FOUNDATION STABILIZATION

661 MODOC DR.
BIG BEAR LAKE, CA

REVISIONS	BY
FIRST DRAFT 11-15-12	
REVISIONS 11-19-12	

GENERAL NOTES

1. CODE OF RECORD FOR DESIGN: 2010 CBC, CMC, CPC, AND CEC AND CITY ORDINANCE.

2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO STARTING WORK, AND SHALL NOTIFY THE OWNERS REPRESENTATIVE OF DISCREPANCIES OR INCONSISTENCIES.

3. THE STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT REPRESENT THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT LIMITED TO, BRACING AND SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, CONSTRUCTION LOADS OF MATERIALS, ETC. CONSTRUCTION EQUIPMENT, CONSTRUCTION LOADS OF MATERIALS, ETC. QUALIFIED PROFESSIONALS TO DETERMINE FIELD LAYOUT OF THE BUILDING ELEMENTS, AND THE ADEQUACY OF ALL PROPOSED BRACING AND SHORING.

4. OBSERVATION VISITS TO THE SITE BY THE ENGINEER SHALL NOT INCLUDE OBSERVATION OF SAFETY METHODS, BRACING OR SUPPORT.

5. PLAN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALES SHOWN ON DRAWINGS. DO NOT SCALE PLANS & DETAILS.

6. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND STANDARD DETAILS.

7. CLARIFICATION SHALL BE REQUESTED FROM THE ENGINEER FOR ALL WORK INDICATED ON THE PLANS THAT IS NOT SPECIFICALLY DETAILED, AND IS NOT SIMILAR TO WORK THAT IS DETAILED.

8. SEE EXISTING AND/OR OTHER PLANS FOR SIZE AND LOCATION OF ALL DOOR AND WINDOW OPENINGS, SIZE AND LOCATION OF ALL NON-BEARING PARTITIONS, SIZE AND LOCATION OF ALL CURBS, DRAINS, DEPRESSED AREAS, SLOPES AND ELEVATION CHANGES, CHAMFERS, GROOVES, INSERTS, ALL FINISHES, AND SIZE AND LOCATION OF ALL FLOOR AND ROOF OPENINGS.

9. SEE OTHER PLANS FOR ALL WATERPROOFING REQUIREMENTS. THE ENGINEER IS NOT RESPONSIBLE FOR WATERPROOFING DETAILS AND SPECIFICATIONS.

10. SEE MECHANICAL, PLUMBING, ELECTRICAL AND OTHER PLANS FOR PIPE-RUNS, SLEEVES, HANGERS, TRENCHES, WALL AND SLAB OPENINGS, ELECTRICAL CONDUIT RUNS AND BOXES, OUTLETS, AND EQUIPMENT BASE ANCHOR BOLTS.

11. CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED FLOORS OR ROOFS. LOADS SHALL NOT EXCEED DESIGN LOADING FOR SUPPORTING MEMBERS.

RETROFIT NOTES

1. ALL CONTRACTORS AND SUBCONTRACTORS BIDDING ON THIS PROJECT SHALL BECOME FAMILIAR WITH THESE PLANS, AND VISIT THE SITE AND EXAMINE THE EXISTING CONDITIONS PRIOR TO SUBMITTING BIDS. CONTRACTORS AND SUBCONTRACTORS AGREE AND ACKNOWLEDGE THEIR KNOWLEDGE OF THESE PLANS AND THE VISIBLE EXISTING CONDITIONS BY SUBMITTING THEIR BIDS.

2. THERE COULD BE MANY CONSTRUCTION ITEMS THAT ARE HIDDEN FROM VIEW AT AN EXISTING/RETROFIT CONSTRUCTION SITE THAT COULD INTERFERE WITH WORK, INCLUDING BUT NOT LIMITED TO:

A. COVERED OR HIDDEN STRUCTURAL MEMBERS AND RELATED CONNECTIONS.
B. PIPES AND CONDUITS BURIED IN THE SOIL AND IN THE STRUCTURE.
C. DEBRIS BURIED IN THE SOIL AND IN THE STRUCTURE.
D. UNDISCOVERED AND UNANTICIPATED SOILS CONDITIONS. WHEN THE CONTRACTOR ENCOUNTERS HIDDEN CONDITIONS THAT INTERFERE WITH WORK, HE SHALL CEASE WORK IN THAT AREA AND NOTIFY THE OWNER AND PROJECT ENGINEER. HE SHALL NOT PROCEED AGAIN UNTIL CLARIFICATION IS ISSUED.

