

July 23, 2015 Project No. 2013-026A

NAI Black c/o Mr. Bryan Walker 107 South Howard Suite 500 Spokane, WA 99201

Re: Geotechnical Evaluation Phase 2
Painted Hills Golf Course Property
4403 South Dishman-Mica Road
Spokane Valley, WA

Dear Mr. Walker:

As you authorized, we have completed the Phase 2 geotechnical evaluation for the Painted Hills Golf Course property at the above-referenced site in Spokane Valley, Washington. The purpose of the Phase 2 evaluation is to assess subsurface soil and groundwater conditions to assist your civil engineer, Whipple Consulting Engineers, Inc. (WCE) in evaluating stormwater management alternatives relative to potential future development. This report summarizes the results of our field investigation, laboratory testing, engineering analyses, and our opinions and recommendations for stormwater management.

PROJECT DESCRIPTION

We understand that the proposed project may consist of a residential development. The site consists of 91 acres currently developed as a golf course. We have assumed that stormwater runoff will be treated using drywells and/or gravel galleries for subsurface infiltration. This Phase 2 evaluation is intended to identify areas where subsurface infiltration of stormwater may be feasible due to the presence of suitable soils at depth.

Project No. 2013-026A Parcel No. 45344.9108 July 23, 2015 Page 2

AVAILABLE INFORMATION

We were provided a topographic survey for the project site by WCE. This topographic survey showed the existing roadways, existing structures, property lines, and existing ground surface elevation contours. This plan was prepared by WCE and was dated November 7, 2013. The site was used as a golf course prior to our evaluation. The site is relatively level with some elevated golf greens and excavated areas for water hazards. The site is primarily grass-covered with scattered trees along the fairways and pine trees in the undeveloped area to the northwest. The clubhouse building is present at the southwest corner.

In addition, we performed a preliminary geotechnical evaluation for the property in December 2013. The results of that evaluation, along with our opinions and recommendations, are summarized in our Preliminary Geotechnical Evaluation dated December 31, 2013.

We also performed a geotechnical evaluation for certification of the existing levee along Chester Creek in April 2014. The results of that evaluation are summarized in our Geotechnical Evaluation dated February 12, 2015.

FIELD EVALUATION

Procedures

A geotechnical engineer from Inland Pacific Engineering Company (IPEC) observed the drilling of 10 penetration test borings at the site. The borings were drilled between July 1 and 13, 2015 using a truck-mounted drill operated by an independent firm working under subcontract to IPEC. A geotechnical engineer from IPEC observed the borings and logged the surface and subsurface conditions. After we logged the borings, they were abandoned in accordance with state requirements. Ground surface elevations at the borings were provided by WCE.

The soils encountered in the borings were visually and manually classified in the field by our field personnel in accordance with ASTM D 2488, "Description and Identification of Soils (Visual-Manual Procedures)". The samples were returned to our facility for review of the classification by a geotechnical engineer and laboratory testing.

Soils Encountered

In general, the borings encountered 1 to 3 feet of topsoil at the surface. However, Borings B-4 and B-5 encountered "possible fill" in the upper 6 feet (it was considered "possible fill" because it did not appear to be native soil, but no indicator, such as buried topsoil, debris, etc., was found to confirm our opinion). Below the topsoil or "possible fill", the borings generally encountered alluvial lean clay, silty to clayey sand, and poorly graded sands to depths ranging from 6 to 21 feet, but were typically in the upper 10 to 12 feet. Below the fill, topsoil, and alluvial soils, the borings encountered glacially deposited sands to their termination depths.

Penetration resistances (N-values) in the "possible fill" were 9 and 16 blows per foot (BPF). Penetration resistances in the sands ranged from 3 to 62 BPF and averaged 26 BPF, indicating that these soils were very loose to very dense, but were typically medium dense. A penetration resistance of 14 BPF was recorded in the clay indicating that this soil was stiff in consistency.

Geologic maps indicate the soils in this area consist primarily of alluvial and/or glacially deposited silts, clays, sands, and gravels. According to the Soil Survey of Spokane County, the site soils are classified by the Natural Resource Conservation Service (NRCS) as Hardesty ashy silt loam, Narcisse silt loam, Endoaquolls and Fluvaquents, Phoebe ashy sandy loam, and Urban land-Springdale disturbed complex. The native soils encountered in the borings were consistent with the NRCS data.

Groundwater was encountered in all the borings at depths ranging from 11 to 47 feet. The following table summarizes the groundwater depths and approximate elevations.

Boring Number	Depth to Groundwater (feet)	Approximate Groundwater Elevation
B-1	36	1970
B-2	30	1976
B-3	47	1960
B-4	31	1975
B-5	46	1962
B-6	28	1981
B-7	31	1977
B-8	36	1973
B-9	11	2000
B-10	27	1981

The observed water levels indicate that the groundwater levels drop generally from south to north with higher levels near Chester Creek. These water levels are generally consistent with the observed levels in the borings performed on the Chester Creek levee and is consistent with our opinion that this portion of the creek is the beginning of the recharge section as evidenced by the typical lack of water in the creek further downstream along with dropping groundwater levels away from the creek. Fluctuations in the groundwater level may occur due to rainfall, flooding, irrigation, spring thaw and other seasonal and annual factors not evident at the time the observations were made.

ANALYSIS, OPINIONS, AND RECOMMENDATIONS

Based on the data obtained from the borings, previous test pits, field permeability tests, and laboratory tests performed, it is our opinion that subsurface infiltration of stormwater is feasible. The most promising layers are the glacial sands and gravels. These soils would be suitable for infiltration using standard drywells. In areas where the alluvial soils are deeper, use of gravel galleries in addition to drywells would be feasible. However, the shallow groundwater encountered in Boring B-9 would restrict the depth of a gravel gallery.

REMARKS

This report is for the exclusive use of the addressee and the copied parties to use in design of the proposed project and to prepare construction documents. In the absence of our written approval, we make no representations and assume no responsibility to other parties regarding this report. The data, analyses, and recommendations may not be appropriate for other structures or purposes. We recommend that parties contemplating other structures or purposes contact us.

Services performed by the geotechnical engineers for this project have been conducted in a manner consistent with that level of care ordinarily exercised by members of the profession currently practicing in this area under similar budget and time restraints. No warranty, expressed or implied, is intended or made.

GENERAL REMARKS

It has been a pleasure being of service to you for this project. If you have any questions or need additional information, please do not hesitate to call me at (509) 209-6262 at your convenience.

Sincerely,

Paul T. Nelson, P.E. Principal Engineer

Attachments: Figure 1, Site Location Map

Figure 2, NRCS Map

Figure 3, Boring Location Map Logs of Borings B-1 through B-10

Descriptive Terminology Laboratory Test Results



FIGURE 1



	Site Location Map	
IDEC	Project No. 2013-026A	
IPEC	Painted Hills Phase 2	July 23, 2015
Inland Pacific Engineering Company	4403 South Dishman-Mica Road	vary 23, 2018
Geotechnical Engineering and Consulting	Spokane Valley, WA	

FIGURE 2



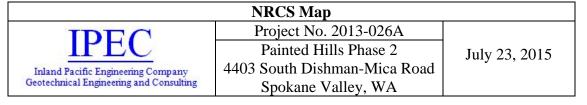
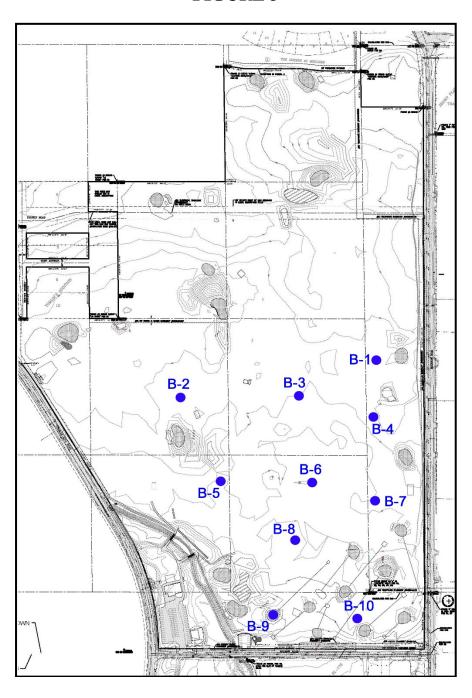


