**CITY OF MIAMI BEACH** **B0702784 BE092882 APP**
**Building Department**
**1700 Convention Ctr Drive, 2nd Floor**
**Miami Beach, Florida 33139**
**Inspections: (305) 673-7370**
**Office: (305) 673-7610**

## Bldg Electrical Permit

**Activity Number: BE092882**

**09-25-2009**

Status: APPROVED

Issued By: BUILARAG

Site Address: 4385 COLLINS AV MBCH
Parcel #: 32260012140

Applied: 09/22/2009
Approved: 09/25/2009
Completed:
To Expire: 03/24/2010

Valuation: $216,000.00

Applicant: MEISNER ELECTRIC INC OF FLA
220 NE 1ST STREET
DELRAY BCH FL 33444-3710
561-278-8362 x 368

Property Owner: RYDER PROPERTIES LLC
C/O MITCHELL HOLDINGS LLC
41 EAST 60 ST 6TH FLOOR 10022

Description: B0702784/ Low voltage and data com wiring.
Inspector Area: c Class Code: B

### DETAIL LIST

| | | |
|---|---|---|
| **Electrical Fees** | | |
| Rough Wiring Outlets: | 0 | $0.00 |
| Temporary Service: | 0 | $0.00 |
| Subfeed for Construction/# of Service: | | |
| Up to 100 Amps: | 0 | $0.00 |
| 101 to 200 Amps: | 0 | $0.00 |
| 201 to 400 Amps: | 0 | $0.00 |
| 401 to 600 Amps: | 0 | $0.00 |
| 601 to 800 Amps: | 0 | $0.00 |
| Over 800 Amps: | 0 | $0.00 |
| Service Repair/Meter Change: | 0 | $0.00 |
| Other Fees: | | $0.00 |
| Other Fees Explanation: | | |
| **Equipment Outlets - Permanent Connection** | | |
| Equipment Outlet Ex Wall/Window AC: | 0 | $0.00 |
| Ranges or Range Tops: | 0 | $0.00 |
| Ovens: | 0 | $0.00 |
| Water Heaters: | 0 | $0.00 |
| Space Heaters: | 0 | $0.00 |
| Washing Machines: | 0 | $0.00 |
| Dryers: | 0 | $0.00 |
| Fans - w/Fraction HP Motors: | 0 | $0.00 |
| Garbage Disposals: | 0 | $0.00 |
| Dishwashers: | 0 | $0.00 |

PAID
SEP 25 2009
CITY OF MIAMI BEACH
BUILDING DEPARTMENT

[ELECPRMT]

**Activity Number: BE092882**

| | | |
|---|---|---|
| **Equipment Outlets - Permanent Connection - Cont.** | | |
| Refrigerator: | 0 | $0.00 |
| Deep Freezer: | 0 | $0.00 |
| Wall/Window A.C.: | 0 | $0.00 |
| A.C. - Not Wall/Window: | 0 | $0.00 |
| Motors Up to 1 HP: | 0 | $0.00 |
| Motors from 2 HP thru 10 HP: | 0 | $0.00 |
| Motors Greater than 10 HP: | 0 | $0.00 |
| Portable X-ray (DDS): | 0 | $0.00 |
| Stationary X-ray (MD): | 0 | $0.00 |
| Diathermic Units: | 0 | $0.00 |
| Isolation Units: | 0 | $0.00 |
| **Antenna-TV-Intercom-Phones** | | |
| Antenna, Outlets, etc.: | 1542 | $2,333.50 |
| Receiving Antennas: | 1 | $40.00 |
| Detection Central System: | 0 | $0.00 |
| Smoke Detectors: | 0 | $0.00 |
| Heads or Target Area Speakers: | 0 | $0.00 |
| Bell Alarm Station: | 0 | $0.00 |
| Light Fixtures: | 0 | $0.00 |
| Combination Light Fixtures: | 0 | $0.00 |
| Streamed/Festoon Lights: | 0 | $0.00 |
| Plugmold: | 0 | $0.00 |
| **Generator/Transformers** | | |
| Up to 5 KVA/KW: | 0 | $0.00 |
| 6 to 10 KVA/KW: | 0 | $0.00 |
| 11 to 15 KVA/KW: | 0 | $0.00 |
| 16 to 20 KVA/KW: | 0 | $0.00 |
| 21 to 25 KVA/KW: | 0 | $0.00 |
| 25 KVA or KW: | 0 | $0.00 |
| Same floor, largest above, additional units: | 0 | $0.00 |
| Weld Machine Outlet to 25 Amps: | 0 | $0.00 |
| Weld Machine Outlet Over 25 Amps: | 0 | $0.00 |
| **Special Purpose Outlets** | | |
| Special Purpose Commercial Outlets: | 0 | $0.00 |
| Painting, Bake Oven, Outlet: | 0 | $0.00 |
| Sign Face: | 0 | $0.00 |
| Sign Repair - Connect or Reconnect: | 0 | $0.00 |
| Resident Pool/Spa Lighting: | 0 | $0.00 |
| Combination Pool/Spa Lighting: | 0 | $0.00 |
| Commercial/Multi-Family Pool: | 0 | $0.00 |
| Commercial/Multi-Family Combo: | 0 | $0.00 |
| Temporary Equipment Gr. for Carnival/Circus: | 0 | $0.00 |
| **Fire Safety** | | |
| Floor Accept Test Alarm System: | | $0.00 |
| **SFBC Compliance Fees** | | |
| SFBC Compliance Fee: | | $0.00 |
| Training Fee: | | $216.00 |
| Extra Fee - Penalty: | | $0.00 |
| Sanitation Fee: | | $648.00 |

**Activity Number: BE092882**

| **Additional Fees** | |
|---|---|
| 1st Reinspection: | $0.00 |
| Continued Reinspections: | $0.00 |
| Change of Contractor: | $0.00 |
| Permit Extension: | $0.00 |
| Permit Card Replacements: | $0.00 |
| Overtime Inspection Fees: | $0.00 |
| Total of All Fees: | $3,237.50 |
| Total of Payments: | $3,237.50 |
| Balance Due: | $0.00 |

MIAMIBEACH

**BUILDING DEPARTMENT**
1700 Convention Center Drive
Miami Beach, FL 33139
Office: 305-673-7610 Fax: 305-673-7857

# WORK PERMIT APPLICATION

## FLORIDA BUILDING CODE IN EFFECT

Date 9/17/09 Permit # BE092857

**If subsidiary or revision: provide the Master building permit number here B:** 0702784

***IS THIS PERMIT ASSOCIATED WITH A VIOLATION? If so; BV #*** _____

Is this a City Owned Property? ☐ Yes ☒ No **HISTORIC DISTRICT** ☐ Yes ☐ No

For **DEMOLITON** provide the year the structure was built: _____

**Type of Property:** ☐ Single Family ☐ Commercial ☐ Multi-Family/Condo ☐ ***Condo Conversion**

**TYPE OF IMPROVEMENT:** ☐ Building ☒ Electrical ☐ Plumbing ☐ Mechanical

☐ **New Construction** ☐ **Alteration/Remodel/Renovation** ☐ **Construction Revision**

**Description of Work:** Low voltage + Data Com wiring

**Job Value $** 216,000.00 **Square Feet** _____

**Linear Feet** _____ **Pool Gallonage** _____ **No. of units** _____

**Job Address** 4385 Collins Ave. Miami Beach

**Folio #** _____

**Owner/Builder** Ryder Properties **Drivers License No.** _____

Address 41 East 60th Street Unit # _____

City Newyork State NY Zip 10022 Phone _____

**Fee Simple Title Holder's Name (if other than owner)** _____

Address _____

City _____ State _____ Zip _____ Phone _____

**Contractor** Meisner Electric Inc. **License No.** EC0000418

Address 220 NE 1st Street

City Delray Beach State FL Zip 33444 Phone 561-278-8362

**Cell #** _____ **E-mail** AA@mei.cc Fax # 561-278-6561

☐ **Architect** _____ **License No.** _____

Address _____

City _____ State _____ Zip _____ Phone _____

☐ **Engineer** _____ **License No.** _____

Address _____

City _____ State _____ Zip _____ Phone _____

**BUILDING WORK PERMIT APPLICATIONS ARE AVAILABLE ON THE MIAMI BEACH WEBSITE AT: WWW.MIAMIBEACHFL.GOV**

**Bonding Company Name** _____

Address _____

City _____ State _____ Zip _____ Phone _____

**Mortgage Lender's Name** _____

Address _____

City _____ State _____ Zip _____ Phone _____

This application is hereby made to obtain a permit to do the work and installations as indicated. I certify that all work will be performed to meet the standards of all laws and construction regulations in this jurisdiction. I understand that **SEPARATE PERMITS** are required for ***Electrical, Mechanical, Plumbing, Signs, Swimming Pools, Spas, Windows, Sliding Glass Doors and Roofing***.

***CONDO CONVERSIONS are a change use of the building and require a new certificate of occupancy. If this application implies a condo conversion, it shall be clearly stated in the description and on the plans; otherwise, the certificate of occupancy will be denied.**

**OWNER'S AFFIDAVIT:** I certify that all the foregoing information is accurate and that all work will be done in compliance with all applicable laws regulating construction and Zoning.

**NOTICE:** In addition to the requirements of this permit, there may be additional restrictions applicable to this property that may be found in the public records of this county, and there may be additional permits required from other governmental entities such as water management districts, state agencies or federal agencies.

*Under penalties of perjury, I declare that to the best of my knowledge, the facts stated in this document are true. Any information found to be false may cause the revocation and/or denial of the permit and/or certificate of occupancy.*

**If the contractor is going to be hired by the tenant, check here.** ☐

| | | |
|---|---|---|
| _____ Signature of Owner or Agent | _____ Signature of Tenant | Tim P Onnen Signature of Qualifier |
| JAMES LLOYD Printed Name of Owner or Agent | _____ Printed Name of Tenant | Tim P Onnen Printed Name of Qualifier |
| Date 9/18/09 | Date _____ | Date 9/17/09 |
| _____ Signature of Notary Public | _____ Signature of Notary Public | Bette M. Hawk Signature of Notary Public |
| Identification _____ | Identification _____ | Identification Personally Known |
| Sworn to and subscribed before me this ___ day of _____ 20, _____ | Sworn to and subscribed before me this ___ day of _____ 20, _____ | Sworn to and subscribed before me this 17 day of Sept 2009 |
| (SEAL) | (SEAL) | (SEAL) |

BETTE M. HAWK
MY COMMISSION # DD 668763
EXPIRES: June 6, 2011
Bonded Thru Notary Public Underwriters

****If you are applying for this permit as Owner/Builder, please sign below only****

**WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT. NOTICE OF COMMENCEMENT SHOULD BE FILED AT: 22 NW 1ST STREET, MIAMI, FL**

**STATE OF FLORIDA** **COUNTY OF DADE**

_____ _____

Pnnt Owner's Name Owner's Signature

Sworn to and subscribed before me this _____day of _____20____, by: _____

( ) Personally Known ( ) Produced Identification - Type of Identification _____

_____

Signature of Notary Public (Seal)

Application Approved By: _____ (Permit Clerk)

Low Voltage

**Building Department**
**1700 Convention Center Drive, 2nd Flr**
**Miami Beach, Fl 33139**
**Tel: (305) 673-7610 Fax (305) 673-7857**

# ELECTRICAL FEE SHEET

**ATTENTION APPLICANT: You are responsible for filling out this application correctly. If you have any questions concerning what category your work falls under, please see an electrical inspector. Any work commenced without a permit being issued will be subject to a double fee plus a $115.00 fine.** The minimum fee for an electrical permit is $60.00. This minimum does not include other applicable surcharges. Under penalties of perjury, I declare that to the best of my knowledge, the facts stated in this document are true. I understand that perjury is a felony of the third degree.

**Qualifier Signature:** Jim D. Owner (L. S.)

Permit Number: B0702784
Job Address: 4385 Collins Ave

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| Minimum Permit Fee including repair work per permit (Unless other minimum fee is specified): | | $60.00 | |

This minimum fee does not apply to permits issued as supplementary to correct outstanding permit for the same job)

## ***ROUGH WIRING OUTLETS, LIGHT AND RECEPTICLE***

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| 1 through 10 outlets | | $28.00 | |
| For each additional outlet | | $2.50 | |

## ***SERVICES***

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| The following fees shall be charged for each service and for each sub feed in new installation only. No charge will be made for sub feeds in existing installations.) Each service shall include one (1) sub feed. | | | |
| Free standing service (new meter & service) | | $120.00 | |
| Electrical for demolition | | $120.00 | |
| Temporary for test | | $120.00 | |
| Temporary for construction | | $72.00 | |
| **Sub feeds (in ampers):** | | | |
| 100 amperes and under | | $9.00 | |
| 101 amperes to 200 amperes | | $12.00 | |
| 201 amperes to 400 amperes | | $14.00 | |
| 401 amperes to 600 amperes | | $15.00 | |
| 601 amperes to 800 amperes | | $21.00 | |
| Each additional 100 amperes over 800 amperes | | $8.00 | |
| Service repairs and/or meter change | | $75.00 | |
| Switchboards, by amperes, same as "Services" above. | | | |
| 100 amperes and under | | $9.00 | |

| | | |
|---|---|---|
| 101 amperes to 200 amperes | | $12.00 |
| 201 amperes to 400 amperes | | $14.00 |
| 401 amperes to 600 amperes | | $15.00 |
| 601 amperes to 800 amperes | | $21.00 |
| For each additional 100 amperes over 800 amperes | | $8.00 |

## ***EQUIPMENT OUTLETS OR PERMANENT CONNECTIONS***

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| Microwave | | $12.00 | |
| Range outlet | | $12.00 | |
| Oven outlet | | $12.00 | |
| Water heater outlet | | $12.00 | |
| Space heater outlet | | $12.00 | |
| Washing machine outlet | | $12.00 | |
| Dryer outlet | | $12.00 | |
| Fan outlet (with fraction HP motor) | | $12.00 | |
| Garbage disposal outlet | | $12.00 | |
| Dishwasher outlet | | $12.00 | |
| Deep freezer outlet | | $12.00 | |
| Refrigerator outlet | | $12.00 | |
| Air conditioners, window and through wall units each | | $15.00 | |
| Central units, per ton | | $9.00 | |
| Minimum $13.00 | | $13.00 | |

## ***MOTORS***

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| Each up to 1 horsepower | | $12.00 | |
| From 2 hp through 10 hp | | $58.00 | |
| Each hp over 10 hp | | $3.50 | |
| Machine outlets or permanent connections: | | | |
| X-ray - Portable (Dentist) | | $30.00 | |
| X-ray - Stationary (Doctor) | | $40.00 | |
| Diathermic | | $30.00 | |
| Isolation units | | $58.00 | |

## ***GENERATORS AND TRANSFORMERS, COMMERCIAL HEATING EQUIPMENT AND STRIP HEATERS, EACH GENERATOR OR TRANSFORMER (KVA OR KW)***

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| Up to 5 | | $7.50 | |
| 6 - 10 | | $15.00 | |
| 11 - 15 | | $19.00 | |
| 16 - 20 | | $26.00 | |
| 21 - 25 | | $40.00 | |
| 26 - 50 | | $75.00 | |
| Over 50, each additional kva or kw | | $0.85 | |
| Generators and transformers, where located on same floor, fee for largest, plus each additional | | $1.75 | |

## ***WELDING MACHINE OUTLETS***

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| Up to 25 amperes | | $9.00 | |
| Over 25 amperes for each additional 25 amperes or fractional part thereof | | $9.00 | |

***SPECIAL PURPOSE OUTLETS (COMMERCIAL)***

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| Popcorn | | $11.00 | |
| Doughnut | | $11.00 | |
| Drink machines | | $11.00 | |
| Coin music machines | | $11.00 | |
| Toaster | | $11.00 | |
| Coffee urn | | $11.00 | |
| Deep fryer | | $11.00 | |
| Telephone booths | | $11.00 | |
| Refrigerators | | $11.00 | |
| Display cases | | $11.00 | |
| Sign circuit | | $11.00 | |
| Etc. | | $11.00 | |
| Painting bake ovens, each | | $46.00 | |

***SIGNS***

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| Per each square foot of face of sign | | $3.00 | |

***NEW STRIPS***

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| First 100 L.F. | | $58.00 | |
| Each additional 100 L.F. or fractional part thereof | | $34.00 | |
| Sign repairs and reconnection, each | | $58.00 | |

***FIXTURES***

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| **Lights** | | | |
| 1 - 10 sockets | | $10.50 | |
| 1 - 10 fluorescent tubes | | $10.50 | |
| Each additional socket or tube | | $1.75 | |
| Light poles, each (fixture additional) | | $7.00 | |

***COMBINATION***

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| For light fixtures and outlets up through 10 ( 1 inspection) | | $28.00 | |

***STREAMERS OR FESTOON LIGHTS***

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| First 10 lights or less | | $8.00 | |
| Each additional 10 or less | | $7.00 | |

## ***WIREMOLD***

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| First 25 feet | | $28.00 | |
| Each 5 feet thereafter (L.F.) | | $5.00 | |

## ***SWIMMING POOL LIGHTING***

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| Residential pool or spa | | $90.00 | |
| Combination pool and spa | | $100.00 | |
| Commercial or multi-family pool, or spa | | $200.00 | |
| Commercial or multi-family combination pool and spa | | $275.00 | |

## ***TEMPORARY WORK ON CIRCUSES, CARNIVALS***

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| Per show | | $300.00 | |

## ***MASTER TELEVISION, INTERCOM, BURGLAR ALARM, TELEPHONE AND RADIO***

| ITEMS | UNIT NUMBER | PRICE EACH | SUB TOTAL |
|---|---|---|---|
| Receiving entenna master control | 1 | $40.00 | 40.00 |
| TV and radio antenna devices 1 - 5 devices | ~~1~~ 1 | $28.00 | 28.00 |
| Wall outlets 1 - 5 devices | ~~430~~ 434 | $28.00 | 12,152.00 |
| Suppressors 1 - 5 devices | | $28.00 | |
| Splitters 1 - 5 devices | | $28.00 | |
| Lighting arrestors (1 - 5 devices) | | $28.00 | |
| Receivers (1 - 5 devices) | | $28.00 | |
| Input devices (1 - 5 devices) | | $28.00 | |
| Audio amplifiers (1 - 5 devices) | | $28.00 | |
| Ground connections (1 - 5 devices) | | $28.00 | |
| Cable telephone (1 - 5 devices) | ~~230~~ 560 | $28.00 | 15,680.00 |
| Computer outlets (1 - 5 devices) | ~~485~~ 484 | $28.00 | 13,552.00 |
| Other low voltage outlets (1 - 5 devices) | 55 | $28.00 | 1540 |
| 1 through 5 devices (1 - 5 devices) | | $28.00 | |
| Each additional device | | $1.50 | |
| Minimum | | $115.00 | |
| | | | 42,992.00 |

## ***MIAMI DADE COUNTY CODE COMPLIANCE FEE***

| | | | |
|---|---|---|---|
| For every $1,000.00 of job valuation | | $0.60 | |

## ***MIAMI BEACH TRAINING FEE***

| | | | |
|---|---|---|---|
| For every $1,000.00 of job valuation or fractional part thereof | | $1.00 | |

## ***SANITATION FEE***

| | | | | |
|---|---|---|---|---|
| Estimated job value | | x | .003 | |
| | | | Min. $15 / Max $1500 | |

**TOTAL ELECTRICAL PERMIT FEE** _____

Revised 08/08

**CANKAT-ESSMAN, INC.**
CONSULTING ENGINEERS
1900 SW 57 Ave., Suite 1
MIAMI, FL 33155
T:(305) 266-9777 F: (305) 266-0584
www.cankatessman.com

CNB
11·29·10

# ADDITIONAL

# STRUCTURAL CALCULATIONS

REVISION 1.1 Dated 09//13/2010

GENERAL INFORMATION

| | |
|---|---|
| Project : | **SOHO BEACH HOUSE WOOD STRUCTURES** |
| Project Address: | 4385 Collins Ave. |
| | Miami Beach Florida |
| Date | 13-Sep-10 |
| Our Job No. | **10017** |
| Architect | **ALLAN T SHULMAN** |
| Client: | |
| Client Job No: | |
| Drawing No: | |

B10044

| INDEX | PAGE |
|---|---|
| **CONTENTS** | |
| Moment Connection at East & West Cantilevers. | 1 &2 |
| Appendix Table 11 G | 3 |
| Appendix IPE Manufacturer's Data Sheet | 4 & 5 |
| Appendix IPE Mechanical Properties (Wood Manual) | 6 |
| **TOTAL (6) PAGES** | |

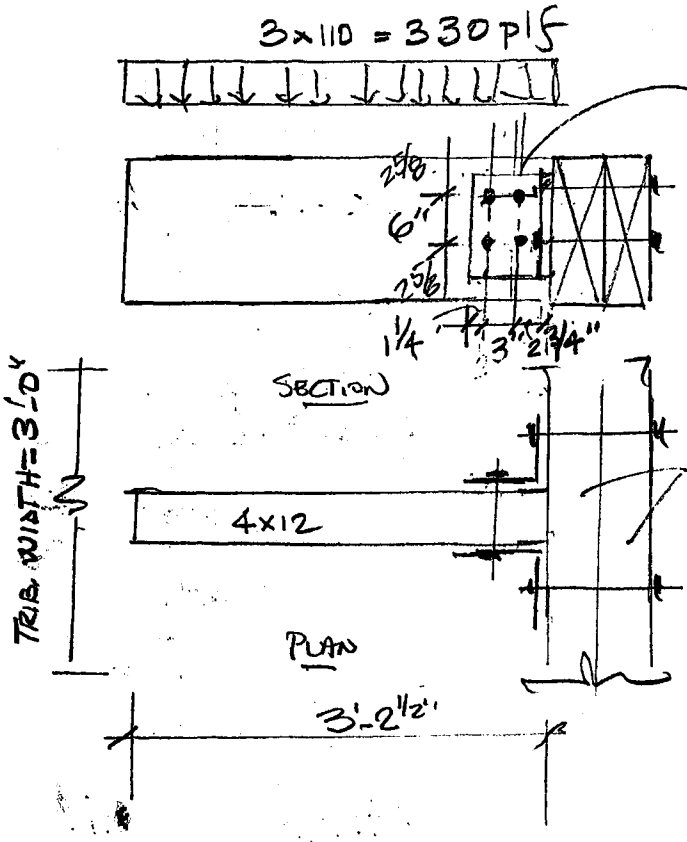
State of Florida CA No: 00004419
Mustafa Cankat, PE
Florida License No: 18632

M. Cankat
9/13/2010

**cankat - essman inc.**

PROJECT SOBO BEACH HOUSE
LOCATION 4385 COLLINS AVE, MB. FL
SUBJECT TIKI-HUT FRAMING CONNECTION @ CANTILEVER ADDITIONAL CALCULATIONS

PAGE 1 OF 6
JOB NO 10017
DATE 9/13/2010
BY MC
REV 1.1

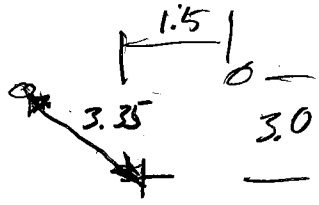



L 7 X 4 X 3/8 X 9" LONG,

END DIST = 3.5D
FOR 3/4" ϕ = 2 5/8"

SPACING = 3D
= 2 1/4"

USE 4D = 3"




$I_r = 3.5^2 \times 4 = 45$

$S = \frac{45}{3.5} = 13.4$

$M = 330 \times 3.208^2/2 = 1698$ ft-lb

$V = 330 \times 3.208 = 1059$ lbs.

Bolt Load $= \frac{1698}{13.4}$

126# OK PER NDS

$C = T = \frac{1698}{0.5} = 3396$ lbs ⟹

FROM TABLE 11.G (NDS 2005 EDITION)

$t_M = 3\frac{1}{2}"$, $t_S = 1/4$ ⟹ $Z_{\parallel} = 3480$, $Z_{\perp} = 1550$

FOR COMBINED LOADING ∴ $\frac{3396}{2 \times 3480} + \frac{1059}{2 \times 1550} = 0.83 < 1.0$ OK.

2 BOLTS ⇗ (0.49) (0.34)

CHECK CONNECTION @ (2) 4x12

∴ C = T = 3396 FROM TABLE 11G

$t_M = 7"$, $t_S = 1/4$ ⟹ USE $t_M = 5\frac{1}{2}"$ ⇗ $Z_{\parallel} = 3480$ lbs, $Z_{\perp} = 2000$ lbs

ADDITIONAL CALCULATIONS

@ (2) 4X12 CONNECTION BOLTS @ $Z_\perp$ (FOR AXIAL FORCE)
$Z_\parallel$ (FOR SHEAR)

$$\frac{3396}{2 \times 2000} + \frac{1059}{2 \times 3480} = 1.00$$

(0.85) (0.15)

OK

STEEL ANGLES & BOLT STRENGTH OK
BY INSPECTION (SINCE WOOD GOVERNS)

BOLTS

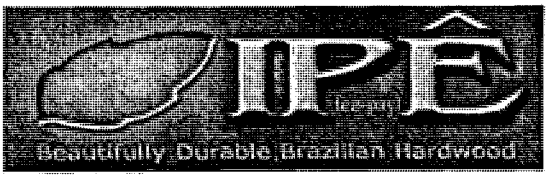
# Table 11G BOLTS: Reference Lateral Design Values (Z) for Double Shear (three member) Connections[1,2]

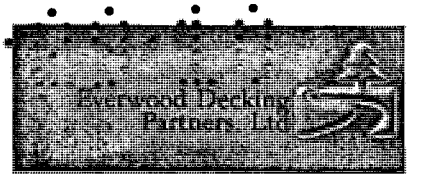
for sawn lumber or SCL with 1/4" ASTM A 36 steel side plate

| Thickness | | | G=0.67 Red Oak | | G=0.55 Mixed Maple Southern Pine | | G=0.50 Douglas Fir-Larch | | G=0.49 Douglas Fir-Larch (N) | | G=0.46 Douglas Fir(S) Hem-Fir(N) | | G=0.43 Hem-Fir | | G=0.42 Spruce-Pine-Fir | | G=0.37 Redwood (open grain) | | G=0.36 Eastern Softwoods Spruce-Pine-Fir(S) Western Cedars | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Member | Side Member | Bolt Diameter | | | | | | | | | | | | | | | | | | |
| $t_m$ | $t_s$ | D | $Z_\parallel$ | $Z_\perp$ | $Z_\parallel$ | $Z_\perp$ | $Z_\parallel$ | $Z_\perp$ | $Z_\parallel$ | $Z_\perp$ | $Z_\parallel$ | $Z_\perp$ | $Z_\parallel$ | $Z_\perp$ | $Z_\parallel$ | $Z_\perp$ | $Z_\parallel$ | $Z_\perp$ | $Z_\parallel$ | $Z_\perp$ |
| in. | in. | in. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs |
| 1-1/2 | 1/4 | 1/2 | 1410 | 730 | 1150 | 550 | 1050 | 470 | 1030 | 460 | 970 | 420 | 900 | 380 | 880 | 370 | 780 | 310 | 760 | 29 |
| | | 5/8 | 1760 | 810 | 1440 | 610 | 1310 | 530 | 1290 | 520 | 1210 | 470 | 1130 | 420 | 1100 | 410 | 970 | 350 | 950 | 33 |
| | | 3/4 | 2110 | 890 | 1730 | 660 | 1580 | 590 | 1550 | 560 | 1450 | 520 | 1350 | 460 | 1320 | 450 | 1170 | 370 | 1140 | 36 |
| | | 7/8 | 2460 | 960 | 2020 | 720 | 1840 | 630 | 1800 | 600 | 1690 | 550 | 1580 | 500 | 1540 | 490 | 1360 | 410 | 1330 | 39 |
| | | 1 | 2810 | 1020 | 2310 | 770 | 2100 | 680 | 2060 | 650 | 1930 | 600 | 1800 | 540 | 1760 | 530 | 1560 | 440 | 1520 | 42 |
| 1-3/4 | 1/4 | 1/2 | 1640 | 850 | 1350 | 640 | 1230 | 550 | 1200 | 530 | 1130 | 490 | 1050 | 450 | 1030 | 430 | 910 | 360 | 890 | 34 |
| | | 5/8 | 2050 | 940 | 1680 | 710 | 1530 | 610 | 1500 | 600 | 1410 | 550 | 1310 | 490 | 1290 | 480 | 1130 | 400 | 1110 | 38 |
| | | 3/4 | 2460 | 1040 | 2020 | 770 | 1840 | 680 | 1800 | 660 | 1690 | 600 | 1580 | 540 | 1540 | 530 | 1360 | 430 | 1330 | 42 |
| | | 7/8 | 2870 | 1120 | 2350 | 840 | 2140 | 740 | 2110 | 700 | 1970 | 640 | 1840 | 580 | 1800 | 570 | 1590 | 470 | 1550 | 46 |
| | | 1 | 3280 | 1190 | 2690 | 890 | 2450 | 790 | 2410 | 750 | 2250 | 700 | 2100 | 630 | 2060 | 610 | 1820 | 510 | 1770 | 49 |
| 2-1/2 | 1/4 | 1/2 | 1870 | 1210 | 1720 | 910 | 1650 | 790 | 1640 | 760 | 1590 | 700 | 1500 | 640 | 1470 | 610 | 1300 | 510 | 1270 | 49 |
| | | 5/8 | 2740 | 1340 | 2400 | 1020 | 2190 | 880 | 2150 | 860 | 2010 | 780 | 1880 | 700 | 1840 | 690 | 1620 | 580 | 1580 | 58 |
| | | 3/4 | 3520 | 1480 | 2880 | 1110 | 2630 | 980 | 2580 | 940 | 2410 | 860 | 2250 | 770 | 2200 | 750 | 1950 | 620 | 1900 | 60 |
| | | 7/8 | 4100 | 1600 | 3360 | 1200 | 3060 | 1050 | 3010 | 1010 | 2820 | 920 | 2630 | 830 | 2570 | 810 | 2270 | 680 | 2210 | 66 |
| | | 1 | 4690 | 1700 | 3840 | 1280 | 3500 | 1130 | 3440 | 1080 | 3220 | 1000 | 3000 | 900 | 2940 | 880 | 2590 | 730 | 2530 | 70 |
| 3-1/2 | 1/4 | 1/2 | 1870 | 1240 | 1720 | 1100 | 1650 | 1030 | 1640 | 1010 | 1590 | 970 | 1540 | 890 | 1530 | 860 | 1450 | 720 | 1430 | 68 |
| | | 5/8 | 2740 | 1720 | 2510 | 1420 | 2410 | 1230 | 2390 | 1200 | 2330 | 1090 | 2260 | 980 | 2230 | 960 | 2110 | 810 | 2090 | 77 |
| | | 3/4 | 3800 | 2070 | 3480 | 1550 | 3340 | 1370 | 3320 | 1310 | 3220 | 1210 | 3120 | 1080 | 3080 | 1050 | 2720 | 870 | 2660 | 84 |
| | | 7/8 | 5060 | 2240 | 4630 | 1680 | 4290 | 1470 | 4210 | 1410 | 3940 | 1290 | 3680 | 1160 | 3600 | 1130 | 3180 | 950 | 3100 | 92 |
| | | 1 | 6520 | 2380 | 5380 | 1790 | 4900 | 1580 | 4810 | 1510 | 4510 | 1400 | 4200 | 1260 | 4110 | 1230 | 3630 | 1020 | 3540 | 98 |
| 5-1/4 | 1/4 | 5/8 | 2740 | 1720 | 2510 | 1510 | 2410 | 1420 | 2390 | 1400 | 2330 | 1340 | 2260 | 1280 | 2230 | 1270 | 2110 | 1170 | 2090 | 114 |
| | | 3/4 | 3800 | 2290 | 3480 | 2000 | 3340 | 1890 | 3320 | 1850 | 3220 | 1780 | 3120 | 1610 | 3090 | 1580 | 2920 | 1300 | 2890 | 120 |
| | | 7/8 | 5060 | 2930 | 4630 | 2530 | 4440 | 2210 | 4410 | 2110 | 4280 | 1930 | 4150 | 1750 | 4110 | 1700 | 3880 | 1420 | 3840 | 138 |
| | | 1 | 6520 | 3570 | 5960 | 2680 | 5720 | 2360 | 5670 | 2260 | 5510 | 2100 | 5330 | 1890 | 5280 | 1840 | 4990 | 1520 | 4930 | 147 |
| 5-1/2 | 1/4 | 5/8 | 2740 | 1720 | 2510 | 1510 | 2410 | 1420 | 2390 | 1400 | 2330 | 1340 | 2260 | 1280 | 2230 | 1270 | 2110 | 1170 | 2090 | 114 |
| | | 3/4 | 3800 | 2290 | 3480 | 2000 | 3340 | 1890 | 3320 | 1850 | 3220 | 1780 | 3120 | 1690 | 3090 | 1650 | 2920 | 1360 | 2890 | 132 |
| | | 7/8 | 5060 | 2930 | 4630 | 2570 | 4440 | 2310 | 4410 | 2210 | 4280 | 2020 | 4150 | 1830 | 4110 | 1780 | 3880 | 1490 | 3840 | 144 |
| | | 1 | 6520 | 3640 | 5960 | 2810 | 5720 | 2480 | 5670 | 2370 | 5510 | 2200 | 5330 | 1980 | 5280 | 1930 | 4990 | 1600 | 4930 | 154 |
| 7-1/2 | 1/4 | 5/8 | 2740 | 1720 | 2510 | 1510 | 2410 | 1420 | 2390 | 1400 | 2330 | 1340 | 2260 | 1280 | 2230 | 1270 | 2110 | 1170 | 2090 | 114 |
| | | 3/4 | 3800 | 2290 | 3480 | 2000 | 3340 | 1890 | 3320 | 1850 | 3220 | 1780 | 3120 | 1690 | 3090 | 1670 | 2920 | 1530 | 2890 | 150 |
| | | 7/8 | 5060 | 2930 | 4630 | 2570 | 4440 | 2410 | 4410 | 2360 | 4280 | 2260 | 4150 | 2160 | 4110 | 2130 | 3880 | 1960 | 3840 | 193 |
| | | 1 | 6520 | 3640 | 5960 | 3180 | 5720 | 3000 | 5670 | 2940 | 5510 | 2840 | 5330 | 2700 | 5280 | 2630 | 4990 | 2180 | 4930 | 211 |
| 9-1/2 | 1/4 | 3/4 | 3800 | 2290 | 3480 | 2000 | 3340 | 1890 | 3320 | 1850 | 3220 | 1780 | 3120 | 1690 | 3090 | 1670 | 2920 | 1530 | 2890 | 150 |
| | | 7/8 | 5060 | 2930 | 4630 | 2570 | 4440 | 2410 | 4410 | 2360 | 4280 | 2260 | 4150 | 2160 | 4110 | 2130 | 3880 | 1960 | 3840 | 193 |
| | | 1 | 6520 | 3640 | 5960 | 3180 | 5720 | 3000 | 5670 | 2940 | 5510 | 2840 | 5330 | 2700 | 5280 | 2660 | 4990 | 2440 | 4930 | 240 |
| 11-1/2 | 1/4 | 7/8 | 5060 | 2930 | 4630 | 2570 | 4440 | 2410 | 4410 | 2360 | 4280 | 2260 | 4150 | 2160 | 4110 | 2130 | 3880 | 1960 | 3840 | 193 |
| | | 1 | 6520 | 3640 | 5960 | 3180 | 5720 | 3000 | 5670 | 2940 | 5510 | 2840 | 5330 | 2700 | 5280 | 2660 | 4990 | 2440 | 4930 | 240 |
| 13-1/2 | 1/4 | 1 | 6520 | 3640 | 5960 | 3180 | 5720 | 3000 | 5670 | 2940 | 5510 | 2840 | 5330 | 2700 | 5280 | 2660 | 4990 | 2440 | 4930 | 240 |

1. Tabulated lateral design values (Z) for bolted connections shall be multiplied by all applicable adjustment factors (see Table 10.3.1).
2. Tabulated lateral design values (Z) are for "full diameter" bolts (see Appendix L) with bending yield strength ($F_{yb}$) of 45,000 psi and a dowel bea of 87,000 psi for ASTM A 36 steel.