3. THESE RETROFIT PLANS REPRESENT THE FINAL CONDITION OF STRUCTURAL REPAIRS OR MODIFICATIONS. THEY DO NOT INDICATE OTHER RELATED NON-STRUCTURAL REPAIRS NECESSARY TO ACCOMPLISH THE STRUCTURAL REPAIRS. THE CONTRACTOR, AFTER HIS SITE EXAMINATION, SHALL NOTE ALL VISIBLE RELATED NECESSARY REPAIRS AND REPLACEMENTS AND INCORPORATE THEM INTO HIS BID.

4. THE ARCHITECTURAL APPEARANCE OF THE INTERIOR AND EXTERIOR OF THE BUILDING AFTER THE RETROFIT SHALL BE EQUIVALENT TO OR BETTER THAN THE APPEARANCE PRIOR TO THE RETROFIT.

5. THE CONTRACT WORK SHALL NOT BE CONSIDERED COMPLETED UNTIL THE OWNER IS SATISFIED THAT ALL REPAIR OR REPLACEMENT WORK IS ACCEPTABLE.

DOWELS / ANCHORS EMBEDDED IN EPOXY

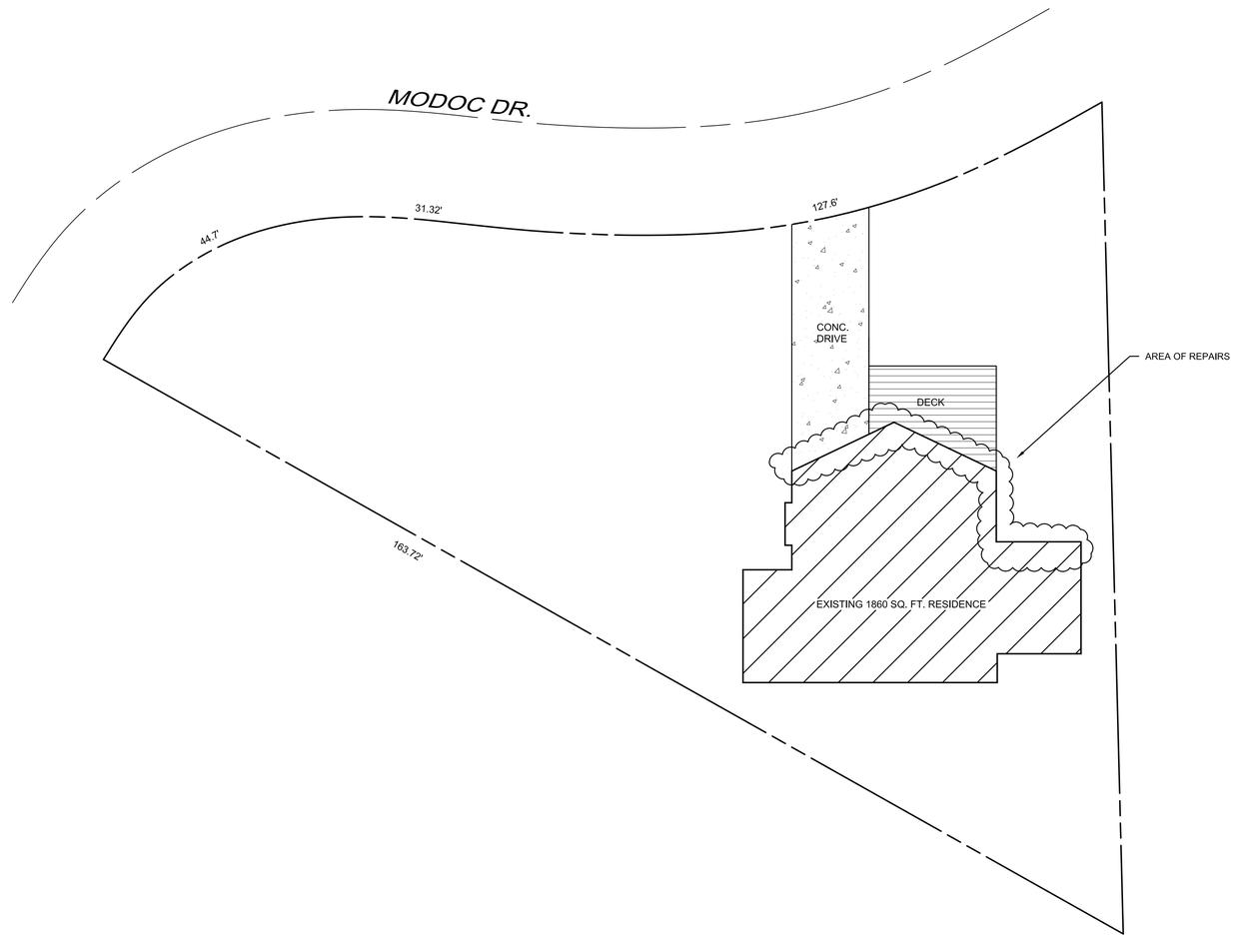
1. DOWELS AND ANCHORS EMBEDDED IN EPOXY SHALL BE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS.