FIGURE 3



	Boring Location Map	
IDEC	Project No. 2013-026A	
IPEC	Painted Hills Phase 2	July 23, 2015
Inland Pacific Engineering Company	4403 South Dishman-Mica Road	July 23, 2013
Geotechnical Engineering and Consulting	Spokane Valley, WA	

Inland Pacific Engineering Company 3012 North Sullivan Road, Suite C Spokane Valley, WA 99216 Telephone: 509-209-6262

BORING NUMBER B-1

PAGE 1 OF 2

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1						d Hills Pha							
1						Spokane V							
1		TED <u>7/2/15</u> COMPLETED <u>7/2/15</u>						HOLE	SIZE	8 inc	hes		
1		ONTRACTOR Johnson Exploration Drilling											
1		Hollow Stem Auger	_			NG N							
1		CHECKED BY PTN				ING <u>36.0</u>			70.00	ft			
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<u> </u>	1/////	(Topsoil) (CL) LEAN CLAY, brown, wet, stiff.											
<u> </u>	-	(Alluvium)											
<u>-</u>	-												
	-////												
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	-				1	(/	1						
-	<u> </u>	(SP) POORLY GRADED SAND with GRAVEL, medium to	coarse										
4 -	-	grained, brown, moist, medium dense to dense.	coarse										
-	-	(Glacial Outwash)											
10	-			ss		13-12							
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15				ss	1	17-14							
			K	/\ 00	1	(31)							
2													
20				ss	1	16-15							
			4	\ 33	-	(31)							
S. C.													
2	7	(SP) POORLY GRADED SAND, fine to medium grained, a of Gravel, brown, moist to 36', then water-bearing, medium	trace										
127		to dense.	ucilae										
25		(Glacial Outwash)		1		10-10							
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Inland Pacific Engineering Company 3012 North Sullivan Road, Suite C Spokane Valley, WA 99216

BORING NUMBER B-1

Telephone: 509-209-6262 Fax: 509-290-5734 CLIENT NAI Black PROJECT NAME Pinted Hills Phase 2 PROJECT NUMBER 2013-026A PROJECT LOCATION Spokane Valley, WA **ATTERBERG** FINES CONTENT (%) SAMPLE TYPE NUMBER MOISTURE CONTENT (%) POCKET PEN. (tsf) DRY UNIT WT. (pcf) LIMITS GRAPHIC LOG RECOVERY 9 (RQD) BLOW COUNTS (N VALUE) PLASTICITY INDEX DEPTH (ft) PLASTIC LIMIT LIQUID MATERIAL DESCRIPTION (SP) POORLY GRADED SAND, fine to medium grained, a trace of Gravel, brown, moist to 36', then water-bearing, medium dense (Glacial Outwash) (continued) 35 13-15 SS (28)Ţ IPEC BORING LOG - GINT STD US LAB.GDT - 7/23/15 13:25 - J.\ IPEC PROJECTS\ 2013 PROJECTS\2014-026A PAINTED HILLS PHASE 2/GINT\2013-026A PAINTED HILLS PHASE 2/GINT\2013-026A PAINTED HILLS PHASE 2/GINT\2013-026A PAINTED HILLS PHASE 2/GINT\2013 PROJECTS\2013 PROJECTS\201 40 11-13 SS (24)45 17-21 SS (38)(SM) SILTY SAND, very fine to fine grained, brown, wet, medium 50 8-8 dense. SS (Alluvium) (16)End of boring. Groundwater not encountered with 49' of hollow-stem auger in the ground. Groundwater at 36' immediately after withdrawal of the auger. Bore hole then grouted to the surface.

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BORING NUMBER B-2

PAGE 1 OF 2

	CLIEN	NT _N/	Al Black PRC	DJECT	NAME	Pinte	d Hills Pha	se 2						
	PROJ	ECT N	UMBER _2013-026A PRO	DJECT	LOCAT	ION _	Spokane V	alley, \	ΝA					
	DATE	STAR	TED <u>7/10/15</u> COMPLETED <u>7/13/15</u> GRO	DUND	ELEVA	TION _	2005.9 ft		HOLE	SIZE	8 inc	hes		
	DRILL	ING C	ONTRACTOR Johnson Exploration Drilling GRO	DUND	WATER	LEVE	LS:							
	DRILL	ING N	IETHOD Hollow Stem Auger	\mathbb{Z} at 1	TIME OF	DRIL	LING 30.0	00 ft / E	lev 19	975.90) ft			
	LOGG	ED B	SLN CHECKED BY PTN	AT E	END OF	DRILL	.ING <u>39.0</u>	0 ft / E	lev 19	66.90	ft			
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AIN ED HIL			(SM) SILTY SAND, fine to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash)											
713-026A F.	5				ss	_	16-14 (30)							
PHASE ZIGIN I Z	 		(SW) WELL GRADED SAND with GRAVEL, medium to coarse grained, brown, moist to 30'. then water-bearing, medium dense very dense. (Glacial Outwash)	e to										
PAIN ED FILLS	10				ss		6-8 (14)							
PROJECT S/2013-026/	 15			2	ss		9-8 (17)	_						
PEC PROJECTO, 2013	20				ss		7-9 (16)							
1.0 - 02.01 01 /02/1 - 1	 				•		(10)							
GINI OID UO LAD.GD	25				SS		9-9 (18)			7				4
	30		Δ		ss		10-15 (25)							



Fax: 509-290-5734

BORING NUMBER B-2

PAGE 2 OF 2

 CLIENT
 NAI Black
 PROJECT NAME
 Pinted Hills Phase 2

PROJECT NUMBER 2013-026A PROJECT LOCATION Spokane Valley, WA

				_								
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	L	PLASTIC MEDIAN LIMIT	PLASTICITY BUILDINDEX	FINES CONTENT (%)
35		(SW) WELL GRADED SAND with GRAVEL, medium to coarse grained, brown, moist to 30'. then water-bearing, medium dense to very dense. (Glacial Outwash) (continued)	X ss		31-18 (49)							
40		Ţ	SS		25-19 (44)							
40			X ss		29-26 (55)							
		End of horing	V 93		(38)	<u></u>						

End of boring.

Groundwater at 30' with 34' of hollow-stem auger in the ground.

Groundwater at 39' with 49' of hollow-stem auger in the ground 3 days later.

Groundwater not encountered to cave-in depth of 27' immediately after withdrawal of the auger.

Bore hole then grouted to the surface.

IPEC BORING LOG - GINT STD US LAB.GDT - 7/23/15 13:25 - J., IPEC PROJECTS), 2013 PROJECTS/2013-026A PAINTED HILLS PHASE 2/GINT/2013-026A PAINTED HILLS PHASE 2/GINT/2014-04A PAINTED HILLS PHASE 2/GINT/2013-026A PAINTED HILLS PHASE 2/G

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BORING NUMBER B-3

PAGE 1 OF 2

			Fax: 509-290-5734											
	CLIEN	NT _N/	Al Black	PROJEC	T NAME	Pinte	d Hills Pha	se 2						
	PROJ	ECT N	UMBER _2013-026A	PROJEC	T LOCAT	ION _	Spokane V	'alley, '	WA					
	DATE	STAR	TED <u>7/2/15</u> COMPLETED <u>7/2/15</u>	GROUNE	ELEVA	TION _	2007 ft		HOLE	SIZE	8 inc	hes		
	DRILL	ING C	ONTRACTOR Johnson Exploration Drilling	GROUNE	WATER	LEVE	LS:							
- 1			ETHOD Hollow Stem Auger		TIME OF	DRILI	LING N	lot end	ounte	red				
- 1			PTN CHECKED BY PTN				.ING 47.0				ft			
- 1							Not er							
ŀ												ERBE	RG.	
					SAMPLE TYPE NUMBER	%		POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)		IMITS	3	FINES CONTENT (%)
	DEPTH (ft)	GRAPHIC LOG				FR (BLOW COUNTS (N VALUE)] H	<u></u> = €:	TUR NT (ပ	<u></u>	N C
	F F	RAF	MATERIAL DESCRIPTION		PLE	58	Selection A	ភ	15 g	ISI ITE		STI	은	ပ္လြ
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SPH	_		(Topsoil)											
밝			(SC) CLAYEY SAND, fine to medium grained, dark brown brown, moist to wet, loose to medium dense.	to										
뫄			(Alluvium)											
PAIN PAIN														
26A	5				X ss	1	3-3	1						
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PA.			(Glacial Outwash)											
026A														
2013-														
TSVZ	 15						0.40							
밝	15				X ss		9-12 (21)							
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501														
STS L														
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빸					X ss		(51)							
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13:2			(SP) POORLY GRADED SAND, fine to medium grained,	a trace										
3/15			of Gravel, brown, water-bearing, medium dense.											
- 7/2			(Glacial Outwash)											
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PEC	-													



