Frank

From: Scott Glaubitz <SGlaubitz@bseconsult.com>
Sent: Monday, January 07, 2013 11:33 AM
To: Frank
Cc: Julie Bernal; Don Kean
Subject: FW: Waelti Weir - 11186
Attachments: 11186_200_001 - 1-7-13.pdf

Frank;

Here is the design plan for the weir.
Our opinion of cost for the weir replacement is as follows;

... access to site, fill dirt, temporary culvert, grading; ...water control by-pass, pumps, fuel, miscellaneous; ...excavate, fill and re-compact the existing bank area identified in the soils report as having buried debris;...sheet pile materials; ... pile cap, installation and welding; ...filter fabric and installation;...rip rap placement;... remove existing failing weir and shape canal;...pile driving/placement (separate contractor with large hydraulic crane);...fill to restore the work area and area to the existing street; ... trim sheet piles to required elevation; ...remove temporary access;... final clean up and sodding of all disturbed areas.....$141,500

10%

contingency.....$ 14,143

Total Opinion of Construction

Cost.....$155,643

Additional soft costs; construction survey, as-builts, certifications, construction observation.....$6500

We are assuming no separate permitting is required as St. Johns has been in the loop. Brevard County permitting is an unknown. Upon your direction we will inquire at the County.

We received various bids for the work. Brevard Excavating was most helpful during this process. Note that the bids we received were only semi-formal and should not be taken as a formal bid process. We can formally bid, utilizing our standard bid documents, which are formidable for $3500 excluding advertising cost if required by your organization.

Scott M. Glaubitz, P.E., P.L.S.
President
B.S.E. Consultants, Inc.
312 S Harbor City Blvd.,
Melbourne, FL 32901
Phone: 321-725-3674
Fax: 321-723-1159
Cell: 321-403-1436

From: Daniel Howard
Sent: Monday, January 07, 2013 8:33 AM
To: Scott Glaubitz
Subject: Waelti Weir - 11186

KSM

KELLER, SCHLEICHER & MacWILLIAM ENGINEERING AND TESTING, INC.
MARTIN (772) 337-7755
PALM BEACH (561) 845-7445
FAX (561) 845-8876
C.A.: 5693
P.O. BOX 78-1377, SEBASTIAN, FL 32978-1377
www.ksmengineering.net
E-Mail: KSM@KSMENGINEERING.NET
SEBASTIAN (772) 589-0712
MELBOURNE (321) 768-8488
ST. LUCIE (772) 229-9093
FAX (772) 589-6469

RECEIVED DEC 17 2012

December 11, 2012

BSE Consultants
312 S. Harbor City Boulevard #4
Melbourne, Florida 31901

Re: **Proposed Sheetpile**
Waelti Canal Project
Waelti Drive at Suntree
Melbourne, Florida
KSM Project #: 121554-b

Dear Sirs:

As requested, five (5) Standard Penetration Test borings were performed for the referenced project. Four (4) of the test borings (B-1, B-2, B-3 and B-4) were performed for the proposed sheetpile design, One (1) test boring (B-5) was performed at the location of the existing weir. The locations of the borings are indicated on the attached Location Plan. The purpose of the investigation was to determine the subsurface conditions and soil values for design of the sheetpile.

The SPT borings were completed in accordance with procedures described in ASTM D-1586. A standard 1.5 inch I.D., 2 inch O.D. split-spoon sampler is driven into the soil by successive blows of a 140 pound hammer freely falling 30 inches. The number of blows required to drive the sampler 1 foot, after seating 6 in., is designated the Penetration Resistance, or "N" value. At regular intervals the sampler is extracted from the ground and opened to allow visual examination and classification of the retained soil sample.

Findings:

The boring logs for the proposed sheetpile indicate the subsurface soils generally consist of fine-grained sand, except in boring B-4, some organic and tree debris were found at a depth of 4 feet to 8 feet below existing grade. 'N' values recorded during the boring operation indicate the soil density is generally loose to medium-dense.

If you have any questions or comments, please contact our office.