APPENDIX -4-




TECHNICAL DATA

IPE Home Page
Technical Data
IPE Inventory
IPE Uses
FAQ
Tigerwood
Angel's Heart
Email Everwood

## IPÊ (ee-pay)



An incredibly durable Brazilian Hardwood rated by the US Forest Lab for 25 years plus. Naturally resistant to fire (rated class A by the NFPA or class 1 by the UBC) insects, moisture, and movement, this air dried hardwood (16-20%) is perfect for exterior commercial and residential applications such as decks, docks, or exterior furniture. In service for over 25 years from Diner Key Marina in Miami, to the Atlantic City Boardwalk, IPÊ has proven durability. It can be sealed to maintain its natural beauty or it can be allowed to weather to be a beautiful silver gray.

It is available in a variety of standard dimensional lumber sizes and can be used for entire projects. It is easily cut with standard carbide tipped blades but requires pre-drilling and screwing with stainless steel screws. Hidden fastening systems are also available. Standard decking size is 4/4 material (net 3/4" thickness) not 5/4 or 8/4 and on 24" centers the 4/4 material will provide a 100 lb live load rating far surpassing any cedar, redwood or CCA pressure treated material. It has a hardness rating of 3640 Janka, almost 3 times that of northern Red Oak at 1260 Janka. IPÊ also resists surface checking and is naturally resistant to molds, which are the two most destructive

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Once installed, follow any of these links;

- IPÊ - Basic Description
- IPÊ - General Characteristics
- IPÊ - Installation Guidelines
- IPÊ - Structural & Decking Span Values
- IPÊ - Comparison Chart

**COMPARISON CHART:**

| Common Name | IPÊ | CEDAR | RED WOOD | CCA/ TREATED PINE |
|---|---|---|---|---|
| Grade | select grade, all heart, no sap | varies, common grade has knots & sap | varies, common grade has knots & sap | available grade has many defects |
| Appearance | no splinters, surface stays smooth & resists damage, sealer required, patinas to silver gray with small surface checks | scratches easily, splinters & becomes dirty gray without regular sealing | scratches easily, splinters & becomes black gray without regular sealing | surface develops splits, checks, boards cup and twist, becomes rough & gray to green without regular sealing |
| Decay Resistance | High 25 years | Moderate 10-15 years | Moderate 10-15 years | Varies with treatment |

APPENDIX -5-

forces to the face of decks.

---

When compared to other decking materials such as redwood, cedar, or copper chromium arsenate pressure treated materials, IPÊ gives longer life (3-5 times the life span), stronger resistance to fire, weather, insects and movement and is competitively priced with high grades of cedar and redwood. If you compare the one time cost of IPÊ to the 3-5 times you replace other materials over the life span of IPÊ, the value of IPÊ becomes very clear!

It is the best timber product for exterior usage, period!

---

**GENERAL CHARACTERISTICS**

Tabebuis spp. (Lapacho Group)
Ipe, Bethabara, Lapacho,

**Family:** Bignoniaceae

**Other Common Names:** Amapa (Mexico), Cortez (Honduras,, Nicaragua, Costa Rica), Guayacan (Panama), Guayacan polvillo (Columbia), Flor Amarillo (Venezuela), Greenhart (Surinam), Madera negra (Ecuador), Tahuari (Peru), IN (Brazil), Lapacho negro (Paraguay, Argentina).

**Distribution:** Throughout continental tropical America and some of the Lesser Antilles. The Tree grows on a variety of sites, from ridge tops to riverbanks and marsh forests.

**The Tree:** May grow to 140 to 150 ft in height with trunk diameter of 6 ft. Frequently to heights of 100 ft and diameters of 2 to 3 ft. Boles are clear to 60 ft and more, with or without buttresses.

**The Wood:** Heartwood olive brown to blackish, often with lighter or darker striping, often covered with a yellow powder: sharply demarcated from the whitish or yellowish sapwood. Texture fine to medium; luster low to medium; grain straight to very irregular;

| | | | | |
|---|---|---|---|---|
| **Fire Rating Class NFPA** | A | B-C | B-C | C-D |
| **Resistance to Termites** | High | Low | Low | Varies w/treatment |
| **Resistance to Marine Borers** | High | Low | Low | Medium to High |
| **Movement in Service** | Low | Medium | Medium | Medium to High |
| **Weight per Cubic Foot** | 69 lbs | 30 lbs | 30 lbs | 35-40 lbs |
| **Bending Strength** | 25,400 psi | 6,800 psi | 7,900 psi | 14,500 psi |
| **Max Shear Strength** | 2,060 | 900 | 940 | 1,370 |
| **Hardness** | 3,680 lbs | 580 lbs | 480 lbs | 690 lbs |

**MECHANICAL PROPERTIES:**
(First and third sets of data based on the 2-in. standard, the second on the 1-in. standard.)

| Moisture Content | Bending Strength | Modulus of Elasticity | Maximum Crushing Strength |
|---|---|---|---|
| | PSI | 1000 PSI | PSI |
| Green (73) | 22,560 | 2,920 | 10,350 |
| 12% | 25,360 | 3,140 | 13,010 |
| 12% (24) | 25,200 | 3,010 | 14,000 |
| 12% (44) | 28,000 | 3,350 | --- |

Janka side hardness 3, 060 lb for green material and 3,680 lb at 12% moisture contents.

Forest Products Laboratory toughness average for green and dry material is 404 in.-lb (5/8-in.Specimen).

**INSTALLATION GUIDELINES**

IPÊ IS AN EXTREMELY DENSE WOOD WITH EXCEPTIONAL DURABILITY AND PERFORMANCE.

WHEN INSTALLED PROPERLY IPÊ WILL PROVIDE A LIFETIME OF BEAUTY AND SERVICE

**HANDLING AND STORAGE** - IPÊ IS SUPPLIED PARTIALLY AIR DRIED AND IS FOR OUTDOOR USE. IT SHOULD BE STORED IN A COOL DRY PLACE OUT OF DIRECT SUNLIGHT, DUST, AND RAIN. IT SHOULD BE ALLOWED TO ACCLIMATE TO THE INSTALLATION ENVIRONMENT. IF STORED OVER OPEN GROUND, LEAVE SUFFICIENT CIRCULATION SPACE UNDER THE BUNDLE TO COUNTER THE EFFECTS OF CONDENSATION. ALLOW FOR GROUND SIDE VENTILATION IN YOUR DESIGN AS PROPER AIR CIRCULATION IS NECESSARY FOR LONG TERM STABILITY. WHEN FULLY SEASONED SHRINKAGE OF APPROXIMATELY 1/16" ON 4" WIDE MATERIAL AND 1/8" ON 6" WIDE MATERIAL CAN BE EXPECTED

**CONDITIONING** - PRIOR TO USE, AIR DRY TO LOCAL MOISTURE LEVELS, THIS WILL RESULT IN A MORE ATTRACTIVE AND STABLE PROJECT.

APPENDIX -6-

ıle 4–5b. Mechanical properties of some woods imported into the United States other than Canadian imports :h–pound)[a]—con.

| nmon and botanical ıes of species | Moisture content | Specific gravity | Static bending: Modulus of rupture (lbf/in$^2$) | Static bending: Modulus of elasticity (×10$^6$ lbf/in$^2$) | Static bending: Work to maximum load (in-lbf/in$^3$) | Compression parallel to grain (lbf/in$^2$) | Shear parallel to grain (lbf/in$^2$) | Side hardness (lbf) | Sample origin[b] |
|---|---|---|---|---|---|---|---|---|---|
| ıba (*Pycnanthus* | Geen | 0.4 | 5,500 | 1.14 | — | 2,900 | 840 | 470 | AF |
| *ngolensis*) | 12% | | 9,900 | 1.59 | — | 5,550 | 1,290 | 610 | |
| (*Tabebuia* spp., | Green | 0.92 | 22,600 | 2.92 | 27.6 | 10,350 | 2,120 | 3,060 | AM |
| pacho group) | 12% | | 25,400 | 3.14 | 22 | 13,010 | 2,060 | 3,680 | |
| ɔ (*Chlorophora* spp.) | Green | 0.54 | 10,200 | 1.29 | 10.5 | 4,910 | 1,310 | 1,080 | AF |
| | 12% | | 12,400 | 1.46 | 9 | 7,590 | 1,800 | 1,260 | |
| ah (*Eucalyptus marginata*) | Green | 0.67 | 9,900 | 1.48 | — | 5,190 | 1,320 | 1,290 | AS |
| | 12% | — | 16,200 | 1.88 | — | 8,870 | 2,130 | 1,910 | |
| tong (*Dyera costulata*) | Green | 0.36 | 5,600 | 1.16 | 5.6 | 3,050 | 760 | 330 | AS |
| | 15% | | 7,300 | 1.18 | 6.4 | 3,920 | 840 | 390 | |
| eelhart (*Licaria* spp.) | Green | 0.96 | 22,300 | 3.82 | 13.6 | 13,390 | 1,680 | 2,210 | AM |
| | 12% | | 29,900 | 4.06 | 17.5 | 17,400 | 1,970 | 2,900 | |
| ır (*Dryobalanops* spp.) | Green | 0.64 | 12,800 | 1.6 | 15.7 | 6,220 | 1,170 | 980 | AS |
| | 12% | | 18,300 | 1.88 | 18.8 | 10,090 | 1,990 | 1,230 | |
| i (*Eucalyptus diversicolor*) | Green | 0.82 | 11,200 | 1.94 | 11.6 | 5,450 | 1,510 | 1,360 | AS |
| | 12% | | 20,160 | 2.6 | 25.4 | 10,800 | 2,420 | 2,040 | |
| pas (*Koompassia* | Green | 0.71 | 14,500 | 2.41 | 12.2 | 7,930 | 1,460 | 1,480 | AS |
| *alaccensis*) | 12% | | 17,700 | 2.69 | 15.3 | 9,520 | 1,790 | 1,710 | |
| ing (*Dipterocarpus* spp.) | Green | 0.69 | 11,900 | 1.71 | 13.9 | 5,680 | 1,170 | 1,060 | AS |
| | 12% | | 19,900 | 2.07 | 23.5 | 10,500 | 2,070 | 1,270 | |
| ımvitae (*Guaiacum* spp.) | Green | 1.05 | — | — | — | — | — | — | AM |
| | 12% | — | — | — | — | 11,400 | — | 4,500 | |
| a (*Terminalia superba*) | Green | 0.38 | 6,000 | 0.77 | 7.7 | 2,780 | 88 | 400 | AF |
| | 12% | | 8,800 | 1.01 | 8.9 | 4,730 | 1,410 | 490 | |
| ıwood (*Platymiscium* spp.) | Green | 0.94 | 22,300 | 3.02 | — | 10,540 | 1,840 | 3,320 | AM |
| | 12% | | 27,600 | 3.2 | — | 16,100 | 2,540 | 3,150 | |
| ɔgany, African (*Khaya* spp.) | Green | 0.42 | 7,400 | 1.15 | 7.1 | 3,730 | 931 | 640 | AF |
| | 12% | | 10,700 | 1.4 | 8.3 | 6,460 | 1,500 | 830 | |
| ɔgany, true | Green | 0.45 | 9,000 | 1.34 | 9.1 | 4,340 | 1,240 | 740 | AM |
| *vietenia macrophylla*) | 12% | — | 11,500 | 1.5 | 7.5 | 6,780 | 1,230 | 800 | |
| ɔarklak (*Eschweilera* spp.) | Green | 0.87 | 17,100 | 2.7 | 17.4 | 7,340 | 1,630 | 2,280 | AM |
| | 12% | | 26,500 | 3.14 | 33.3 | 11,210 | 2,070 | 3,480 | |
| ıi (*Symphonia globulifera*) | Green | 0.58 | 11,200 | 1.96 | 11.2 | 5,160 | 1,140 | 940 | AM |
| | 12% | | 16,900 | 2.46 | 16.5 | 8,820 | 1,420 | 1,120 | |
| ihballi (*Lincania* spp.) | Green | 0.88 | 17,100 | 2.93 | 13.4 | 7,580 | 1,620 | 2,250 | AM |
| | 12% | | 27,700 | 3.34 | 14.2 | 13,390 | 1,750 | 3,570 | |
| au (*Intsia* spp.) | Green | 0.64 | 12,900 | 2.02 | 12.8 | 6,770 | 1,560 | 1,380 | AS |
| | 15% | — | 16,800 | 2.23 | 14.8 | 8,440 | 1,810 | 1,500 | |
| ɜwa (*Anisoptera* spp.) | Green | 0.52 | 8,000 | 1.77 | — | 3,960 | 740 | 880 | AS |
| | 12% | | 13,800 | 2.28 | — | 7,370 | 890 | 1,290 | |
| (*Mora* spp.) | Green | 0.78 | 12,600 | 2.33 | 13.5 | 6,400 | 1,400 | 1,450 | AM |
| | 12% | | 22,100 | 2.96 | 18.5 | 11,840 | 1,900 | 2,300 | |
| *Quercus* spp.) | Green | 0.76 | — | — | — | — | — | — | AM |
| | 12% | | 23,000 | 3.02 | 16.5 | — | — | 2,500 | |
| he (*Triplochiton* | Green | 0.3 | 5,100 | 0.72 | 6.2 | 2,570 | 660 | 420 | AF |
| ɜroxylon) | 12% | | 7,400 | 0.86 | 6.9 | 3,930 | 990 | 430 | |

IPE

CAB

11-29-10

**CANKAT-ESSMAN, INC.**
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www.cankatessman.com

# STRUCTURAL CALCULATIONS

GENERAL INFORMATION

| | |
|---|---|
| Project : | **SOHO BEACH HOUSE WOOD STRUCTURES** |
| Project Address: | 4385 Collins Ave.<br>Miami Beach Florida |
| Date | 18-Feb-10 |
| Our Job No. | **10017** |
| Architect | **ALLAN T SHULMAN** |
| Client: | |
| Client Job No: | |
| Drawing No: | |

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| **CONTENTS** | |
| Design Criteria | 1 |
| Tiki -Bar | 2 thru 12 |
| Post Foundations | 13 Thru 21 |
| Appendix | 22 & 23 |
| TOTAL (~~23~~ 30) PAGES | |

State of Florida CA No: 00004419
Mustafa Cankat, PE
Florida License No: 18632

M. Cankat
8/18/2010

**cankat - essman inc.**

PROJECT SOHO BEACH HOUSE
LOCATION 4385 COLLINS AVE, MB, FL.
SUBJECT BEACH FEATURES

PAGE 1 OF
JOB NO 10017
DATE 2/15/2010
BY MC

GENERAL
DESIGN CRITERIA

GOVERNING BUILDING CODE : FBC 2007 / HIGH VELOCITY HURRICANE ZONES
SECTION 3109 / STRUCTURES SEAWARD OF A COASTAL CONSTRUCTION CONTROL LINE

WIND CRITERIA (AS PER ASCE 7-05)
BASIC WIND SPEED V = 146 MPH (3 SECOND GUST)
V = 90 MPH FOR FENCE < 6'-0" HIGH
EXPOSURE : C
IMPORTANCE FACTOR I = 1.0 FOR STRUCTURES
I = 0.77 FOR FENCE

$K_d = 1.0$

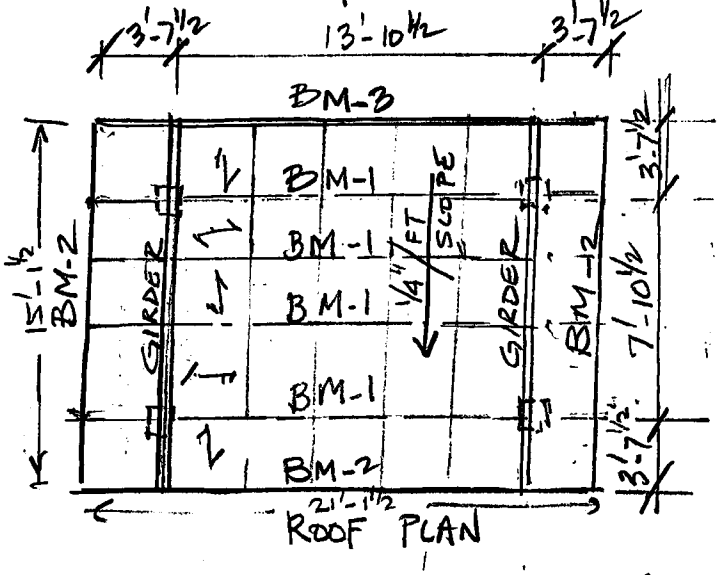
DESIGN LOADS
WOOD WALKWAYS LL = 100 psf
TIKI BAR ROOF LL = 100 psf
DL = 20 psf

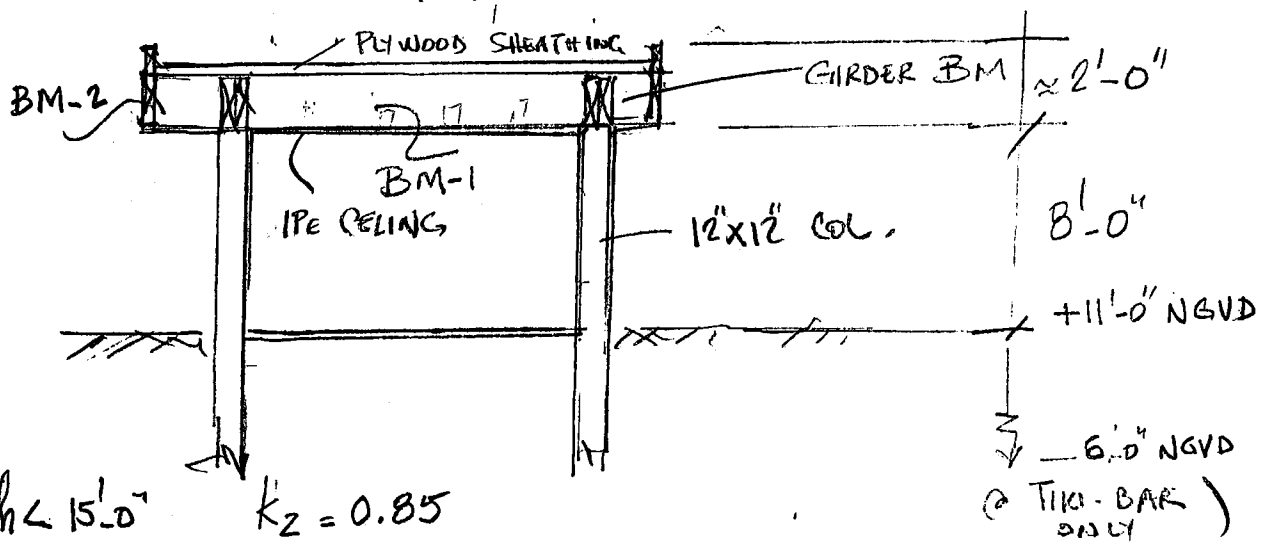
FOUNDATION DESIGN IS BASED ON GEOTECHNICAL ENGINEERING STUDY BY "LANGAN" ENGINEERING

AT WALKWAYS & TIKI BAR
WOOD PILES USED AND INSTALLED 8 FEET BELOW THE SCOUR ELEVATION. (FOR 100 YEAR STORM, PREDICTED SCOUR DEPTH +3.2 NGVD.
OTHER MISCL. STRUCTURES & FENCES, SUPPORTED ON WOOD POSTS EMBEDDED TO A DEPTH SUFFICIENT TO RESIST LATERAL LOADS. (SCOUR DEPTH IS NOT TAKEN INTO CONSIDERATION.
OWNER ACKNOWLEDGES & ACCEPT THAT THESE MISCL. STRUCTURES MAY BE LOST DUE TO EROSION DURING STRONG STORMS, HURRICANES.

SOIL CHARACTERISTICS
$\phi = 34^\circ$
$\gamma = 115$ lb/cu.ft.
$K_A = 0.33$
$K_P = 3.0$

MINIMUM PILE SIZE & INF.
10" (TIMBER BUTT DIAMETER
ALLOW. COMP. CAP. 10 TONS
" TENSION CAP 4 TONS
" LATERAL CAP 2 TONS
MIN. REQ'D TIP ELEVATION = (-) 5.0 ft. NGVD




$h < 15'-0"$ $\quad K_z = 0.85$

$$q_h = 0.00256 \times 0.85 \times 1.0 \times \overline{146}^2 \times 1.0$$

$$q_h = 46.4 \text{ psf}$$

FROM ASCE 7-05, FIG 6-19 A $\begin{cases} h/L = 10/21 = 0.47 < 1.0 \\ \theta < 45^\circ \end{cases}$ $> 0.25$

CLEAR WIND FLOW

ROOF $\theta = 1.19^\circ$

$a = 0.10 \times 15 = 1.5'$
$0.4 \times 10 = 4$
$0.04 \times 15 = 0.6$
$3.0'$ $\quad a^2 = 9$ sqft
$4a^2 = 36$ sqft

FOR 2X6 IPE CEILING, TA $< a^2$
FOR BM-1 & GIRDER, TA $> 4a^2$

INTERPOLATED CN VALUES →

| CN | IPE & ROOF SHEAT. | BM'S |
|---|---|---|
| ZONE #3 | +2.52 / -3.42 | +1.25 / 1.14 |
| ZONE #2 | +1.93 / -1.75 | +1.25 / 1.14 |
| ZONE #1 | +1.25 / -1.14 | +1.25 / 1.14 |

$P = q_h G C_N$ $\quad G = 0.85$ $\quad q_h = 46.4$ sf

$G q_h = 39.44$

NET DESIGN (P) (PSF)
WIND PRESSURE

| ZONE | IPE DECKING / ROOF SHEATHING | WOOD BEAMS |
|---|---|---|
| #3 | +99.4/-134 | +49.3/-45 |
| #2 | +76.1/-69 | +49.3/-45 |
| #1 | +49.3/-45 | +49.3/-45 |

1x6 (3/4" x 5 1/2") IPE $\quad S_{y-y} = 5\frac{1}{2} \times 0.75^2/6 = 0.515\ in^3$

L = 2.75'

CHECK FOR MAX. LOAD $\Rightarrow$ $w = 5.5/12 \times 134$

$w = 61.4$ plf

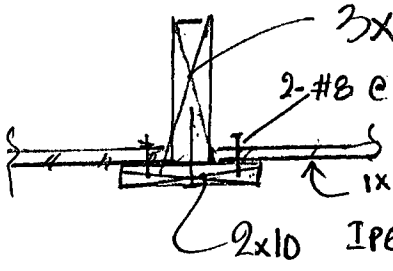
$R = 61.4 \times 2.75/2 = 84.4$ lbs $\uparrow$ $\quad V = 1.5 \times 84.4 = 127$ lbs $\quad f_v = 127/5\frac{1}{2} \times 3/4" = 30$ psi OK ✓

$M = 61.4 \times 2.75^2/8 = 58.0$ ft-lb

$f_{by} = \frac{58.0 \times 12}{0.515} = 1351$ psi $\quad$ OK. FOR IPE

2 #8 SCREWS w/ 1 1/2" EMBEDMENT

CONNECT. CAP $\therefore$ $\quad 2 \times 249 \times 1.5 = 747$ lb $\gg 84.4$ lbs ok




3x8 @ ZONE #3 CONDITION

$w = 3 \times 134 = 402$ plf

$M = 402 \times 3^2/8$

$M = 452$ ft-lb

NOTE: *** SINCE CAPACITIES ARE MUCH HIGHER THAN ACTUAL LOADS NO NEED TO USE ADJUSTMENT FACTORS

$L = 3'-0"$

FOR 3X8

$S_{x-x} = 21.90$

$f_{bx} = \frac{452 \times 12}{21.9} = 248$ psi $\ll 1200$ psi ok.

WOOD BM-1 (2) 3x12 — 3x12 ($2\frac{1}{2} \times 11\frac{1}{4}$)

$L = 13'\,10\frac{1}{2}" - (7") = 13.29'$

$S_{x-x} = 52.73$

$I_{x-x} = 296.6$ $\quad E = 1.6 \times 10^6$

GRAVITY LOADS 110 PSF GOVERNS

$W = 3 \times 110$

$w = 330$ plf / 2 MEMBER = 165 plf / (1) 3x12

$R = 165 \times 13.29 / 2 = 1096$ lbs

$M = 165 \times 13.29^2 / 8 = 3642$ ft-lb

ADJUSTMENT FACTORS :

TOP & BOT. IS FULLY BRACED W/ Plywood @ TOP & IPE @ BOT. SHEATH.

$F_b' \Longrightarrow$

$C_D = 1.0$
$C_F = 0.9$
$C_M = 1.0$
$C_t = 1.0$
$C_L = 1.0$
$C_i = 1.0$

$F_b' = 0.9 \times 975$ (FOR #2 SOUTHERN PINE)

$F_b' = 877.5$ psi

$f_{bx} = \frac{3642 \times 12}{52.73} = 828$ psi $< 877.5$ psi O.K

$f_v = 1.5 \times 1096 / 2\frac{1}{2} \times 11.25 = 58$ psi $< 175$ psi O.K

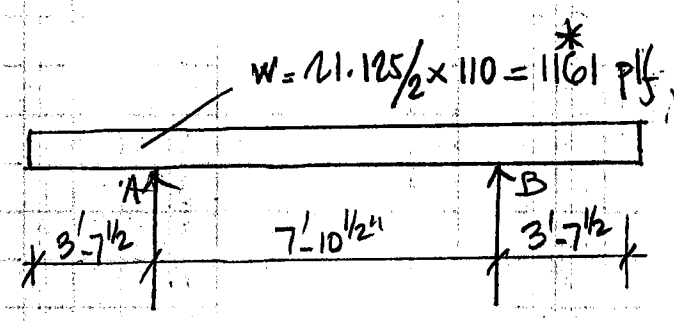
$\Delta_{LL} = \frac{5wl^4}{384EI}$

$\Delta_{LL} = \frac{5 \times 300 \times (13.29 \times 12)^4}{384 \times 12 \times 1.6 \times 10^6 \times 296.6} = 0.44" < 0.66"$

$l/240 = \frac{13.29 \times 12}{240} = 0.66"$

GIRDER (2) 4x12

4x12 ($3\frac{1}{2} \times 11\frac{1}{4}$)
$S_{x-x} = 73.83\ in^3$
$I_{x-x} = 415.3\ in^4$




* 1161/2 = 580.5 plf per member -

$R_A = R_B = 15.125 \times 580.5/2$

$R_A = R_B = 4390$ lbs

MAX. (+) MOMENT (ASSUME CANT'L. ARE NOT LOADED)

$(+)M_{max} = 580.5 \times 7.875^2/8 = 4500$ ft-lbs (GOVERNS)

$(-)M_{max} = 580.5 \times 3.625^2/2 = 3814$ ft-lbs

$f_{b_{x-x}} = \frac{4500 \times 12}{73.83} = 731$ psi

$F_b' = 0.9 \times 975 = 877.5 > 731$ psi O.K.

CHECK SHEAR : $\frac{3}{2}\frac{V}{bd} = 1.5 \times 4390 / (3\frac{1}{2} \times 11\frac{1}{4})$

$V = 167$ psi $< 175$ psi O.K.