PROJECT NUMBER 2013-026A

Inland Pacific Engineering Company 3012 North Sullivan Road, Suite C Spokane Valley, WA 99216 Telephone: 509-209-6262 Fax: 509-290-5734

BORING NUMBER B-3

CLIENT NAI Black PROJECT NAME Pinted Hills Phase 2

PROJ	ECIN	UMBER 2013-026A PROJEC	I LOCAI	ION _	Spokane v	alley,	VVA				—
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	L	PLASTIC WEST	FINES CONTENT
35		(SP) POORLY GRADED SAND,fine grained, brown, moist, dense to medium dense. (Glacial Outwash)	X ss	-	16-16 (32)	-					
- - 40 -			X ss		15-14 (29)						
- 45 -		(SP) POORLY GRADED SAND with GRAVEL, medium to coarse grained, with seams of Silty Sand, brown, moist to water-bearing, very dense to dense. (Glacial Outwash)	ss	-	29-23 (52)	-					
50			X ss	_	21-20 (41)						
		End of boring. Groundwater at 47' with 49' of hollow-stem auger in the ground. Groundwater not encountered to cave-in depth of 19' immediately after withdrawal of the auger. Bore hole then grouted to the surface.									

PROJECT LOCATION Spokane Valley, WA

BORING NUMBER B-4 PAGE 1 OF 2

	CLIEN	NT N	Al Black P	ROJEC	T NAME	Pinte	d Hills Pha	se 2						
	PROJ	ECT N	IUMBER _2013-026A P	ROJEC	T LOCAT	ION _	Spokane V	'alley, '	WA					
	DATE	STAF	RTED _7/6/15	ROUNI	ELEVA [*]	TION _	2006.1 ft		HOLE	SIZE	8 inc	hes		
	DRILL	ING (CONTRACTOR Johnson Exploration Drilling G	ROUNE	WATER	LEVE	LS:							
	DRILL	ING N	METHOD Hollow Stem Auger	$oxtime \Delta$ at	TIME OF	DRIL	L ING 31.0	00 ft / E	Elev 19	975.10) ft			
	LOGG	SED B	Y DD CHECKED BY PTN	AT	END OF	DRILL	. ING N	ot enc	ounter	ed (ca	ave-in)			
	NOTE	s		▼ AF	TER DRI	LLING	45.00 ft /	Elev 1	961.1	0 ft				
t											ATT	ERBE	RG	<u>_</u>
	_	ပ			SAMPLE TYPE NUMBER	% ∖.	ω̂	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	l	LIMITS	S 	FINES CONTENT (%)
	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		E T	RECOVERY (RQD)	BLOW COUNTS (N VALUE)	Sf)	F G			PLASTIC LIMIT	PLASTICITY INDEX	NO (%)
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<u></u>	•				SA	RE	_	8	R	20		4	₹=	崖
E 2.0	0	71 1N . 7	(SM) SILTY SAND, fine grained, with roots, dark brown, moi	st.									_	ш
HAS	-	1/ 1/1/	(Topsoil)											
LLS	_	<u>\(\frac{1}{2}\) \(\frac{1}{2}\) \(\frac{1}{2}\)</u>												
핊		17. 11.												
			(SC-SM) SILTY CLAYEY SAND, fine grained, brown, moist. (Possible Fille)											
9A P/	5		(V 66		7-9	-						
3-02					X ss		(16)	1						
720	-		(SC) CLAYEY SAND, fine to medium grained, with seams o	f Lean										
	-		Clay, brown, moist to wet, loose. (Alluvium)											
VSE :	-													
計	-													
計	10				X ss		5-5							
밀							(10)	1						
PAIN			(SW-SM) WELL GRADED SAND with SILT, medium to coal grained, brown, moist, medium dense.	rse										
026A			(Alluvium)											
013-	_													
- J. IPEC PROJECTS_2013 PROJECTS\2013-026A PAINTED HILLS PHASE 2\GINT\2013-026A PAINTED HILLS PHASE 2.GPJ	15						11-13	_						
밝	10				X ss		(24)			10				9
13 PR	-	0.010	(SM) SILTY SAND, very fine to fine grained, with seams of 0	Clayey										
-20	-		Sand, brown, wet, loose. (Alluvium)											
SIL	_		(Auditarii)											
<u>S</u>	-													
낊	20				X ss		3-2	1						
킯							(5)	1						
:25 -			(SP) POORLY GRADED SAND, medium to coarse grained, brown, moist to 31', then water-bearing, medium dense to ve	erv										
15 13	_		dense.	1										
7/23/	-		(Glacial Outwash)											
ᅪ														
AB.G	25				X ss		7-7 (14)							
NS F	-							1						
ST	-													
GINT														
9														
J Q C	30				X ss	1	6-9	1						
IPEC BORING LOG - GINT STD US LAB.GDT - 7/23/15 13:25			Σ		/\ 33	-	(15)	1						
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BORING NUMBER B-4

PAGE 2 OF 2

CLIENT NAI Black

PROJECT NAME Pinted Hills Phase 2

PROJECT NUMBER 2013-026A PROJECT LOCATION Spokane Valley, WA

1		TROOLS	. LOOA		oponario v	uncy,	•••					
DEPTH	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIMIT	PLASTIC HIMIT LIMIT	PLASTICITY SA INDEX	FINES CONTENT (%)
320/3-028A PANIED HILLS PHASE 2/GIN 1/20/3-028A PANIED HILLS PHASE 2/GPJ 40/20/3-028A PANIED HILLS PHASE 2/GPJ 40/20/20/20/20/20/20/20/20/20/20/20/20/20		(SP) POORLY GRADED SAND, medium to coarse grained, brown, moist to 31', then water-bearing, medium dense to very dense. (Glacial Outwash) (continued)	X ss X ss		12-16 (28) 50 4-11 (15)						d	
S/2013-026A PAINIE			X ss	_	23-35 (58)							

End of boring.

Groundwater at 31' with 34' of hollow-stem auger in the ground.

Groundwater at 45' with 49' of hollow-stem auger in the ground 3 days later.

Groundwater not encountered to cave-in depth of 30' immediately after withdrawal of the auger.

Bore hole then grouted to the surface.

IPEC BORING LOG - GINT STD US LAB.GDT - 7/23/15 13:25 - J., IPEC PROJECTS), 2013 PROJECTS/2013-026A PAINTED HILLS PHASE 2/GINT/2013-026A PAINTED HILLS PHASE 2/GINT/2014-04A PAINTED HILLS PHASE 2/GINT/2013-026A PAINTED HILLS PHASE 2/G

Inland Pacific Engineering Company 3012 North Sullivan Road, Suite C Spokane Valley, WA 99216 Telephone: 509-209-6262 Fax: 509-290-5734

BORING NUMBER B-5

PAGE 1 OF 2

CLIE	NT _N/	Al Black PRO	OJECT N	IAME	Pinte	d Hills Pha	se 2						
PROJ	IECT N	UMBER 2013-026A PRO	OJECT L	OCAT	ION _	Spokane V	'alley, \	WA					
		TED <u>7/1/15</u> COMPLETED <u>7/1/15</u> GR	OUND E	LEVA	LION _	2008.1 ft		HOLE	SIZE	<u>8 inc</u>	hes		
DRIL	LING C	ONTRACTOR Johnson Exploration Drilling GR	OUND W	ATER	LEVE	LS:							
DRIL	LING N	ETHOD Hollow Stem Auger				LING N							
LOGG	GED BY	CHECKED BY PTN	▼ AT EN	ND OF	DRILL	ING 46.0	0 ft / E	lev 19	62.10	ft			
NOTE	S		AFTE	R DRII	LLING	Not er	ncount	ered					
			ı	Щ	%		j	Ŀ.	<u> </u>	AT	TERBE		Z
O DEPTH	GRAPHIC LOG	MATERIAL DESCRIPTION	i i	SAMPLE IYPE NUMBER	RECOVERY (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID		PLASTICITY INDEX	FINES CONTENT (%)
	1/ 1/1/	(SM) SILTY SAND, fine grained, with roots, dark brown, moist. (Topsoil)											
		(SM) SILTY SAND, fine grained, brown, moist. (Possible Fill)											
5				SS		4-5 (9)							
		(SC) CLAYEY SAND, fine grained, brown, moist, very loose. (Alluvium)											
10			X	SS		1-2							
		(SP-SM) POORLY GRADED SAND with SILT, medium to coa	arse										
	- - -	grained, a trace of Gravel, brown, moist, loose to medium dens (Glacial Outwash)											
15			X	SS		1-8 (9)							
20	-		X	SS		8-11 (19)							
27.61													
25			X	SS		9-10 (19)	_		17				7
		(SP) POORLY GRADED SAND, medium to coarse grained, brown, moist to 46', then water-bearing, loose to very deense. (Glacial Outwash)											
30			X	SS		16-21 (37)	,						
-∟	Page 19												<u> </u>