2. CORRECT IMPLEMENTATION OF THE MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION SHALL BE VERIFIED BY A SPECIAL INSPECTOR.

3. ONLY NON-REBAR-CUTTING DRILL BITS SHALL BE USED TO DRILL HOLES IN EXISTING CONCRETE.

4. DOWEL OR ANCHOR EMBEDMENT SHALL BE VERIFIED AND DOCUMENTED BY THE SPECIAL INSPECTOR.

5. DRILL HOLES SHALL BE CLEANED OF CONCRETE OR MASONRY DUST AND DEBRIS USING OIL-FREE COMPRESSED AIR AND A WIRE BRUSH FOR CONCRETE AND CONCRETE MASONRY UNIT (CMU) SUBSTRATES. A BLOW-OUT BULB MAY NOT BE USED IN LIEU OF COMPRESSED AIR. CLEANLINESS OF DRILL HOLES SHALL BE VERIFIED AND DOCUMENTED BY A SPECIAL INSPECTOR.



SITE PLAN
SCALE: 1"= 10'

NOTE

HELFRICH-ASSOCIATES WILL PERFORM JOB SITE OBSERVATIONS OF THE CONTRACTOR'S WORK TO VERIFY THAT THE WORK CONFORMS TO THE APPROVED PLANS AND SPECIFICATIONS. AFTER COMPLETION OF THE OBSERVATIONS (AND AFTER THE CONTRACTOR CORRECTS ANY DEFICIENCIES), HELFRICH-ASSOCIATES WILL PREPARE A LETTER REPORTING THAT THE WORK HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS, AND THE ENGINEER'S INTENT

SHEET INDEX

SCOPE OF REPAIR

1. INSTALL FIVE ATLAS RESISTANCE PIERS AND LIFT TO MAXIMUM PRACTICAL RECOVERY (ABOUT 2 INCHES).

2. INJECT STRUCTURAL POLYURETHANE BENEATH EXISTING FOOTINGS.

3. REPAIR STEM WALL FOUNDATION CRACK.

PROJECT INFORMATION

LEGAL DESCRIPTION:

APN: 0308-076-02

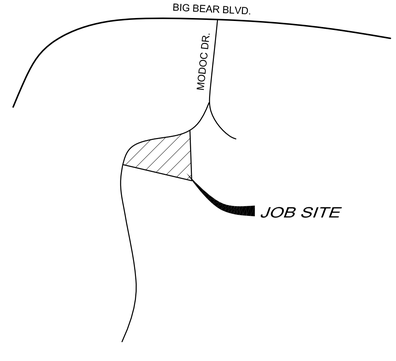
MAP REFERENCE: 98-B5

BUILDING DATA

OCCUPANCY:	GROUP R, DIV.3 /GROUP U, DIV.1
TYPE OF CONSTRUCTION:	V-N
SPRINKLED:	N0
STORIES:	2
LOT SIZE :	.28 AC

BUILDING AREA

TOTAL LIVING SPACE:	1860SQ. FT.



