - 6" depth	255	CY	45.00	11,487

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Sitework) - Option 1

	Quantity	Unit	Rate	Total
G1040 Hazardous Waste Remediation	187,854	SF		
No work anticipated				*NIC*
G20 Site Improvements	**187,854**	**SF**	**55.91**	**10,502,032**
G2010 Roadways	187,854	SF		
No work anticipated				*NIC*
G2020 Parking Lots	187,854	SF	0.40	75,513
Asphalt - See "Raised parking structure incl. SOG, allow"				*incl. below*
Striping	88,330	SF	0.25	22,083
Concrete curb - 6"	1,178	LF	35.00	41,230
ADA curb ramp	4	EA	1,550.00	6,200
ADA sign	8	EA	750.00	6,000
G2030 Pedestrian Paving	12,694	SF	12.92	163,966
Concrete - sidewalk	12,694	SF	11.50	145,981
Concrete w/ integral color - courtyard	1,090	SF	16.50	17,985
G2040 Site Development	187,854	SF	48.57	9,124,620
Site structures				
Raised parking structure incl. SOG, allow	44,165	SF	190.00	8,391,350
Retaining wall incl. waterproofing, 5-7'	2,640	SF	75.50	199,320
Retaining wall incl. waterproofing, 10'	4,400	SF	75.50	332,200
Site walls, stairs & railings				
Seat wall - CIP conc w/ wood top	200	LF	275.00	55,000
Stairs	750	SF	55.00	41,250
Rails	300	LF	185.00	55,500
Site furnishing				
Café tables, bike racks, trash receptacles (etc.)	1	ALW	50,000.00	50,000
Park improvements - no work anticipated				*NIC*
G2050 Landscaping	187,854	SF	6.06	1,137,933
Trees - 3" cal., deciduous	40	EA	650.00	26,000
Tree grates - not required				*NIC*
Planting area	90,295	SF		
Top soil - 24" depth	6,689	CY	45.00	300,983
Mulch - 3" depth	836	CY	40.00	33,443
Planting - 2 gallon, 24" O.C.	22,574	EA	25.00	564,344
Irrigation				
Planting area	90,295	SF	2.25	203,164

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Sitework) - Option 1

	Quantity	Unit	Rate	Total
Devices and controls	1	LS	10,000.00	10,000
G30 Site Mechanical Utilities	**187,854**	**SF**	**3.97**	**746,662**
G3010 Water Supply	187,854	SF	0.47	89,000
Water line	180	LF	55.00	9,900
Fire service line	180	LF	95.00	17,100
FD connection	1	EA	10,000.00	10,000
Vault structure	1	EA	30,000.00	30,000
Fire hydrants	2	EA	7,500.00	15,000
Connection to existing service	2	EA	3,500.00	7,000
G3020 Sanitary Sewer	187,854	SF	0.16	30,350
SS - 8" pipe, incl. trenching and backfill	220	LF	105.00	23,100
SS - cleanout	5	EA	750.00	3,750
Connection to existing service	1	EA	3,500.00	3,500
G3030 Storm Sewer	187,854	SF	3.34	627,312
SW - 8" pipe, incl. trenching and backfill	380	LF	85.00	32,300
Devices and controls - allow	1	EA	35,000.00	35,000
Detention vault, allow	463,760	GAL	1.20	556,512
Connection to existing service	1	EA	3,500.00	3,500
Stormwater vault - not required				*NIC*
G3060 Fuel Distribution	187,854	SF		
No work anticipated				*NIC*
G40 Site Electrical Utilities	**187,854**	**SF**	**0.92**	**173,000**
G4010 Electrical Distribution	187,854	SF	0.24	45,000
Transformer - by franchise utility				*NIC*
Power distribution - to building	1	LS	45,000.00	45,000
G4020 Site Lighting	187,854	SF	0.68	128,000
Pedestrian light poles	6	EA	6,000.00	36,000
Parking - light poles	10	EA	9,200.00	92,000
G4090 Other Site Electrical Utilities	187,854	SF		
No work anticipated				*NIC*

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 2 Summary

			%	$/SF	TOTAL
			Gross Area:	51,712 SF	
A10	Foundations		2%	19.81	1,024,387
A	Substructure		2%	19.81	1,024,387
B10	Superstructure		10%	82.87	4,285,329
B20	Exterior Enclosure		7%	58.05	3,002,096
B30	Roofing		5%	37.15	1,921,230
B	Shell		22%	178.08	9,208,655
C10	Interior Construction		3%	27.20	1,406,518
C20	Stairways		0%	0.72	37,000
C30	Interior Finishes		4%	31.92	1,650,484
C	Interiors		8%	59.83	3,094,002
D10	Conveying Systems		0%	2.19	113,000
D20	Plumbing Systems		2%	18.22	942,440
D30	Heating, Ventilation & Air Conditioning		11%	87.25	4,511,963
D40	Fire Protection		1%	6.15	318,115
D50	Electrical Lighting, Power & Communications		9%	70.46	3,643,866
D	Services		23%	184.28	9,529,384
E10	Equipment		1%	8.49	438,798
E20	Furnishings		1%	3.97	205,473
E	Equipment & Furnishings		2%	12.46	644,271
F10	Special Construction		0%	0.00	0
F20	Selective Demolition		0%	0.00	0
F	Special Construction & Demolition		0%	0.00	0
BUILDING ELEMENTAL COST BEFORE CONTINGENCIES			57%	454.45	23,500,700
	Design Contingency	15.00%	9%	68.17	3,525,105
	Construction Contingency	5.00%	3%	26.13	1,351,290
BUILDING ELEMENTAL COST INCLUDING CONTINGENCIES			69%	548.75	28,377,095
	General Conditions	7.00%	5%	38.41	1,986,397
	General Requirements	7.50%	6%	44.04	2,277,262
	Corporate Tax	0.57%	0%	3.60	186,052
	SDI	1.75%	1%	11.11	574,469
	Office Overhead & Profit	4.50%	4%	29.07	1,503,057
	Bonds and Insurance	1.50%	1%	10.12	523,565
	Permit				*By Owner*
BUILDING CONSTRUCTION COST BEFORE ESCALATION			86%	685.10	35,427,898
	Escalation to Start Date (May 2025)	15.83%	14%	108.47	5,609,417
RECOMMENDED BUDGET			100%	793.57	41,037,315

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 2

	Quantity	Unit	Rate	Total
Controls				
Building Footprint	31,953	SF		
Level 1	31,953	SF		
Level 2	18,397	SF		
Roof Terrace - Unconditioned Space	1,362	SF		
Building ht. Total, Average	28	LF		
Exterior Enclosure Total	23,285	LF		
Cladding	15,135	LF		
Glazing	8,150	LF		
Roof, typ	31,953	SF		
Soffit	1,500	SF		
Total Building Area	**51,712**	**SF**		
A10 Foundations	**51,712**	**SF**	**19.81**	**1,024,387**
A1010 Standard Foundations	51,712	SF	8.33	430,608
Building excavation	1,776	CY	18.00	31,968
Haul and dispose	1,776	CY	20.00	35,520
Reinforced footings				
Continuous footing - 2' x 2'	111	CY	690.00	76,590
Spread footing - 4' x 4'	22	CY	690.00	15,371
Perimeter insulation	1,490	SF	4.00	5,960
Perimeter drainage and bedding	795	LF	32.00	25,440
Elevator pit - complete	1	EA	22,500.00	22,500
Anchors and connections, allow	1	LS	8,500.00	8,500
Rammed aggregate piers	2,130	VLF	98.00	208,760
Temp shoring - not required				*NIC*
A1030 Slab On Grade	51,712	SF	11.48	593,779
Slab on grade - 4" thk., reinforced	31,953	SF	13.10	418,584
Vapor barrier	31,953	SF	3.00	95,859
Miscellaneous concrete specialties	31,953	SF	1.15	36,746
Waterproofing	1,490	SF	12.50	18,625
Allowance for blockouts	31,953	SF	0.75	23,965
A20 Basement Construction	**51,712**	**SF**		
A2010 Basement Excavation	51,712	SF		
No work anticipated				*NIC*

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 2

	Quantity	Unit	Rate	Total
B10 Superstructure	**51,712**	**SF**	**82.87**	**4,285,329**
B1010 Floor Construction	**51,712**	**SF**	**81.16**	**4,197,042**
Transfer beams	110	CY	1,040.00	114,785
Stem wall - 1' ht.	28	CY	910.00	25,109
Mass timber construction - columns and beams				
Wood timber package				
CLT panels, spline ends and side joints	51,712	SF	28.00	1,447,936
Glu-lam beams	2,268	LF	130.00	294,840
Glu-lam blocking	38	EA	554.00	20,826
Glu-lam columns	1,053	LF	124.00	130,519
Layout/installation	51,712	SF	18.50	956,672
Lifting system	1	LS	24,000.00	24,000
Hardware	1	LS	95,000.00	95,000
Shop drawings	1	LS	36,000.00	36,000
Transport	1	LS	88,000.00	88,000
Decking				
Mass plywood panels - see "Wood timber package"				*incl. above*
Acoustic mat	18,397	SF	6.21	114,245
2" gypcrete	18,397	SF	5.00	91,985
Firestopping	18,397	SF	0.75	13,798
Sealants	18,397	SF	0.55	10,118
Shear wall	5,292	SF	85.00	449,820
Shear wall - interior	2,796	SF	85.00	237,639
Channels and angels	1	LS	30,000.00	30,000
Structural steel				
Elevator hoist beams	0.50	TNs	16,500.00	8,250
Misc. steel angles and connections	1	LS	7,500.00	7,500
B1020 Roof Construction	**51,712**	**SF**	**1.71**	**88,287**
Mass timber construction - beams and decking				*incl. above*
Beams - glu-lam				*incl.*
CLT decking				*incl.*
Hardware				*incl.*
PV support system - not required				*NIC*
Soffit	1,500	SF	35.00	52,500
Strapping, blocking and connections, add	31,953	SF	1.12	35,787

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 2

	Quantity	Unit	Rate	Total
B20 Exterior Enclosure	**51,712**	**SF**	**58.05**	**3,002,096**
B2010 Exterior Walls	51,712	SF	40.13	2,075,171
Wood stud framing	23,285	SF		
Framing	23,285	SF	19.10	444,740
Sheathing	15,135	SF	6.50	98,378
Batt insulation R-21	15,135	SF	6.20	93,838
Weather barrier	15,135	SF	7.20	108,973
Cladding				
Metal panel system	7,568	SF	65.00	491,891
Stained wood system	4,541	SF	75.00	340,540
Terracotta system	3,027	SF	88.00	266,378
Facias, bands and screens	2,235	SF	35.00	78,225
Caps, flashing and sealants, allow	51,712	SF	2.75	142,208
Louvers, allow	1	LS	10,000.00	10,000
B2020 Exterior Windows	51,712	SF	17.33	896,355
Curtainwall	1,983	SF	140.00	277,628
Storefront	4,700	SF	102.00	479,361
Clerestory	1,467	SF	95.00	139,365
B2030 Exterior Doors	51,712	SF	0.59	30,570
Storefront, double	2	EA	5,425.00	10,850
Storefront, single	4	EA	3,500.00	14,000
HM flush, single	2	EA	2,860.00	5,720
B30 Roofing	**51,712**	**SF**	**37.15**	**1,921,230**
B3010 Roof Coverings	51,712	SF	27.72	1,433,430
TPO membrane system	31,953	SF	18.55	592,728
Coverboard - 7" thk.	31,953	SF	6.80	217,280
Insulation - R-30	31,953	SF	8.00	255,624
Vapor barrier	31,953	SF	2.00	63,906
Fall protection, allow	1	LS	50,000.00	50,000
Caps, flashing and sealants	31,953	SF	3.50	111,836
Roof walking pads, allow	1,500	SF	28.50	42,750
Roof terrace	1,362	SF	38.00	51,756
Parapet	1,118	LF	42.55	47,550

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 2

	Quantity	Unit	Rate	Total
B3020 Roof Openings	51,712	SF	9.43	487,800
Roof monitor, incl. skylight	2,160	SF	210.00	453,600
Skylights	200	SF	171.00	34,200
C10 Interior Construction	**51,712**	**SF**	**27.20**	**1,406,518**
C1010 Partitions	51,712	SF	27.20	1,406,518
Solid and glazed walls				
Wood stud framing - 2x4				
Framing	30,270	SF	13.50	408,648
Acoustical batt insulation	30,270	SF	4.50	136,216
GWB, 2x	60,540	SF	4.85	293,621
Shaft wall, metal stud - 4"	1,204	SF		
Framing, 2x	2,408	SF	20.40	49,123
Acoustical batt insulation	1,204	SF	4.50	5,418
GWB, 2x	2,408	SF	4.85	11,679
Operable partition	30	LF	1,000.00	30,000
Folding glass wall	40	LF	1,500.00	60,000
Interior of exterior walls	15,135	SF	8.50	128,649
Storefront, allow	350	SF	98.00	34,300
Doors and frames				
Storefront, double	2	EA	4,750.00	9,500
HM, glass panel - single	10	EA	2,885.00	28,850
HM, flush - single	16	EA	2,385.00	38,160
Fittings				
Window treatment - roller shades	4,075	SF	11.50	46,861
Wayfinding and signage	51,712	SF	0.66	33,923
Whiteboards and writable surfaces, allow	400	SF	36.50	14,600
Corner guards and kick plates	1	LS	10,000.00	10,000
Mirrors - restroom	4	EA	280.00	1,120
Restroom fitout	4	EA	1,500.00	6,000
Lockers, allow	30	EA	375.00	11,250
Benches, allow	5	EA	750.00	3,750
Guardrail, glazed	195	LF	230.00	44,850
C20 Stairways	**51,712**	**SF**	**0.72**	**37,000**
C2010 Stair Construction	51,712	SF	0.72	37,000
Egress stairs	2	FLT	18,500.00	37,000

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 2

	Quantity	Unit	Rate	Total
C30 Interior Finishes	**51,712**	**SF**	**31.92**	**1,650,484**
C3010 Wall Finishes	51,712	SF	9.23	477,256
Paint	78,084	SF	2.10	163,976
Tile restroom walls to 7' ht.	3,164	SF	20.00	63,280
Acoustic paneling, allow	1	LS	150,000.00	150,000
Misc. graphics and special finishes, allow	1	LS	100,000.00	100,000
C3020 Floor Finishes	51,712	SF	16.11	833,257
Walk-off mat	200	SF	15.00	3,000
Carpet tile	4,854	SF	6.50	31,551
Linoleum	6,135	SF	9.50	58,283
Polished concrete	14,174	SF	8.50	120,479
Sealed concrete	4,695	SF	3.90	18,311
Epoxy resinous flooring	1,980	SF	22.00	43,560
Tile	380	SF	20.00	7,600
Sprung hardwood flooring	2,845	SF	31.60	89,902
Hardwood sport flooring	16,449	SF	28.00	460,572
C3030 Ceiling Finishes	51,712	SF	6.57	339,972
ACT	10,989	SF	8.50	93,407
ACT, washable	1,092	SF	13.50	14,742
Acoustic treatment, allow	1	LS	100,000.00	100,000
Open to structure, painted	31,214	SF	1.85	57,746
GWB, painted	7,055	SF	10.50	74,078
D10 Conveying Systems	**51,712**	**SF**	**2.19**	**113,000**
D1010 Elevators & Lifts	51,712	SF	2.19	113,000
4500 LB - elevator w/ SS finish system	2	ST	56,500.00	113,000
D20 Plumbing Systems	**51,712**	**SF**	**18.22**	**942,440**
D2010 Plumbing Fixtures	51,712	SF	3.50	180,992
Sanitary fixtures, allow	51,712	SF	3.50	180,992
Water closets				*incl.*
Lavatories				*incl.*
Mop sink				*incl.*
Lab sink				*incl.*
Kitchen sink, two compartment				*incl.*
Hose bib				*incl.*

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 2

	Quantity	Unit	Rate	Total
Deck-mounted eye wash				*incl.*
Drinking fountain				*incl.*
Connections				*incl.*
D2020 Domestic Water Distribution	51,712	SF	7.20	372,326
Domestic water, allow	51,712	SF	7.20	372,326
Piping and drainage				*incl.*
Domestic water, 2" HW/CW				*incl.*
Insulation				*incl.*
Seismic bracing				*incl.*
Shut off valves and specialties				*incl.*
Hot water heaters				*incl.*
Expansion tanks				*incl.*
HW circulation pump				*incl.*
Mixing valves				*incl.*
Reduced pressure backflow preventer, allow				*incl.*
D2030 Sanitary Waste	51,712	SF	6.92	357,847
Sanitary waste, allow	51,712	SF	6.92	357,847
Sanitary and vent piping				*incl.*
Floor drains				*incl.*
Sanitary filtration				*incl.*
Ancillaries				*incl.*
D2040 Rain Water Drainage	51,712	SF	0.60	31,275
Gutters and downspouts	963	LF	25.00	24,075
Roof drains	6	EA	1,200.00	7,200
D30 Heating, Ventilation & Air Conditioning	**51,712**	**SF**	**87.25**	**4,511,963**
D3020 Heat Generating Systems	51,712	SF	44.89	2,321,176
VRF system w/ heat recovery, complete	51,972	SF	36.50	1,896,978
Energy recovery unit-integrated	2	EA	15,000.00	30,000
Piping and insulation, incl. VRF refrigerant piping	51,972	SF	7.20	374,198
Ancillaries	1	LS	20,000.00	20,000
D3040 Distribution Systems	51,712	SF	24.44	1,263,669
Ductwork including flex	56,883	LBs	13.50	767,923
Electric duct heaters	114	EA	1,350.00	153,585

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 2

	Quantity	Unit	Rate	Total
Diffusers and grilles	345	EA	190.00	65,502
Exhaust - general	51,712	SF	5.35	276,659
D3090 Other HVAC Systems & Equipment	51,712	SF	17.93	927,118
DDC controls	51,712	SF	14.50	749,824
Dehumidification system.	51,712	SF	1.10	56,883
Seismic bracing	51,712	SF	1.70	87,910
Testing and balancing	160	HR	130.00	20,800
Commissioning assist	90	HR	130.00	11,700
D40 Fire Protection	**51,712**	**SF**	**6.15**	**318,115**
D4010 Sprinklers	51,712	SF	6.11	315,865
Fire sprinkler system, complete	51,712	SF	5.85	302,515
Dry system - soffit	1,500	SF	8.90	13,350
D4030 Fire Protection Specialties	51,712	SF	0.04	2,250
Fire extinguisher boxes	6	EA	375.00	2,250
CO2 alarm system - not required				*NIC*
D50 Electrical Lighting, Power & Communications	**51,712**	**SF**	**70.46**	**3,643,866**
D5010 Electrical Service & Distribution	51,712	SF	13.73	709,818
Main distribution board	1	LS	185,000.00	185,000
Distribution panels	1	LS	40,000.00	40,000
Transformers	1	LF	35,000.00	35,000
Secondary conduit and feeder - allow	51,712	SF	4.50	232,704
Grounding	1	LS	20,000.00	20,000
Metering	51,712	SF	0.55	28,442
Receptacles, typ.	259	EA	575.00	148,672
PV system - not required				*NIC*
Ancillaries and equipment	1	LS	20,000.00	20,000
D5020 Lighting & Branch Wiring	51,712	SF	24.36	1,259,588
Lighting controls	51,712	SF	4.50	232,704
Branch wiring and conduit	51,712	SF	5.00	258,560
LED lighting	51,712	SF	14.50	749,824
Exterior lighting on building	1	LS	18,500.00	18,500

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 2

	Quantity	Unit	Rate	Total
D5030 Communications & Security	51,712	SF	28.66	1,482,180
Phone and data including wiring and conduit	51,712	SF	4.30	222,362
Wireless access points	6	EA	1,650.00	9,900
Fire alarm system	51,712	SF	3.00	155,136
DAS	1	LS	50,000.00	50,000
PA system	51,712	SF	1.21	62,572
A/V and sound system - infrastructure only	51,712	SF	3.85	199,091
Projection screen, recessed	4	EA	4,850.00	19,400
Speakers	8	EA	2,600.00	20,800
Additional equipment, allow	1	LS	500,000.00	500,000
CCTV - infrastructure only	51,712	SF	3.75	193,920
Access control	6	EA	5,500.00	33,000
ADA button	4	EA	4,000.00	16,000
D5040 Electrical Specialty	51,712	SF	3.72	192,280
Electrical to mechanical systems - equipment connections	51,712	SF	2.50	129,280
PV systems, allow	15	KW	4,200.00	63,000
E10 Equipment	**51,712**	**SF**	**8.49**	**438,798**
E1010 Commercial Equipment	51,712	SF	2.34	121,000
Type 1 hood - cultural kitchen	1	EA	121,000.00	121,000
Refrigerator/freezer				*by Owner*
Microwave				*by Owner*
Coffer maker				*by Owner*
E1090 Other Equipment	51,712	SF	6.15	317,798
Basketball backboards - retractable	4	EA	8,500.00	34,000
Court divider curtain	1	EA	17,300.00	17,300
Wall padding	3,430	SF	8.60	29,498
Scoreboard	2	EA	18,500.00	37,000
Food service equipment, allow	1	LS	200,000.00	200,000
E20 Furnishings	**51,712**	**SF**	**3.97**	**205,473**
E2010 Fixed Furnishings	51,712	SF	3.97	205,473
Mirror wall - 8' ht.	1,212	SF	36.15	43,814
Ballet barre	152	LF	69.20	10,484
Reception desk, allow	1	LS	12,500.00	12,500
Chair rail, allow	200	LF	85.00	17,000
Uppers, PLAM (allow)	100	LF	380.00	38,000

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Building) - Option 2

	Quantity	Unit	Rate	Total
Counters incl. cabinets, PLAM (allow)	125	LF	425.00	53,125
Counters incl. cabinets, solid surface (allow)	50	LF	475.00	23,750
Cubbies, allow	20	LF	340.00	6,800
E2020 Movable Furnishings	**51,712**	**SF**		
FF&E - by Owner				*FF&E*

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Sitework) - Option 2 Summary

			%	$/SF	TOTAL
			Gross Area:	187,854 SF	
G10	Site Preparation		6%	7.79	1,464,158
G20	Site Improvements		47%	56.40	10,595,300
G30	Site Mechanical Utilities		3%	3.97	746,662
G40	Site Electrical Utilities		1%	0.92	173,000
G	Building Sitework		57%	69.09	12,979,119
SITE ELEMENTAL COST BEFORE CONTINGENCIES			57%	69.09	12,979,119
	Design Contingency	15.00%	9%	0.00	1,946,868
	Construction Contingency	5.00%	0%	3.97	746,299
SITE ELEMENTAL COST INCLUDING CONTINGENCIES			69%	83.43	15,672,287
	General Conditions	7.00%	5%	5.84	1,097,060
	General Requirements	7.50%	6%	6.70	1,257,701
	Corporate Tax (OR)	0.57%	0%	0.55	102,754
	Subcontractor Default Insurance (OR)	1.75%	0%	1.69	317,272
	Office Overhead & Profit	4.50%	4%	4.42	830,118
	Bonds and Insurance	1.50%	1%	1.54	289,158
	Permit				*By Owner*
SITE CONSTRUCTION COST BEFORE ESCALATION			86%	104.16	19,566,349
	Escalation to Start Date (May 2025)	15.83%	14%	16.49	3,098,005
RECOMMENDED BUDGET			100%	120.65	22,664,355

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Sitework) - Option 2

	Quantity	Unit	Rate	Total
Control Quantities				
Program Areas	187,854	SF		
Building footprint	*31,953*	*SF*		
Site Development	44,165	SF		
Raised parking structure	*44,165*	*SF*		
Pedestrian Paving	14,034	SF		
Concrete - sidewalk	*12,944*	*SF*		
Concrete w/ integral color - plaza	*1,090*	*SF*		
Landscape	97,702	SF		
Planting area	*97,702*	*SF*		
G10 Site Preparation	**187,854**	**SF**	**7.79**	**1,464,158**
G1010 Site Clearing	**187,854**	**SF**	**0.81**	**153,074**
Construction entrance	1	EA	5,000.00	5,000
Construction fence	1,778	LF	13.50	24,003
Erosion control w/ catch basin filters and monitoring	187,854	SF	0.20	37,571
Tree protection, allow	1	LS	12,500.00	12,500
Utility protection, allow	1	LS	7,500.00	7,500
Temp facilities	16	MO	1,500.00	24,000
Dewatering	1	LS	15,000.00	15,000
Construction survey, incl. layout	1	LS	27,500.00	27,500
G1020 Site Demolition and Relocations	**187,854**	**SF**	**1.13**	**212,247**
Clear and grub - existing vegetation	150,283	SF	0.75	112,712
Demo - hardscape	37,571	SF	2.25	84,534
Demo - misc. site obstructions, allow	1	LS	15,000.00	15,000
G1030 Site Earthwork	**187,854**	**SF**	**5.85**	**1,098,837**
Mass excavation - building, see 'Building"				*incl.*
Mass excavation	23,767	CY	18.00	427,811
Haul and dispose	23,767	CY	20.00	475,345
Grading - incl. compaction	187,854	SF	0.50	93,927
Base aggregates				
Building footprint - 12" depth	1,183	CY	45.00	53,255
Vehicular paving - 6" depth	818	CY	45.00	36,804
Pedestrian paving - 6" depth	260	CY	45.00	11,695
G1040 Hazardous Waste Remediation	**187,854**	**SF**		
No work anticipated				*NIC*

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Sitework) - Option 2

	Quantity	Unit	Rate	Total
G20 Site Improvements	**187,854**	**SF**	**56.40**	**10,595,300**
G2010 Roadways	187,854	SF		
No work anticipated				*NIC*
G2020 Parking Lots	187,854	SF	0.40	75,513
Asphalt - See "Raised parking structure incl. SOG, allow"				*incl. below*
Striping	88,330	SF	0.25	22,083
Concrete curb - 6"	1,178	LF	35.00	41,230
ADA curb ramp	4	EA	1,550.00	6,200
ADA sign	8	EA	750.00	6,000
G2030 Pedestrian Paving	12,944	SF	12.89	166,841
Concrete - sidewalk	12,944	SF	11.50	148,856
Concrete w/ integral color - plaza	1,090	SF	16.50	17,985
G2040 Site Development	187,854	SF	48.57	9,124,620
Site structures				
Raised parking structure incl. SOG, allow	44,165	SF	190.00	8,391,350
Retaining wall incl. waterproofing, 5-7'	2,640	SF	75.50	199,320
Retaining wall incl. waterproofing, 10'	4,400	SF	75.50	332,200
Site walls, stairs & railings				
Seat wall - CIP conc w/ wood top	200	LF	275.00	55,000
Stairs	750	SF	55.00	41,250
Rails	300	LF	185.00	55,500
Site furnishing				
Café tables, bike racks, trash receptacles (etc.)	1	ALW	50,000.00	50,000
Park improvements - no work anticipated				*NIC*
G2050 Landscaping	187,854	SF	6.54	1,228,326
Trees - 3" Cal., deciduous	40	EA	650.00	26,000
Tree grates - not required				*NIC*
Planting area	97,702	SF		
Top soil - 24" depth	7,237	CY	45.00	325,673
Mulch - 3" depth	905	CY	40.00	36,186
Planting - 2 gallon, 24" O.C.	24,426	EA	25.00	610,638
Irrigation				
Planting area	97,702	SF	2.25	219,830
Devices and controls	1	LS	10,000.00	10,000

City of Kirkland, Washington
Recreation & Aquatics Centers

North Kirkland (Sitework) - Option 2

	Quantity	Unit	Rate	Total
G30 Site Mechanical Utilities	**187,854**	**SF**	**3.97**	**746,662**
G3010 Water Supply	187,854	SF	0.47	89,000
Water line	180	LF	55.00	9,900
Fire service line	180	LF	95.00	17,100
FD connection	1	EA	10,000.00	10,000
Vault structure	1	EA	30,000.00	30,000
Fire hydrants	2	EA	7,500.00	15,000
Connection to existing service	2	EA	3,500.00	7,000
G3020 Sanitary Sewer	187,854	SF	0.16	30,350
SS - 8" pipe, incl. trenching and backfill	220	LF	105.00	23,100
SS - cleanout	5	EA	750.00	3,750
Connection to existing service	1	EA	3,500.00	3,500
G3030 Storm Sewer	187,854	SF	3.34	627,312
SW - 8" pipe, incl. trenching and backfill	380	LF	85.00	32,300
Devices and controls - allow	1	EA	35,000.00	35,000
Detention vault, allow	463,760	GAL	1.20	556,512
Connection to existing service	1	EA	3,500.00	3,500
Stormwater vault - not required				*NIC*
G3060 Fuel Distribution	187,854	SF		
No work anticipated				*NIC*
G40 Site Electrical Utilities	**187,854**	**SF**	**0.92**	**173,000**
G4010 Electrical Distribution	187,854	SF	0.24	45,000
Transformer - by franchise utility				*NIC*
Power distribution - to building	1	LS	45,000.00	45,000
G4020 Site Lighting	187,854	SF	0.68	128,000
Pedestrian light poles	6	EA	6,000.00	36,000
Parking - light poles	10	EA	9,200.00	92,000
G4090 Other Site Electrical Utilities	187,854	SF		
No work anticipated				*NIC*

City of Kirkland, Washington
Recreation & Aquatics Centers

Alternates

	Quantity	Unit	Rate	Total
Alt 1: Houghton Option 1 - Steel Structure in lieu of Mass Timber				
ADD				
Steel structure	109,705	SF	13.71	1,503,566
Alternate Cost Before Markups				**1,503,566**
Design Contingency	15.00%			225,535
Construction Contingency	5.00%			86,455
General Conditions	7.00%			127,089
General Requirements	7.50%			145,698
Corporate Tax	0.57%			11,904
SDI	1.75%			36,754
Office Overhead & Profit	4.50%			96,165
Bonds and Insurance	1.50%			33,497
Escalation to Start Date (May 2025)	15.83%			358,888
Alternate Cost After Markups				**2,625,553**
Alt 2: Houghton Option 2 - Steel Structure in lieu of Mass Timber				
ADD				
Steel structure	91,463	SF	13.61	1,244,905
Alternate Cost Before Markups				**1,244,905**
Design Contingency	15.00%			186,736
Construction Contingency	5.00%			71,582
General Conditions	7.00%			105,226
General Requirements	7.50%			120,634
Corporate Tax	0.57%			9,856
SDI	1.75%			30,431
Office Overhead & Profit	4.50%			79,622
Bonds and Insurance	1.50%			27,735
Escalation to Start Date (May 2025)	15.83%			297,148
Alternate Cost After Markups				**2,173,875**

City of Kirkland, Washington
Recreation & Aquatics Centers

Alternates

	Quantity	Unit	Rate	Total
Alt 3: North Kirkland Option 1 - Steel Structure in lieu of Mass Timber				
ADD				
Steel structure	78,700	SF	13.40	1,054,696
Alternate Cost Before Markups				**1,054,696**
Design Contingency	15.00%			158,204
Construction Contingency	5.00%			60,645
General Conditions	7.00%			89,148
General Requirements	7.50%			102,202
Corporate Tax	0.57%			8,350
SDI	1.75%			25,782
Office Overhead & Profit	4.50%			67,456
Bonds and Insurance	1.50%			23,497
Escalation to Start Date (May 2025)	15.83%			251,747
Alternate Cost After Markups				**1,841,728**
Alt 4: North Kirkland Option 2 - Steel Structure in lieu of Mass Timber				
ADD				
Steel structure	51,712	SF	13.76	711,572
Alternate Cost				**711,572**
Design Contingency	15.00%			106,736
Construction Contingency	5.00%			40,915
General Conditions	7.00%			60,146
General Requirements	7.50%			68,953
Corporate Tax	0.57%			5,633
SDI	1.75%			17,394
Office Overhead & Profit	4.50%			45,511
Bonds and Insurance	1.50%			15,853
Escalation to Start Date (May 2025)	15.83%			169,846
Alternate Cost After Markups				**1,242,559**
Alt 5: North Kirkland Option 2 - Pool in lieu of Basketball Court				
DEDUCT				
Hardwood sport flooring	16,449	SF	(28.00)	(460,572)
Basketball backboards - retractable	4	EA	(8,500.00)	(34,000)
Court divider curtain	1	EA	(17,300.00)	(17,300)

City of Kirkland, Washington
Recreation & Aquatics Centers

Alternates

	Quantity	Unit	Rate	Total
Wall padding	3,430	SF	(8.60)	(29,498)
Scoreboard	2	EA	(18,500.00)	(37,000)
ADD				
Temp shoring, allow	1	LS	75,000.00	75,000
New pool construction, allow	5,815	SF	390.00	2,267,850
Pool equipment, allow	1	LS	50,000.00	50,000
Pool mech/plumbing				*incl. above*
Natatorium decking	5,086	SF	18.20	92,565
Alternate Cost				**1,907,045**
Design Contingency	15.00%			286,057
Construction Contingency	5.00%			109,655
General Conditions	7.00%			161,193
General Requirements	7.50%			184,796
Corporate Tax	0.57%			15,098
SDI	1.75%			46,617
Office Overhead & Profit	4.50%			121,971
Bonds and Insurance	1.50%			42,486
Escalation to Start Date (May 2025)	15.83%			455,195
Alternate Cost After Markups				**3,330,114**

Section I – Demographic Assessment

The following is a summary of the demographic characteristics within areas identified as the Primary Service Areas. The Primary Service Area encompasses the City of Kirkland.

B*K accesses demographic information from Environmental Systems Research Institute (ESRI) who utilizes 2020 Census data and their demographers for 2022-2027 projections. In addition to demographics, ESRI also provides data on housing, recreation, and entertainment spending and adult participation in activities. B*K also uses information produced by the National Sporting Goods Association (NSGA) to overlay onto the demographic profile to determine potential participation in various activities.

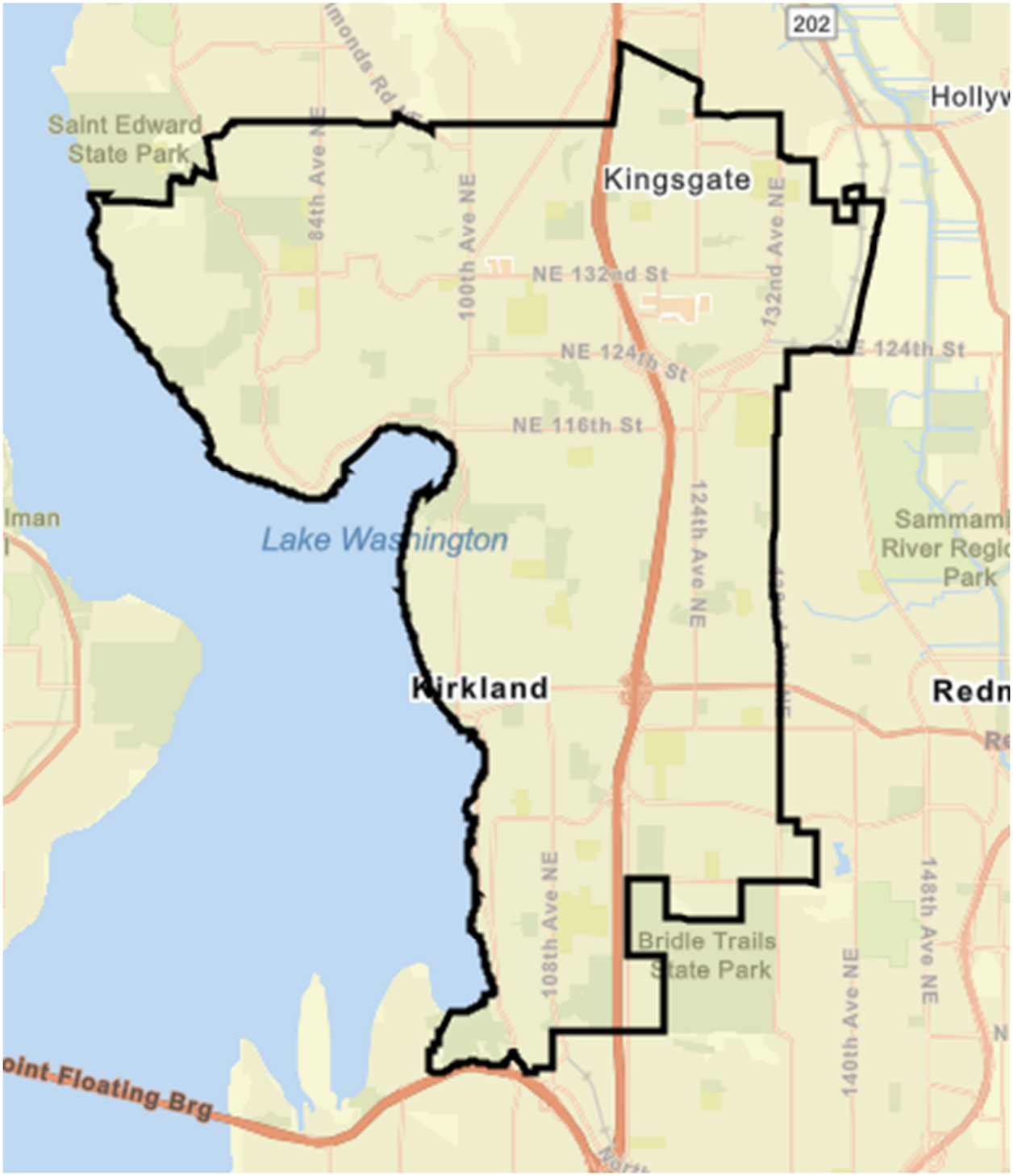
Service Areas: The information provided includes the basic demographics and data for the Primary Service Area with comparison data for the State of Washington and the United States.

Primary Service Areas are defined as the distance people will travel on a regular basis (a minimum of once a week) to utilize recreation facilities. Use by individuals outside of this area will be much more limited and will focus more on special activities or events.

Service areas can flex or contract based upon a facility's proximity to major thoroughfares. Other factors impacting the use as it relates to driving distance are the presence of alternative service providers in the service area. Alternative service providers can influence participation, membership, daily admissions and the associated penetration rates for programs and services.

Service areas can vary in size with the types of components in the facility.

Map A – Service Area Maps



- Black Boundary – Primary Service Area (Kirkland City limits)

BALLARD*KING & ASSOCIATES LTD
Recreation Planning and Operations Consultants

Demographic Summary

	Primary Service Area
Population:	
2020 Census	92,175[1]
2022 Estimate	95,253
2027 Estimate	98,472
Households:	
2020 Census	38,037
2022 Estimate	39,349
2027 Estimate	40,467
Families:	
2020 Census	23,357
2022 Estimate	23,648
2027 Estimate	24,540
Average Household Size:	
2020 Census	2.39
2022 Estimate	2.39
2027 Estimate	2.40
Ethnicity (2022 Estimate):	
Hispanic	7.9%
White	64.8%
Black	2.1%
American Indian	0.5%
Asian	18.5%
Pacific Islander	0.2%
Other	3.6%
Multiple	10.4%
Median Age:	
2020 Census	37.9
2022 Estimate	39.9
2027 Estimate	41,1
Median Income:	
2022 Estimate	$144,799
2027 Estimate	$162,497

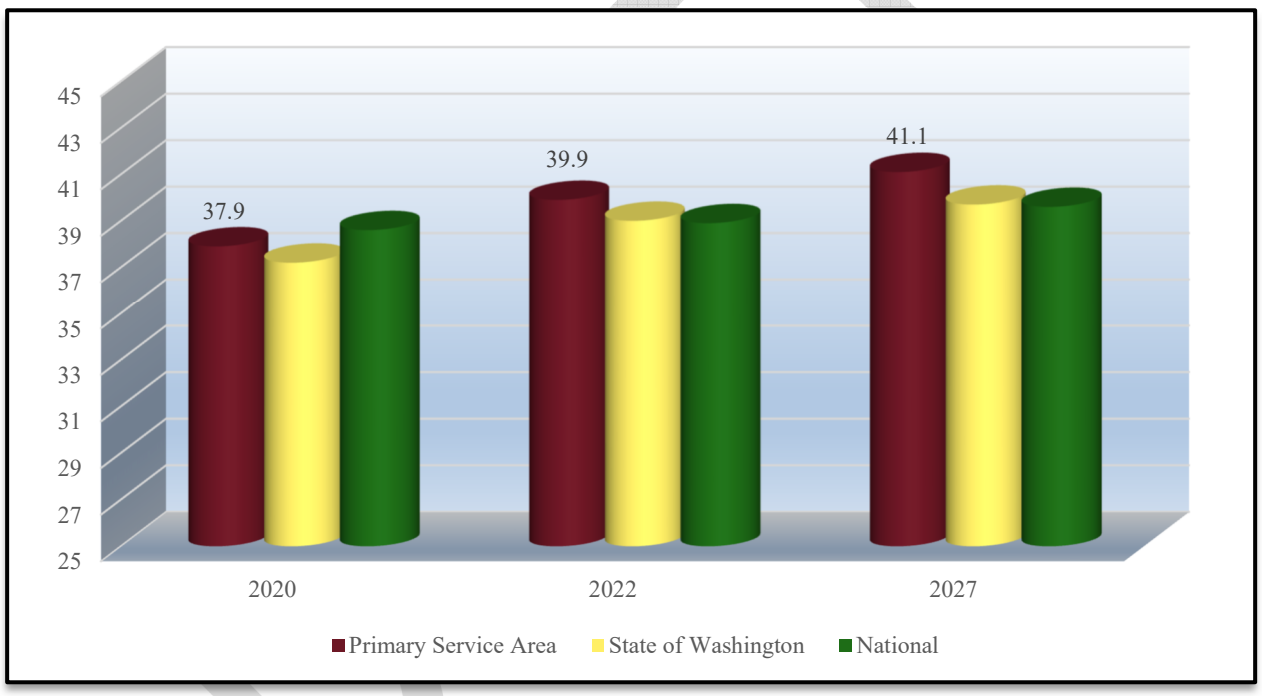
[1] From the 2010-2020 Census, the Primary Service Area experienced a 17.5% increase in population.

Age and Income: The median age and household income levels are compared with the national number as both factors are secondary determiners of participation in recreation activities. The lower the median age, the higher the participation rates are for most activities. The level of participation also increases as the median income level goes up.

Table A – Median Age:

	2020 Census	2022 Projection	2027 Projection
Primary Service Area	37.9	39.9	41.1
State of Washington	37.2	39.0	39.7
Nationally	38.6	38.9	39.6

Chart A – Median Age:



A lower median age typically points to the presence of families with children. Parks and recreation activities, programs and events draw a large demographic but tend to be most popular with youth and their parents. Grandparents are becoming an increasing part of the household though, as they care for and are involved with their grandchildren.

The following chart provides the number of households and percentage of households in the Primary Service Area with children.

Table B – Households w/ Children

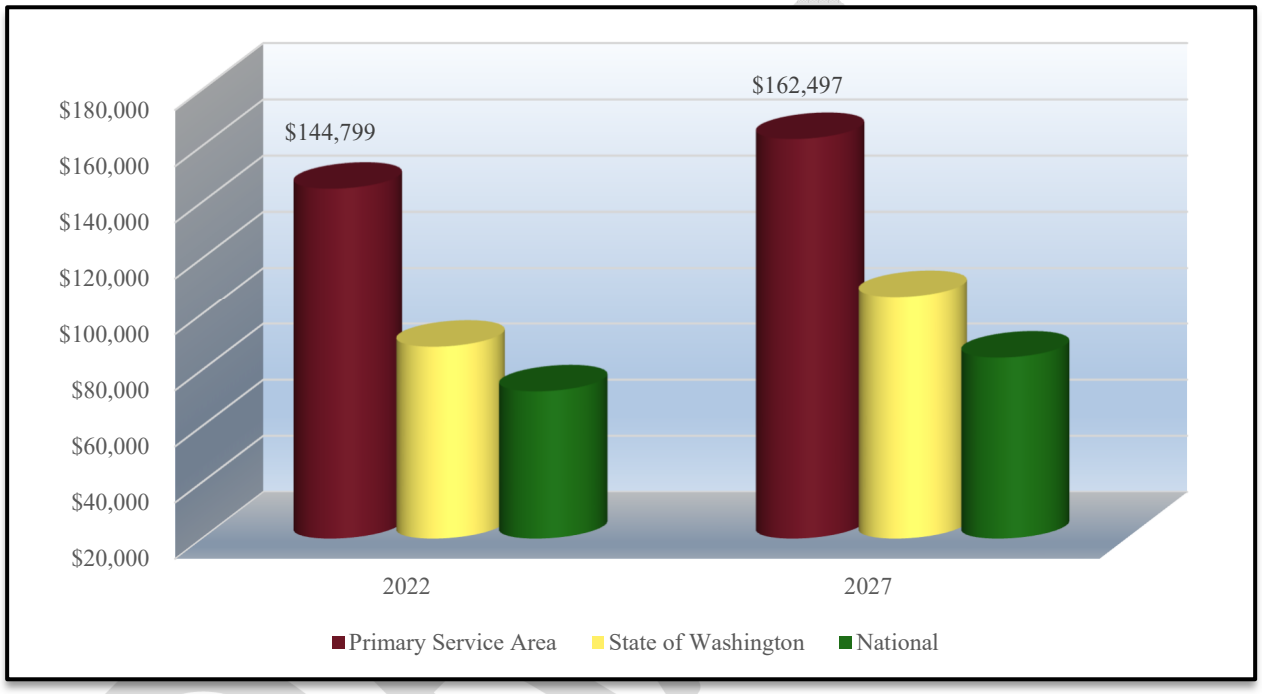
	Number of Households w/ Children	Percentage of Households w/ Children
Primary Service Area	11,139	30.0%
State of Washington	--	30.4%

The information contained in Table-B helps further outline the presence of families with children. As a point of comparison in the 2020 Census, 30.7% of households nationally had children present.