BORING NUMBER B-5

CLIENT NAI Black

PROJECT NAME Pinted Hills Phase 2

PROJECT NUMBER 2013-026A PROJECT LOCATION Spokane Valley, WA

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	L	PLASTIC WEST	PLASTICITY SHIP	FINES CONTENT
 35		(SP) POORLY GRADED SAND, medium to coarse grained, brown, moist to 46', then water-bearing, loose to very deense. (Glacial Outwash) (continued)	X ss		14-15 (29)	_						
40			X ss	-	19-22 (41)	-						
 45 		Ţ	X ss	_	15-17 (32)	-						
50			X ss	-	27-35 (62)							
		End of boring.										
		Groundwater at 46' with 49' of hollow-stem auger in the ground. Groundwater not encountered immediately after withdrawal of the										
		auger. Bore hole then grouted to the surface.										
		bore note than grouted to the surface.										

PEC BORING LOG - GINT STD US LAB GDT - 7/23/15 13:25 - J.\ IPEC PROJECTS\ 2013 PROJECTS\2013-026A PAINTED HILLS PHASE 2/GINT 2013-026A PAINTED PHILLS PHILLS PHASE 2/GINT 2013-026A PAINTED PHILLS PHILL

Inland Pacific Engineering Company 3012 North Sullivan Road, Suite C Spokane Valley, WA 99216 Telephone: 509-209-6262 **BORING NUMBER B-6**

PAGE 1 OF 2

Fax: 509-290-5734 CLIENT NAI Black PROJECT NAME Pinted Hills Phase 2 PROJECT NUMBER 2013-026A PROJECT LOCATION Spokane Valley, WA **DATE STARTED** <u>7/7/15</u> **COMPLETED** <u>7/7/15</u> GROUND ELEVATION 2009.1 ft HOLE SIZE 8 inches DRILLING CONTRACTOR Johnson Exploration Drilling **GROUND WATER LEVELS:** $\sqrt{2}$ AT TIME OF DRILLING 44.50 ft / Elev 1964.60 ft DRILLING METHOD Hollow Stem Auger **T** AT END OF DRILLING 44.50 ft / Elev 1964.60 ft LOGGED BY DD CHECKED BY PTN **▼ AFTER DRILLING** 28.00 ft / Elev 1981.10 ft NOTES **ATTERBERG** FINES CONTENT (%) SAMPLE TYPE NUMBER MOISTURE CONTENT (%) POCKET PEN. (tsf) DRY UNIT WT. (pcf) LIMITS RECOVERY (RQD) PLASTICITY INDEX DEPTH (ft) PLASTIC LIMIT LIQUID MATERIAL DESCRIPTION (SM) SILTY SAND, fine to medium grained, with roots, dark brown, moist. (Topsoil) (SM) SILTY SAND, fine grained, with seams of Clayey Sand, brown, moist, medium dense. (Alluvium) 6-7 SS (13)10 7-7 SS (14)(SP-SM) POORLY GRADED SAND with SILT, medium to coarse grained, a trace of Gravel, brown, moist, loose to medium dense. (Glacial Outwash) 15 5-10 SS (15)20 6-7 SS 15 6 (13)(SP) POORLY GRADED SAND, medium to coarse grained, brown, moist to 25', then water-bearing, medium dense to dense. (Glacial Outwash) 8-11 SS (19)<u>1</u> 30 10-11 SS (21)



BORING NUMBER B-6

CLIENT NAI Black PROJECT NAME Pinted Hills Phase 2

PROJECT NUMBER 2013-026A PROJECT LOCATION Spokane Valley, WA

									ATT	ERBE	RG	⊨
DEPTH (ff)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)		PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT
- 35 -		(SP) POORLY GRADED SAND, medium to coarse grained, brown, moist to 25', then water-bearing, medium dense to dense. (Glacial Outwash) (continued)	× ss		13-15 (28)							
40			X ss	_	12-13 (25)	_						
- 45 -		Ţ	ss	-	19-22 (41)	-						
- 50			X ss	_	22-19 (41)							
		End of boring. Groundwater at 44.5' with 49' of hollow-stem auger in the ground. Groundwater at 28' immediately after withdrawal of the auger. Bore hole then grouted to the surface.										