LATERAL WIND LOAD @ ROOF FASCIA

B = 21.125' S = 18" h = 10'

FROM FIG 6-20

$s/h = 1.5/10 = 0.15$ $B/s = \frac{21.125}{1.5} = 14 \Rightarrow Cf = 1.87$

$F = q_h GC_f \times A_f$ $F = 46.4 \times 0.85 \times 1.87\ A_f$

$F = 73.8$ psf $\times A$

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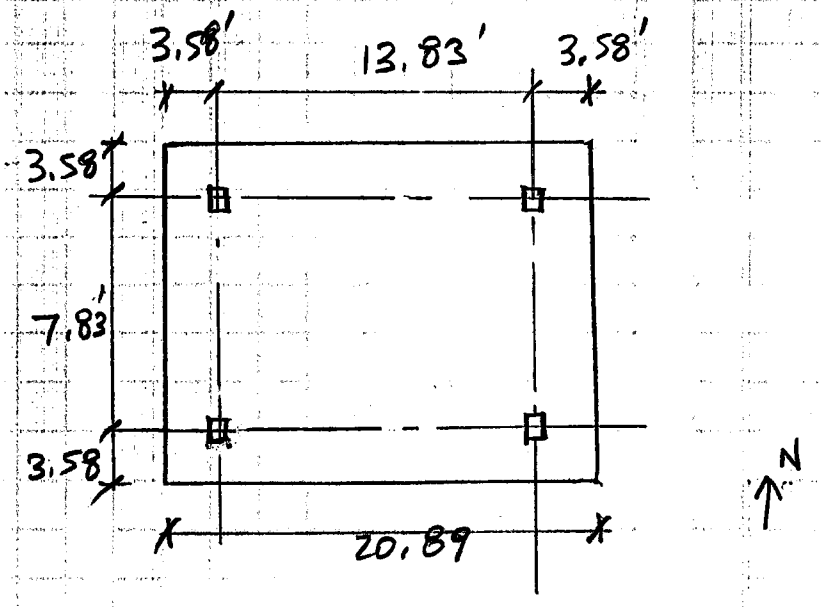
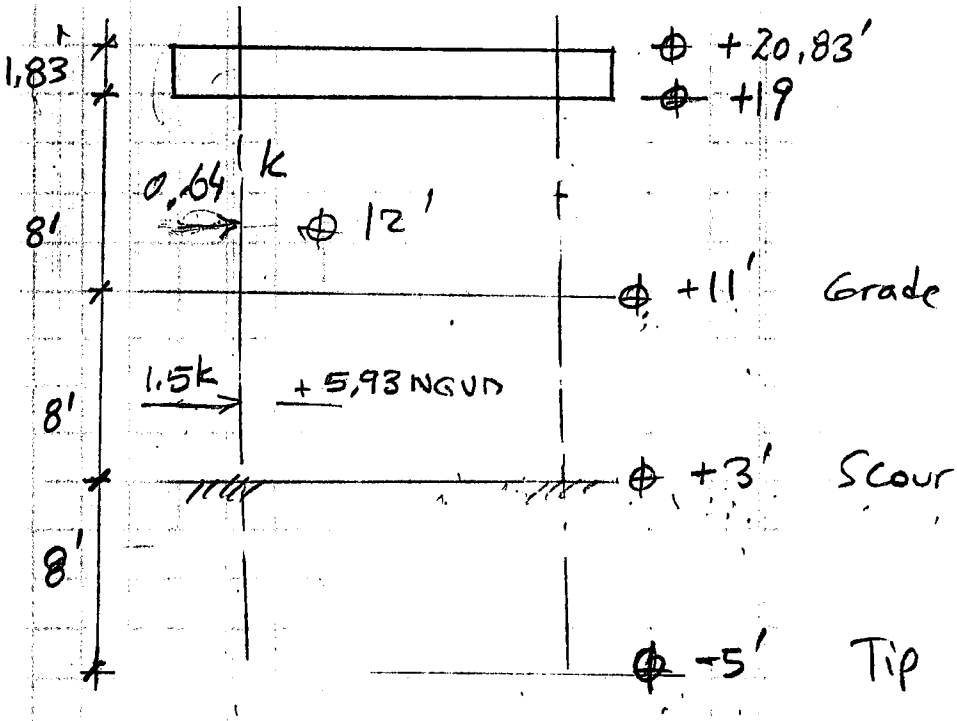
PROJECT Soho BEACH HOUSE
LOCATION 4385 COLLINS AVE, MB FL
SUBJECT TIKI BAR STRUCTURAL

PAGE 6 OF
JOB NO 10917
DATE 2/15/2010
BY ED/MC




## Gravity Loads

DL = 10
LL = 100
110 psf

## Wind Loads

Uplift
$P_1$ =

$P_2$ =

$P_3$ =

Lateral
P = 73.8 psf

FLOOD DESIGN — FEMA COASTAL MANUAL(2000), Chapter 11
ASCE 7-05, CHAPTER 5

| | | | | | |
|---|---|---|---|---|---|
| DFE | 12.00 | NGVD | | Design Flood Elevation( includes freeboard) | |
| BFE | 11.00 | NGVD | | BFE (100 year wave crest from FIRM) | |
| $G_{pe}$ | 11.00 | NGVD | | Grade (prior to flood at seaward row of piles) | |
| e | 8.00 | feet | | Assumed Erosion | |
| G | 3.00 | NGVD | $G_{pe}$-e | Grade (after erosion) | |
| $d_{BFE}$ | 8.00 | feet | BFE-G | Depth to wave crest | ASCE 7-05 |
| $d_s$ | 5.20 | feet | $.65*d_{BFE}$ | Stillwater Depth | Formula 5-3 |
| $E_{sw}$ | 8.20 | NGVD | $G+d_s$ | Stillwater Elevation | |
| $H_b$ | 4.06 | feet | $.78*d_s$ | Height of Breaking Wave | Formula 5-2 |
| $V_{min}$ | **5.20** | fps | $d_s$/(1 sec) | Velocity (Lower Range) | Formula C5-1 |
| $V_{max}$ | **12.94** | fps | $(gd_s)^{0.5}$ | Velocity (Upper Range) | Formula C5-2 |

Localized Scour Depth at Seaward Row of Piles

| | | | | |
|---|---|---|---|---|
| a | 1.414 | feet | | Diameter or Diagonal |
| $S_{max}$ | 2.828 | feet | 2*a | FEMA Formula 11.10a |
| $E_{scour}$ | 0.17 | NGVD | $G-S_{max}$ | |

Hydrodynamic Loads on Piles Not in Seaward Row

| | | | | | |
|---|---|---|---|---|---|
| $\gamma_w$ | 64.00 | lbs/cf | | salt water | FEMA Formula 11.8 |
| $C_d$ | 2.00 | | | 1.25 round / 2.00 rectangular | FEMA Formula 11.8 |
| w | 0.67 | feet | | width perpendicular to flow | |
| A | 3.48 | sqft | $w*d_s$ | | |
| → $F_{dyn}$ | **1159.48** | lbs | | $.5*C_d*V_{max}^2*A*\gamma_w/32.2$ | FEMA Formula 11.8 |
| → $E_{nsr}$ | 5.60 | NGVD | | $G+d_s/2$ for V>10fps | |
| $d_{dyn}$ | 0.00 | feet | | $C_d*V_{max}^2/(2*g)$ for V<=10fps | FEMA Formula 11.7 |
| $f_{dyn}$ | 0.00 | lbs | | $64*d_s*d_{dyn}$ | FEMA Formula 11.7 |
| $F_{dyn}$ | **0.00** | lbs | | $f_{dyn}*w$ | FEMA Formula 11.7 |
| $E_{nsr}$ | **0.00** | NGVD | | $G+d_s/3$ for V<10fps | |

Breaking Wave on Piles In Seaward Row

| | | | | ASCE 7-05 |
|---|---|---|---|---|
| $C_D$ | 2.25 | drag coeff. | 1.75 for round /2.25 for square | |
| D | 0.67 | feet | diameter or diagonal | |
| → $F_D$ | **793.60** | lbs | $.5*\gamma_w*C_D*D*H_b^2$ | Formula 5-4 |
| → $E_{sw}$ | **8.20** | NGVD | $G+d_s/2$ | |

Debris Impact Load on One Pile

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| → W(lbs) | 500 | lbs | @ flood level (+12') | $R_{max}$ | 0.24 | 2 Htz | Nat. Freq. |
| $C_{imp}$ | 1 | | | $C_{depth}$ | 1 | | |
| Δt | 0.03 | seconds | | F(lbs) | **605.99** | $\pi/(2*g)*W*C_i*C_d*V_{max}*R_{max}/\Delta$ | |

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PROJECT SOHO BEACH HOUSE
LOCATION 4385 COLLINS AVE, MB, FL
SUBJECT TIKI-BAR STRUCTURAL

PAGE 8 OF
JOB NO 10017
DATE 4/15/2010
BY PD/MC

Wind Load:

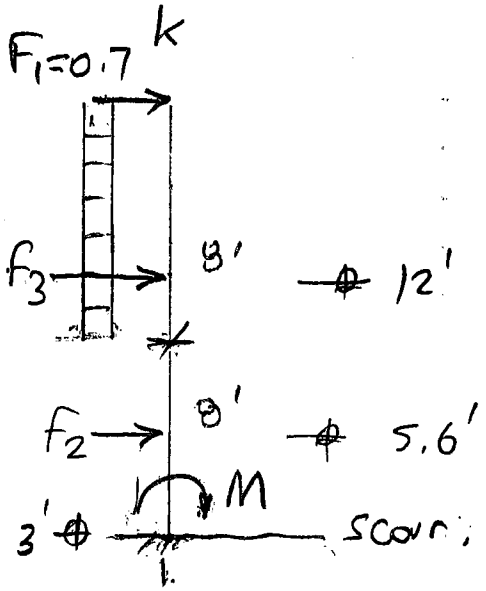
$F_{lateral} = 0.0738 \times 1.83 \times 20.89 = 2.82$ k

$F_1 = F/4 = 2.82/4 = 0.70$ k

$q_{col.(wind)} = 0.0738 \times 1' = 0.0738$ k/f

$M = 0.7 \times 16 + 0.0738 \times 8^2/2$

$M = 11.2 + 2.3616 = 13.56$ '-k




Hydrodynamic Load:

Hydrodynamic load on pile (see p. )

$F_2 = 1.16$ k @ 5.60' ← CONTROLS

Breaking Wave on pile: (see p. )

$F = 0.79$ k @ 8.2'

Debris Impact on pile: (see p. )

$F_3 = 0.5$ k @ 12' ← ADDITIVE

SUMMARY

$M = 13.56 + 1.16 \times (5.60 - 3) + 0.5 \times (12 - 3)$

$M = 22.24$ '-k

equiv. height of force appl

$h = 22.24/7.59 = 2.93'$

$11\frac{1}{4}$

$11\frac{1}{4}$

$S = 11.25 \times 11.25^2/6 = 237 \text{ in}^3$

$$f_b = \frac{22.24 \times 12}{237} = 1126 \text{ psi}$$

$$F_b = 950 \times 1.1 \times 1.6 = 1496 \text{ psi}$$

$f_b < F_b$ OK.

check the post as column (Grav. + Wind)

Gravity (DL+LL) $= 0.11 \times 20.89 \times 15/4 = 8.6 \text{ k}$

Gravity (0.6 DL) $= 0.01 \times 20.89 \times 15/4 = 0.8 \text{ k}$

$Mom_{(wind)} = 22.24 \text{ ft-k}$

$l_e/d = 18'/1' = 18 < 50$ OK

Stability factor (3.7.1)

$$C_p = \frac{1+(F_{cE}/F_c^*)}{2c} - \sqrt{\left[\frac{1+(f_e \cdot c/F_c')}{2c}\right] - \frac{F_{cE}/F_c'}{c}}$$

Where $F_c' = 550$ psi, $E_{min} = 440\,000$ psi

$$F_{cE} = \frac{0.822\, E_{min}}{(l_e/d)^2} = 1116$$

$$C_p = \frac{1+(1116/550)}{2 \times 0.8} - \sqrt{\left[\frac{1+2.02}{1.6}\right]^2 - \frac{2.02}{0.8}}$$

$C_p = 1.89 - 1.0 = 0.89$

$F_c' = 1,550 \times 0.89 = 489.5$ psi

$f_c = \frac{8600}{A = 126.5} = 67.9$ psi

$f_c / F_c' = 67.9 / 489 = 0.14$

$f_b / F_b = 112 / 1201 = 0.09$

$$\frac{f_c}{F_c} + \frac{f_b}{F_b} = 0.14 + 0.09 = 0.23 < 1$$

OK

**cankat - essman inc.**

PROJECT SOHO BEACH HOUSE
LOCATION 4385 COLLINS AVE. MB, FL
SUBJECT TIKI-BAR, STRUCTURAL

PAGE 11 OF
JOB NO 10017
DATE 2/15/2010
BY EP/MC

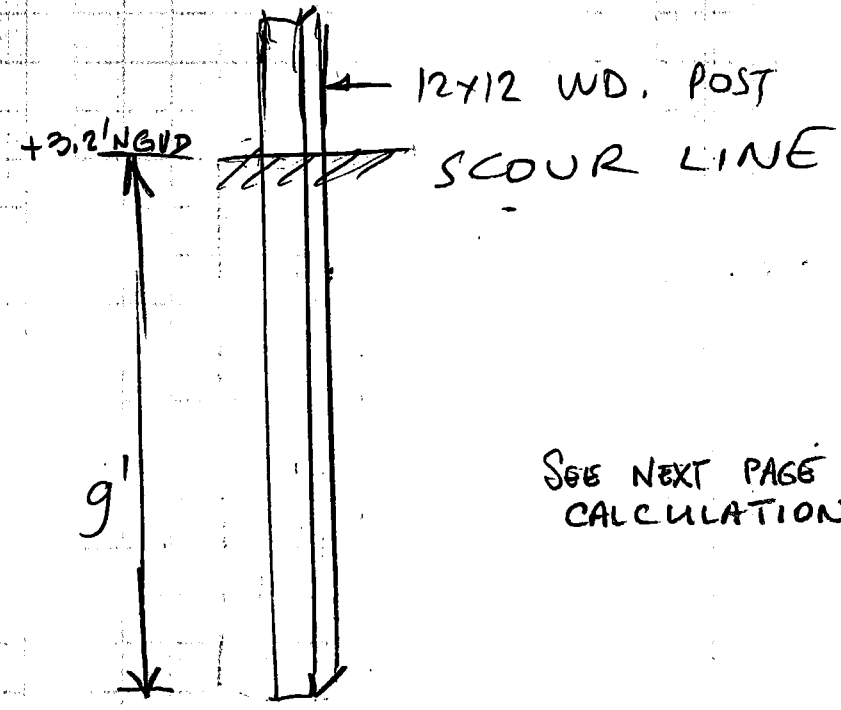
- Check Embedment

Mom. = 22.24 'k

$\Sigma F = 7.59$

Equiv. height of load $= \frac{22.24}{7.59} = 2.93'$

USE 9' EMBEDMENT (See next page)




SEE NEXT PAGE FOR EMBEDMENT CALCULATION.

| CANKAT ESSMAN<br>1900 SW 57th Ave. No.1<br>Miami, FL 33155<br>(305)266-9777 | PROJECT: ~~TIKIBAR~~ SOHO BEACH HOUSE<br>CLIENT:<br>SUBJECT: **POLE FOUNDATION** | JOB NO: 10017 Designed: MC<br>TITLE: Checked: |
|---|---|---|

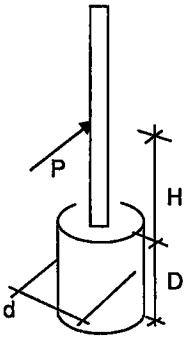
T:\1 CALCULATIONS\TEMPLATES\[PCfencepost.xls]Sheet1

12

11-29-10

qz= 72.35 psf from ASCE 7-05
Gust factor= 0.85
Cf= 1.2
Wind pressure=Cf*G*qz= 0.07380 ksf

| Appl. Elev. | W | d |
|---|---|---|
| 2.93 | 17.55 | 12 |




d: Footing diameter (in.)
P apl'd: Total Lateral Force (k)
W Load Tributary width (ft)
H Force appl. Height (ft)
A Footing resisting area (ft2)
D: Penetration depth (ft)

M=
M= 22.24 K-Ft at the top of foundation
As per Florida Building Code(1819.7.2.1) Unconstrained
S= 0.20 Ksf Table 1819.6
D initial= 5.00 ft

A=2.34 P/(S1*d) D=0.5A[1+[1+(4.36H/A)]^1/2]

**Penetration Depth (Final): D= 8.93**

Iteration table:

| H | W, Trib. Width | d | P apl'd. | S1=2S*D/3 | D | A | D | |
|---|---|---|---|---|---|---|---|---|
| 2.93 | 17.55 | 12 | 7.590 | 0.67 | 5.00 | 26.64 | 29.52 | |
| 2.93 | 17.55 | 12 | 7.590 | 3.94 | 29.52 | 26.64 | 4.90 | |
| 2.93 | 17.55 | 12 | 7.590 | 0.65 | 4.90 | 4.51 | 12.03 | |
| 2.93 | 17.55 | 12 | 7.590 | 1.60 | 12.03 | 27.18 | 7.68 | |
| 2.93 | 17.55 | 12 | 7.590 | 1.02 | 7.68 | 11.07 | 9.61 | |
| 2.93 | 17.55 | 12 | 7.590 | 1.28 | 9.61 | 17.35 | 8.59 | |
| 2.93 | 17.55 | 12 | 7.590 | 1.15 | 8.59 | 13.86 | 9.08 | |
| 2.93 | 17.55 | 12 | 7.590 | 1.21 | 9.08 | 15.51 | 8.83 | |
| 2.93 | 17.55 | 12 | 7.590 | 1.18 | 8.83 | 14.66 | 8.96 | |
| 2.93 | 17.55 | 12 | 7.590 | 1.19 | 8.96 | 15.08 | 8.90 | |
| 2.93 | 17.55 | 12 | 7.590 | 1.19 | 8.90 | 14.87 | 8.93 | <-USE |

Embedment 9'
from the scourline

CANKAT ESSMAN
1900 SW 57th Ave.
Miami, FL 33155
(305) 266-9777

PROJECT: SOHO BEACH HOUSE
CLIENT:
SUBJECT: Fence /Retaining Wall type II

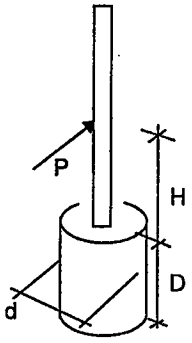
JOB NO:
TITLE:

Designed: JF
Checked: MC

T:\1 CALCULATIONS\CankatEssman\Jungles\10017 Struct.@seaward CCL\[Fence Type II.xls]Sheet1

11-29-10

# SHOWER POST




d: Footing diameter (in.)

P apl'd: Total Lateral Force (k)
W Load Tributary width (ft)
H Force appl. Height (ft)
A Footing resisting area (ft2)
D: Penetration depth (ft)

| Appl. Elev. | W | d |
|---|---|---|
| 6 | | 7.78 |

M= 1.20
M= 1.20 K-Ft at the top of foundation
As per Florida Building Code(1819.7.2.1) Unconstrained
S= 0.15 Ksf Table 1819.6
D Initial= 5.00 ft

A=2.34 P/(S1*d)  D=0.5A[1+[1+(4.36H/A)]^1/2]

**Penetration Depth (Final):** **D= 4.27**

Iteration table:

| H | W. Trib. Width | d | P apl'd. | S1=2S*D/3 | D | A | D | |
|---|---|---|---|---|---|---|---|---|
| 3 | 5 | 7.78 | 0.400 | 0.50 | 5.00 | 2.89 | 4.84 | |
| 3 | 5 | 7.78 | 0.400 | 0.48 | 4.84 | 2.89 | 4.03 | |
| 3 | 5 | 7.78 | 0.400 | 0.40 | 4.03 | 2.98 | 4.42 | |
| 3 | 5 | 7.78 | 0.400 | 0.44 | 4.42 | 3.58 | 4.22 | |
| 3 | 5 | 7.78 | 0.400 | 0.42 | 4.22 | 3.27 | 4.32 | |
| 3 | 5 | 7.78 | 0.400 | 0.43 | 4.32 | 3.42 | 4.27 | <-USE |

EMBED 4'-6"

P = 200#

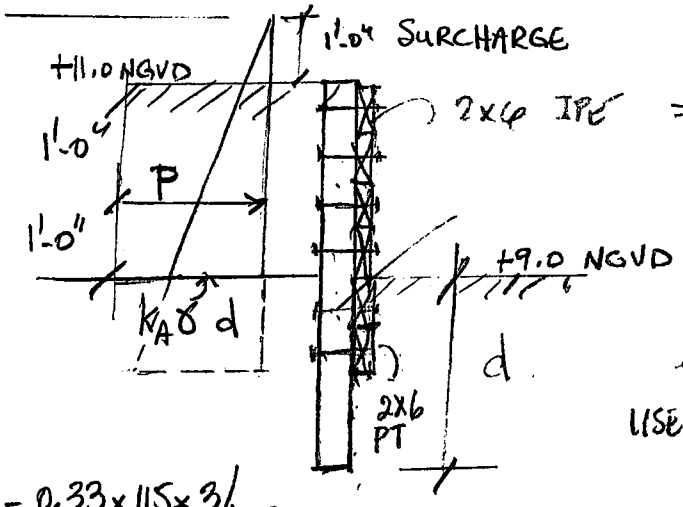
H = 6'-0"

M = 6 x 0.2 = 1.20 k-ft

d = 5.5/0.707 FROM 6"x6" POST

d = 7.78"

W/NO FENCE ABOVE




⟹ SEE 14 A FOR REVISED #2 SOUTHERN PINE PLANKS

4x4 POSTS @ 4'-0" o/c
USE EMBEDMENT - 4'-6"

3½ × 3½ d=

$k_A \gamma d = 0.33 \times 115 \times 3/1000$
$= 0.114$ ksf

$P = \frac{1}{2} \times 0.114 \times 3 = 0.171$ klf. POSTS @ 4'-0" $P = 0.684$ kips.

$M = 0.171 \times 4' \times 1'$
$M = 0.684$ ft-kips

POSTS : $S_{x-x} = \frac{3.5 \times \overline{3.5}^2}{6} = 7.14$ in$^3$

$f_{bx} = \frac{684 \times 12}{7.14} = 1149$ psi
#2 SOUTH. PINE PT
$f_b = 1500$ psi
O.K

SEE ATTACHED ITERATION BASED ON FBC 2007 / SECT. 1819.7.2.1

CHECK PLANKS
1'-0" BELOW GRADE — MAX EARTH PRESSURE

$k_A \gamma . d = 0.33 \times 115 \times 4$
$= 152$ psf

(2 x 6) IPE PLANKS

$L = 4'.0"$

$R = \overbrace{152 \times 5.5/12}^{69.7 \text{ plf}} \times 4/2 = 139$ lbs

$M = 69.7 \times 4^2/8$

$M = 139.4$ ft-lb

2X6 ($1\frac{1}{2} \times 5\frac{1}{2}$) $S_{y-y} = 5.5 \times \overline{1.5}^2/6 = 2.06$

$f_{by-y} = \frac{139.4 \times 12}{2.06} = 812$ psi O.K

USE ½" ϕ STAINLESS STEEL THRU BOLT @ EA. PLANK.

W/ NO FENCE ABOVE REVISED

ADD WIND SUCTION AT 2'-0" EXPOSED FACE
FROM PAGE 17 V=90 MPH, I=0.77, EXP. CAT. "C"
$q_z = 11.53$ psf.

AT POSTS 4'-0" o/c
$F_W = 11.53 \text{ psf} \times 4 \times 2$
$F_W = 92.24$ lbs.

$M_{@GRADE} = 92.24 \times 2/2$
$= 92.24$ ft-lb

$M_{TOTAL} = 0.684 + 0.092.$

$M_{TOTAL} = 0.776$ ft-kips

$f_{bx} = \frac{776 \times 12}{7.14} = 1304 \text{ psi} < 1{,}500 \text{ psi}$
No 2 SOUTHERN PINE
O.K

CHECK PLANKS

2x6 SOUTH. PINE PLANKS
@ 1'-0" BELOW GRADE ⟹ SEE PAGE 14
$f_{by} = 812 \text{ psi} < 1500 \text{ psi}$ USE #2 SOUTH PINE PT PLANKS

CHECK PLANK FOR WIND ADDED ABOVE GRADE:

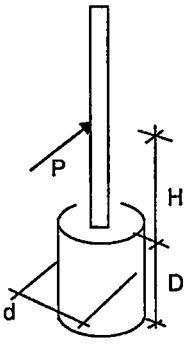
$F_{WIND} = 11.53$ psf
EART PRESS. @ GRADE
$K_A \gamma d = 0.33 \times 115 \times 3$
$= 114$ psf.
TOTAL $= 11.53 + 114$ psf
$= 125.5$ psf $< 152$ psf, OK.

#2 SOUTH. PINE ABOVE 2"x6" PLANK
GRADE
✓

| | | |
|---|---|---|
| **CANKAT ESSMAN**<br>**1900 SW 57th Ave. No.1**<br>Miami, FL 33155<br>(305)266-9777 | PROJECT: ~~TIKIBAR~~ SOHO BEACH HOUSE<br>CLIENT:<br>SUBJECT: **POLE FOUNDATION** | JOB NO: 1017 Designed:<br>TITLE: Checked: |

T:\1 CALCULATIONS\TEMPLATES\[PCfencepost.xls]Sheet1

EAST SIDE FENCE OVER RETAINING WALL




d: Footing diameter (in.)

P apl'd: Total Lateral Force (k)
W Load Tributary width (ft)
H Force appl. Height (ft)
A Footing resisting area (ft2)
D: Penetration depth (ft)

| Appl. Elev. | W | d |
|---|---|---|
| 2.13 | 4.00 | 7.78 |

M= 1.89
M= 1.89 K-Ft at the top of foundation
As per Florida Building Code(1819.7.2.1) Unconstrained
S= 0.15 Ksf Table 1819.6
D initial= 5.00 ft

A=2.34 P/(S1*d) D=0.5A[1+[1+(4.36H/A)]^1/2]

**Penetration Depth (Final): D= 4.99**

Iteration table:

| H | W, Trib. Width | d | P apl'd. | S1=2S*D/3 | D | A | D | |
|---|---|---|---|---|---|---|---|---|
| 2.13 | 4 | 7.78 | 0.887 | 0.50 | 5.00 | 6.41 | 8.22 | |
| 2.13 | 4 | 7.78 | 0.887 | 0.82 | 8.22 | 6.41 | 3.88 | |
| 2.13 | 4 | 7.78 | 0.887 | 0.39 | 3.88 | 3.90 | 5.65 | |
| 2.13 | 4 | 7.78 | 0.887 | 0.56 | 5.65 | 8.25 | 4.68 | |
| 2.13 | 4 | 7.78 | 0.887 | 0.47 | 4.68 | 5.67 | 5.14 | |
| 2.13 | 4 | 7.78 | 0.887 | 0.51 | 5.14 | 6.84 | 4.91 | |
| 2.13 | 4 | 7.78 | 0.887 | 0.49 | 4.91 | 6.23 | 5.02 | |
| 2.13 | 4 | 7.78 | 0.887 | 0.50 | 5.02 | 6.53 | 4.97 | |
| 2.13 | 4 | 7.78 | 0.887 | 0.50 | 4.97 | 6.37 | 4.99 | <-USE |

USE 6"x6" IPE WOOD POSTS @4'0" o/c
W/ 6'-0" EMBEDMENT

CANKAT ESSMAN
1900 SW 57th Ave. No.1
Miami, FL 33155
(305)266-9777

PROJECT: SOHO Beach House
CLIENT: Jungles
SUBJECT: 2'-0" Retaining w/o Fence

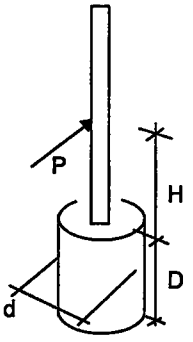
JOB NO: 10017 Designed:
TITLE: Checked:

T:\1 CALCULATIONS\TEMPLATES\[PCfencepost.xls]Sheet1

qz= 46.00 psf from ASCE 7-05
Gust factor= 0.85
Cf= 1.2
Wind pressure=Cf*G*qz= 0.04692 ksf

| Appl. Elev. | W | d |
|---|---|---|
| 2.23 | 4.00 | 7.78 |

M=
M= 1.87 K-Ft at the top of foundation
As per Florida Building Code(1819.7.2.1) Unconstrained
S= 0.15 Ksf Table 1819.6
D initial= 5.00 ft




d: Footing diameter (in.)

P apl'd: Total Lateral Force (k)
W Load Tributary width (ft)
H Force appl. Height (ft)
A Footing resisting area (ft2)
D: Penetration depth (ft)

A=2.34 P/(S1*d) D=0.5A[1+[1+(4.36H/A)]^1/2]

**Penetration Depth (Final): D= 6.39**

Iteration table:

| H | W. Trib. Width | d | P apl'd. | S1=2S*D/3 | D | A | D | |
|---|---|---|---|---|---|---|---|---|
| 2.23 | 4 | 7.78 | 0.837 | 0.50 | 5.00 | 6.04 | 7.90 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.79 | 7.90 | 3.82 | 5.51 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.55 | 5.51 | 5.48 | 7.31 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.73 | 7.31 | 4.13 | 5.85 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.59 | 5.85 | 5.16 | 6.96 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.70 | 6.96 | 4.34 | 6.07 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.61 | 6.07 | 4.97 | 6.76 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.68 | 6.76 | 4.47 | 6.22 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.62 | 6.22 | 4.86 | 6.64 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.66 | 6.64 | 4.55 | 6.30 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.63 | 6.30 | 4.79 | 6.57 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.66 | 6.57 | 4.60 | 6.36 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.64 | 6.36 | 4.75 | 6.52 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.65 | 6.52 | 4.63 | 6.39 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.64 | 6.39 | 4.63 | 6.39 | <-USE |

EAST SIDE FENCE

6X6 PT @ 4'-0" O.C

D= 6'-6"

15 B

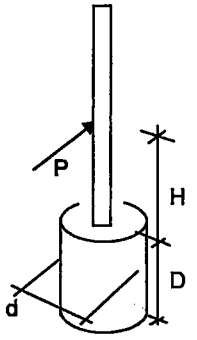
| CANKAT ESSMAN<br>1900 SW 57th Ave. No.1<br>Miami, FL 33155<br>(305)266-9777 | PROJECT: SOHO Beach House<br>CLIENT: Jungles<br>SUBJECT: 2'-0" Retaining w/o Fence | JOB NO: 10017<br>TITLE: | Designed:<br>Checked: |
|---|---|---|---|

T:\1 CALCULATIONS\TEMPLATES\[PCfencepost.xls]Sheet1

qz= 46.00 psf from ASCE 7-05
Gust factor= 0.85
Cf= 1.2
Wind pressure=Cf*G*qz= 0.04692 ksf

| Appl. Elev. | W | d |
|---|---|---|
| 2.23 | 4.00 | 7.78 |

M=
M= 1.87 K-Ft at the top of foundation
As per Florida Building Code(1819.7.2.1) Unconstrained
S= 0.20 Ksf Table 1819.6
D initial= 5.00 ft




d: Footing diameter (in.)
P apl'd: Total Lateral Force (k)
W Load Tributary width (ft)
H Force appl. Height (ft)
A Footing resisting area (ft2)
D: Penetration depth (ft)

A=2.34 P/(S1*d) D=0.5A[1+[1+(4.36H/A)]^1/2]

**Penetration Depth (Final): D= 5.67**

Iteration table:

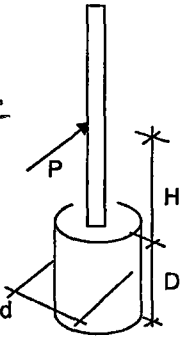
| H | W. Trib. Width | d | P apl'd. | S1=2S*D/3 | D | A | D | |
|---|---|---|---|---|---|---|---|---|
| 2.23 | 4 | 7.78 | 0.837 | 0.67 | 5.00 | 4.53 | 6.28 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.84 | 6.28 | 3.61 | 5.27 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.70 | 5.27 | 4.30 | 6.03 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.80 | 6.03 | 3.76 | 5.44 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.72 | 5.44 | 4.17 | 5.89 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.79 | 5.89 | 3.85 | 5.54 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.74 | 5.54 | 4.09 | 5.81 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.77 | 5.81 | 3.90 | 5.60 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.75 | 5.60 | 4.05 | 5.76 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.77 | 5.76 | 3.94 | 5.63 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.75 | 5.63 | 4.02 | 5.73 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.76 | 5.73 | 3.96 | 5.66 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.75 | 5.66 | 4.01 | 5.71 | |
| 2.23 | 4 | 7.78 | 0.837 | 0.76 | 5.71 | 3.97 | 5.67 | <-USE |

6x6 WOOD POSTS @ +-0" o/c
w/ 6'-0"

| | | |
|---|---|---|
| CANKAT ESSMAN<br>1900 SW 57th Ave. No.1<br>Miami, FL 33155<br>(305)266-9777 | PROJECT: ~~TIKIBAR~~ SOHO BEACH HOUSE<br>CLIENT:<br>SUBJECT: POLE FOUNDATION | JOB NO: 10017 Designed: MC<br>TITLE: Checked: |

T:\1 CALCULATIONS\TEMPLATES\[PCfencepost.xls]Sheet1

2'-0" RETAINING WALL
w/ 4"x4" POST @ 4'-0" o/c




d: Footing diameter (in.)

P apl'd: Total Lateral Force (k)
W Load Tributary width (ft)
H Force appl. Height (ft)
A Footing resisting area (ft2)
D: Penetration depth (ft)

| Appl. Elev. | W | d |
|---|---|---|
| 1 | 4.00 | 5.65 |

M= 0.68
M= 0.68 K-Ft at the top of foundation
As per Florida Building Code(1819.7.2.1) Unconstrained
S= 0.15 Ksf Table 1819.6
D initial= 5.00 ft

A=2.34 P/(S1*d)

D=0.5A[1+[1+(4.36H/A)]^1/2]

**Penetration Depth (Final): D= 3.96**

Iteration table:

| H | W, Trib. Width | d | P apl'd. | S1=2S*D/3 | D | A | D | |
|---|---|---|---|---|---|---|---|---|
| 1 | 4 | 5.65 | 0.680 | 0.50 | 5.00 | 6.76 | 7.71 | |
| 1 | 4 | 5.65 | 0.680 | 0.77 | 7.71 | 6.76 | 2.82 | |
| 1 | 4 | 5.65 | 0.680 | 0.28 | 2.82 | 4.38 | 4.66 | |
| 1 | 4 | 5.65 | 0.680 | 0.47 | 4.66 | 11.98 | 3.63 | |
| 1 | 4 | 5.65 | 0.680 | 0.36 | 3.63 | 7.24 | 4.11 | |
| 1 | 4 | 5.65 | 0.680 | 0.41 | 4.11 | 9.32 | 3.86 | |
| 1 | 4 | 5.65 | 0.680 | 0.39 | 3.86 | 8.22 | 3.99 | |
| 1 | 4 | 5.65 | 0.680 | 0.40 | 3.99 | 8.75 | 3.92 | |
| 1 | 4 | 5.65 | 0.680 | 0.39 | 3.92 | 8.48 | 3.96 | <-USE |

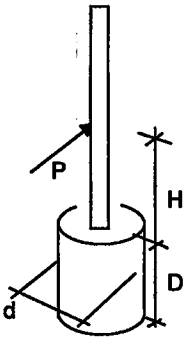
USE 4'-6" EMBEDMENT

| CANKAT ESSMAN<br>1900 SW 57th Ave. No.1<br>Miami, FL 33155<br>(305)266-9777 | PROJECT: SOHO Beach House<br>CLIENT: Jungles<br>SUBJECT: 2'-0" Retaining w/o Fence | JOB NO: 10017<br>TITLE: | Designed:<br>Checked: |
|---|---|---|---|

T:\1 CALCULATIONS\CankatEssman\Jungles\10017 Struct.@seaward CCL\[Retaining wall 1.xls]Sheet1

qz= 85.00 psf from ASCE 7-05
Gust factor= 0.85
Cf= 1.2
Wind pressure=Cf*G*qz= 0.09690 ksf

| Appl. Elev. | W | d |
|---|---|---|
| 1 | 4.00 | 4.95 |




d: Footing diameter (in.)