Table C – Median Household Income:

	2022 Projection	2027 Projection
Primary Service Area	$144,799	$162,497
State of Washington	$88,312	$106,259
Nationally	$72,414	$84,445

Chart B – Median Household Income:



In addition to looking at the Median Age and Median Income, it is important to examine Household Budget Expenditures. Reviewing housing information; shelter, utilities, fuel and public services along with entertainment & recreation can provide a snapshot into the cost of living and spending patterns in the services areas. The table below looks at that information and compares the service areas.

Table D – Household Budget Expenditures[2]:

Primary Service Area	SPI	Average Amount Spent	Percent
Housing	184	$52,535.24	32.5%
Shelter	*188*	*$43,065.14*	*26.7%*
Utilities, Fuel, Public Service	*167*	*$9,470.10*	*5.9%*
Entertainment & Recreation	176	$6,468.58	4.0%

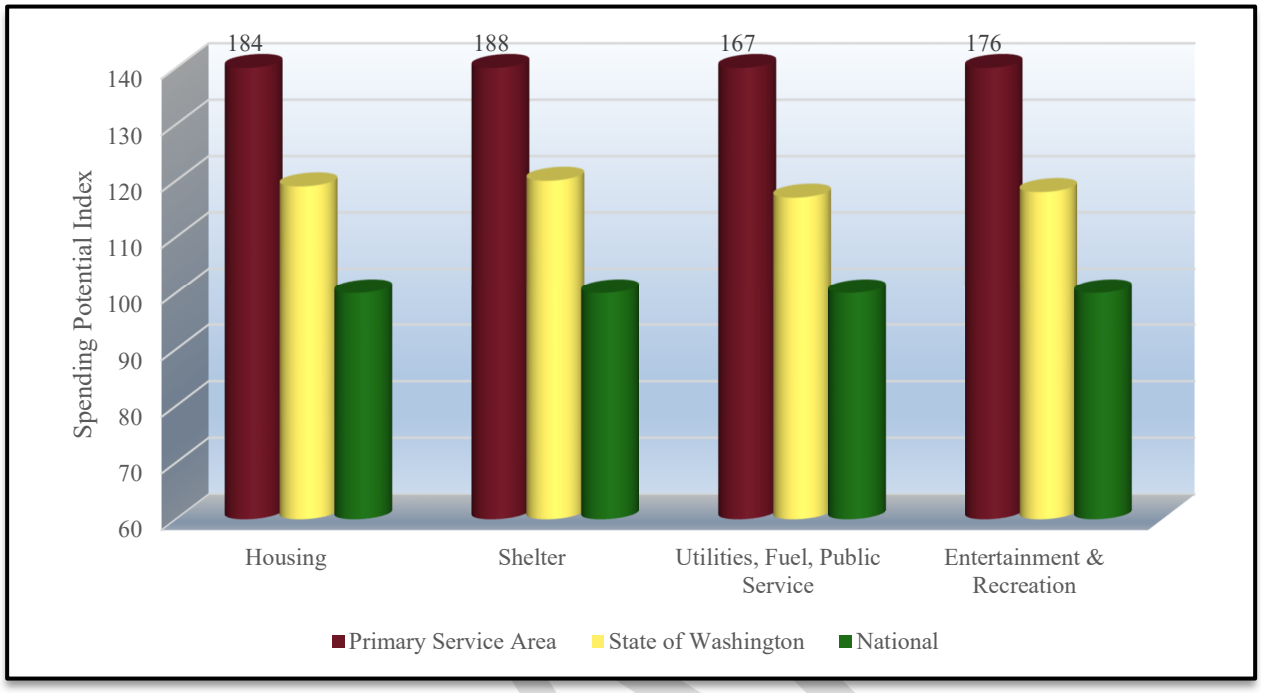
State of Washington	SPI	Average Amount Spent	Percent
Housing	119	$34,023.85	32.0%
Shelter	*120*	*$27,427.54*	*25.8%*
Utilities, Fuel, Public Service	*117*	*$6,596.30*	*6.2%*
Entertainment & Recreation	118	$4,319.39	4.1%

SPI: Spending Potential Index as compared to the National number of 100.
Average Amount Spent: The average amount spent per household.
Percent: Percent of the total 100% of household expenditures.

Note: *Shelter along with Utilities, Fuel, Public Service are a portion of the Housing percentage.*

[2] Consumer Spending data are derived from the 2018 and 2019 Consumer Expenditure Surveys, Bureau of Labor Statistics. ESRI forecasts for 2022 and 2027.

Chart D – Household Budget Expenditures Spending Potential Index:



The consistency between the median household income and the household budget expenditures is important. It also points to the fact that compared to a National level the dollars available, the money being spent in the Primary Service Area is significantly higher. This could point to the ability to pay for programs and services offered at a recreation facility of any variety.

Population Distribution by Age: Utilizing census information for the Primary Service Areas, the following comparisons are possible.

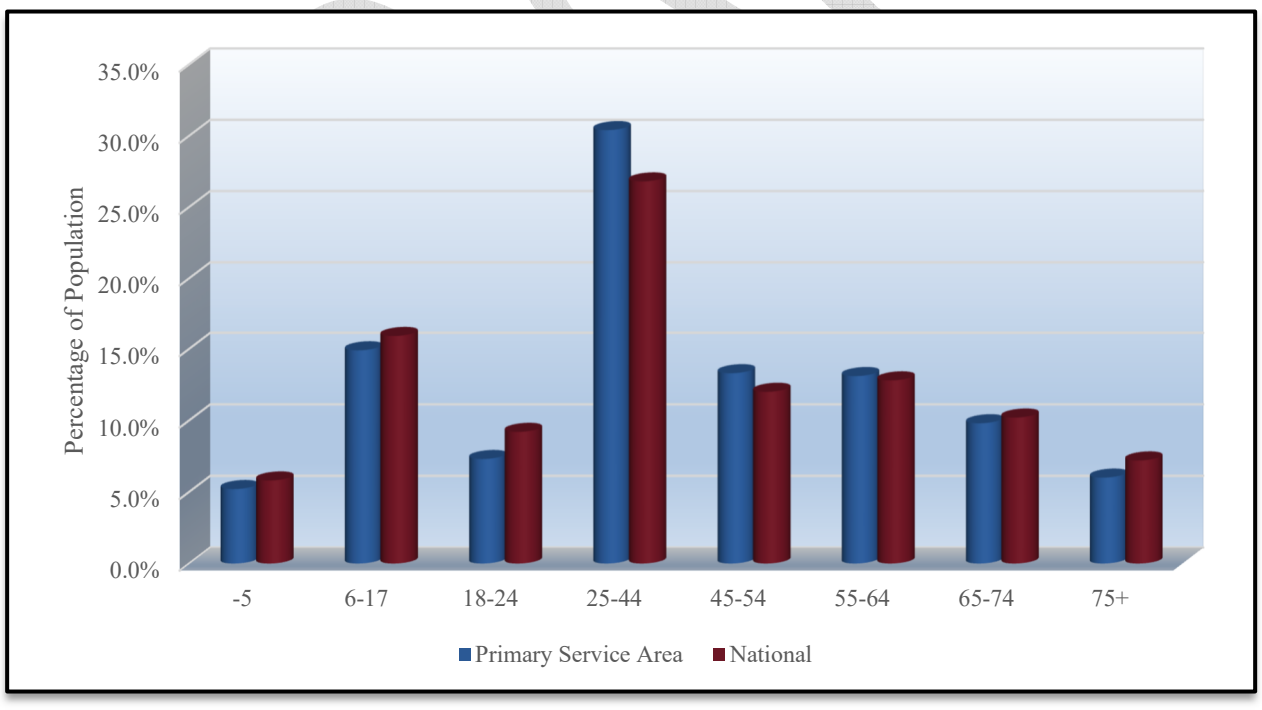
Table F – 2022 Primary Service Area Age Distribution

(ESRI estimates)

Ages	Population	% of Total	Nat. Population	Difference
0-5	4,989	5.2%	5.8%	-0.6%
5-17	14,207	14.9%	15.9%	-1.0%
18-24	6,927	7.3%	9.2%	-1.9%
25-44	28,901	30.4%	26.8%	+3.6%
45-54	12,708	13.3%	12.0%	+1.3%
55-64	12,470	13.1%	12.8%	+0.3%
65-74	9,374	9.8%	10.2%	-0.4%
75+	5,676	6.0%	7.2%	-1.2%

Population: 2022 census estimates in the different age groups in the Primary Service Area.
% of Total: Percentage of the Primary Service Area population in the age group.
National Population: Percentage of the national population in the age group.
Difference: Percentage difference between the Primary Service Area population and the national population.

Chart F – 2022 Primary Service Area Age Group Distribution

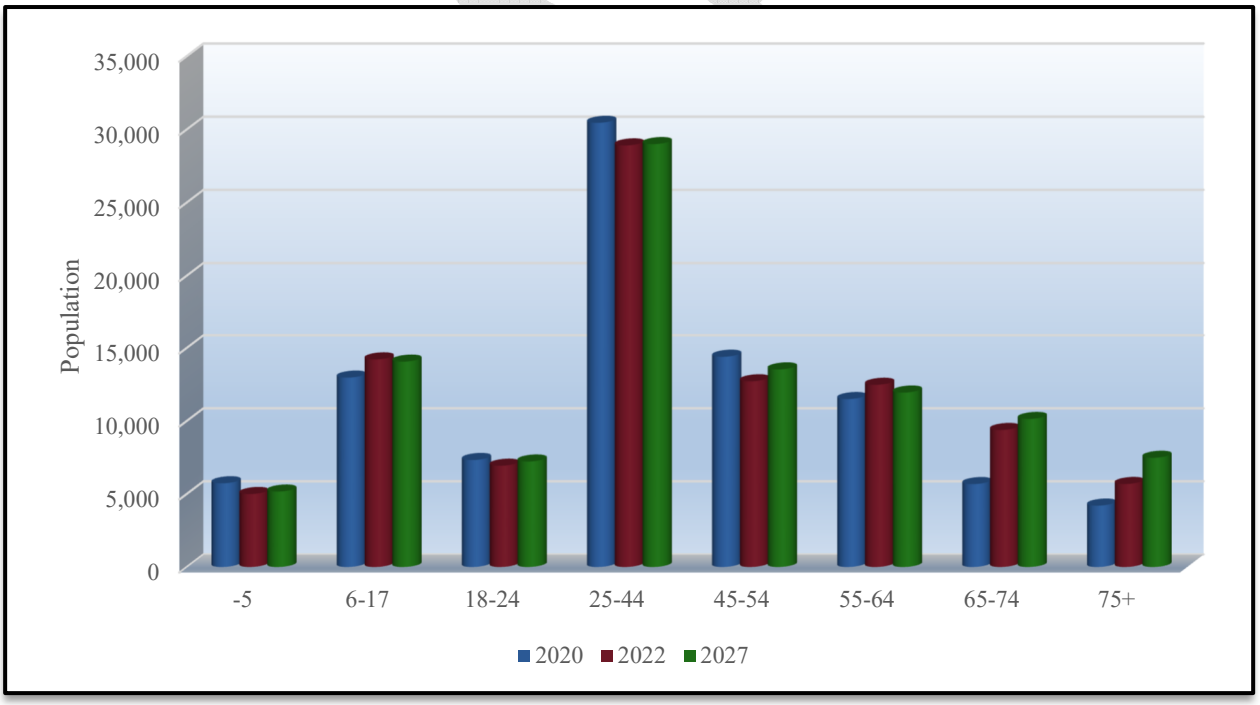


Population Distribution Comparison by Age: Utilizing census information from the Primary Service Area, the following comparisons are possible.

Table G – 2022 Primary Service Area Population Estimates
(U.S. Census Information and ESRI)

Ages	2020 Census	2022 Projection	2027 Projection	Percent Change	Percent Change Nat'l
-5	5,723	4,989	5,156	-9.9%	-8.3%
5-17	12,960	14,207	14,053	+8.4%	-8.5%
18-24	7,318	6,927	7,215	-1.4%	-8.9%
25-44	30,445	28,901	28,990	-4.8%	+3.3%
45-54	14,388	12,708	13,521	-6.0%	-17.8%
55-64	11,494	12,470	11,937	+3.9%	+2.5%
65-74	5,668	9,374	10,129	+78.7%	+58.2%
75+	4,194	5,676	7,470	+78.1%	+46.3%

Chart G – Primary Service Area Population Growth



Below is listed the distribution of the population by race and ethnicity for the Primary Service Area for 2022 population projections. Those numbers were developed from 2020 Census Data.

Table H – Primary Service Area Ethnic Population and Median Age 2022
(Source – U.S. Census Bureau and ESRI)

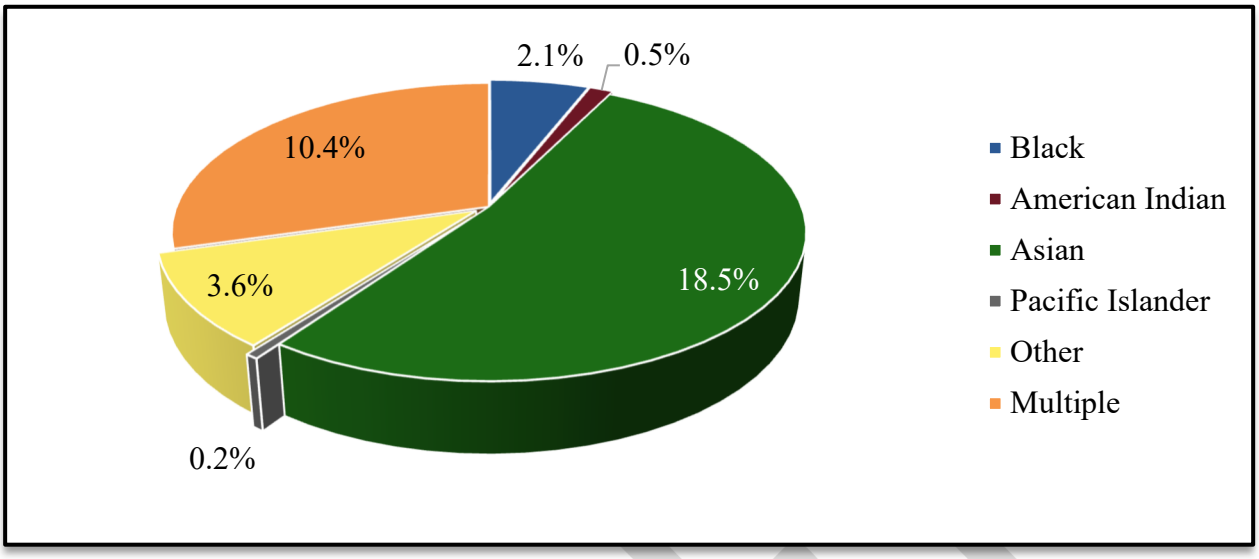
Ethnicity	Total Population	Median Age	% of Population	% of WA Population
Hispanic	7,479	29.4	7.9%	25.7

Table I – Primary Service Area by Race and Median Age 2022
(Source – U.S. Census Bureau and ESRI)

Race	Total Population	Median Age	% of Population	% of WA Population
White	61,760	44.5	64.8%	44.8
Black	1,963	37.2	2.1%	34.7
American Indian	440	40.6	0.5%	35.4
Asian	17,601	37.6	18.5%	37.9
Pacific Islander	180	36.8	0.2%	32.4
Other	3,389	32.0	3.6%	27.6
Multiple	9,921	22.0	10.4%	22.1

2022 Primary Service Area Total Population: 95,253 Residents

Chart H – 2022 Primary Service Area Population by Non-White Race



Section II–Participation

In addition to analyzing the demographic realities of the service areas, it is possible to project possible participation in recreation and sport activities.

Participation Numbers: On an annual basis, the National Sporting Goods Association (NSGA) conducts an in-depth study and survey of how Americans spend their leisure time. The data is collected in one year and the report is issued in June of the following year. This information provides the data necessary to overlay rate of participation onto the Primary Area to determine market potential.

The information contained in this section of the report, utilizes the NSGA's 2019 & 2021 data. The COVID-19 Pandemic had a significant impact on participation of sports and activities. Many indoor facilities were closed for a substantial part of the year. Team sports and leagues did not operate and individuals sought different ways to fill their time. As a result, participation from 2020 to 2021 varied widely in nearly all activities tracked. Many of the activities bounced back from the 2020 participation, however not all have. Some of this may be a trend, while some of it is still a reflection on reduced offerings by departments.

B*K takes the national average and combines that with participation percentages of the Immediate and Primary Service Area based upon age distribution, median income, region and National number. Those four percentages are then averaged together to create a unique participation percentage for the service area. This participation percentage, when applied to the population of the Primary Service Area, then provides an idea of the market potential for outdoor recreation.

Table A –Participation Rates in the Primary Service Area

Indoor Activities	Age	Income	Region	Nation	Average
Aerobics	16.0%	20.0%	18.5%	15.8%	17.6%
Basketball	7.3%	9.2%	5.3%	7.5%	7.3%
Bicycle Riding	14.2%	16.9%	13.5%	14.2%	14.7%
Boxing	1.5%	1.9%	1.1%	1.5%	1.5%
Exercise Walking	41.5%	50.5%	42.0%	41.4%	43.9%
Exercise w/ Equipment	19.1%	22.3%	16.7%	18.9%	19.2%
Gymnastics	1.7%	2.9%	1.6%	1.7%	2.0%
Martial Arts/MMA	1.7%	2.0%	1.3%	1.7%	1.7%
Pickleball	1.2%	2.1%	1.1%	1.2%	1.4%
Pilates	2.0%	1.9%	2.4%	1.9%	2.0%
Running/Jogging	15.2%	18.4%	16.4%	14.9%	16.2%
Swimming	15.5%	19.5%	12.8%	15.6%	15.9%
Table Tennis/Ping Pong	3.8%	5.7%	2.7%	3.8%	4.0%
Volleyball	3.5%	5.0%	3.1%	3.6%	3.8%
Weightlifting	12.6%	15.1%	12.6%	12.4%	13.2%
Workout @ Clubs	8.2%	11.3%	7.4%	8.1%	8.7%
Wrestling	1.0%	1.4%	0.9%	1.0%	1.1%
Yoga	10.5%	12.5%	10.3%	10.2%	10.9%

	Age	Income	Region	Nation	Average
Did Not Participate	20.5%	20.5%	22.4%	20.6%	21.0%

Age: Participation based on individuals ages 7 & Up of the Primary Service Area.
Income: Participation based on the 2022 estimated median household income in the Primary Service Area.
Region: Participation based on regional statistics (Pacific).
National: Participation based on national statistics.
Average: Average of the four columns.

Anticipated Participation Number: Utilizing the average percentage from Table-A above plus the 2020 census information and census estimates for 2022 and 2027 (over age 7) the following comparisons are available.

Table B –Participation Growth or Decline for Indoor Activities in Primary Service Area

Indoor Activities	Average	2020 Population	2022 Population	2027 Population	Difference
Aerobics	17.6%	14,818	15,486	16,023	1,205
Basketball	7.3%	6,183	6,462	6,686	503
Bicycle Riding	14.7%	12,391	12,950	13,399	1,008
Boxing	1.5%	1,269	1,327	1,373	103
Exercise Walking	43.9%	36,982	38,649	39,989	3,007
Exercise w/ Equipment	19.2%	16,227	16,958	17,546	1,319
Gymnastics	2.0%	1,657	1,731	1,791	135
Martial Arts/MMA	1.7%	1,416	1,480	1,531	115
Pickleball	1.4%	1,172	1,225	1,268	95
Pilates	2.0%	1,726	1,804	1,866	140
Running/Jogging	16.2%	13,677	14,293	14,789	1,112
Swimming	15.9%	13,367	13,970	14,454	1,087
Table Tennis/Ping Pong	4.0%	3,363	3,514	3,636	273
Volleyball	3.8%	3,207	3,351	3,468	261
Weightlifting	13.2%	11,101	11,601	12,004	903
Workout @ Clubs	8.7%	7,371	7,703	7,970	599
Wrestling	1.1%	900	940	973	73
Yoga	10.9%	9,167	9,580	9,912	745

	Average	2020 Population	2022 Population	2027 Population	Difference
Did Not Participate	21.0%	17,708	18,506	19,147	1,440

Note: These figures do not necessarily translate into attendance figures for various activities or programs. The "Did Not Participate" statistics refers to all 58 activities outlined in the NSGA 2021 Survey Instrument.

National Summary of Sports Participation: The following chart summarizes participation for indoor activities utilizing information from the 2021 National Sporting Goods Association survey.

Table C – Sports Participation Summary (National)

Sport	Nat'l Rank[3]	Nat'l Participation (in millions)
Exercise Walking	1	125.0
Cardio Fitness	2	86.1
Strength Training	3	68.9
Exercising w/ Equipment	4	57.2
Hiking	5	48.8
Swimming	6	47.2
Running/Jogging	7	45.0
Bicycle Riding	8	42.8
Weightlifting	9	37.5
Yoga	10	30.7
Fishing (fresh water)	11	29.5
Workout @ Club	13	24.6
Basketball	14	22.5
Golf	16	19.0
Target Shooting (live ammunition)	17	18.8
Hunting w/ Firearms	18	16.4
Boating (motor/power)	19	14.6
Soccer	20	14.5
Tennis	22	13.8
Kayaking	24	11.5
Baseball	26	11.3
Volleyball	27	10.8
Fishing (salt water)	29	9.6
Softball	30	9.3
Football (touch)	32	8.2
Canoeing	33	7.8
Hunting w/ Bow & Arrow	34	6.9
Football (tackle)	35	6.7
Mountain Biking (off road)	38	6.0
Football (flag)	41	5.4
Water Skiing	49	3.8
Pickleball	50	3.6

Nat'l Rank: Popularity of sport based on national survey.
Nat'l Participation: Population that participate in this sport on national survey.

National Participation by Age Group: Within the NSGA survey, participation is broken down by age groups. As such B*K can identify the top 3 age groups participating in the activities reflected in this report.

[3] This rank is based upon the 58 activities reported on by NSGA in their 2021 survey instrument.

Chart D – Participation by Age Group (National):

Activity	Largest	Second Largest	Third Largest
Aerobics	35-44	25-34	45-54
Baseball	7-11	12-17	25-34
Basketball	12-17	25-34	18-24
Bicycle Riding	55-64	45-54	12-17
Billiards/Pool	25-34	34-44	45-54
Bowling	25-34	35-44	18-24
Cheerleading	12-17	7-11	18-24
Exercise Walking	55-64	65-74	45-54
Exercise w/ Equipment	25-34	45-54	55-64
Football (flag)	7-11	12-17	25-34
Football (tackle)	12-17	18-24	7-11
Football (touch)	12-17	25-34	7-11
Gymnastics	7-11	12-17	25-34
Lacrosse	12-17	7-11	18-24
Martial Arts MMA	7-11	25-34	12-17
Pickleball	12-17	65-74	18-24
Pilates	25-34	35-44	45-54
Running/Jogging	25-34	35-44	45-54
Skateboarding	12-17	18-24	7-11
Soccer	7-11	12-17	25-34
Softball	12-17	7-11	25-34
Swimming	55-64	12-17	7-11
Tables Tennis	25-34	18-24	12-17
Tennis	25-34	35-44	12-17
Volleyball	12-17	25-34	18-24
Weightlifting	25-34	45-54	35-44
Workout at Clubs	25-34	35-44	45-54
Wrestling	12-17	25-34	7-11
Yoga	25-34	35-44	45-54
Did Not Participate	45-54	55-64	65-74

Largest: Age group with the highest rate of participation.
Second Largest: Age group with the second highest rate of participation.
Third Largest: Age group with the third highest rate of participation.

Arts Participation: In contrast to the National Sporting Goods Association (NSGA), it is difficult to locate one source for all information on participation in the arts. An added challenge is that participants are not surveyed with the frequency of those participating in the NSGA survey. The National Endowment for the Arts (NEA) is the source that B*K uses to provide insight into how Americans are spending their time with art and art-like activities.

It is important to note that the information that is produced by the NEA is not as specific as the information from the NSGA by comparison. As such, all the participation numbers that are reflected in this section of the report are national participation numbers and reflective of national trends.

A trend that is important for the reader to understand is that more and more, parks and recreation departments are becoming the home for arts and enrichment programming in communities. Through no fault of their own many school districts are having to make the hard decision to limit or eliminate art, music, theater, and the like from their curriculum. Subsequently, it has created an opportunity for many agencies to provide those programs. Many agencies have embraced this opportunity.

Important art footnotes and key takeaway findings from the 2017 survey instrument:

- In comparison to the 2012 findings the 2017 findings are much more positive.
    - Adults attending visual or performing arts activities grew by 3.6%.

- An area of substantial growth in the 2017 findings is reading poetry.
    - 18-24 year old who read poetry doubled.
    - Women showed notable gains.
    - Hispanic readers increased from 4.9% to 9.7%.

- The top three forms of arts attendance in the performing arts are:
    - Outdoor performing arts festivals.
    - Musicals.
    - Other performing arts events.

Data by Discipline:

Dance

- Attendance
  - 6.3% of adults attended a dance performance other than ballet.
  - 3.1% of adults attended a ballet performance.

Literature

- Reading
  - 11.7% of adult read poetry an increase of 76% from 2012.
  - 3.7% of adults read a play an increase of 28.2% from 2012.
  - 52.7% of adults read a book not required for work.
  - 41.8% of adults read a novel or short story a decrease of 7.6% from 2012.

Museums

- Attendance
  - 23.7% of adults visited an art museum or art gallery an increase of 12.9% from 2012.

Music

- Attendance
  - 8.6% of adults attended a classical music performance.
  - 8.6% of adults attended a jazz concert.

Opera

- Attendance
  - 2.2% of adults attended an opera performance.

Theater

- 16.5% of adults attended a musical theater performance.

Adult Reading 2012-2017:

Books	2012	2017	Statistically Significant Change
All Adults	54.6%	52.7%	No
Male	44.7%	44.3%	No
Female	63.7%	60.5%	Yes

Literature[4]	2012	2017	Statistically Significant Change
All Adults	47.0%	44.2%	Yes
Male	37.0%	35.2%	No
Female	56.1%	52.5%	Yes

Novels or Short Stories	2012	2017	Statistically Significant Change
All Adults	45.2%	41.8%	Yes
Male	35.1%	33.0%	No
Female	54.6%	50.0%	Yes

Poetry	2012	2017	Statistically Significant Change
All Adults	6.7%	11.7%	Yes
Male	5.2%	8.7%	Yes
Female	8.0%	14.5%	Yes

Plays	2012	2017	Statistically Significant Change
All Adults	2.9%	3.7%	Yes
Male	2.3%	2.9%	No
Female	3.4%	4.5%	Yes

Adult Visual Arts 2012-2017:

Visit Art Museum or Gallery	2012	2017	Statistically Significant Change
All Adults	21.0%	23.7%	Yes
Male	18.7%	21.1%	Yes
Female	23.1%	26.2%	Yes

[4] Novels or short stories, poetry, or plays.

Toured Parks, Buildings, or Neighborhoods[5]	2012	2017	Statistically Significant Change
All Adults	23.9%	28.3%	Yes
Male	23.1%	26.6%	Yes
Female	24.6%	29.9%	Yes

Attended Craft Fairs or Visual Arts Festivals	2012	2017	Statistically Significant Change
All Adults	22.4%	23.8%	No
Male	18.2%	19.5%	No
Female	26.4%	27.8%	No

Adult Performing Arts 2012-2017:

Jazz Music	2012	2017	Statistically Significant Change
All Adults	8.1%	8.6%	No
Male	7.9%	8.7%	No
Female	8.3%	8.5%	No

Classical Music	2012	2017	Statistically Significant Change
All Adults	8.8%	8.5%	No
Male	8.0%	6.8%	No
Female	9.5%	10.3%	No

Latin, Spanish, or Salsa	2012	2017	Statistically Significant Change
All Adults	5.1%	5.9%	No
Male	4.8%	5.5%	No
Female	5.2%	6.2%	No

Opera	2012	2017	Statistically Significant Change
All Adults	2.1%	2.2%	No
Male	1.8%	1.5%	No
Female	2.4%	2.8%	No

[5] For historic nature or design value.

Ballet	2012	2017	Statistically Significant Change
All Adults	2.8%	3.1%	No
Male	2.1%	2.2%	No
Female	3.4%	4.0%	No

Dance other than Ballet	2012	2017	Statistically Significant Change
All Adults	5.6%	6.3%	No
Male	4.6%	4.4%	No
Female	6.6%	8.0%	No

Musical Plays	2012	2017	Statistically Significant Change
All Adults	15.2%	16.5%	No
Male	12.9%	12.8%	No
Female	17.3%	19.9%	Yes

Non-Musical Plays	2012	2017	Statistically Significant Change
All Adults	8.3%	9.4%	No
Male	7.3%	8.2%	No
Female	9.2%	10.5%	No

Outdoor Performing Arts Festivals	2012	2017	Statistically Significant Change
All Adults	20.8%	24.2%	Yes
Male	19.8%	24.1%	Yes
Female	21.8%	24.4%	Yes

Historical Perspective

Adult Reading	2002	2008	2012	2017
Any Type	56.6%	54.3%	54.6%	52.7%
Novel/Short Story	45.1%	47.0%	45.2%	41.8%
Poetry	12.1%	8.3%	6.7%	11.7%
Plays	3.6%	2.6%	2.9%	3.7%

Visual Art	2002	2008	2012	2017
Art Museums/Galleries	26.5%	22.7%	21.0%	23.7%
Historic or Notable Parks, Monuments, Buildings	31.6%	24.9%	23.9%	28.3%
Craft Fairs or Visual Arts Festivals	33.4%	24.5%	22.4%	23.8%

Performing Arts	2002	2008	2012	2017
Jazz	10.8%	7.8%	8.1%	8.6%
Classical Music	11.6%	9.3%	8.8%	8.6%
Latin Music	-	4.9%	5.1%	5.9%
Opera	3.2%	2.1%	2.1%	2.2%
Ballet	3.9%	2.9%	2.8%	3.1%
Other Dance	6.3%	5.2%	5.6%	6.3%
Musical Plays	17.1%	16.7%	15.2%	16.5%
Non-Musical Plays	12.3%	9.4%	8.35	9.4%
Outdoor Performing Arts Festivals	-	20.8%	20.8%	24.2%

The following are assumptions that have been made for the proposed facilities at the Houghton Park & Ride location.

- The operations plan is for the two different program options.
- The operations plan is based on a program for each option but without the benefit of a final concept plan or a designated site. The final concept plan could impact part-time staffing levels and site could influence revenue.
    - The net subsidy of each scenario could vary +/- 5-10% based on the above factors and/or changes in the market.
- All operating expenses are shown in current dollars and assumes the facility is fully operational for a complete calendar year. Depending on when the facility is ultimately constructed and operated, the City should expect that future staffing and operating costs will grow approximately 3% per year.
- The presence of other public or private aquatics providers in the market will remain the same.
- Operation of the center is shown by the City of Kirkland with all costs and revenues included. This is based on Department staff guarding the pool during all hours of use.
- Full-time staff costs are based on current staff rates for the same basic positions using City compensation and benefits.
- Part-time rates are based on current market rates in the Puget Sound area and include a 7.65% benefit factor.
- City of Kirkland administrative support charge backs have been added to the expense portion of the budget. Per the City, a factor of 18% of personnel, commodities, and contractual obligations was included.
- City of Kirkland IT charges have been added to the total expenses.
- Revenues assumptions are based on current market rates for aquatics and wellness facilities in the Puget Sound, and includes market rates for admissions, memberships, rentals, and programs.
- The operational plan assumes that the City will purchase all weight and cardio equipment.

Week Assumptions

- Summer Hours – 14 Weeks
- School Year Hours – 36 Weeks
- Total Operational Year 50 Weeks (2-week maintenance closure)

Operating Day Both Options:

• Monday-Friday:	5:30A-9:00P	77.5 hours
• Saturday:	7:00A-7:00P	12 hours
• Sunday:	10:00A-7:00P	9 hours
• Weekly Operational Hours:		98.5 hours

The following expenses have been developed by B*K using previous planning efforts and feedback from City staff. The information used to develop the plans also includes B*K's familiarity with similar operations. The location of the facility, along with final design, can impact the operational expenses associated with the facility.

Personnel	**Option #1**	**Option #2**
Full-Time	2,013,353	1,880,864
Part-Time	1,281,295	1,229,747
Sub-Total	$3,294,648	$3,110,611

Commodities/Service & Supplies	**Option #1**	**Option #2**
Office Supplies	8,000	7,000
Chemicals	80,000	80,000
Maintenance/Repair/Materials	50,000	40,000
Janitor Supplies	25,000	20,000
Recreation Supplies	9,500	8,500
Uniforms	8,000	6,000
Printing/Postage	5,000	4,000
Other Misc. Exp.	3,000	2,500
Fuel/Mileage	1,500	1,500
Sub-Total	$190,000	$169,500

Contractual	Option #1	Option #2
Utilities (gas and electric)	607,547[1]	483,313[2]
Water/Sewer	85,000	85,000
Insurance[3]	27,616	21,969
Communications (phone)	7,500	5,000
Contract Services	40,000	35,000
Rental Equipment	15,000	15,000
Advertising	15,000	15,000
Training	9,000	8,000
Conference	5,000	5,000
Dues/Subscriptions	2,500	2,500
Bank Charges[4]	109,817	102,450
Other	1,500	1,500
Sub-Total	925,479	779,731

Administrative Support	Option #1	Option #2
Charge Backs (18%)	793,823	730,772

IT Fees	Option #1	Option #2
Annual	127,284	127,284

Capital Improvement Fund	Option #1	Option #2
Annual Allocation	200,000	150,000

[1] 110,463 square feet @ $5.50 per square foot.
[2] 87,874 square feet @ $5.50 per square foot.
[3] Factored at $0.25 per square foot. Square footage used is the same as that to calculate utility costs.
[4] Factored at 3% of total revenue generation.

Totals	Option #1	Option #2
Staffing	3,294,648	3,110,611
Commodities	190,000	169,500
Contractual	925,479	779,731
Administrative Support	793,823	730,772
IT Fees	127,284	127,284
Total w/out Replacement Fund	**$5,331,234**	**$4,917,898**
Capital Replacement Fund	200,000	150,000
Total w/ Replacement Fund	**$5,531,234**	**$5,067,898**

Full Time Staffing

Positions	Salary/Benefit	Option #1	Option #2
Facility Manager	$106,500	1	1
Sports & Competition Supervisor	$85,500	1	1
Fitness Supervisor	$85,500	1	1
Front Desk Supervisor	$85,500	1	1
Aquatics Supervisor	$85,500	1	1
Aquatics Coordinator	$83,000	1	1
Lifeguards	$65,000	4	4
Youth Program Supervisor	$85,500	1	1
Enrichment & Senior Supervisor	$85,500	1	1
Maintenance Supervisor	$85,500	1	1
Maintenance Tech	$65,000	1.5	1
Custodial	$62,000	5	4
Total Positions		19.5	18
Total Full-Time Wages		$2,013,353	$1,880,864

NOTES:

- Full time wages include benefits, with information provided by the City.
- It is the belief of B*K that the number of allocated full-time Custodial/Building Maintenance positions is the minimum that the City should consider.

Part Time Staffing Option #1

Positions	Hourly Rate	Hours	Weeks	Total
Lead Front Desk	$21.00	94	14	27,489
		76	36	57,456
Front Desk	$18.00	164	14	41,202
		77	36	49,896
Building Supervisor	$24.00	59	14	19,824
		44	36	38,016
Fitness Attendant	$17.00	54	50	45,475
Lifeguard	$19.00	536	14	142,576
		378	36	258,552
Lead Lifeguard	$22.00	70	14	21,406
		54	36	42,372
Custodial Support	$16.00	40	50	32,000
Lead Child Care	$21.00	45	14	13,230
		54	36	40,446
Child Care	$18.00	90	14	22,680
		100	36	64,800
Sub-Total				917,420
Aquatic Programs				128,564
Rental Staff				13,680
Dry Programs				130,578
Sub-Total				1,190,242
FICA				91,053
Total				**$1,281,295**

Part Time Staffing Option #2

Positions	Hourly Rate	Hours	Weeks	Total
Lead Front Desk	$21.00	94	14	27,489
		76	36	57,456
Front Desk	$18.00	164	14	41,202
		77	36	49,896
Building Supervisor	$24.00	59	14	19,824
		44	36	38,016
Fitness Attendant	$17.00	54	50	45,475
Lifeguard	$19.00	477	14	126,749
		335	36	229,140
Lead Lifeguard	$22.00	70	14	21,406
		54	36	42,372
Custodial Support	$16.00	40	50	32,000
Lead Child Care	$21.00	45	14	13,230
		50	36	37,800
Child Care	$18.00	90	14	22,680
		100	36	64,800
Sub-Total				869,535
Aquatic Programs				128,564
Rental Staff				13,680
Dry Programs				130,578
Sub-Total				1,142,357
FICA				87,390
Total				**$1,229,747**

The following revenue opportunities developed by B*K, are based on feedback provided by the City, familiarity with the market, and experience as facility operators.

The projections are what B*K feels the City could anticipate achieving once the facility is fully operational. It is important to note that these numbers are reflective of new revenue and do not reflect existing program revenue. B*K believes this is a realistic estimation of potential revenue, in fact some of the revenue associated with competition rentals and practice rentals could be characterized as moderate to aggressive in nature.

Revenues:

Category	Option #1	Option #2
Fees		
Daily Admission	251,000	251,000
Membership	2,409,000	2,273,700
Sub-Total	$2,660,000	$2,524,700
Programs		
Aquatic	325,980	325,980
Non-Aquatic	274,125	274,125
Sub-Total	$600,105	600,105
Other		
Birthday Parties	78,400	78,400
Practice Rentals	220,800	138,000
Other Aquatic	32,850	21,600
Other Non-Aquatic	68,400	52,200
Sub-Total	$400,450	$290,200
Total	**$3,660,555**	**$3,415,005**

Note: Programs are not factored at maximum participant capacity.

Option #1

Daily Admission:

	Resident	Non-Resident
Under 2	Free	Free
Youth (2-17)	$12.00	$15.00
Adult	$14.00	$17.00
Senior (65+)	$12.00	$15.00

Membership Detail:

	Resident Annual	Non-Resident Annual
Youth	$540	$648
Adult	$900	$1,080
Household	$1,560	$1,872
Senior	$600	$720
Senior +1	$720	$864

- Fees are for drop-in use of all areas of the center (aquatics and dry-side amenities).
- Membership rates include basic fitness class and childcare/watch services.
- 20% differential between Resident & Non-Resident Rates
- 1,525 resident passes sold in option #1, which equates to a 3.88% household penetration rate.
- 525 non-resident passes.

Option #1 – 5-Year Cost Recovery Projection

Category	Year 1	Year 2	Year 3	Year 4	Year 5
Expenses	$5,531,234	$5,586,546	$5,754,142	$5,926,767	$6,104,570
Revenues	$3,660,555	$4,026,611	$4,227,941	$4,354,779	$4,485,423
Difference	($1,870,679)	($1,559,936)	($1,526,201)	($1,571,987)	($1,619,147)
Cost Recovery	66.2%	72.1%	73.5%	73.5%	73.5%
Cap. Invest.	$200,000	$400,000	$600,000	$800,000	$1,000,000

Capital Improvement line item is cumulative, with $200,000 allocated annually.

Option #2

Daily Admission:

	Resident	Non-Resident
Under 2	Free	Free
Youth (2-17)	$12.00	$15.00
Adult	$14.00	$17.00
Senior (65+)	$12.00	$15.00

Membership Detail:

	Resident Annual	Non-Resident Annual
Youth	$540	$648
Adult	$900	$1,080
Household	$1,560	$1,872
Senior	$600	$720
Senior +1	$720	$864

- Fees are for drop-in use of all areas of the center (aquatics and dry-side amenities).
- Membership rates include basic fitness class and childcare/watch services.
- 20% differential between Resident & Non-Resident Rates
- 1,475 resident passes sold in option #2, which equates to a 3.75% household penetration rate.
- 475 non-resident passes.

Option #1 – 5-Year Cost Recovery Projection

Category	Year 1	Year 2	Year 3	Year 4	Year 5
Expenses	$5,067,898	$5,118,577	$5,272,134	$5,430,298	$5,593,207
Revenues	$3,415,005	$3,756,506	$3,944,331	$4,062,661	$4,184,541
Difference	($1,652,893)	($1,362,071)	($1,327,803)	($1,367,637)	($1,408,666)
Cost Recovery	67.4%	73.4%	74.8%	74.8%	74.8%
Cap. Invest.	$150,000	$300,000	$450,000	$600,000	$750,000

Capital Improvement line item is cumulative, with $150,000 allocated annually.

Rental rate and program fees have been vetted with the City or are reflective of current/planned rate structure.

Rental Rates

- 25Y Lap Lane $25.00/hr
- Therapy Rental $75.00/hr
- Leisure Pool $600/hr
- Gymnasium $45.00/hr
- Community Rooms $25.00/hr

Aquatic Group Exercise[5]

- $65 per month for drop-in access

Swim Lessons

- $95 per session, 8, 35-minute classes per session

Private Swim Lessons

- $150 per session, 4, 30-minute classes per session

Semi-Private Swim Lessons

- $195 per session, 4, 30-minute classes per session

Birthday Parties

- $350 per party, 2 hour guided party

Dive-In Movie

- $5.00 per attendee

Little Swimmers

- $5.00 per attendee

Group Exercise Dry-Side[6]

- Included in Membership

Personal Training

- $65 per session

Camp Programs

- $175 per week

Enrichment Program

- $75 per session

[5] Aquatic group exercise classes would not be included in membership.
[6] Dry Side Group Exercise and Child Care would be included in membership.

BALLARD*KING & ASSOCIATES LTD
Recreation Planning and Operations Consultants

The following are assumptions that have been made for the proposed facilities at the North Kirkland location.

- The operations plan is for the three different program options.
- The operations plan is based on a program for each option but without the benefit of a final concept plan or a designated site. The final concept plan could impact part-time staffing levels and site could influence revenue.
    - The net subsidy of each scenario could vary +/- 5-10% based on the above factors and/or changes in the market.
- All operating expenses are shown in current dollars and assumes the facility is fully operational for a complete calendar year. Depending on when the facility is ultimately constructed and operated, the City should expect that future staffing and operating costs will grow approximately 3% per year.
- The presence of other public or private aquatics providers in the market will remain the same.
- Operation of the center is shown by the City of Kirkland with all costs and revenues included. This is based on Department staff guarding the pool during all hours of use.
- Full-time staff costs are based on current staff rates for the same basic positions using City compensation and benefits.
- Part-time rates are based on current market rates in the Puget Sound area and include a 7.65% benefit factor.
- City of Kirkland administrative support charge backs have been added to the expense portion of the budget. Per the City, a factor of 18% of personnel, commodities, and contractual obligations was included.
- City of Kirkland IT charges have been added to the total expenses.
- Revenues assumptions are based on current market rates for aquatics and wellness facilities in the Puget Sound, and includes market rates for admissions, memberships, rentals, and programs.
- The operational plan assumes that the City will purchase all weight and cardio equipment.