Daniel Howard

BSE Consultants, Inc
312 South Harbor City Boulevard, Suite 4
Melbourne, FL 32901
(321) 725-3674 phone

Website: http://bseconsult.com/

Electronic File Disclaimer:

Please be aware that any attached files are for your convenience only. Reliance upon this information is done solely at your risk. The layout of this project should follow approved construction plans and be in accordance with all applicable government agency regulations.

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www.ksmengineering.net
E-Mail: KSM@KSMENGINEERING.NET
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The boring log B-5, performed at the south side of the existing weir, indicates the subsurface generally consist of fine-grained sand. Traces of roots were also found at a depth of 4 feet to 8 feet below existing grade. 'N' values recorded indicates these soils are generally loose to medium-dense.

Based on the subsurface conditions, the following values can be used for design of the sheetpile wall:

1. Active Pressure Coefficient, Ka
   0' to 8', Ka = 0.33
   8' to 30', Ka = 0.32

2. Passive Pressure Coefficient, Kp
   0' to 8', Kp = 3.00
   0' to 30', Kp = 3.12

3. Bulk Density, γ (Wet)
   0' to 8', γ = 110 pcf
   8' to 30', γ = 120 pcf

4. Submerged Density, γ'
   0' to 8', γ' = 48 pcf
   8' to 30', γ' = 58 pcf

5. Soil Friction Angle, Φ
   0' to 8', Φ = 30.0
   8' to 30', Φ = 31.0

6. The soil to sheetpiling frictions coefficient for the soil encountered on the site is approximately 0.40

7. Hydrostatic Pressure for Design = 62.4 pcf
   (Height of Water Behind Sheetpile)

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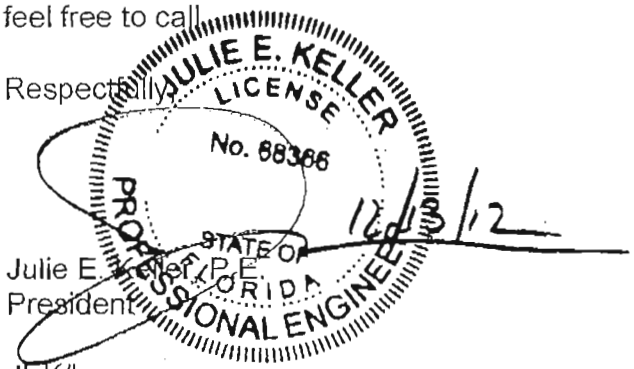
We are pleased to be of assistance to you on this phase of your project. When we may be of further service to you or should you have any questions, please feel free to call.

Respectfully,



Julie E. Keller, P.E.
President

JEK/lcs

CC: Doug Peebles - Brevard Excavating and Landclearing, Inc.
Fax: 321-254-3068

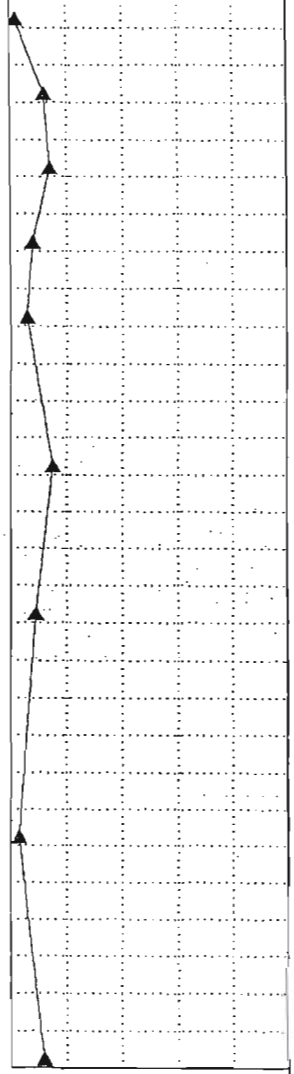
KSM Engineering & Testing
P.O. Box 78-1377
Sebastian, FL 32978
Tel: (772)-589-0712
Fax: (772)-589-6469