P apl'd: Total Lateral Force (k)
W Load Tributary width (ft)
H Force appl. Height (ft)
A Footing resisting area (ft2)
D: Penetration depth (ft)

M=
M= 0.78 K-Ft at the top of foundation
As per Florida Building Code(1819.7.2.1) Unconstrained
S= 0.20 Ksf Table 1819.6
D initial= 5.00 ft

A=2.34 P/(S1*d) D=0.5A[1+[1+(4.36H/A)]^1/2]

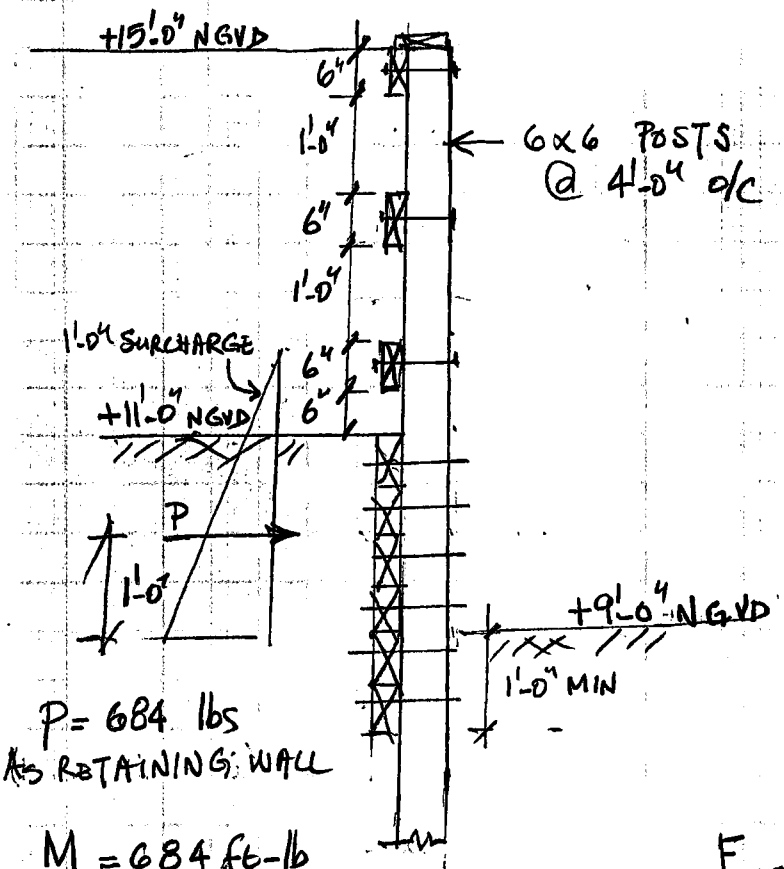
**Penetration Depth (Final): D= 6.03**

Iteration table:

| H | W. Trib. Width | d | P apl'd. | S1=2S*D/3 | D | A | D | |
|---|---|---|---|---|---|---|---|---|
| 1 | 4 | 4.95 | 0.775 | 0.67 | 5.00 | 6.60 | 7.55 | |
| 1 | 4 | 4.95 | 0.775 | 1.01 | 7.55 | 4.37 | 5.27 | |
| 1 | 4 | 4.95 | 0.775 | 0.70 | 5.27 | 6.26 | 7.20 | |
| 1 | 4 | 4.95 | 0.775 | 0.96 | 7.20 | 4.58 | 5.49 | |
| 1 | 4 | 4.95 | 0.775 | 0.73 | 5.49 | 6.01 | 6.95 | |
| 1 | 4 | 4.95 | 0.775 | 0.93 | 6.95 | 4.74 | 5.66 | |
| 1 | 4 | 4.95 | 0.775 | 0.75 | 5.66 | 5.83 | 6.77 | |
| 1 | 4 | 4.95 | 0.775 | 0.90 | 6.77 | 4.87 | 5.79 | |
| 1 | 4 | 4.95 | 0.775 | 0.77 | 5.79 | 5.70 | 6.63 | |
| 1 | 4 | 4.95 | 0.775 | 0.88 | 6.63 | 4.97 | 5.89 | |
| 1 | 4 | 4.95 | 0.775 | 0.79 | 5.89 | 5.60 | 6.53 | |
| 1 | 4 | 4.95 | 0.775 | 0.87 | 6.53 | 5.05 | 5.97 | |
| 1 | 4 | 4.95 | 0.775 | 0.80 | 5.97 | 5.52 | 6.46 | |
| 1 | 4 | 4.95 | 0.775 | 0.86 | 6.46 | 5.11 | 6.03 | |
| 1 | 4 | 4.95 | 0.775 | 0.80 | 6.03 | 5.11 | 6.03 | <-USE |

4x4 POSTS @ 4'-0"
2'-0" RETAINING WALL TYPE 1
W/NO FENCE.
D= 6.0'

EAST SIDE FENCE & RETAINING




P = 684 lbs
AS RETAINING WALL

M = 684 ft-lb
@ 9'-0" NGVD

$\Sigma M = (200 \times 6) + 684$

$M_T = 1884$ ft-lb

APP. ELEV $x = \frac{1884}{200+684} = 2.13'$

$f_{bx} = \frac{1884 \times 12}{\frac{5.5 \times 5.5^2}{6}} = 815$ psi OK.

WIND ASCE 7-05

V = 90 MPH
I = 0.77
EXP. CAT. = C

$q_z = 0.00256\ K_z K_{zt} K_d V^2 I$

$q_z = 0.00256 \times 0.85 \times 1.0 \times 0.85 \times 90^2 \times 0.77$

$q_z = 11.53$ psf

FROM FIG. 6-20
S = 6" h = 4'-0"
S/h = 0.5/4 = 0.125 < 0.16
B = 4.0' MIN.
S = 0.5' B/S = 8
USE $C_f = 1.85$

$F_W = 11.53 \times 0.85 \times 1.85\ A_f$
$F_W = 18.1$ psf $\Rightarrow 18.1 \times 4 = 72.4$ plf @ POST

@ GRADE $M_W = (0.5 \times 72.4 \times 3.75) + (36.2 \times 2.25) + (36.2 \times 0.75)$
(362)

$M_W = 244$ ft-lb

AS TOP RAIL 200 lb FORCE

$M_{@GRADE} = 200 \times 4 = 800$ ft-lb > $M_{WIND}$

RAILING GOVERNS

SEE NEXT PAGE FOR EMBEDMENT CALCULATION,

CHECK 1X6 PLANK AS TOP RAIL

UNIFORM DISTR. LOAD 50 plf along top rail
CONCENTRATED 200# @ ANY DIRECTION

$$\text{MOMENT} = \frac{PL}{4} = \frac{200^{\#} \times 4'}{4} = 200 \text{ ft-lb}$$

$$\text{MOMENT} = 50 \times 4^2/8 = 100 \text{ ft-lb.}$$

$M_W = 18.1 \text{ psf} \times 5.5/12 = 8.29 \text{ plf} < 50 \text{ plf}$ DO NOT GOVERN

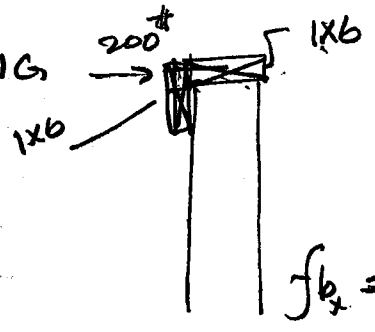
#2 SOUTH. PINE (1X6) $3/4" \times 5\frac{1}{2}"$ $S_{y-y} = 0.516$

$$f_{b_y} = \frac{200 \times 12}{0.516} = 467 \text{ psi} \gg 1500 \text{ ft-lb.}$$

CHECK (2X4) PLANKS $S_{y-y} = 2.063$

$$f_{b_y} = \frac{200 \times 12}{2.063} = 1163 \text{ psi} < 1500 \text{ psi}$$

TOP RAILING




1X6 $\Rightarrow$ $S_{x-x} = 3.78$
$S_{y-y} = 0.516$

$$f_{b_x} = \frac{200 \times 12}{3.78} = 634$$

INT. RAIL $25 \text{ plf} \times 4^2/8 = 50 \text{ ft-lb.}$

$$f_{by} = \frac{50 \times 12}{0.516} = 1162 < 1500 \text{ psi}$$

INTERMEDIATE MEMBER

TRIB. WIDTH 1'-6" · 25psf INTERM. MEMBERS

$w = 25 \times 1.5$

$w = 37.5$ plf

$M = 37.5 \times 4^2/8$

$M = 75$ ft-lb

1x6 PLANK

$S_{y-y} = 0.516$

$f_{by} = \frac{75 \times 12}{0.516} = 1744$ psi $> 1500$ psi . N.G.

SOLUTION ADD (1) MORE HOR. 1x6 OR USE 2x6 PLANKS.

TRIB WIDTH 1'-0"

$w = 25 \times 1 = 25$ plf

$M = 25 \times \frac{4^2}{8} = 50$ ft-lb.

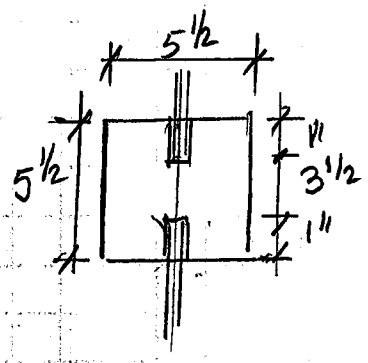
$f_{by} = \frac{50 \times 12}{0.516} = 1162$ psi ok

**cankat - essman inc.**

PROJECT SOHO BEACH HOUSE
LOCATION 4385 COLLINS AVE, MB, FL.
SUBJECT SOUTH SIDE FENCES

PAGE 18 OF
JOB NO 1017
DATE 2/15/2010
BY MC

TYPE "B" FENCE




6"x6" IPE POSTS @ 4'-0" o/c

6'-0" HIGH FENCE
w/ 1"x6" IPE PLANKS

$q_z = 11.53$ psf { V=90 MPH, I=0.77, EXP "C" }

FROM ASCE 7-05, FIG. 6-20
{ s/h = 1, B/s ≅ 10 } ⟹ $C_f = 1.30$

$F_W = 11.53 \times 0.85 \times 1.3\ A_f$

$F_W = 12.74$ psf

@ GRADE $M = 12.74 \times 4 \times 6 \times (3 + 0.05 \times 6) = 1009$ ft-lb
(3.3)

CHECK 5½x3½ IPE SECT. FOR BENDING

$S_{x-x} = \frac{3.5 \times 5.5^2}{6} = 17.64$ in³

$f_{bx} = \frac{1009 \times 12}{17.64} = 686$ psi O.K.

SEE NEXT PAGE FOR EMBEDMENT

TYPE "B" FENCE

CHECK

6" x 6" POSTS @ 4'-0" o/c.

$M_W = 1009$ ft-lb

6"x6" $S_{x-x} = 17.64$

$f_{bx} = \frac{1009 \times 12}{17.64} = 686$

6X6 SOUTH. PINE POST. OK.

1X6 SOUTH. PINE PLANKS

WIND $W = 12.74$ psf OR 25 psf lateral load

TRIB. WIDTH $5\frac{1}{2}$ $W = 5.5/12 \times 25 = 11.45$ plf

$M_{LAT} = 11.5 \times 4^2/8$

$M_{yy} = 23$ ft-lb

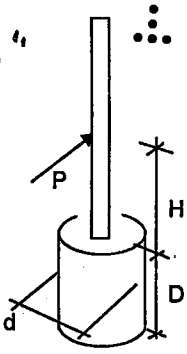
$f_{by} = \frac{23 \times 12}{0.516} = 534$ psi OK.

| | | |
|---|---|---|
| CANKAT ESSMAN<br>1900 SW 57th Ave. No.1<br>Miami, FL 33155<br>(305)266-9777 | PROJECT: ~~TIKIBAR~~ SOHO BEACH HOUSE<br>CLIENT:<br>SUBJECT: POLE FOUNDATION | JOB NO: 1001.1 Designed: MC<br>TITLE: Checked: |

T:\1 CALCULATIONS\TEMPLATES\[PCfencepost.xls]Sheet1

11.29.10

# WOOD FENCE TYPE "B"




d: Footing diameter (in.)

P apl'd: Total Lateral Force (k)
W Load Tributary width (ft)
H Force appl. Height (ft)
A Footing resisting area (ft2)
D: Penetration depth (ft)

| Appl. Elev. | W | d |
|---|---|---|
| 3.3 | 4.00 | 12 |

M= 1.01
M= 1.01 K-Ft at the top of foundation

As per Florida Building Code(1819.7.2.1) Unconstrained

S= 0.15 Ksf Table 1819.6

D initial= 5.00 ft

A=2.34 P/(S1*d) D=0.5A[1+[1+(4.36H/A)]^1/2]

**Penetration Depth (Final): D= 3.51**

Iteration table:

| H | W. Trib. Width | d | P apl'd. | S1=2S*D/3 | D | A | D | |
|---|---|---|---|---|---|---|---|---|
| 3.3 | 4 | 12 | 0.306 | 0.50 | 5.00 | 1.43 | 3.10 | |
| 3.3 | 4 | 12 | 0.306 | 0.31 | 3.10 | 1.43 | 3.72 | |
| 3.3 | 4 | 12 | 0.306 | 0.37 | 3.72 | 2.31 | 3.40 | |
| 3.3 | 4 | 12 | 0.306 | 0.34 | 3.40 | 1.92 | 3.56 | |
| 3.3 | 4 | 12 | 0.306 | 0.36 | 3.56 | 2.11 | 3.47 | |
| 3.3 | 4 | 12 | 0.306 | 0.35 | 3.47 | 2.01 | 3.51 | <-USE |

6"x6" IPE POST @ 4'-0" o/c

EMBEDMENT 4'-0"

19 A

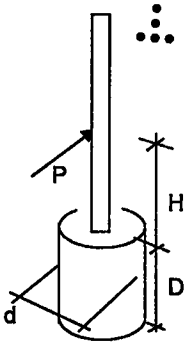
| CANKAT ESSMAN<br>1900 SW 57th Ave. No.1<br>Miami, FL 33155<br>(305)266-9777 | PROJECT: SOHO Beach House<br>CLIENT: Jungles<br>SUBJECT: Wood Fence Type "B" Post Fdn. | JOB NO: 10017<br>TITLE: | Designed:<br>Checked: |
|---|---|---|---|

T:\1 CALCULATIONS\CankatEssman\Jungles\10017 Struct.@seaward CCL\[Retaining Wall type 3.xls]Sheet1

1-29-10

qz= 13.00 psf from ASCE 7-05
Gust factor= 0.85
Cf= 1.2
Wind pressure=Cf*G*qz= 0.01326 ksf

| Appl. Elev. | W | d |
|---|---|---|
| 3.3 | 4.00 | 12 |




d: Footing diameter (in.)

P apl'd: Total Lateral Force (k)
W Load Tributary width (ft)
H Force appl. Height (ft)
A Footing resisting area (ft2)
D: Penetration depth (ft)

M=
M= 1.16 K-Ft at the top of foundation
As per Florida Building Code(1819.7.2.1) Unconstrained
S= 0.15 Ksf Table 1819.6
D initial= 5.00 ft

A=2.34 P/(S1*d) D=0.5A[1+[1+(4.36H/A)]^1/2]

**Penetration Depth (Final): D= 3.97**

Iteration table:

| H | W. Trib. Width | d | P apl'd. | S1=2S*D/3 | D | A | D | |
|---|---|---|---|---|---|---|---|---|
| 3.3 | 4 | 12 | 0.350 | 0.50 | 5.00 | 1.64 | 3.38 | |
| 3.3 | 4 | 12 | 0.350 | 0.34 | 3.38 | 2.42 | 4.40 | |
| 3.3 | 4 | 12 | 0.350 | 0.44 | 4.40 | 1.86 | 3.68 | |
| 3.3 | 4 | 12 | 0.350 | 0.37 | 3.68 | 2.23 | 4.15 | |
| 3.3 | 4 | 12 | 0.350 | 0.42 | 4.15 | 1.97 | 3.83 | |
| 3.3 | 4 | 12 | 0.350 | 0.38 | 3.83 | 2.14 | 4.04 | |
| 3.3 | 4 | 12 | 0.350 | 0.40 | 4.04 | 2.03 | 3.90 | |
| 3.3 | 4 | 12 | 0.350 | 0.39 | 3.90 | 2.10 | 4.00 | |
| 3.3 | 4 | 12 | 0.350 | 0.40 | 4.00 | 2.05 | 3.93 | |
| 3.3 | 4 | 12 | 0.350 | 0.39 | 3.93 | 2.09 | 3.97 | <-USE |

**cankat - essman inc.**

PROJECT SOHO BEACH HOUSE
LOCATION 4385 COLLINS AVE. MB. FL
SUBJECT FENCE

PAGE 20 OF
JOB NO 10017
DATE 2/15/2010
BY AE

CNR 1.29.10

TYPE "D" @ SOUTH & NORTH SIDE

6"x6" IPE POSTS @ 4'-0" o/c
2'-0" EARTH RETAINED

4'-0" HIGH ABOVE GRADE (AND 2'-0" WD. RETAINING WALL

FROM PREVIOUS CALCULATIONS
$F_W = 18.1\ psf \times A_f$

$A_f$ = 4' WIDE x 6' HIGH $F_W = 18.1 \times 24 = 434.4$ lbs

$M_W = 434.4 \times [3 + (0.05 \times 6)]$
$M_W = 1434$ ft-lb

2'-0" RETAINING
$M = 684$ ft-lb

$\Sigma M = 1434 + 684$
$= 2118$ ft-lb

$$X = \frac{2118}{(434.4 + 684)} = 1.9'$$

SEE NEXT PAGE FOR EMBEDMENT CALCULATION

| | | |
|---|---|---|
| CANKAT ESSMAN<br>1900 SW 57th Ave. No.1<br>Miami, FL 33155<br>(305)266-9777 | PROJECT: ~~TIKIBAR~~ SOHO BEACH HOUSE<br>CLIENT:<br>SUBJECT: **POLE FOUNDATION** | JOB NO: 1007 Designed: MC<br>TITLE: Checked: |

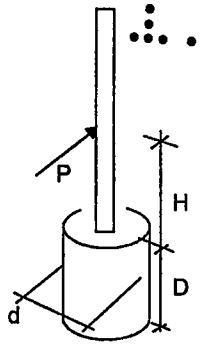
T:\1 CALCULATIONS\TEMPLATES\[PCfencepost.xls]Sheet1

11.29.10

TYPE "D" FENCE

SOUTH & NORTH SIDES

| Appl. Elev. | W | d |
|---|---|---|
| 1.9 | 4.00 | 7.78 |




d: Footing diameter (in.)

P apl'd: Total Lateral Force (k)
W Load Tributary width (ft)
H Force appl. Height (ft)
A Footing resisting area (ft2)
D: Penetration depth (ft)

M= 2.12

M= 2.12 K-Ft at the top of foundation

As per Florida Building Code(1819.7.2.1) Unconstrained

S= 0.15 Ksf Table 1819.6

D initial= 5.00 ft

A=2.34 P/(S1*d) D=0.5A[1+[1+(4.36H/A)]^1/2]

**Penetration Depth (Final): D= 5.19**

Iteration table:

| H | W, Trib. Width | d | P apl'd. | S1=2S*D/3 | D | A | D | |
|---|---|---|---|---|---|---|---|---|
| 1.9 | 4 | 7.78 | 1.116 | 0.50 | 5.00 | 8.05 | 9.76 | |
| 1.9 | 4 | 7.78 | 1.116 | 0.98 | 9.76 | 8.05 | 3.77 | |
| 1.9 | 4 | 7.78 | 1.116 | 0.38 | 3.77 | 4.12 | 6.07 | |
| 1.9 | 4 | 7.78 | 1.116 | 0.61 | 6.07 | 10.67 | 4.79 | |
| 1.9 | 4 | 7.78 | 1.116 | 0.48 | 4.79 | 6.64 | 5.39 | |
| 1.9 | 4 | 7.78 | 1.116 | 0.54 | 5.39 | 8.42 | 5.08 | |
| 1.9 | 4 | 7.78 | 1.116 | 0.51 | 5.08 | 7.47 | 5.23 | |
| 1.9 | 4 | 7.78 | 1.116 | 0.52 | 5.23 | 7.93 | 5.15 | |
| 1.9 | 4 | 7.78 | 1.116 | 0.52 | 5.15 | 7.70 | 5.19 | <-USE |

USE 6"x6" IPE WOOD POSTS @4'-0" O.C

EMBEDMENT - 6'-0" BELOW LOWEST GRADE

**Table 4–5b. Mechanical properties of some woods imported into the United States other than Canadian imports (inch–pound)[a]—con.**

| Common and botanical names of species | Moisture content | Specific gravity | Static bending: Modulus of rupture (lbf/in$^2$) | Static bending: Modulus of elasticity (×10$^6$ lbf/in$^2$) | Work to maximum load (in-lbf/in$^3$) | Compression parallel to grain (lbf/in$^2$) | Shear parallel to grain (lbf/in$^2$) | Side hardness (lbf) | Sample origin[b] |
|---|---|---|---|---|---|---|---|---|---|
| Ilomba (*Pycnanthus angolensis*) | Geen | 0.4 | 5,500 | 1.14 | — | 2,900 | 840 | 470 | AF |
| | 12% | | 9,900 | 1.59 | — | 5,550 | 1,290 | 610 | |
| Ipe (*Tabebuia* spp., lapacho group) | Green | 0.92 | 22,600 | 2.92 | 27.6 | 10,350 | 2,120 | 3,060 | AM |
| | 12% | | 25,400 | 3.14 | 22 | 13,010 | 2,060 | 3,680 | |
| Iroko (*Chlorophora* spp.) | Green | 0.54 | 10,200 | 1.29 | 10.5 | 4,910 | 1,310 | 1,080 | AF |
| | 12% | | 12,400 | 1.46 | 9 | 7,590 | 1,800 | 1,260 | |
| Jarrah (*Eucalyptus marginata*) | Green | 0.67 | 9,900 | 1.48 | — | 5,190 | 1,320 | 1,290 | AS |
| | 12% | — | 16,200 | 1.88 | — | 8,870 | 2,130 | 1,910 | |
| Jelutong (*Dyera costulata*) | Green | 0.36 | 5,600 | 1.16 | 5.6 | 3,050 | 760 | 330 | AS |
| | 15% | | 7,300 | 1.18 | 6.4 | 3,920 | 840 | 390 | |
| Kaneelhart (*Licaria* spp.) | Green | 0.96 | 22,300 | 3.82 | 13.6 | 13,390 | 1,680 | 2,210 | AM |
| | 12% | | 29,900 | 4.06 | 17.5 | 17,400 | 1,970 | 2,900 | |
| Kapur (*Dryobalanops* spp.) | Green | 0.64 | 12,800 | 1.6 | 15.7 | 6,220 | 1,170 | 980 | AS |
| | 12% | | 18,300 | 1.88 | 18.8 | 10,090 | 1,990 | 1,230 | |
| Karri (*Eucalyptus diversicolor*) | Green | 0.82 | 11,200 | 1.94 | 11.6 | 5,450 | 1,510 | 1,360 | AS |
| | 12% | | 20,160 | 2.6 | 25.4 | 10,800 | 2,420 | 2,040 | |
| Kempas (*Koompassia malaccensis*) | Green | 0.71 | 14,500 | 2.41 | 12.2 | 7,930 | 1,460 | 1,480 | AS |
| | 12% | | 17,700 | 2.69 | 15.3 | 9,520 | 1,790 | 1,710 | |
| Keruing (*Dipterocarpus* spp.) | Green | 0.69 | 11,900 | 1.71 | 13.9 | 5,680 | 1,170 | 1,060 | AS |
| | 12% | | 19,900 | 2.07 | 23.5 | 10,500 | 2,070 | 1,270 | |
| Lignumvitae (*Guaiacum* spp.) | Green | 1.05 | — | — | — | — | — | — | AM |
| | 12% | — | — | — | — | 11,400 | — | 4,500 | |
| Limba (*Terminalia superba*) | Green | 0.38 | 6,000 | 0.77 | 7.7 | 2,780 | 88 | 400 | AF |
| | 12% | | 8,800 | 1.01 | 8.9 | 4,730 | 1,410 | 490 | |
| Macawood (*Platymiscium* spp.) | Green | 0.94 | 22,300 | 3.02 | — | 10,540 | 1,840 | 3,320 | AM |
| | 12% | | 27,600 | 3.2 | — | 16,100 | 2,540 | 3,150 | |
| Mahogany, African (*Khaya* spp.) | Green | 0.42 | 7,400 | 1.15 | 7.1 | 3,730 | 931 | 640 | AF |
| | 12% | | 10,700 | 1.4 | 8.3 | 6,460 | 1,500 | 830 | |
| Mahogany, true (*Swietenia macrophylla*) | Green | 0.45 | 9,000 | 1.34 | 9.1 | 4,340 | 1,240 | 740 | AM |
| | 12% | — | 11,500 | 1.5 | 7.5 | 6,780 | 1,230 | 800 | |
| Manbarklak (*Eschweilera* spp.) | Green | 0.87 | 17,100 | 2.7 | 17.4 | 7,340 | 1,630 | 2,280 | AM |
| | 12% | | 26,500 | 3.14 | 33.3 | 11,210 | 2,070 | 3,480 | |
| Manni (*Symphonia globulifera*) | Green | 0.58 | 11,200 | 1.96 | 11.2 | 5,160 | 1,140 | 940 | AM |
| | 12% | | 16,900 | 2.46 | 16.5 | 8,820 | 1,420 | 1,120 | |
| Marishballi (*Lincania* spp.) | Green | 0.88 | 17,100 | 2.93 | 13.4 | 7,580 | 1,620 | 2,250 | AM |
| | 12% | | 27,700 | 3.34 | 14.2 | 13,390 | 1,750 | 3,570 | |
| Merbau (*Intsia* spp.) | Green | 0.64 | 12,900 | 2.02 | 12.8 | 6,770 | 1,560 | 1,380 | AS |
| | 15% | — | 16,800 | 2.23 | 14.8 | 8,440 | 1,810 | 1,500 | |
| Mersawa (*Anisoptera* spp.) | Green | 0.52 | 8,000 | 1.77 | — | 3,960 | 740 | 880 | AS |
| | 12% | | 13,800 | 2.28 | — | 7,370 | 890 | 1,290 | |
| Mora (*Mora* spp.) | Green | 0.78 | 12,600 | 2.33 | 13.5 | 6,400 | 1,400 | 1,450 | AM |
| | 12% | | 22,100 | 2.96 | 18.5 | 11,840 | 1,900 | 2,300 | |
| Oak (*Quercus* spp.) | Green | 0.76 | — | — | — | — | — | — | AM |
| | 12% | | 23,000 | 3.02 | 16.5 | — | — | 2,500 | |
| Obeche (*Triplochiton scleroxylon*) | Green | 0.3 | 5,100 | 0.72 | 6.2 | 2,570 | 660 | 420 | AF |
| | 12% | | 7,400 | 0.86 | 6.9 | 3,930 | 990 | 430 | |

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

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George E. Derrick, P.E.
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R.S. Murali, M.S.

17 March 2009

Ryder Property, LLC
41 East 60th Street
New York, New York 10022
Attn: Mr. Ted Martel

**Re: Addendum to Geotechnical Engineering Study Report**
**Soho Beach House – Proposed Beach Walkway**
**4385 Collins Avenue, Miami Beach, Florida**
**Langan Project No. 6119303**

Dear Mr. Martel:

This letter-report is an addendum to our 2 November 2007 Confirmatory Geotechnical Engineering Study report prepared for the Soho Beach House development. This addendum is being prepared as requested by Mr. James Lloyd to address any geotechnical issues related to the proposed beach walkway structure.

**Background Information**

Langan Engineering and Environmental Services, Inc. has previously performed a subsurface investigation at the subject site. The results of our subsurface investigation are documented in our report of Preliminary Geotechnical Engineering Study dated 19 May 2006, and our report of Confirmatory Geotechnical Engineering Study dated 2 November 2007.

All elevations referenced in this letter-report are in feet (ft) and refer to the National Geodetic Vertical Datum (NGVD) of 1929.

Our previous subsurface investigation indicates the subject site is generally underlain by a surficial layer of fill (Stratum 1) generally present in the first 2 feet below the existing grade (approximately at el +8), underlain by a 21-fete to 32-feet thick stratum of generally medium dense sands with shell fragments (Stratum 2), extending to an elevation of about el -23 to el -25. Beneath, interbedded stratums of limestone, cemented sand, and sand are present extending throughout the maximum boring depth of 80 feet.

Groundwater was typically encountered at an elevation of about el +2. Groundwater levels are expected to fluctuate with tides between el 0 and el +3. Higher groundwater levels are expected during heavy rainfall or storm conditions.

**Proposed Construction**
From our telephone conversations with Mr. Mustafa Cankat, P.E. of Cankat Essman, Inc., it is our understanding that a proposed beach walkway structure is to be constructed connecting the subject property and the beach to the east. The walkway structure is expected to be approximately 3 to 5 feet above the existing grade. Additionally, small retaining walls, approximately 2 feet high, will be required.

Because the proposed construction will be located seaward (east) of the Erosion Control Line (ECL), Florida Department of Environmental Protection (FDEP) coastal construction guidelines require the beach walkway structure and retaining walls be constructed entirely of timber.

Based on discussions with Mr. Cankat, preliminary considerations have been given to supporting the proposed walkway structures and retaining walls directly on timber piles or posts installed extending below the scour depth elevation.

**Foundation Evaluation and Recommendations**
Based on the subsurface conditions encountered during our subsurface investigation of the site, the proposed beach walkway structure and associated retaining walls could be adequately supported by timber piles or posts installed within the medium dense sands and shells of Stratum 2 and extending below the anticipated scour depth.

It is our understanding that a site-specific coastal analysis/erosion profile has not been conducted for this project. However, the FDEP published 100-year storm design grade (i.e., predicted eroded profile or scour depth) in the vicinity of the Soho Beach House site is el +3.2 ft, NGVD.

We recommend the proposed beach walkway structures be supported on driven timber piles. Driven timber piles can be used to support the proposed structures and will develop their load carrying capacity from a combination of skin friction and end bearing in the generally medium dense sands of Stratum 2. To ensure continued soil support in the event of storm surge and erosion, piles should be driven extending a minimum of 8 feet below the anticipated eroded profile elevation (i.e. minimum pile tip elevation of el -5 ft, NGVD). Timber piles are typically installed using impact hammers (drop, diesel, hydraulic, air, etc) to pound or drive the pile into the soil. The driving process displaces the soil laterally as the pile is being driven, typically densifying the surrounding soil, allowing the pile to develop frictional resistance, end bearing resistance and lateral resistance. Because the soils are displaced laterally during driving, the pile installation process produces minimal amount of spoils. The proposed walkway structure could be designed so that the walking platform is supported directly by the pilings without the need of pile caps or column supports.

Timber "post-type" foundations could also be used to support the proposed structures. However, their installation would likely involve placement of the timber posts into pre-drilled holes to a pre-determined depth (i.e., el -5), and therefore, the load carrying capacity of post-type foundations will be significantly less than similar diameter driven timber piles. Pre-drilling will significantly reduce the development of skin friction resistance and lateral resistance along

the embedded length of the post. Other disadvantages of post-type foundations for the proposed application include: 1) increased likelihood of disturbing protected coastal vegetation, 2) production of spoils that would need to be mitigated on site to comply with FDEP requirements, and 3) constructability complications resulting from difficulties in maintaining the pre-drilled holes open below the groundwater level. Therefore, the use of post-type foundations is not recommended for support of the proposed walkway structure.