VICINITY MAP
N.T.S.

SITE PLAN

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HELFRICH-ASSOCIATES
ENGINEERING AND CONSTRUCTION CONSULTING

DATE: 11-13-12
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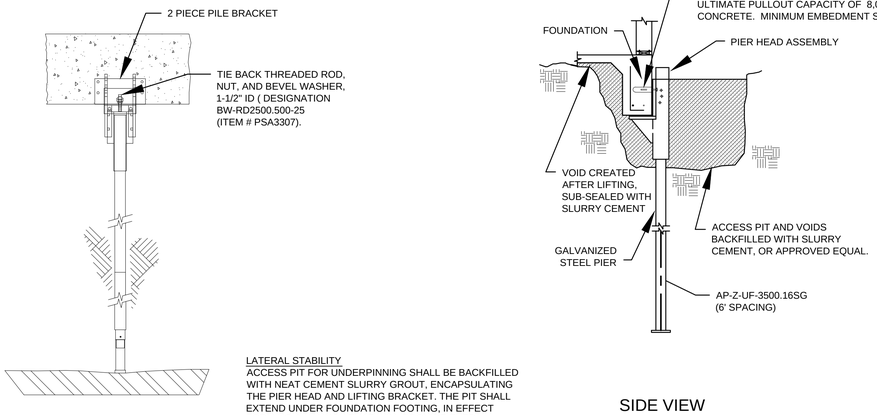


PROFILE

LATERAL STABILITY
ACCESS PIT FOR UNDERPINNING SHALL BE BACKFILLED WITH NEAT CEMENT SLURRY GROUT, ENCAPSULATING THE PIER HEAD AND LIFTING BRACKET. THE PIT SHALL EXTEND UNDER FOUNDATION FOOTING, IN EFFECT FORMING A HAUNCH THAT WILL PROVIDE EXTRA SUPPORT TO TIE DOWN, AND LATERAL STABILITY TO THE REPAIR OF THE FOUNDATION, TO THE GREATEST EXTEND POSSIBLE.

SIDE VIEW

1 ATLAS RESISTANCE PIER

1A ATLAS RESISTANCE PIER - SIDE VIEW

BOLT WASHER SCHEDULE

1. WASHERS SHALL BE USED UNDER THE HEADS AND NUTS OF ALL BOLTS BEARING ON WOOD. THE WASHERS LISTED BELOW SHALL BE USED IN THE FOLLOWING LOCATIONS:
   A. WALL TO FOUNDATION SILL PLATES
   B. WOOD LEDGERS TO CONCRETE AND MASONRY WALLS
   C. AGAINST A 2X-MEMBER WHEN 2X IS BOLTED TO A LARGER MEMBER, OR IS USED AS PART OF A BUILT-UP BEAM.
   D. STANDARD CUT WASHERS MAY BE USED ELSEWHERE UNLESS NOTED ON PLANS.

BOLT SIZE	SQUARE STEEL	ROUND STEEL	ROUND MALLIABLE IRON
1/2"	2 1/2X2 1/2X3/16"	2 1/4 X 3/16"	2 1/2 X 1/4"
5/8"	2 1/2X2 1/2X 1/4"	2 3/4 X 1/4"	2 1/2 X 7/16"
3/4"	3 X 3 X 1/4"	3 X 5/16"	3 X 7/16"
7/8"	3 1/2X3 1/2X 5/16"	3 1/2 X 3/8"	3 1/2 X 7/16"
1"	4 X 4 X 3/8"	4 X 7/16"	4 X 7/16"

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL WORK SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (A.I.S.C.) SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.

2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING:

SHAPES, PLATES AND BARS	A.S.T.M, A 36
MACHINE BOLTS	A.S.T.M. A 307
ANCHOR BOLTS AND PINS	A.S.T.M. A 307 OR A 36
PIPE	A.S.T.M. A 53, GRADE B
STRUCTURAL TUBES	A.S.T.M. A 500, GRADE B

3. LICENSED FABRICATORS APPROVED BY THE BUILDING DEPARTMENT SHALL FURNISH SHOP DRAWINGS FOR APPROVAL OF THE ENGINEER PRIOR TO FABRICATION OF THE STRUCTURAL MEMBERS.