BORING NUMBER B-7 PAGE 1 OF 2

PROJECT NUMBER 2013-026A		CLIEN	NT NA	Al Black	PROJEC	INAME	Pinte	d Hills Pha	se 2						
DRILLING CONTRACTOR Johnson Exploration Drilling DRILLING METHOD Hollow Stem Auger LOGGED BY SLN CHECKED BY PTN NOTES TAT TIME OF DRILLING 34.00 ft / Elev 1973.60 ft TAT END OF DRILLING 37.00 ft / Elev 1970.60 ft TAT END OF DRILLING 37.00 ft / Elev 1970.60 ft TAT END OF DRILLING 37.00 ft / Elev 1970.60 ft TAT END OF DRILLING 37.00 ft / Elev 1970.60 ft TAT END OF DRILLING 37.00 ft / Elev 1970.60 ft TAT END OF DRILLING 37.00 ft / Elev 1970.60 ft TATERBERG LIMITS AUGUSTO SILLY SAND, fine to medium grained, with roots, dark brown, moist (Topsoil) (SM) SILTY SAND, fine grained, with seams of Lean Clay, brown, moist to wet, loose. (Alluvium) (SM) SILTY SAND, very fine to fine grained, brown, moist, medium dense. (Alluvium) SS 4-6 (D) SS 4-7 (SM) SILTY SAND, very fine to fine grained, brown, moist, medium dense. (Alluvium)		PROJ	ECT N	UMBER _2013-026A	PROJEC	T LOCAT	ION _	Spokane V	'alley, '	WA					
DRILLING METHOD Hollow Stem Auger LOGGED BY SLN CHECKED BY PTN NOTES AT TIME OF DRILLING 34.00 ft / Elev 1973.60 ft AFTER DRILLING 37.00 ft / Elev 1976.60 ft AFTER DRILLING 37.00 ft / Elev 1976.60 ft AFTER DRILLING 37.00 ft / Elev 1970.60 ft AFTER DRILLING 37.00 ft AFTER DRILLING 37.00 ft / Elev 1970.60 ft AFTER DRILL		DATE	STAR	TED 7/10/15 COMPLETED 7/10/15	GROUNI	ELEVA	TION _	2007.6 ft		HOLE	SIZE	8 inc	hes		
NOTES CHECKED BY PTN NOTES TATEND OF DRILLING 3.0.0 ft / Elev 1976.60 ft TATERBERG LIMITS ATTERBERG		DRILL	ING C	ONTRACTOR Johnson Exploration Drilling	GROUNE	WATER	LEVE	LS:							
NOTES ## AFTER PRILLING ## AFT		DRILL	ING N	Hollow Stem Auger	$ar{oxtsymbol{oxed}}$ at	TIME OF	DRIL	L ING _34.0	00 ft / E	Elev 19	973.60) ft			
MATERIAL DESCRIPTION A		LOGG	SED B	CHECKED BY PTN	▼ AT	END OF	DRILL	.ING <u>31.0</u>	0 ft / E	lev 19	76.60	ft			
HEAD OF THE CONTROL O		NOTE	s		₹ AF	TER DRI	LLING	37.00 ft /	Elev 1	970.6	0 ft				
(SM) SILTY SAND, fine to medium grained, with roots, dark brown, moist. (Topsoil) (SM) SILTY SAND, fine grained, with seams of Lean Clay, brown, moist to wet, loose. (Alluvium) SS 2-5 (7) (SM) SILTY SAND, fine grained, with seams of Lean Clay, brown, moist to wet, loose. (Alluvium) SS 4-6 (10) (SM) SILTY SAND, very fine to fine grained, brown, moist, medium dense. (Alluvium) SS 8-11 (19)											_			RG	5
(SM) SILTY SAND, fine to medium grained, with roots, dark brown, moist. (Topsoil) (SM) SILTY SAND, fine grained, with seams of Lean Clay, brown, moist to wet, loose. (Alluvium) SS 2-5 (7) (SM) SILTY SAND, fine grained, with seams of Lean Clay, brown, moist to wet, loose. (Alluvium) SS 4-6 (10) (SM) SILTY SAND, very fine to fine grained, brown, moist, medium dense. (Alluvium) SS 8-11 (19)		_	೦			Y PE	٧٤ %	့် တွဲ့ 🗓)EN	M	品%			} 	日日
(SM) SILTY SAND, fine to medium grained, with roots, dark brown, moist. (Topsoil) (SM) SILTY SAND, fine grained, with seams of Lean Clay, brown, moist to wet, loose. (Alluvium) SS 2-5 (7) (SM) SILTY SAND, fine grained, with seams of Lean Clay, brown, moist to wet, loose. (Alluvium) SS 4-6 (10) (SM) SILTY SAND, very fine to fine grained, brown, moist, medium dense. (Alluvium) SS 8-11 (19)		± €	PH	MATERIAL DESCRIPTION		18 A	VEF QD)	NU. ALU	ET F	E (fg	EN EN	∟∟	일	Ę×	NO.
(SM) SILTY SAND, fine to medium grained, with roots, dark brown, moist. (Topsoil) (SM) SILTY SAND, fine grained, with seams of Lean Clay, brown, moist to wet, loose. (Alluvium) SS 2-5 (7) (SM) SILTY SAND, fine grained, with seams of Lean Clay, brown, moist to wet, loose. (Alluvium) SS 4-6 (10) (SM) SILTY SAND, very fine to fine grained, brown, moist, medium dense. (Alluvium) SS 8-11 (19)			GR/			MEN	CO (R	Z S S S S S S	S S	5 ¥ ≿	S F	물질	-AS-) SE
(SM) SILTY SAND, fine to medium grained, with roots, dark brown, moist. (Topsoil) (SM) SILTY SAND, fine grained, with seams of Lean Clay, brown, moist to wet, loose. (Alluvium) SS 2-5 (7) (SM) SILTY SAND, fine grained, with seams of Lean Clay, brown, moist to wet, loose. (Alluvium) SS 4-6 (10) (SM) SILTY SAND, very fine to fine grained, brown, moist, medium dense. (Alluvium) SS 8-11 (19)	ЭРЈ	0				SA	RE		β	占	28		4	~=	
Description of the property of	SE 2.0	U	7 <u>1 1</u> N. 7 <u>1</u>	(SM) SILTY SAND, fine to medium grained, with roots, dar	k										
(SM) SILTY SAND, fine grained, with seams of Lean Clay, brown, moist to wet, loose. (Alluvium) (SM) SILTY SAND, very fine to fine grained, brown, moist, medium dense. (Alluvium) (SM) SILTY SAND, very fine to fine grained, brown, moist, medium dense. (Alluvium) (SP-SM) POORLY GRADED SAND with SiLT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash) (SP-SM) POORLY GRADED SAND with SiLT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash) SS 9-8 (17) (SP-SM) POORLY GRADED SAND with SiLT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash) SS 10-11 (SP-SM) POORLY GRADED SAND with SiLT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash) SS 110-11 (21)	PHA		11. 71.11												
SS SS SS SS SS SS SS S	ILLS		100		brown										
(Alluvium) SS 2.5 (7)	ED H			moist to wet, loose.	Diowii,										
SS SS SS SS SS SS SS S	AINT			(Alluvium)											
SS SS SS SS SS SS SS S	96A P	5				V ss			1						
10 10 10 10 10 10 10 10	13-02					// 00		(7)	1						
SS 4-6 (10) (SM) SILTY SAND, very fine to fine grained, brown, moist, medium dense. (Alluvium) SS 8-11 (19) (SP-SM) POORLY GRADED SAND with SILT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash) SS 9-8 (17) SS 7-10 (17) SS (10-11) (21) SS (10-11) (21) SS (10-11) (21) SS (10-11) (21) (21) SS (10-11) (21)	JT/20	_													
SS 4-6 (10) SS 4-6 (10	2/GIN														
10	ASE														
SS 4-6 (10) (SM) SILTY SAND, very fine to fine grained, brown, moist, medium dense. (Alluvium) (SP-SM) POORLY GRADED SAND with SILT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash) SS 9-8 (17) SS 7-10 (17)	S PH														
(SM) SILTY SAND, very fine to fine grained, brown, moist, medium dense. (Alluvium) (SP-SM) POORLY GRADED SAND with SILT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash) (SP-SM) POORLY GRADED SAND with SILT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash) SS 7-10 (17) SS 18 6	Ϊ	10				X ss									
(SM) SILTY SAND, very fine to fine grained, brown, moist, medium dense. (Alluvium) (SP-SM) POORLY GRADED SAND with SILT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash) (Glacial Outwash) SS 9-8 (17) SS 7-10 (17)	TED							(10)	1						
(SM) SILTY SAND, very fine to fine grained, brown, moist, medium dense. (Alluvium) (SP-SM) POORLY GRADED SAND with SILT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash) (SP-SM) POORLY GRADED SAND with SILT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (SSS) (SP-SM) POORLY GRADED SAND with SILT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (SSS)	PAIN														
(SM) SILTY SAND, very fine to fine grained, brown, moist, medium dense. (Alluvium) (SP-SM) POORLY GRADED SAND with SILT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash) (Glacial Outwash) SS 7-10 (17) SS 18 18	26A														
SS (Alluvium) (SP-SM) POORLY GRADED SAND with SILT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash) (Glacial Outwash) SS (17) SS (17)	013-C														
SS	TS\2	 15						0.44							
SS 7-10 (SP-SM) POORLY GRADED SAND with SILT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash)	OJEC	15				X ss									
(SP-SM) POORLY GRADED SAND with SILT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash) SS 9-8 (17) SS 7-10 (17) SS 10-11 (21)	3 PR														
(SP-SM) POORLY GRADED SAND with SILT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash) SS 9-8 (17) SS 7-10 (17) SS 18 8 18 18	201														
(SP-SM) POORLY GRADED SAND with SLT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash) SS 9-8 (17) SS 7-10 (17) SS 10-11 (21)	CTS														
SS 9-8 (17) 18 6 6 7-10 (17) 18 18 6 6 7-10 (17) 18 18 7-10 (17) 18 7-10 (17) 18 7-10 (17) 18 7-10 (17) 18 7-10 (17) 18 7-10 (17) 18 7-10 (17) 18 7-10 (17) 18 7-10 (17) 18 7-10 (17) 18 7-10 (17) 18 18 7-10 (17) 18 7-1	SOJE				coarse										
SS (17)	CPF	20		(Glacial Outwash)		V 00		9-8	-		40				
SS 7-10 (17) SS (17) SS (17)	_IPE					X 55					18				6
SS 7-10 (17) SS 10-11 (21)	5 - J:														
SS 7-10 (17) SS 10-11 (21)	13:2														
SS 7-10 (17) SS 10-11 (21)	23/15														
SS 7-10 (17) SS 10-11 (21)	Γ - 7/2														
SS (17) SS (17) SS (17) SS (10-11 (21)	GD.	25				V ss		7-10	1						
30 SS 10-11 (21)	S LAE					// 00		(17)	1						
SS 10-11 (21)	D US														
©	IT ST														
SS	- GIN														
9 30 SS 10-11 (21) ▼	LOG														
	SING	30				X ss]	10-11	1						
	BOR			Ţ		<u> </u>	†	(21)	1						
	IPEC														



BORING NUMBER B-7

Fax: 509-290-5734 CLIENT NAI Black

PROJECT NAME Pinted Hills Phase 2

PROJECT NUMBER 2013-026A PROJECT LOCATION Spokane Valley, WA

PROJEC	אונ וע	JMBER 2013-026A PROJEC	I LOCAI	ION _	Spokane v	alley,	WA					
DEPTH (ft) GRAPHIC	POOR	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC HIMIT LIMIT	PLASTICITY SHIP	FINES CONTENT
35		(SP-SM) POORLY GRADED SAND with SILT, medium to coarse grained, a trace of Gravel, brown, moist, medium dense. (Glacial Outwash) (continued)	× ss		11-15 (26)	_						
40		Ā	X ss		12-15 (27)							
45			X ss	-	12-25 (37)	_						
50			X ss	_	12-32 (44)	_						
		End of boring.										
		Groundwater at 34' with 34' of hollow-stem auger in the ground.										
		Groundwater at 37' with 49' of hollow-stem auger in the ground 3 days later.										
		Groundwater at 31' immediately after withdrawal of the auger.										
		Bore hole then grouted to the surface.										