Week Assumptions

- Summer Hours – 14 Weeks
- School Year Hours – 36 Weeks
- Total Operational Year 50 Weeks (2-week maintenance closure)

Operating Day Both Options:

• Monday-Friday:	5:30A-9:00P	77.5 hours
• Saturday:	7:00A-7:00P	12 hours
• Sunday:	10:00A-7:00P	9 hours
• Weekly Operational Hours:		98.5 hours

The following expenses have been developed by B*K using previous planning efforts, feedback from City staff, and the consulting team. The information used to develop the plans also includes B*K's familiarity with similar operations. The location of the facility, along with final design, can impact the operational expenses associated with the facility.

Personnel	**Option #1**	**Option #2**	**Option #3**
Full-Time	1,586,444	1,110,021	1,586,444
Part-Time	1,013,677	547,607	1,013,677
Sub-Total	$2,600,121	$1,657,628	$2,600,121

Commodities/Service & Supplies	**Option #1**	**Option #2**	**Option #3**
Office Supplies	7,000	5,000	5,000
Chemicals	30,000	5,000	30,000
Maintenance/Repair/Materials	40,000	25,000	30,000
Janitor Supplies	20,000	15,000	15,000
Recreation Supplies	8,500	7,000	7,000
Uniforms	6,000	4,000	5,000
Printing/Postage	4,000	3,000	3,000
Other Misc. Exp.	2,500	2,000	2,000
Fuel/Mileage	1,500	1,500	1,500
Sub-Total	$119,500	$67,500	$98,500

Contractual	Option #1	Option #2	Option #3
Utilities (gas and electric	370,190[1]	182,452[2]	250,872
Water/Sewer	60,000	15,000	60,000
Insurance[3]	18,510	11,403	11,403
Communications (phone)	5,000	4,000	4,000
Contract Services	30,000	25,000	25,000
Rental Equipment	10,000	10,000	10,000
Advertising	12,000	12,000	12,000
Training	8,000	6,000	6,000
Conference	5,000	5,000	5,000
Dues/Subscriptions	2,500	2,500	2,500
Bank Charges[4]	87,533	35,176	74,424
Other	1,500	1,500	1,500
Sub-Total	$610,233	$310,031	$462,698

Administrative Support	Option #1	Option #2	Option #3
Charge Backs (18%)	599,374	366,329	569,038

IT Fees	Option #1	Option #2	Option #3
Annual	116,675	85,518	116,675

Capital Investment Fund	Option #1	Option #2	Option #3
Annual Allocation	150,000	100,000	150,000

[1] 74,038 square feet @ $5.50 per square foot.
[2] 45,613 square feet @ $4.00 per square foot.
[3] Factored at $0.25 per square foot. Square footage used is the same as that to calculate utility costs.
[4] Factored at 3% of total revenue generation.

Totals	Option #1	Option #2	Option #3
Staffing	2,600,121	1,657,628	2,600,121
Commodities	119,500	67,500	98,500
Contractual	610,233	310,031	462,698
Administrative Support	699,374	366,329	569,038
IT Fees	116,675	85,518	116,675
Total w/out Replace. Fund	**$4,045,902**	**$2,487,005**	**$3,847,032**
Capital Replacement Fund	150,000	100,000	150,000
Total w/ Replacement Fund	**$4,195,902**	**$2,587,005**	**$3,997,032**

Full Time Staffing

Positions	Salary/Benefit	Option #1	Option #2	Option #3
Facility Manager	$106,500	1	1	1
Sports & Competition Supervisor	$85,500	1	1	1
Fitness Supervisor	$85,500	1	1	1
Front Desk Supervisor	$85,500	1	1	1
Aquatics Supervisor	$85,500	1	0	1
Aquatics Coordinator	$83,000	0	0	0
Lifeguards	$65,000	3	0	3
Youth Program Supervisor	$85,500	1	1	1
Enrichment & Senior Supervisor	$85,500	1	1	1
Maintenance Supervisor	$85,500	1	1	1
Maintenance Tech	$65,000	1	1	1
Custodial	$62,000	3	2	3
Total Positions		15	10	15
Total Full-Time Wages		$1,586,444	$1,110,021	$1,586,444

NOTE:

- Full time wages include benefits, with information provided by the City.
- It is the belief of B*K that the number of allocated full-time Custodial/Building Maintenance positions is the minimum that the City should consider.

Part Time Staffing Option #1

Positions	Hourly Rate	Hours	Weeks	Total
Lead Front Desk	$21.00	94	14	27,489
		76	36	57,456
Front Desk	$18.00	98	14	24,570
		69	36	44,388
Building Supervisor	$24.00	59	14	19,824
		44	36	38,016
Fitness Attendant	$17.00	54	50	45,475
Lifeguard	$19.00	307	14	81,596
		219	36	149,796
Lead Lifeguard	$22.00	70	14	21,406
		54	36	42,372
Custodial Support	$16.00	40	50	32,000
Lead Child Care	$21.00	45	14	13,230
		50	36	37,800
Child Care	$18.00	90	14	22,680
		100	36	64,800
Sub-Total				722,898
Aquatic Programs				128,564
Rental Staff				13,680
Dry Programs				15,000
NK Existing Inst.				61,500
Sub-Total				941,642
FICA				72,036
Total				**$1,013,677**

Part Time Staffing Option #2

Positions	Hourly Rate	Hours	Weeks	Total
Lead Front Desk	$21.00	94	14	27,489
		76	36	57,456
Front Desk	$18.00	98	14	24,570
		69	36	44,388
Building Supervisor	$24.00	59	14	19,824
		44	36	38,016
Fitness Attendant	$17.00	54	50	45,475
Lifeguard	$19.00	0	14	0
		0	36	0
Lead Lifeguard	$22.00	0	14	0
		0	36	0
Custodial Support	$16.00	40	50	32,000
Lead Child Care	$21.00	45	14	13,230
		50	36	37,800
Child Care	$18.00	90	14	22,680
		100	36	64,800
Sub-Total				427,728
Rental Staff				4,464
Dry Programs				15,000
NK Existing Inst.				61,500
Sub-Total				508,692
FICA				38,915
Total				**$547,607**

Part Time Staffing Option #3

Positions	Hourly Rate	Hours	Weeks	Total
Lead Front Desk	$21.00	94	14	27,489
		76	36	57,456
Front Desk	$18.00	98	14	24,570
		69	36	44,388
Building Supervisor	$24.00	59	14	19,824
		44	36	38,016
Fitness Attendant	$17.00	54	50	45,475
Lifeguard	$19.00	307	14	81,596
		219	36	149,796
Lead Lifeguard	$22.00	70	14	21,406
		54	36	42,372
Custodial Support	$16.00	40	50	32,000
Lead Child Care	$21.00	45	14	13,230
		50	36	37,800
Child Care	$18.00	90	14	22,680
		100	36	64,800
Sub-Total				722,898
Aquatic Programs				128,564
Rental Staff				13,680
Dry Programs				15,000
NK Existing Inst.				61,500
Sub-Total				941,642
FICA				72,036
Total				**$1,013,677**

The following revenue opportunities developed by B*K, are based on feedback provided by the City, familiarity with the market, and experience as facility operators.

The projections are what B*K feels the City could anticipate achieving once the facility is fully operational. It is important to note that these numbers are reflective of new revenue and do not reflect existing program revenue. B*K believes this is a realistic estimation of potential revenue, in fact some of the revenue associated with competition rentals and practice rentals could be characterized as moderate to aggressive in nature.

Category	Option #1	Option #2	Option #3
Fees			
Daily Admission	204,000	133,700	204,000
Membership	2,001,540	729,720	$1,564,560
Sub-Total	$2,205,540	$863,420	$1,768,560
Programs			
Aquatic	325,980	0	$325,980
Non-Aquatic	70,000	70,000	$70,000
Sub-Total	$395,980	$70,000	$395,980
Other			
Birthday Parties	78,400	34,100	78,400
Practice Rentals	0	0	0
Other Aquatic	$32,850	0	$32,850
Other Non-Aquatic	0	0	0
Sub-Total	$111,250	$34,100	$111,250
Existing Revenue	$205,000	$205,000	$205,000
Total	**$2,917,770**	**$1,172,520**	**$2,480,790**

Note: Programs are not factored at maximum participant capacity.

Option #1

Daily Admission:

	Resident	Non-Resident
Under 2	Free	Free
Youth (2-17)	$12.00	$15.00
Adult	$14.00	$17.00
Senior (65+)	$12.00	$15.00

Membership Detail:

	Resident Annual	Non-Resident Annual
Youth	$480	$576
Adult	$840	$1,008
Household	$1,500	$1,800
Senior	$540	$648
Senior +1	$660	$792

- Fees are for drop-in use of all areas of the center (aquatics and dry-side amenities).
- Membership rates include basic fitness class and childcare/watch services.
- 20% differential between Resident & Non-Resident Rates
- 1,450 resident passes sold in option #1, which equates to a 3.68% household penetration rate.
- 365 non-resident passes.

Option #1 – 5-Year Cost Recovery Projection

Category	Year 1	Year 2	Year 3	Year 4	Year 5
Expenses	$4,195,902	$4,237,861	$4,364,997	$4,495,947	$4,630,826
Revenues	$2,917,770	$3,122,014	$3,278,115	$3,376,458	$3,477,752
Difference	($1,278,132)	($1,115,847)	($1,086,883)	($1,119,489)	($1,153,074)
Cost Recovery	69.5%	73.7%	75.1%	75.1%	75.1%
Cap. Invest.	$150,000	$300,000	$450,000	$600,000	$750,000

Capital Improvement line item is cumulative, with $150,000 allocated annually.

Option #2

Daily Admission:

	Resident	Non-Resident
Under 2	Free	Free
Youth (2-17)	$12.00	$15.00
Adult	$14.00	$17.00
Senior (65+)	$12.00	$15.00

Membership Detail:

	Resident Annual	Non-Resident Annual
Youth	$240	$288
Adult	$480	$576
Household	$960	$1,152
Senior	$300	$360
Senior +1	$360	$432

- Fees are for drop-in use of all areas of the center.
- Membership rates include basic fitness class and childcare/watch services.
- 20% differential between Resident & Non-Resident Rates
- 926 resident passes sold in option #2, which equates to a 2.35% household penetration rate.
- 205 non-resident passes.

Option #2 – 5-Year Cost Recovery Projection

Category	Year 1	Year 2	Year 3	Year 4	Year 5
Expenses	$2,587,005	$2,612,875	$2,691,262	$2,772,000	$2,855,160
Revenues	$1,172,520	$1,231,146	$1,292,703	$1,331,484	$1,371,429
Difference	($1,414,485)	($1,381,729)	($1,398,558)	($1,440,515)	($1,483,731)
Cost Recovery	45.3%	47.1%	48.0%	48.0%	48.0%
Cap. Invest.	$100,000	$200,000	$300,000	$400,000	$500,000

Capital Improvement line item is cumulative, with $100,000 allocated annually.

Option #3

Daily Admission:

	Resident	Non-Resident
Under 2	Free	Free
Youth (2-17)	$12.00	$15.00
Adult	$14.00	$17.00
Senior (65+)	$12.00	$15.00

Membership Detail:

	Resident Annual	Non-Resident Annual
Youth	$420	$504
Adult	$660	$792
Household	$1,140	$1,368
Senior	$480	$576
Senior +1	$540	$648

- Fees are for drop-in use of all areas of the center (aquatics and dry-side amenities).
- Membership rates include basic fitness class and childcare/watch services.
- 20% differential between Resident & Non-Resident Rates
- 1,450 resident passes sold in option #3, which equates to a 3.68% household penetration rate.
- 365 non-resident passes.

Option #3 – 5-Year Cost Recovery Projection

Category	Year 1	Year 2	Year 3	Year 4	Year 5
Expenses	$3,997,032	$4,037,002	$4,158,112	$4,282,856	$4,411,341
Revenues	$2,480,790	$2,654,445	$2,787,168	$2,870,783	$2,956,906
Difference	($1,516,242)	($1,382,557)	($1,370,945)	($1,412,073)	($1,454,435)
Cost Recovery	62.1%	65.8%	67.0%	67.0%	67.0%
Cap. Invest.	$150,000	$300,000	$450,000	$600,000	$750,000

Capital Improvement line item is cumulative, with $150,000 allocated annually.

Rental rate and program fees have been vetted with the City or are reflective of current/planned rate structure.

Rental Rates

- 25Y Lap Lane $25.00/hr
- Therapy Rental $75.00/hr
- Leisure Pool $600/hr
- Gymnasium $45.00/hr
- Community Rooms $25.00/hr

Aquatic Group Exercise[5]

- $65 per month for drop-in access

Swim Lessons

- $95 per session, 8, 35-minute classes per session

Private Swim Lessons

- $150 per session, 4, 30-minute classes per session

Semi-Private Swim Lessons

- $195 per session, 4, 30-minute classes per session

Birthday Parties

- $350 per party, 2 hour guided party

Dive-In Movie

- $5.00 per attendee

Little Swimmers

- $5.00 per attendee

Group Exercise Dry-Side[6]

- Included in Membership

Personal Training

- $65 per session

Camp Programs

- $175 per week

Enrichment Program

- $75 per session

[5] Aquatic group exercise classes would not be included in membership.
[6] Dry Side Group Exercise and Child Care would be included in membership.

STATION 10
ENGINEERING
CIVIL SITE DESIGN
PO Box 171
Edmonds, WA 98020
206.419.0873

Memo

To: Chris Roberts, Opsis Architecture

From: Steve Hatzenbeler, P.E.

Date: September 15, 2022

Re: Kirkland RAFS Civil Site Assessment

This memo summarizes our findings to date regarding the existing conditions at the four sites under consideration for new Kirkland Community/Recreation/Aquatics Centers. The four sites are the North Kirkland Community Center Park, the Houghton Park and Ride, Peter Kirk Park, and Juanita Beach Park.

North Kirkland Community Center Park

Water (Northshore Utility District)

Existing Infrastructure Nearby:	6" CI in 103rd Ave NE; 8" DI on site west of bldg, from NE 124th St; 12" DI in NE 124th St
Existing Connections:	4" DI fire line on west side; 2" irrig off 103rd Ave NE; 1" possibly dom water svc off 103rd Ave NE

Sewer (Northshore Utility District)

Existing Infrastructure Nearby:	8" conc pipe on south edge of NE 124th St; 8" conc pipe in 103rd Ave NE
Existing Connections:	6" on south side of bldg, to 103rd Ave NE

Stormwater (City of Kirkland)

Existing Infrastructure Nearby:	12" "Drainage Concern" Line in 103rd Ave NE; 18" CPEP in NE 124th St; drainage ditch (identified as a conveyance ditch and not a stream in the Kirkland GIS) along the west property edge
Existing Connections:	6" from CB in parking lot appears to drain west to the ditch along the west property edge. CBs in 103rd Ave NE connect to main line in 103rd Ave NE.
Stormwater Mitigation:	Level 2 Flow Control (forested pre-developed condition) and Flow Control BMPs

Electrical/Communications

Appears to be underground (no overhead wires).

Right of Way (City of Kirkland)

Existing Conditions:	103rd Ave NE:	Curb, gutter, sidewalk on west side. Curb, gutter on east side. One traffic lane each direction, widening to 3 lanes at the intersection for left turn lane. Right of way is narrow: southern 1/3 is only 30 ft, northern 1/3 only 50 ft. Portion of the sidewalk in the southern 1/3 appears to be on private property.
	NE 124th St:	Curb, gutter, sidewalk on both sides. Two traffic lanes each direction, plus center turn lane. Right of way width +/-84 ft; appears to be narrower here than several other properties nearby, so a right of way dedication may be required.

Grading

Existing Conditions: Site is mostly below the level of both adjacent streets, with considerable fall of approximately 30 ft from the streets down to the drainage ditch. Seems to lend itself to a building with a daylight basement facing west.

Houghton Park & Ride Site

Water (City of Kirkland)

Existing Infrastructure Nearby:	8" DI water main in 116th Ave NE; 8" AC water main in NE 70th Place (not connected to the main in 116th Ave NE)
Existing Connections:	No apparent connections to on-site facilities

Sewer (City of Kirkland)

Existing Infrastructure Nearby:	8" conc pipe in NE 70th St right of way; 8" conc pipe in 116th Ave NE; 8" AC pipe continues west across I-405 right of way
Existing Connections:	No apparent connections to on-site facilities

Stormwater (City of Kirkland)

Existing Infrastructure Nearby:	Stormwater pond at north end of site (not well maintained, with vegetation overgrowth); At least 2, 12" CMP pipes come off the park & ride lot; 12" CMP SD main line in 116th Ave NE; 18" CMP SD main line in NE 70th Place. The SD main lines in 116th Ave NE and NE 70th Place both appear to drain to the pond at the north end of the property.
Existing Connections:	At least 2, 12" CMP pipes come off the parking lot, connecting to SD main line in 116th Ave NE
Stormwater Mitigation:	Level 2 Flow Control (forested pre-developed condition) and Flow Control BMPs

Electrical/Communications

Appears to be underground (no overhead wires).

Right of Way (City of Kirkland)

Existing Conditions:	116th Ave NE:	Curb, gutter, sidewalk on project (east) side. Width varies from 3 lanes at the south, to 5 lanes north of the I-405 onramp traffic signal, to 4 lanes at the intersection w/ NE 70th Place.
	NE 70th Place:	Curb, gutter, sidewalk both sides. One traffic lane each direction plus a center turn lane, and bike lane each side. Right of way width +/-64 ft.
	NE 70th St:	Appears the 40-ft right of way still exists and cuts across the middle of the site.
	Other:	Another 60-ft right of way appears to cross the south end of the site. Other rights of way appear to wrap around the perimeter of the site.

Grading

Existing Conditions: Site slopes down from southeast to northwest, getting progressively steeper toward the northwest corner. There is a grade drop of over 30 ft. A building with a north/south oriented axis may need to be stepped or have a partial basement.

Peter Kirk Park

Water (City of Kirkland)

Existing Infrastructure Nearby:	12" DI water main in Kirkland Ave; 8" AC water line on-site serving FH just NE of the Peter Kirk Pool
Existing Connections:	Appears to be a service connection (size unknown) from Kirkland Ave at the SE corner of the pool building

Sewer (City of Kirkland)

Existing Infrastructure Nearby:	6" PVC north of pool, continues west and ties into 8" PVC, over to 10" PVC in 3rd St; Also 8" PVC and 8" conc pipe in Kirkland Ave
Existing Connections:	Multiple

Stormwater (City of Kirkland)

Existing Infrastructure Nearby:	24" conc SD main line in Kirkland Ave; Various on-site SD lines including 18" PVC along west edge of pool, other 6", 8", and 12" pipes originating on-site and flowing north.
Existing Connections:	Most on-site improvements appear to connect to the on-site 6", 8", 12", and 18" pipes, draining across the site to Central Way at the north, or to 3rd St at the west.
Stormwater Mitigation:	Level 1 Flow Control (existing conditions) and Flow Control BMPs

Electrical/Communications

Appears to be underground (no overhead wires).

Right of Way (City of Kirkland)

Existing Conditions:	Kirkland Ave:	Curb, gutter, sidewalk w/ street tree pits; One traffic lane each direction w/ bike lanes and parking both sides Right of way width +/-60 ft.
	3rd Street:	Curb, gutter, sidewalk w/ planter strip both sides. Two traffic lanes (w/ left turn lane) southbound; one wide lane northbound. Right of way width +/-30 ft and it appears a large percentage of the road is in an easement on private property for the library.

Grading

Existing Conditions: South edge of the site is relatively level with the street, and steps down roughly 15 ft to the north into the baseball field. A building with a daylight basement facing north may be a good fit here.

Juanita Beach Park

Water (Northshore Utility District)

Existing Infrastructure Nearby:	8" DI in 97th Ave NE; 12" DI in NE Juanita Dr
Existing Connections:	1" @ SE prop corner near pkg lot; 2" irrig of NE Juanita Dr

Sewer (Northshore Utility District)

Existing Infrastructure Nearby:	8" conc pipe in 97th Ave NE
Existing Connections:	6" SSS to ex bldg on site, connected to 8" SS in 97th Ave NE

Stormwater (City of Kirkland)

Existing Infrastructure Nearby:	12" PVC SD main in 97th Ave NE; 12" PE SD main in Juanita Drive
Existing Connections:	No documented connections to on-site facilities
Stormwater Mitigation:	Level 2 Flow Control (forested pre-developed condition) and Flow Control BMPs

Electrical/Communications

Appears to be underground (no overhead wires), except for an overhead service to the on-site building.

Right of Way (City of Kirkland)

Existing Conditions:	97th Ave NE:	Curb, gutter, sidewalk w/ tree pits east side of street. No improvements on most of west side; limited curb and gutter near Juanita Dr intersection. One traffic lane each direction, plus parking lane on east side. Right of way width +/-60 ft.
	Juanita Dr:	Curb, gutter, sidewalk, and planter strip both sides. One traffic lane each direction plus vegetated median, which transitions to a left turn lane at the intersection. Bike lane each side. Right of way width +/-60 ft.

Grading

Existing Conditions: Site has a relatively uniform and gentle slope down from northeast to southwest, with a grade drop of approximately 10 ft.

GeoEngineers

17425 NE Union Hill Road, Suite 250, Redmond, WA 98052 Telephone: 425.861.6000, Fax: 425.861.6050 www.geoengineers.com

Memorandum

To:	Chris Roberts – Opsis Architecture
From:	Carson Cheung, PE and Morgan A. McArthur, PE
Date:	September 21, 2022
File:	0231-159-00
Subject:	Preliminary Geotechnical Findings City of Kirkland Recreation and Aquatics Centers

INTRODUCTION AND PURPOSE

This memorandum transmits the results of our geotechnical feasibility evaluation and preliminary geotechnical findings for the City of Kirkland Recreation and Aquatics Centers. We performed a site visit to each of the four proposed sites, and reviewed existing information, including geologic maps, previous geotechnical reports, available nearby well logs, and geologic hazard maps. Our services were provided in accordance with our signed agreement dated August 22, 2022.

The following sections summarize our findings for each of the four proposed sites. This information is preliminary in nature and is not sufficient for design of proposed facilities. No project-specific subsurface explorations were advanced as part of this evaluation. Additional geotechnical studies, including subsurface explorations, will be required to facilitate design and construction. The findings and considerations presented herein are subject to change, depending on the results of the design geotechnical studies.

HOUGHTON PARK AND RIDE

- **Site address:** 7024 116th Avenue NE, Kirkland, Washington 98033
- **Area Geology:** Published geologic information for the site vicinity includes a United States Geological Survey (USGS) Geologic Map of the Kirkland Quadrangle, Washington (Minard 1983) and Geologic Map of Surficial Deposits in the Seattle 30' x 60' Quadrangle, Washington (Yount, Minard, and Dembroff 1993). The mapped surface geologic unit in the site vicinity includes advance outwash (Qva). Advance outwash generally consists of moderately- to well-sorted, stratified sand and gravel with varying amounts of silt and clay in a dense nature.
- **Subsurface Conditions:** Based on our review of limited geotechnical subsurface exploration information obtained from the Washington State Department of Natural Resource (WA DNR), soils encountered in the site vicinity generally consists of relatively shallow fill overlying native, very dense sand with variable silt and gravel content. These soils generally become saturated at about 7 to 22 feet blow existing site grades. Hard silt with variable sand content was encountered below the native sand at about 25 feet below existing site grades. A landfill (Houghton Landfill) is located approximately 325 feet southeast of the site.
- **Groundwater Conditions:** Nearby exploration logs indicate that groundwater was encountered at about 6 to 20 feet below existing site grades at the time of exploration. No well logs and information are available in the immediate site vicinity from the Department of Ecology (WA DOE).

- **Liquefaction Potential:** Based on our review of the City of Kirkland Liquefaction Potential Map (2020), the site is not mapped as having liquefaction potential.
- **Landslide Susceptibility:** Based on our review of the City of Kirkland Landslide Susceptibility Map (2020), portions of the site (mainly in the northwest corner and along the west portion of the site) are mapped as having moderate and high landslide susceptibility. These designations are likely associated with the steepness and/or overall height of the localized slopes and adjacent slopes to the property. Most of these areas are either developed or covered with vegetation, and we do not anticipate these areas will adversely impact the development.
- **Topographic Information:** Based on our review of the City of Kirkland Topographic Survey, existing site grades range from approximate Elevation 380 to 410 feet. The site generally slopes down from the east to the west and northwest.
- **Preliminary Geotechnical Findings and Considerations:** Based on our review of very limited geotechnical information, we anticipate the proposed building may be supported on conventional spread or mat foundations on the dense to very dense advance outwash deposits. We recommend a detailed field exploration program to further identity and evaluate the nature and extent of unsuitable surficial soils, groundwater conditions, and the depth to soils suitable for foundation support. The native outwash deposits are likely to be suitable for reuse as structural fill, provided that they meet the project plans and specifications. The upper portions of on-site surficial soils may contain a sufficient percentage of fines content (silt/clay) to be highly sensitive to changes in moisture content. Because portions of the site are mapped as having moderate and high landslide susceptibility, a quantitative slope stability analysis may be required to determine necessary setback for proposed structures in the slope vicinity per City of Kirkland Municipal Code.

  We anticipate that the proposed buildings will be constructed at-grade, and the pool will be constructed approximately 20 feet below grade. For planning purposes, temporary unsupported cut slopes more than 4 feet high may be inclined at 1½H:1V (horizontal to vertical) maximum steepness. Flatter slopes may be necessary if seepage is present on the face of the cut slopes or if localized sloughing occurs. Soil nail walls or solider pile and tieback walls may also be considered for temporary excavation support. If excavation occurs above the regional groundwater table, groundwater seepage encountered during excavation may be handled adequately by dewatering sumps and pumps. However, if excavation occurs below the regional groundwater table and/or if excessive groundwater seepage is encountered during excavation, more extensive dewatering techniques such as deep pumping wells or vacuum wellpoints may be needed. In addition, if the proposed structures extend below the regional groundwater table, they will need to either be designed to resist hydrostatic pressure or exercise permanent dewatering, if approved by City of Kirkland.

NORTH KIRKLAND COMMUNITY CENTER PARK

- **Site address:** 12421 103rd Avenue NE, Kirkland, Washington 98034
- **Area Geology:** Published geologic information for the site vicinity includes a USGS Geologic Map of the Kirkland Quadrangle, Washington (Minard 1983) and Geologic Map of Surficial Deposits in the Seattle 30’ x 60’ Quadrangle, Washington (Yount, Minard, and Dembroff 1993). The mapped surface geologic in the site vicinity includes recessional outwash (Qvr), advance outwash (Qva) and transitional beds (Qtb).

Recessional outwash generally consists of moderately sorted to well sorted, stratified sand and gravel with varying amounts of silty sand and silt in a loose to dense nature. Advance outwash generally consists of moderately- to well-sorted, stratified sand and gravel with varying amounts of silt and clay in a medium dense to dense nature. Transitional beds generally consist of massive to bedded clay, silt and fine to very fine sand that were mostly deposited in lakes, distant from the ice front, and in fluvial systems prior to the advance of the ice. Peaty sand and gravel may occur in the lower part. The deposits have been compacted by the overriding Vashon glacier and are therefore typically dense to very dense. The transitional beds may be underlain by older glacial sediments deposited by pre-Fraser glacial episodes.

- **Subsurface Conditions:** Based on our review of limited geotechnical subsurface exploration information obtained from the WA DNR, soils encountered in the site vicinity generally consists of shallow fill overlying native stiff silt and clay with variable sand content, and loose to dense sand and gravel with variable silt content. These soils become saturated at about 5 feet below existing site grades.
- **Groundwater Conditions:** Nearby exploration logs indicate that groundwater was encountered at about 5 feet below existing site grades at the time of exploration. No well logs and information are available in the immediate site vicinity from the WA DOE.
- **Liquefaction Potential:** Based on our review of the City of Kirkland Liquefaction Potential Map (2020), the entire site is mapped as having a medium liquefaction potential.
- **Landslide Susceptibility:** Based on our review of the City of Kirkland Landslide Susceptibility Map (2020), portions of the site are mapped as having moderate and high landslide susceptibility. These designations are likely associated with the steepness and/or overall height of the localized slopes and adjacent slopes to the property. Most of these areas are either developed or covered with vegetation, and we do not anticipate these areas will adversely impact the development.
- **Topographic Information:** Based on our review of the City of Kirkland Topographic Survey, existing site grades range from approximate Elevation 96 to 160 feet. The site generally slopes down from the southeast to the west and northwest.
- **Preliminary Geotechnical Findings and Considerations:** Based on our review of very limited geotechnical information, potentially liquefiable soils may be present at the site. The site may be designated as seismic Site Class F per American Society of Civil Engineers (ASCE) 7-16, and ground improvement or deep foundations may be needed if potentially liquefiable soils are found to be present. Shallow conventional spread or mat foundations bearing on improved ground may be feasible such that: (1) differential settlement is compliant with provisions in ASCE 7-16 and (2) an adequate factor of safety against bearing failure is achieved for the post seismic condition where a weaker, liquefied soil layer underlies the non-liquefiable soil/improved ground.

  Ground improvement methods such as densification by means of stone columns or rammed aggregate piers may be feasible at the site, depending on percentage of fines of the potentially liquefiable soils. These ground improvement methods are not feasible and effective in soils with a high percentage of fines content. Other ground improvement methods may include augercast grout columns or rigid inclusions. Deep foundations may include augercast piles or drilled shafts, or driven piles. It should be noted that liquefiable soils can impose downdrag loads on deep foundations, which may significantly reduce the axial load capacity, depending on the thickness of potentially liquefiable soils.

We recommend a detailed field exploration program to further identity and evaluate the nature and extent of unsuitable surficial soils, the nature, thickness and presence of potentially liquefiable soils, groundwater conditions, and the depth to soils suitable for foundation support. Because the site is mapped as having liquefaction susceptibility, we anticipate deep subsurface explorations such as borings or cone penetration tests, and quantitative liquefaction analyses will be required to address liquefaction per City of Kirkland Municipal Code.

The native outwash deposits are expected to be suitable for reuse as structural fill, provided they meet the project plans and specifications. The upper portions of on-site surficial soils and silty and clayey soils (transitional bed deposits) may contain a sufficient percentage of fines content (silt/clay) to be highly sensitive to changes in moisture content.

We anticipate that the proposed buildings will be constructed at-grade, and the pool will be constructed approximately 20 feet below grade. For planning purposes, temporary unsupported cut slopes more than 4 feet high may be inclined at 1½H:1V maximum steepness. Flatter slopes may be necessary if seepage is present on the face of the cut slopes or if localized sloughing occurs. Soil nail walls or solider pile and tieback walls may also be considered for temporary excavation support. If excavation occurs above the regional groundwater table, groundwater seepage encountered during excavation may be handled adequately by dewatering sumps and pumps. However, if excavation occurs below the regional groundwater table and/or if excessive groundwater seepage is encountered during excavation, more extensive dewatering techniques such as deep pumping wells or vacuum wellpoints may be needed. In addition, if the proposed structures extend below the regional groundwater table, they will need to either be designed to resist hydrostatic pressure or exercise permanent dewatering, if approved by City of Kirkland.

PETER KIRK PARK

- **Site address:** 352 Kirkland Avenue, Kirkland, Washington 98033
- **Area Geology:** Published geologic information for the site vicinity includes a USGS Geologic Map of the Kirkland Quadrangle, Washington (Minard 1983) and Geologic Map of Surficial Deposits in the Seattle 30’ x 60’ Quadrangle, Washington (Yount, Minard, and Dembroff 1993). The mapped surface geologic unit at the site includes transitional beds (Qtb), and mapped surface geologic units in the site vicinity include Vashon glacial till (Qvt), advance outwash (Qva), and modified land (ml). Glacial till generally consists of a non-sorted, non-stratified mixture of clay, silt, sand, and gravel with larger constituents up to the size of boulders. The glacial till is very dense and relatively impermeable but can contain localized zones of interbedded stratified sand and gravel. Advance outwash generally consists of moderately- to well-sorted, stratified sand and gravel with varying amounts of silt and clay in a medium dense to dense nature. Transitional beds generally consist of massive to bedded clay, silt and fine to very fine sand that were mostly deposited in lakes, distant from the ice front, and in fluvial systems prior to the advance of the ice. Peaty sand and gravel may occur in the lower part. The deposits have been compacted by the overriding Vashon glacier and have been oxidized. The transitional beds may be underlain by older glacial sediments deposited by pre-Fraser glacial episodes. Modified land generally refers to land areas altered by man for construction or development purposes that involve cutting, filling, leveling, and constructing at engineering projects.
- **Subsurface Conditions:** Based on our review of limited geotechnical boring information obtained from the WA DNR, soils encountered in the site vicinity generally consists of variable thickness of fill and high

compressible peat overlying loose to medium dense sand with variable silt and gravel content and soft to stiff silt with variable sand and gravel content. The thickness of fill ranges from approximately 4 to 14 feet, and the thickness of peat ranges from approximately 2 to 7 feet. The sand generally becomes medium dense to dense, and the silt generally becomes stiff to hard at approximately 15 to 22 feet below existing site grades.

- **Groundwater Conditions:** Nearby exploration logs indicate that groundwater was encountered at about 4 to 15 feet below existing site grades at the time of exploration. Well logs and information in the immediate site vicinity obtained from the WA DOE generally confirm the subsurface and groundwater conditions at the site. Groundwater was generally encountered at about 2 to 8 feet below existing site grades in the WA DOE wells. The north-central portion of the site is mapped as Federal Emergency Management Agency (FEMA) 100-year floodplain by the King County iMap and a regulatory floodplain by the City of Kirkland Interactive Map. A stream is mapped along Central Way (north of the site) and Kirkland Avenue (south of the site) by the City of Kirkland Interactive Map.
- **Liquefaction Potential:** Based on our review of the City of Kirkland Liquefaction Potential Map (2020), approximately the west two-thirds of the site is mapped as having a medium liquefaction potential. The east approximate one-third is mapped as having zones of medium and high liquefaction potential.
- **Landslide Susceptibility:** Based on our review of the City of Kirkland Landslide Susceptibility Map (2020), portions of the site (mainly in the southwest quadrant and west portion of the site) are mapped as having moderate and high landslide susceptibility. These designations are likely associated with the steepness and/or overall height of the localized slopes. Most of these areas are either developed or covered with vegetation, and we do not anticipate these areas will adversely impact the development.
- **Topographic Information:** Based on our review of the City of Kirkland Topographic Survey, existing site grades range from approximate Elevation 32 to 58 feet. The site generally slopes down from the east and southeast to the north and west.
- **Preliminary Geotechnical Findings and Considerations:** Based on our review of very limited geotechnical information, potentially liquefiable soils may be present at the site. The site may be designated as seismic Site Class F per ASCE 7-16, and ground improvement or deep foundations may be needed if potentially liquefiable soils are found to be present. In addition, highly compressible peat may be present at the site.

  We recommend a detailed field exploration program to further identity and evaluate the nature, thickness, extent and presence of unsuitable surficial soils, potentially liquefiable soils and/or highly compressible peat, groundwater conditions, and the depth to soils suitable for foundation support. Because the site is mapped as having liquefaction susceptibility, we anticipate deep subsurface explorations such as borings or cone penetration tests, and quantitative liquefaction analyses will be required to address liquefaction per City of Kirkland Municipal Code.

  Ground improvement methods such as densification by means of stone columns or rammed aggregate piers may not be feasible and effective given the high percentage of fines content in underlying peat and silty soils. Other ground improvement methods may include augercast grout columns or rigid inclusions. Deep foundations may include augercast piles or drilled shafts, or driven piles. It should be noted that liquefiable soils can impose downdrag loads on deep foundations, which may significantly reduce the axial load capacity, depending on the thickness of potentially liquefiable soils. Installation of augercast piles or drilled piles also produces minimal ground vibrations, which is beneficial given the close proximity of adjacent buildings and other improvements.

Groundwater seepage encountered during excavation may be handled adequately by dewatering sumps and pumps, if completed in a manner that does not cause adverse impacts to adjacent buildings and other improvements. Settlement of the adjacent buildings and other improvements caused by increases in effective stress as groundwater levels are lowered by temporary dewatering is possible if drawdown extends significantly offsite and affects the groundwater levels.

We anticipate that the proposed buildings will be constructed at-grade, and the pool will be constructed approximately 20 feet below grade. For planning purposes, temporary unsupported cut slopes more than 4 feet high may be inclined at 1½H:1V maximum steepness. Flatter slopes may be necessary if seepage is present on the face of the cut slopes or if localized sloughing occurs. If below-grade configuration is considered, the risk of potential settlement to adjacent buildings and other improvements from temporary dewatering and potential for offsite drawdown is considered moderate to high if the project were to be completed using conventional temporary shoring, such as soldier pile and tieback walls, given the shallow groundwater table anticipated at the site. Given this risk, we recommend that temporary excavation support be completed using a diaphragm-type shoring system, such as sheet piles, secant piles or cutter soil-mixed walls (CSM walls). Diaphragm-type temporary shoring systems are relatively impermeable and where the walls are embedded in low permeability silty and/or clayey soils, cutoff for horizontal groundwater flow can be achieved. This condition can reduce the drawdown of groundwater outside the site footprint and can reduce the risk of settlement of adjacent improvements. We recommend that a settlement monitoring program be implemented to confirm that dewatering induced settlements do not adversely impact adjacent buildings and other improvements. In addition, if the proposed structures extend below the regional groundwater table, they will need to either be designed to resist hydrostatic pressure or exercise permanent dewatering, if approved by City of Kirkland.

The native on-site surficial soils may contain a sufficient percentage of fines content (silt/clay) to be highly sensitive to changes in moisture content, and a sufficient percent of organic content which may not meet the project plans and specifications.

JUANITA BEACH PARK

- **Site address:** 9703 NE Juanita Drive, Kirkland, Washington 98034
- **Area Geology:** Published geologic information for the site vicinity includes a USGS Geologic Map of the Kirkland Quadrangle, Washington (Minard 1983) and Geologic Map of Surficial Deposits in the Seattle 30’ x 60’ Quadrangle, Washington (Yount, Minard, and Dembroff 1993). The mapped surface geologic unit at the site includes recessional outwash (Qvr). Mapped surface geologic unit in the site vicinity also include advance outwash (Qva). Recessional outwash generally consists of moderately sorted to well sorted, stratified sand and gravel with varying amounts of silty sand and silt in a loose to dense nature. Advance outwash generally consists of moderately- to well-sorted, stratified sand and gravel with varying amounts of silt and clay in a medium dense to dense nature.
- **Subsurface Conditions:** Based on our review of limited geotechnical boring information obtained from the WA DNR, soils encountered in the site vicinity generally consists of relatively shallow fill overlying approximately 3 to 9 feet of loose to medium dense sand with variable silt and gravel content. The loose to medium dense sand was underlain by approximately 5 to 9 feet thick of soft silt and peat. Dense to very dense silty sand with variable silt and gravel content was observe below the soft silt and peat at approximately 18 to 23 feet below existing site grades.

- **Groundwater Conditions:** Nearby exploration logs indicate that groundwater was encountered at about 10 feet below existing site grades at the time of exploration. Well logs and information in the immediate site vicinity obtained from the WA DOE generally confirm the groundwater conditions at the site. Groundwater was generally encountered at about 6 to 8 feet below exiting site grades in the WA DOE wells. A creek (Juanita Creek) runs along the west portions of the site, and is mapped by both the King County iMap and City of Kirkland Interactive Map. Three wetlands are also mapped in the southern portions of the site by the City of Kirkland Interactive Map.
- **Liquefaction Potential:** Based on our review of the City of Kirkland Liquefaction Potential Map (2020), the entire site is mapped as having a high liquefaction potential, with the exception of approximately the northeast quadrant. The northeast quadrant of the site is mapped as having a medium liquefaction potential.
- **Landslide Susceptibility:** Based on our review of the City of Kirkland Landslide Susceptibility Map (2020), portions of the site (mainly along Juanita Creek) are mapped as having moderate and high landslide susceptibility. These designations are likely associated with the steepness and/or overall height of the localized slopes along Juanita Creek. Most of these areas are either developed or covered with vegetation, and we do not anticipate these areas will adversely impact the development.
- **Topographic Information:** Based on our review of the City of Kirkland Topographic Survey, existing site grades range from approximate Elevation 18 to 42 feet. The site generally slopes down from the northeast to the east and the south.
- **Preliminary Geotechnical Findings and Considerations:** Based on our review of very limited geotechnical information, potentially liquefiable soils may be present at the site. The site may be designated as seismic Site Class F per ASCE 7-16, and ground improvement or deep foundations may be needed if potentially liquefiable soils are found to be present. In addition, highly compressible peat may be present at the site.

  We recommend a detailed field exploration program to further identity and evaluate the nature, thickness, extent and presence of unsuitable surficial soils, potentially liquefiable soils and/or highly compressible peat, groundwater conditions, and the depth to soils suitable for foundation support.. Because the site is mapped as having medium liquefaction susceptibility, we anticipate deep subsurface explorations such as borings or cone penetration tests, and quantitative liquefaction analyses will be required to address liquefaction per City of Kirkland Municipal Code.

  Ground improvement methods such as densification by means of stone columns or rammed aggregate piers may not be feasible and effective given the high percentage of fines content in underlying peat and silty soils. Other ground improvement methods may include augercast grout columns or rigid inclusions. Deep foundations may include augercast piles or drilled shafts, or driven piles. It should be noted that liquefiable soils can impose downdrag loads on deep foundations, which may significantly reduce the axial load capacity, depending on the thickness of potentially liquefiable soils. Installation of augercast piles or drilled piles also produces minimal ground vibrations, which is beneficial given the close proximity of adjacent buildings and other improvements.

  Groundwater seepage encountered during excavation may be handled adequately by dewatering sumps and pumps, if completed in a manner that does not cause adverse impacts to adjacent buildings and other improvements. Settlement of the adjacent buildings and other improvements caused by increases in effective stress as groundwater levels are lowered by temporary dewatering is possible if drawdown extends significantly offsite and affects the groundwater levels.

We anticipate that the proposed buildings will be constructed at-grade, and the pool will be constructed approximately 20 feet below grade. For planning purposes, temporary unsupported cut slopes more than 4 feet high may be inclined at 1½H:1V maximum steepness. Flatter slopes may be necessary if seepage is present on the face of the cut slopes or if localized sloughing occurs. If below-grade configuration is considered, the risk of potential settlement to adjacent buildings and other improvements from temporary dewatering and potential for offsite drawdown is considered moderate to high if the project were to be completed using conventional temporary shoring, such as soldier pile and tieback walls, given the shallow groundwater table anticipated at the site. Given this risk, we recommend that temporary excavation support be completed using a diaphragm-type shoring system, such as sheet piles, secant piles or CSM walls. Diaphragm-type temporary shoring systems are relatively impermeable and where the walls are embedded in low permeability silty and/or clayey soils, cutoff for horizontal groundwater flow can be achieved. This condition can reduce the drawdown of groundwater outside the site footprint and can reduce the risk of settlement of adjacent improvements. We recommend that a settlement monitoring program be implemented to confirm that dewatering induced settlements do not adversely impact adjacent buildings and other improvements. In addition, if the proposed structures extend below the regional groundwater table, they will need to either be designed to resist hydrostatic pressure or exercise permanent dewatering, if approved by City of Kirkland.

The native on-site surficial soils may contain a sufficient percentage of fines content (silt/clay) to be highly sensitive to changes in moisture content, and a sufficient percent of organic content which may not meet the project plans and specifications.

LIMITATIONS

We have prepared this report for the exclusive use of Opsis Architecture, LLP and their authorized agents for the City of Kirkland Recreation and Aquatics Centers project in Kirkland, Washington.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Any electronic form, facsimile or hard copy of the original document (email, text, table and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Please refer to Appendix B for additional information pertaining to use of this report.