BORING NUMBER B-1

CLIENT BSE Consultants
PROJECT NAME Proposed Sheetpile, Waelti Canal Project
PROJECT NUMBER KSM # 121554-b
PROJECT LOCATION Waelti Drive at Suntree, Melbourne, Florida
DATE STARTED 12/7/12 COMPLETED 12/7/12
GROUND ELEVATION ____ HOLE SIZE inches
DRILLING CONTRACTOR ____
GROUND WATER LEVELS:
DRILLING METHOD ____
▽ AT TIME OF DRILLING 7.51 ft
LOGGED BY OGD CHECKED BY JEK
AT END OF DRILLING ---
NOTES ____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Brown Sand	SS		1-1-1 (2)		
		Brown Sand with Roots	SS		5-6-6 (12)		
5		Light Brown Sand	SS		8-8-6 (14)		
		Brown and Gray Sand ▽	SS		4-4-4 (8)		
			SS		4-3-3 (6)		
10							
		Dark Brown Sand	SS		4-6-9 (15)		
15							
		Brown Sand	SS		3-4-5 (9)		
20							
		Green Sand	SS		2-1-2 (3)		
25							
		Greenish Gray Sand	SS		4-6-6 (12)		
30		Bottom of borehole at 30.0 feet.					

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80



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KSM Engineering & Testing
P.O. Box 78-1377
Sebastian, FL 32978
Tel: (772)-589-0712
Fax: (772)-589-6469

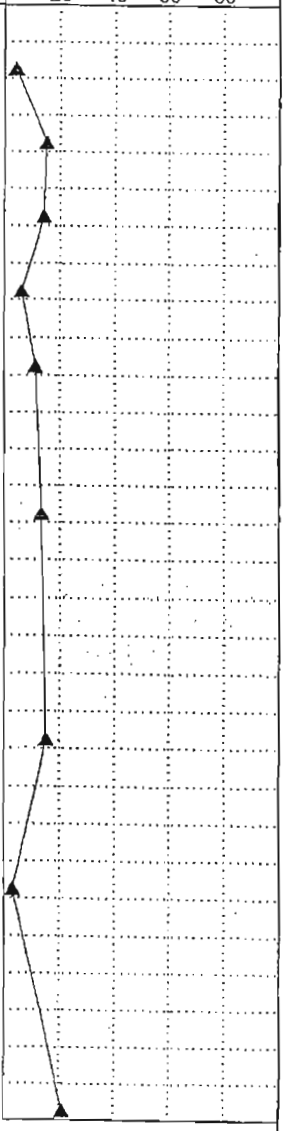
BORING NUMBER B-2

CLIENT BSE Consultants
PROJECT NUMBER KSM # 121554-b
DATE STARTED 12/7/12 COMPLETED 12/7/12
DRILLING CONTRACTOR
DRILLING METHOD
LOGGED BY OGD CHECKED BY JEK
NOTES

PROJECT NAME Proposed Sheetpile, Waelti Canal Project
PROJECT LOCATION Waelti Drive at Suntree, Melbourne, Florida
GROUND ELEVATION HOLE SIZE inches
GROUND WATER LEVELS:
AT TIME OF DRILLING 7.50 ft
AT END OF DRILLING —
AFTER DRILLING —

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Gray Sand	SS		1-2-2 (4)		
		Brown Sand	SS		4-6-9 (15)		
5		Brown and Gray Sand	SS		7-7-7 (14)		
		Brown Sand ▽	SS		3-3-3 (6)		
10			SS		4-5-6 (11)		
		Dark Brown Sand	SS		5-5-8 (13)		
15							
		Brown Sand	SS		6-7-8 (15)		
20							
		Green Sand	SS		2-1-2 (3)		
25							
		Greenish Gray Sand	SS		5-8-13 (21)		
30		Bottom of borehole at 30.0 feet.					