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BORING NUMBER B-8

PAGE 1 OF 2

Fax: 509-290-5734 CLIENT NAI Black PROJECT NAME Pinted Hills Phase 2 PROJECT NUMBER 2013-026A PROJECT LOCATION Spokane Valley, WA **DATE STARTED** <u>7/7/15</u> **COMPLETED** <u>7/7/15</u> GROUND ELEVATION 2009.3 ft HOLE SIZE 8 inches DRILLING CONTRACTOR Johnson Exploration Drilling **GROUND WATER LEVELS:** $\sqrt{2}$ AT TIME OF DRILLING 43.00 ft / Elev 1966.30 ft DRILLING METHOD Hollow Stem Auger LOGGED BY DD CHECKED BY PTN **AT END OF DRILLING** 36.00 ft / Elev 1973.30 ft **Y** AFTER DRILLING 47.00 ft / Elev 1962.30 ft NOTES **ATTERBERG** FINES CONTENT (%) SAMPLE TYPE NUMBER MOISTURE CONTENT (%) POCKET PEN. (tsf) LIMITS DRY UNIT WT. (pcf) RECOVERY (RQD) DEPTH (ft) PLASTICITY INDEX PLASTIC LIMIT LIQUID MATERIAL DESCRIPTION PEC BORING LOG - GINT STD US LAB GDT - 7/23/15 13:25 - J.\ IPEC PROJECTS\ 2013 PROJECTS\2013-026A PAINTED HILLS PHASE 2/GINT 2013-026A PAINTED PHILLS PHILLS PHASE 2/GINT 2013-026A PAINTED PHILLS PHILL (SM) SILTY SAND, fine to medium grained, with roots, dark brown, moist. (Topsoil) (SM) SILTY SAND, fine to medium grained, brown, moist, medium dense. (Alluvium) 11-11 SS (22)(SP) POORLY GRADED SAND, fine to medium grained, brown, moist, medium dense. (Alluvium) 10 6-5 SS (11)(SM) SILTY SAND, fine to medium grained, with seams of Clayey Sand, brown, moist to wet, medium dense. (Alluvium) 15 8-10 SS (18)(SW-SM) WELL GRADED SAND with SILT, fine to medium grained, brown, moist, medium dense. (Glacial Outwash) 8-10 SS (18)9-9 SS (18)10-11 SS 10 18 (21)



BORING NUMBER B-8

Fax: 509-290-5734 CLIENT NAI Black PROJECT NAME Pinted Hills Phase 2

PROJECT NUMBER 2013-026A PROJECT LOCATION Spokane Valley, WA **ATTERBERG** FINES CONTENT (%) SAMPLE TYPE NUMBER MOISTURE CONTENT (%) POCKET PEN. (tsf) DRY UNIT WT. (pcf) LIMITS GRAPHIC LOG RECOVERY 9 (RQD) BLOW COUNTS (N VALUE) PLASTICITY INDEX DEPTH (ft) PLASTIC LIMIT LIQUID MATERIAL DESCRIPTION (SW-SM) WELL GRADED SAND with SILT, fine to medium grained, brown, moist, medium dense. (Glacial Outwash) (continued) 35 10-9 SS (SP) POORLY GRADED SAND, medium to coarse grained, (19)brown, water-bearing, medium dense to dense. IPEC BORING LOG - GINT STD US LAB.GDT - 7/23/15 13:25 - J./. IPEC PROJECTS/ 2013 PROJECTS/2013-026A PAINTED HILLS PHASE 2/GINT2013-026A PAINTED HILLS PHASE 2/GINT2014-026A PAINTED PHASE 2/GINT2014-026A PAINTED HILLS PHASE 2/GINT2014-026A PAINTED PHASE 2/GINT (Glacial Outwash) 40 13-17 SS (30) ∇ 45 18-32 SS (50)

19-25

(44)

SS

End of boring

<u>1</u>

50

Groundwater at 43' with 44' of hollow-stem auger in the ground.

Groundwater at 47' with 49' of hollow-stem auger in the ground 3 days later.

Groundwater at 36' immediately after withdrawal of the auger.

Inland Pacific Engineering Company 3012 North Sullivan Road, Suite C Spokane Valley, WA 99216 Telephone: 159-209-6262

BORING NUMBER B-9 PAGE 1 OF 2

c	LIEN	NT _N/	Fax: 509-290-5734 Al Black	PROJEC	T NAME	Pinte	d Hills Pha	ise 2						
Р	ROJ	ECT N	IUMBER _2013-026A	PROJEC	T LOCAT	TION _	Spokane V	alley,	WA					
D	ATE	STAF	TED 7/8/15 COMPLETED 7/8/15	GROUN	D ELEVA	TION _	2010.6 ft		HOLE	SIZE	8 inc	hes		
- 1					O WATER									
- 1			METHOD Hollow Stem Auger				LING _15.0							
- 1			Y SLN CHECKED BY PTN				ING 11.0				ft			
N	OTE	:S		<u>*</u> AF	TER DRI	LLING	41.00 ft /	Elev 1	1969.6	0 ft				
- 1	(#)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)		PLASTIC WE AND THE PROPERTY OF	PLASTICITY NO INDEX	FINES CONTENT (%)
IILLS PHASE 2.GPJ	0 -	\(\frac{1}{2}\frac{1}{	(SM) SILTY SAND, fine to medium grained, with roots, dai brown, moist. (Topsoil)	·k	8	<u> </u>		A A		-0		Д	/IA/	H
26A PAINTED F	5	2 34	(SM) SILTY SAND, fine grained, brown, moist, loose. (Alluvium)		X ss	_	4-6	_						
PHASE 2/GIN1/2013-0	- - -		(SC-SM) SILTY CLAYEY SAND, very fine to fine grained, wet, loose. (Alluvium)	brown,			(10)							
-026A PAINTED HILLS	<u>10</u> - - -		(SP) POORLY GRADED SAND, fine to medium grained, be moist to 15', then water-bearing, medium dense to dense. (Glacial Outwash)	orown,	ss	-	4-5 (9)							
2013 PROJECTS/2013	- 15 - -		፟፟፟፟፟፟፟፟		X ss	_	6-9 (15)	_						
13:25 - J._ IPEC PROJECTS	- 20 - -				X ss	-	9-9 (18)							
PEC BORING LOG - GIN I STD US LAB. GD 1 - 7/23/15 13:25 - JA_PPEC PROJECTS/ 2013 PROJECTS/ 2/28A PAINTED HILLS PHASE 2/GPU	- 25 -				X ss	-	12-11 (23)	-						
PEC BORING LOG - GIN	30 -				ss	-	12-15 (27)	_						



BORING NUMBER B-9

CLIENT NAI Black

PROJECT NAME Pinted Hills Phase 2 PROJECT NUMBER 2013-026A PROJECT LOCATION Spokane Valley, WA **ATTERBERG** FINES CONTENT (%) SAMPLE TYPE NUMBER MOISTURE CONTENT (%) POCKET PEN. (tsf) DRY UNIT WT. (pcf) LIMITS RECOVERY 9 (RQD) GRAPHIC LOG BLOW COUNTS (N VALUE) PLASTICITY INDEX DEPTH (ft) PLASTIC LIMIT LIQUID MATERIAL DESCRIPTION (SP) POORLY GRADED SAND, fine to medium grained, brown, moist to 15', then water-bearing, medium dense to dense. (Glacial Outwash) (continued) 35 18-30 SS (48)(SP) POORLY GRADED SAND, medium to coarse grained, a trace of Gravel, brown, moist, dense. (Glacial Outwash) 40 20-25 SS (45)1 45 26-24 SS (50)50 21-26 SS (47)End of boring Groundwater at 15' with 19' of hollow-stem auger in the ground. Groundwater at 41' with 49' of hollow-stem auger in the ground 3 days later.