Attachments:

Appendix A. Reference Information

Appendix B. Report Limitations and Guidelines for Use

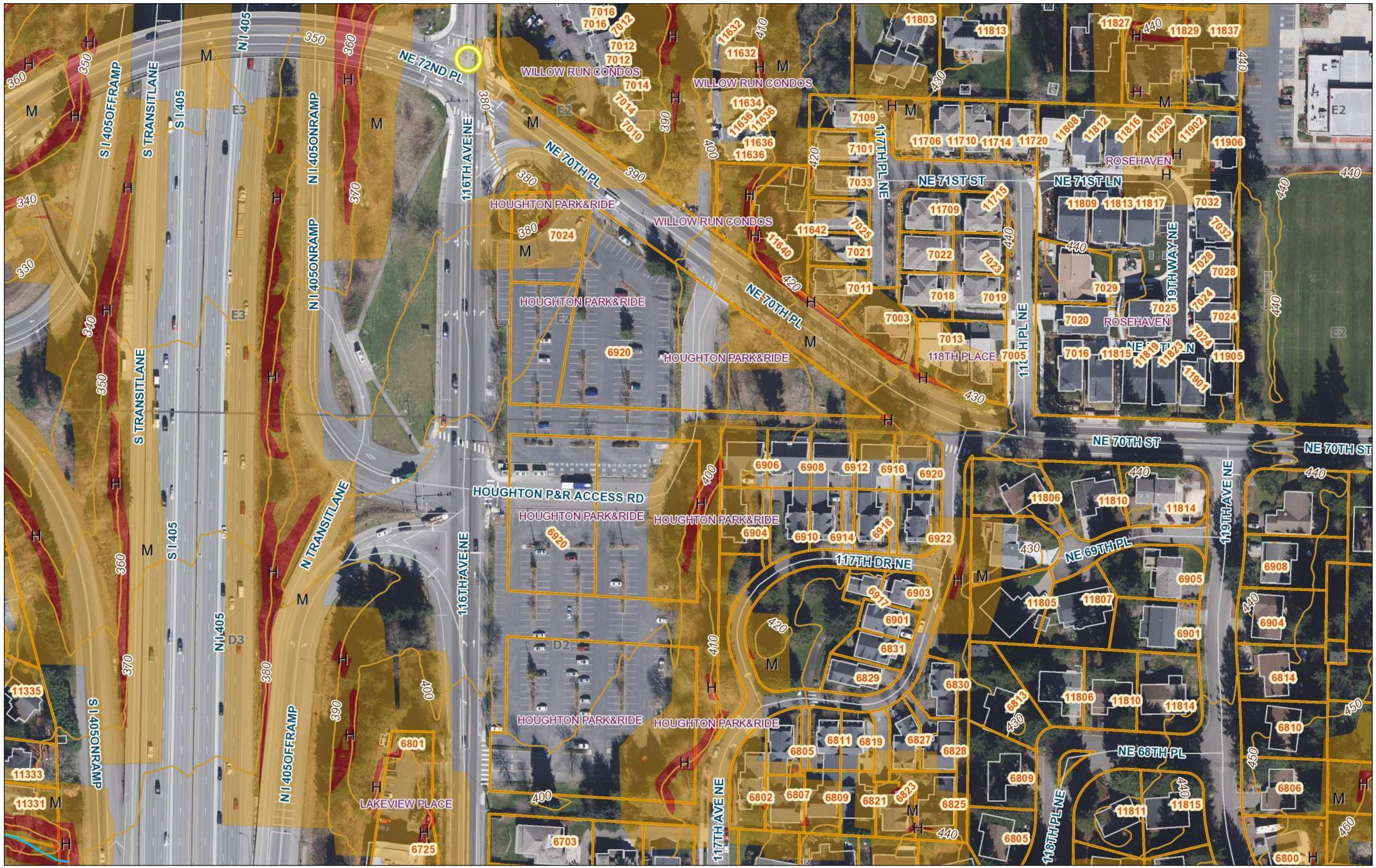
CC:MM:nld

APPENDIX A
Reference Information

APPENDIX A.1
REFERENCE INFORMATION FOR HOUGHTON PARK AND RIDE

Included in this section are City of Kirkland Landslide Susceptibility Map and Liquefaction Susceptibility Map, and exploration logs from previous studies completed in the immediate vicinity of the project site.

City of Kirkland GIS



Legend

- Contours 10 Feet
- Streams
  - Open
  - Pipe
- Landslide
  - Deposit Areas
  - Head Scarps
  - High Susceptibility
  - Moderate Susceptibility
- Wetlands
- Address
- City Limits
- Grid
- QQ Grid
- Regional Rail Corridor
- Cross Kirkland Corridor
- Streets
- Parcels
- Place Names
- Buildings
- Lakes

1: 1,500

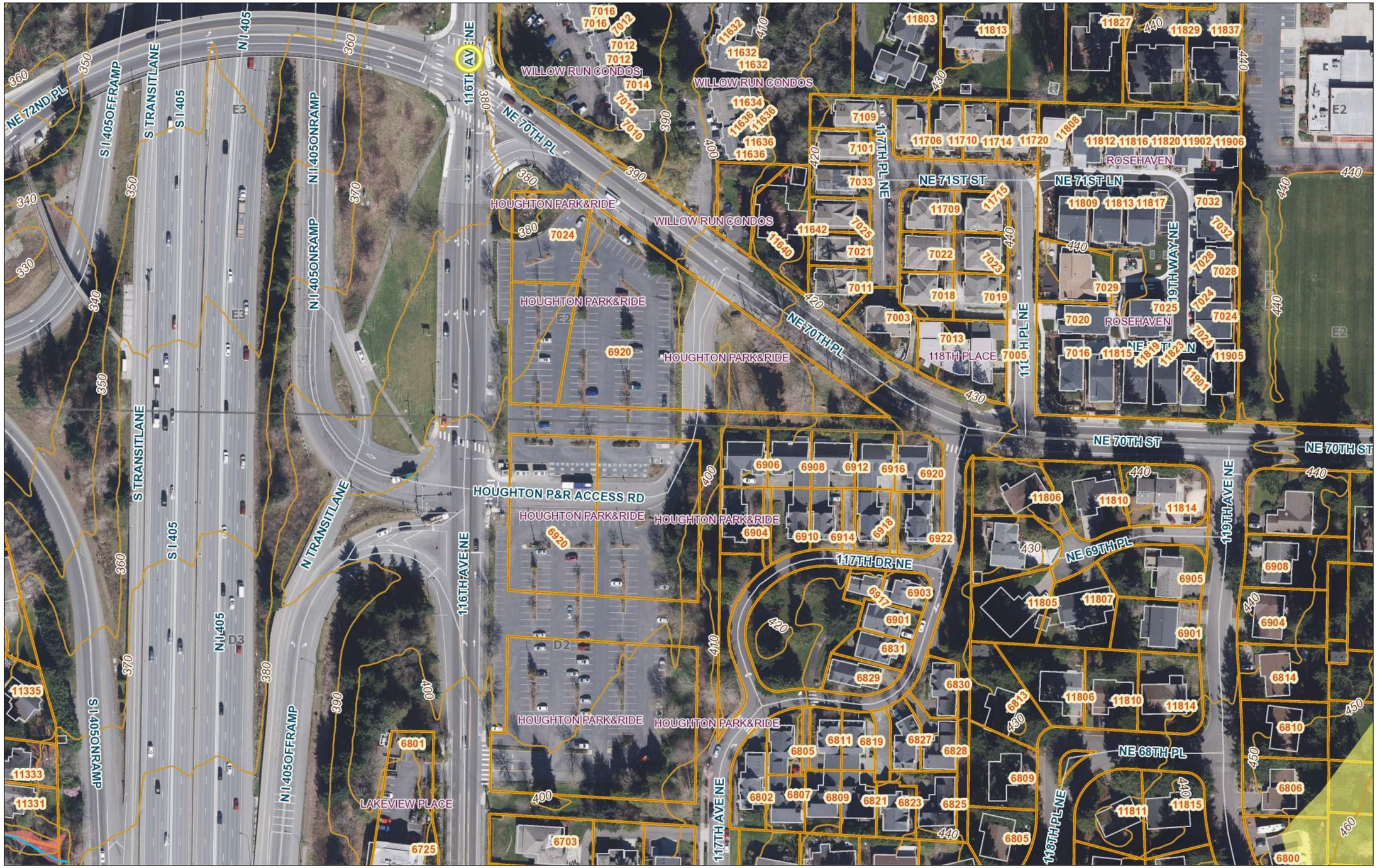
0.0 0 0.02 0.0 Miles

NAD_1983_StatePlane_Washington_North_FIPS_4601_Feet

Notes

This map was automatically generated using Geocortex Essentials.

City of Kirkland GIS



Legend

- Contours 10 Feet
- Streams
  - Open
  - Pipe
- Wetlands
- Liquefaction Potential
  - High
  - Medium or Mixed
- Address
- City Limits
- Grid
- QQ Grid
- Regional Rail Corridor
- Cross Kirkland Corridor
- Streets
- Parcels
- Place Names
- Buildings
- Lakes

1: 1,500

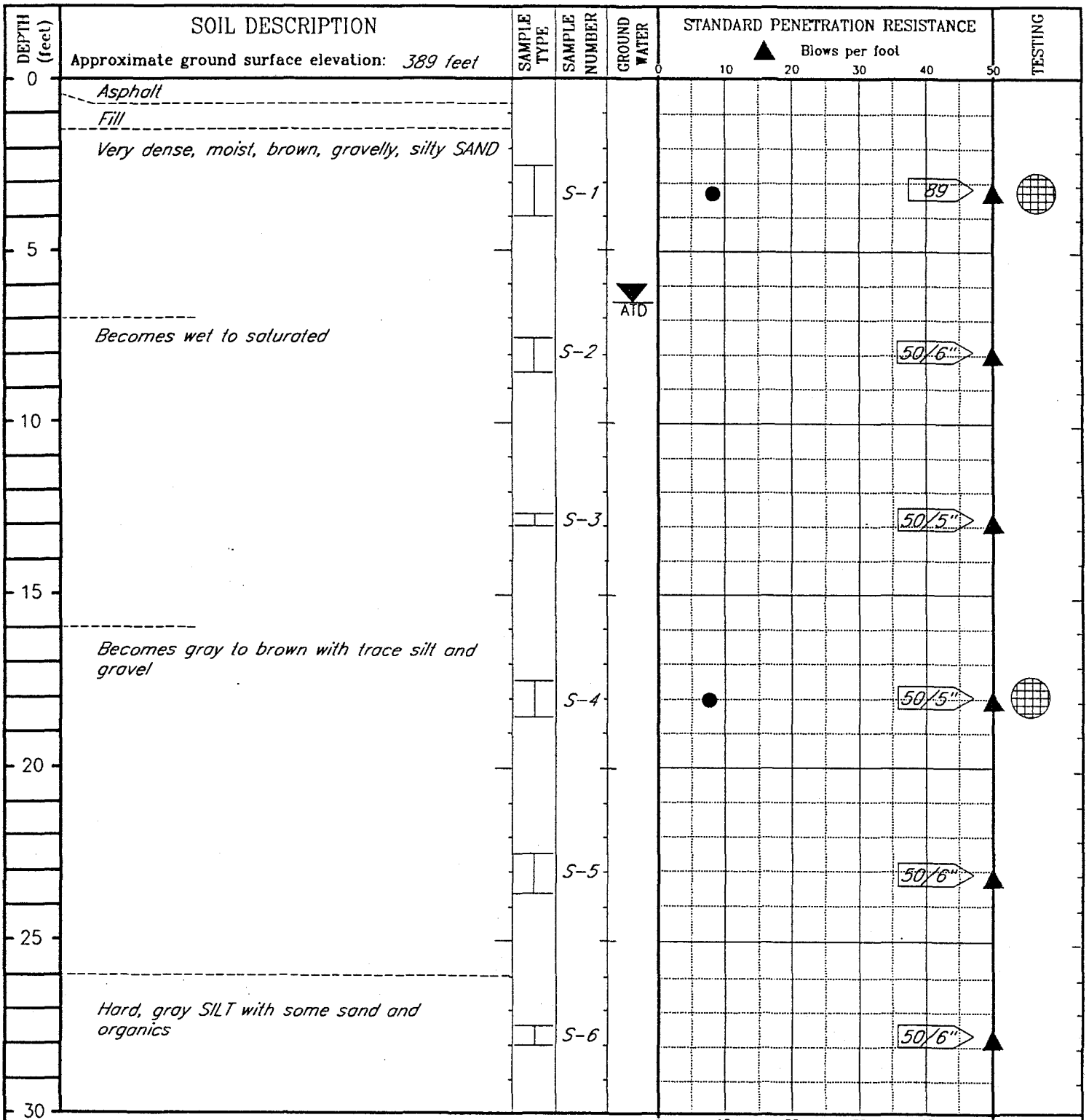
0.0 0 0.02 0.0 Miles

NAD_1983_StatePlane_Washington_North_FIPS_4601_Feet

Notes

This map was automatically generated using Geocortex Essentials.

PROJECT *SR-405: Northup to Bothell* W.O. *W 7148-1* BORING NO. *BRZ-39*



LEGEND

- 2-inch OD split spoon sampler
- Sample not recovered
- Grain size analysis
- Groundwater level at time of drilling (ATD)
- California bearing ratio test (CBR)

RZA

RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Ave NE
Bellevue, Washington 98005

Drilling started: *12 April 1991* Drilling completed: *12 April 1991* Logged by: *JDC*

PROJECT *SR-405: Northup to Bothell* W.O. *W 7148-1* BORING NO. *BRZ-39*

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation: *389 feet*	SAMPLE TYPE	SAMPLE NUMBER	GROUND WATER	STANDARD PENETRATION RESISTANCE ▲ Blows per foot 0 10 20 30 40 50	TESTING
30	*SILT as above*					
		I	S-7		NP ● 50/6" ▲	⊞
35	*Boring terminated at 33.5 feet*					
40						
45						
50						
55						
60						

0 10 20 30 40 50
MOISTURE CONTENT
Plastic limit — Natural — Liquid limit

LEGEND

I 2-inch OD split spoon sampler

X Sample not recovered

⊞ Grain size analysis

AtD Groundwater level at time of drilling

CBR California bearing ratio test

RZA
RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Ave NE
Bellevue, Washington 98005

Drilling started: *12 April 1991* Drilling completed: *12 April 1991* Logged by: *JDC*

PROJECT *SR-405: Northup to Bothell* W.O. *W 7148-1* BORING NO. *BRZ-40*

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation: *384 feet*	SAMPLE TYPE	SAMPLE NUMBER	GROUND WATER	STANDARD PENETRATION RESISTANCE Blows per foot	TESTING
0	*Asphalt*					
	Dense, moist, gray, gravelly, fine to coarse SAND with some silt (Fill)		S-1			
5	*Very dense, moist, gray, fine SAND with trace of silt*		S-2		75	
10	*Becomes saturated, brown*			ATD		
			S-3		50/5"	
15	*4 feet of heave*					
			S-4		50/6"	
20						
			S-5		50/6"	
25						
			S-6		50/6"	
30	*Boring terminated at 29.0 feet*					

0 10 20 30 40 50

MOISTURE CONTENT

Plastic limit — Natural — Liquid limit

LEGEND

- 2-inch OD split spoon sampler
- Sample not recovered
- Grab Sample
- Grain Size Analysis
- Groundwater level at time of drilling (ATD)
- California bearing ratio test (CBR)

RZA

RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Ave NE
Bellevue, Washington 98005

Drilling started: *12 April 1991* Drilling completed: *12 April 1991* Logged by: *JDC*

PROJECT *SR-405: Northup to Bothell* W.O. *W 7148-1* BORING NO. *BRZ-41*

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	GROUND WATER	STANDARD PENETRATION RESISTANCE (Blows per foot)	TESTING
	Approximate ground surface elevation: *384 feet*				0 10 20 30 40 50	
0	*Asphalt*					
	Very dense, moist, brown, silty SAND with some gravel		S-1		50/3"	
5			S-2		92	
10	*Dark gray zone*		S-3		50/6"	
15			S-4	ATD	50/5"	
20	*3 feet of heave* *Becomes saturated*		S-5		50/5"	
25			S-6		50/5"	
30						

0 10 20 30 40 50
MOISTURE CONTENT
Plastic limit — Natural — Liquid limit

LEGEND

- 2-inch OD split spoon sampler
- Sample not recovered
- Grab Sample
- Grain Size Analysis
- Groundwater level at time of drilling (ATD)
- California bearing ratio test (CBR)

RZA
RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Ave NE
Bellevue, Washington 98005

Drilling started: *15 April 1991* Drilling completed: *15 April 1991* Logged by: *JDC*

PROJECT *SR-405: Northup to Bothell* W.O. *W 7148-1* BORING NO. *BRZ-41*

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation: *384 feet*	SAMPLE TYPE	SAMPLE NUMBER	GROUND WATER	STANDARD PENETRATION RESISTANCE Blows per foot 0 10 20 30 40 50	TESTING
30	*SAND as above*					
	Becomes mottled gray	I	S-7		50/4"	
	Boring terminated at 33.3 feet					
35						
40						
45						
50						
55						
60						

0 10 20 30 40 50
MOISTURE CONTENT
Plastic limit — Natural — Liquid limit

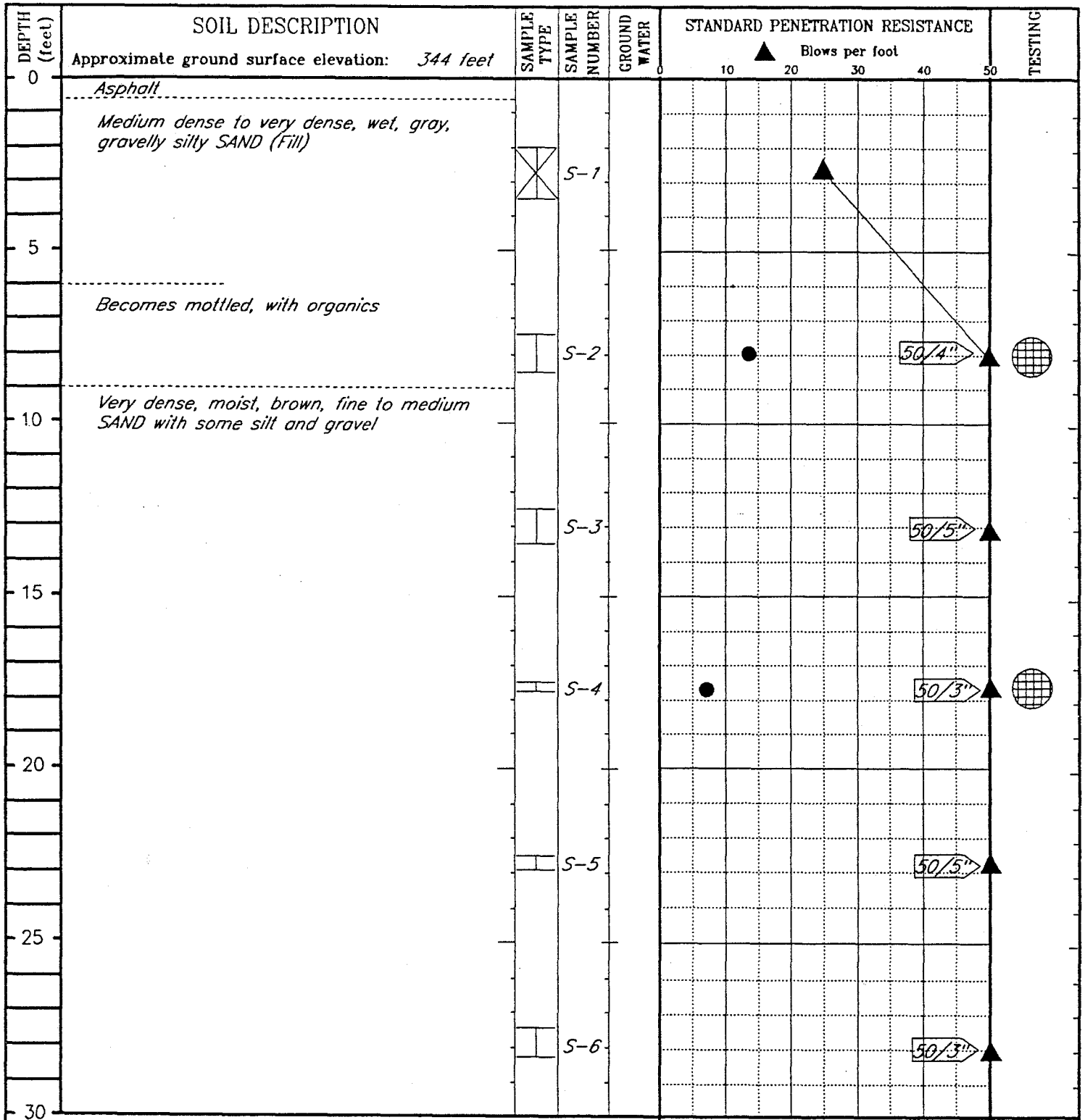
LEGEND

- I — 2-inch OD split spoon sampler
- X — Sample not recovered
- Grab Sample
- Grain Size Analysis
- ATD — Groundwater level at time of drilling
- CBR — California bearing ratio test

RZA
RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Ave NE
Bellevue, Washington 98005

Drilling started: *15 April 1991* Drilling completed: *15 April 1991* Logged by: *JDC*

PROJECT *SR-405: Northup to Bothell* W.O. *W 7148-1* BORING NO. *BRZ-43*



LEGEND

- 2-inch OD split spoon sampler
- Sample not recovered
- Grab Sample
- Grain Size Analysis
- Groundwater level at time of drilling (ATD)

RZA

RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Ave NE
Bellevue, Washington 98005

Drilling started: *15 April 1991* Drilling completed: *15 April 1991* Logged by: *JDC*

PROJECT *SR-405: Northup to Bothell* W.O. *W 7148-1* BORING NO. *BRZ-43*

DEPTH (feet)	SOIL DESCRIPTION Approximate ground surface elevation: *344 feet*	SAMPLE TYPE	SAMPLE NUMBER	GROUND WATER	STANDARD PENETRATION RESISTANCE Blows per foot 0 10 20 30 40 50	TESTING
30	*SAND as above* --- *Becomes mottled gray*		S-7		50/3"	
	Boring terminated at 32.8 feet					
35						
40						
45						
50						
55						
60						

0 10 20 30 40 50
MOISTURE CONTENT
Plastic limit — Natural — Liquid limit

LEGEND

- 2-inch OD split spoon sampler
- Sample not recovered
- Grab Sample
- Grain Size Analysis
- Groundwater level at time of drilling (ATD)

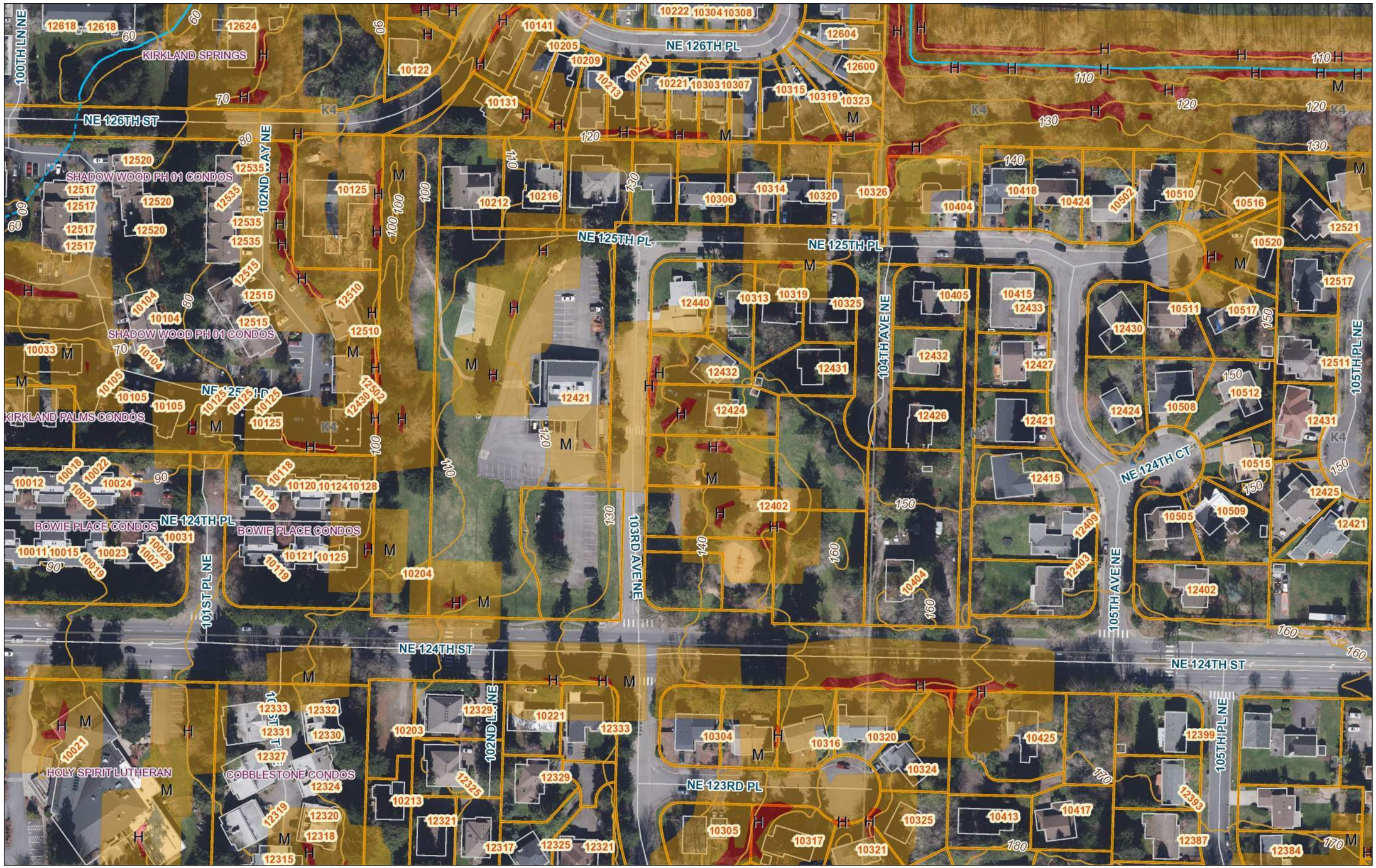
RZA
RITTENHOUSE-ZEMAN & ASSOCIATES, INC.
Geotechnical & Environmental Consultants
1400 140th Ave NE
Bellevue, Washington 98005

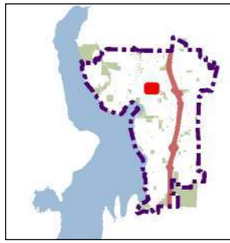
Drilling started: *15 April 1991* Drilling completed: *15 April 1991* Logged by: *JDC*

APPENDIX A.2
REFERENCE INFORMATION FOR NORTH KIRKLAND COMMUNITY CENTER PARK

Included in this section are City of Kirkland Landslide Susceptibility Map and Liquefaction Susceptibility Map, and exploration logs from previous studies completed in the immediate vicinity of the project site.

City of Kirkland GIS





Legend

- Contours 10 Feet
- Streams
  - Open
  - Pipe
- Landslide
  - Deposit Areas
  - Head Scarps
  - High Susceptibility
  - Moderate Susceptibility
- Wetlands
- Address
- City Limits
- Grid
- QQ Grid
- Regional Rail Corridor
- Cross Kirkland Corridor
- Streets
- Parcels
- Place Names
- Buildings
- Lakes

1: 1,500

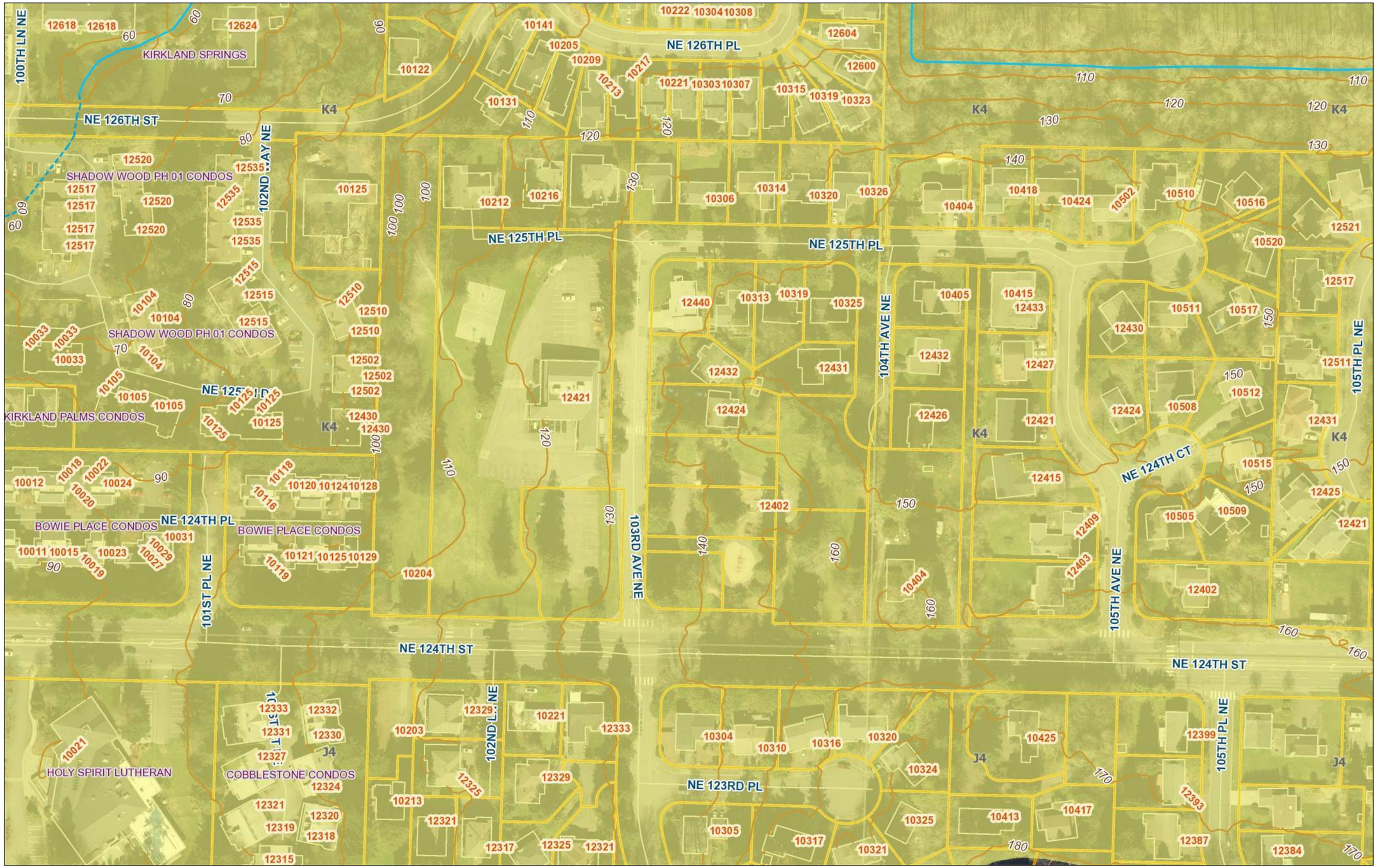
0.0 0 0.02 0.0 Miles

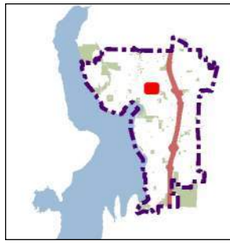
NAD_1983_StatePlane_Washington_North_FIPS_4601_Feet

Notes

This map was automatically generated using Geocortex Essentials.

City of Kirkland GIS





Legend

- Contours 10 Feet
- Streams
  - Open
  - Pipe
- Wetlands
- Liquefaction Potential
  - High
  - Medium or Mixed
- Address
- City Limits
- Grid
- QQ Grid
- Regional Rail Corridor
- Cross Kirkland Corridor
- Streets
- Parcels
- Place Names
- Buildings
- Lakes

1: 1,500

0.0 0 0.02 0.0 Miles

NAD_1983_StatePlane_Washington_North_FIPS_4601_Feet

Notes

This map was automatically generated using Geocortex Essentials.

TEST PIT NO. 15

Logged By CRL

Date 7-9-85

Elev. -1±

Depth (ft.)	USCS	Soil Description	W (%)	
0		TOPSOIL		
	ml	gray mottled SILT with fine sand, non-plastic, moist, loose to medium dense	29	
5		becomes dense	32	
		becomes wet		
10		Test pit terminated at 9' below existing grade. No groundwater seepage encountered during excavation.		
15				

TEST PIT NO. 16

Logged By CRL

Date 7-9-85

Elev. -5±

Depth (ft.)	USCS	Soil Description	W (%)	
0		TOPSOIL		
	sm	tan silty fine SAND, moist, loose to medium dense	50	LL=45 PI=20 q_u=1.0 tsf
5	CL	gray clayey SILT, wet, stiff		
	gp	gray sandy GRAVEL with silt, wet, dense		
10		Test pit terminated at 8.5' below existing grade. Moderate groundwater seepage encountered at 5.5' during excavation.		
15				

Earth Consultants Inc.
GEOTECHNICAL ENGINEERING & GEOLOGY

TEST PIT LOGS

JUANITA 84
KING COUNTY, WASHINGTON

Proj. No. 2674	Date July '85	Plate 11

Test Pit Log

Project Name:				Sheet	of
Holy Spirit Lutheran Church				1	1
Job No. 10262	Logged by: SSR	Date: 8/29/02	Test Pit No.: TP-1		
Excavation Contactor: NW Excavating			Ground Surface Elevation: 100'		
Notes:					

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Sod 6": grass
			1		SM	Brown silty SAND, loose to medium dense, moist (Fill)
	4.3		2			-occasional wood fragments
			3		SP-SM	Brown poorly graded SAND with silt, loose to medium dense, moist
	5.8		4			
			5			
			6			
	9.6		7			Test pit terminated at 7.0 feet below existing grade. No groundwater encountered during excavation.

Earth Consultants Inc.
Geotechnical Engineers, Geologists & Environmental Scientists

Test Pit Log
Holy Spirit Lutheran Church
Kirkland, Washington

Proj. No. 10262	Dwn. GLS	Date Sept. 2002	Checked SSR	Date 9/9/02	Plate A2

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by engineering tests, analysis and judgment. They are not necessarily representative of other times and locations. We cannot accept responsibility for the use or interpretation by others of information presented on this log.

TEST PIT LOG 10262.GPJ ECI.GDT 9/9/02

Test Pit Log

Project Name:			Sheet	of
Holy Spirit Lutheran Church			1	1
Job No. 10262	Logged by: SSR	Date: 8/29/02	Test Pit No.: TP-2	
Excavation Contactor: NW Excavating			Ground Surface Elevation: 98'	
Notes:				

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Sod 6": grass
			1		SM/ML	Brown silty SAND to sandy SILT, medium dense, moist
	5.3		2			-50% fines
			3		SP-SM	Brown poorly graded SAND with silt, medium dense, moist
	6.3		4			
			5			
			6			Test pit terminated at 6.0 feet below existing grade. No groundwater encountered during excavation.

Earth Consultants Inc.
Geotechnical Engineers, Geologists & Environmental Scientists

Test Pit Log
Holy Spirit Lutheran Church
Kirkland, Washington

Proj. No. 10262	Dwn. GLS	Date Sept. 2002	Checked SSR	Date 9/9/02	Plate A3

TEST PIT LOG 10262.GPJ ECI.GDT 9/9/02

APPENDIX A.3
REFERENCE INFORMATION FOR PETER KIRK PARK

Included in this section are City of Kirkland Landslide Susceptibility Map and Liquefaction Susceptibility Map, and exploration logs from previous studies completed in the immediate vicinity of the project site.

City of Kirkland GIS

Legend

- Contours 10 Feet
- Streams
  - Open
  - Pipe
- Landslide
  - Deposit Areas
  - Head Scarps
  - High Susceptibility
  - Moderate Susceptibility
- Wetlands
- Address
- City Limits
- Grid
- QQ Grid
- Regional Rail Corridor
- Cross Kirkland Corridor
- Streets
- Parcels
- Place Names
- Buildings
- Lakes

1: 1,500

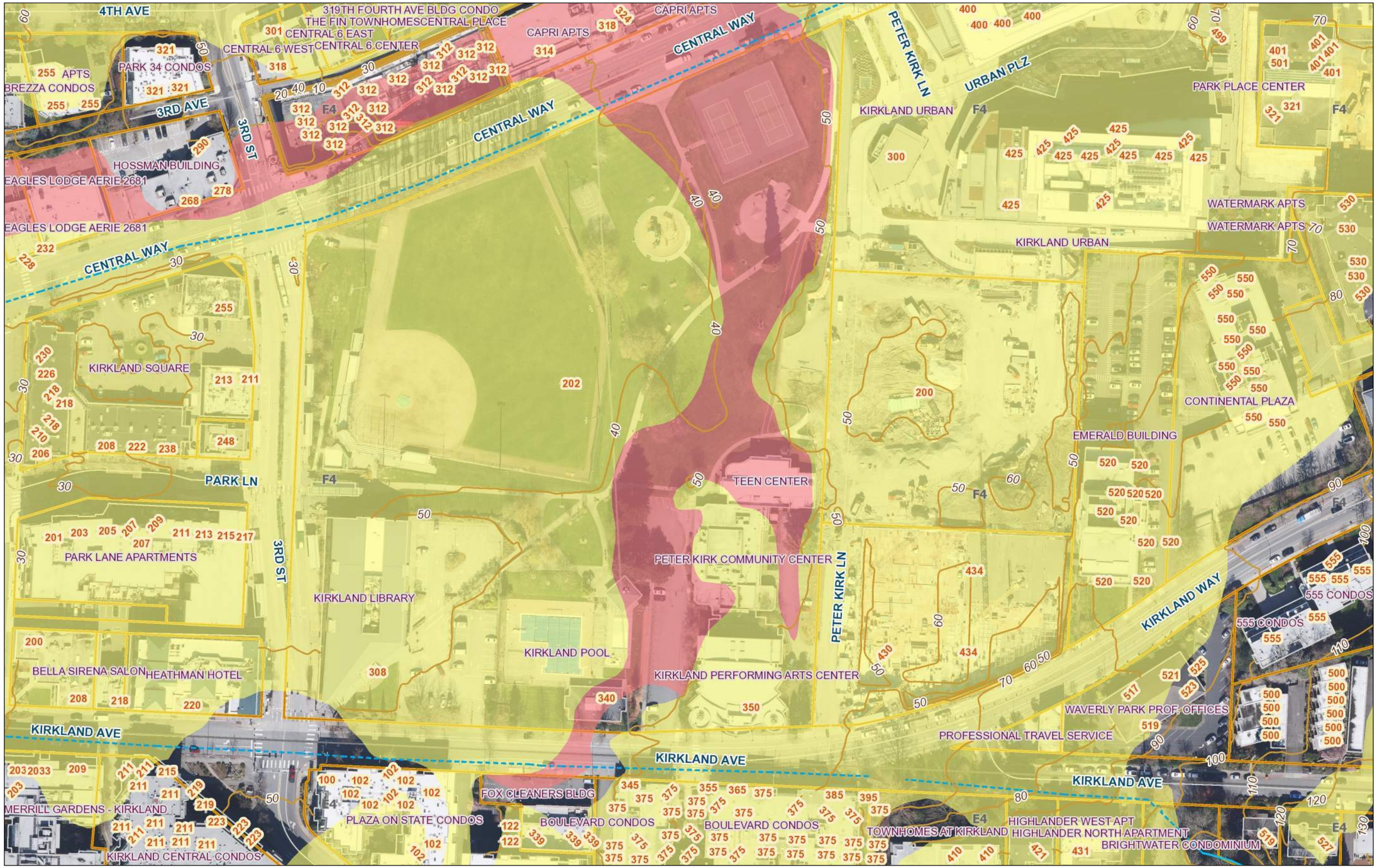
0.0 0 0.02 0.0 Miles

NAD_1983_StatePlane_Washington_North_FIPS_4601_Feet

Notes

This map was automatically generated using Geocortex Essentials.

City of Kirkland GIS



Legend

- Contours 10 Feet
- Streams
  - Open
  - Pipe
- Wetlands
- Liquefaction Potential
  - High
  - Medium or Mixed
- Address
- City Limits
- Grid
- QQ Grid
- Regional Rail Corridor
- Cross Kirkland Corridor
- Streets
- Parcels
- Place Names
- Buildings
- Lakes

1: 1,500

0.0 0 0.02 0.0 Miles

NAD_1983_StatePlane_Washington_North_FIPS_4601_Feet

Notes

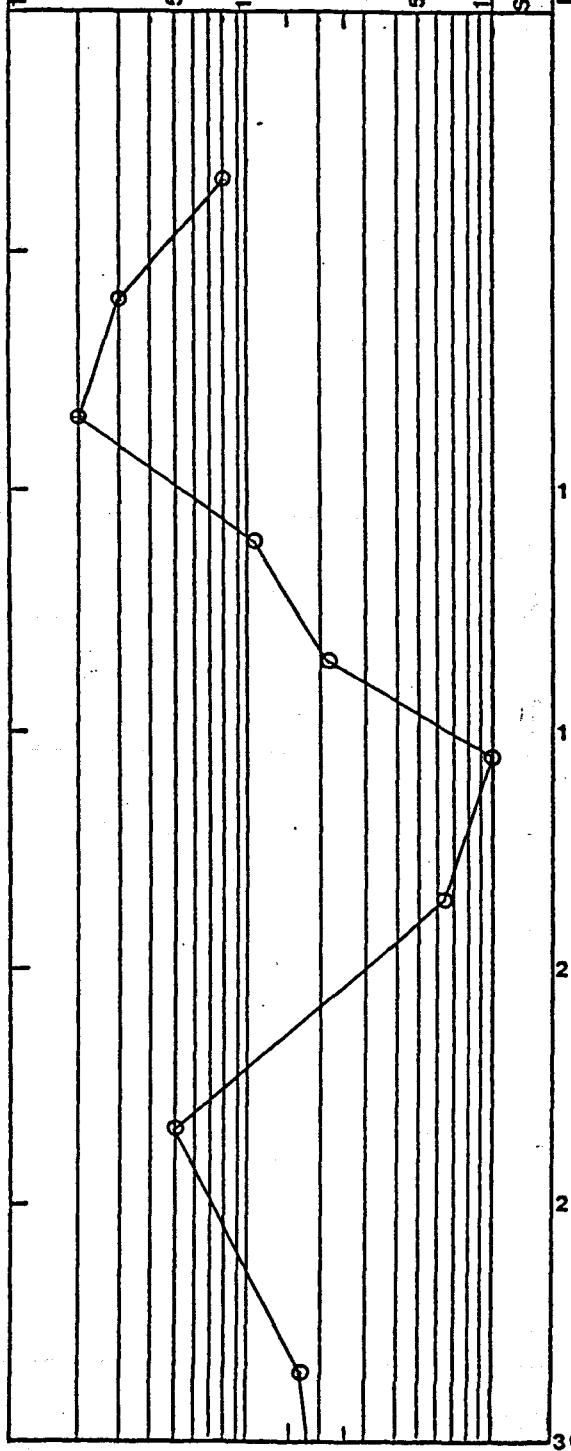
This map was automatically generated using Geocortex Essentials.