4. ALL CONNECTIONS NOT SPECIFICALLY DETAILED ON THE PLANS SHALL BE DETAILED BY THE STEEL FABRICATOR AND SHALL BE SHOWN ON THE SHOP DRAWINGS SUBMITTED TO THE ENGINEER FOR APPROVAL.

5.ALL STEEL EXPOSED TO THE WEATHER OR TO ANY SOURSE OF MOISTURE SHALL BE EITHER HOT DIPPED GALVANIZED OR PROVIDED WITH ATLEAST 2-COATS OF CORROSION INHIBITING PAINT.

NOTES:

1. ALL DRYWALL TAKEN OUT DURING REPAIR SHALL BE INSTALLED/ REPLACED BACK TO PROVIDE THE SAME FIRE RATING THE WALL PREVIOUSLY HAD.
DRYWALL REPLACEMENT REQUIRES SEPERATE PERMIT. SEPERATE PLANS SHALL BE SUBMITTED.
2. THE ENTIRE FOUNDATION LEVELING AND JACKING PROCESS MUST BE OBSERVED BY THE ENGINEER OF RECORD FOR THE PROJECT.

3. A FIELD SOIL MEMO MUST BE SUBMITTED AND FINAL REPORT STAMPED AND SIGNED BY A LICENSED GEOTECHNICAL ENGINEER TO CERTIFY THE PIPE PILE INSTALLATION AND JACKING (DRIVING PROCESS, JACKING PROCESS AND FOUNDATION/SLAB INJECTION LIFTING) HAS BEEN PROPERLY INSTALLED.

4. ROOF GUTTERS AND DOWNSPOUTS SHOULD BE PROVIDED/CHECKED AND REPAIRED AS NEEDED, TO DIRECT ALL ROOF DRAINAGE TO A NON-ERODIBLE FINISH SURFACE. DOWNSPOUTS SHOULD BE DIRECTLY CONNECTED TO A DRAIN PIPE SYSTEM FOR OUTLETTING.

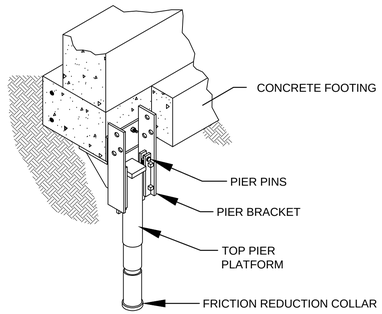
5. RESTORE SURFACE DRAINAGE AWAY FROM AFFECTED PART OF BUILDING, 2% MINIMUM SLOPE.

6. MAINTAIN IRRIGATION SYSTEM AND DRAINAGE SYSTEMS IN GOOD WORKING ORDER. SEE SOILS REPORT FOR MORE RECOMMENDATIONS.

7. THE PIER MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS, SPECIFICATIONS AND CURRENT APPROVED REPORT SHALL BE ATTACHED TO THE PLANS AND BE AVAILABLE AT ALL TIMES ON THE JOB SITE DURING THE INSTALLATION OF PIERS.

RESISTANCE PIER PARTS

PART	PART No./PRODUCT DESIGN.	ITEM #	CATALOG REF.
RESISTANCE PIER (2 - PIECE STD. PIER)	AP-2-UF-3500.165G		7-2
1-3/8" GALV. THREADED ROD	HDW-ATRB-WF10-G		7-6
2- PIECE PILE BRACKET	AP-2-UFPDB-2875-G		7-7
1-1/2" ROUND CORNER SQ. SHAFT (SS150)	C150-0144 (3'), C150-145 (5')		7-15
6-10 HELICAL WITH 1-1/2" SQ. SHAFT	C150-0168		7-16
BEVEL WASHER, 1-1/2" I. D.	BW-RD2500.500-25	PSA3307	7-55
REF: CHANCE TECHNICAL DESIGN MANUAL 2007			



2- PIECE UNDER FOOTING PIER SYSTEM

INSTALLATION SPECIFICATIONS FOR URETHANE GROUT

1.0 SCOPE OF WORK
GROUTING SHALL BE PERFORMED AS GENERALLY DEPICTED ON THE PLANS, AS OUTLINED IN THESE SPECIFICATIONS, AND AS DIRECTED BY THE ENGINEER. CHANGES MAY BE CALLED FOR IN BOTH THE EXACT LAYOUT AND NUMBER OF GROUT HOLES AS CONDITIONS ENCOUNTERED DURING THE WORK ARE EVALUATED. THE PURPOSE OF THE WORK IS TO DENSIFY COMPRESSIBLE SOIL WITHIN THE SPECIFIED WORK AREA.