Based on the subsurface conditions revealed by our previous investigation of the site and our understanding of the proposed construction, we recommend the proposed beach walkway structure be supported on ten (10) inch diameter timber piles. The following pile design criteria should be used:

**TIMBER PILE FOUNDATION RECOMMENDATIONS**
**Soho Beach House – Proposed Beach Walkway**

| | |
|---|---|
| Timber Pile Butt Diameter | Ten (10) inches |
| Allowable Compressive Capacity | 10 tons |
| Allowable Tension Capacity | 4 tons |
| Allowable Lateral Capacity | 2 tons |
| Minimum Required Tip Elevation | el -5 ft, NGVD |
| Minimum Pile Spacing | 2.5 feet center-to center |

Timber piling shall be Southern Pine with a minimum butt diameter of 10 inches and a minimum length of 20 feet. All piling shall be pressure treated in accordance with the American Wood Preservers Association (AWPA) specification C3. Pile cut offs, if any, shall be treated in accordance with AWPA specification M4. Preservative treatment shall consist of a minimum of 2.5 lbs/ft$^3$ of ACQ (Alkaline Copper Quaternary).

Piles shall be driven to a depth that satisfies the minimum stated required tip elevation and the pile driving formula in Section 1822.2 of the Florida Building Code (2004 Edition). Piles shall be driven with impact (i.e., gravity-drop, single acting or double acting) hammers. Installation of piles by jetting shall not be permitted. Installation of piles through pre-drilled holes shall not be permitted without the approval of Langan.

Timber piles shall be driven using a protective driving cap or ring to prevent brooming or splitting of the pile butt. If necessary, pile tips should be fitted with metal shoes to protect the pile during driving.

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Prior to mobilization, the pile contractor shall provide Langan and the structural engineer with a list of the pile installation equipment, including proposed driving hammer specifications (i.e., rated energy, hammer weight, drop height, etc.), installation sequence, etc.

Pile installation shall be performed in the presence of one of our geotechnical engineers who shall log and document the installation of each pile.

For the design of retaining walls, the moist unit weight of the native sand material is expected to be approximately 115 lbs/ft$^3$. We recommend retaining walls be designed based on a drained angle of internal friction of 34 degrees and an "at-rest" earth pressure coefficient (Ko) of 0.4.

If you have any questions regarding the information contained in this addendum, please contact us at (786)264-7200.

Sincerely,

**Langan Engineering and Environmental Services, Inc.**

3/17/2009

Rafael M. Pina, P.E.
Project Manager
Florida Registration No. 50771

cc: Mr. James Lloyd
Mr. T.S. Yong / Alan Shulman and Associates
Mr. Mustafa Cankat, P.E. / Cankat Essman, Inc.



9/1/2010

LANGAN

# CONFIRMATORY GEOTECHNICAL ENGINEERING STUDY

## SOHO BEACH HOUSE
## 4385 Collins Avenue
## Miami Beach, Florida

**Prepared For:**

***Ryder Property, LLC.***
***41 East 60th Street***
***New York, NY 10022***
***Attn: Mr. Ted Martell***

**Prepared By:**

***LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC.***
***15150 NW 79th Court, Suite 200***
***Miami Lakes, Florida 33016***

**Vincent J. Elizarde, P.E.**
**Assistant Project Manager**

11/2/07
**Rafael M. Pina, P.E.**
**Project Manager**
**Florida Registration No. 50771**

**2 November 2007**
**66119303**
**FL Certificate of Authorization No. 6601**

9/11/2010

CNB

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# TABLE OF CONTENTS

## INTRODUCTION

This report presents the results of our Confirmatory Geotechnical Engineering Study performed for the proposed Soho Beach House development at 4385 Collins Avenue in Miami Beach, Florida. As a follow up to our Preliminary Geotechnical Engineering Study dated 19 May 2006, the purpose of this study was to obtain confirmatory subsurface information, re-evaluate, and confirm our foundation support and site preparation recommendations. This report presents the results of our confirmatory subsurface investigation, our evaluations, and our recommendations and design criteria for support of the proposed structure. Our services have been performed in accordance with the confirmatory geotechnical study portion of our proposal dated 20 September 2007 and revised 10 October 2007.

Our understanding of the existing conditions is based on observations during our subsurface investigations and the information provided on the "Boundary and Topographic Survey" plan prepared by Leiter, Perez & Associates, Inc., with the latest revision date of 13 February 2006. Information regarding the proposed development was obtained from the 90% construction documents, dated 20 September 2007, and prepared by Allan T. Schulman, P.A. (ATS, the project architect). Structural information was obtained from the structural drawings, part of the 90% construction documents, prepared by Douglas Wood and Associates, Inc. (DWA, the project structural engineer).

All elevations given in this report are in feet and refer to the National Geodetic Vertical Datum (NGVD) of 1929.

## EXISTING SITE CONDITIONS

The project site is a rectangular shaped lot bordered by Collins Avenue to the west, a 6-story hotel to the south, the beach, a wood boardwalk, and the Atlantic Ocean to the east, and the Fontainebleau III hotel to the north. The site is traversed across the center (north-south) by the Coastal Construction Control Line (CCCL). A site location map and aerial photograph of the site are shown on Figure 1.

The project site is presently occupied by the existing 7-story building (formerly known as the Sovereign Hotel) and a brick paver driveway on the western portion of the site. Structures including a swimming pool, deck, and 1-story utility building (housing restrooms, pool equipment, etc.) on the central and eastern portion of the site have been demolished as part of the proposed development. Based on the information provided on the boundary and topographic survey plan, existing exterior site grades range from el + 6.6 feet to el + 7.6 feet, NGVD.

Information provided to us by DWA indicates the existing 7-story building foundation system consists of 10-inch square and 12-inch square driven concrete piles. The 10-inch and 12-inchs square driven piles have a reported design load capacity of 17-tons and 25-tons, respectively.

At the time of this confirmatory investigation, interior demolition work on the existing building structure was underway.

## PROPOSED CONSTRUCTION

Based on the information provided and our review of the 90% construction documents, the proposed development will consist of a new 16-story building and 2-story podium addition along the northern property line, extending from the rear of the existing 7-story building to approximately 30 feet west of the existing bulkhead line. The proposed structure will have a ground floor and second level footprint of approximately 100 feet (east-west) by 40 feet (north-south). The ground floor will consist of bathroom areas, storage, and pool equipment rooms. The second level will include a swimming pool and entertainment deck. The remaining levels will consist mainly of new hotel rooms and a rooftop spa. The 90% construction documents indicate the proposed 16-story building to be supported upon a combination of 16-inch, 150-ton and 14-inch, 35-ton augered cast-in-place (ACIP) piles. The ground level finish floor elevation (FFE) will be at el +9.09 feet, NGVD.

As part of the proposed project, the existing 7-story building will be renovated and upgraded. In order to accommodate the proposed upgrade, additional capacity from the existing foundations is required and/or supplemental foundations would be necessary. In a previous follow-up report dated 6 October 2006, we reported that our analysis of the existing pile foundations indicated the capacities of the existing 10-inch and 12-inch concrete driven piles could be increased to capacities on the order of 30–tons and 40-tons, respectively; assuming the existing piles are structurally sound and are bearing into the underlying cemented sand stratum (Stratum 3). The increased capacities would need to be confirmed by load testing. The use of 14-inch, 35-ton ACIP piles were recommended to provide supplemental foundation support if necessary. The 90% construction documents indicate both the 14-inch, 35-ton and 16-inch, 150-ton ACIP piles are to be used for additional foundation support inside the existing 7-story building.

## CONFIRMATORY SUBSURFACE INVESTIGATION

### Field Investigation

Our confirmatory subsurface investigation was performed on 23 to 24 October 2007 and our preliminary subsurface investigation was performed on 28 February 2006. At the time of the preliminary investigation, the area of the proposed building addition footprint was not accessible. Therefore, the preliminary boring was performed at the front, west side, driveway of the existing 7-story building, which was the only area of the property accessible to standard drilling equipment. Two borings were performed as part of the confirmatory subsurface investigation within the proposed 16-story building footprint (east side, rear, of the existing 7-story building)

The purpose of the field investigation was to: (1) obtain confirmatory site-specific subsurface information, (2) obtain soil samples, and (3) further define the engineering characteristics of the subsurface materials. The subsurface investigation was performed by a specialty-drilling subcontractor under the full-time observation of a field engineer from our office under the direct supervision of our project Professional Engineer. The data obtained from the preliminary and confirmatory subsurface investigations was used to develop a general understanding of the subsurface conditions in the project area.

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**Borings**

A total of two borings, designated as B-2 and B-3, were drilled during our confirmatory subsurface investigation to depths of 75-feet and 80-feet, respectively, at locations laid out by an engineer from our office. Boring B-1 was performed as part of our preliminary geotechnical engineering study. The approximate boring locations are shown on Figure 2 and the individual boring logs are enclosed in Appendix A. The ground surface elevation at each boring location is approximate and was inferred from the ground surface spot elevations noted on the boundary and topographic survey plan.

The borings were advanced using rotary drilling techniques and stabilized with drilling mud and casing. Standard Penetration Tests (SPT), with split spoon sampling, were performed continuously from the ground surface to a depth of 10-feet, where unobstructed, and at 5-foot intervals thereafter. Additional samples were taken at our field engineer's discretion.

## SUBSURFACE CONDITIONS

The subsurface conditions at the project site are consistent with the general geology of the project area and the conditions found during our preliminary subsurface investigation. Based on the subsurface information obtained during our preliminary and confirmatory subsurface investigations, the generalized subsurface conditions consist of the following strata:

| Stratum Number | Generalized Stratum Description |
|---|---|
| 1 | Fill |
| 2 | Sand and Shell |
| 3 | Cemented Sand |
| 4 | Limestone and Sand |
| 5 | Sand |
| 6 | Limestone |

The following sections give detailed descriptions of the above listed individual strata, based on all of the borings performed to date A generalized subsurface profile is shown on Figure 3.

### Stratum 1 - Fill

A fill layer was encountered at the existing ground surface and extended to depths of 1.5-feet and 2-feet with an unidentified concrete structure located in the upper 10-feet of boring B-3. The encountered fill layer consisted of sand and limerock fragments with intermittent shell and brick/concrete fragments. The average N-value of the fill layer was 12 blows/foot (bl/ft). Considering the ongoing subgrade structure demolition (existing pools, support structures, etc) the fill is expected to be heavily reworked and therefore, in a different condition than encountered during the subsurface investigations.

### Stratum 2 - Sand and Shell

A 21-foot to 32-foot thick stratum of gray fine to medium sand, with varying proportions of shell was encountered below the surficial fill stratum. The top of the sand and shell stratum was encountered between elevations of about el +6 feet and el -2 feet, NGVD. This stratum was found to be typically loose to dense with N-values ranging from 7 to 37 bl/ft (average N-value of about 18 bl/ft).

**Stratum 3 - Cemented Sand**
Underlying the sand and shell was a stratum of well cemented to hard cemented sand. This stratum was generally encountered between elevations of about el -23 feet and el -25 feet, NGVD to about el -40 feet, NGVD. This stratum was generally found to be medium dense to very dense with N-values ranging from 20 bl/ft to over 100 bl/ft (average N-value of about 84 bl/ft). Sampler refusal occurred at one test depth location in this stratum during our investigation.

**Stratum 4 –Limestone and Sand**
A layer of sand and limestone was encountered below Stratum 3. This stratum was observed to consist mainly of sand and limestone. A pocket of fine sand was observed in boring B3. The limestone and sand layer was found to be loose to medium dense with N-values ranging from 5 bl/ft to 30 bl/ft (average N-value of about 14 bl/ft). This stratum was generally encountered between approximate el -40 feet to el -51 feet and el -57 feet, NGVD and was found to range in thickness from 3-feet to 13-feet.

**Stratum 5 - Sand**
Gray fine sand with varying amounts of limestone, silt, and shell was encountered below Stratum 4. The sand layer was observed to be medium dense to dense with N-values ranging from 13 bl/ft to 35 bl/ft (average N-value of about 23 bl/ft). The top of this stratum was generally encountered at approximate el -51 feet to el -57 feet, NGVD and was found to range in thickness from 3-feet to 13-feet.

**Stratum 6 - Limestone**
Limestone was observed below Stratum 5 to the extent of the boring. This stratum was observed to consist mainly of limestone with intermixed sandstone and trace amounts of sand and silt. The N-values in this stratum ranged from 11 bl/ft to 23 bl/ft (average N-value of about 16 bl/ft).

**Groundwater**
Groundwater levels were noted when they were first encountered or after the completion of the boring. The groundwater elevation was observed to be approximately 6 feet to 7 feet below existing grade at a corresponding elevation of about el +2 feet, NGVD. Groundwater levels will fluctuate with the tides and the nearby Atlantic Ocean to the east and with the water level in Indian Creek to the west. We expect the groundwater to typically range between about el 0 feet and el +3 feet, NGVD.

The Flood Insurance Rate Maps (FIRM) number 12025C0182 J and 12025C0184 J (panels 182 and 184), effective 2 March 1994, indicate the project site is located within Zone AE, which is defined as an area of special flood hazard inundated by a 100-year flood (i.e., base flood elevation of el +7 ft, NGVD) and Zone X, which is defined as an area of 1) 500-year flood, 2) 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, or 3) protected by levees from the 100-year flood.

## FOUNDATION EVALUATION AND RECOMMENDATIONS

Based upon the structural construction documents by DWA, the proposed 7-story renovation, 16-story building, and 2-story podium addition will be supported on a combination of 16-inch and 14-inch diameter ACIP piles. The 16-inch ACIP piles will primarily be used for the 16-story building and 2-story podium addition, and for three isolated pile caps within the 7-story building renovation. The 14-inch ACIP piles will primarily be used within the 7-story building renovation and below the proposed exterior pool. All ACIP piles installed within the existing building structure for the 7-story renovation will require low headroom installation equipment and procedures.

### 16-Story Building and 2-Story Podium Addition

Based upon the results of our confirmatory subsurface investigation, the foundation recommendations in our preliminary study of installing 16-inch diameter, 150-ton design compressive capacity ACIP piles embedded into Stratum 3 to support the proposed 16-story building and 2-story podium addition are adequate. Where lower capacity piles are needed, we recommend the use of a 14-inch diameter, 35-ton ACIP pile with less embedment into Stratum 3.

After a review of the additional subsurface data obtained in the confirmatory investigation, our preliminary foundation recommendations can be optimized by reducing the pile foundation embedment length into Stratum 3 and increasing lateral capacity as follows:

- Reduce the embedment length for the 16-inch diameter, 150-ton ACIP piles from 16-feet to 12-feet into Stratum 3.

- Reduce the embedment length for the 14-inch diameter, 35-ton ACIP piles from 5-feet to 4-feet into Stratum 3.

- Increase the lateral capacity of the 16-inch, 150-ton ACIP piles from 3-tons to 6-tons and increase the lateral capacity of the 14-inch, 35-ton ACIP piles from 2.5-tons to 4-tons, based upon a fully fixed head condition.

We anticipate that the settlement of the proposed 16-story building would range from ¾ inch to 1 ¼ inch. Anticipated settlement in the 2-story portion of the building is expected to be less than ¾ inch. These settlement estimates are based on: (1) the subsurface information obtained from the preliminary and confirmatory borings, (2) other data in our files regarding the compressibility of soil and rock in the Miami Beach area, and (3) our experience with similar structures.

Our revised recommendations are summarized in the table on the following page:

| ACIP PILE DESIGN PARAMETER | HIGH CAPACITY 16-INCH-DIAMETER PILES | LOW CAPACITY 14-INCH-DIAMETER PILES |
|---|---|---|
| Compressive Capacity | 150 tons | 35 tons |
| Uplift Capacity | 75 tons | 15 tons |
| Lateral Capacity | 3 tons (free head)<br>6 tons (fixed head)<br>(See note 1 below) | 2.5 tons (free head)<br>4 tons (fixed head)<br>(See note 2 below) |
| Pile Embedment | Minimum 12 feet into Stratum 3 | Minimum 4 feet into Stratum 3 |
| Estimated Pile Tip Elevations | el -35 feet to el -38 feet, NGVD | el -28 feet to el -31 feet, NGVD |
| Minimum Center to Center Pile Spacing | 4.0 feet | 3.5 feet |
| Steel Reinforcement | as specified in the Structural Plans | |
| Recommended Minimum Grout Compressive Strength, at 28 days | 6,000 lbs/in$^2$ | 4,000 lbs/in$^2$ |

(1) The lateral capacity presented above is based upon an approximate 3/8-inch deflection of the pile head under a free or fully fixed pile head condition. The lateral capacity assumes the top of pile to be at approximately el -1 feet, NGVD. The 16-inch diameter ACIP pile subjected to a 6-ton lateral load will have a maximum bending moment of about 650 inch-kips under the fixed head condition. The 16-inch diameter pile subjected to a 3-ton lateral load will have a maximum bending moment of about 250 inch-kips under the free head condition. The location of the maximum moment is at the bottom of the pile cap under the fixed head condition and at a depth of 5.2-feet below the bottom of the pile cap under the free head condition.

(2) The lateral capacity presented above is based upon an approximate 3/8-inch deflection of the pile head under a free or fully fixed pile head condition. The lateral capacity assumes the top of pile to be at approximately el +3 feet, NGVD. The 14-inch diameter pile subjected to a 2.5-ton lateral load will have a maximum bending moment of about 350 inch-kips under the fixed head condition. The 14-inch diameter pile subjected to a 2.5-ton lateral load will have a maximum bending moment of about 150 inch-kips under the free head condition. The location of the maximum moment is at the bottom of the pile cap under the fixed head condition and at a depth of 4.5 feet below the bottom of the pile cap under the free head condition.

**7-Story Building Renovation**

The existing 7-story building is reportedly supported by 10-inch square and 12-inch square driven concrete piles with a design compressive capacity of 17-tons and 25-tons, respectively. Based upon the assumption that the piles are structurally sound and were driven to depths with minimal embedment into Stratum 3, we estimate the 10-inch and 12-inch square driven concrete piles could potentially utilize an increased load capacity that is significantly higher than the respective current building code maximum design capacities.

Our analyses indicates that the 10-inch square driven concrete piles could have a maximum design compressive capacity on the order of 30-tons, and the 12-inch square driven concrete piles could have a maximum design compressive capacity on the order of 40-tons. The maximum allowable uplift capacity of the existing 10-inch and 12-inch square driven concrete piles is estimated at 12-tons and 14-tons, respectively. The maximum allowable lateral capacity of existing 10-inch and 12-inch square driven concrete piles is estimated at 1.5-tons and 2-tons, respectively.

The increased compressive capacity of the existing 10-inch and 12-inch square driven concrete piles would need to be verified by implementing a load test program. It is our understanding that a 4-PC and a single PC will be abandoned as part of the proposed demolition and will be available for load testing. A detailed procedure for the load testing of these foundation elements was prepared by us and submitted on 10 August 2007.

For additional foundation support within the existing building, the 14-inch, 35-ton and 16-inch, 150-ton ACIP piles recommended in the previous section may be used. However, new piles inside the existing building will require the use of low-headroom ACIP pile installation equipment and techniques. Low headroom ACIP piles have been successfully installed throughout South Florida by local pile contractors. Low headroom ACIP piles should only be performed by a specialty contractor with experience in the installation of low headroom piles who understand the difficulties associated with this type of work.

**Ground Floor Slabs**

The ground floor slab is proposed to be at a finished floor elevation el +9.09 feet, NGVD, which is above the 100-year flood elevation for the project site. Since the ground floor of the proposed building would not be considered habitable, the ground floor slab could be supported upon a properly compacted subgrade.

**Miscellaneous Structures**

The project may involve the construction of miscellaneous structures (i.e. decks, sidewalks, tiki huts, cabanas, etc). As discussed in the miscellaneous structures portion of our preliminary study, it will be possible for some of these structures to be supported directly upon properly prepared subgrade and/or shallow spread footings. We recommend that these structures be designed utilizing a maximum allowable soil bearing pressure of 2,000 pounds per square foot.

**Engineered Fill**

Fill material will be required to backfill around pile caps, establish the required finished grade, support slabs on grade, and other site improvements. Fill material should be compacted to field dry densities not less than 95 percent of the material's maximum dry density as determined by the Modified Compaction Test (ASTM D-1557). The fill and backfill material must be placed under qualified engineering inspection and each lift must be tested to ensure conformance with the project specifications. Fill materials should consist of inorganic granular soils free of deleterious materials and should be pre-approved by our firm. The excavated granular Stratum 1 – Fill and Stratum – 2 Sand and Shell (i.e. after removal of construction debris and deleterious material) are expected to be acceptable for re-use as backfill and fill material.

The engineered fill and backfill material should be placed in loose lifts not thicker than 12-inches, and each lift should be compacted to the compaction criteria mentioned above, or to the project specified density if more stringent. In restricted areas where a small compactor must be used, the lift thickness should be reduced to 6-inches to 9-inches, depending on the compaction equipment selected.

**Utilities**

All utilities should be installed per the requirements of the local governing Water and Sewer Authority, and the Civil Engineering drawings and specifications. When backfilling over the utility lines, the fill should be placed in lifts and compacted to at least 95 percent of the material's maximum dry density as determined by the Modified Proctor Compaction Test (ASTM D 1557). The loose lift thickness is expected to vary between 6 inches to 12 inches, depending on the compaction equipment used by the Contractor.

**Construction Excavation and Dewatering**

The proposed bottom of some column and shear wall pile caps as well as the proposed swimming pool and other appurtenant structures will likely extend below the natural groundwater level. For excavations extending no more than 3-feet below the natural groundwater level, dewatering may be accomplished by means of sump pumps. For deeper excavations, well points will be required to satisfactorily dewater the excavations. Selection of the dewatering system to be used should be determined by the general contractor, as this is a means and methods aspect of construction. Structures at the adjacent property to the north should be evaluated to determine if they will be adversely affected by the dewatering operations. Prior to the onset of excavation and dewatering, any pending environmental issues should be cleared by the respective governing agencies.

The excavation required to facilitate construction of deep foundation elements may require the use of a perimeter sheeting/shoring system (i.e. system of steel sheet piles). The system to be used should be determined by the general contractor, as this is a means and methods aspect of construction.

## TEST PILES AND PILE LOAD TESTS

Test piles and pile load tests are necessary to confirm capacities in excess of 40-tons. These pile load tests are required by the Florida Building Code and will (1) better define the pile lengths, (2) better define the drilling and installation requirements, and (3) confirm the design criteria. A series of indicator piles should be installed at production pile locations (if possible) prior to installing the test piles. We recommend that a test pile be installed in the tower area, and load tested for compression, tension, and lateral loads to at least twice the design capacity. Strain gauges should be installed at different depths within the test piles to measure the load distribution within the pile shaft.

The estimated increased capacities of existing 10-inch square and 12-inch square driven concrete piles must be confirmed prior to finalizing the foundation design. It is our understanding the anticipated building demolition will result in pile groups being abandoned and therefore, field tests can be performed on existing piles to confirm their capacity without compromising the foundation elements that are to remain. The capacities of the existing piles should be confirmed by performing load tests on the 4-PC (10-inch square pile) at column 38, and on the single 10-inch square pile supported PC on the northeast corner of the existing building. Specific load testing procedures are detailed in our previously prepared and transmitted letter "Existing Pile Foundation Load Test Procedures" dated 10 August 2007.

Exposed piles should be visually inspected by us and the structural engineer prior to testing. If the piles show indications of wear, corrosion or other distress, additional testing may be required to evaluate the integrity of the piles. We also recommend that sufficient time be allowed in the construction schedule after the load testing program is completed so that we can evaluate the test data and so that the structural engineer can finalize the foundation plans.

## TECHNICAL SPECIFICATIONS AND ENGINEERING INSPECTION

A set of technical specifications for the test pile installation, load tests and production pile installation will be required. Additionally, site preparation specifications will be required and should be prepared by our firm to ensure that proper requirements and criteria are included in the construction documents.

During construction, it is important that the work be performed under our engineering inspection to ensure that proper procedures and recommendations are followed. The site preparation work should also be inspected. The test piles and load tests should be inspected, monitored, and evaluated. The production piles should be installed under our full-time engineering inspection to confirm that the piles are installed properly and to ensure satisfactory performance of the piles. Field observations and prompt engineering decisions must be made during the installation of the production piles to determine the required length of the rock socket in case soft rock is encountered. All engineered fill should be inspected and tested. We will perform all foundation and earthwork related engineering inspections and will prepare reports for the various tasks for your records and submission to the appropriate governing agencies.

## LIMITATIONS

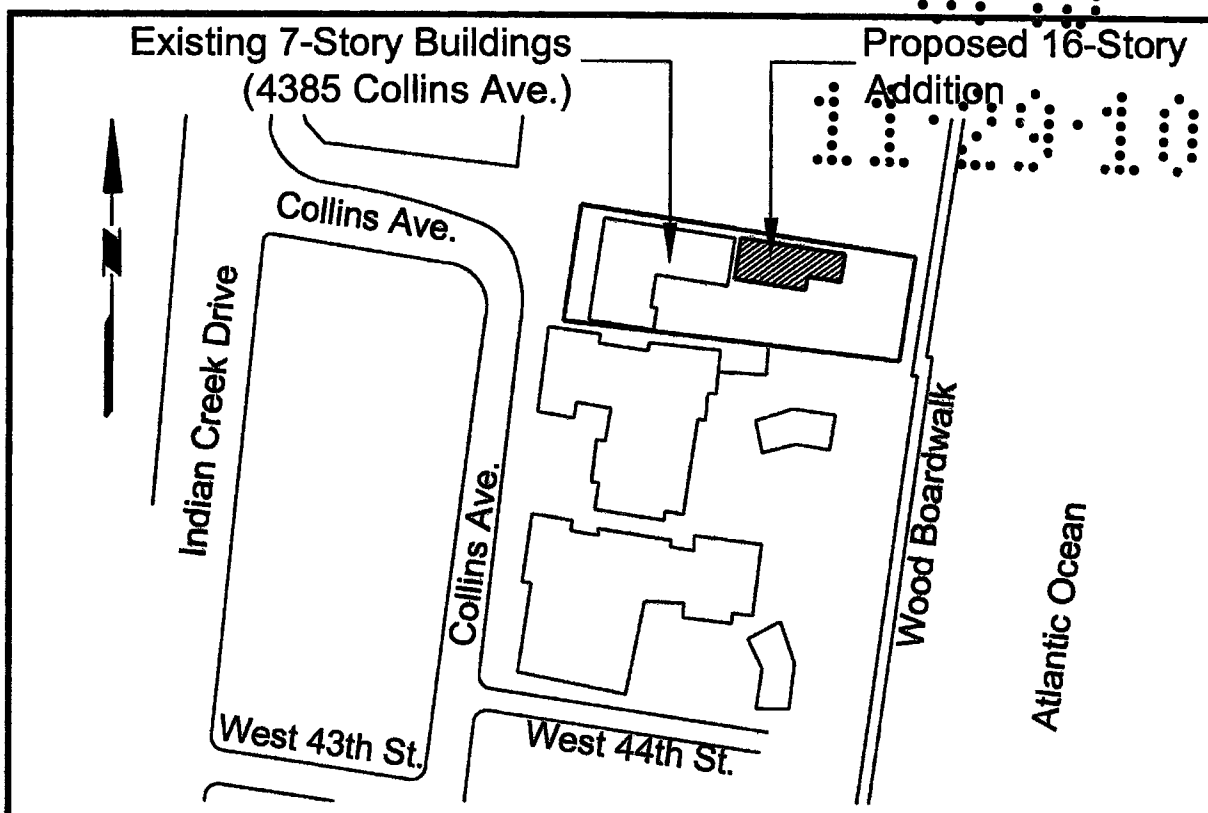
The conclusions and recommendations provided in this report are based on subsurface conditions inferred from a limited number of borings, as well as architectural and structural information provided by ATS and DWA, respectively. Recommendations provided are contingent upon one another and no recommendation should be followed independent of the others.

This report has been prepared to assist the owner, architect, and structural engineer in the design process and is only applicable to the envisioned project discussed herein. Any proposed changes in structures or their locations should be brought to our attention so that we can determine whether such changes affect our recommendations. Langan cannot assume responsibility for use of this report for any areas beyond the limits of this study or for any projects not specifically discussed herein.

Information on subsurface strata and groundwater levels shown on the boring logs represent conditions encountered only at locations indicated and at the time of investigation. If different conditions are encountered during construction, they should immediately be brought to our attention for evaluation as they may affect our recommendations.

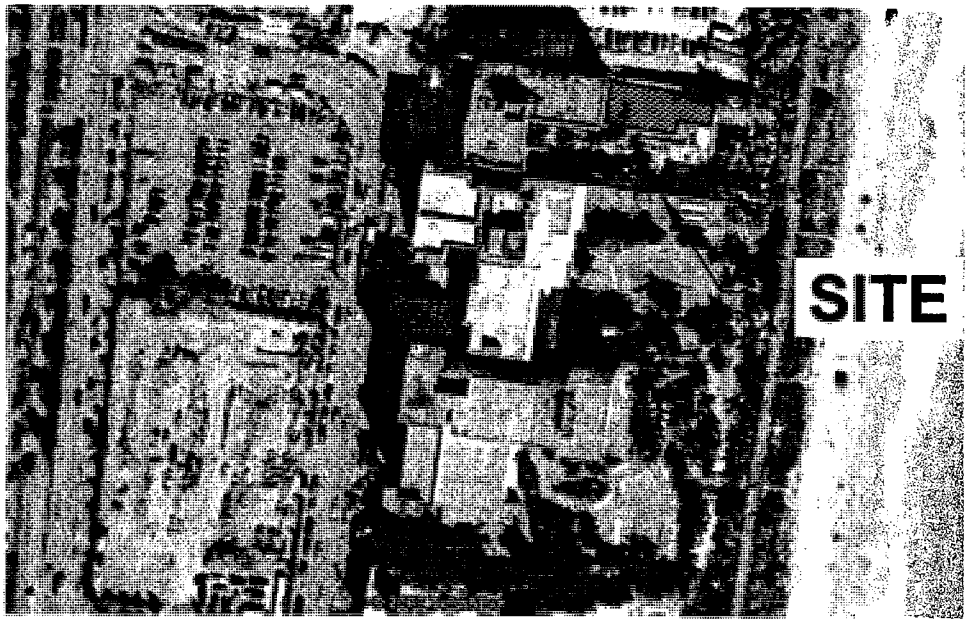
Environmental issues (such as potentially contaminated soil and groundwater) are outside the scope of this study and should be addressed in a separate study.

Florida Certificate of Authorization No. 6601




## LOCATION MAP

SCALE: 1" = 150'




## SITE AERIAL

SCALE: 1" = 150'

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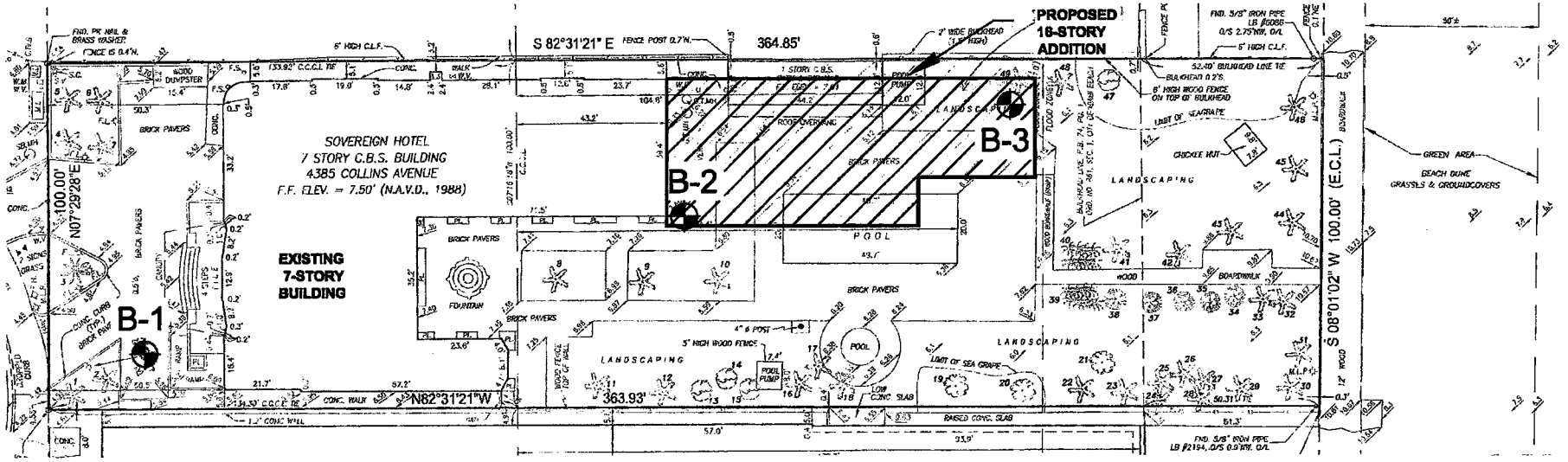
Project
# SITE LOCATION MAP & AERIAL
SOHO BEACH HOUSE
4385 Collins Ave.
MIAMI BEACH FLORIDA

| Project No. | Date | Scale | Fig. No. |
|---|---|---|---|
| 6119303 | OCT 2007 | AS SHOWN | 1 |




**NOTES:**

1. BASE PLAN SHOWN, REPRODUCED FROM SURVEY BY LEITER PEREZ AND ASSOCIATES INC., DRAWING NUMBER B - 2131 DATED 30 NOVEMBER 2005.