DRILLING METHOD:
ROTARY - HOLLOW STEM AUGER

SAMPLING METHOD(S):
STANDARD PENETRATION, SHELBY TUBE

BORING DESIGNATION: EB-1
SHEET 1 OF 2

SURFACE ELEVATION: GRADE
DATUM: NO CONTROL



DEPTH FT.	MATERIAL DESCRIPTION	TEST RESULTS
0	Loose, grey, silty fine sandy Artificial Fill, moist, poorly sorted, dark organic silt inclusions.	4-9-86 ▽
5	Very soft, dark brown, peat with rotted wood fragments, saturated, fiberous.	
	Very loose, brown, organic silty fine to medium sand, saturated, poorly sorted.	
10	Medium dense, grey, slightly silty fine to medium sand, saturated, well sorted.	
15	Very dense, grey, gravelly, medium to coarse sand, saturated, poorly sorted.	
	becomes fine to medium grained.	
20	Soft, grey, silty clay, wet, with interbeds of grey, silty very fine sand.	Pocket pen.=0.5 TSF Torvane=0.25 TSF
25	Dense, grey, silty, clayey fine sand, saturated.	
	Stiff, grey, silty clay with fine sand seams, moist to wet.	
30		

LOG OF BORING

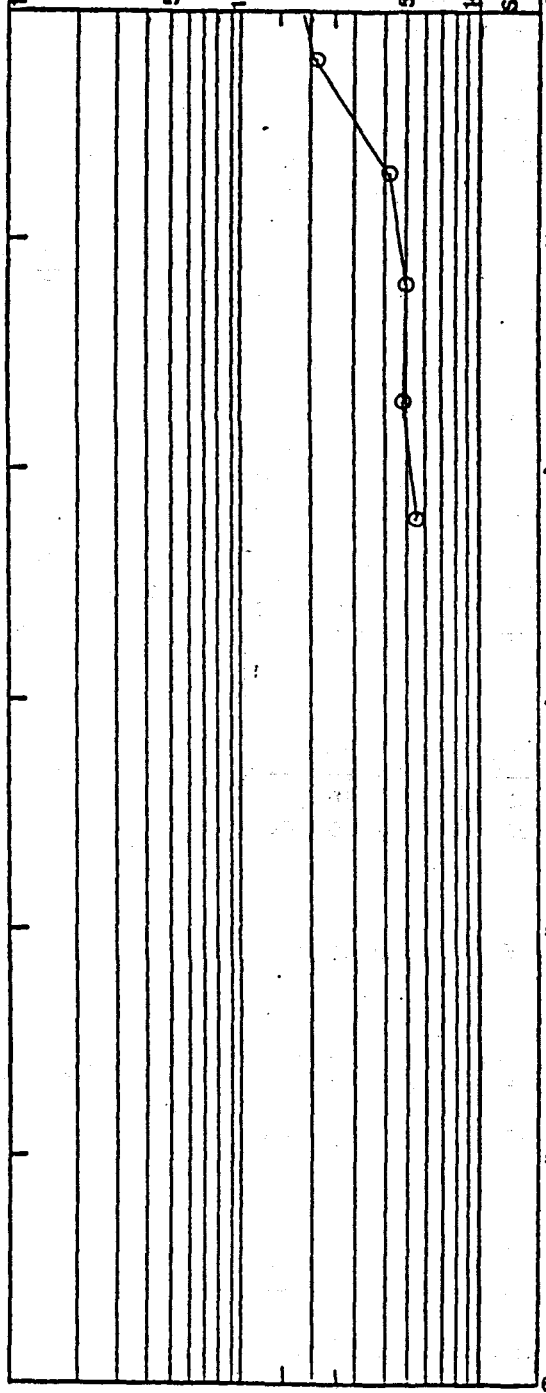
8013-001 APRIL 1986
KIRKLAND SQUARE DEVELOPMENT

DRILLING METHOD:
ROTARY - HOLLOW STEM AUGER

SAMPLING METHOD(S):
STANDARD PENETRATION, SHELBY TUBE

BORING DESIGNATION: EB-1
SHEET 2 OF 2

SURFACE ELEVATION: GRADE
DATUM: NO CONTROL



MATERIAL DESCRIPTION	TEST RESULTS
Very stiff to hard, grey very fine sandy silt. clayey in zones.	
TD @ 41.5' 3-13-86	

LOG OF BORING

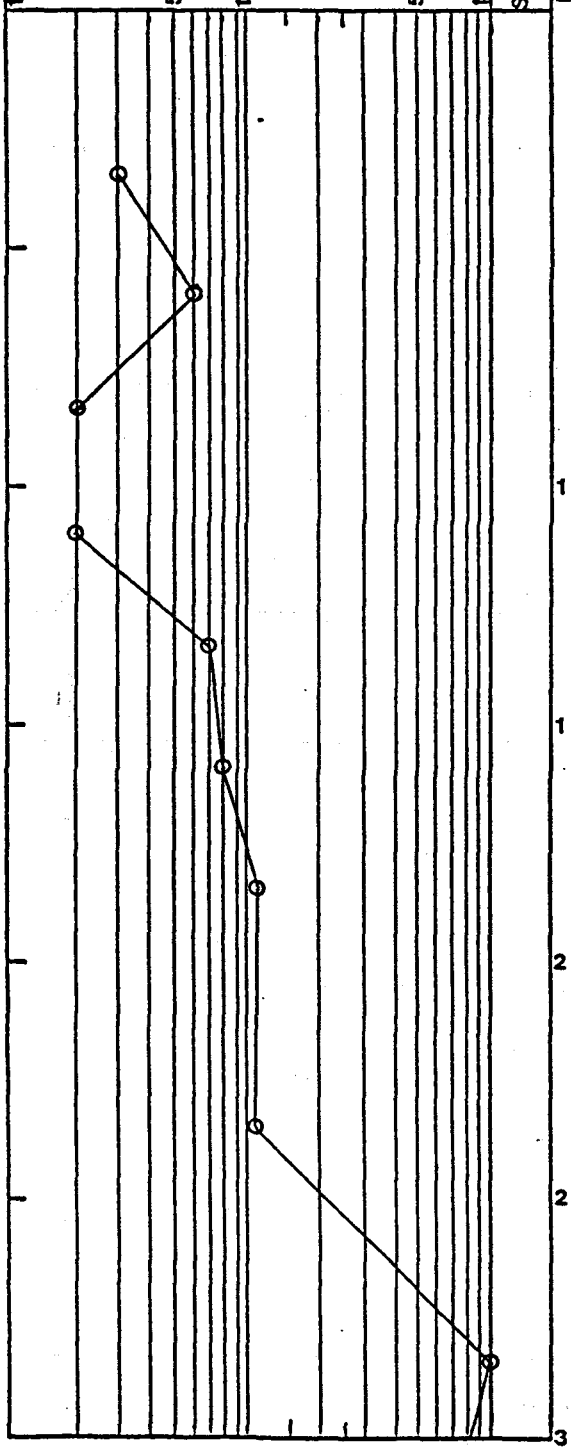
8013-001 APRIL 1986
KIRKLAND SQUARE DEVELOPMENT

DRILLING METHOD:
ROTARY - HOLLOW STEM AUGER

SAMPLING METHOD(S):
STANDARD PENETRATION

BORING DESIGNATION: EB-2
SHEET 1 OF 2

SURFACE ELEVATION: GRADE
DATUM: NO CONTROL



MATERIAL DESCRIPTION	TEST RESULTS
Very loose to loose, brown, silty very fine sandy Artificial Fill, wet, fine roots. scattered asphalt debris. becomes organic and silty.	
Very soft, brown, organic fine sandy silt, wet to saturated. fine organics on bedding. zones of very loose, dark brown silty organic sands. concentrated wood debris 12'-15.5', to log size.	4-9-86 ▽
Medium stiff, grey clayey silt with fine sandy silt and silty very fine sand interbeds. fine sand seams.	Pocket Pen.=0.25 TSF Torvane = 0.15 TSF
Very dense, grey, gravelly, silty, fine to medium sand, saturated, with very fine sandy silt seams.	
Hard, grey fine sandy silt, saturated.	

LOG OF BORING

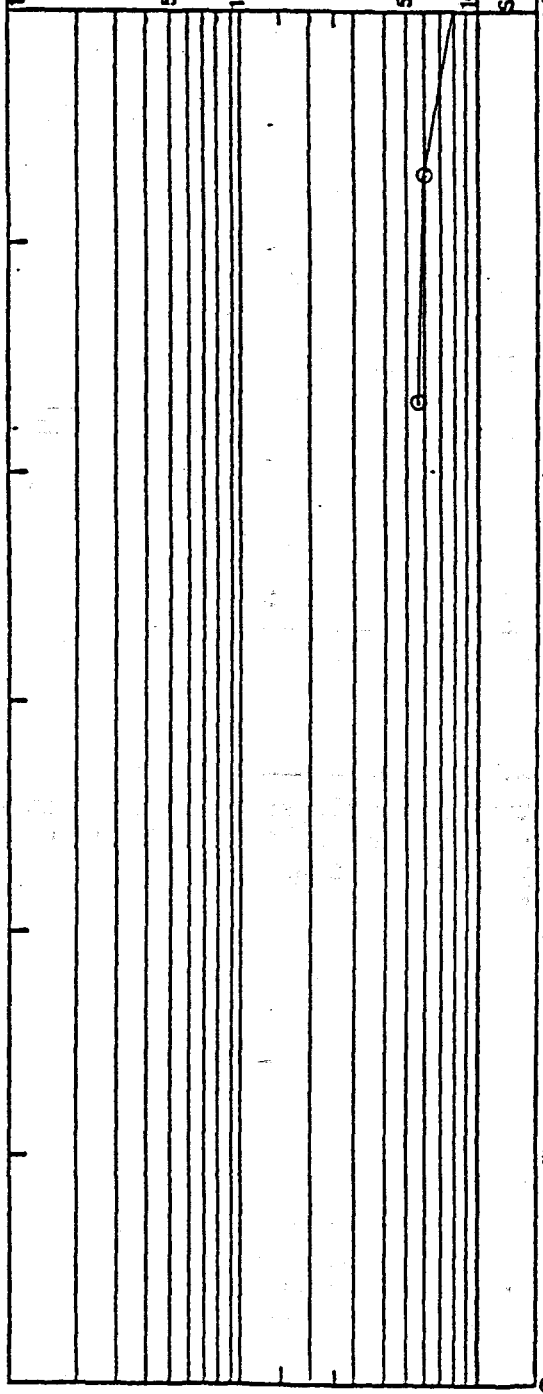
8013-001 APRIL 1986
KIRKLAND SQUARE DEVELOPMENT

DRILLING METHOD:
ROTARY - HOLLOW STEM AUGER

SAMPLING METHOD(S):
STANDARD PENETRATION

BORING DESIGNATION: EB-2
SHEET OF

SURFACE ELEVATION: GRADE
DATUM: NO CONTROL



MATERIAL DESCRIPTION	TEST RESULTS
as above	
very fine, white sand coating on thin random partings.	
TD @ 39.0' 3-14-86	

LOG OF BORING

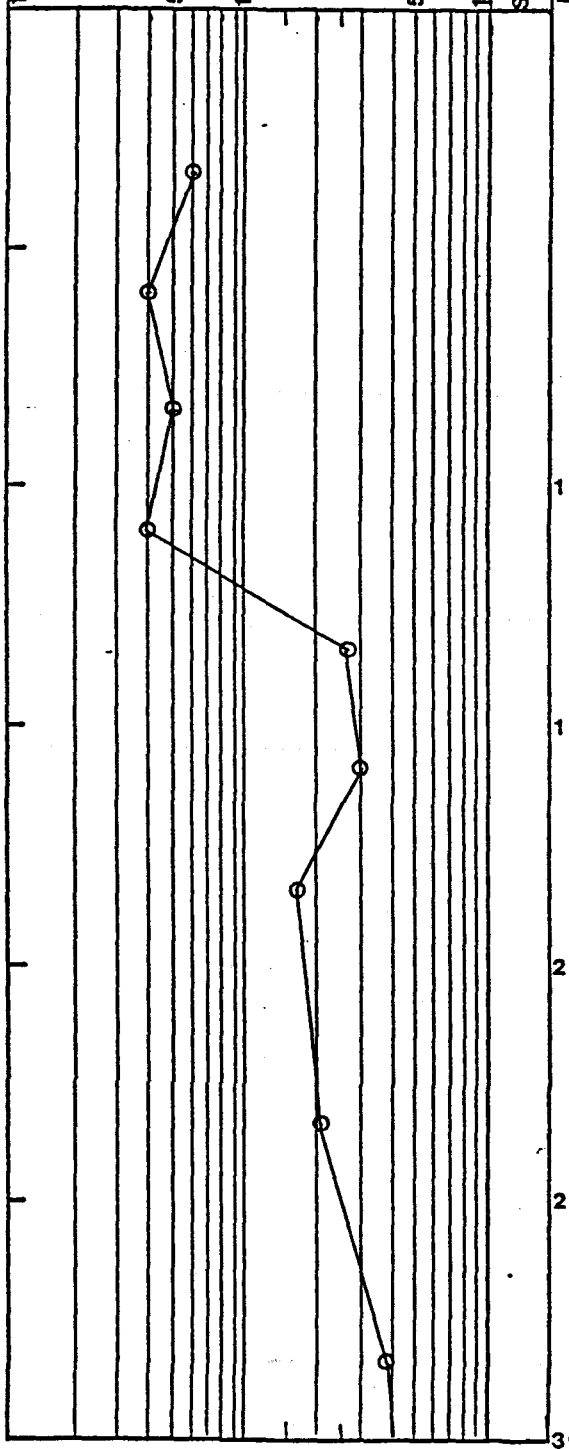
8013-001 APRIL 1986
KIRKLAND SQUARE DEVELOPMENT

DRILLING METHOD:
ROTARY - HOLLOW STEM AUGER

SAMPLING METHOD(S):
STANDARD PENETRATION

BORING DESIGNATION: EB-3
SHEET 1 OF 2

SURFACE ELEVATION: GRADE
DATUM: NO CONTROL



DEPTH FT.	MATERIAL DESCRIPTION	TEST RESULTS
0	Loose, grey and brown, fine sandy silty Artificial Fill, damp.	
5	Soft, dark brown, peaty organic silt, saturated.	4-9-86
10	Loose, dark brown, organic silty sand, saturated.	
	grades into medium dense, grey, slightly silty medium sand, saturated.	
15	Dense, silty fine sand, saturated.	
	Medium dense, grey, fine to medium sand, saturated, few roots.	
20	Medium stiff, grey with greenish hue, very fine sandy silt.	
	Stiff to very stiff, grey, very fine sandy silt, damp to moist.	
25	very fine, white quartz sand coating on occasional, random partings. grades hard.	
30		

LOG OF BORING

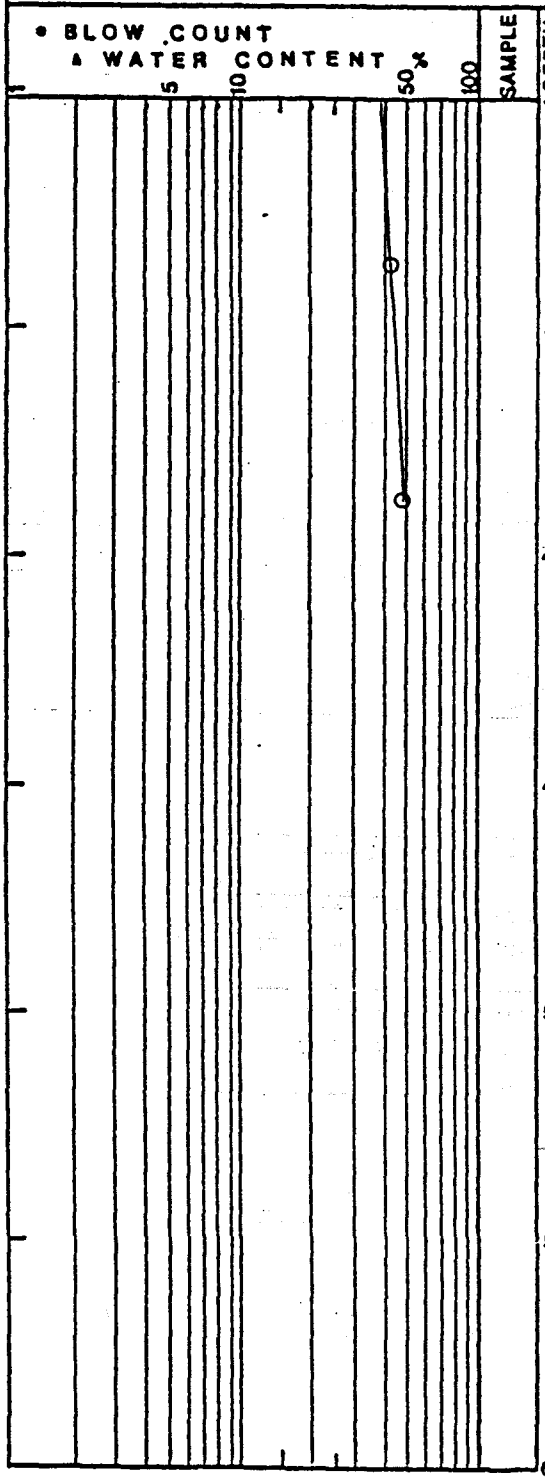
8013-001 APRIL 1986
KIRKLAND SQUARE DEVELOPMENT

DRILLING METHOD:
ROTARY - HOLLOW STEM AUGER

BORING DESIGNATION: EB-3
SHEET 2 OF 2

SAMPLING METHOD(S):
STANDARD PENETRATION

SURFACE ELEVATION: GRADE
DATUM: NO CONTROL



MATERIAL DESCRIPTION	TEST RESULTS
As above.	
TD @ 39.0' 3-15-86	

LOG OF BORING

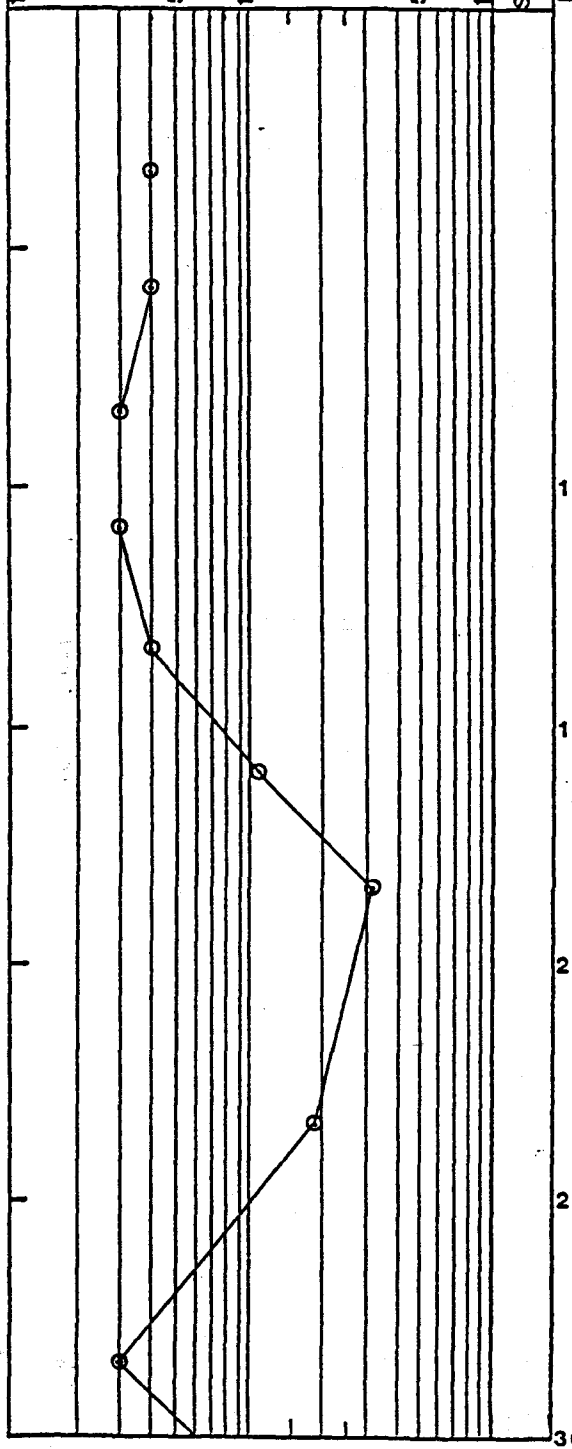
8013-001 APRIL 1986
KIRKLAND SQUARE DEVELOPMENT

DRILLING METHOD:
ROTARY - HOLLOW STEM AUGER

SAMPLING METHOD(S):
STANDARD PENETRATION

BORING DESIGNATION: EB-4
SHEET 1 OF 2

SURFACE ELEVATION: GRADE
DATUM: NO CONTROL



DEPTH FT.	MATERIAL DESCRIPTION	TEST RESULTS
0	Very loose to loose, grey and brown, sandy silty Artificial Fill, wet, intermixed organics.	
5		4-9-86 ▽
	Soft, dark to light brown peat, wet, fiberous.	
10	Very loose, grey brown, organic, silty medium sand, saturated fine organics in matrix.	
	Soft, dark brown, peat and organic silt, wet.	
15	Loose, brown, organic, silty fine sand.	
	Medium dense to dense, grey, fine to medium sand, saturated.	
20		
	Medium stiff to stiff, grey, very fine sandy silt to clayey silt.	Pocket Pen.=0.25 TSF Torvane = 0.25 TSF
25	grades soft with fine sand seams.	
30		

LOG OF BORING

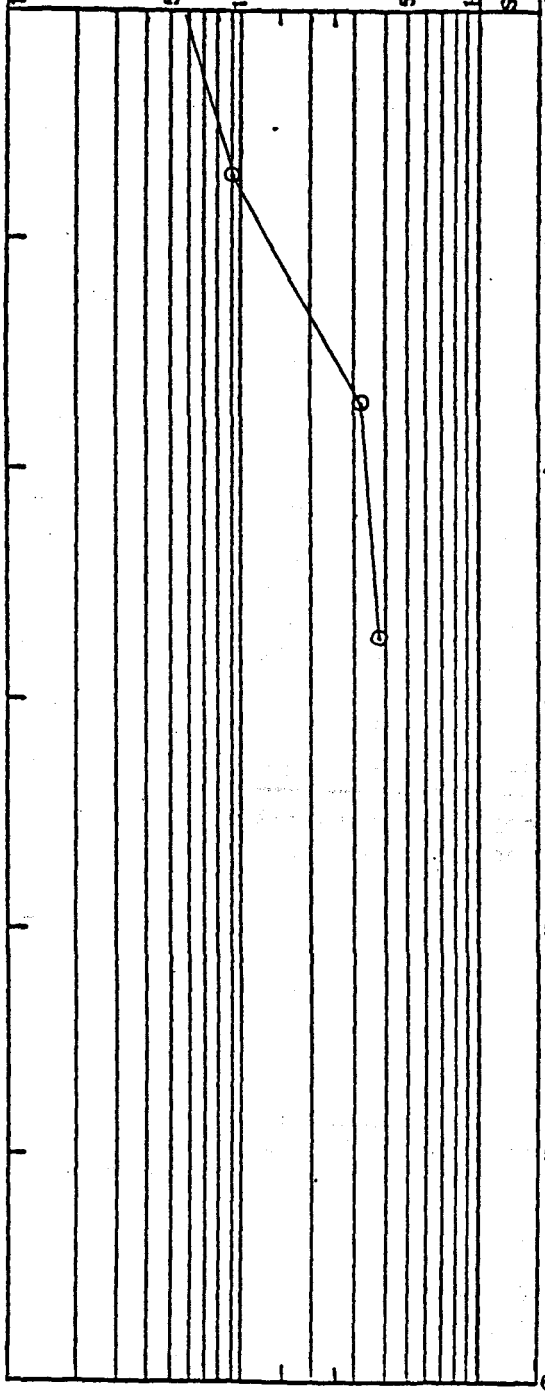
8013-001 APRIL 1986
KIRKLAND SQUARE DEVELOPMENT

DRILLING METHOD:
ROTARY - HOLLOW STEM AUGER

SAMPLING METHOD(S):
STANDARD PENETRATION

BORING DESIGNATION: EB-4
SHEET 2 OF 2

SURFACE ELEVATION: GRADE
DATUM: NO CONTROL

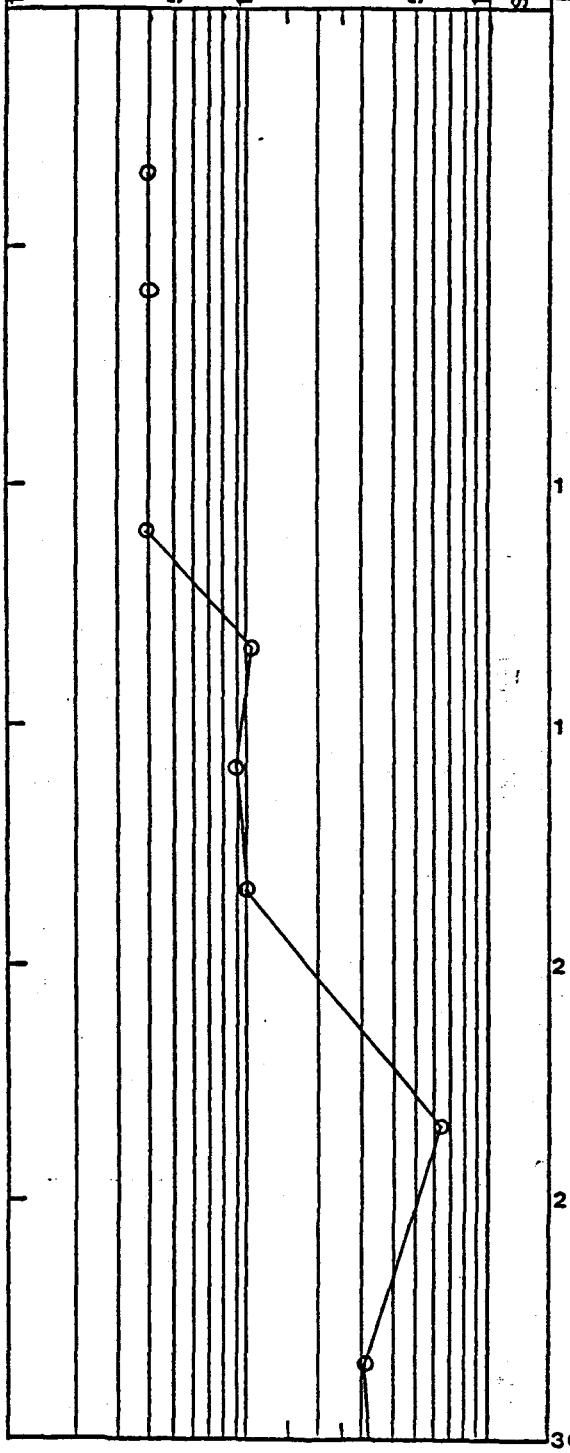


SAMPLE	DEPTH FT.	MATERIAL DESCRIPTION	TEST RESULTS
	30	grades medium stiff to stiff.	
		Dense, grey, gravelly, silty fine sand saturated.	
	35	Hard, grey, very fine sandy silt, damp to moist.	
		thin, white, very fine quartz sand coating on random partings.	
	40		
	45	TD @ 44.0' 3-15-86	
	50		
	55		
	60		

LOG OF BORING

8013-001 APRIL 1986
KIRKLAND SQUARE DEVELOPMENT

DRILLING METHOD: ROTARY - HOLLOW STEM AUGER	BORING DESIGNATION: EB-5 SHEET 1 OF 2
SAMPLING METHOD(S): STANDARD PENETRATION, SHELBY TUBE	SURFACE ELEVATION: GRADE DATUM: NO CONTROL



DEPTH FT.	MATERIAL DESCRIPTION	TEST RESULTS
0	Very loose to loose, brown, organic, silty medium to coarse sandy, Artificial Fill, moist to wet.	
5	Soft, brown, peat and wood fragments, wet, fiberous.	4-9-86 ▽
	Loose, grey, organic medium to coarse sand, saturated, some silt, fine organics in matrix.	
10	Soft, brown, peat, saturated, fiberous.	
	Loose to medium dense, brown, silty, fine to medium sand, saturated, occasional fine wood, scattered gravels in seams.	
15	Stiff, grey, clayey silt, moist to wet.	
	fine sand partings and occasional fine to medium sand layers.	
20	Hard grey, very fine sandy silt, damp.	Pocket Pen.>4.5 TSF
25	clayey in zones.	
	thin, white, very fine quartz sand coating on random partings.	Pocket Pen.>4.5 TSF
30		

LOG OF BORING

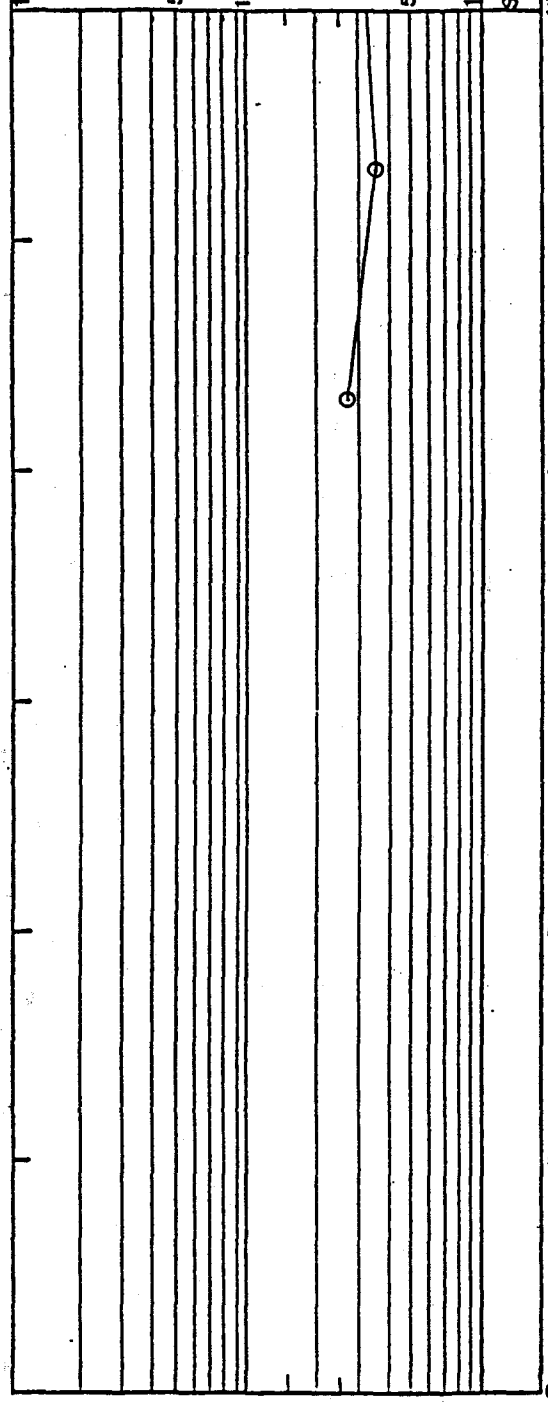
8013-001 APRIL 1986
KIRKLAND SQUARE DEVELOPMENT

DRILLING METHOD:
ROTARY - HOLLOW STEM AUGER

SAMPLING METHOD(S):
STANDARD PENETRATION, SHELBY TUBE

BORING DESIGNATION: EB-5
SHEET 2 OF 2

SURFACE ELEVATION: GRADE
DATUM: NO CONTROL



MATERIAL DESCRIPTION	TEST RESULTS
As above	
grades to very stiff.	
TD @ 39.0' 3-16-86	

LOG OF BORING

8013-001 APRIL 1986
KIRKLAND SQUARE DEVELOPMENT

BORING NO. B-1

Logged By: WB Date: 3/31/03 Ground Elev. 36.9' ±

Depth ft	USCS	Soil Description	Sample Type	Sample No.	(N) Blows/ ft.	W %	Other Test
		Asphalt pavement and gravel base					
	SM	Gray, loose to medium-dense, silty fine SAND, with some gravel, moist (FILL)					
5		4/11/03 ▼					
	ML	Gray, stiff, very-fine sandy SILT, moist (FILL)	SS	1	11		
	OL	Dark-brown, soft, organic silty PEAT, with few sand seams, saturated					
10			SS	2	2		
	SP/OL	Gray, very-loose, medium-grained SAND, with peat and organic silt seams, saturated					
15			SS	3	2		
20	SP/GP	Brown, medium-dense, SAND and GRAVEL seam, saturated	SS	4	24		
	SM	Gray-brown to gray, medium-dense, silty, fine to very-fine SAND, moist					
25	ML	Gray, very-stiff, SILT, with thin, gray, very fine sand and silt partings, moist	SS	5	33		
30	SM	Gray, dense, silty, very fine SAND, trace of fine gravel, moist	SS	6	28		
35		(Continued on PLATE 4B)					

LEGEND: SS - 2" O.D. Split-Spoon Sample
ST - 3" O.D. Shelby-Tube Sample
B - Bulk Sample

GROUNDWATER: Seal
Water Level ▼
Observation Well Tip

LIU & ASSOCIATES, INC.

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BORING LOG
KIRKLAND HOTEL
KIRKLAND AVENUE AND 3RD STREET
KIRKLAND, WASHINGTON

JOB NO. 3A033 DATE 5/19/03 PLATE 4A

BORING NO. B-1 (Continued from PLATE 4A)

Logged By: _____ Date: _____ Ground Elev. ± _____

Depth ft.		USCS	Soil Description	Sample Type	Sample No.	(N) Blows/ ft.	W %	Other Test
		SM	Gray, dense, silty, very fine SAND, trace of fine gravel, moist (same as above)	SS	7	39		
40			- few fine sand seams	SS	8	46		
45				SS	9	47		
50			Boring terminated at 46.5 ft.					
55								
60								
65								

LEGEND: SS - 2" O.D. Split-Spoon Sample
ST - 3" O.D. Shelby-Tube Sample
B - Bulk Sample

GROUNDWATER: Seal
Water Level
Observation Well Tip

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BORING LOG
KIRKLAND HOTEL
KIRKLAND AVENUE AND 3RD STREET
KIRKLAND, WASHINGTON

JOB NO. 3A033 | DATE 5/19/03 | PLATE 4B

BORING NO. B-2

Logged By: WB Date: 4/11/03 Ground Elev. 42.9' ±

Depth ft.	USCS	Soil Description	Sample Type	Sample No.	(N) Blows/ ft.	W %	Other Test
		Asphalt pavement and gravel base					
	ML	Gray, medium-stiff, gravelly SILT, intermixed with gravel and brick fragments, moist (FILL)					
5			SS	1	11		
	OL/SP	Dark-brown, very-loose, interbedded, organic silty PEAT and gray fine SAND, saturated					
10	▼4/11/03	(sand in about 2-inch seams)	SS	2	2		
15	CL	Brown-gray, very-soft, silty CLAY with scattered gravel, wet (gravel in thin bedding)	SS	3	24		
20	GP	Gravel seams, saturated	SS	4	33		
	SM/ML	Gray-brown to gray, very-stiff, sandy SILT to SILT, with gray, thin, very-fine sand partings, moist					
25			SS	5	33		
	SM	Gray, dense, silty, very-fine SAND, moist					
30			SS	6	28		
		- increased moisture below 35 ft					
35	4/11/03 ▼	(Continued on PLATE 5B)					

LEGEND: SS - 2" O.D. Split-Spoon Sample
ST - 3" O.D. Shelby-Tube Sample
B - Bulk Sample

GROUNDWATER: Seal
Water Level ▼
Observation Well Tip

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BORING LOG
KIRKLAND HOTEL
KIRKLAND AVENUE AND 3RD STREET
KIRKLAND, WASHINGTON

JOB NO. 3A033 | DATE 5/19/03 | PLATE 5A

BORING NO. B-2 (Continued from PLATE 5A)

Logged By: _____ Date: _____ Ground Elev. ± _____

Depth ft.	USCS	Soil Description	Sample Type	Sample No.	(N) Blows/ ft.	W %	Other Test
	SM	Gray, dense, silty, very-fine SAND, moist (same as above)	SS	7	29		
		- with fine sand in phases					
40			SS	8	39		
45			SS	9	47		
50		Boring terminated at 46.5 ft.	SS	4	37		
55							
60							
65							

LEGEND: SS - 2" O.D. Split-Spoon Sample
ST - 3" O.D. Shelby-Tube Sample
B - Bulk Sample

GROUNDWATER: Seal
Water Level
Observation Well Tip

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BORING LOG
KIRKLAND HOTEL
KIRKLAND AVENUE AND 3RD STREET
KIRKLAND, WASHINGTON

JOB NO. 3A033 | DATE 5/19/03 | PLATE 5B

BORING NO. B-3

Logged By: WB Date: 4/14/03 Ground Elev. 36.9' ±

Depth ft.	USCS	Soil Description	Sample Type	Sample No.	(N) Blows/ ft.	W %	Other Test
		6-inch concrete slab over pea gravel base					
	ML	Brown, soft, sandy SILT, intermixed with brick fragments (FILL)					
	ML	Brown-gray, very-stiff, very-fine sandy SILT, moist					
5			SS	1	18		
	SM	Brown, very-dense, silty, very-fine SAND, vague bedding, moist					
10			SS	2	59		
15	ML	Gray, very-stiff SILT, with trace very fine sand, moist	SS	3	24		
20		- less sand	SS	4	21		
25		▼ 4/14/03	SS	5	31		
	ML	Gray, very-stiff, very-fine sandy SILT, moist to wet in seams of silty very-fine sand					
30			SS	6	25		
	ML	Gray, very-stiff SILT, with one 2-inch fine gravelly sand seam, moist					
35		(Continued on PLATE 6B)					

LEGEND: SS - 2" O.D. Split-Spoon Sample
ST - 3" O.D. Shelby-Tube Sample
B - Bulk Sample

GROUNDWATER: Seal
Water Level ▼
Observation Well Tip

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BORING LOG
KIRKLAND HOTEL
KIRKLAND AVENUE AND 3RD STREET
KIRKLAND, WASHINGTON

JOB NO. 3A033 DATE 5/19/03 PLATE 6A

BORING NO. B-3 (continued from previous page)

Logged By: _____ Date: _____ Ground Elev. ± _____

Depth ft.	USCS	Soil Description	Sample Type	Sample No.	(N) Blows/ ft.	W %	Other Test
	ML	Gray, very-stiff SILT, with one 2-inch fine gravelly sand seams, moist (same as above)	SS	7	24		
40	SM/ML	Gray, medium-dense, silty, very-fine SAND to fine sandy SILT, in 1/4-inch bedding, moist to wet	SS	8	24		
45			SS	9	37		
50	ML/CL	Brown and gray, soft, clayey SILT, with some fine sand, saturated					
	ML	Gray, dense, very-fine, sandy SILT, moist to wet	SS	10	34		
55		Test boring terminated @ 51.5 ft.					
60							
65							

LEGEND: SS - 2" O.D. Split-Spoon Sample
ST - 3" O.D. Shelby-Tube Sample
B - Bulk Sample

GROUNDWATER: Seal
Water Level
Observation Well Tip

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BORING LOG
KIRKLAND HOTEL
KIRKLAND AVENUE AND 3RD STREET
KIRKLAND, WASHINGTON

JOB NO. 3A033 | DATE 5/19/03 | PLATE 6B

BORING NO. B-4

Logged By: WB Date: 4/14/03 Ground Elev. 51.4' ±

Depth ft.	USCS	Soil Description	Sample Type	Sample No.	(N) Blows/ ft.	W %	Other Test
		6-inch concrete slab over fill					
	ML	Brown-gray to gray mottled, medium-stiff SILT, with very fine sand, moist (FILL)					
5			SS	1	5		
	ML	Brown to light-gray, very-stiff SILT, with interbeds of very-fine sandy silt, moist					
10			SS	2	28		
15			SS	3	27		
	ML	Gray, very-stiff, very-fine sandy SILT, moist					
20			SS	4	23		
25		- zones of very fine sand	SS	5	29		
	SM	Gray, dense, silty, very-fine SAND, moist					
30			SS	6	29		
35	4/14/03	(Continued on PLATE 7B)					

LEGEND: SS - 2" O.D. Split-Spoon Sample
ST - 3" O.D. Shelby-Tube Sample
B - Bulk Sample

GROUNDWATER: Seal
Water Level
Observation Well Tip

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BORING LOG
KIRKLAND HOTEL
KIRKLAND AVENUE AND 3RD STREET
KIRKLAND, WASHINGTON

JOB NO. 3A033 DATE 5/19/03 PLATE 7A

BORING NO. B-4 (Continued from PLATE 7A)

Logged By: _____ Date: _____ Ground Elev. ± _____

Depth ft.	USCS	Soil Description	Sample Type	Sample No.	(N) Blows/ ft.	W %	Other Test
		Gray, dense, silty, very-fine SAND, moist (same as above) - saturated seam @ 35.0 ft	SS	7	32		
40	ML	Gray, very-stiff SILT, with occasional seams of silty very-fine sand, thin bedding with interbedded gray very-fine sand, moist	SS	8	19		
45	SM	Gray, medium-dense, silty, very-fine SAND, saturated	SS	9	20		
50			SS	10	38		
55			SS	11	29		
60	ML	Gray, very-stiff SILT, moist	SS	12	23		
65		Test Boring terminated @ 61.5 ft.					

LEGEND: SS - 2" O.D. Split-Spoon Sample
ST - 3" O.D. Shelby-Tube Sample
B - Bulk Sample

GROUNDWATER: Seal
Water Level
Observation Well Tip

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BORING LOG
KIRKLAND HOTEL
KIRKLAND AVENUE AND 3RD STREET
KIRKLAND, WASHINGTON

JOB NO. 3A033 | DATE 5/19/03 | PLATE 7B

BORING NO. B-5

Logged By: WB Date: 4/14/03 Ground Elev. 38.2' ±

Depth ft.	USCS	Soil Description	Sample Type	Sample No.	(N) Blows/ ft.	W %	Other Test
		Asphalt pavement over crushed rock base					
	SP/ML	Brown-gray intermixed, loose, very-fine SAND and SILT, trace gravel, moist (FILL)					
5			SS	1	6		
	ML	Dark-brown, to gray-brown, soft, sandy SILT, with fine organics in matrix, one 2-inch sand seam, and gray, soft, clayey silt at base of sampler, saturated					
10	ML	Brown-gray mottled, stiff, very-fine sandy SILT, moist	SS	2	15		
15	SM/ML	Brown-gray to gray, medium-dense, very-fine sandy SILT to silty very-fine SAND, moist	SS	3	31		
20	▼	4/14/03	SS	4	15		
		- grades to silty very-fine SAND, saturated					
25			SS	5	26		
		Test Boring terminated @ 26.5 ft.					
30							
35							

LEGEND: SS - 2" O.D. Split-Spoon Sample
ST - 3" O.D. Shelby-Tube Sample
B - Bulk Sample

GROUNDWATER: Seal
Water Level ▼
Observation Well Tip

LIU & ASSOCIATES, INC.