2.0 ACCESS AND SITE CONDITIONS
THE CONTRACTOR SHALL VISIT THE SITE AND INDEPENDENTLY VERIFY ANY ACCESS- OR WORK-RELATED RESTRICTIONS. THE TYPE AND CONDITION OF THE SOIL TO BE IMPROVED IS DELINEATED IN THE GEOTECHNICAL REPORT OF HELFRICH-ASSOCIATES.

3.0 TREATMENT AREA AND DEPTH
THE SOILS SHALL BE GROUTED AT THE LOCATIONS AND TO THE DEPTHS OUTLINED IN THE PLANS AND SPECIFICATIONS. THE GROUT HOLE LOCATIONS AND DEPTHS ARE BASED ON THE BEST AVAILABLE GEOTECHNICAL AND STRUCTURAL EXPLORATION DATA; HOWEVER, NOT ALL GROUTING LOCATIONS HAVE BEEN EXPLORED IN DETAIL. THE PRECISE LIMITS OF THE AREA TO BE GROUTED AND THE EXACT LOCATION AND REQUIRED DEPTH OF THE INDIVIDUAL GROUT HOLES ARE NOT POSITIVELY KNOWN BUT WILL BE REVEALED AS THE WORK PROGRESSES. THE ENGINEER AT HIS DISCRETION MAY MOVE THE LOCATION OF THE PROPOSED HOLES, CHANGE THE PROPOSED DEPTHS TO BE GROUTED, ADD NEW HOLES OR ELIMINATE SOME OF THE PROPOSED HOLES SHOWN ON THE PLANS.

4.0 SUBSURFACE PIPES AND UTILITIES
THE CONTRACTOR SHALL ACCESS EXISTING SEWER OR DRAIN LINES BOTH UPSTREAM AND DOWNSTREAM OF THE AREA TO BE GROUTED. CLEAR WATER SHALL BE RUN INTO THE UPSTREAM ACCESS AND OBSERVED DOWNSTREAM SO THAT ANY LEAKAGE OF GROUT INTO THE LINE WILL BE OBSERVED. GROUT INJECTION SHALL IMMEDIATELY STOP UPON THE APPEARANCE OF LEAKAGE INTO THE LINE, AND IT SHALL BE THOROUGHLY FLUSHED OUT AND CLEARED OF ANY GROUT.

5.0 GROUT MIXTURES
GROUT SHALL BE DUAL COMPONENT STRUCTURAL POLYURETHANE RESIN.
THE MATERIAL USED FOR RAISING CONCRETE SLABS SHALL BE A WATER BLOWN HIGH-DENSITY POLYURETHANE. THE MATERIAL SHALL BE HYDROPHOBIC. THE HIGH-DENSITY, CLOSED CELL, POLYURETHANE SYSTEM SHALL EXHIBIT THE FOLLOWING PHYSICAL CHARACTERISTICS AND PROPERTIES:

Density (lb/Ft.3) ASTM1622	Minimum Compressive Strength (psi) ASTM1621
3.0	40 psi
3.5	50 psi
4.0	60 psi
5.0	110 psi

THE POLYURETHANE FOAM SYSTEM WILL HAVE A FREE RISE DENSITY OF 3.0 -3.2 (lb/ft3), WITH A MINIMUM COMPRESSIVE STRENGTH OF 40 PSI. THE EXPANSION OF THE POLYURETHANE FOAM UNDER PRESSURE INCREASES THE FOAM DENSITY ABOVE THE ORIGINAL FREE RISE DENSITY VALUE. THE COMPRESSIVE STRENGTH IS A FUNCTION OF DENSITY OF THE TESTED MATERIAL; THEREFORE THE FOAM PRODUCE DURING THE LIFTING PROCESS WILL NORMALLY HAVE A HIGHER COMPRESSIVE STRENGTH THAN FOAM PRODUCED WITHOUT RESTRICTION (FREE RISE). WHEN THE MATERIAL IS USED FOR VOID FILLING, THE FINAL IN-PLACE DENSITY WILL BE SLIGHTLY HIGHER THAN THE FREE RISE DENSITY, AS SOME PACKING OF MATERIAL WILL OCCUR TO INSURE FILL.