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80



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KSM Engineering & Testing
P.O. Box 78-1377
Sebastian, FL 32978
Tel: (772)-589-0712
Fax: (772)-589-6469

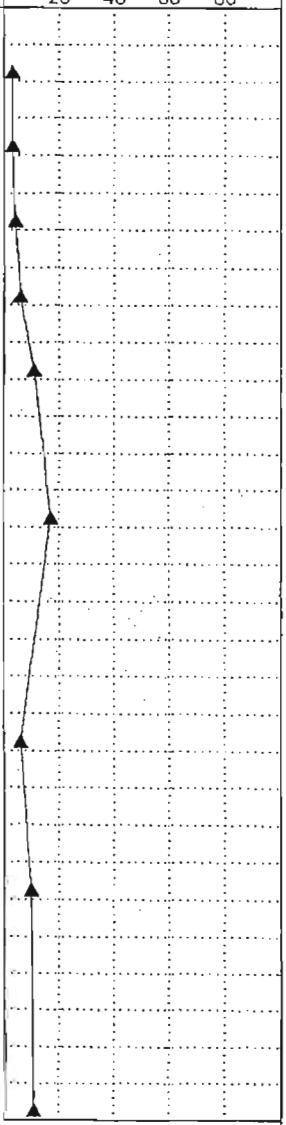
BORING NUMBER B-3

CLIENT BSE Consultants
PROJECT NUMBER KSM # 121554-b
DATE STARTED 12/7/12 COMPLETED 12/7/12
DRILLING CONTRACTOR
DRILLING METHOD
LOGGED BY OGD CHECKED BY JEK
NOTES

PROJECT NAME Proposed Sheetpile, Waelli Canal Project
PROJECT LOCATION Waelli Drive at Suntree, Melbourne, Florida
GROUND ELEVATION HOLE SIZE inches
GROUND WATER LEVELS:
▽ AT TIME OF DRILLING 8.00 ft
AT END OF DRILLING ---
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Brown and Gray Sand	SS		1-1-2 (3)		
		Gray Sand	SS		2-2-1 (3)		
5		Brown and Gray Sand with Roots	SS		1-2-2 (4)		
		Dark Brown Sand ▽	SS		3-3-3 (6)		
10			SS		4-4-7 (11)		
15			SS		4-8-9 (17)		
		Brown Sand	SS		4-3-3 (6)		
20							
		Green and Gray Sand	SS		4-5-5 (10)		
25							
		Greenish Gray Sand	SS		4-6-5 (11)		
30		Bottom of borehole at 30.0 feet.					

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80



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KSM Engineering & Testing
P.O. Box 78-1377
Sebastian, FL 32978
Tel: (772)-589-0712
Fax: (772)-589-6469

BORING NUMBER B-4

CLIENT BSE Consultants
PROJECT NAME Proposed Sheetpile, Waelti Canal Project
PROJECT NUMBER KSM # 121554-b
PROJECT LOCATION Waelti Drive at Suntree, Melbourne, Florida
DATE STARTED 12/7/12 COMPLETED 12/7/12
GROUND ELEVATION _____ HOLE SIZE inches
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD _____
▽ AT TIME OF DRILLING 8.00 ft
LOGGED BY OGD CHECKED BY JEK
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Brown Sand	SS		2-1-2 (3)		
			SS		3-3-3 (6)		
5		Dark Brown Sand with Some Organics and Tree Debris	SS		2-2-1 (3)		
		▽	SS		1-2-1 (3)		
		Dark Brown Sand	SS		1-1-1 (2)		
10							
		Brown Sand	SS		4-4-5 (9)		
15							
			SS		3-4-3 (7)		
20							
		Greenish Brown Sand	SS		4-5-3 (8)		
25							

Bottom of borehole at 25.0 feet.

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

KSM Engineering & Testing
P.O. Box 78-1377
Sebastian, FL 32978
Tel: (772)-589-0712
Fax: (772)-589-6469

BORING NUMBER B-5

CLIENT BSE Consultants
PROJECT NAME Proposed Sheetpile, Waelti Canal Project
PROJECT NUMBER KSM # 121554-b
PROJECT LOCATION Waelti Drive at Suntree, Melbourne, Florida
DATE STARTED 12/7/12 COMPLETED 12/7/12
GROUND ELEVATION ____ HOLE SIZE inches
DRILLING CONTRACTOR ____
GROUND WATER LEVELS:
DRILLING METHOD ____
▽ AT TIME OF DRILLING 8.00 ft
LOGGED BY OGD CHECKED BY JEK
AT END OF DRILLING ---
NOTES ____
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Tan Sand					
			SS		2-3-2 (5)		
		Gray and Brown Sand					
			SS		3-2-3 (5)		
5		Gray Sand with Traces of Roots					
			SS		2-6-2 (8)		
		Dark Brown Sand with Traces of Roots					
		▽	SS		2-1-2 (3)		
		Dark Brown Sand					
10			SS		4-4-6 (10)		
			SS		4-4-5 (9)		
15							
		Brown Sand					
20			SS		1-2-3 (5)		
			SS		2-2-3 (5)		
25							
		Gray and Brown Sand					
30			SS		6-6-10 (16)		
		Bottom of borehole at 30.0 feet.					