Geotechnical Engineering · Engineering Geology · Earth Science

BORING LOG
KIRKLAND HOTEL
KIRKLAND AVENUE AND 3RD STREET
KIRKLAND, WASHINGTON

JOB NO. 3A033 | DATE 5/19/03 | PLATE 8

RECORD OF BOREHOLE GB-1

SHEET 1 of 2

PROJECT: WWREG/75 State Street/WA
PROJECT NUMBER: 033-1562-100
LOCATION: 75 State Street, Kirkland, WA
DRILLING METHOD: Hollow Stem Auger (HSA)
DRILLING DATE: 2/17/03
DRILL RIG: Mobile B-59
DATUM:
AZIMUTH: N/A
COORDINATES: not surveyed
ELEVATION: 49.5
INCLINATION: -90

DEPTH (ft)	BORING METHOD	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT
0	4.25 inch I.D. HSA with 140lb. Autohammer	0.0 - 0.1 ASPHALT (SURFACING) 0.1 - 0.2 CRUSHED ROCK (SUBBASE) 0.2 - 3.0 Hard, olive gray to medium gray, massive, CLAYEY SILT, little fine sand, damp. PID: 0 ppm (TRANSITIONAL BEDS)	ML/CL		0.2					
		3.0 - 3.1 Dense, light gray, fine to medium SAND lense	SP		46.5 3.1	1	SPT	8-14-17	31	1.5/1.5
5		3.1 - 12.0 Stiff to very stiff, medium gray, massive, CLAYEY SILT with light gray fine SAND and SILT laminae, damp. PID: 0 ppm				2	SPT	3-3-7	10	1.5/1.5
		At 7.5 feet, becomes very stiff.	ML/CL			3	SPT	4-7-10	17	1.5/1.5
10		Sample 4: Slightly fractured with steeply dipping laminae.				4	SPT	5-11-14	25	1.5/1.5
		12.0 - 15.0 Compact, medium gray, SILT and fine SAND, moist to wet. PID: 0 ppm	ML/SP		37.5 12.0	5	SPT	5-8-11	19	1.5/1.5
15		15.0 - 29.0 Stiff to very stiff, medium gray, massive, CLAYEY SILT, with steeply dipping, light gray, fine SAND laminae, damp. PID: 0 ppm			34.5 15.0	6	SPT	3-7-9	16	1.5/1.5
						7	SPT	3-4-8	12	1.5/1.5
20			ML/CL			8	SPT	5-6-11	17	1.5/1.5
25		Log continued on next page								

PENETRATION RESISTANCE BLOWS / ft ■
10 20 30 40
WATER CONTENT (PERCENT)
W_p — W — W_l

NOTES WATER LEVELS

GRAPHIC

Monument and Concrete
Bentonite Chips
1-inch pvc riser
10-20 Silica Sand
1-inch diameter slotted pvc
Bentonite Chips
Bentonite Chips
2/25/03
2/18/03

1 in to 3 ft
DRILLING CONTRACTOR: Holt Drilling
DRILLER: Mike Reynolds

LOGGED: T. Marshall
CHECKED: RDL
DATE: 7/9/03

Golder Associates

BOREHOLE RECORD BORE.GPJ GLDR_WA.GDT 7/9/03

RECORD OF BOREHOLE GB-1

SHEET 2 of 2

PROJECT: WWREG/75 State Street/WA
PROJECT NUMBER: 033-1562-100
LOCATION: 75 State Street, Kirkland, WA
DRILLING METHOD: Hollow Stem Auger (HSA)
DRILLING DATE: 2/17/03
DRILL RIG: Mobile B-59
DATUM:
AZIMUTH: N/A
COORDINATES: not surveyed
ELEVATION: 49.5
INCLINATION: -90

DEPTH (ft)	BORING METHOD	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	PENETRATION RESISTANCE BLOWS / ft ■ (10 20 30 40) / WATER CONTENT (PERCENT) W_p W W_l	NOTES WATER LEVELS / GRAPHIC
25		15.0 - 29.0 Stiff to very stiff, medium gray, massive, CLAYEY SILT, with steeply dipping, light gray, fine SAND laminae, damp. PID: 0 ppm *(Continued)* (same as above)	ML/CL									
						9	SPT	4-11-14	25	1.5 / 1.5	■	
					20.5							
		Boring completed at 29.0 ft.			29.0							
30												
35												
40												
45												
50												

1 in to 3 ft
DRILLING CONTRACTOR: Holt Drilling
DRILLER: Mike Reynolds

LOGGED: T. Marshall
CHECKED: RDL
DATE: 7/9/03

Golder Associates

BOREHOLE RECORD BORE.GPJ GLDR_WA.GDT 7/9/03

RECORD OF BOREHOLE GB-2

SHEET 1 of 1

PROJECT: WWREG/75 State Street/WA
PROJECT NUMBER: 033-1562-100
LOCATION: 75 State Street, Kirkland, WA
DRILLING METHOD: Hollow Stem Auger (HSA)
DRILLING DATE: 2/18/03
DRILL RIG: Mobile B-59
DATUM:
AZIMUTH: N/A
COORDINATES: not surveyed
ELEVATION: 48
INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	PENETRATION RESISTANCE BLOWS / ft ■ (10 20 30 40) / WATER CONTENT (PERCENT) W_p O W W_l	NOTES WATER LEVELS / GRAPHIC
0	4.25-inch I.D. HSA with 140lb. Autohammer	0.0 - 1.0 CRUSHED ROCK (FILL) PID: 0 ppm			47.0							
		1.0 - 11.0 Very stiff, medium gray, massive, CLAYEY SILT to SILTY CLAY, with light gray fine sand and silt laminae, damp. PID: 0 ppm (TRANSITIONAL BEDS)	CL/ML		1.0	1	SPT	6-12-13	25	1.5/1.5	■	
5												
		Sample 2: Becomes olive gray with steeply dipping (75 degrees) fine sand and silt laminae.				2	SPT	4-8-12	20	1.5/1.5	■	
10												Bentonite Chips
		11.0 - 14.5 Very stiff, olive gray, massive, CLAYEY SILT interbedded with olive gray fine SAND and SILT. PID: 0 ppm	ML/CL/SM		37.0 11.0	3	SPT	7-10-15	25	1.5/1.5	■	
		14.5 - 20.0 Very stiff, olive gray, massive, CLAYEY SILT, with steeply dipping (60 degrees) light gray, fine sand and silt laminae, damp.	CL/ML		33.5 14.5	4	SPT	4-7-13	20	1.5/1.5	■	
15												
20		Boring completed at 20.0 ft.			28.0 20.0							
25												

1 in to 3 ft
DRILLING CONTRACTOR: Holt Drilling
DRILLER: Mike Reynolds

LOGGED: T. Marshall
CHECKED: RDL
DATE: 7/9/03

Golder Associates

BOREHOLE RECORD BORE.GPJ GLDR_WA.GDT 7/9/03

RECORD OF BOREHOLE GB-3

SHEET 1 of 1

PROJECT: WWREG/75 State Street/WA
PROJECT NUMBER: 033-1562-100
LOCATION: 75 State Street, Kirkland, WA
DRILLING METHOD: Hollow Stem Auger (HSA)
DRILLING DATE: 2/17/03
DRILL RIG: Mobile B-59
DATUM:
AZIMUTH: N/A
COORDINATES: not surveyed
ELEVATION: 45
INCLINATION: -90

DEPTH (ft)	BORING METHOD	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	PENETRATION RESISTANCE BLOWS / ft ■ (10 20 30 40) / WATER CONTENT (PERCENT) W_p W W_l	NOTES WATER LEVELS / GRAPHIC
0	4.25-inch I.D. HSA with 140lb. Autohammer	0.0 - 0.2 ASPHALT (SURFACING) 0.2 - 0.3 CRUSHED ROCK (SUBBASE) 0.3 - 1.0 Loose, yellow brown, gravelly SAND. (FILL) 1.0 - 19.0 Compact, medium gray, massive, SILT, trace fine sand, with fine sand and silt laminae, damp. PID: 0 ppm (TRANSITIONAL BEDS)			0.3 44.0 1.0							
5						1	SPT	6-8-9	17	1.5/1.5	■	
						2	SPT	4-8-13	21	1.5/1.5	■	
						3	SPT	5-9-14	23	1.5/1.5	■	
10		At 9 feet: 1-inch thick lense of fine to medium SAND.	ML									Bentonite Chips
						4	SPT	3-6-8	14	1.5/1.5	■	
						5	SPT	2-5-10	15	1.5/1.5	■	
15		At 14.5 feet: slightly fractured.										
		At 16 feet: Becomes dark gray, SILT, little fine sand, steeply dipping (60 degrees) laminae of fine sand.				6	SPT	4-7-12	19	1.5/1.5	■	
		19.0 - 20.0 Very stiff, medium gray, massive, SILTY CLAY, trace fine sand, damp. PID: 0 ppm	ML/CL		26.0 19.0	7	SPT	8-7-9	16	1.5/1.5	■	
20		Boring completed at 20.0 ft.			25.0 20.0							
25												

1 in to 3 ft
DRILLING CONTRACTOR: Holt Drilling
DRILLER: Mike Reynolds

LOGGED: T. Marshall
CHECKED: RDL
DATE: 7/9/03

Golder Associates

BOREHOLE RECORD BORE.GPJ GLDR_WA.GDT 7/9/03

RECORD OF BOREHOLE GB-4

SHEET 1 of 1

PROJECT: WWREG/75 State Street/WA
PROJECT NUMBER: 033-1562-100
LOCATION: 75 State Street, Kirkland, WA
DRILLING METHOD: Hollow Stem Auger (HSA)
DRILLING DATE: 2/17/03
DRILL RIG: Mobile B-59
DATUM:
AZIMUTH: N/A
COORDINATES: not surveyed
ELEVATION: 44
INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	PENETRATION RESISTANCE BLOWS / ft ■ (10 20 30 40) / WATER CONTENT (PERCENT) W_p W W_l	NOTES WATER LEVELS GRAPHIC
0	4.25-inch I.D. HSA with 140lb. Autohammer	0.0 - 0.1 ASPHALT (SURFACING) 0.1 - 0.2 CRUSHED ROCK (SUBBASE) 0.2 - 1.0 Loose, yellow brown, gravelly SAND. PID: 1.8 ppm (FILL) 1.0 - 7.1 Soft to very stiff, yellow brown to medium gray, massive, CLAYEY SILT, with fine sand laminae, trace fine roots in upper 6 inches, moist. PID: 0 ppm (TRANSITIONAL BEDS)	SW		0.2 43.0 1.0							
5			CL/ML			1	SPT	1-5-8	13	1.5/1.5	■	Bentonite Chips
						2	SPT	3-9-14	23	1.5/1.5	■	
		At 7 feet: 1-inch thick lense of fine to medium SAND. 7.1 - 10.0 Compact, dark gray, massive, SILT, trace fine sand, damp. PID: 0 ppm			36.9 7.1							
10			ML			3	SPT	5-9-13	22	1.5/1.5	■	
		At 9 feet: Light gray fine SAND laminae and occasional fractures observed.			34.0							
		Boring completed at 10.0 ft.			10.0							
15												
20												
25												

1 in to 3 ft
DRILLING CONTRACTOR: Holt Drilling
DRILLER: Mike Reynolds

LOGGED: T. Marshall
CHECKED: RDL
DATE: 7/9/03

Golder Associates

BOREHOLE RECORD BORE.GPJ GLDR_WA.GDT 7/9/03

RECORD OF BOREHOLE GB-5

SHEET 1 of 1

PROJECT: WWREG/75 State Street/WA
PROJECT NUMBER: 033-1562-100
LOCATION: 75 State Street, Kirkland, WA
DRILLING METHOD: Hollow Stem Auger (HSA)
DRILLING DATE: 2/17/03
DRILL RIG: Mobile B-59
DATUM:
AZIMUTH: N/A
COORDINATES: not surveyed
ELEVATION: 43.5
INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	NUMBER	TYPE	SAMPLES BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	PENETRATION RESISTANCE BLOWS / ft ■ (10 20 30 40) / WATER CONTENT (PERCENT) W_p W W_l	NOTES WATER LEVELS / GRAPHIC
0	4.25-inch I.D. HSA with 140lb. Autohammer	0.0 - 0.1 ASPHALT (SURFACING) 0.1 - 0.2 CRUSHED ROCK (SUBBASE) 0.2 - 1.0 Soft, light gray, CLAYEY SILT, little fine to medium sand, petroleum odor. PID reading: 29 ppm	ML/CL		0.2 42.5 1.0							
		1.0 - 13.3 Stiff to very stiff, olive gray, slightly fractured, CLAYEY SILT, with moderately dipping (45 degrees), light gray, fine sand laminae. PID: 0 ppm (TRANSITIONAL BEDS)				1	SPT	2-9-11	20	1.5/1.5		
5		At 6 feet: Becomes stiff and dark gray.	ML/CL			2	SPT	1-3-6	9	1.5/1.5		
		At 8.5 feet: Becomes massive.				3	SPT	3-5-6	11	1.5/1.5		Bentonite Chips
10						4	SPT	3-5-7	12	1.5/1.5		
		13.3 - 15.5 Compact, medium gray, SILT and fine SAND, moist. PID: 0 ppm	ML/SP		30.2 13.3	5	SPT	6-7-9	16	1.5/1.5		
15		15.5 - 20.0 Firm, medium gray, massive, CLAYEY SILT, trace fine sand, moisl. PID: 0 ppm	ML/CL		28.0 15.5	6	SPT	2-2-4	6	1.5/1.5		
		At 19 feet: Light gray, fine sand laminae observed.				7	SPT	2-2-3	5	1.5/1.5		
20		Boring completed at 20.0 ft.			23.5 20.0							
25												

1 in to 3 ft
DRILLING CONTRACTOR: Holt Drilling
DRILLER: Mike Reynolds

LOGGED: T. Marshall
CHECKED: RDL
DATE: 7/9/03

Golder Associates

BOREHOLE RECORD BORE.GPJ GLDR_WA.GDT 7/9/03

RECORD OF BOREHOLE GB-6

SHEET 1 of 2

PROJECT: WWREG/75 State Street/WA
PROJECT NUMBER: 033-1562-100
LOCATION: 75 State Street, Kirkland, WA
DRILLING METHOD: Hollow Stem Auger (HSA)
DRILLING DATE: 2/18/03
DRILL RIG: Mobile B-59
DATUM:
AZIMUTH: N/A
COORDINATES: not surveyed
ELEVATION: 42.5
INCLINATION: -90

BORING METHOD: 4.25-inch I.D. HSA with 140lb. Autohammer

DEPTH (ft)	DESCRIPTION	USCS	ELEV. / DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT
0	0.0 - 0.2 ASPHALT (SURFACING) 0.2 - 0.3 CRUSHED ROCK. PID: 5 ppm (SUBBASE) 0.3 - 5.5 Compact, medium gray, SILT, some fine sand, moist, heavy petroleum odor. (TRANSITIONAL BEDS)	ML	0.3					
	At 3.5 to 4 feet, PID: 88 ppm At 4 to 5 feet, PID: 44 to 52 ppm			1	SPT	5-7-7	14	1.2 / 1.5
5	5.5 - 10.5 Stiff, olive gray, CLAYEY SILT, with light gray, fine sand laminae.		37.0 5.5					
	From 6.5 feet to 7 feet, PID: 28 ppm From 7 feet to 8 feet, PID: 10 ppm	ML/CL		2	SPT	1-4-5	9	1.5 / 1.5
	From 9 feet to 9.5 feet, PID: 18 ppm From 9.5 feet to 10.5 feet, PID: 4 to 8 ppm			3	SPT	4-5-7	12	1.5 / 1.5
10	10.5 - 13.0 Compact, olive gray, SILT, trace fine sand, with light gray, fine sand laminae, moist. PID: 9 ppm	ML	32.0 10.5	4	SPT	3-5-11	16	1.5 / 1.5
	13.0 - 15.8 Dense, medium gray, fine SAND, some silt, interbedded with olive gray clayey silt, moist, 1-inch diameter rock in tip of sampler. PID: 1 - 2 ppm	SP	29.5 13.0	5	SPT	6-10-13	23	1.5 / 1.5
15	15.8 - 30.0 Stiff to very stiff, olive gray, massive, CLAYEY SILT, trace fine sand, moist. PID: 3 - 5 ppm		26.8 15.8	6	SPT	3-5-7	12	1.5 / 1.5
	At 18.5 feet: Becomes very stiff. PID: 0 ppm.	ML/CL		7	SPT	4-6-12	18	1.5 / 1.5
20	At 23.5 feet: Light gray, fine sand laminae observed.			8	SPT	5-7-13	20	1.5 / 1.5
25	Log continued on next page							

PENETRATION RESISTANCE BLOWS / ft ■
10 20 30 40
WATER CONTENT (PERCENT)
W_p W W_l

NOTES WATER LEVELS

GRAPHIC

Monument in Concrete
Bentonite Chips
2-inch PVC riser
10-20 Silica Sand
2-inch slotted PVC
Bentonite Chips
Bentonite Chips

2/25/03
2/21/03

1 in to 3 ft
DRILLING CONTRACTOR: Holt Drilling
DRILLER: Mike Reynolds

LOGGED: T. Marshall
CHECKED: RDL
DATE: 7/9/03

Golder Associates

BOREHOLE RECORD BORE.GPJ GLDR_WA.GDT 7/9/03

RECORD OF BOREHOLE GB-6

SHEET 2 of 2

PROJECT: WWREG/75 State Street/WA
PROJECT NUMBER: 033-1562-100
LOCATION: 75 State Street, Kirkland, WA
DRILLING METHOD: Hollow Stem Auger (HSA)
DRILLING DATE: 2/18/03
DRILL RIG: Mobile B-59
DATUM:
AZIMUTH: N/A
COORDINATES: not surveyed
ELEVATION: 42.5
INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	PENETRATION RESISTANCE BLOWS / ft ■ (10 20 30 40) / WATER CONTENT (PERCENT) W_p W W_l	NOTES WATER LEVELS GRAPHIC
25		15.8 - 30.0 Stiff to very stiff, olive gray, massive, CLAYEY SILT, trace fine sand, moist. PID: 3 - 5 ppm *(Continued)* (same as above)	ML/CL									
						9	SPT	3-6-10	16	1.5 / 1.5	■	
30		Boring completed at 30.0 ft.			12.5 / 30.0							
35												
40												
45												
50												

1 in to 3 ft
DRILLING CONTRACTOR: Holt Drilling
DRILLER: Mike Reynolds

LOGGED: T. Marshall
CHECKED: RDL
DATE: 7/9/03

Golder Associates

BOREHOLE RECORD BORE.GPJ GLDR_WA.GDT 7/9/03

RECORD OF BOREHOLE GB-7

SHEET 1 of 1

PROJECT: WWREG/75 State Street/WA
PROJECT NUMBER: 033-1562-100
LOCATION: 75 State Street, Kirkland, WA
DRILLING METHOD: Hollow Stem Auger (HSA) DATUM:
DRILLING DATE: 2/18/03
DRILL RIG: Mobile B-59
AZIMUTH: N/A
COORDINATES: not surveyed
ELEVATION: 41.5
INCLINATION: -90

DEPTH (ft)	BORING METHOD	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	PENETRATION RESISTANCE BLOWS / ft ■ (10 20 30 40) / WATER CONTENT (PERCENT) W_p — W — W_l	NOTES WATER LEVELS / GRAPHIC
0	4.25-inch I.D. HSA with 140lb. Autohammer	0.0 - 0.2 ASPHALT (SURFACING) 0.2 - 0.3 CRUSHED ROCK. PID: 5 ppm (SUBBASE)			0.3							
		0.3 - 12.5 Stiff, medium gray to olive gray, massive, CLAYEY SILT, trace fine sand, with steeply dipping (60 degrees) light gray fine sand and silt laminae, damp. (TRANSITIONAL BEDS)										
		At 3.5 feet, PID: 2 ppm				1	SPT	3-4-4	8	1.5/1.5		
		From 4 feet to 4.5 feet, PID: 0 ppm										
5		At 6 feet, PID: 0 ppm Becomes medium gray.	ML/CL			2	SPT	2-3-7	10	1.5/1.5		Bentonite Chips
		Becomes very stiff. PID: 0 ppm Occasional fine gravel.				3	SPT	3-5-9	14	1.5/1.5		
10		From 10.5 feet to 12 feet, PID: 0 ppm				4	SPT	3-4-9	13	1.5/1.5		
		12.5 - 14.5 Compact, dark gray, fine to medium SAND, some silt, interbedded with medium gray, CLAYEY SILT, moist. PID: 0 ppm	SP		29.0 12.5	5	SPT	4-8-13	21	1.5/1.5		
		Boring completed at 14.5 ft.			27.0 14.5							
15												
20												
25												

1 in to 3 ft
DRILLING CONTRACTOR: Holt Drilling
DRILLER: Mike Reynolds

LOGGED: T. Marshall
CHECKED: RDL
DATE: 7/9/03

Golder Associates

BOREHOLE RECORD BORE.GPJ GLDR_WA.GDT 7/9/03

RECORD OF BOREHOLE GB-8

SHEET 1 of 1

PROJECT: WWREG/75 State Street/WA
PROJECT NUMBER: 033-1562-100
LOCATION: 75 State Street, Kirkland, WA
DRILLING METHOD: Hollow Stem Auger (HSA)
DRILLING DATE: 2/18/03
DRILL RIG: Mobile B-59
DATUM:
AZIMUTH: N/A
COORDINATES: not surveyed
ELEVATION: 43.5
INCLINATION: -90

DEPTH (ft)	BORING METHOD	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	PENETRATION RESISTANCE BLOWS / ft ■ (10 20 30 40) / WATER CONTENT (PERCENT) W_p W W_l	NOTES WATER LEVELS GRAPHIC
0	4.25-inch I.D. HSA with 140lb. Autohammer	0.0 - 0.1 ASPHALT (SURFACING)			43.9							
		0.1 - 0.3 CONCRETE			0.6							
		0.3 - 0.6 CRUSHED ROCK (SUBBASE) PID: 14 ppm										
		0.6 - 10.0 Stiff, medium gray, massive, CLAYEY SILT, with light gray, fine sand laminae, damp. PID: 0 ppm (TRANSITIONAL BEDS)	ML/CL			1	SPT	2-4-5	9	1.5/1.5	■	
5		At 6 feet: Becomes very stiff. PID: 0 ppm				2	SPT	7-8-9	17	1.5/1.5	■	Bentonite Chips
						3	SPT	2-3-4	7	1.5/1.5	■	
10		10.0 - 12.8 Compact, medium gray, massive, fine to medium SAND and SILT, moist. PID: 0 ppm	SP/ML		33.5 / 10.0	4	SPT	4-10-12	22	1.5/1.5	■	
		12.8 - 14.5 Very stiff, olive gray, massive, CLAYEY SILT, trace fine sand, with light gray, fine sand laminae, moist, 1-inch gravel at 14 ft. PID: 0 ppm	ML/CL		30.8 / 12.8	5	SPT	3-5-9	14	1.5/1.5	■	
15		Boring completed at 14.5 ft.			29.0 / 14.5							
20												
25												

1 in to 3 ft
DRILLING CONTRACTOR: Holt Drilling
DRILLER: Mike Reynolds

LOGGED: T. Marshall
CHECKED: RDL
DATE: 7/9/03

Golder Associates

BOREHOLE RECORD BORE.GPJ GLDR_WA.GDT 7/9/03

RECORD OF BOREHOLE GB-9

SHEET 1 of 1

PROJECT: WWREG/75 State Street/WA
PROJECT NUMBER: 033-1562-100
LOCATION: 75 State Street, Kirkland, WA
DRILLING METHOD: Hollow Stem Auger (HSA)
DRILLING DATE: 2/18/03
DRILL RIG: Mobile B-59
DATUM:
AZIMUTH: N/A
COORDINATES: not surveyed
ELEVATION: 44
INCLINATION: -90

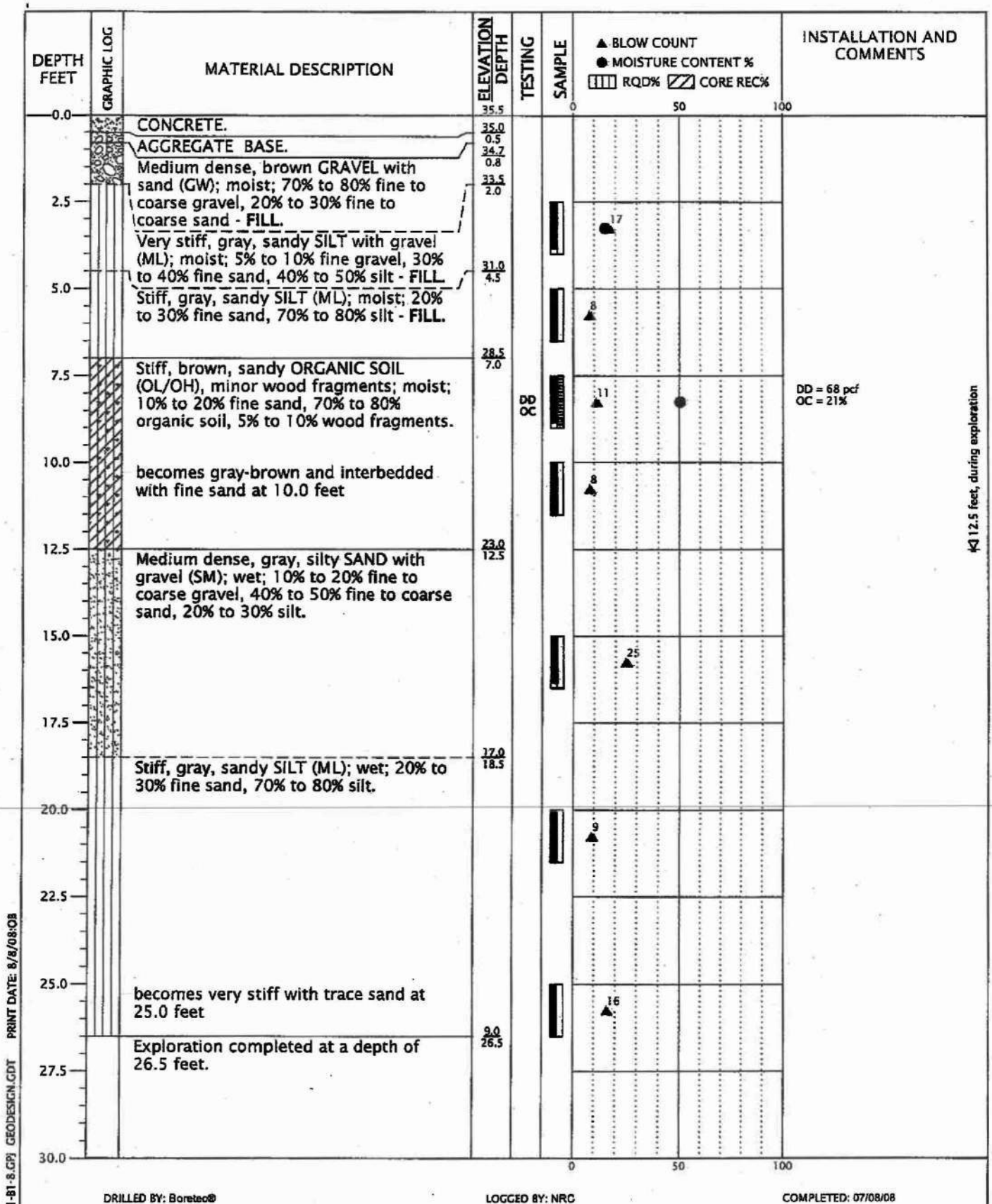
DEPTH (ft)	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: NUMBER	TYPE	BLOWS per 6 in (140 lb hammer 30 inch drop)	N	REC / ATT	PENETRATION RESISTANCE BLOWS / ft (10 20 30 40) / WATER CONTENT (PERCENT) W_p W W_l	NOTES WATER LEVELS GRAPHIC
0	4.25-inch I.D. HSA with 140lb. Autohammer	0.0 - 0.2 ASPHALT (SURFACING) 0.2 - 0.3 CRUSHED ROCK (SUBBASE) 0.3 - 5.5 Soft, olive gray, SILT, trace fine sand, moist. (TRANSITIONAL BEDS)	ML		0.3							
5		At 4.5 feet: Becomes stiff, medium gray, SILT, trace fine sand, with steeply dipping, light gray, fine sand and silt laminae. PID: 2.5 ppm			38.5	1	SPT	0-0-2	2	0.7 / 1.5		
		5.5 - 13.0 Very stiff, medium gray, massive, CLAYEY SILT, with light gray, fine sand and silt laminae, damp. PID: 0 ppm			5.5	2	SPT	3-5-7	12	1.5 / 1.5		
10		At 9 feet: interbeds of light gray to olive gray, fine to medium sand. PID: 0 ppm	ML/CL			3	SPT	4-8-13	21	1.5 / 1.5		Bentonite Chips
						4	SPT	4-10-16	26	1.5 / 1.5		
		13.0 - 14.5 Compact, olive gray, fine to medium SAND, some silt, moist. PID: 0 ppm	SP/SM		31.0 13.0	5	SPT	9-9-9	18	1.5 / 1.5		
15		14.5 - 20.0 Very stiff, olive gray, massive, CLAYEY SILT, with steeply dipping, light gray fine sand and silt laminae. PID: 0 ppm	ML/CL		29.5 14.5	6	SPT	4-7-12	19	1.5 / 1.5		
						7	SPT	3-5-9	14	1.5 / 1.5		
20		Boring completed at 20.0 ft.			24.0 20.0							
25												

1 in to 3 ft
DRILLING CONTRACTOR: Holt Drilling
DRILLER: Mike Reynolds

LOGGED: T. Marshall
CHECKED: RDL
DATE: 7/9/03

Golder Associates

BOREHOLE RECORD BORE.GPJ GLDR_WA.GDT 7/9/03



DRILLED BY: Boretec®

LOGGED BY: NRC

COMPLETED: 07/08/08

BORING METHOD: hollow-stem auger (see report text)

BORING BIT DIAMETER: 8-inch

BORING LOG INCA-1-01-B1-8.GPJ GEODESIGN.GDT PRINT DATE: 8/8/08:08

GEODESIGN INC
10700 Meridian Avenue North - Suite 210
Seattle WA 98133
Off 206.838.9900 Fax 206.838.9901

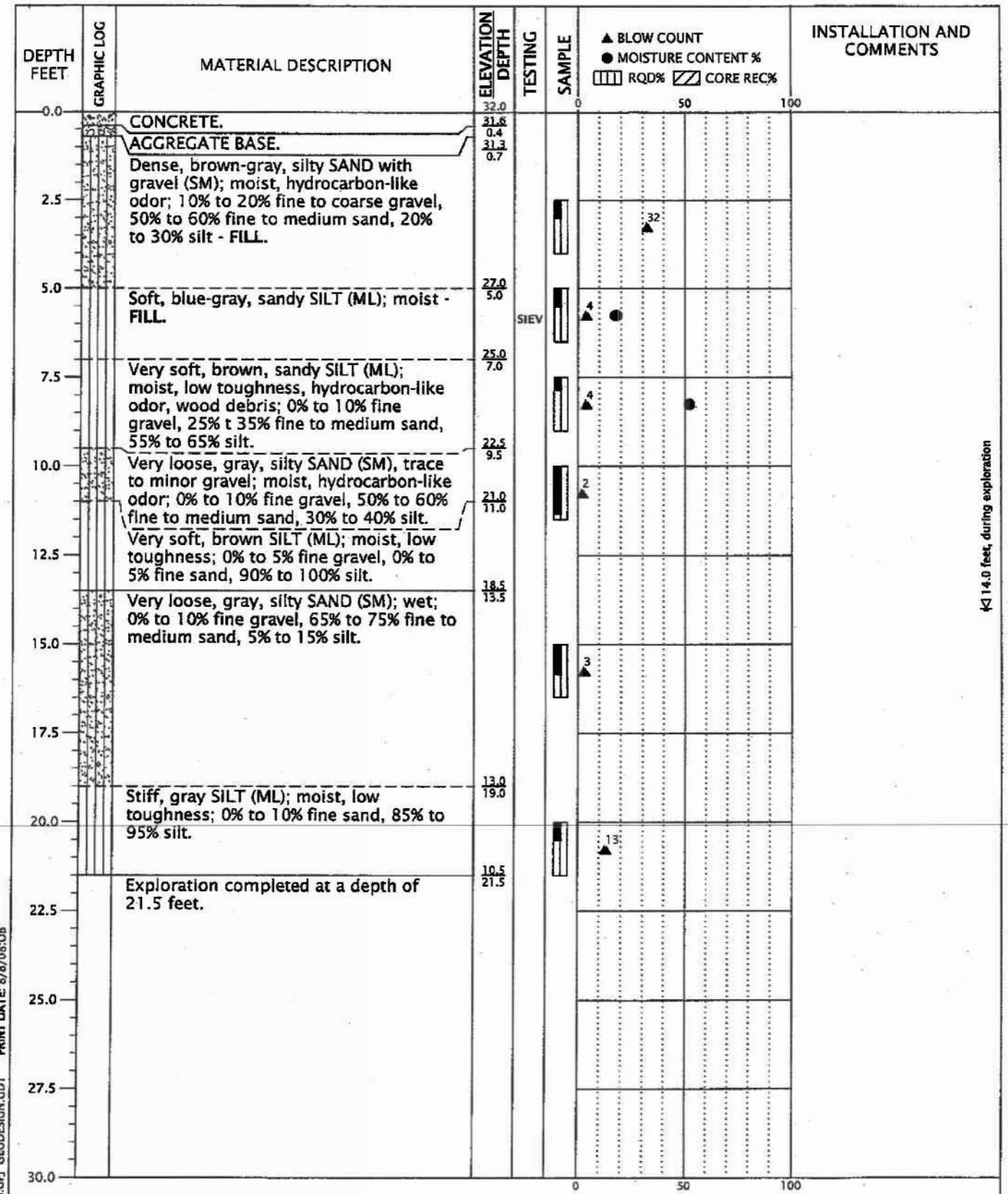
INCA-1-01

BORING B-1

AUGUST 2008

KIRKLAND TRANSIT CENTER
KIRKLAND, WA

FIGURE A-1



DRILLED BY: Boretec®

LOGGED BY: HFH

COMPLETED: 07/07/08

BORING METHOD: hollow-stem auger (see report text)

BORING BIT DIAMETER: 8-inch

BORING LOG INCA-1-01-B-1-8.GPJ GEODESIGN.GDT PRINT DATE: 8/8/08:OB

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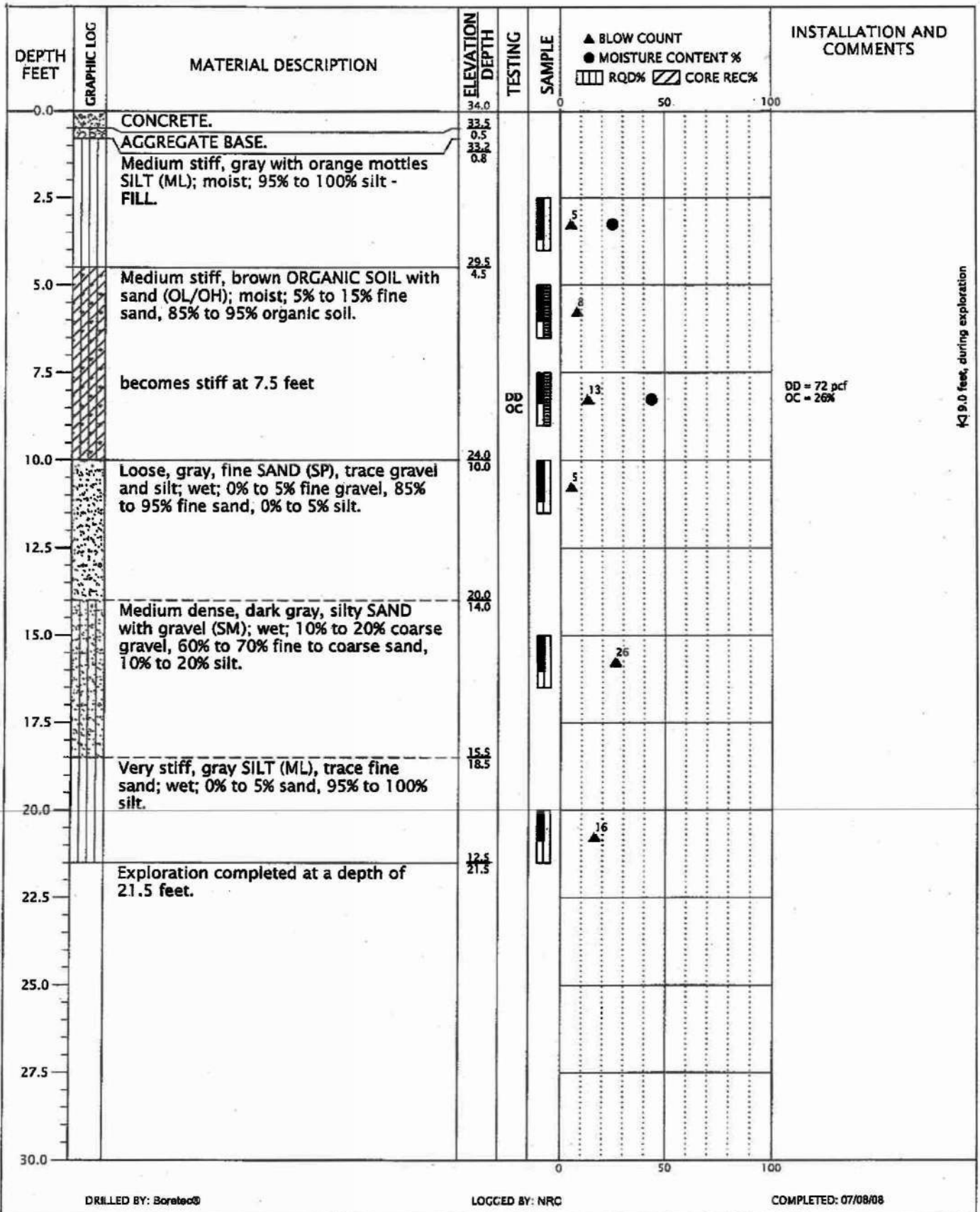
BORING B-2

AUGUST 2008

KIRKLAND TRANSIT CENTER
KIRKLAND, WA

FIGURE A-2



DRILLED BY: Boretec®

LOGGED BY: NRC

COMPLETED: 07/08/08

BORING METHOD: hollow-stem auger (see report text)

BORING BIT DIAMETER: 8-inch

BORING LOG INCA-1-01-B1-8.GPJ GEODESIGN.GDT PRINT DATE: 8/8/08:OB

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BORING B-3

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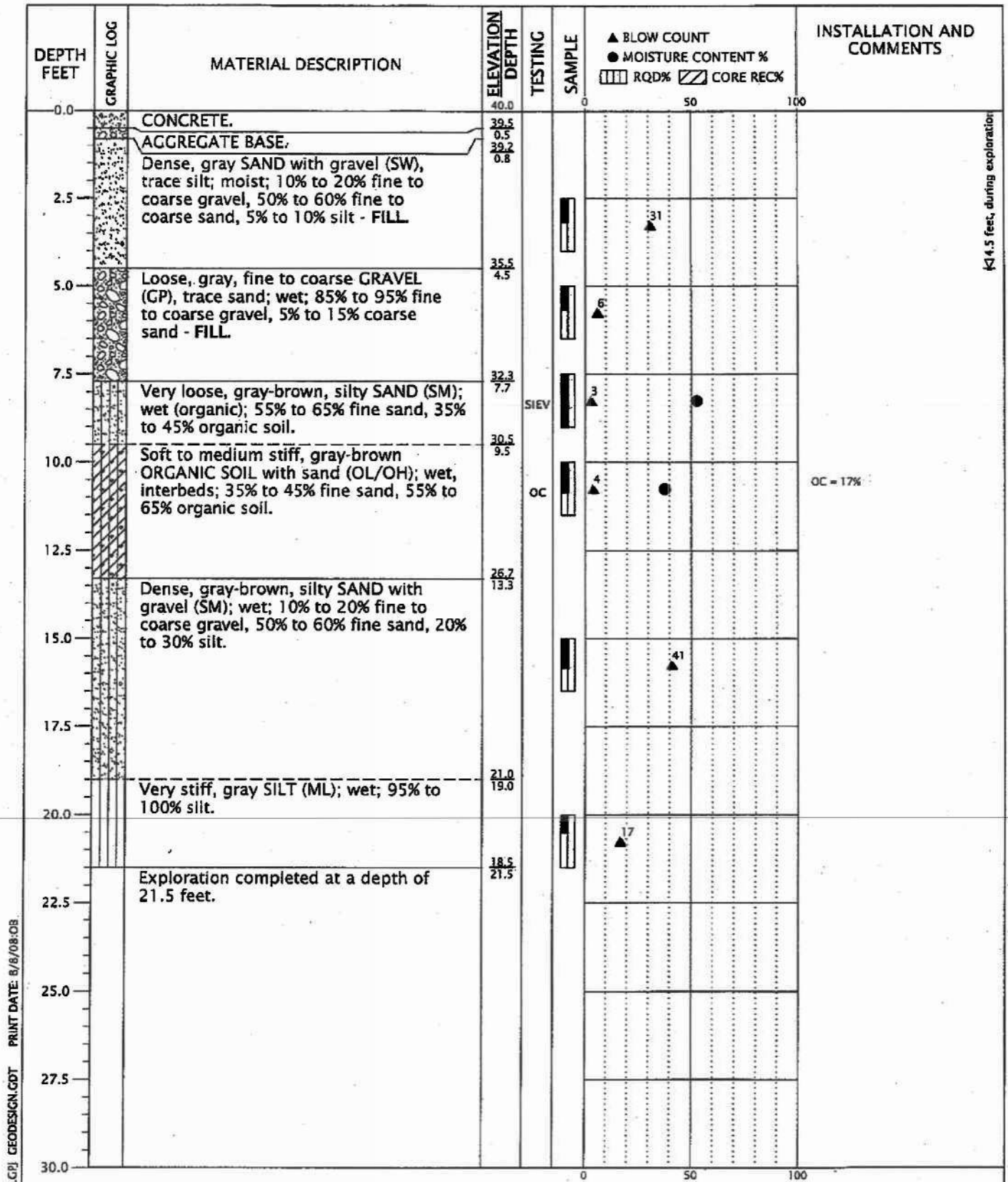
KIRKLAND TRANSIT CENTER
KIRKLAND, WA

FIGURE A-3



BORING LOG INCA-1-01-B1-B.GPJ GEODESIGN.GDT PRINT DATE: 8/8/08:OB

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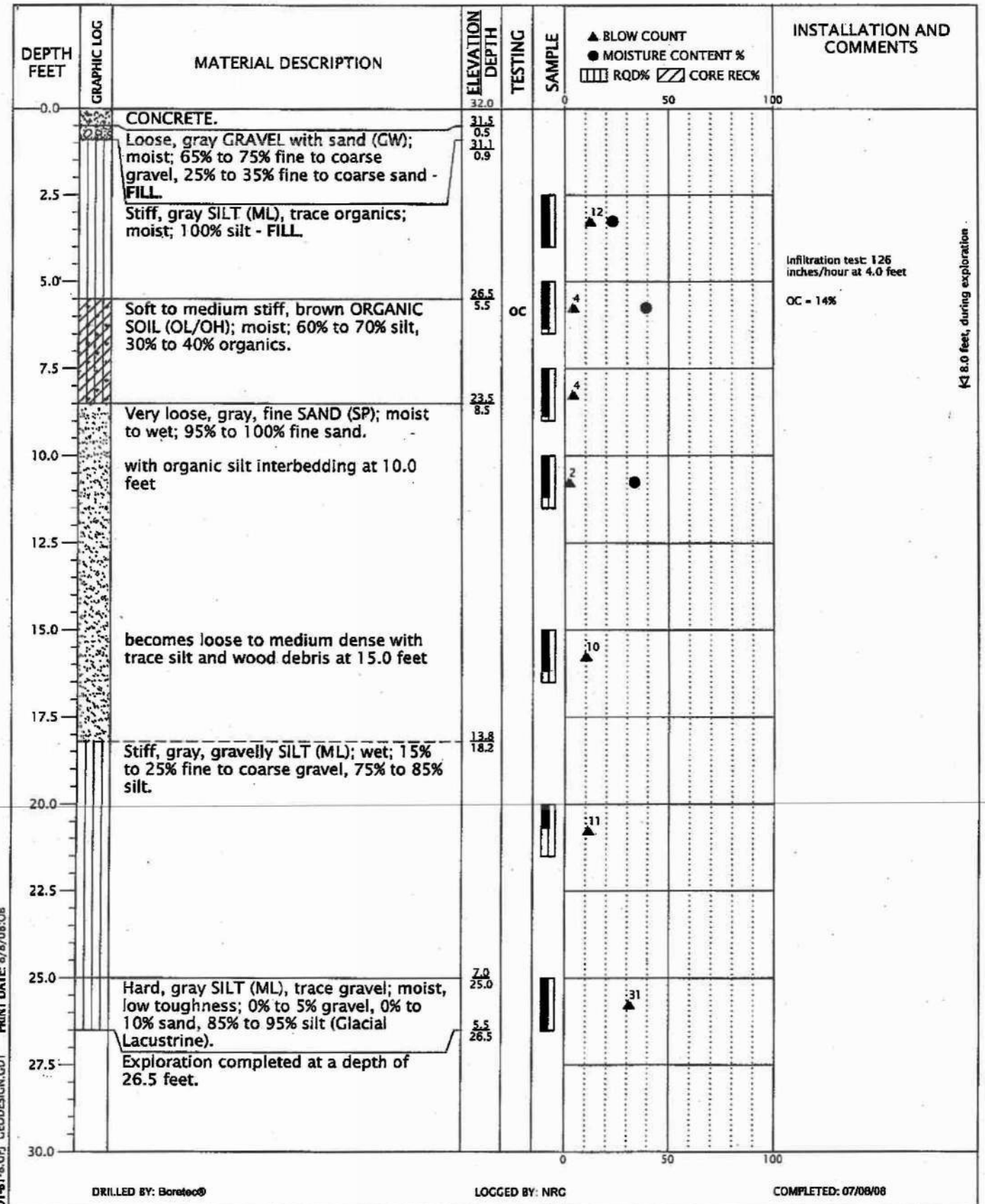
BORING B-4

AUGUST 2008

KIRKLAND TRANSIT CENTER
KIRKLAND, WA

FIGURE A-4



DRILLED BY: Boretec®

LOGGED BY: NRG

COMPLETED: 07/08/08

BORING METHOD: hollow-stem auger (see report text)