6.0 DRILLING AND GROUTING EQUIPMENT

THE MINIMUM LIST OF EQUIPMENT REQUIRED SHALL BE AS LISTED BELOW. THE LISTING IS A MINIMUM AND SHALL NOT PRECLUDE THE USE OF ADDITIONAL EQUIPMENT.
- A DRILL CAPABLE OF DRILLING 5/8" INCH DIAMETER HOLES
- A TRUCK-MOUNTED PUMPING UNIT CAPABLE OF INJECTION THE HIGH-DENSITY POLYURETHANE FORMULATION INTO THE SUBGRADE SOILS AND CAPABLE OF CONTROLLING THE RATE OF RISE OF THE SLAB
- A DIGITAL MANOMETER OR LASER LEVELING UNIT TO MEASURE THE CONCRETE SLAB ELEVATIONS.

7.0 DATA ACQUISITION AND REPORTING
7.1 REQUIRED MONITORING INFORMATION
THE CONTRACTOR SHALL MAINTAIN AND PROVIDE THE ENGINEER A CONTINUOUS LOG DELINEATING THE DRILLING AND GROUT INJECTION PARAMETERS FOR EACH HOLE. MINIMUM DATA PROVIDED ON THE LOG SHALL INCLUDE:
- DATE (S) AND TIME THE HOLE WAS DRILLED
- THE DRILLED DEPTH
- NOTE ANY OBSTRUCTIONS ENCOUNTERED OR UNUSUAL EVENTS OCCURRING DURING DRILLING
- DEPTH DRILLED AND ELEVATION OF BOTH THE TOP AND BOTTOM OF THE HOLE
- DATE (S) AND TIMES GROUTING OF THE HOLE WAS STARTED AND ENDED
- THE INJECTED VOLUME AT EACH THREE-MINUTE INTERVAL
- GROUT TERMINATION CRITERIA
- LOCATION AND AMOUNT OF ANY UPLIFT OR DISPLACEMENT OR ANY STRUCTURE OF THE GROUND SURFACE DURING GROUTING
- NOTATION OF ANY OTHER OBSERVATIONS RELATING TO THE GROUTING

THE NAME OF THE PERSON PREPARING THE LOGS AND THE CURRENT DATE SHALL OCCUR ON ALL PAGES OF THE LOG, AND THE PAGES SHALL BE NUMBERED CHRONOLOGICALLY FROM THE START OF WORK. THE CURRENT TIME SHALL BE NOTED AT EACH LOG ENTRY.

7.2 DAILY REPORT
THE CONTRACTOR SHALL PROVIDE A DAILY REPORT DELINEATING THE ACTIVITIES FOR EACH DAY THAT HIS PEOPLE ARE ON THE JOB SITE. THE LOG SHALL PROVIDE, AT MINIMUM, FOR THE FOLLOWING:
- DATE
- WEATHER
- HOLES DRILLED
- HOLES GROUTED
- MATERIALS RECEIVED AND TIME OF DELIVERY
- NAMES OF ANY VISITORS AND TIME ON JOB
- DETAILS OF ANY ACCIDENTS, INJURIES OR OTHER UNUSUAL EVENTS, INCLUDING THE OCCURRENCE TIME

COPIES OF RECEIPTS OR DELIVERY TICKETS FOR ALL MATERIALS DELIVERED TO THE JOB SITE SHALL BE PROVIDED TO THE ENGINEER.

7.3 MOVEMENT MONITORING SYSTEM
THE CONTRACTOR SHALL PROVIDE INSTRUMENTATION TO DETECT ANY MOVEMENT OF THE GROUND SURFACE OR ANY STRUCTURE WITHIN A RADIUS OF 30 FT （9 M） FROM ANY HOLE BEING GROUTED. THE MONITORING DEVICES SHALL BE CAPABLE OF DETECTING MOVEMENTS OF 1/32 INCH （0.75 MM） OR MORE IN ANY DIRECTION.