**LEGEND:**

B-1 APPROXIMATE BORING LOCATION AND IDENTIFICATION NUMBER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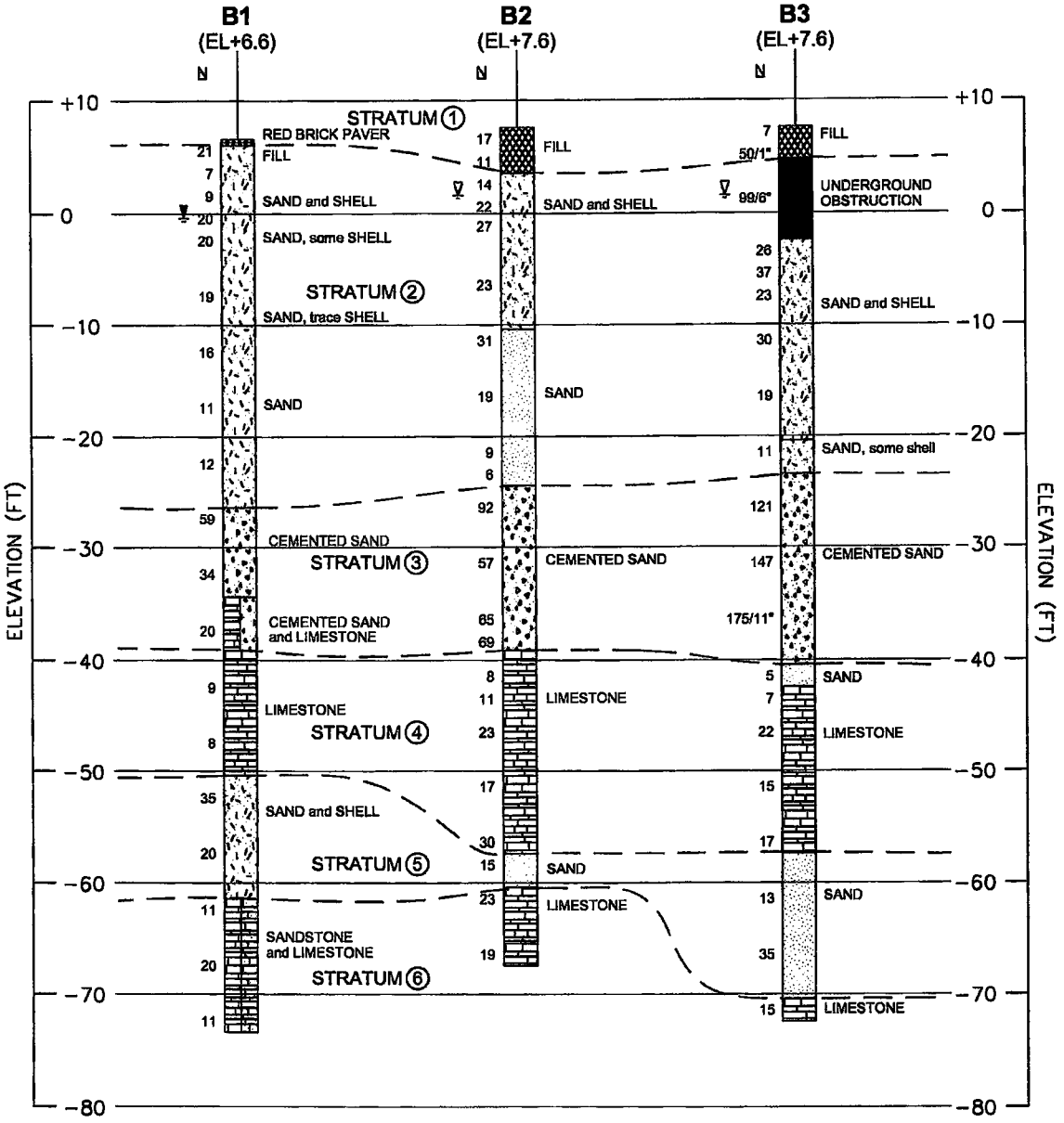
Project
LOCATION PLAN
SOHO BEACH HOUSE
4385 Collins Ave.
MIAMI BEACH FLORIDA

| Project No. | Date | Scale | Fig. No. |
|---|---|---|---|
| 6119303 | OCT 2007 | 1" = 30' | 2 |




# GENERALIZED SUBSURFACE PROFILE

**SCALE: VERT 1" = 10'**
**HORZ N.T.S.**

**NOTES:**

1. THE BORING PROFILES SHOW ONLY GENERALIZED SUBSURFACE CONDITIONS AT THE RESPECTIVE BORING LOCATIONS. VARIATIONS IN SUBSURFACE CONDITIONS SHOULD BE EXPECTED BETWEEN BORINGS.
2. APPROXIMATE BORING LOCATIONS SHOWN ON FIG2.
3. SEE BORING LOGS FOR DETAILED DESCRIPTIONS OF CONDITIONS ENCOUNTERED (APPENDIX A).
4. ELEVATIONS SHOWN REFER TO NATIONAL GEODEDIC VERTICAL DATUM (NGVD) OF 1929.

**LEGEND:**

(EL+7.6) APPROXIMATE SURFACE ELEVATION (NGVD) AT TIME OF INVESTIGATION

N STANDARD PENETRATION RESISTANCE N-VALUE (BLOWS/FT)

GROUNDWATER ELEVATION WHEN FIRST ENCOUNTERED IN BORING

GROUNDWATER LEVEL AS ENCOUNTERED AT COMPLETION OF BORING

APPROXIMATE GENERALIZED STRATA



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Project
**GENERALIZED SUBSURFACE PROFILE**
SOHO BEACH HOUSE
4385 Collins Ave.
MIAMI BEACH FLORIDA

| Project No. | Date | Scale | Fig. No. |
|---|---|---|---|
| 6119303 | OCT 2007 | AS SHOWN | 3 |

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# APPENDIX A

# BORING LOGS

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LOG OF BORING B1

SHEET 1 OF 2

| | |
|---|---|
| PROJECT: Soho Beach House | PROJECT NO.: 6119301 |
| LOCATION: 4385 Collins Ave., Miami Beach, FL | ELEVATION AND DATUM: +6.6 ft, NGVD |
| DRILLING EQUIPMENT: Mobile B-57 Drill Rig | DATE STARTED: 2/28/06 / DATE FINISHED: 2/28/06 / COMPLETION DEPTH: 80 ft. |
| SIZE AND TYPE OF BIT: 3 7/8" 2 7/8" O.D. Tricone Roller Bit | NUMBER OF SAMPLES: DIST. 19 / UNDIST. — / CORE — |
| CASING DIAMETER (in): 3 / CASING DEPTH(ft): 78 | WATER LEVEL (ft.): FIRST ▽ — / COMPL. ▼ 7 / 24 HR. ▼ — |
| SAMPLER: 2" O.D. Split Spoon Sampler | DRILLING FOREMAN: Michael Orlando |
| SAMPLER HAMMER / WEIGHT(lbs): 140 / DROP(in): 30 | INSPECTING ENGINEER: Rob Condon |

| ELEV. (ft) | SAMPLE DESCRIPTION | SYMBOL LOG | DEPTH SCALE | NUMBER | TYPE | RECOV. (in) | PENETR. RESIST Bl./6in | N-VALUE BLOWS PER FT | REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.) |
|---|---|---|---|---|---|---|---|---|---|
| +6.6 | RED BRICK PAVER | | | S1 | SS | 12 | 14 13 8 7 | 21 | Drilled to PAVER with 3 7/8" Tri-Cone Roller Bit |
| | Gray SAND and LIMEROCK (FILL) | | | S2 | SS | 8 | 4 4 3 4 | 7 | |
| | Tan fine to medium SAND and SHELL | | 5 | S3 | SS | 10 | 3 4 5 10 | 9 | |
| | | | | S4 | SS | 14 | 10 11 9 8 | 20 | |
| -1.4 | Gray fine to medium SAND, some SHELL | | | S5 | SS | 20 | 4 8 12 12 | 20 | Installed casing to 8 ft |
| | | | 10 | | | | | | Advanced casing from 10 ft to 13 ft<br>Easy advance from 10 ft to 13 ft |
| | Gray fine to medium SAND, trace SHELL | | | S6 | SS | 16 | 7 9 10 8 | 19 | |
| | | | 15 | | | | | | Advanced casing from 15 ft to 18 ft<br>Easy advance from 15 ft to 18 ft |
| | Gray fine to medium SAND, trace SHELL | | | S7 | SS | 14 | 2 7 9 10 | 16 | |
| | | | 20 | | | | | | Advanced casing from 20 ft to 23 ft<br>Easy to moderate advance from 20 ft to 23 ft |
| | Gray fine to medium SAND | | | S8 | SS | 14 | 3 5 6 6 | 11 | |
| | | | 25 | | | | | | Advanced casing from 25 ft to 28 ft<br>Easy to moderate advance from 25 ft to 28 ft (35 sec) |
| | Gray fine to medium SAND | | | S9 | SS | 16 | 8 6 6 5 | 12 | |
| | | | 30 | | | | | | Advanced casing from 30 ft to 33 ft<br>Easy advance from 30 ft to 33 ft |
| -26.4 | Gray CEMENTED SAND | | | S10 | SS | 18 | 5 24 35 31 | 59 | |
| | | | 35 | | | | | | Advanced casing from 35 ft to 38 ft<br>Moderate advance from 35 ft to 38 ft (90 sec) |
| | Gray CEMENTED SAND, trace sand | | | S11 | SS | 16 | 21 16 18 15 | 34 | |
| | | | 40 | | | | | | Advanced casing from 40 ft to 43 ft<br>Easy to moderate advance from 40 ft to 43 ft (50 sec) |
| -34.4 | | | | | | | | | |

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LOG OF BORING B1

SHEET 2 OF 2

| PROJECT | PROJECT NO. |
|---|---|
| Soho Beach House | 6119301 |
| LOCATION | ELEVATION AND DATUM |
| 4385 Collins Ave., Miami Beach, FL | +6.6 ft, NGVD |

| ELEV. (ft) | SAMPLE DESCRIPTION | SYMBOL LOG | DEPTH SCALE | SAMPLE DATA: NUMBER | TYPE | RECOV. (in) | PENETR. RESIST BL/6in | N-VALUE BLOWS PER FT | REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.) |
|---|---|---|---|---|---|---|---|---|---|
| | Gray CEMENTED SAND and LIMESTONE | | 45 | S12 | SS | 18 | 9<br>8<br>12<br>10 | 20 | Advanced casing from 45 ft to 48 ft<br>Easy to moderate advance from 45 ft to 48 ft<br>Lost circulation at 46.5 ft |
| -39.2 | | | | | | | | | |
| | Light gray SANDSTONE, LIMESTONE, some sand | | 50 | S13 | SS | | 7<br>4<br>5<br>11 | 9 | Advanced casing from 50 ft to 53 ft<br>Easy advance from 50 ft to 53 ft |
| | Light gray LIMESTONE | | 55 | S14 | SS | 6 | 9<br>4<br>4<br>5 | 8 | Advanced casing from 55 ft to 58 ft<br>Easy to moderate advance from 55 ft to 58 ft<br>Circulation returned at 57 ft |
| -50.4 | Gray fine to medium SAND and SHELL | | | | | | | | |
| | | | 60 | S15 | SS | 1 | 27<br>22<br>13<br>12 | 35 | Advanced casing from 60 ft to 63 ft<br>Easy advance from 60 ft to 63 ft (50 sec) |
| | Light gray fine to medium SAND, some LIMESTONE | | | S16 | SS | 10 | 23<br>11<br>9<br>10 | 20 | |
| | Gray fine to medium SAND and SHELL | | 65 | | | | | | Advanced casing from 65 ft to 68 ft<br>Easy advance from 65 ft to 68 ft (55 sec) |
| -61.4 | Light gray SANDSTONE and LIMESTONE | | | S17 | SS | 6 | 5<br>5<br>6<br>7 | 11 | |
| | | | 70 | | | | | | Advanced casing from 70 ft to 73 ft<br>Easy advance from 70 ft to 73 ft (31 sec) |
| | Light gray SANDSTONE and LIMESTONE | | | S18 | SS | 16 | 18<br>8<br>12<br>8 | 20 | |
| | | | 75 | | | | | | Advanced casing from 75 ft to 78 ft<br>Easy advance from 75 ft to 78 ft (40 sec) |
| | Light gray SANDSTONE and LIMESTONE | | | S19 | SS | 20 | 6<br>6<br>5<br>6 | 11 | |
| -73.4 | Boring terminated @ 80 ft | | 80 | | | | | | |
| | | | 85 | | | | | | |
| | | | 90 | | | | | | |

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LOG OF BORING B2

SHEET 1 OF 2

| | |
|---|---|
| PROJECT: Soho Beach House | PROJECT NO.: 6119301 |
| LOCATION: 4385 Collins Ave., Miami Beach, FL | ELEVATION AND DATUM: +7.6 ft, NGVD |
| DRILLING EQUIPMENT: B-53 Truck mounted Drill Rig | DATE STARTED: 10/24/07 / DATE FINISHED: 10/24/07 / COMPLETION DEPTH: 75 ft. |
| SIZE AND TYPE OF BIT: 3 7/8" 2 7/8" O.D. Tricone Roller Bit | NUMBER OF SAMPLES: DIST. 21 / UNDIST. — / CORE — |
| CASING DIAMETER (in): N/A / CASING DEPTH(ft): N/A | WATER LEVEL (ft.): FIRST ▽ 6 / COMPL. ▼ — / 24 HR. ▼ — |
| SAMPLER: 2" O.D. Split Spoon Sampler | DRILLING FOREMAN: Angel |
| SAMPLER HAMMER / WEIGHT(lbs): 140 / DROP(in): 30 | INSPECTING ENGINEER: Vince Elizarde |

| ELEV. (ft) | SAMPLE DESCRIPTION | SYMBOL LOG | DEPTH SCALE | SAMPLE DATA: NUMBER | TYPE | RECOV. (in) | PENETR. RESIST BL/6in | N-VALUE BLOWS PER FT | REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.) |
|---|---|---|---|---|---|---|---|---|---|
| +7.6 | Tan medium to fine SAND and SHELL (FILL) | | | S1 | SS | 17 | 9 8 9 8 | 17 | |
| | Tan medium to fine SAND and SHELL, some brick/concrete fragments (FILL) | | | S2 | SS | 18 | 4 6 5 5 | 11 | |
| +3.6 | | | 5 | S3 | SS | 19 | 5 6 8 12 | 14 | |
| | Tan medium to fine SAND and SHELL ▽ | | | S4 | SS | 14 | 9 10 12 13 | 22 | |
| | | | | S5 | SS | 13 | 7 13 14 13 | 27 | |
| -1.9 | Gray medium to fine SAND and SHELL | | 10 | | | | | | Drilled from 10 ft to 13 ft<br>Easy drilling from 10 ft to 13 ft |
| -5.4 | Tan medium to fine SAND and SHELL | | | S6 | SS | 12 | 11 11 12 24 | 23 | |
| | | | 15 | | | | | | Drilled from 15 ft to 18 ft<br>Easy drilling from 15 ft to 18 ft |
| -10.4 | Tan to light gray medium to fine SAND, trace shells | | | S7 | SS | 17 | 10 13 18 17 | 31 | |
| | | | 20 | | | | | | Drilled from 20 ft to 23 ft<br>Easy drilling from 20 ft to 23 ft |
| | Light gray medium to fine SAND, trace shells | | | S8 | SS | 16 | 9 10 9 8 | 19 | |
| | | | 25 | | | | | | Drilled from 25 ft to 28 ft<br>Easy drilling from 25 ft to 28 ft |
| | | | | S9 | SS | 13 | 7 5 4 3 | 9 | |
| | Light gray medium to fine SAND, some shells, trace silt, trace cemented sand | | 30 | S10 | SS | 13 | 3 2 4 7 | 8 | |
| -24.4 | Gray CEMENTED SAND, trace fine sand | | | | | | | | Lost circulation |
| | | | | S11 | SS | 22 | 61 37 55 56 | 92 | Installed casing to 33 ft<br>Easy drilling |
| | | | 35 | | | | | | Drilled from 35 ft to 38 ft<br>Hard drilling, no rig chatter from 35 ft to 38 ft |
| | Gray CEMENTED SAND | | | S12 | SS | 20 | 35 33 24 21 | 57 | |
| | | | 40 | | | | | | Advanced casing from 40 ft to 43 ft<br>Hard drilling, light grinding from 40 ft to 43ft |

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LOG OF BORING B2

SHEET 2 OF 2

| PROJECT | PROJECT NO. |
|---|---|
| Soho Beach House | 6119301 |
| LOCATION | ELEVATION AND DATUM |
| 4385 Collins Ave., Miami Beach, FL | +7.6 ft, NGVD |

| ELEV. (ft) | SAMPLE DESCRIPTION | SYMBOL LOG | DEPTH SCALE | SAMPLE DATA: NUMBER | TYPE | RECOV. (in) | PENETR. RESIST BL/6in | N-VALUE BLOWS PER FT | REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.) |
|---|---|---|---|---|---|---|---|---|---|
| | Gray CEMENTED SAND | | 45 | S13 | SS | 18 | 40 36 29 30 | 65 | |
| | Gray CEMENTED SAND, trace fine sand | | | S14 | SS | 16 | 19 34 35 13 | 69 | |
| -39.2 | | | | | | | | | Advanced casing from 43 ft to 48 ft |
| | Light gray fine sandy LIMESTONE, some silt | | | S15 | SS | 14 | 12 5 3 2 | 8 | |
| | Light gray LIMESTONE, some fine sand, trace silt | | 50 | S16 | SS | 11 | 1 4 7 4 | 11 | Advanced casing from 50 ft to 53 ft<br>Easy advance from 50 ft to 53 ft<br>No grinding |
| | Light gray LIMESTONE, trace fine sand, trace silt | | | S17 | SS | 8 | 26 12 11 17 | 23 | |
| | Light gray fine SAND with limestone fragments, some silt | | 55 | | | | | | |
| | | | | S18 | SS | 7 | 20 9 8 8 | 17 | |
| | | | 60 | | | | | | Advanced casing from 60 ft to 63 ft<br>Easy advance from 60 ft to 63 ft<br>Light grinding |
| | Light gray LIMESTONE, some sand, trace silt | | | S19 | SS | 7 | 38 16 14 4 | 30 | |
| -57.4 | | | | | | | | | |
| | Light gray fine SAND, some limestone and sandstone | | 65 | S20 | SS | 16 | 7 9 6 7 | 15 | |
| -60.4 | | | | | | | | | Advanced casing from 65 ft to 68 ft<br>Washed hole to 65 ft<br>Easy advance from 65 ft to 68 ft |
| | Gray SANDSTONE and LIMESTONE, trace fine sand | | | S21 | SS | 6 | 28 12 11 11 | 23 | |
| | | | 70 | | | | | | Advanced casing from 70 ft to 73 ft<br>Moderate advance from 70 ft to 73 ft<br>Light grinding |
| -65.4 | | | | | | | | | |
| | Light gray to white LIMESTONE, trace fine sand, trace silt | | | S22 | SS | 16 | 11 8 11 10 | 19 | |
| -67.4 | Boring terminated @ 75 ft | | 75 | | | | | | Borehole filled with concrete upon completion |
| | | | 80 | | | | | | |
| | | | 85 | | | | | | |
| | | | 90 | | | | | | |

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LOG OF BORING **B3**

SHEET 1 OF 2

| | |
|---|---|
| PROJECT: Soho Beach House | PROJECT NO.: 6119301 |
| LOCATION: 4385 Collins Ave., Miami Beach, FL | ELEVATION AND DATUM: +7.6 ft, NGVD |
| DRILLING EQUIPMENT: B-53 Truck mounted Drill Rig | DATE STARTED: 10/23/07 / DATE FINISHED: 10/23/07 / COMPLETION DEPTH: 80 ft. |
| SIZE AND TYPE OF BIT: 3 7/8" 2 7/8" O.D. Tricone Roller Bit | NUMBER OF SAMPLES: 20 / DIST.: — / UNDIST.: — / CORE: — |
| CASING DIAMETER (in): N/A / CASING DEPTH(ft): N/A | WATER LEVEL (ft.): FIRST ▽ 6 / COMPL. ▼ — / 24 HR. ▼ — |
| SAMPLER: 2" O.D. Split Spoon Sampler | DRILLING FOREMAN: Angel |
| SAMPLER HAMMER / WEIGHT(lbs): 140 / DROP(in): 30 | INSPECTING ENGINEER: Vince Elizarde |

| ELEV. (ft) | SAMPLE DESCRIPTION | SYMBOL LOG | DEPTH SCALE | SAMPLE DATA: NUMBER | TYPE | RECOV. (in) | PENETR. RESIST BL/6in | N-VALUE BLOWS PER FT | REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.) |
|---|---|---|---|---|---|---|---|---|---|
| +7.6 | Dark brown medium to fine SAND, some shell, some silt, trace organics (roots) | | | S1 | SS | 13 | 2 3 4 4 | 7 | |
| | Tan medium to fine SAND and SHELL (FILL) | | | S2 | SS | 3 | 5 50/1" | 50/1" | |
| +4.9 | | | | | | | | | Drilled to 5ft 8in<br>Hard drilling, heavy rig chatter |
| | *Underground obstruction* | | 5 | | | | | | |
| | Gray fine SAND, some medium to fine tan sand, trace concrete fragments ▽ | | | S3 | SS | 4 | 17 69 30/0 | 99/6" | Drilled to 10ft 0in<br>Hard drilling, heavy rig chatter |
| | *Underground obstruction* | | | | | | | | |
| -2.4 | Tan medium to fine SAND and SHELL | | 10 | S4 | SS | 17 | 14 15 11 14 | 26 | |
| | | | | S5 | SS | 21 | 13 19 18 21 | 37 | |
| | | | 15 | S6 | SS | 16 | 10 12 11 10 | 23 | Installed casing to 18 ft<br>Easy advance |
| | Tan and gray medium to fine SAND and SHELL | | | S7 | SS | 18 | 12 15 15 14 | 30 | |
| | | | 20 | | | | | | Drilled from 20 ft to 23 ft<br>Easy drilling from 20 ft to 23 ft |
| | | | | S8 | SS | 19 | 8 10 9 7 | 19 | |
| | | | 25 | | | | | | Drilled from 25 ft to 28 ft<br>Easy drilling from 25 ft to 28 ft |
| -20.4 | Gray medium to fine SAND, some shell, some cemented sand | | | S9 | SS | 16 | 4 7 4 4 | 11 | |
| | | | 30 | | | | | | Drilled from 30 ft to 33 ft<br>Easy drilling from 30 ft to 31 ft<br>Moderate drilling with light rig chatter from 31 ft to 33 ft |
| -23.4 | Gray CEMENTED SAND | | | S10 | SS | 19 | 89 54 67 76 | 121 | |
| | | | 35 | | | | | | Advanced casing from 18 ft to 38 ft<br>Moderate advance with light grinding from 35 ft to 38 ft |
| | | | | S11 | SS | 17 | 22 51 96 69 | 147 | |
| | | | 40 | | | | | | Drilled from 40 ft to 43 ft<br>Moderate advance with no rig chatter from 40 ft to 43 ft |

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LOG OF BORING B3

SHEET 2 OF 2

| PROJECT | PROJECT NO. |
|---|---|
| Soho Beach House | 6119301 |
| LOCATION | ELEVATION AND DATUM |
| 4385 Collins Ave., Miami Beach, FL | +7.6 ft, NGVD |

| ELEV. (ft) | SAMPLE DESCRIPTION | SYMBOL LOG | DEPTH SCALE | SAMPLE DATA: NUMBER | TYPE | RECOV. (in) | PENETR. RESIST BL/6in | N-VALUE BLOWS PER FT | REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.) |
|---|---|---|---|---|---|---|---|---|---|
| | Gray CEMENTED SAND | | 45 | S12 | SS | 11 | 62<br>75<br>100/5" | 175/11" | Advanced casing from 45 ft to 48 ft<br>Moderate drilling with light rig chatter from 45 ft to 48 ft |
| -40.4 | | | | | | | | | |
| | Light gray fine SAND, some silt, trace limestone fragments | | | S13 | SS | 10 | 2<br>2<br>3<br>2 | 5 | |
| -42.4 | Gray LIMESTONE, trace fine sand, trace silt | | 50 | S14 | SS | 7 | 6<br>3<br>4<br>4 | 7 | Washed borehole to 50 ft<br>Advanced casing from 52 ft to 53 ft<br>Easy advance from 52 ft to 53 ft |
| | | | | S15 | SS | 12 | 19<br>14<br>8<br>11 | 22 | |
| | | | 55 | | | | | | Advanced casing from 55 ft to 58 ft<br>Easy drilling from 55 ft to 58 ft |
| | Gray LIMESTONE, some fine sand, trace shell, trace silt | | | S16 | SS | 12 | 18<br>9<br>6<br>6 | 15 | |
| | | | 60 | | | | | | Advanced casing from 60 ft to 63 ft<br>Easy advance from 60 ft to 63 ft |
| | Gray fine SAND, with limestone, trace silt | | | S17 | SS | 11 | 7<br>8<br>9<br>6 | 17 | |
| -57.4 | | | 65 | | | | | | Advanced casing from 65 ft to 68 ft<br>Easy advance from 65 ft to 68 ft |
| | Gray fine SAND, some limestone fragments, trace silt | | | S18 | SS | 13 | 13<br>8<br>5<br>4 | 13 | |
| | | | 70 | | | | | | Advanced casing from 70 ft to 73 ft<br>Easy advance from 70 ft to 73 ft |
| | Gray fine SAND, some limestone fragments, trace silt | | | S19 | SS | 14 | 22<br>18<br>17<br>12 | 35 | |
| | | | 75 | | | | | | Advanced casing from 75 ft to 78 ft<br>Easy advance from 75 ft to 78 ft |
| -70.4 | | | | | | | | | |
| | Light gray LIMESTONE, trace fine sand, trace silt | | | S20 | SS | 15 | 18<br>9<br>6<br>7 | 15 | |
| -72.4 | Boring terminated @ 80 ft | | 80 | | | | | | Borehole filled with concrete upon completion |
| | | | 85 | | | | | | |
| | | | 90 | | | | | | |

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ENGINEERING & ENVIRONMENTAL SERVICES



26 May 2010

Ryder Properties, LLC
C/o Claro Development
19 NW South River Drive
Miami, Florida 33128

**Re: Timber Pile Installation Report– Beach Walkway & Tiki Hut**
**Soho Beach House**
**4385 Collins Avenue**
**Miami Beach, Florida**
**Project No. 6119303**

Gentlemen:

This report provides a summary of the timber pile installation information, and gives our conclusions regarding the timber pile installation work performed for the elevated beach walkway and Tiki-Hut at Soho Beach House project in Miami Beach, Florida. All piles were installed by Shoreline Foundation, Inc. (the Piling Contractor), under our full-time engineering inspection. All elevations given in this report are in feet and refer to the National Geodetic Vertical Datum of 1929 (NGVD).

**BACKGROUND**
Geotechnical Engineering Recommendations for the proposed beach walkway and Tiki-Hut foundations were addressed in our previously presented Addendum to Geotechnical Engineering Study Report dated 17 March 2009.

**TIMBER PILE INSTALLATIONS**
Timber piles were installed between 6 May 2009 and 13 May 2009. Ten (10) inch butt diameter and 12-inch butt diameter timber piles were utilized for support of the proposed elevated beach walkway and Tiki-Hut, respectively.

All piles were installed at locations laid out by Trimmaster Installations, Inc. (the builder). The 12-inch-butt diameter timber piles were installed to a minimum required tip elevation of el -6, and the 10-inch-butt diameter timber piles were installed to a minimum required tip elevation of el -5. All piles were driven using a 4,000-pound drop hammer free-falling from a height of 5 to 10 feet. All piles were driven to final driving resistances of ranging from 14 to 46 hammer blows on the last foot of driving, exceeding the minimum required number of blows to achieve the required 10-ton bearing capacity as determined by the pile driving formula as per section 1822.2 of the Florida Building Code. All timber piles were installed in general accordance with our addendum to our Confirmatory Geotechnical Engineering Study dated 17 March 2009. The enclosed Figure 1 shows the approximate pile locations and their identification numbers. A summary of the pertinent 12-inch and 10-inch-butt diameter piles installation information is provided in the attached Table 1.

Pile numbers 7, 10, 13, and 17 for the Beach Walkway, encountered difficulties during initial driving resulting in out-of-plumb piles before attaining the required pile tip elevation. Excavation performed at these locations to approximately 6 to 8 feet revealed the presence of compacted limerock, large shells and coral rock to a depth of approximately 6 to 8 feet deep. The dense materials were loosened to facilitated pile driving. Excavation and loosening of in-place surface materials was also performed at pile location numbers 1 through 9 to prevent similar problems. Damaged piles were repaired or replaced, and pile installation was successfully completed.

During initial driving for piles 33 and 34 for the Tiki-Hut, piles were observed to encounter an underground obstruction causing the piles to tilt out-of-plumb. The piles were removed at which time the tips of the piles were observed to be damaged. Review of old plans and excavation in the subject area revealed the presence of a buried sheet pile bulkhead wall. Pile numbers 33 and 34 were relocated south to avoid the buried sheet pile bulkhead wall, and new piles were successfully installed.

Pile location numbers 1 and 2 were moved approximately 3 feet due east due to close proximity of the existing catch basin. Pile location numbers 3 and 4 were re-located to provide even spacing between the adjacent piles.

**CONCLUSIONS**

Based on our understanding of the subsurface conditions, and our full-time engineering inspection of the timber pile installation work, we conclude that both the 12-inch-butt diameter and 10-inch-butt diameter timber piles have been satisfactorily installed and are capable of sustaining the design compression capacity of 10 tons, the design tension capacity of 4 tons, and the design lateral capacity of 2 tons.

If you have any question, please call us at (786) 264-7200.