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

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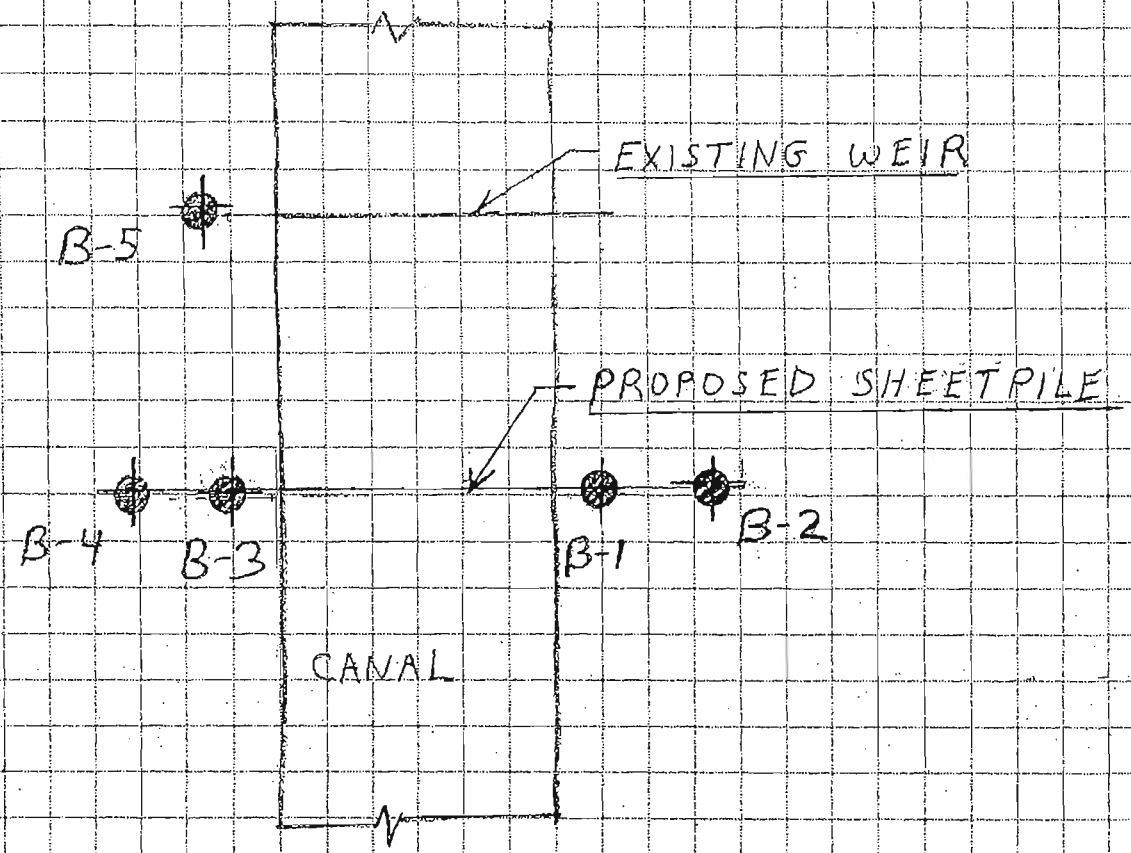
KSM
KELLER, SCHLEICHER & MacWILLIAM
ENGINEERING AND TESTING, INC.
P.O. Box 78-1377
SEBASTIAN, FLORIDA 32978-1377
(772) 589-0712 FAX (772) 589-6469

JOB Waelti Canal Project
SHEET NO. 1 OF 1
CALCULATED BY TLS DATE 12-12-12
CHECKED BY _____ DATE _____
SCALE None



LOCATION PLAN