BORING BIT DIAMETER: 8-inch

BORING LOG INCA-1-01-B-5.GPJ GEODESIGN.GDT PRINT DATE: 8/8/08:OB

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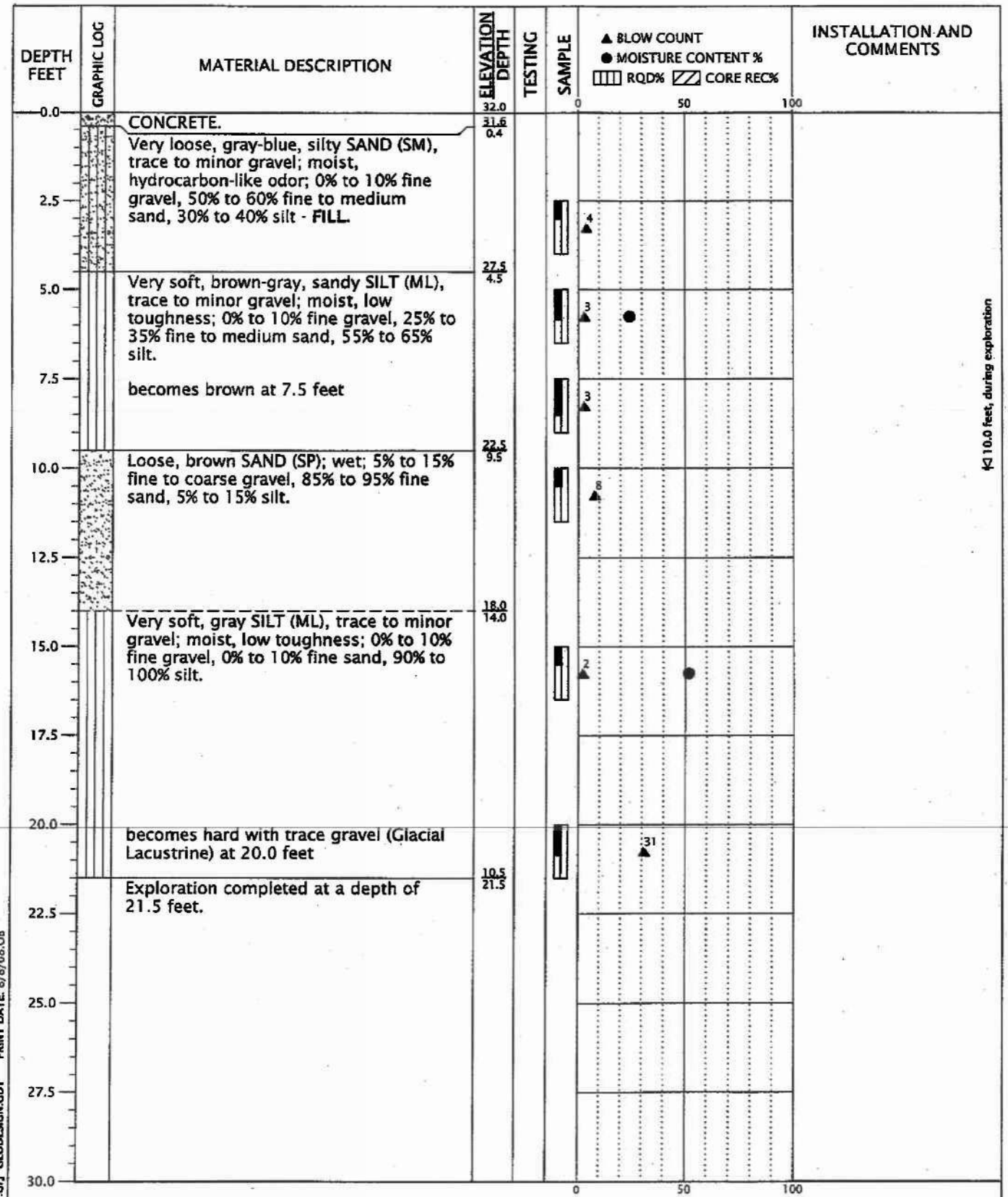
BORING B-5

AUGUST 2008

KIRKLAND TRANSIT CENTER
KIRKLAND, WA

FIGURE A-5



DRILLED BY: Boretec®

LOGGED BY: HFH

COMPLETED: 07/07/08

BORING METHOD: hollow-stem auger (see report text)

BORING BIT DIAMETER: 8-inch

BORING LOG INCA-1-01-B1-B.GPJ GEODESIGN.GDT PRINT DATE: 8/8/08:OB

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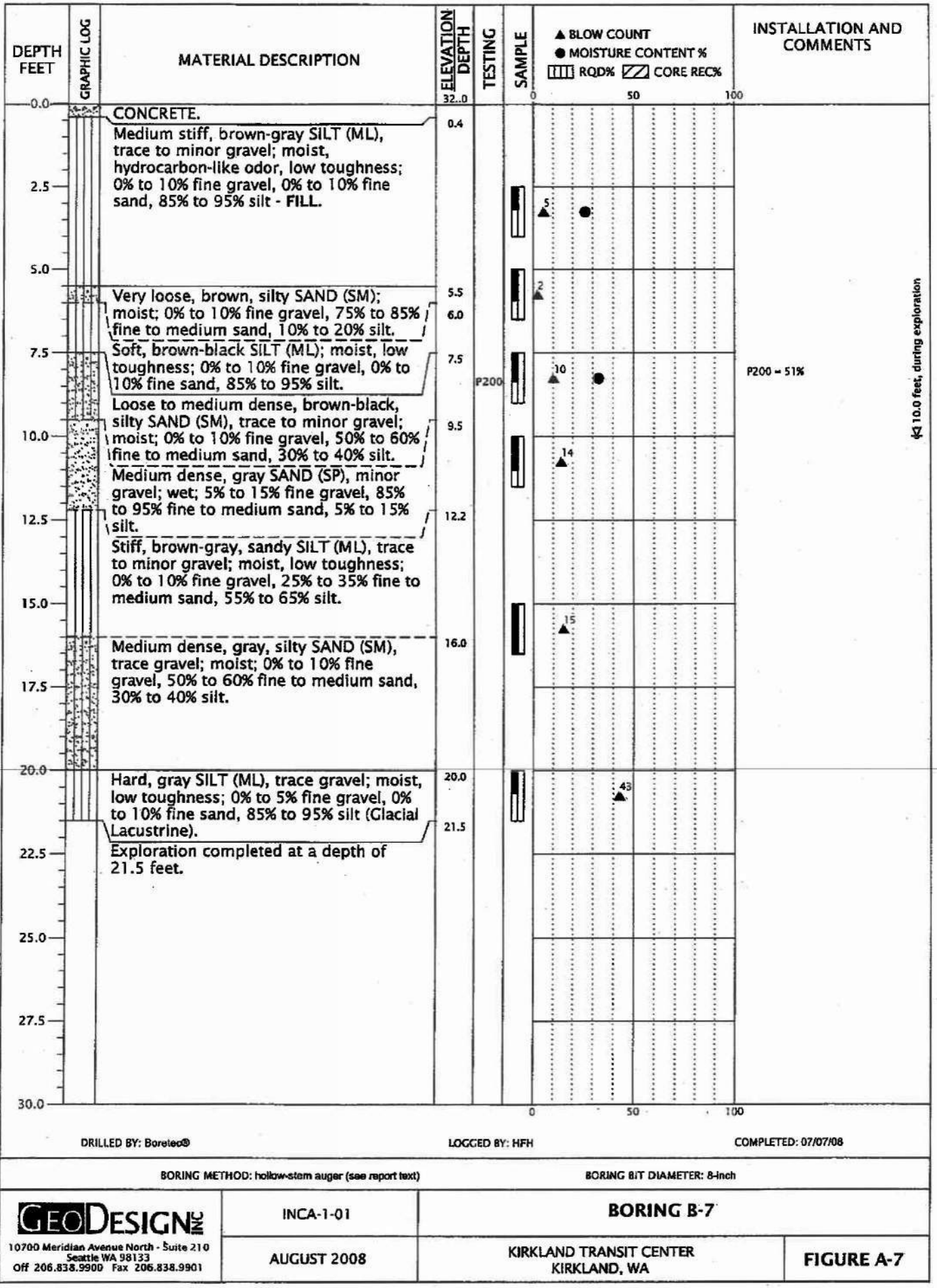
INCA-1-01

BORING B-6

AUGUST 2008

KIRKLAND TRANSIT CENTER
KIRKLAND, WA

FIGURE A-6



BORING LOG INCA-1-01-B1-8.GPJ GEODESIGN.GDT PRINT DATE: 8/8/08:08

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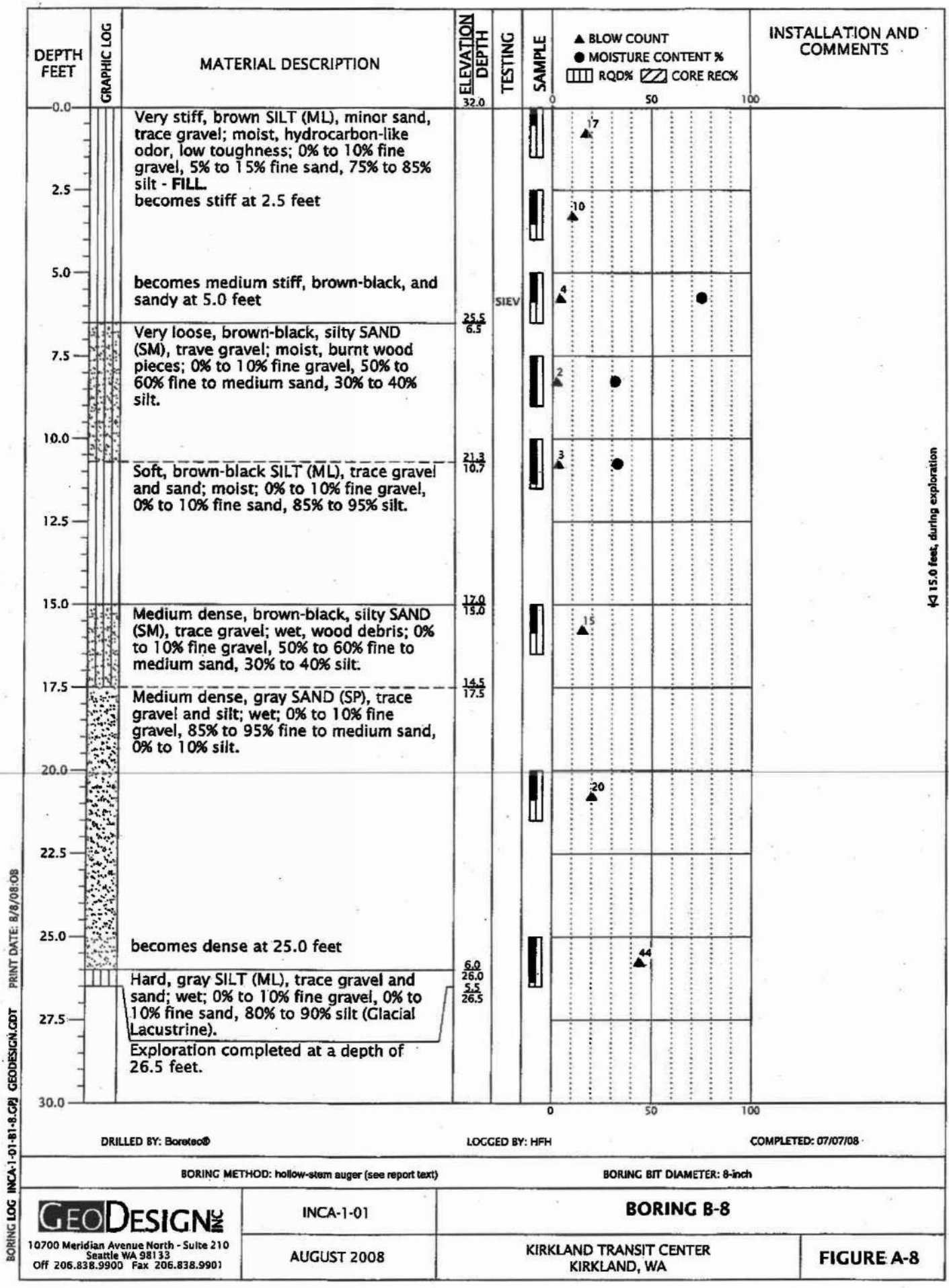
INCA-1-01	**BORING B-7**	
AUGUST 2008	KIRKLAND TRANSIT CENTER KIRKLAND, WA	**FIGURE A-7**



DRILLED BY: Boretec®

LOGGED BY: HFH

COMPLETED: 07/07/08

BORING METHOD: hollow-stem auger (see report text)

BORING BIT DIAMETER: 8-inch

BORING LOG INCA-1-01-B1-8.GPJ GEODESIGN.GDT PRINT DATE: 8/8/08:08

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INCA-1-01

BORING B-8

AUGUST 2008

KIRKLAND TRANSIT CENTER
KIRKLAND, WA

FIGURE A-8

RESOURCE PROTECTION WELL REPORT

25/5E/5P King Co.

START CARD NO. 43854

PROJECT NAME: CITY OF KIRKLAND – PETER KIRK PARK

WELL INDENTIFICATION NO. MW-1

DRILLING METHOD: WELL ABANDONMENT

DRILLER: JON C. KOLOSKI

FIRM: GEOENGINEERS INC.

SIGNATURE: Jon C. Koloski

CONSULTING FIRM: SAME

REPRESENTATIVE: SAME

LOCATION: T 25 N, R 5E, SEC. 5 SE 1/4 of SW 1/4

DISTANCE: _____ FT. FROM N/S SECTION LINE

_____ FT. FROM E/W SECTION LINE

DATUM: _____

WATER LEVEL ELEVATION: _____

INSTALLED: ABANDONED ON 2-19-93

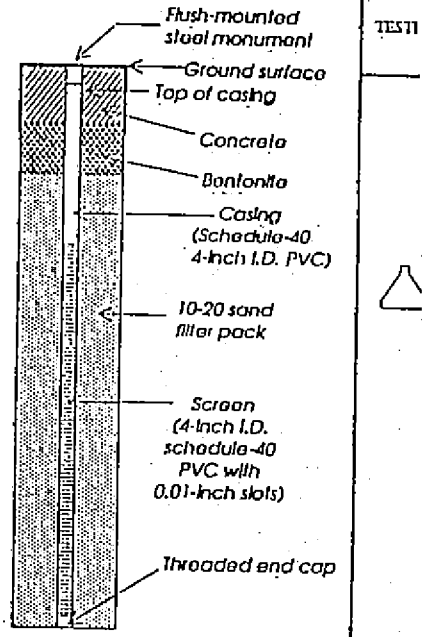
DEVELOPED: _____

PROJECT: *Kirkland Resource Library* W.O. *W-8182* WELL NO. *MW-1*

Elevation reference:
Ground surface elevation: *41 feet*
Well completed: *8 April 1992*
Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER
0	*Surface-grass in lawn area*					
	Medium stiff, wet, grey with brown mottling SILT with some gravel (Fill)		S-1	7	1ppm	
5	*Medium stiff, wet, grey SILT with trace gravel and burnt organics interbedded with loose, wet, grey fine to medium SAND with trace silt and burnt organics (Fill)*		S-2	8	1ppm	
			S-3	4	1ppm	4/13/92
10	*Loose, saturated, dark grey fine to medium SAND with trace burnt organics (Fill)*		S-4	4	1ppm	
	Very stiff, wet, mottled grey-brown SILT		S-5	26	1ppm	
15			S-6	23	1ppm	
	Stiff, moist to wet, mottled rusty brown-grey SILT, interbedded with medium dense, moist, grey fine to medium SAND		S-7	14	1ppm	
20						
	Very stiff, wet, grey SILT with trace fine SAND		S-8	21	1ppm	
25						
	Hard, wet, grey SILT with trace fine sand		S-9	31	1ppm	
30						

AS-BUILT DESIGN



Page of 2

TEST

LEGEND

2-inch O.D. split-spoon sample

Chemical analysis (groundwater sample)

Observed groundwater level 4/13/92 0/00/00 = date observed

RZA AGRA, Inc.
Geotechnical & Environmental Group

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

RESOURCE PROTECTION WELL REPORT

25/5E/5P

START CARD NO. 43854

PROJECT NAME: CITY OF KIRKLAND – PETER KIRK PARK

WELL INDENTIFICATION NO. MW-2

DRILLING METHOD: WELL ABANDONMENT

DRILLER: JON C. KOLOSKI

FIRM: GEOENGINEERS INC.

SIGNATURE: Jon C Koloski

CONSULTING FIRM: SAME

REPRESENTATIVE: SAME

LOCATION: T 25 N, R 5E, SEC. 5 SE 1/4 of SW 1/4

DISTANCE: _____ FT. FROM N/S SECTION LINE

_____ FT. FROM E/W SECTION LINE

DATUM: _____

WATER LEVEL ELEVATION: _____

INSTALLED: ABANDONED ON 2-19-93

DEVELOPED: _____

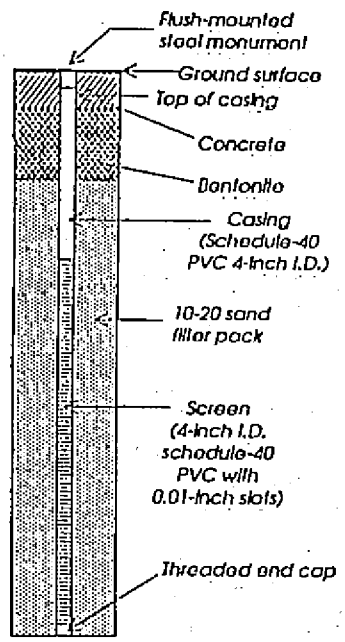
PROJECT: *Kirkland Resource Library* W.O. *W-8182* WELL NO. *MW-2*

Elevation reference:
Ground surface elevation: *41 feet*
Well completed: *9 April 1992*
Casing elevation:

Page 1 of 2

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER
0	*Surface-grass in park lawn area*					
	Stiff, wet, grey SILT with trace fine to medium sand and burnt organics (Fill)	I	S-1	10	1ppm	
5		I	S-2	12	1ppm	▽ 4/13/92
	Loose to medium dense, saturated, grey fine to coarse SAND with trace gravel and burnt organics (Fill)	I	S-3	9	1ppm	
10	*Very stiff, wet, tan-brown SILT*	I	S-4	20	1ppm	
	Very stiff, wet, tan-brown with occasional rust mottling SILT	I	S-5	25	1ppm	
15	*Hard, wet, grey SILT*	I	S-6	43	1ppm	
		I	S-7	35	1ppm	
20						
	Hard, wet, grey SILT with trace fine sand	I	S-8	32	1ppm	
25						
	Very stiff, wet, grey SILT with trace to some fine sand	I	S-9	23	11 ppm	
30						

AS-BUILT DESIGN



TESTING

LEGEND

I 2-inch O.D. split-spoon sample

▽ 4/13/92 Observed groundwater level 0/00/00 = date observed

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Geotechnical & Environmental Group

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Kirkland, Washington 98034-6918

RESOURCE PROTECTION WELL REPORT

25/5E/5P

START CARD NO. 43854

PROJECT NAME: CITY OF KIRKLAND – PETER KIRK PARK

WELL INDENTIFICATION NO. MW-3

DRILLING METHOD: WELL ABANDONMENT

DRILLER: JON C. KOLOSKI

FIRM: GEOENGINEERS INC.

SIGNATURE: Jon C Koloski

CONSULTING FIRM: SAME

REPRESENTATIVE: SAME

LOCATION: T 25 N, R 5E, SEC. 5 SE 1/4 of SW 1/4

DISTANCE: _____ FT. FROM N/S SECTION LINE

_____ FT. FROM E/W SECTION LINE

DATUM: _____

WATER LEVEL ELEVATION: _____

INSTALLED: ABANDONED ON 2-19-93

DEVELOPED: _____

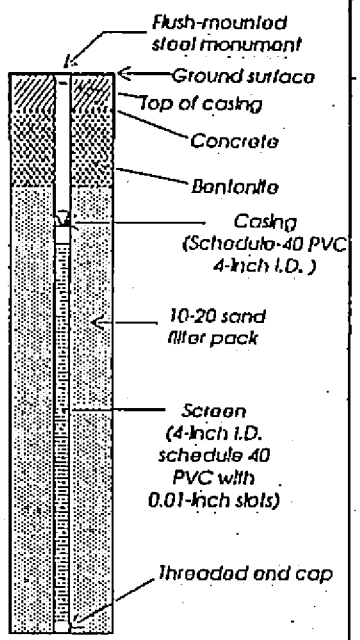
PROJECT: *Kirkland Resource Library* W.O. *W-8182* WELL NO. *MW-3*

Elevation reference: Well completed: *2 April 1992*

Ground surface elevation: *33 foot* Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER
0	*Surface-2 1/2" thick asphaltic concrete in parking area*					
	Soft to medium stiff, wet, grey-brown SILT with trace gravel (FILL). Dark discoloration, petroleum hydrocarbon-like odor noted in sample		S-1	5	116 ppm	▽ 4/13/92
5	*Interbedded soft, saturated, brown fibrous PEAT and very loose, saturated, grey medium SAND*		S-2	3	0ppm	
	Very loose, saturated, gray fine to medium SAND		S-3	1	0ppm	
10	*Medium dense, saturated, grey fine to medium SAND with trace silt and gravel interbedded with stiff, wet, brown organic SILT*		S-4	20	0ppm	
			S-5	18	7ppm	
15	*Very stiff, wet, tan-grey with rust mottling SILT with some fine to medium sand and trace gravel*		S-6	25	0ppm	
			S-7	22	0ppm	
20	*Very stiff, wet, grey SILT with trace fine sand*					
	Very stiff, wet, gray, fine sandy SILT		S-8	25	0ppm	
25						
	Very stiff to hard, wet, grey SILT with trace to some fine sand		S-9	30	0ppm	
30						

AS-BUILT DESIGN



LEGEND

I 2-inch O.D. split-spoon sample

▽ 4/13/92 Observed groundwater level 0/00/00 = date observed

⚠ Chemical analysis (sample no. shown)

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Geotechnical & Environmental Group

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Kirkland, Washington 98034-6918

RESOURCE PROTECTION WELL REPORT

25/5E/5P

START CARD NO. 43854

PROJECT NAME: CITY OF KIRKLAND – PETER KIRK PARK

WELL INDENTIFICATION NO. MW-4

DRILLING METHOD: WELL ABANDONMENT

DRILLER: JON C. KOLOSKI

FIRM: GEOENGINEERS INC.

SIGNATURE: Jon C. Koloski

CONSULTING FIRM: SAME

REPRESENTATIVE: SAME

LOCATION: T 25 N, R 5E, SEC. 5 SE 1/4 of SW 1/4

DISTANCE: _____ FT. FROM N/S SECTION LINE

_____ FT. FROM E/W SECTION LINE

DATUM: _____

WATER LEVEL ELEVATION: _____

INSTALLED: ABANDONED ON 2-19-93

DEVELOPED: _____

PROJECT: *Kirkland Resource Library* W.O. *W-8182* WELL NO. *MW-4*

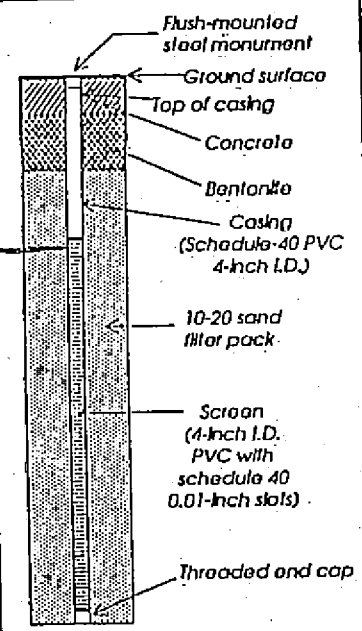
Elevation reference: Ground surface elevation: *32 feet*

Well completed: *7 April 1992* Casing elevation:

AS-BUILT DESIGN

Page 1 of 2

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER	TESTING
0	Surface-2 1/2" asphaltic concrete in parking area						
	Soft, wet, gray-brown SILT with some gravel, trace organics and brick fragments (Fill)		S-1	3	1ppm		
5	Very soft, saturated, brown amorphous PEAT with some organics (wood and trace fine to medium sand		S-2	2	1ppm	4/13/92	
			S-3	4	1ppm		
	Loose, saturated, grey fine to medium SAND						
10	Contains some intermixed organics		S-4	9	1ppm		
	Contains trace gravel		S-5	8	1ppm		
15	Medium dense, saturated, grey fine to coarse SAND		S-6	16	1ppm		
	Dense to very dense, wet, grey, silty fine to medium SAND with some gravel		S-7	54	1ppm		
20							
	Loose, saturated, gray fine to medium SAND with trace organics		S-8	10	1ppm		
	Stiff, wet, grey SILT with trace fine sand						
25							
	Very stiff, wet, grey SILT with trace to some fine sand		S-9	18	1ppm		
30							



LEGEND

I 2-inch O.D. split-spoon sample

▽ 4/13/92 Observed groundwater level 0/00/00 = date observed

RZA AGRA, Inc.
Geotechnical & Environmental Group

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Kirkland, Washington 98034-6918

RESOURCE PROTECTION WELL REPORT

25/5E/5P

START CARD NO. 43854

PROJECT NAME: CITY OF KIRKLAND – PETER KIRK PARK

WELL INDENTIFICATION NO. MW-5

DRILLING METHOD: WELL ABANDONMENT

DRILLER: JON C. KOLOSKI

FIRM: GEOENGINEERS INC.

SIGNATURE: Jon C Koloski

CONSULTING FIRM: SAME

REPRESENTATIVE: SAME

LOCATION: T 25 N, R 5E, SEC. 5 SE 1/4 of SW 1/4

DISTANCE: _____ FT. FROM N/S SECTION LINE

_____ FT. FROM E/W SECTION LINE

DATUM: _____

WATER LEVEL ELEVATION: _____

INSTALLED: ABANDONED ON 2-19-93

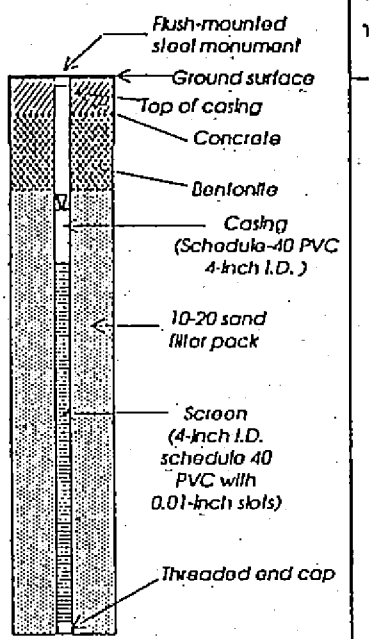
DEVELOPED: _____

PROJECT: *Kirkland Resource Library* W.O. *W-8182* WELL NO. *MW-5*

Elevation reference:
Ground surface elevation: *35 feet*
Well completed: *8 April 1992*
Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER
0	*Surface-3" asphaltic concrete in parking area*					
	Loose to medium dense, moist, grey-brown sandy GRAVEL/gravelly SAND (Fill)		S-1	26	4ppm	▽ 4/13/92
5	*Loose, wet, dark brown, fine to medium SAND (Fill). Prominent sheen and hydrocarbon-like odor observed in sample*		S-2	4	188 ppm	
	Very loose to loose, saturated, grey fine to medium SAND interbedded with soft, fibrous, PEAT		S-3	1	1ppm	
10	*Soft to medium stiff, wet, grey-brown SILT with trace organics interbedded with soft, fibrous PEAT*		S-4	6	1ppm	
	Dense, wet to saturated, grey silty GRAVEL with some fine to medium sand		S-5	36	1ppm	
15	*Medium dense, saturated, gray fine to medium SAND*		S-6	26	1ppm	
	Stiff to very stiff, wet, grey SILT with trace fine sand		S-7	13	4ppm	
20	*Very stiff, wet, grey SILT with trace fine sand*		S-8	20	1ppm	
25	*Medium dense, saturated, grey silty fine SAND/fine sandy SILT*		S-9	22	1ppm	
30						

AS-BUILT DESIGN



LEGEND

I 2-inch O.D. split-spoon sample

▽ 4/13/92 Observed groundwater level 0/00/00 = date observed

RZA AGRA, Inc.
Geotechnical & Environmental Group

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Kirkland, Washington 98034-6918

RESOURCE PROTECTION WELL REPORT

25/5E/5P

START CARD NO. 43854

PROJECT NAME: CITY OF KIRKLAND – PETER KIRK PARK

WELL INDENTIFICATION NO. MW-6

DRILLING METHOD: WELL ABANDONMENT

DRILLER: JON C. KOLOSKI

FIRM: GEOENGINEERS INC.

SIGNATURE: Jon C Koloski

CONSULTING FIRM: SAME

REPRESENTATIVE: SAME

LOCATION: T 25 N, R 5E, SEC. 5 SE 1/4 of SW 1/4

DISTANCE: _____ FT. FROM N/S SECTION LINE

_____ FT. FROM E/W SECTION LINE

DATUM: _____

WATER LEVEL ELEVATION: _____

INSTALLED: ABANDONED ON 2-19-93

DEVELOPED: _____

PROJECT: *Kirkland Resource Library* W.O. *W-8182* WELL NO. *MW-6*

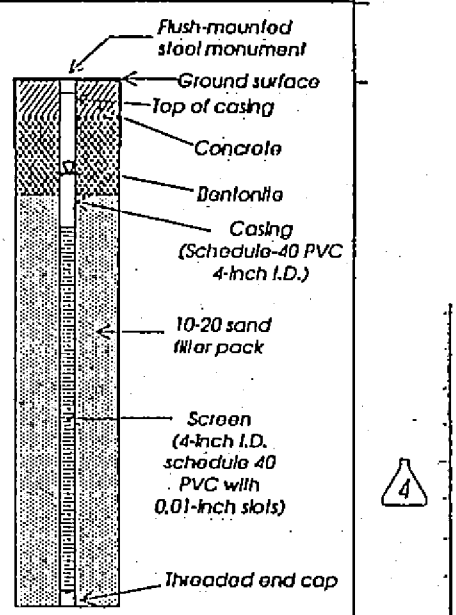
Elevation reference: Well completed: *2 April 1992*

Ground surface elevation: *33 feet* Casing elevation:

Page 1 of 2

Depth (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER
0	*Surface - 2" asphaltic concrete in parking area*					
	Loose, wet to saturated, brown-gray silty, gravelly fine to medium SAND (Fill)		S-1	7	1ppm	4/13/92
5	*Loose, saturated, grey, gravelly fine to medium SAND/sandy GRAVEL with interbeds of brown organic SILT (Fill)*		S-2	4	10 ppm	
	Loose, saturated, gray fine to coarse SAND with some gravel interbedded with medium stiff, saturated, gray fine sandy SILT		S-3	2	1ppm	
0	*Medium dense, saturated, grey, gravelly medium to coarse SAND*		S-4	27	140 ppm	
			S-5	19	3ppm	
5	*Interbedded with silty fine sand*		S-6	24	7ppm	
	Medium dense, saturated, grey, gravelly fine to coarse SAND		S-7	20	3ppm	
0	*Interbedded with medium stiff, wet to saturated, gray fine sandy SILT*		S-8	9	7ppm	
			S-9	5	7ppm	
5	*Medium dense, saturated, grey, gravelly fine to medium SAND with some silt*		S-10	47	3ppm	
	Very dense, saturated, grey silty GRAVEL with trace to some fine to medium SAND		S-11	60	3ppm	
)						

AS-BUILT DESIGN



LEGEND

2-inch O.D. split-spoon sample

Observed groundwater level 4/13/92 0/00/00 = date observed

4 Chemical analysis (sample no. shown)

RZA AGRA, Inc.
Geotechnical & Environmental Group

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

RESOURCE PROTECTION WELL REPORT

25/5E/5P

START CARD NO. 43854

PROJECT NAME: CITY OF KIRKLAND – PETER KIRK PARK

WELL INDENTIFICATION NO. MW-7

DRILLING METHOD: WELL ABANDONMENT

DRILLER: JON C. KOLOSKI

FIRM: GEOENGINEERS INC.

SIGNATURE: Jon C Koloski

CONSULTING FIRM: SAME

REPRESENTATIVE: SAME

LOCATION: T 25 N, R 5E, SEC. 5 SE 1/4 of SW 1/4

DISTANCE: _____ FT. FROM N/S SECTION LINE

_____ FT. FROM E/W SECTION LINE

DATUM: _____

WATER LEVEL ELEVATION: _____

INSTALLED: ABANDONED ON 2-19-93

DEVELOPED: _____

PROJECT: *Kirkland Resource Library* W.O. *W-8182* WELL NO. *MW-7*

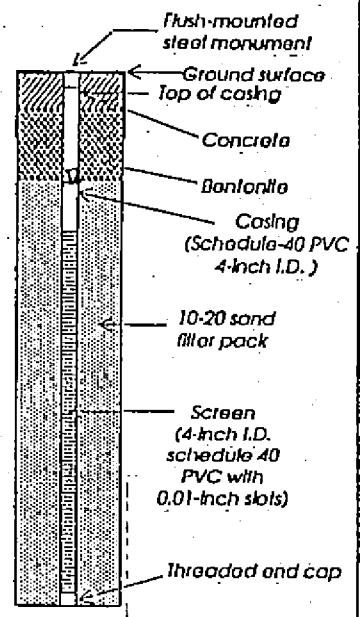
Elevation reference: Ground surface elevation: *34 feet*

Well completed: *8 April 1992* Casing elevation:

Page 1 of 2

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER
0	*Surface - 2 1/2" asphaltic concrete in parking area*					
	Soft, wet, grey SILT with some gravel (Fill)		S-1	4	1ppm	▽ 4/13/92
5	*Very loose to loose, saturated, grey fine to medium SAND with trace intermixed organics*		S-2	4	1ppm	
			S-3	3	1ppm	
10	*Interbedded with soft, brown, amorphous PEAT*		S-4	13	1ppm	
	Medium dense, saturated, grey silty sandy GRAVEL/silty gravelly SAND		S-5	15	1ppm	
15	*Bottom of boring at 15 feet.*					
20						
25						
30						

AS-BUILT DESIGN



TESTING

LEGEND

I 2-inch O.D. split-spoon sample

▽ 4/13/92 Observed groundwater level 0/00/00 = date observed

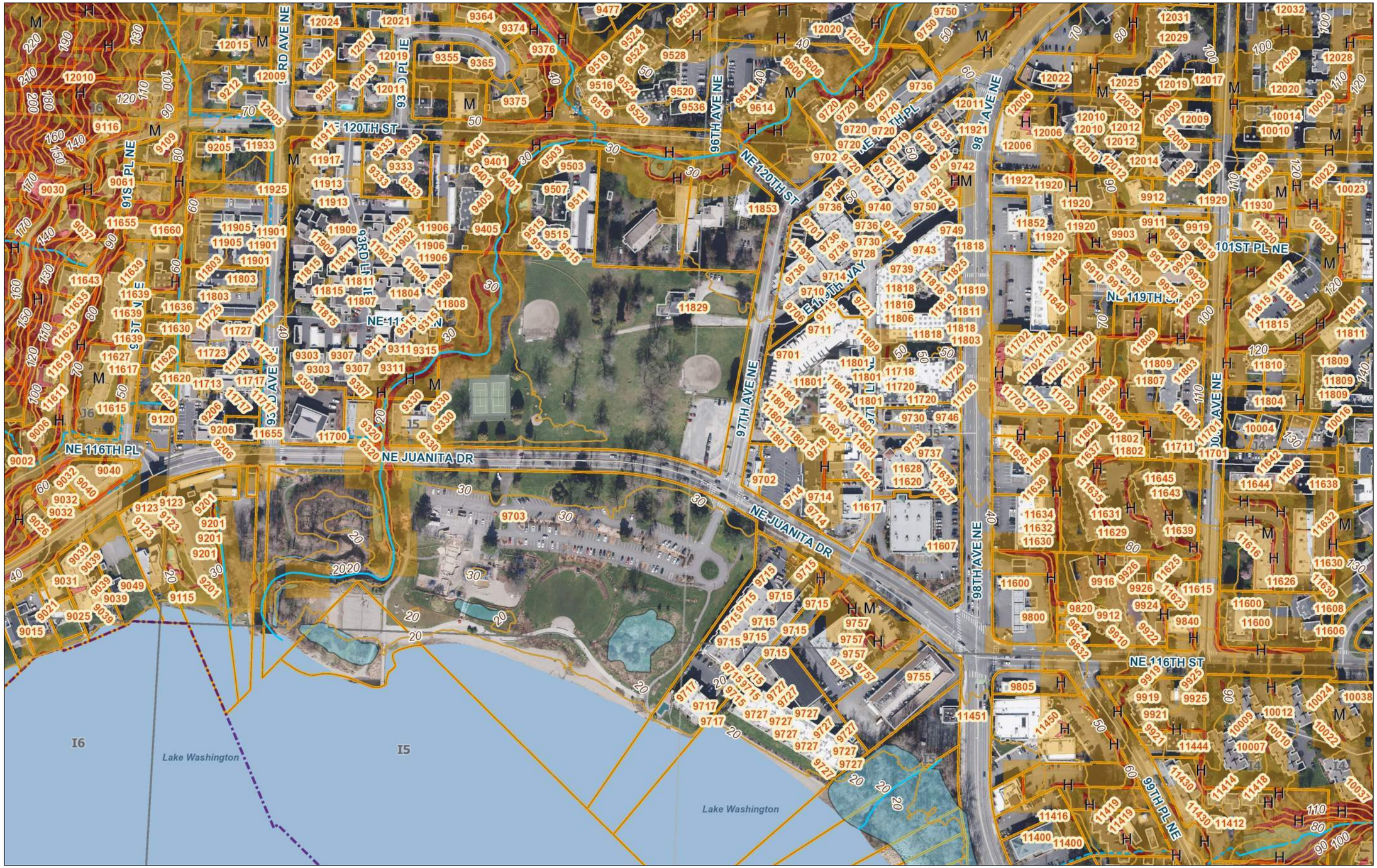
RZA AGRA, Inc.
Geotechnical & Environmental Group

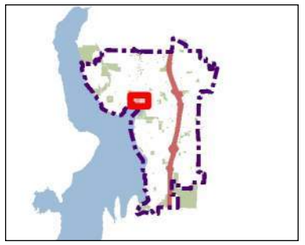
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

APPENDIX A.4
REFERENCE INFORMATION FOR JUANITA BEACH PARK

Included in this section are City of Kirkland Landslide Susceptibility Map and Liquefaction Susceptibility Map, and exploration logs from previous studies completed in the immediate vicinity of the project site.

City of Kirkland GIS





Legend

- Contours 10 Feet
- Streams
  - Open
  - Pipe
- Landslide
  - Deposit Areas
  - Head Scarps
  - High Susceptibility
  - Moderate Susceptibility
- Wetlands
- Address
- City Limits
- Grid
- QQ Grid
- Regional Rail Corridor
- Cross Kirkland Corridor
- Streets
- Parcels
- Buildings
- Lakes

1: 3,000

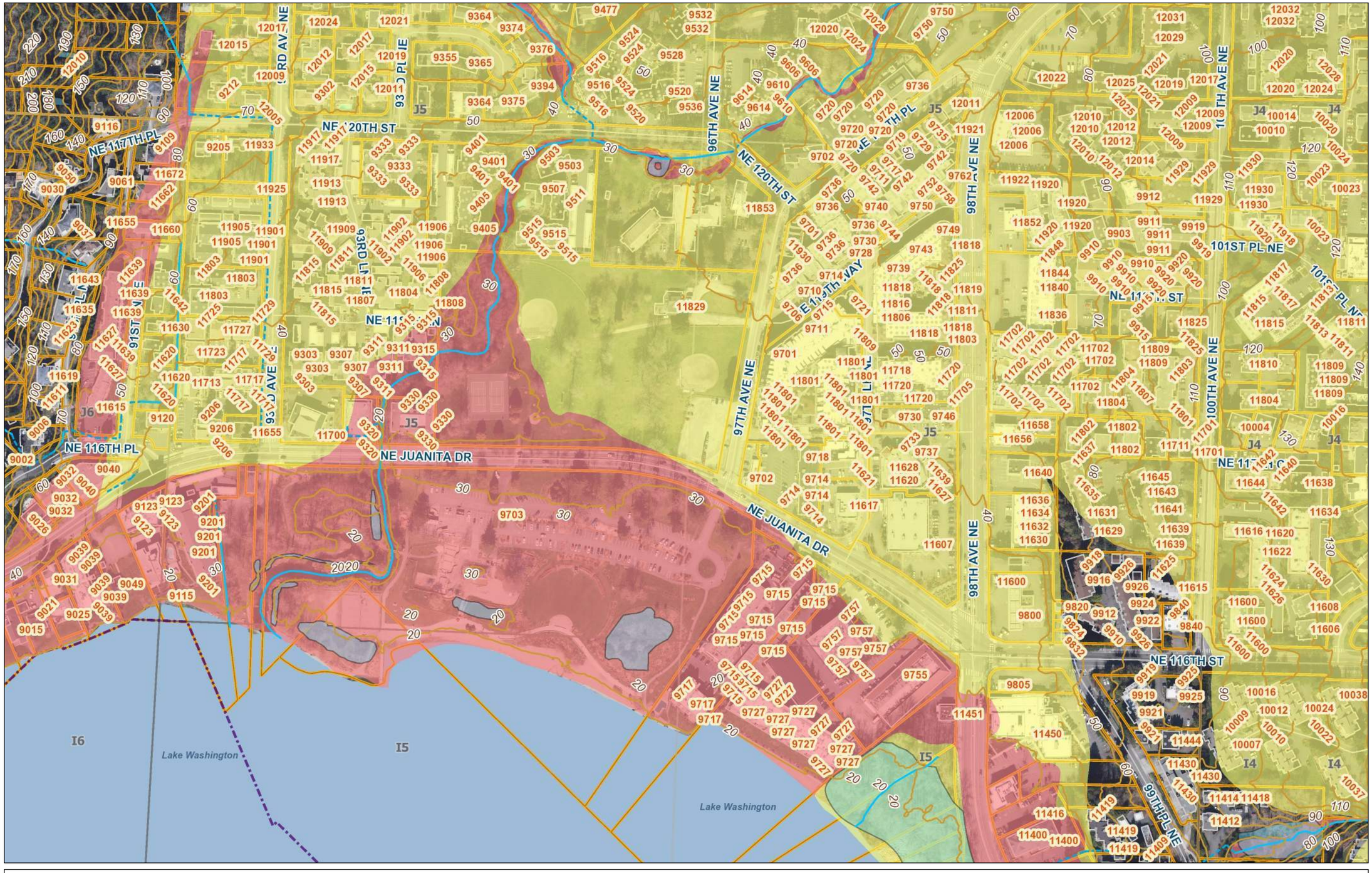
0.1 0 0.05 0.1 Miles

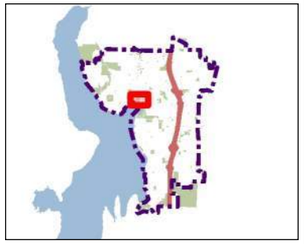
NAD_1983_StatePlane_Washington_North_FIPS_4601_Feet

Notes

This map was automatically generated using Geocortex Essentials.