Sincerely,
**Langan Engineering and Environmental Services, Inc.**

Tony Nichlany, LCS
Tony Nichlany
Geotechnical Engineer

5/26/2010
Rafael M. Pina, P.E.
Project Manager
Florida Registration Number 50771

CC: T.S. Yong / Alan T. Shulman, PA
Mustafa Cankat / Cankat Essman, Inc.
Russel Hercules / Moss Construction Managers

Enclosures: Figure 1 - Pile Identification Plan
Table 1 - Timber Piles Installation Summary

9/1/2010

CMB

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# TABLE 1
# TIMBER PILES INSTALLATION SUMMARY
## Beach Walkway and Tiki Hut
## Soho Beach House
### 4385 Collins Avenue, Miami Beach, Florida
### Project No. 6119303

| Pile I.D. Number | Date Installed | Pile Butt Diameter (in.) | Surface Elevation (ft, NGVD) | Pile Length (ft) | Driven Depth (ft) | Tip Elevation (ft, NGVD) | Driving Resistance (blows on last ft) | Location | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 35 | 5/6/2010 | 12 | 9 | 30 | 15.5 | -6.5 | 20 | TIKI HUT | |
| 36 | 5/6/2010 | 12 | 9 | 30 | 15.5 | -6.5 | 22 | TIKI HUT | |
| 31 | 5/6/2010 | 10 | 9 | 22 | 14.5 | -5.5 | 20 | WALKWAY | |
| 32 | 5/6/2010 | 10 | 9 | 22 | 14.5 | -5.5 | 20 | WALKWAY | |
| 30 | 5/6/2010 | 10 | 9 | 22 | 14 | -5.0 | 20 | WALKWAY | |
| 27 | 5/6/2010 | 10 | 9 | 22 | 14 | -5.0 | 24 | WALKWAY | |
| | | | | | | | | | |
| 19 | 5/7/2010 | 10 | 9 | 22 | 15 | -6.0 | 21 | WALKWAY | |
| 18 | 5/7/2010 | 10 | 9 | 22 | 14.5 | -5.5 | 46 | WALKWAY | |
| 29 | 5/7/2010 | 10 | 9 | 22 | 14.5 | -5.5 | 20 | WALKWAY | |
| 28 | 5/7/2010 | 10 | 9 | 22 | 14 | -5.0 | 21 | WALKWAY | |
| 26 | 5/7/2010 | 10 | 9 | 22 | 14 | -5.0 | 37 | WALKWAY | |
| 25 | 5/7/2010 | 10 | 9 | 22 | 14 | -5.0 | 23 | WALKWAY | |
| 23 | 5/7/2010 | 10 | 9 | 22 | 14 | -5.0 | 16 | WALKWAY | |
| 24 | 5/7/2010 | 10 | 9 | 22 | 14 | -5.0 | 27 | WALKWAY | |
| 22 | 5/7/2010 | 10 | 9 | 22 | 14 | -5.0 | 16 | WALKWAY | |
| 21 | 5/7/2010 | 10 | 9 | 22 | 14 | -5.0 | 27 | WALKWAY | Completed after 2nd attempt |
| 20 | 5/7/2010 | 10 | 9 | 22 | 14 | -5.0 | 15 | WALKWAY | |
| | | | | | | | | | |
| 14 | 5/10/2010 | 10 | 9 | 26 | 14 | -5.0 | 21 | WALKWAY | |
| 15 | 5/10/2010 | 10 | 9 | 22 | 14 | -5.0 | 16 | WALKWAY | |
| 16 | 5/10/2010 | 10 | 9 | 22 | 14 | -5.0 | 20 | WALKWAY | |
| | | | | | | | | | |
| 34 | 5/12/2010 | 12 | 9 | 30 | 15 | -6.0 | 18 | TIKI HUT | Initial attempt at driving piles 33 & 34 resulted in out-of-plumb and damaged piles as the results of an underground obstruction (buried bulkhead wall). Piles were relocated at locations directed by Trimmaster Installations. Piles were successfully installed at relocated locations |
| 33 | 5/12/2010 | 12 | 9 | 30 | 15 | -6.0 | 18 | TIKI HUT | |
| 17 | 5/12/2010 | 10 | 9 | 22 | 14 | -5.0 | 14 | WALKWAY | Location of piles 10, 11, 12, 13 & 17 were pre-excavated to a depth of 8 feet on 11 May 2010 to remove obstructions |
| 13 | 5/12/2010 | 10 | 9 | 22 | 14 | -5.0 | 20 | WALKWAY | |
| 10 | 5/12/2010 | 10 | 9 | 22 | 14 | -5.0 | 16 | WALKWAY | |
| 11 | 5/12/2010 | 10 | 9 | 22 | 14 | -5.0 | 23 | WALKWAY | |
| 12 | 5/12/2010 | 10 | 9 | 22 | 14 | -5.0 | 25 | WALKWAY | |

CMB

11.29.10

# TABLE 1
# TIMBER PILES INSTALLATION SUMMARY
## Beach Walkway and Tiki Hut
## Soho Beach House
### 4385 Collins Avenue, Miami Beach, Florida
### Project No. 6119303

| Pile I.D. Number | Date Installed | Pile Butt Diameter (in.) | Surface Elevation (ft, NGVD) | Pile Length (ft) | Driven Depth (ft) | Tip Elevation (ft, NGVD) | Driving Resistance (blows on last ft) | Location | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 7 | 5/13/2010 | 10 | 9 | 22 | 14 | -5.0 | 18 | WALKWAY | Locations of piles 1 through 9 were pre-excavated to a depth of 8 feet on 13 May 2010 to remove obstructions. Pile numbers 1 and 2 were relocated approximately 3 feet to the east. |
| 8 | 5/13/2010 | 10 | 9 | 22 | 14 | -5.0 | 20 | WALKWAY | |
| 9 | 5/13/2010 | 10 | 9 | 22 | 14 | -5.0 | 26 | WALKWAY | |
| 5 | 5/13/2010 | 10 | 9 | 22 | 14 | -5.0 | 14 | WALKWAY | |
| 6 | 5/13/2010 | 10 | 9 | 22 | 14 | -5.0 | 25 | WALKWAY | |
| | | | | | | | | | |
| 4 | 5/14/2010 | 10 | 9 | 22 | 14 | -5.0 | 18 | WALKWAY | |
| 3 | 5/14/2010 | 10 | 9 | 22 | 14 | -5.0 | 19 | WALKWAY | |
| 1 | 5/14/2010 | 10 | 9 | 22 | 14 | -5.0 | 17 | WALKWAY | |
| 2 | 5/14/2010 | 10 | 9 | 16.5 | 14 | -5.0 | 27 | WALKWAY | |
| | | | | | | | | | |
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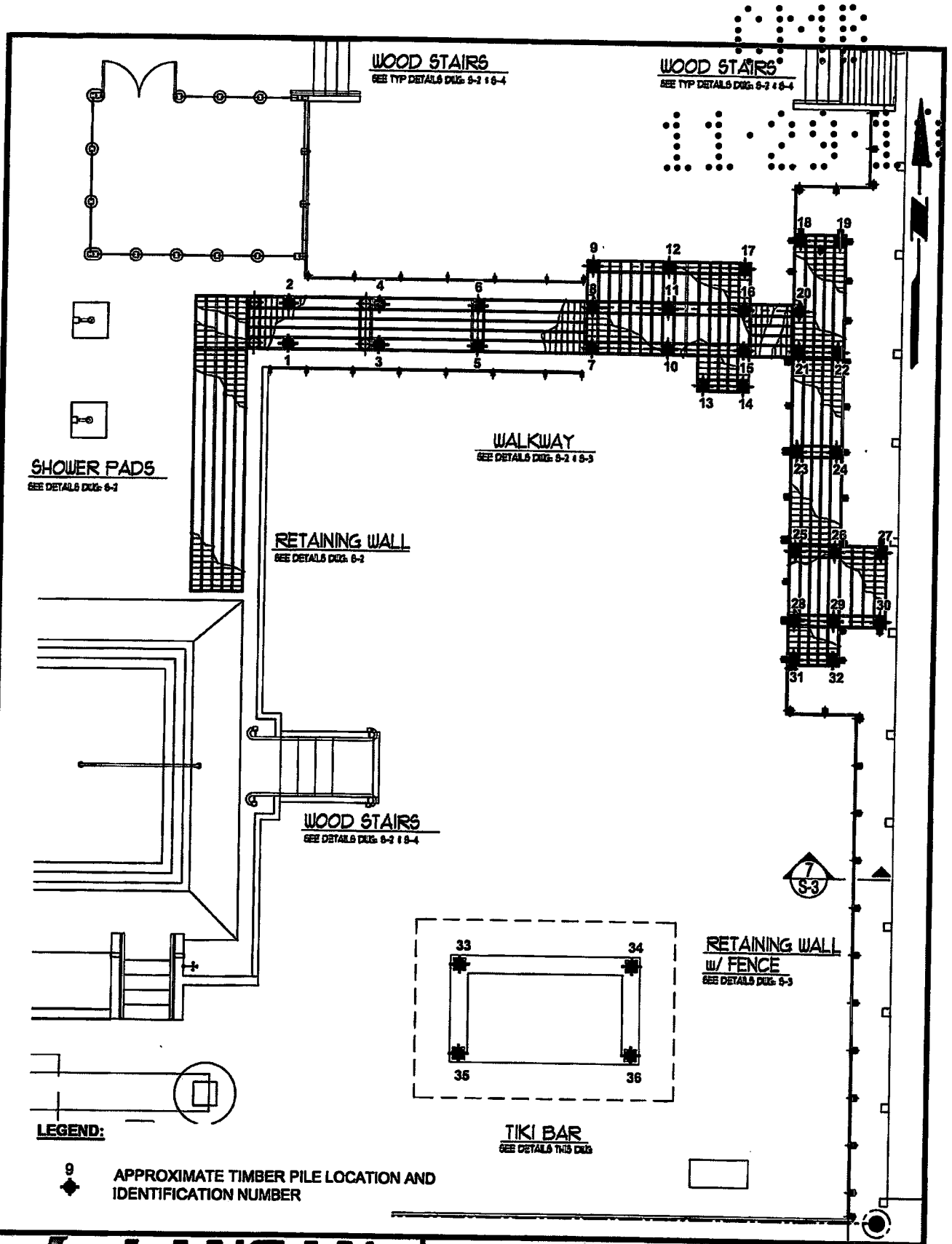




LANGAN
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NEW JERSEY PENNSYLVANIA NEW YORK CONNECTICUT FLORIDA NEVADA
FL Certificate of Authorization No: 00008601

# PILE IDENTIFICATION PLAN

BEACH WALKWAY & TIKI-HUT
SOHO HOUSE
4385 COLLINS AVENUE
MIAMI BEACH FLORIDA

| Project No. | Date | Scale | Dwg. No. |
|---|---|---|---|
| 6119303 | MAY 2010 | N.T.S. | 1 |

Filename: T:\data3\6119303\Cadd Data - 6119303\Dwg\6119303 Pile ID Plan (05.21.10).dwg Date: 5/24/2010 Time: 9:48 User: kcastillo Style Table: Langan.stb Layout: A Size Sheet (Bottom)

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ENGINEERING & ENVIRONMENTAL SERVICES

| | |
|---|---|
| PROJECT NUMBER: | **6119303** |
| PROJECT: | **Soho Beach House** |
| LOCATION: | **4385 Collins Ave** |
| | **Miami Beach, Florida** |

CLIENT:
**Ryder Properties**

DATE: 05 August 2010
TIME AT SITE: 7:00 AM to 7:30M
WEATHER: Sunny

CONTRACTOR & EQUIPMENT:
Moss:
1x Vibratory Plate Compactor

PRESENT AT SITE:
Mike Carr – Langan Engineering (LEES)

## EARTHWORK SITE INSPECTION REPORT

As requested by Moss, Langan was present at the Soho Beach House project site to conduct earthwork testing.

Prior to Langan's arrival to the project site today, the tiki hut base area was prepared and compacted using a vibratory plate compactor. Density tests were conducted to confirm that the subgrade material was sufficiently compacted.

Langan conducted two (2) density tests at the area mentioned above. The results of the density tests indicate that the subgrade material was compacted to at least 95% of the material's maximum dry density as determined by the Modified Proctor test (ASTM 1557D). See the attached sketch and table for approximate field density test locations and test results, respectively.

cc:

Field Data By: **Mike Carr**
**LANGAN ENGINEERING & ENVIRONMENTAL SERVICES**

9/1/2010

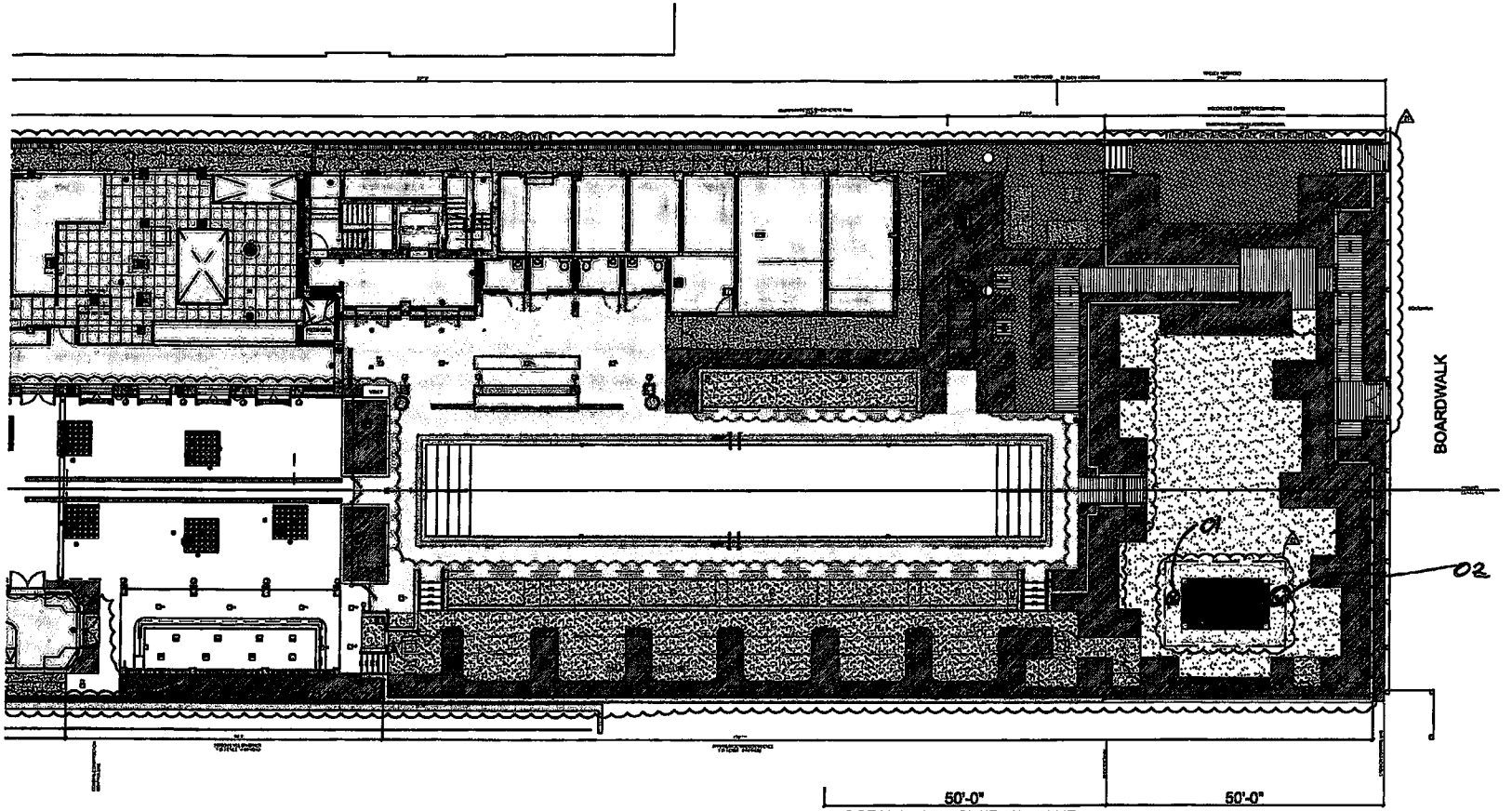
8/6/2010

# TABLE 1
## FIELD DENSITY TEST RESULTS
## SOHO BEACH HOUSE
## Miami Beach, Florida
## 6119303

| Test Number | Date | Approximate Location | Lift No/Approx. Elevation (ft, NGVD) | Area Tested | Probe Depth (in) | Moisture (%) | Field Dry Density (pcf) | Compaction (%) | Compaction Requirement (%) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 08/05/10 | See Sketch - Tiki Hut Area east of pool deck | Subgrade | Tiki Hut Base | 12 | 11.8 | 104.7 | 95 (2) | 95 | |
| 2 | 08/05/10 | See Sketch - Tiki Hut Area east of pool deck | Subgrade | Tiki Hut Base | 12 | 9.8 | 105.7 | 96 (2) | 95 | |

**Fill Material Description:**
(1) Well-graded SAND with Gravel; Maximum dry density 103.9 pcf, optimum moisture 1
(2) Poorly-graded SAND; Maximum dry density 109.9 pcf, optimum moisture 10.2%

8/5/10




50'-0"
OCEANFRONT OVERLAY ZONE
PERVIOUS AREA = 2,505SF (50%)

50'-0"
DUNE OVERLAY ZONE
PERVIOUS AREA = 4,056SF (80%)

LANGAN
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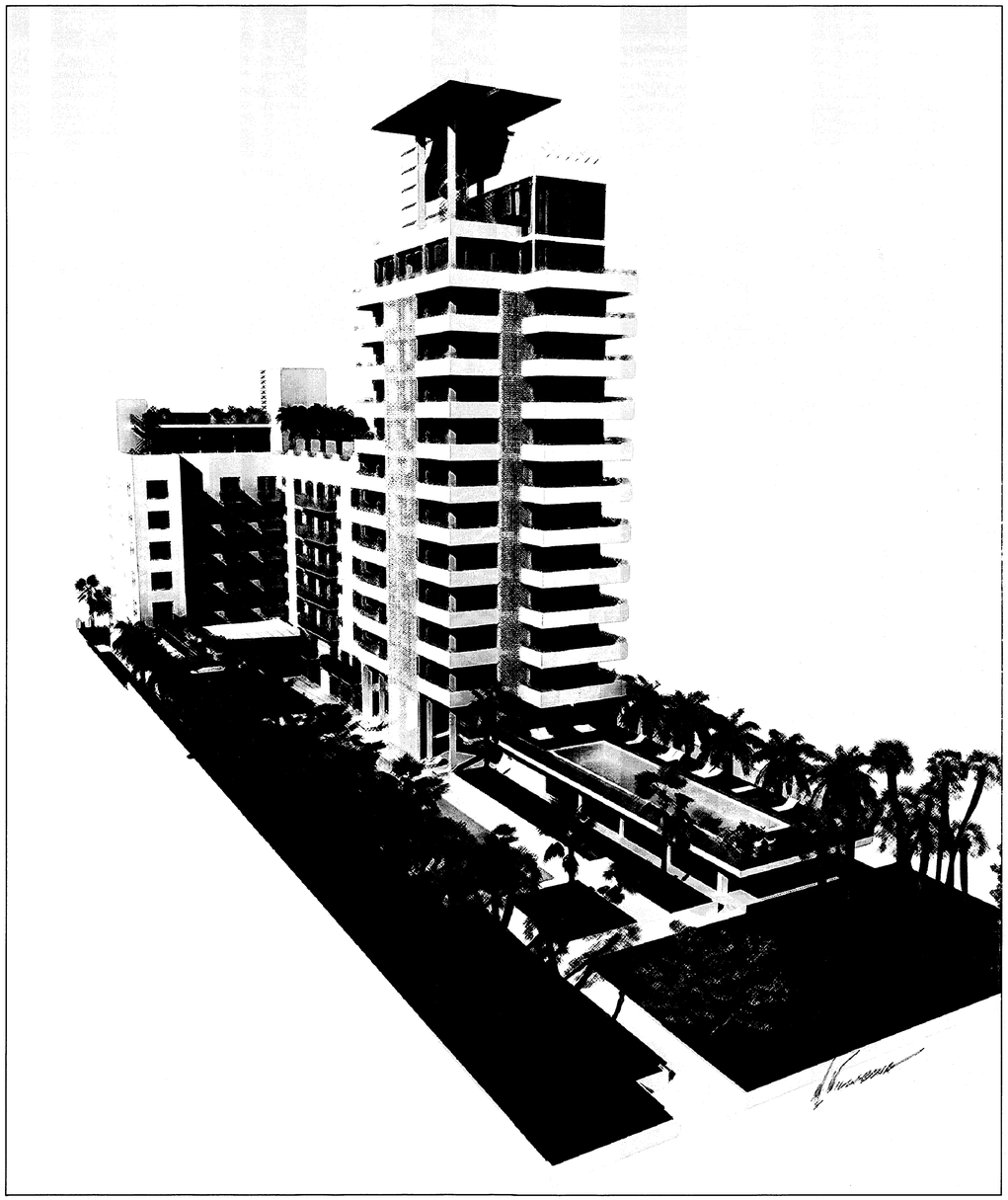
FL Certificate of Authorization No 00006601

Project
TEST LOCATION PLAN
SOHO BEACH HOUSE
MIAMI BEACH FLORIDA

| Project No. | Date | Scale | Dwg. No. |
|---|---|---|---|
| 6119301 | APRIL 2010 | 1" = 20' | 1 |




ALLAN T. SHULMAN ARCHITECT
(AR 0012763)
100 N.E. 38TH STREET MIAMI, FLORIDA 33137
PHONE: (305) 438-0609 FAX: (305) 438-0170


# SOHO BEACH HOUSE
## CONSTRUCTION DOCUMENTS


**OWNER**
RYDER PROPERTIES
C/O SOHO HOUSE
3-5 BATEMAN STREET
LONDON W1D 4AG

**PROJECT EXECUTIVE**
SANDOR SCHER

**PROJECT MANAGER**
RAY LASTRA

**ARCHITECT**
ALLAN T. SHULMAN ARCHITECT, P.A.
100 NE 38TH STREET, SPACE 2
MIAMI, FL 33137

**LANDSCAPE ARCHITECT**
RAYMOND JUNGLES, INC.
242 SW 5TH STREET
MIAMI, FL 33130

**CIVIL ENGINEER**
CONSULTECH
10570 NW 27TH STREET, SUITE 101
MIAMI, FL 33172

**STRUCTURAL ENGINEER**
DOUGLAS WOOD & ASSOCIATES, INC.
299 ALHAMBRA CIRCLE, SUITE 510
CORAL GABLES, FL 33134

**MECHANICAL ENGINEER**
SI ENGINEERING, INC
11321 NORTH MARJORY AVE
TAMPA, FL 33612

**ELECTRICAL ENGINEER**
H. VIDAL & ASSOCIATES, INC.
2234 NE 2ND AVENUE
MIAMI, FL 33137

**PLUMBING AND FIRE PROTECTION ENGINEER**
PSI ENGINEERING
9520 SW 40TH STREET
MIAMI, FL 33165

**KITCHEN CONSULTANT**
BARING INDUSTRIES
3249 SW 42ND STREET
FORT LAUDERDALE, FL 33312

**LIFE SAFETY**
HUGHES ASSOCIATES
303 EAST PAR STREET
ORLANDO, FL 32804

**ACCESSIBILITY**
GREENBERG TRAURIG
1221 BRICKELL AVENUE
MIAMI, FL 33131

**POOL CONSULTANT**
AQUADYNAMICS
5000 SW 75 AVE, SUITE 203
MIAMI, FL 33155

**COASTAL ENGINEER**
COASTAL SYSTEMS INTERNATIONAL
464 SOUTH DIXIE HIGHWAY
CORAL GABLES, FL 33146

**LOW VOLTAGE CONSULTANT**
COMBEST
1000 WEST MCNAB ROAD
POMPANO BEACH, FL 33069

**LIGHTING CONSULTANT**
INNOVATIVE ILLUMINATION
1035 GATEWAY BLVD., SUITE 201164
BOYNTON BEACH, FL 33426

**GLAZING & WATERPROOFING CONSULTANT**
IBA CONSULTANTS, INC.
7104 NW 51 ST.
MIAMI, FL 33166


Derm Number: 2010-1013-1325-1522
Contact Name: DEETA POLIAH
Contact Phone: (786) 897-5342
Folio: 02-3226-001-2140
Project Name: SOHO BEACH HOUSE
Date Received: 10/13/2010
Reviewer Name:

BUILDING ☐ FIRE ☐ SCHOOL
IMPACT FEE NOT REQUIRED
accessory 7,716 sf
NOV 12 2010
BY
MIAMI-DADE COUNTY
APPROVED

48 HOURS PRIOR TO EXCAVATING
CONTRACTOR SHALL CALL FOR LOCATION
OF UNDERGROUND UTILITIES
SUNSHINE ONE-CALL 1-800-432-4770
CITY OF MIAMI BEACH 305-673-7080

PUBLIC WORKS
PLAN REVIEW NOTICE
Phone 305-673-7080 Fax 305-673-7028

THIS PLAN REVIEW CONSTITUTES APPROVAL FOR OBTAINING BUILDING PERMITS ONLY.

All construction and/or use of equipment in the right-of-way and/or easements, requires a separate Public Works Department permit prior to start of construction.

Permit Requirements: Proof of existing sidewalk/swale area conditions (pictures) and/or posting of sidewalk/roadway bonds
(Public Works inspection of the right-of-way will be required prior to final sign-off on the C.C. / C.O., or the release of bonds.)

Approved/Reviewed By: B. Durall Date: 8/20/10

B1004444

OFFICE COPY
CITY OF MIAMI BEACH
APPROVED FOR PERMIT BY
THE FOLLOWING:

| | |
|---|---|
| BUILDING: | 11/19/10 |
| ZONING: | 11/19/10 11/22/10 11/23/10 |
| DRB/HPB: | |
| CONCURRENCY: | |
| PLUMBING: | 11/19/10 |
| ELECTRICAL: | |
| MECHANICAL: | |
| FIRE PREVENTION: | TRANSFER 9/27/10 TRANSFER 11/19/10 |
| ENGINEERING: | 11/22/10 |
| PUBLIC WORKS: | B. Durall 8/20/10 |
| STRUCTURAL: | 11/12/10 11/19/10 |
| ELEVATOR: | |

* parking + concurrency to be determined before final C.O.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(AR 0012763)
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TEL: 305.438.0609 FAX: 305.438.0170

JUNGLES
RAYMOND JUNGLES INC
RAYMOND JUNGLES INCORPORATED,
Landscape Architect ASLA
242 SW 5th Street, Miami, Florida 33130
PH(305)858-6777 FAX (305)856-0742
raymond@raymondjungles.com


| REVISIONS | REVISIONS |
|---|---|
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8.11.2010

SOHO BEACH HOUSE
4385 COLLINS AVENUE, MIAMI BEACH, FL, 33140
JOB NO. 05035
**TIKI HUT**
CONSTRUCTION DOCUMENTS

| COVER SHEET |
|---|
| G-1.1 |
| 08.11.10 |

# DRAWING INDEX

## GENERAL



## LANDSCAPE / LANDSCAPE STRUCTURAL



## ARCHITECTURAL




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| REVISIONS | |
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| 1 09.13.10 CMB COMMENTS | |
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9.13.2010

SOHO BEACH HOUSE
4385 COLLINS AVENUE, MIAMI BEACH, FL, 33140
JOB NO. 05035
**TIKI HUT**
CONSTRUCTION DOCUMENTS

| SHEET INDEX |
|---|
| G-1.2 |
| 09.13.10 |

# SOHO HOUSE PROJECT ZONING DATA

## GENERAL

| | |
|---|---|
| ZONING DISTRICT: | RM-3, COLLINS WATERFRONT HISTORIC DISTRICT |
| LOT AREA: | 100'-0" (LOT WIDTH) x 364.85' (LOT DEPTH) = 36,485 SQUARE FEET (LOT AREA) |
| FLOOR AREA RATIO: | 2.25 |
| ALLOWABLE BUILDING AREA: | 36,485 x 2.25 = 82,091 SQUARE FEET |

## EXISTING CONDITIONS

EXISTING FLOOR AREA:

| | |
|---|---|
| LEVEL 1: | 7,999 |
| LEVEL 2: | 5,944 |
| LEVEL 3: | 7,675 |
| LEVEL 4: | 7,675 |
| LEVEL 5: | 7,675 |
| LEVEL 6: | 7,675 |
| LEVEL 7: | 7,675 |
| LEVEL 8: | 469 |
| LEVEL 9: | 360 |
| LEVEL 10: | |
| LEVEL 11: | |
| LEVEL 12: | |
| LEVEL 13: | |
| LEVEL 14: | |
| LEVEL 15: | |
| ROOF: | |
| **TOTAL:** | **53,147** |
| EXISTING UNITS: | 108 |

## PROPOSED FLOOR AREA:

| | *EXISTING TO REMAIN* | *PROPOSED NEW* | ***TOTAL*** |
|---|---|---|---|
| LEVEL 1: | 7,999 | 1,616 | 9,615 |
| LEVEL 2: | 5,738 | 577 | 6,315 |
| LEVEL 3: | 6,913 | 2,144 | 9,057 |
| LEVEL 4: | 7,624 | 2,144 | 9,768 |
| LEVEL 5: | 7,624 | 2,144 | 9,768 |
| LEVEL 6: | 7,624 | 2,144 | 9,768 |
| LEVEL 7: | 7,624 | 2,144 | 9,768 |
| LEVEL 8: | 364 | 2,913 | 3,277 |
| LEVEL 9: | 0 | 2,144 | 2,144 |
| LEVEL 10: | | 2,144 | 2,144 |
| LEVEL 11: | | 2,144 | 2,144 |
| LEVEL 12: | | 2,144 | 2,144 |
| LEVEL 13: | | 2,144 | 2,144 |
| LEVEL 14: | | 2,144 | 2,144 |
| LEVEL 15: | | 1,298 | 1,298 |
| LEVEL 16: | | 427 | 427 |
| ROOF: | | 165 | 165 |
| **TOTAL:** | 51,510 | 30,580 | **82,090** |

## BUILDING HEIGHT

| | *REQUIRED* | *PROVIDED* |
|---|---|---|
| MAXIMUM BUILDING HEIGHT: | 200' | 153'-11" |
| MAXIMUM NUMBER OF STORIES: | 22 | 15 |

## OPEN SPACE RATIO

| | *REQUIRED* | *PROVIDED* |
|---|---|---|
| OPEN SPACE RATIO: | 36,485 x 0.7 = 25,539.5 SQUARE FEET | GROUND FLOOR : 25,923 S.F. IN-LIEU OF PAYMENT : 420 S.F |

## MINIMUM FLOOR AREA

| | *REQUIRED* | *PROVIDED* |
|---|---|---|
| | | 0 |
| MINIMUM S.F. AREA PER HOTEL UNIT: | 15% 300-335 S.F., 85% 335 S.F. | 354 MIN |

## UNIT COUNT:

| | **EXISTING BUILDING** | | **NEW TOWER** | |
|---|---|---|---|---|
| | *EXISTING* | *PROPOSED* | *EXISTING* | *PROPOSED* |
| | 108 | 35 | na | 15 |
| **TOTAL PROPOSED UNITS** | **50** | | | |

## SETBACK REQUIREMENTS

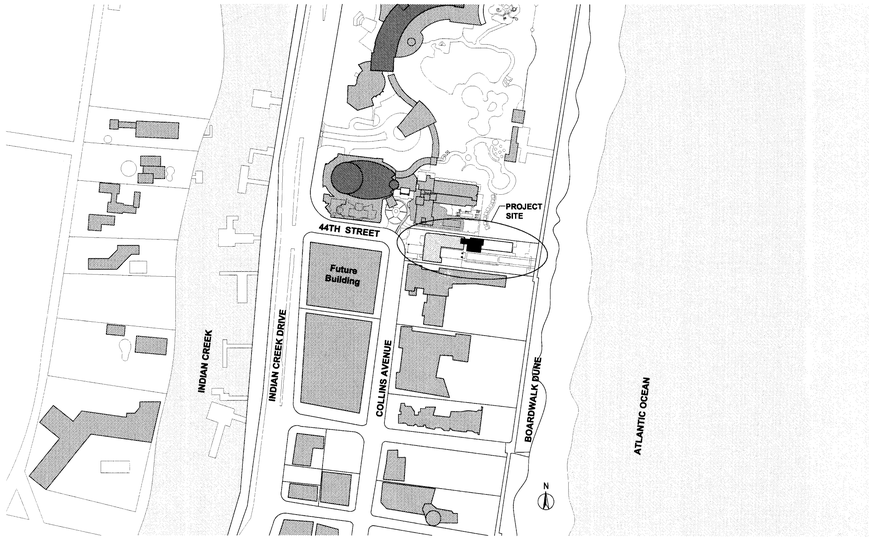
| **PEDESTAL** | *REQUIRED* | *PROVIDED* |
|---|---|---|
| FRONT: | 20' | 50'-10" (MATCH HISTORIC BUILDING) |
| SIDE INTERIOR: | | **SOUTH SIDE** |
| SUM OF THE SIDE YARDS = 16% OF THE LOT WIDTH = .16 x 100 = 16 FEET | 7.5' OR 8% OF LOT WIDTH WHICHEVER IS GREATER. 8' > 7.5', THEREFORE *8' SIDE INTERIOR REQUIRED.* | 4'-11" (MATCH HISTORIC BUILDING) *VARIANCE OBTAINED* |
| | | **NORTH SIDE** |
| | | 5'-6" (MATCH HISTORIC BUILDING) *VARIANCE OBTAINED* |
| REAR - OCEANFRONT: | 50' MIN. FROM BULKHEAD LINE OR 20% OF LOT DEPTH, WHICHEVER GREATER. .20 x 364.85' = 72.97' = 73' BULKHEAD LINE 50' FROM PROPERTY LINE + 50' MIN. SETBACK = 100' 73' < 100', THEREFORE *50' MIN. FROM BULKHEAD LINE REQUIRED* | BUILDING (RAISED DECK) 73'-3" *VARIANCE OBTAINED* |
| **TOWER** | *REQUIRED* | *PROVIDED* |
| FRONT: | 60' | 68' 10" TO ROOFTOP ADDITION, 165' 6" TO TOWER ADDITION |
| SIDE INTERIOR: | REQUIRED PEDESTAL SETBACK PLUS .10 OF HEIGHT OF TOWER PORTION OF BUILDING. .10 x 153.3' = 15.33 FEET 6' + 15.33' = 23.33' = 23'-4" *REQUIRED* | **SOUTH SIDE** 4'-11" (MATCH HISTORIC BUILDING) *VARIANCE OBTAINED* |
| | | **NORTH SIDE** 5'-6" (MATCH HISTORIC BUILDING) *VARIANCE OBTAINED* |
| REAR - OCEANFRONT: | 75' MIN. FROM BULKHEAD LINE OR 25% OF LOT DEPTH, WHICHEVER GREATER. .25 x 365.85' = 91.2' BULKHEAD LINE 50' FROM PROPERTY LINE + 75' MIN. SETBACK = 125' 91.2' < 125', THEREFORE *75' MIN. FROM BULKHEAD LINE REQUIRED.* | 75' |