Groundwater at 11' immediately after withdrawal of the auger.

Bore hole then grouted to the surface.

IPEC BORING LOG - GINT STD US LAB.GDT - 7/23/15 13:25 - J.\ IPEC PROJECTS\ 2013 PROJECTS\2013-026A PAINTED HILLS PHASE 2\GINT\2013-026A PAINTED HILLS PHASE 2\GINT\2013-026A PAINTED HILLS PHASE 2\GINT\2013 PROJECTS\ 2013 PROJECTS\ 2

PEC BORING LOG - GINT STD US LAB GDT - 7/23/15 13:25 - J.\ IPEC PROJECTS\ 2013 PROJECTS\2013-026A PAINTED HILLS PHASE 2/GINT 2013-026A PAINTED PHILLS PHILLS PHASE 2/GINT 2013-026A PAINTED PHILLS PHILL

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BORING NUMBER B-10

PAGE 1 OF 2

Fax: 509-290-5734 CLIENT NAI Black PROJECT NAME Pinted Hills Phase 2 PROJECT NUMBER 2013-026A PROJECT LOCATION Spokane Valley, WA **DATE STARTED** <u>7/8/15</u> **COMPLETED** <u>7/8/15</u> GROUND ELEVATION 2008.4 ft HOLE SIZE 8 inches DRILLING CONTRACTOR Johnson Exploration Drilling **GROUND WATER LEVELS:** $\sqrt{2}$ AT TIME OF DRILLING 28.00 ft / Elev 1980.40 ft DRILLING METHOD Hollow Stem Auger **AT END OF DRILLING** 27.00 ft / Elev 1981.40 ft LOGGED BY SLN CHECKED BY PTN **Y** AFTER DRILLING 48.00 ft / Elev 1960.40 ft NOTES FINES CONTENT (%) SAMPLE TYPE NUMBER MOISTURE CONTENT (%) POCKET PEN. (tsf) DRY UNIT WT. (pcf) LIMITS GRAPHIC LOG RECOVERY (RQD) BLOW COUNTS (N VALUE) DEPTH (ft) PLASTICITY INDEX PLASTIC LIMIT LIQUID MATERIAL DESCRIPTION (SM) SILTY SAND, fine grained, with roots, dark brown, moist. (Topsoil) (SP) POORLY GRADED SAND, medium to coarse grained, brown, moist, medium dense. (Alluvium) 5-6 SS (11)(SM) SILTY SAND, fine grained, brown, moist, loose. (Alluvium) 10 4-5 SS (SW-SM) WELL GRADED SAND with SILT, fine to medium grained, brown, moist, medium dense. (Glacial Outwash) 9-9 SS 19 9 (18)20 8-8 SS (16)11-15 SS (26)11-15 SS (26)



BORING NUMBER B-10

CLIENT NAI Black PROJECT NAME Pinted Hills Phase 2

PROJECT NUMBER 2013-026A PROJECT LOCATION Spokane Valley, WA

(SW-SM) WELL GRADED SAND with SILT, fine to medium grained, brown, moist, medium dense. (Glacial Outwash) (continued)	LIQUID LIMIT PLASTIC	PLASTICITY STAN INDEX	FINES CONTENT
(SW-SM) WELL GRADED SAND with SILT, fine to medium grained, brown, moist, medium dense. (Glacial Outwash) (continued)	LIQUID	PLASTICITY INDEX	S CONTE
grained, brown, moist, medium dense. (Glacial Outwash) (continued)			FINE
End of boring. Groundwater at 28' with 29' of hollow-stem auger in the ground. Groundwater at 48' with 49' of hollow-stem auger in the ground 3 days later. Groundwater at 27' immediately after withdrawal of the auger. Bore hole then grouted to the surface.			
SS 21-25 (46)			
V			
25			
ss 21-23 (44)			
SS 19-20 (39)			
End of boring.			
Groundwater at 28' with 29' of hollow-stem auger in the ground.			
Groundwater at 48' with 49' of hollow-stem auger in the ground 3 days later.			
Groundwater at 27' immediately after withdrawal of the auger.			
Bore hole then grouted to the surface.			



REL	ATIVE DENSITY OR CON	ISISTENCY VERSUS SPT	N-VALVE
COARSE	-GRAINED SOILS	FINE-GRAI	NED SOILS
DENSITY	N(BLOWS/FT)	CONSISTENCY	N(BLOWS/FT)
Very Loose	0 - 4	Very Soft	0 - 1
Loose	4 - 10	Soft	2 - 3
Medium-Dense	11 - 30	Rather Soft	4 - 5
Medium-Dense	11 - 30	Medium	6 - 8
Dense	31 - 50	Rather Stiff	9 - 12
Delise	31 - 30	Stiff	13 - 16
Vary Danca	> 50	Very Stiff	17 - 30
Very Dense	> 30	Hard	> 30

	USCS SOIL	CLASSIFI	CATIO	N
l	MAJOR DIVISIONS			GROUP DESCRIPTIONS
Coarse-	Gravel and	Gravel	GW	Well Graded Gravel
Grained	Gravelly Soils	(with little or no fines)	GP	Poorly Graded Gravel
Soils	<50% coarse fraction	Gravel	GM	Silty Gravel
	passes #4 sieve	(with >12% fines)	GC	Clayey Gravel
<50%	Sandy and	Sand	SW	Well Graded Sand
passes #200	Sandy Soils	(with little or no fines)	SP	Poorly Graded Sand
sieve	>50% coarse fraction	Sand	SM	Silty Sand
	passes #4 sieve	(with >12% fines)	SC	Clayey Sand
Fine-			ML	Silt
Grained	Silt and Clay		CL	Lean Clay
Soils	Liquid Limit < 50		OL	Organic Silt and Clay (low plasticity)
>50%		MH	Inorganic Silt	
passes #200	Salt and Clay	CH	Fat Clay	
sieve	Liquid Limit > 50	ОН	Organic Clay and Silt (med to high plasticity)	
	Highly Organic Soils	PT	Peat Muck	

MODIF	TERS
DESCRIPTION	RANGE
Occasional	<5%
Trace	5% - 12%
With	>12%

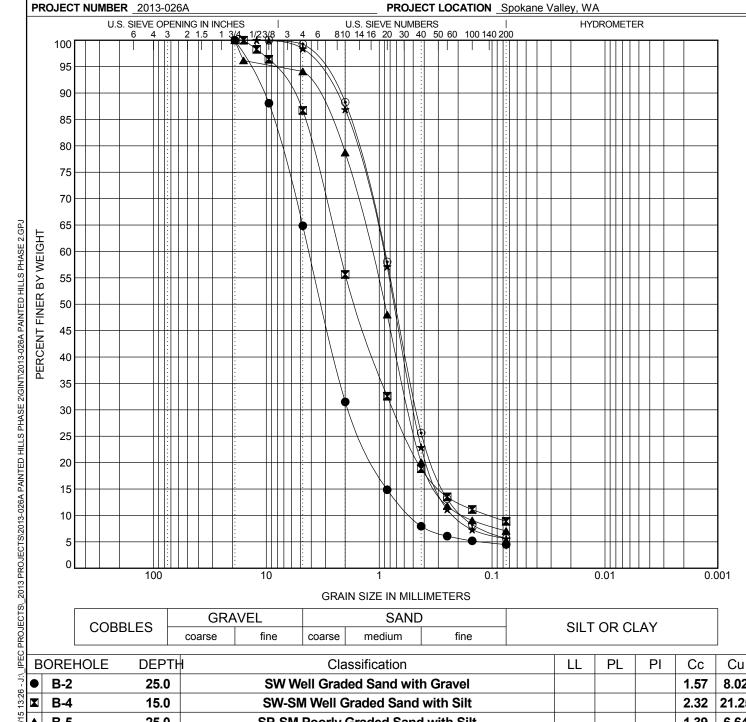
MO	DISTURE CONTENT
DESCRIPTION	FIELD OBSERVATION
Dry	Absence of moisture, dusty, dry to the touch
Moist	Dry of optimum moisture content
Wet	Wet of optimum moisture content

	MAJOR DIVISIONS WITH GRAIN SIZE										
	SIEVE SIZE										
	12" 3" 3/4" 4 10 40 200										
	GRAIN SIZE (INCHES)										
	12	3 ().75 0	.19 0	.079 0	.0171 (0.0029				
Boulders	ers Cobbles		ıvel		Sand		Silt and Clay				
Doulders	Coobles	Coarse	Fine	Coarse	Medium	Fine	Silt allu Clay				