City of Kirkland GIS





Legend

- Contours 10 Feet
- Streams
  - Open
  - Pipe
- Wetlands
- Liquefaction Potential
  - High
  - Medium or Mixed
- Address
- City Limits
- Grid
- QQ Grid
- Regional Rail Corridor
- Cross Kirkland Corridor
- Streets
- Parcels
- Buildings
- Lakes

1: 3,000

0.1 0 0.05 0.1 Miles

NAD_1983_StatePlane_Washington_North_FIPS_4601_Feet

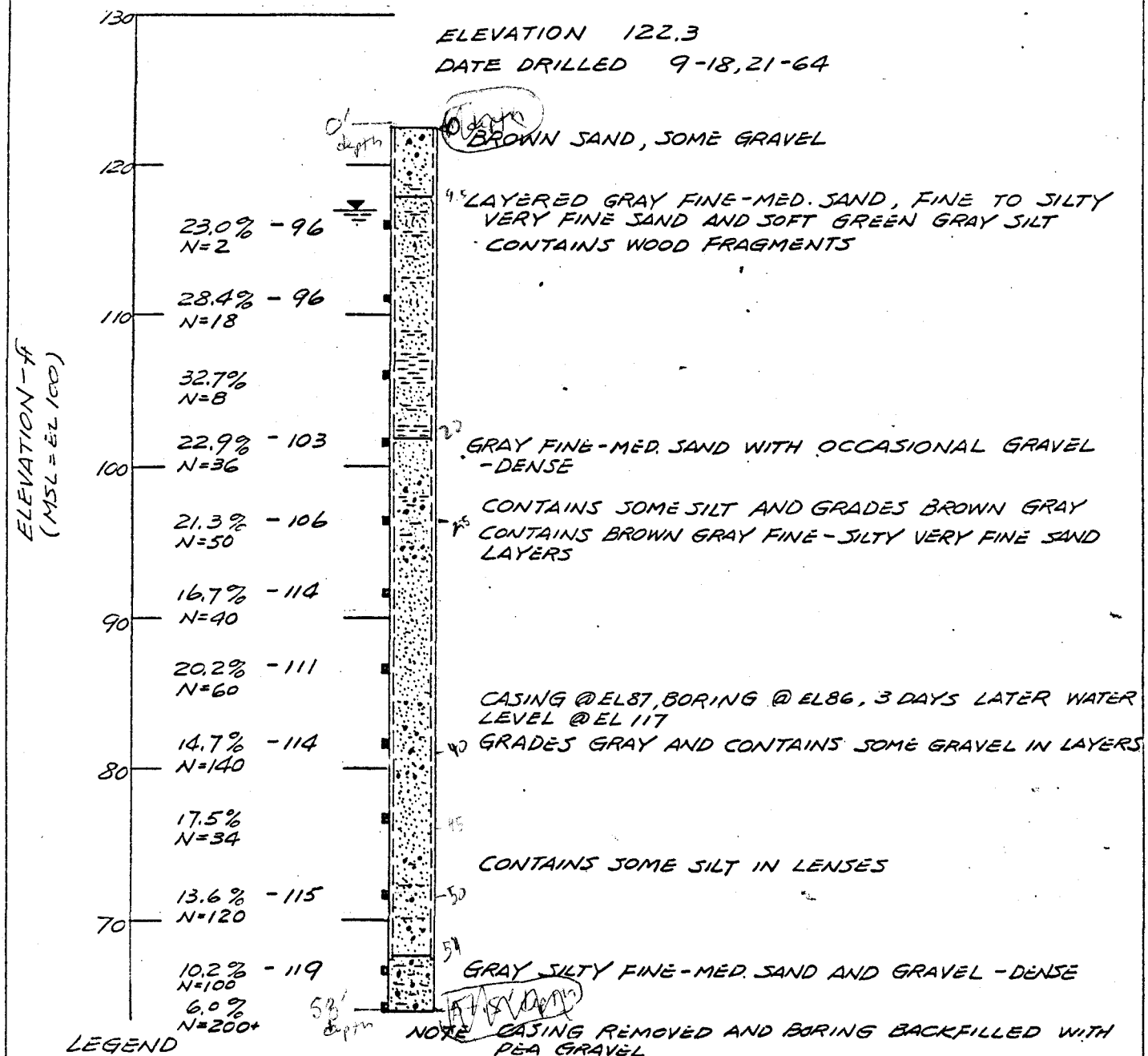
Notes

This map was automatically generated using Geocortex Essentials.

CALCULATION SHEET

METROPOLITAN ENGINEERS
SEATTLE, WASHINGTON

BORING B1



LEGEND

- ■ UNDISTURBED SAMPLE TAKEN WITH 2.5" I.D. DRIVE SAMPLER (O.D. = 3¼")
- □ SAMPLE MISSED
- ▽ MEASURED HIGHEST HYDROSTATIC HEAD
- 23%-96 ← DEPTH TO WHICH CASING WAS REQUIRED DURING DRILLING; SAMPLE MOISTURE CONTENT = 23%, DRY DENSITY = 96 PCF
- N NUMBER OF BLOWS PER FOOT OF PENETRATION, DRIVING WT. = 500 lbs. FALLING DIST. = 20"±

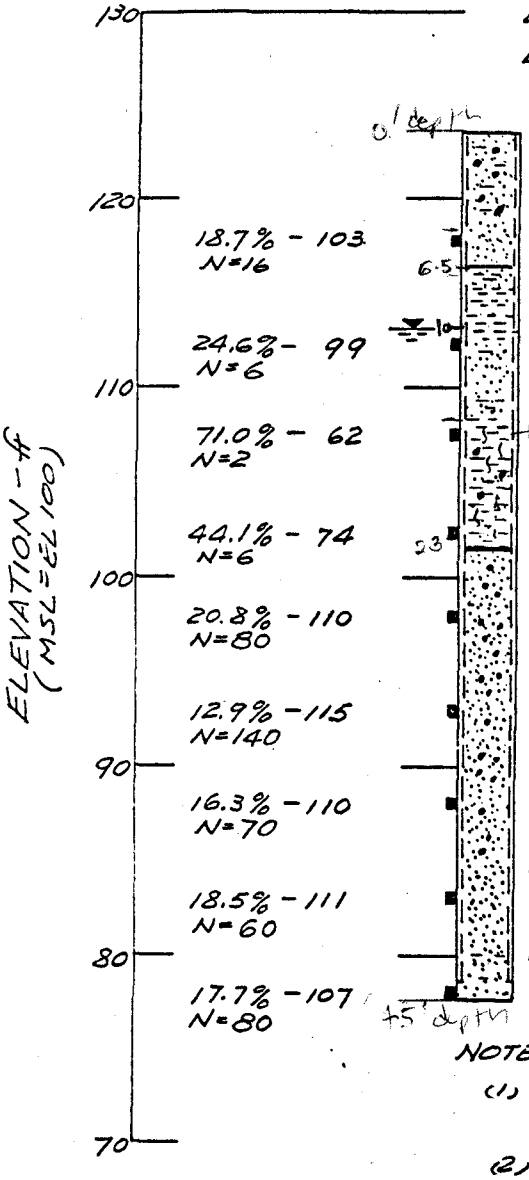
DATE	BY	JOB NO.	TITLE	PLATE
	CHW	R215A	LOG OF BORING	A-1

CALCULATION SHEET

METROPOLITAN ENGINEERS
SEATTLE, WASHINGTON

BORING B2

ELEVATION 123.6
DATE DRILLED 9-21, 22-64



BROWN SAND, SOME GRAVEL

LAYERED GRAY FINE-MED. SAND, SILTY FINE SAND AND SOFT BROWN GRAY ORGANIC SILT CONTAINS WOOD FRAGMENTS

CONTAINS SOME PEAT

GRAY FINE-MED. SAND WITH OCCASIONAL GRAVEL -DENSE

CONTAINS SOME SILT AND GRADES BROWN GRAY

GRADES GRAY

CONTAINS SOME SILT IN LENSES

NOTES:

(1) AFTER BORING COMPLETED. CASING PULLED BACK TO EL 81, ½ HR. LATER WATER LEVEL @ EL 113

(2) CASING REMOVED AND BORING BACKFILLED WITH PEA GRAVEL

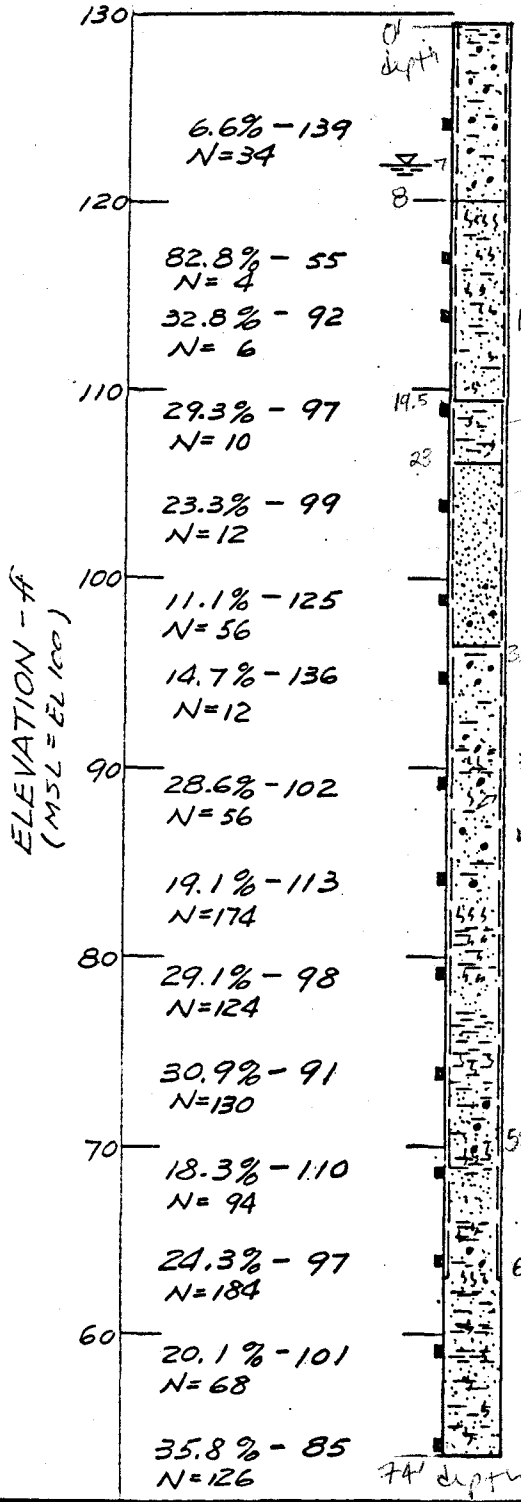
DATE	BY	JOB NO.	TITLE	PLATE
	CHW	R215A	LOG OF BORING	A-2

CALCULATION SHEET

METROPOLITAN ENGINEERS
SEATTLE, WASHINGTON

BORING B3

ELEVATION 129.5
DATE DRILLED 8-9, 10-65



BROWN GRAY SAND AND GRAVEL WITH SOME SILT

LAYERED BROWN PEAT, GRAY SAND, SILTY SAND AND SANDY SILT - SOFT TO MODERATELY FIRM

CONTAINS WOOD FRAGMENTS

LAYERED AND LAMINATED GRAY VERY FINE SANDY SILT, SILTY SAND AND SILT - MOD. FIRM

GRAY FINE - MED. SAND - DENSE, CLEAN

GRADES SOME GRAVEL

LAYERED GRAY SILTY FINE - MED. SAND, SILT, SILTY VERY FINE SAND, PEATY SILT AND BROWN PEAT - VERY FIRM AND DENSE

CONTAINS SOME MEDIUM TO COARSE SAND LENSES OR LAYERS

SOME GRAVEL

SOME GRAVEL

SOME PUMICE

BORING @ EL 60, CASING @ EL 63, OVERNIGHT WATER LEVEL @ EL 122

NOTE: CASING REMOVED; HOLE BACKFILLED WITH PEA GRAVEL AND CEMENT PLUG PLACED BETWEEN EL 70 & EL 65 AND BETWEEN EL 90 & EL 85; ONE PIEZOMETER INSTALLED WITH TIP @ EL 77

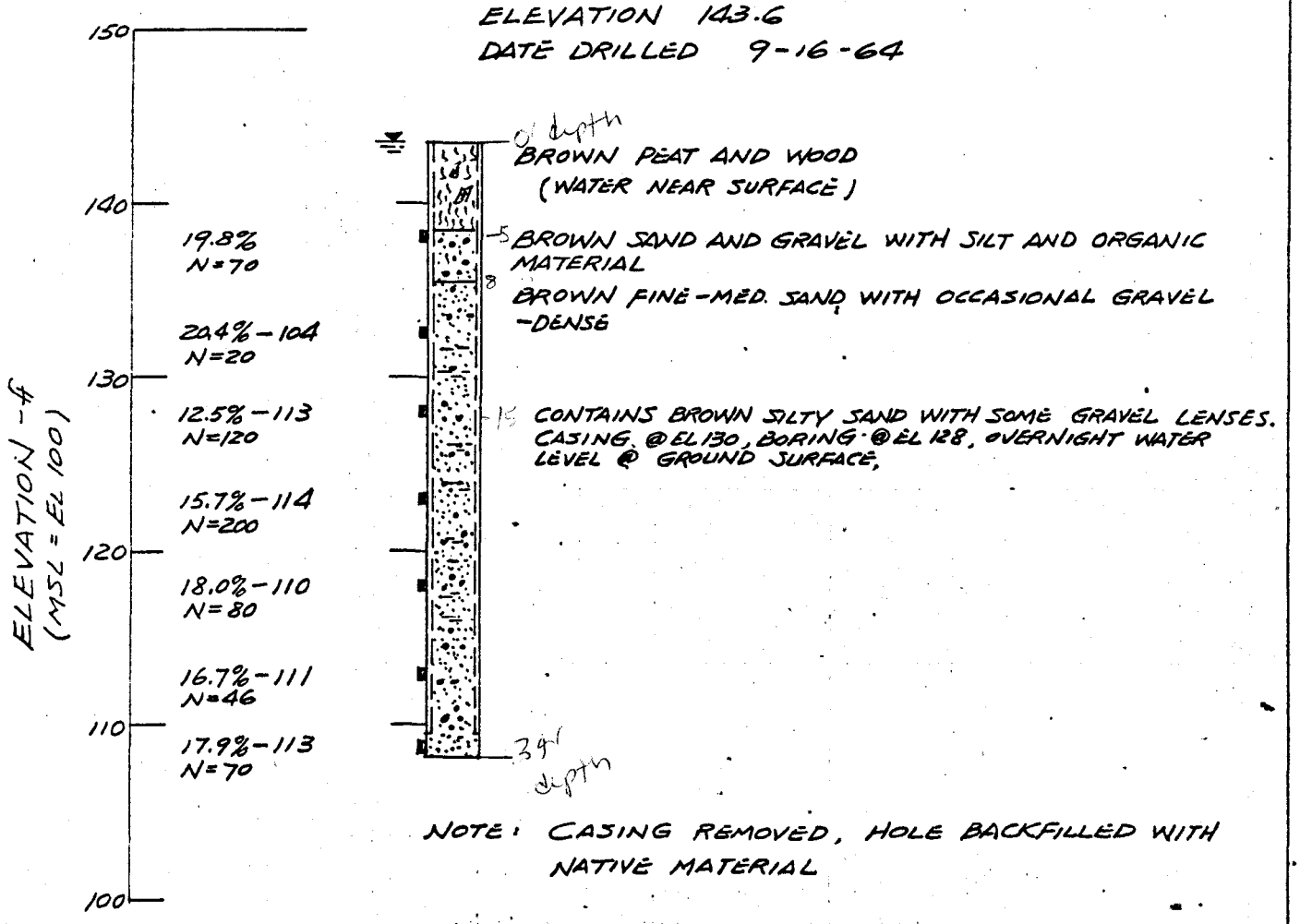
DATE 50	BY	JOB NO.	TITLE	PLATE
	CHW	R215A	LOG OF BORING	A-3

CALCULATION SHEET

METROPOLITAN ENGINEERS
SEATTLE, WASHINGTON

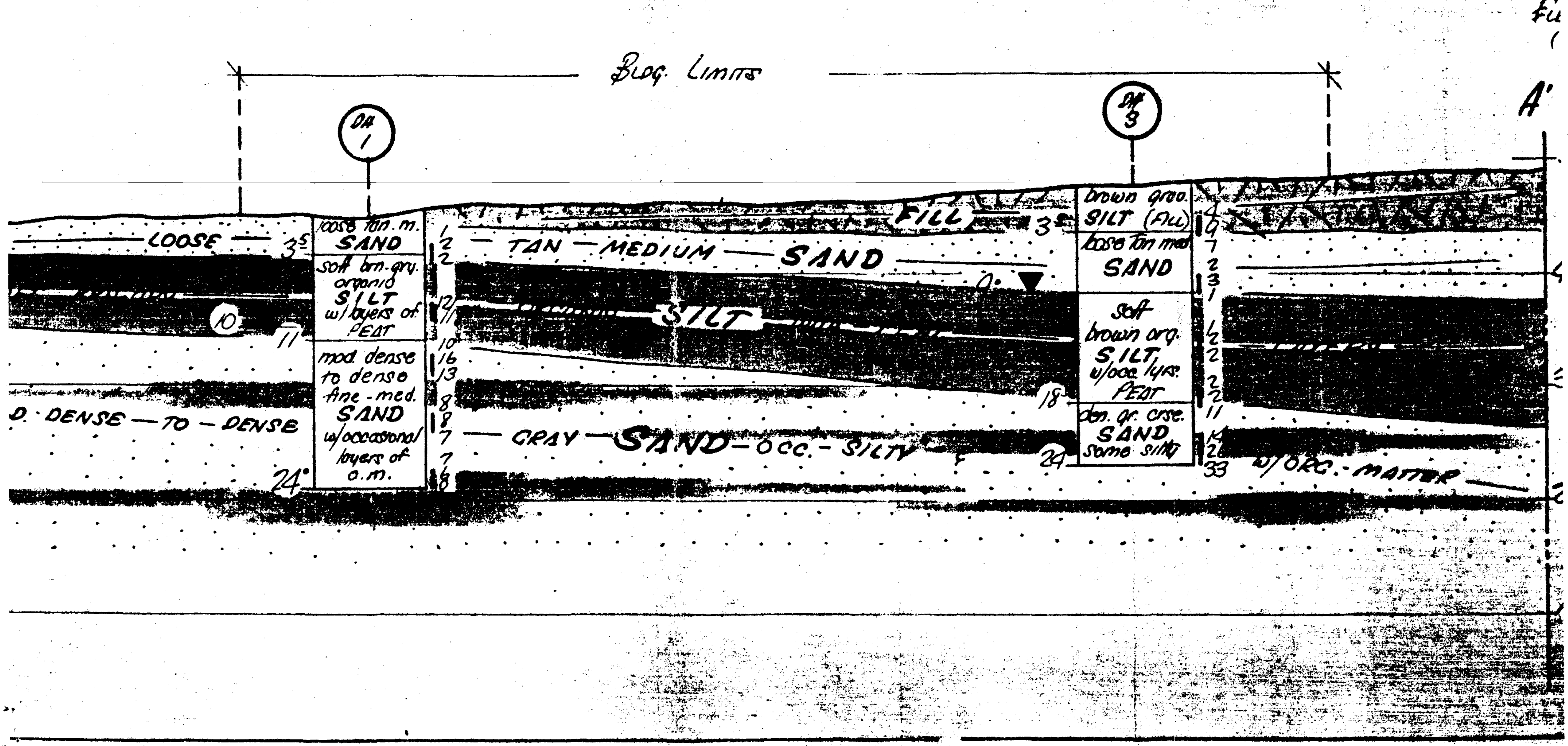
BORING B4

ELEVATION 143.6
DATE DRILLED 9-16-64

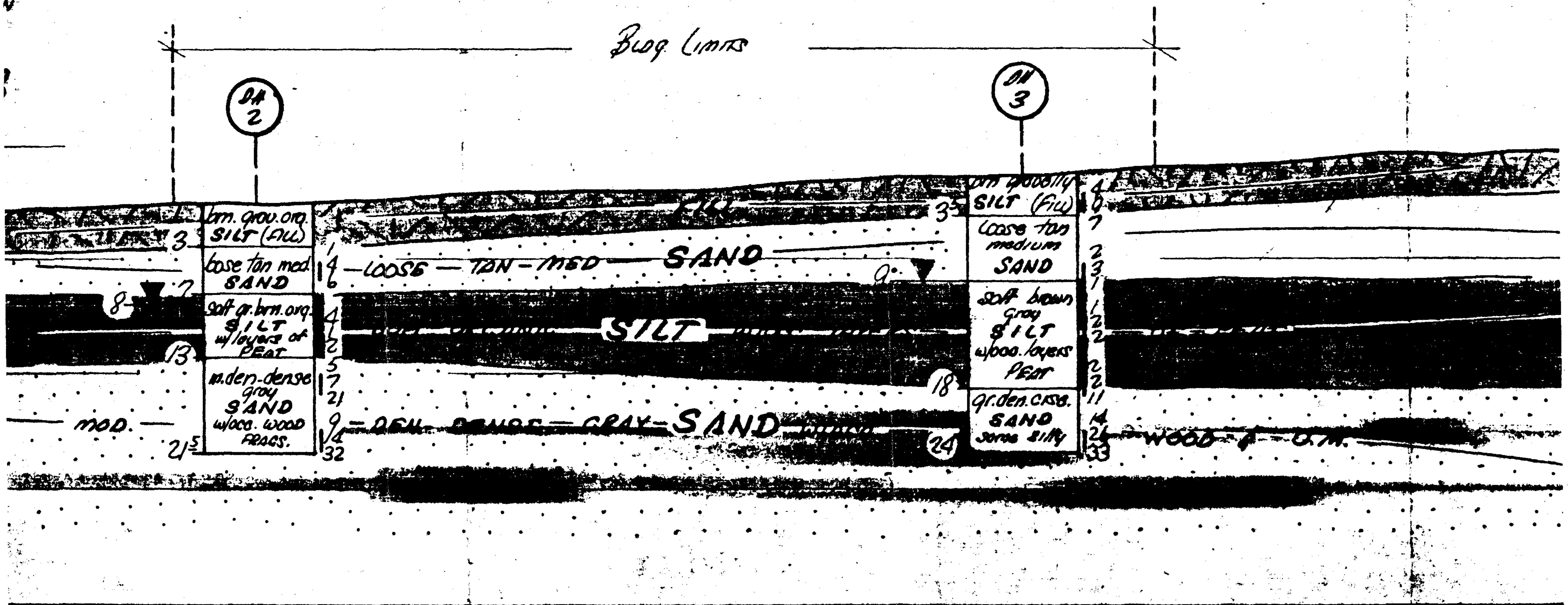


NOTE: CASING REMOVED, HOLE BACKFILLED WITH NATIVE MATERIAL

DATE	BY	JOB NO.	TITLE	PLATE
		R215B	LOG OF BORING	A-4



Bldg. Limits
A'
DH 1
DH 3
LOOSE
TAN MEDIUM SAND
FILL
SILT
D. DENSE TO DENSE
GRAY SAND OCC. SILTY
W/ORG. MATTER
loose tan m. SAND
soft brn.-gry. organic SILT w/layers of PEAT
mod. dense to dense fine-med. SAND w/occasional layers of o.m.
brown grav. SILT (Fill)
loose tan med SAND
soft brown org. SILT w/occ. lyrs. PEAT
den. gr. crse. SAND some silty



Bldg Limits
DH 2
DH 3
brn. grav. org. SILT (Fill)
loose tan med. SAND
soft gr. brn. org. SILT w/layers of PEAT
m.den-dense gray SAND w/occ. wood frags.
brn gravelly SILT (Fill)
loose tan medium SAND
soft brown gray SILT w/occ. layers PEAT
gr. den. crse. SAND some silty
FILL
LOOSE — TAN — MED — SAND
SILT
MOD.
DEN — DENSE — GRAY — SAND
WOOD — & — O.M.

16975

104947

RESOURCE PROTECTION WELL REPORT

START CARD NO. R58642

PROJECT NAME: Juanita Village Cleaners

COUNTY: King 26-5E-30R

WELL IDENTIFICATION NO. AGT 042

LOCATION: SE ¼ SE ¼ So 30 Twn 26N R 5E

DRILLING METHOD: HSA

STREET ADDRESS OF WELL:

DRILLER: Brian Lose

NE 60th place & 97th AVE NE, Kirkland WA

FIRM: Cascade Drilling, Inc.

WATER LEVEL ELEVATION: 37

SIGNATURE:

GROUND SURFACE ELEVATION: N/A

CONSULTING FIRM: Galloway Env.

INSTALLED: 9/5/01

REPRESENTATIVE: Gary Galloway

DEVELOPED: No

1599

→ see next page: 9/5/01

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	WELL COVER	0 - 50 ft. Brown sand w/ silt.
	CONCRETE SURFACE SEAL DEPTH = 2 ft	
	PVC BLANK 2 "x 35'	- ft.
	BACKFILL 31 ft. TYPE: Bent. Chips	
	PVC SCREEN 2 "x 15' SLOT SIZE: .010	- ft.
	GRAVEL PACK 17 ft. MATERIAL: 2/12 sand	
	WELL DEPTH 50' "	

RECEIVED
OCT 19 2001
DEPT OF ECOLOGY

SCALE: 1" = _____ PAGE _____ OF _____

ECY 050-12 (Rev. 11/89)

104947

RESOURCE PROTECTION WELL REPORT

104948

START CARD NO. R58642

PROJECT NAME: Juanita Village Cleaners

COUNTY: King 26-5E-30R

WELL IDENTIFICATION NO. AGT 043

LOCATION: SE ¼ SE ¼ Sec 30 Twn 26N R 5E

DRILLING METHOD: HSA

STREET ADDRESS OF WELL:

DRILLER: Brian Lose

NE both place @ 97th AVE NE, Kirkland WA

FIRM: Cascade Drilling, Inc.

WATER LEVEL ELEVATION: 35

SIGNATURE:

GROUND SURFACE ELEVATION: N/A

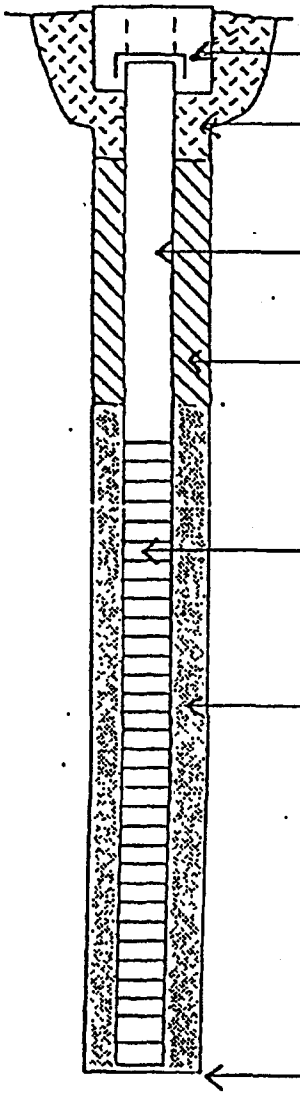
CONSULTING FIRM: Galloway Env.

INSTALLED: 9/6/01

REPRESENTATIVE: Gary Galloway

DEVELOPED: No

1599

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	WELL COVER	0 - 45 ft. Brown sand, silt + some gravel
	CONCRETE SURFACE SEAL DEPTH = 1/ft	- ft.
	PVC BLANK 2 "x 36'	
	BACKFILL 26 ft. TYPE: bent. chips	- ft.
	PVC SCREEN 2"x 15' SLOT SIZE: .010	
	GRAVEL PACK 17 ft. MATERIAL: 8/12 sand	
	WELL DEPTH 45' "	

RECEIVED
OCT 19 2001
DEPT OF ECOLOGY

SCALE: 1" = _____ PAGE _____ OF _____

ECY 050-12 (Rev. 11/99)

104948

APPENDIX B
Report Limitations and Guidelines for Use

APPENDIX B
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This appendix provides information to help you manage your risks with respect to the use of this report.

Geotechnical Services Are Performed for Specific Purposes, Persons and Projects

This report has been prepared for the exclusive use of Opsis Architecture, LLP and other project team members for the City of Kirkland Recreation and Aquatics Centers project in Kirkland, Washington. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, a geotechnical or geologic study conducted for a civil engineer or architect may not fulfill the needs of a construction contractor or even another civil engineer or architect that are involved in the same project. Because each geotechnical or geologic study is unique, each geotechnical engineering or geologic report is unique, prepared solely for the specific client and project site. Our report is prepared for the exclusive use of our Client. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and generally accepted geotechnical practices in this area at the time this report was prepared. This report should not be applied for any purpose or project except the one originally contemplated.

A Geotechnical Engineering or Geologic Report Is Based on a Unique Set of Project-specific Factors

This report has been prepared for the City of Kirkland Recreation and Aquatics Centers project in Kirkland, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it 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.

For example, changes that can affect the applicability of this report include those that affect:

- The function of the proposed structure;
- Elevation, configuration, location, orientation or weight of the proposed structure;

[1] Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org .

- Composition of the design team; or
- Project ownership.

If important changes are made after the date of this report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

Subsurface Conditions Can Change

This geotechnical or geologic report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying a report to determine if it remains applicable.

Most Geotechnical and Geologic Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ, sometimes significantly, from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

Geotechnical Engineering Report Recommendations Are Not Final

Do not over-rely on the preliminary construction recommendations included in this report. These recommendations are not final, because they were developed principally from GeoEngineers' professional judgment and opinion. GeoEngineers' recommendations can be finalized only by observing actual subsurface conditions revealed during construction. GeoEngineers cannot assume responsibility or liability for this report's recommendations if we do not perform construction observation.

Sufficient monitoring, testing and consultation by GeoEngineers should be provided during construction to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes should the conditions revealed during the work differ from those anticipated, and to evaluate whether or not earthwork activities are completed in accordance with our recommendations. Retaining GeoEngineers for construction observation for this project is the most effective method of managing the risks associated with unanticipated conditions.

A Geotechnical Engineering or Geologic Report Could Be Subject to Misinterpretation

Misinterpretation of this report by other design team members can result in costly problems. You could lower that risk by having GeoEngineers confer with appropriate members of the design team after submitting the report. Also retain GeoEngineers to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering or geologic report. Reduce that risk by having GeoEngineers participate in pre-bid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Exploration Logs

Geotechnical engineers and geologists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering or geologic report should never be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, but recognize that separating logs from the report can elevate risk.

Give Contractors a Complete Report and Guidance

Some owners and design professionals 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 or geologic report, but preface it with a clearly written letter of transmittal. In that letter, advise 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 GeoEngineers 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 an owner be in a position to give contractors the best information available, while requiring them to at least share the financial responsibilities stemming from unanticipated conditions. Further, a contingency for unanticipated conditions should be included in your project budget and schedule.

Contractors Are Responsible for Site Safety on Their Own Construction Projects

Our geotechnical recommendations are not intended to direct the contractor's procedures, methods, schedule or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and to adjacent properties.

Read These Provisions Closely

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering or geology) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or site.

Geotechnical, Geologic and Environmental Reports Should Not Be Interchanged

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. 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 contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants and no conclusions or inferences should be drawn regarding Biological Pollutants, as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.

If Client desires these specialized services, they should be obtained from a consultant who offers services in this specialized field.

Chris Roberts

From: David Conlin <dconlin@geoengineers.com>
Sent: Thursday, September 8, 2022 12:14 PM
To: Chris Roberts
Cc: Emily Hurn; mmcarthur; Fiona M. McNair; Carson Cheung
Subject: Kirkland RAFS - Environmental Review
Attachments: Kirkland RAFS_Table 1. Critical Areas Summary_GeoEngineers.pdf

Hi Chris,

This email serves as transmittal of our deliverable addressing environmental review in support of the City of Kirkland Recreation and Aquatics Feasibility Study (RAFS) project.

Introduction

GeoEngineers was contracted by Opsis Architecture to support the project by evaluating up to four sites that may be potentially developed with a large aquatics and recreation center and/or a medium-sized community recreation center. Our scope included a paper study that would be used to help develop a short-list of three preferred sites. Although our scope relies primarily on a review of existing data and did not include field assessment, we also participated in a workshop during which each of the sites was briefly visited, as described below.

Methods

We completed background data research on existing mapped critical areas on or adjacent to each of the four potential sites (Houghton Park and Ride, Peter Kirk Park, North Kirkland Community Center Park, and Juanita Beach Park North). For the purposes of this scope, critical areas that were considered include wetlands, streams, lakes, wildlife habitat areas, frequently flooded areas, and associated buffers. We also reviewed jurisdiction under the Shoreline Management Act. We did not include geologic hazard areas (steep slopes, landslide hazards, etc.), critical aquifer recharge areas, or tree management/landscape requirements in our review.

Our review included the following data sources:

- City of Kirkland Greater Downtown Kirkland Urban Center Plan
- City of Kirkland Sustainability Master Plan (2020)
- City of Kirkland Aquatics, Recreation, & Commnity Center Concept Plan, Part 2: Technical Report (2014)
- Juanita Beach Park Master Plan Report (J.A. Brennan Associates 2006)
- Final Wetland/Stream Delineation Report and Mitigation Plan, Juanita Beach Park Phase II Improvements Project (Shannon & Wilson 2017)
- City of Kirkland GIS Data – Critical Areas/Wetlands/Streams/Lakes
- King County iMap GIS Data – Critical Areas/Wetlands/Streams/Lakes
- Washington State Department of Fish & Wildlife, Priority Habitats and Species Data
- Federal Emergency Management Agency, Flood Insurance Rate Maps
- Washington Department of Natural Resources Forest Practices Application Mapping Tool
- City of Kirkland Zoning Code, Chapter 90 (Critical Areas: Wetlands, Streams, Minor Lakes, Fish and Wildlife Habitat Conservation Areas, and Frequently Flooded Areas)

We also completed a brief site visit to visually assess the conditions at each site. This did not include a detailed assessment or wetland delineation nor did we examine adjacent properties in person for potential critical areas that could have buffers extending onto the sites.

Results

The results of our assessment are presented in the **attached tabular matrix**. In summary:

- Juanita Beach Park and Juanita Bay Park are characterized by extensive wetlands (J.A. Brennan 2006, City of Kirkland 2014, The Watershed Company 2016, Shannon & Wilson 2017). However, wetlands identified within the park are located south of NE Juanita Dr, whereas the subject site investigated is located to the north of this major arterial roadway; wetland buffers are therefore not anticipated to extend to the subject site.
- Juanita Creek flows adjacent to and partially within Juanita Beach Park North, continuing through the southern section as well. Juanita Creek is considered a Type F stream, requiring a 100-foot stream buffer according to Table 90.65.1, Streams and Associated Buffer Standards (City of Kirkland Zoning Code, Chapter 90), as well as an additional 10-foot structure setback from the edge of the buffer according to code section 90.140. Juanita Creek provides habitat for ESA-listed fish species.
- Peter Kirk Park is characterized by an area of shallow ponding, 1 to 3 feet in depth, at a BFE of 32 feet, which is mapped as a Zone AH Flood Hazard Area by FEMA.
- Lake Washington is a Shoreline of the State. Juanita Beach Park North is beyond the limits of shoreline jurisdiction. No other sites are within the jurisdiction of the City of Kirkland Shoreline Master Program.
- No other critical areas were identified at any of the other sites.

David B. Conlin, PWS | Senior Biologist **|** GeoEngineers, Inc.
o: 253.722.2414 | c: 253.363.2003 | dconlin@geoengineers.com
1101 Fawcett Avenue, Suite 200 | Tacoma, WA 98402 | www.geoengineers.com

Table 1. Summary of Critical Areas and Environmental Permitting Considerations

Location	Critical Areas Present at the Site		Preliminary Required Buffer Associated with Critical Area	Permitting Implications
Houghton Park & Ride 7024 116th Ave NE, Kirkland, WA 98033	Wetlands	No	NA	None
	Streams	No	NA	None
	Lake	No	NA	None
	Wildlife Habitat Area	No	NA	None
	Frequently Flooded Areas	No	NA	None
Peter Kirk Park 202 3rd St, Kirkland 98033	Wetlands	No	NA	None
	Streams	No	NA	None
	Lake	No	NA	None
	Wildlife Habitat Area	No	NA	None
	Frequently Flooded Areas	Yes - FEMA Zone AH ("Flood depths of 1 to 3 feet [usually areas of ponding])"	NA	Potential to require a Letter of Map Revision-Based on Fill (LOMR-F). FIRM Map indicates Base Flood Elevation of 32 feet.
North Kirkland Community Center Park 12421 103rd Ave NE, Kirkland, WA 98034	Wetlands	No	NA	None
	Streams	No	NA	None
	Lake	No	NA	None
	Wildlife Habitat Area	No	NA	None
	Frequently Flooded Areas	No	NA	None
Juanita Beach Park North 9703 Juanita Dr NE, Kirkland, WA 98034	Wetlands	No	NA	None
	Streams	Yes - Juanita Creek	100 feet + 10-foot structure setback	Improvements should avoid stream/buffer and site should comply with vegetative requirements in buffer; alternatively, there are provisions for buffer reduction and/or mitigation. Impacts to Waters of the State or Waters of the U.S. would trigger additional federal and state permit requirements.
	Lake	No - OHWM of Lake Washington is >550 ft from northern portion of park where development is proposed.	NA	None
	Wildlife Habitat Area	Yes - Juanita Creek (Steelhead and Chinook salmon)	NA	Fish species are addressed through compliance with streams and associated buffer requirements - see above. Impacts to stream habitat for federally protected species would trigger a number of additional permits
	Frequently Flooded Areas	No	NA	None

MEMORANDUM

DATE: February 8, 2023

TO: Chris Roberts, AIA, OPSIS

FROM: Michael Read, PE, Principal, TENW

SUBJECT: Kirkland Community Centers – Traffic & Parking Evaluation
TENW Project No. 2022-253

This memorandum summarizes the results of a preliminary traffic and parking analysis of the proposed recreational facilities at two different sites in the City of Kirkland. Known as the Kirkland Community Centers project, redevelopment of the existing North Kirkland Community Center and transformation of the existing Houghton Park-and-Ride facility/transit center are under consideration. The proposed facilities would range in size from approximately 48,000 square-feet to upwards of 103,000 square-feet to provide a new aquatics facility, active recreational spaces, new community event spaces to serve a variety of programs and supporting administrative/maintenance areas.

This study addresses the following traffic impacts associated with the proposed action:

- Description of potential development options at each proposed project site.
- Documentation of existing adjacent roadway and intersection conditions.
- Estimation of vehicular weekday a.m. peak hour, p.m. peak hour, and daily trips generated by the proposed development options.
- Evaluation of peak parking demand of development options.

Project Description

The Kirkland Community Centers project is considering redevelopment of the existing North Kirkland Community Center and transformation of the existing Houghton Park-and-Ride facility/transit center into a new community recreational facility. Both project sites would be redeveloped with structured parking and multistory recreational/community facilities that are contained within each property. Vehicular site access would be maintained at the North Kirkland Community Center via 103rd Avenue NE at its intersection with NE 124th Street, although reconstruction of 103rd Avenue NE is expected along with a new traffic signal at its intersection with NE 124th Street. proposed via SE 216th Street via its intersection to the west at 132nd Avenue SE. Site access at the Houghton Park-and-Ride facility would be maintained with a full access driveway onto NE 70th Place, a signalized access onto 116th Avenue NE at the NB I-405 freeway ramps, and a full access driveway to the south onto 116th Avenue NE.

Redevelopment options under consideration at the North Kirkland site range from approximately 48,617 square-feet with 151 on-site parking stalls to approximately 73,299 square-feet and 198 on-site stalls. At the Houghton Park-and-Ride site, development options range from approximately

85,415 square-feet with 292 on-site parking stalls to 102,738 square-feet and 348 stalls. Under each development option, a variety of programming programs to serve as community spaces, indoor/outdoor recreational activities, and an indoor aquatic center are under consideration. Ground level site plans of each option at both sites are provided in Attachment A.

Existing Roadway Conditions

As noted, the North Kirkland site is served via 103rd Avenue NE onto the NE 124th Street arterial corridor. This arterial is generally 5-lanes in the site vicinity with a posted speed limit of 35-mph. Sidewalks are provided along both sites of the street and transit services via King County Metro Route 255 are provided immediately west of the site access intersection with service frequencies approximately every 15 minutes during peak weekday commute periods and every 30 minutes during weekday non-peak hours and on weekends. Peak two-way traffic flows on NE 124th Street west of 103rd Avenue NE average approximately 1,300 vehicles during the AM peak hour and 1,650 vehicles during the PM peak hour.

Both 116th Avenue NE and NE 70th Place serve the existing Houghton Park-and-Ride site. A signalized intersection at 116th Avenue NE provides direct access onto northbound I-405, serving both the on-ramp and off-ramp at this location. To accommodate peak directional flows at this signalized intersection, 116th Avenue NE is generally 5-lanes in the immediate vicinity of the site, transitioning to 2-lanes south of the property. Generally, a continuous sidewalk is provided on the east side of 116th Avenue NE, while only segments of sidewalk are provided on the west side in the project vicinity. The speed limit is posted at 35-mph. NE 70th Place is generally a 3-lane arterial with bike lanes along the site frontage. Continuous sidewalks are provided on both sides of NE 70th Place with a posted speed limit of 30-mph. Fixed-route transit service directly serves the site via King County Metro Route 245 and a freeway flyer stop for Route 342 is provided within 250 feet for northbound service and approximately 1,000 feet of walking distance to southbound service along I-405. Similar service frequencies to Route 255 are provided on the local Route 245 directly serving the site, while limited peak directional service is provided on 342 during peak commute periods only.

Peak two-way traffic flows on NE 70th Place average 1,200 vehicles during the AM and PM peak hours, while range from approximately 1,125 vehicles during the AM peak hour to 1,450 vehicles during the PM peak hour on 116th Avenue NE.

Project Trip Generation Analysis

Published trip rate equations compiled by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition, 2021, for Land Use Code 495 – Recreational Community Center were initially applied to provide a trip generation analysis of the project. Vehicle trip generation ranges for each site development were generated and reported in Table 1. As shown, an estimated range of between 93 and 140 AM peak hour trips and 122 to 183 PM peak hour trips would be generated at the North Kirkland Community Center site, while a range of between 140 and 163 AM peak hour trips and 183 to 214 new PM peak hour trips would be generated at the Houghton Park-and Ride site. Weekday daily vehicle trip generation ranges from approximately 1,375 to 2,862 one-way daily vehicle trips depending upon the selected site buildout.

Table 1
Kirkland Community Centers Trip Generation Summary

Time Period	In	Out	Total
North Kirkland Community Center – 48,617 SF			
Weekday AM Peak Hour	61	32	93
Weekday PM Peak Hour	57	65	122
Weekday Daily	687	688	1,375
North Kirkland Community Center – 73,299 SF			
Weekday AM Peak Hour	92	48	140
Weekday PM Peak Hour	86	75	183
Weekday Daily	1,028	1,028	2,056
Houghton Park-and Ride Site – 85,415 SF			
Weekday AM Peak Hour	108	55	163
Weekday PM Peak Hour	100	114	214
Weekday Daily	1,194	1,194	2,388
Houghton Park-and Ride Site – 102,738 SF			
Weekday AM Peak Hour	130	66	196
Weekday PM Peak Hour	121	136	257
Weekday Daily	1,431	1,431	2,862

Source: Trip Generation Manual, 11th Edition, ITE, 2021.

Parking Demand Analysis

Published parking generation rate equations compiled by the Institute of Transportation Engineers (ITE) Trip Generation, 5th Edition, 2019, for Land Use Code 495 – Recreational Community Center were to provide a parking generation analysis of the project. Considering peak person utilization all program areas simultaneously within each option, peak demand for parking could exceed these published rates. As such, scheduling of events with peak person utilization, special events or swim meets within the aquatic program of the facility, can be managed with effective parking management measures. For the purposes of programming, supply is higher than peak demand to provide an effective parking facility. As shown, parking surplus is expected under each development option.

Table 2
Kirkland Community Centers Parking Generation Summary

Location/Option	Total Peak Demand	Proposed Supply	Surplus(+) or Deficit(-)
North Kirkland Community Center – 48,617 SF	101 stalls	151 stalls	+50
North Kirkland Community Center – 73,299 SF	152 stalls	196 stalls	+44
North Kirkland Community Center – 48,617 SF	177 stalls	292 stalls	+115
North Kirkland Community Center – 48,617 SF	213 stalls	348 stalls	+135

Source: Parking Generation Manual, 5th Edition, ITE, 2019.

General Site Access Analysis

For the redevelopment under consideration at the North Kirkland site, at a minimum frontage improvements and roadway would be required along 103rd Avenue NE to accommodate the expected peak demand and expected queuing southbound to a new signal at NE 124th Street. Given expected site trip generation and existing peak two-way flows currently along NE 124th Street, site access would require a traffic signal to provide for safety and reduced delay for site entry/exit. Also, with an increase in pedestrian access via neighboring residents and transit accessibility, a controlled signal for pedestrian crossings of NE 124th Street would also be recommended. Provision for secondary site access for fire/emergency vehicles via 105th Avenue NE is also recommended.

Given the existing arterial capacity provided at the Houghton Park-and-Ride facility along 116th Avenue NE and NE 70th Place that includes exclusive left turn only lanes and signalized access control, no additional traffic capacity improvements would be required for the proposed facilities under either option. Continuation of direct transit services to the site should be planned to accommodate fixed route buses or shuttle/school buses from area schools that would likely be using the site for school recreational programs at these 85,000+ square-foot buildings.

If you have any questions regarding the information presented in this memo, please call me at (206) 361-7333 x 101 or mikeread@tenw.com.