## UNIT COUNT:

| | | **EXISTING BUILDING** | | **NEW TOWER** | |
|---|---|---|---|---|---|
| | | ***EXISTING*** | ***PROPOSED*** | ***EXISTING*** | ***PROPOSED*** |
| (FORMER UNIT COUNT) | | **108** | | **0** | |
| TOTAL PROPOSED UNITS(NO KITCHEN) | | | **35** | | **14** |
| TOTAL PROPOSED UNITS(WITH KITCHEN) | | | | | **1** |
| ***TOTAL PROPOSED UNITS COMBINED*** **50 Units** | | | | | |
| **MINIMUM PARKING** | | | | | ***Formula used for parking req'd*** |
| | **Floor(s)** | ***BUILDING*** | ***REQUIRED*** | ***PROVIDED*** | ***Zoning Chapter 130-section 33*** |
| Hotel units (no kitchen) | 0 | Existing Building | **N/A (0 required)** | **0** | N/A |
| 14 New Hotel Units (No Kitchen) | 4 thru 14 | New Building | | **0 (PARKING IMPACT FEE PROGRAM)** | **14 PARKING SPACES** 1 Space/Unit x 14 = 14 Spaces |
| 1 New Hotel Unit(With Kitchen) | 15 | New Building | | **0 (PARKING IMPACT FEE PROGRAM)** | **2 PARKING SPACES** 2 Spaces/Unit X 1 = 2 Spaces |
| Wine Bar (5 seats, 246 SF) | 1st Floor | Existing Building | **N/A (0 required)** | **0** | in existing building |
| Long Bar (14 seats, 399 SF) | 1st Floor | Existing Building | **N/A (0 required)** | **0** | in existing building |
| Lobby Dining (38 seats, 1,372 SF) | 1st Floor | Existing Building | **N/A (0 required)** | **0** | in existing building |
| Courtyard Dining Terrace (66 seats, 2,578 SF) | 1st Floor | Existing Building | **N/A (0 required)** | **0** | in existing building |
| Tiki Hut & Rear Yard (28 seats, 1,845 SF) | 1st Floor | New Use | | | **7 PARKING SPACES** 4 seats/1 space = 28 seats/4 = 7 spaces |
| Club Bar (87 seats, 2,379 SF) | 2nd Floor | New Building | | | **10 PARKING SPACES** 1 Space/250 SF of Private Club = 2,379/250 = 9.516 = 10 Spaces |
| Screening Lounge (Business, 19 seats, 695 SF) | 2nd Floor | Existing Building | **N/A (0 required)** | | in existing building |
| Cowshed Spa (retail space, 1,136 SF) | 2nd Floor | Existing Building | **N/A (0 required)** | | in existing building |
| Cowshed Spa (retail space, 5,462 SF) | 3rd Floor | Existing Building | **N/A (0 required)** | | in existing building |
| Gymnasium space (2,244 SF) | 3rd Floor | New Building | | **0 (PARKING IMPACT FEE PROGRAM)** | **0 PARKING SPACES**(Part of Private Club) |
| **COMBINED QUANTITY Gym/Spa in new building (2,244 SF)** | | | | | **0 PARKING SPACES**(Part of Private Club) |
| Gym/Spa in existng building (6,598 SF) | | | | | |
| Grand Total Gym/Spa (8,842 SF) | | | | | |
| Club Dining (8 seats, 316 SF) | 8th floor | New Building | | | **See combined quantity below** |
| Bar (Club Lounge) (14 seats, 590 SF) | 8th floor | New Building | | | **See combined quantity below** |
| Outdoor Bar (33 seats, 1,321 SF) | 8th floor | Existing Building | **N/A (0 required)** | | in existing building |
| **COMBINED QUANTITY Dining/Bar seating in new building (Excluding Club Bar as outdoor café) (22 seats, 906 SF)** | | | | | **4 PARKING SPACES** 1 Space/250 SF of Private Club = 906/250 = 3.624 = 4 Spaces |
| Dining/Bar in existing building (176 seats, 5,916 SF) | | | | | |
| Grand Total Dining/Bar (Including Club Bar & Tiki Bar/Rear Yard) (313 seats, 11,046 SF) | | | | | |
| **TOTALS** | | | | **0 (PARKING IMPACT FEE PROGRAM)** | **27 Spaces** |
| Credit for amount already paid to Parking Impact Fee Program | | | | | 23 Spaces |
| Parking Impact Fee | | | | | 4 Spaces |

* Applicant elects to pay annual fee for outdoor café.

SCOPE OF WORK UNDER REVIEW FOR THIS PERMIT APPLICATION

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LOCATION MAP

SCALE: NTS

**PURSUANT TO HPB #3383 CONSOLIDATED ORDER RECORDED AUGUST 8, 2006, THE FOLLOWING CONDITIONS ARE TO BE MET PRIOR TO ISSUANCE OF THE BUILDING PERMIT:**

**C3.** ALL BUILDING SIGNAGE SHALL BE CONSISTENT IN TYPE, COMPOSED OF FLUSH MOUNTED, NON-PLASTIC INDIVIDUAL LETTERS AND SHALL REQUIRE A SEPARATE PERMIT.

**C4.** THE FINAL EXTERIOR COLOR SCHEME, INCLUDING COLOR SAMPLES, SHALL BE SUBJECT TO REVIEW AND APPROVAL OF STAFF AND SHALL REQUIRE A SEPARATE PERMIT.

**C5.** A TRAFFIC MITIGATION PLAN, WHICH ADDRESSES ALL ROADWAY LEVEL OF SERVICE (LOS) DEFICIENCIES RELATIVE TO THE CONCURRENCY REQUIREMENTS OF THE CITY CODE, IF REQUIRED, SHALL BE SUBMITTED PRIOR TO THE ISSUANCE OF A BULIDING PERMIT AND THE FINAL BUILDING PLANS SHALL MEET ALL OTHER REQUIREMENTS OF THE LAND DEVELOPMENT REGULATIONS OF THE CITY CODE.

**C6.** MANUFACTURERS DRAWINGS AND DADE COUNTY PRODUCT APPROVAL NUMBERS FOR ALL NEW WINDOWS, DOORS AND GLASS SHALL BE REQUIRED PRIOR TO ISSUANCE OF A BUILDING PERMIT.

**C7.** ALL ROOF-TOP FIXTURES, AIR-CONDITIONING UNITS AND MECHANICAL DEVICES SHALL BE CLEARLY NOTED ON A REVISED ROOF PLAN AND ELEVATION DRAWINGS AND SHALL BE SCREENED FROM VIEW, IN A MANNER TO BE APPROVED BY STAFF.

**PURSUANT TO ZBA #3182 FINAL ORDER RECORDED JULY 7, 2006, THE FOLLOWING CONDITION IS TO BE MET PRIOR TO ISSUANCE OF THE BUILDING PERMIT:**

**5.** THE OWNER AGREES TO FUND THE CONSTRUCTION OF THE PORTION OF THE BEACH WALK IMMEDIATELY ADJACENT TO THE PROPERTY. THE OWNER ALSO AGREES TO TENDER CONTRIBUTION TO THE CITY OF MIAMI BEACH WITHIN SIXTY (60) DAYS OF RECEIPT OF A WRITTEN REQUEST BY THE CITY FOR THE CONTRIBUTION.

**NOTE: ALL WINDOW, SHOPFRONT AND EXTERIOR DOOR SYSTEMS TO BE PERMITTED SEPARATELY BY GLAZING SUB-CONTRACTOR. ALL RELEVANT MIAMI-DADE N.O.A.'S TO BE SUBMITTED BY GLAZIER AT TIME OF PULLING GLAZING PERMIT**


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| REVISIONS | REVISIONS |
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8/11/10

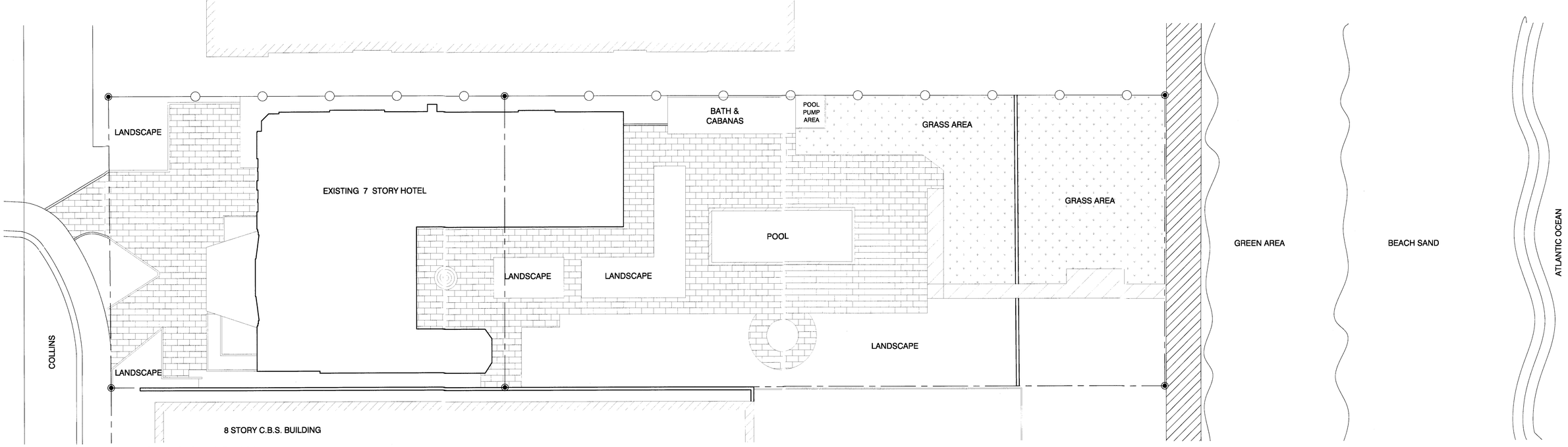
# SOHO BEACH HOUSE

4385 COLLINS AVENUE, MIAMI BEACH, FL, 33140
JOB NO. 05035
**TIKI HUT**
CONSTRUCTION DOCUMENTS

ZONING CALCULATIONS & LOCATION SITE PLAN

**G-1.3**

08.11.10

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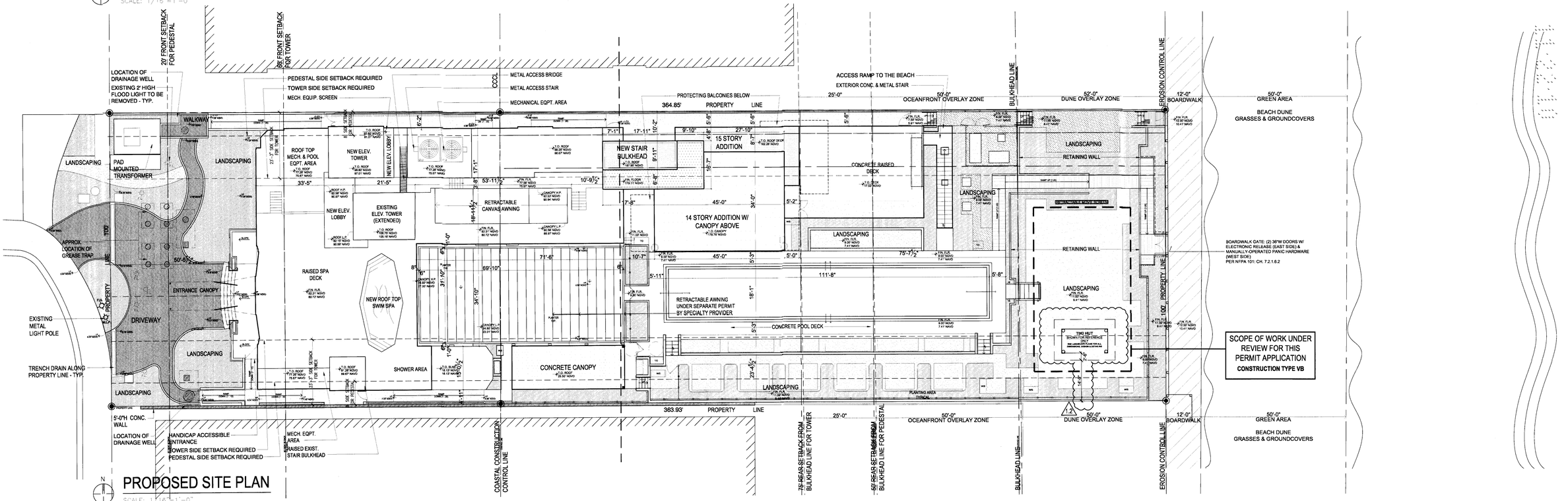
## EXISTING SITE PLAN

SCALE: 1/16"=1'-0"

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## PROPOSED SITE PLAN

SCALE: 1/16"=1'-0"


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| REVISIONS | |
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| 1 | 09.13.10 CMB COMMENTS |
| 2 | 11.18.10 CMB COMMENTS |
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| REVISIONS |
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4/16/10

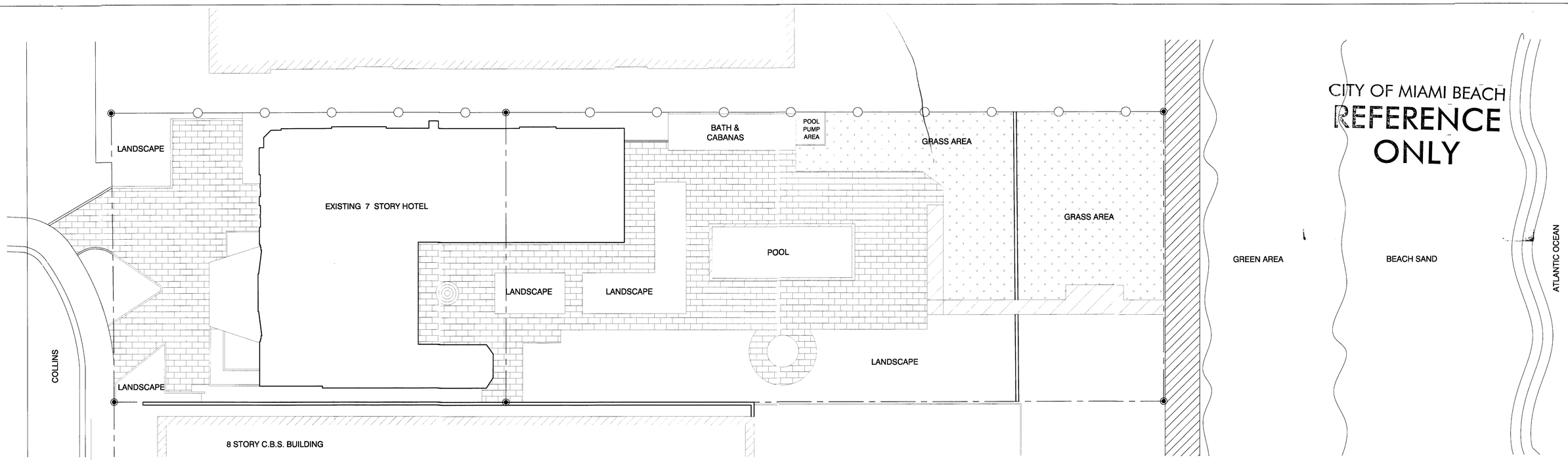
# SOHO BEACH HOUSE

4385 COLLINS AVENUE, MIAMI BEACH, FL, 33140
JOB NO. 05035
**TIKI HUT**
CONSTRUCTION DOCUMENTS

EXISTING & PROPOSED SITE PLAN

**G-1.4**

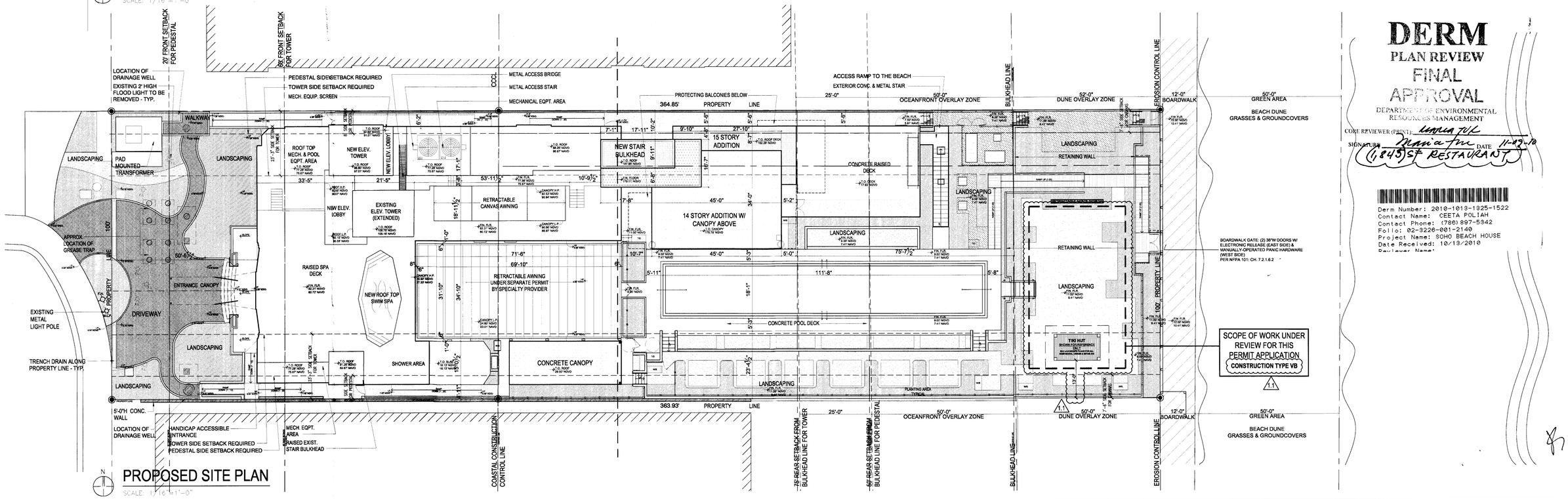
08.11.10




CITY OF MIAMI BEACH
REFERENCE ONLY

## EXISTING SITE PLAN

SCALE: 1/16"=1'-0"




## PROPOSED SITE PLAN

SCALE: 1/16"=1'-0"

**DERM**
PLAN REVIEW
FINAL
APPROVAL
DEPARTMENT OF ENVIRONMENTAL RESOURCES MANAGEMENT
CORE REVIEWER (PRINT): MARIA POL
SIGNATURE: Maria Pol DATE 11-02-10
(1,845) SF RESTAURANT

Derm Number: 2010-1013-1325-1522
Contact Name: CEETA POLIAH
Contact Phone: (786) 897-5342
Folio: 02-3226-001-2140
Project Name: SOHO BEACH HOUSE
Date Received: 10/13/2010
Reviewer Name:

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| REVISIONS |
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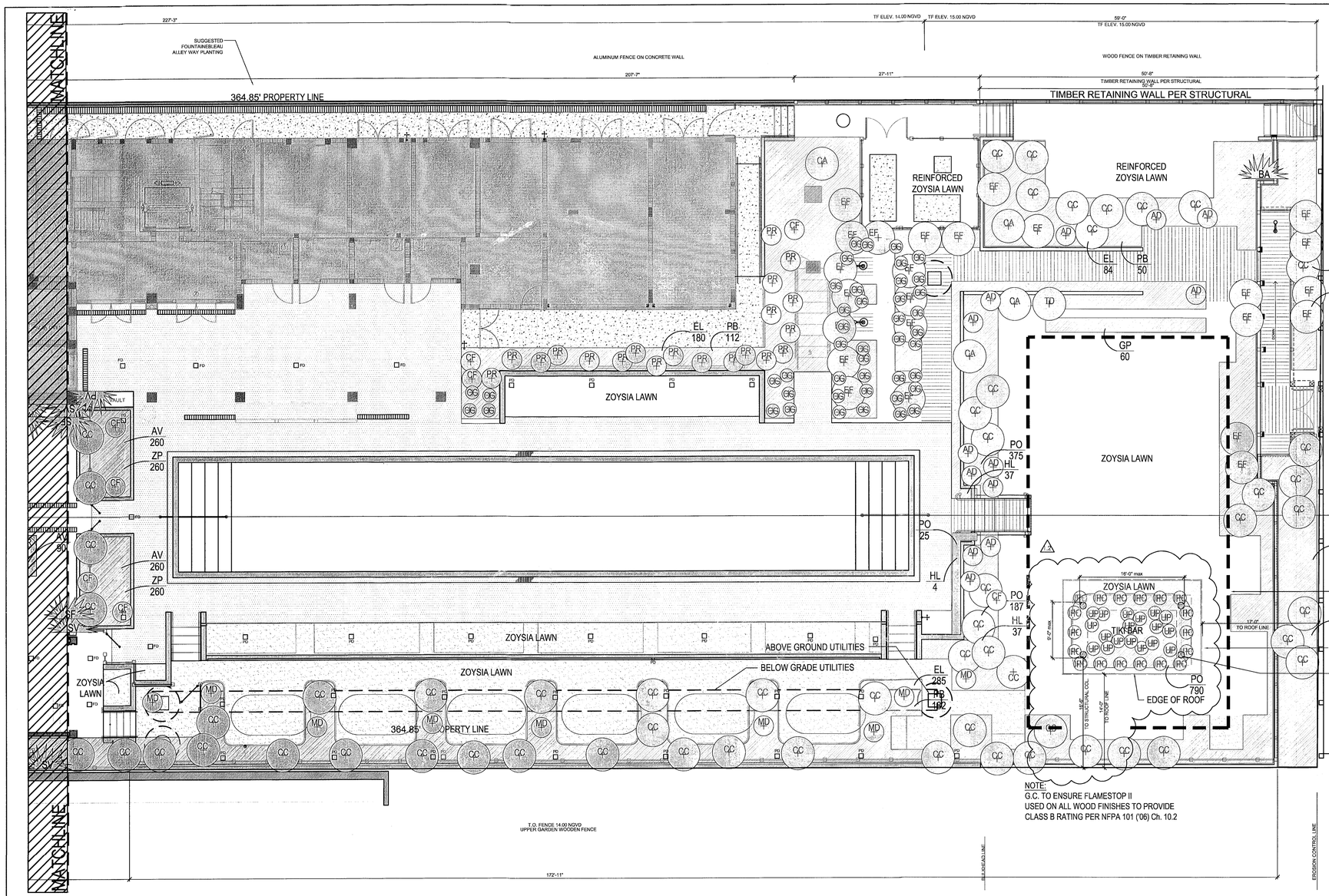
9/13/10

SOHO BEACH HOUSE
4385 COLLINS AVENUE, MIAMI BEACH, FL, 33140
JOB NO. 05035
TIKI HUT
CONSTRUCTION DOCUMENTS

EXISTING & PROPOSED SITE PLAN
G-1.4
08.11.10

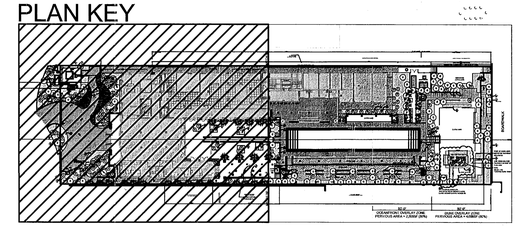



## SOHO BEACH HOUSE PLANT LIST

15-Jan-10

| QTY | ABRV. | BOTANICAL NAME | COMMON NAME | SPECIFICATIONS |
|---|---|---|---|---|
| **TREES** | | | | |
| 1 | CRO | *Clusia rosea* | Autograph Tree | 36" DBH, 14' ht. x 14 sp. |
| 1 | CRS | *Clusia rosea* | Autograph Tree | 16' - 18' ht. x 16' - 18' sp. Specimen (Landward of CCCL) |
| 2 | CRX | *Clusia rosea* | Autograph Tree | 10' - 12' ht. x 10' sp., 12" DBH |
| 25 | CUV | *Coccoloba uvifera* | Sea Grape | 12-14 ht. x 12' sp. |
| 3 | CER | *Conocarpus erectus* | Green Buttonwood | 12' - 14' ht. x 8' sp. |
| 14 | CES | *Conocarpus erectus var. sericeus* | Silver Buttonwood | 12' - 14' ht., x 10' -12' sp. Multi-trunk, 4 - 6" caliper, 7' CT |
| 2 | CEY | *Conocarpus erectus var. sericeus* | Silver Buttonwood | 12' - 14' ht., x 10' -12' sp. Multi-trunk, 2 - 3" caliper |
| 1 | PAQ | *Pachira aquatica* (See NOTE 2) | Water Chestnut | 10' -12' ht. x 6' x 8' sp. |
| **PALMS** | | | | |
| 10 | CNU | *Coco nucifera* | Coconut Palm | |
| 2 | CMA | *Copernicia macroglossa* | Petticoat Palm | 6' - 8' ht. |
| 3 | LLO | *Latania loddigesii* | Blue Latan Palm | 14' ht., 8' GW |
| 2 | LMX | *Leucothrinax morrisii* | Sivler Thatch Palm | 6' G.W. |
| 7 | PEL | *Ptychosperma elegans* | Solitaire Palm | 4 @ 14' -16' ht. (singles) 4 @ 14' - 16' ht. multiple trunks |
| 4 | REL | *Roystonea eleta* | Royal Palm | Double trunk |
| 11 | SPA | *Sabal palmetto* | Cabbage Palm | 14' Booted trunk, 18" DBH (Landward of CCCL) |
| 20 | TRX | *Thrinax radiata* | Green Thatch Palm | 14' ht., single and multiple trunks |
| 4 | VMO | *Veitchia montgomeryana* | Montgomery Palm | 18' - 24' ht., 6" - 8" DBH |
| **NATIVE UNDERSTORY SHRUBS** | | | | |
| 67 | CC | *Capparis cynophallophora* | Jamaica Caper | 6' - 8' ht. x 6' - 8' sp. |
| 24 | EF | *Eugenia foetida* | Spanish Stopper | 10' - 12' ht. x 4' sp., full to base |
| **ACCENTS** | | | | |
| 13 | AD | *Aechmea 'Dean'* | Same | |
| 44 | CG | *Clusia guttifera 'Nana'* | Same | 3 gal. |
| 13 | CF | *Cordyline fruticosa 'Black Magic'* | Cordyline | 4' - 6' ht. x 4' - 6' sp. Full |
| 4 | CA | *Crinum augustum 'Queen Emma'* | Same | 6' ht. x 6' sp. |
| 3 | HC | *Heliconia caribaea* (See NOTE 2) | Same | 8' - 10' ht. x 6' - 8' sp., Pale Yellow Flowers |
| 1 | HR | *Heliconia rostrata* (See NOTE 2) | Lobster Claw | 6' - 8' ht. x 6' sp. |
| 25 | MD | *Monstera deliciosa* (See NOTE 1) | Mexican Breadfruit | 36" x 36" |
| 1 | PS | *Philodendron* | TBD | Specimen Philodendron |
| 85 | PR | *Philodendron rojo 'Congo'* | Same | 3 gal. |
| 5 | PW | *Philodendron 'Weeks Hybrid'* (See NOTE 2) | Same | 36" x 36" (See NOTE 1) |
| 31 | TD | *Tripsacum dactyloides* | Fakahatchee Grass | 36" x 36" |
| 18 | UP | *Uniola paniculata* | Sea Oats | 3-gal. 24" o.c. |
| **GROUNDCOVERS** | | | | |
| 1060 | AV | *Aloe vera* | Medicinal Aloe | 8" OC |
| 19 | CI | *Chrysobalanus icaco* | Horizontal Cocoplum | 24" x 24" |
| 1110 | EL | *Emodea littoralis* | Golden Creeper | 24" OC |
| 60 | GP | *Gaillardia pulchella* | Blanket Flower | 12" OC |
| 78 | HL | *Hymenocallis latifolia* | Spider Lily | 36" OC |
| 353 | NB | *Neoregelia 'Bossa Nova'* (See NOTE 1) | Same | 12" OC |
| 695 | PB | *Philodendron 'Burle Marx'* (See NOTE 1) | Same | 36" OC |
| 584 | PO | *Portulaca oleracea* | Sea Purslane | 12" OC |
| 790 | PO | *Portulaca oleracea* (See NOTE 4) | Sea Purslane | 6" OC |
| 19 | SW | *Sanseveria 'Whales Fin'* | Same | 18" x 18" |
| 80 | ZP | *Zamia pumila* | Coontie | 3 gal. 18" OC |
| **VINES** | | | | |
| 1 | BA | *Bougainvillea 'Alabama Sunset'* | Same | 7 gal. train to trunk of Coconut Palm |
| 1 | PV | *Pyrostegia venusta* | Flame Vine | |
| 21 | SV | *Solandra* | Chalice Vine | |
| 18 | IPC | *Ipomea pes-caprae* | Railroad Vine | |
| 14 | SF | *Stephanotis floribundo* | Bridal Wreath | |
| **RELOCATES** | | | | |
| 1 | CR | *Clusia rosea* | Autograph Tree | Relocated from on-site |
| 2 | SG | *Coccoloba uvifera* | Sea Grape | Relocated from on-site |
| 31 | CN | *Cocos nucifera* | Coconut Palm | Relocated from on-site |
| 4 | CE | *Conocarpus erectus* | Green Buttonwood | Relocated from on-site |
| 12 | BR | *Jacquinia arborea* | Brazalet-Wood | Relocated from on-site (8' ht x 5' sp.) |
| 1 | WD | *Phoenix sylvestris* | Wild Date Palm | Relocated from on-site |
| 10 | TR | *Thrinax radiata* | Green Thatch Palm | Relocated from on-site |
| **MISC** | | | | |
| *Zoysia Sod (3820 sqft.)* | | | | |
| *Reinforced Zoysia Sod (815 sqft) - Install per manufactures instructions* | | | | |
| *Fertilizer: Florikote Coated Magnesium, Florikote13-5-11, Florikote Coated Micronutrients. Supplier: Florikan (800) 322- 8666* | | | | |
| *Accent plant allowance $5,000 W.P.A. total (W.P.A. = Wholesale Purchase Allowance) Species to be determined by Landscape Architect* | | | | |
| *Coquina SV #2, 6" min. over well compacted sub-grade or existing beach sand. Supplier: Sutton Brick & Stone (954) 472- 7646* | | | | |
| *Mulch - 2" deep Florimulch topped with 1" Pinus elliottii needles in planting areas* | | | | |
| *Soil Ammendments: Add organic amendment per lab recommendation as topping layer on uncompcated fill, 8" typ., depth varies. See plant schedule. Mix organic amendment with existing backfill to depth indicated in plant schedule.* | | | | |
| **NOTES** | | | | |
| *NOTE 1* | *Create an organic layer of 4-inches and 2-inches of a transitional zone 50% organic and 50% existing uncompacted fill* | | | |
| *NOTE 2* | *Plant to be located in field by Landscape Architect* | | | |
| *NOTE 3* | *Contractor to provide irrigation to all turf areas.* | | | |
| *NOTE 4* | *Quantity reflects Sea Purslane at 6" o.c. on tiki bar rooftop only* | | | |

## PLAN KEY



## PLANT SYMBOL KEY

PROPOSED SHRUB / ACCENT

PROPOSED VINE

XX 00

PROPOSED GROUNDCOVERS

NOTE: FINAL LOCATION OF PLANTS TO BE DETERMINED IN THE FIELD BY LANDSCAPE ARCHITECT. CONTRACTOR TO STAKE TREE LOCATIONS AND CONFIRM SOIL DEPTH /UTILITY CONFLICTS. PRIOR TO DIGGING, CONTRACTOR TO SCHEDULE REVIEW OF FIELD CONDITIONS WITH LANDSCAPE ARCHITECT TO ADJUST TREE LOCATION TO RESOLVE ANY CONFLICTS

## PARTIAL UNDERSTORY PLANTING PLAN

SCALE: 1/8"=1'-0"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| REVISIONS | | |
|---|---|---|
| 1 | 09.13.10 | CMB COMMENTS |
| 2 | 11.18.10 | CMB COMMENTS |

| REVISIONS |
|---|
| |

11.18.2010

# SOHO BEACH HOUSE

4385 COLLINS AVENUE, MIAMI BEACH, FL, 33140
JOB NO. 05035
**TIKI HUT**
CONSTRUCTION DOCUMENTS

L-3.04
09.13.10