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GRAIN SIZE DISTRIBUTION

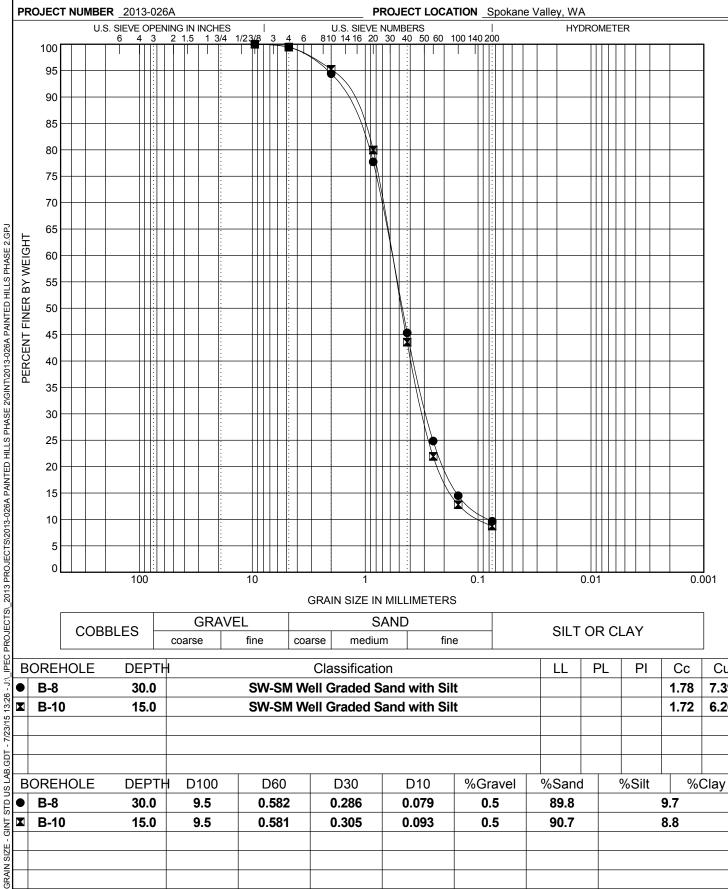
CLIENT NAI Black PROJECT NAME Pinted Hills Phase 2



	B-2	25.0		Sw well G	Fraded Sand	i with Grave	1			1.57	8.02	
X	B-4	15.0		SW-SM W	ell Graded S	and with Si	lt			2.32	21.25	
•	B-5	25.0		SP-SM Poo	rly Graded	Sand with S	ilt			1.39	6.64	
*	B-6	20.0		SP-SM Poo	rly Graded			1.21	4.30			
•	B-7			1.35	5.00							
В	OREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%	Clay	
•	B-2	25.0	19	4.187	1.851	0.522	35.1	60.4		4.5		
X	B-4	15.0	15.9	2.258	0.747	0.106	13.3	77.8		8.9		
•	B-5	25.0	19	1.187	0.543	0.179	5.9	87.0		7.1		
*	B-6	20.0	12.2	0.923	0.491	0.215	1.6	92.8		5.6		
<u> </u>	B-7	20.0	9.5	0.899	0.467	0.18	0.7	93.6		5.6		
	* B B * *	B-4 B-5 B-6 B-7 BOREHOLE B-2 B-4 B-5 B-6	X B-4 15.0 ▲ B-5 25.0 ★ B-6 20.0 ● B-7 20.0 BOREHOLE DEPTH ● B-2 25.0 X B-4 15.0 ▲ B-5 25.0 ★ B-6 20.0	X B-4 15.0 A B-5 25.0 ★ B-6 20.0 DEPTH D100 BOREHOLE DEPTH D100 B-2 25.0 19 X B-4 15.0 15.9 A B-5 25.0 19 ★ B-6 20.0 12.2	X B-4 15.0 SW-SM Wo A B-5 25.0 SP-SM Pool ★ B-6 20.0 SP-SM Pool B-7 20.0 SP-SM Pool BOREHOLE DEPTH D100 D60 B-2 25.0 19 4.187 X B-4 15.0 15.9 2.258 A B-5 25.0 19 1.187 ★ B-6 20.0 12.2 0.923	X B-4 15.0 SW-SM Well Graded S A B-5 25.0 SP-SM Poorly Graded S ★ B-6 20.0 SP-SM Poorly Graded S BOREHOLE DEPTH D100 D60 D30 B-2 25.0 19 4.187 1.851 X B-4 15.0 15.9 2.258 0.747 A B-5 25.0 19 1.187 0.543 ★ B-6 20.0 12.2 0.923 0.491	X B-4 15.0 SW-SM Well Graded Sand with Sile A B-5 25.0 SP-SM Poorly Graded Sand with Sile ★ B-6 20.0 SP-SM Poorly Graded Sand with Sile BOREHOLE DEPTH D100 D60 D30 D10 B-2 25.0 19 4.187 1.851 0.522 X B-4 15.0 15.9 2.258 0.747 0.106 A B-5 25.0 19 1.187 0.543 0.179 ★ B-6 20.0 12.2 0.923 0.491 0.215	X B-4 15.0 SW-SM Well Graded Sand with Silt A B-5 25.0 SP-SM Poorly Graded Sand with Silt ★ B-6 20.0 SP-SM Poorly Graded Sand with Silt BOREHOLE DEPTH D100 D60 D30 D10 %Gravel ● B-2 25.0 19 4.187 1.851 0.522 35.1 X B-4 15.0 15.9 2.258 0.747 0.106 13.3 A B-5 25.0 19 1.187 0.543 0.179 5.9 ★ B-6 20.0 12.2 0.923 0.491 0.215 1.6	X B-4 15.0 SW-SM Well Graded Sand with Silt A B-5 25.0 SP-SM Poorly Graded Sand with Silt ★ B-6 20.0 SP-SM Poorly Graded Sand with Silt B-7 20.0 SP-SM Poorly Graded Sand with Silt BOREHOLE DEPTH D100 D60 D30 D10 %Gravel %Sand ● B-2 25.0 19 4.187 1.851 0.522 35.1 60.4 X B-4 15.0 15.9 2.258 0.747 0.106 13.3 77.8 A B-5 25.0 19 1.187 0.543 0.179 5.9 87.0 ★ B-6 20.0 12.2 0.923 0.491 0.215 1.6 92.8	X B-4 15.0 SW-SM Well Graded Sand with Silt B-5 25.0 SP-SM Poorly Graded Sand with Silt ★ B-6 20.0 SP-SM Poorly Graded Sand with Silt B-7 20.0 SP-SM Poorly Graded Sand with Silt BOREHOLE DEPTH D100 D60 D30 D10 %Gravel %Sand %Silt B-2 25.0 19 4.187 1.851 0.522 35.1 60.4 X B-4 15.0 15.9 2.258 0.747 0.106 13.3 77.8 A B-5 25.0 19 1.187 0.543 0.179 5.9 87.0 ★ B-6 20.0 12.2 0.923 0.491 0.215 1.6 92.8	X B-4 15.0 SW-SM Well Graded Sand with Silt 2.32 A B-5 25.0 SP-SM Poorly Graded Sand with Silt 1.39 ★ B-6 20.0 SP-SM Poorly Graded Sand with Silt 1.21 DEPTH D100 D60 D30 D10 %Gravel %Sand %Silt % B-2 25.0 19 4.187 1.851 0.522 35.1 60.4 4.5 X B-4 15.0 15.9 2.258 0.747 0.106 13.3 77.8 8.9 A B-5 25.0 19 1.187 0.543 0.179 5.9 87.0 7.1 ★ B-6 20.0 12.2 0.923 0.491 0.215 1.6 92.8 5.6	

GRAIN SIZE DISTRIBUTION

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	BOREHOLE	DEPTH				LL	PL	PI	Сс	Cu		
	B-8	30.0		SW-SM W	ell Graded S	and with S	ilt				1.78	7.39
2 ■	B-10	15.0		SW-SM W	ell Graded S	and with S	ilt				1.72	6.26
20/07												
ال	BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand		%Silt	%(Clay
	B-8	30.0	9.5	0.582	0.286	0.079	0.5	89.8			9.7	
2 2	B-10	15.0	9.5	0.581	0.305	0.093	0.5	90.7			8.8	
5												
OIZE												
N -												