THE INSTRUMENTATION MAY INCLUDE BUT IS NOT LIMITED TO STRINGLINES, TELLTALES, MANOMETERS, LASERS, AND OPTICAL DEVICES. BACKUP SURVEYOR'S INSTRUMENTS SHALL BE PROVIDED IN SUCH QUANTITY AS TO ALLOW EVALUATION OF THE MOVEMENT OF ALL STRUCTURES WITHOUT THE NECESSITY OF MOVING THE INSTRUMENT LOCATION DURING INJECTION. THE ORIGINAL POSITION OF ALL STRUCTURES SHALL BE ESTABLISHED PRIOR TO GROUT INJECTION BY THE PLACEMENT OF SUITABLE MARKINGS OR TARGETS THEREON.

THE CONTRACTOR SHALL DEDICATE EXPERIENCED AND FULLY QUALIFIED PERSONNEL TO MONITOR THE INSTRUMENTATION SO AS TO PREVENT ANY DAMAGE TO THE SITE OR STRUCTURES.

8.0 COMMUNICATION SYSTEM
THE CONTRACTOR SHALL PROVIDE A COMMUNICATION SYSTEM THAT ALLOWS IMMEDIATE VOICE CONTACT BETWEEN THE GROUT HOLE, PUMP OPERATOR, AND MONITORING PERSONNEL.

9.0 SEQUENCE OF WORK
THE CONTRACTOR SHALL SUBMIT A SCHEDULE AND SEQUENCE OF WORK TO THE ENGINEER FOR APPROVAL.

10.0 CONSTRUCTION METHODS

DRILLING: THE INJECTION HOLE SHALL BE DRILLED IN THE FOLLOWING MANNER: A SERIES OF 5/8-INCH HOLES SHALL BE DRILLED AT SIX TO EIGHT-FOOT INTERVALS THROUGH THE CONCRETE. THE ENGINEER WILL DETERMINE THE LOCATION AND SPACING OF THE HOLES.

INJECTING: THE HIGH-DENSITY POLYURETHANE FORMULATION WILL BE INJECTED INTO SOILS UNDER THE SLAB. AS THE POLYURETHANE CHEMICALLY REACTS, IT EXPANDS AND HARDENS, EXERTING THE NECESSARY LIFTING FORCES. THE AMOUNT OF RISE SHALL BE CONTROLLED, USING THE PUMPING UNIT, BY REGULATION THE RATE OF INJECTION OF THE HIGH-DENSITY POLYURETHANE MATERIAL. WHEN THE NOZZLE IS REMOVED FROM THE HOLE, ANY EXCESSIVE POLYURETHANE MATERIAL SHALL BE REMOVED FROM THE AREA AND THE HOLE SEALED WITH A NON-EXPANSIVE CEMENTITIOUS GROUT.

ELEVATIONS: FINAL ELEVATIONS SHALL BE WITHIN 1/4-INCH OF THE ELEVATIONS PROPOSED BY PROFILE. A TIGHT STRING LINE MAY BE USED TO MONITOR AND VERIFY ELEVATIONS FOR SLAB LENGTHS OF 50 FEET OR LESS. FOR LONGER SECTIONS, A DIGITAL MANOMETER OR LASER LEVEL WILL BE USED TO MONITOR AND VERIFY ELEVATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY BLOWOUTS OR EXCESSIVE LIFTING WHICH MAY RESULT FROM PROCESS AND SHALL REPAIR THE DAMAGED AREA TO THE SATISFACTION OF THE ENGINEER WITHOUT ADDITIONAL COST.

CURING TIME: THE HIGH-DENSITY POLYURETHANE FORMULATION SHALL REACH 90% OF FULL COMPRESSIVE STRENGTH WITHIN 15 MINUTES FOR INJECTION.

12.0 SITE MAINTENANCE AND RESTORATION
12.1 HOUSEKEEPING
THE CONTRACTOR SHALL KEEP THE SITE CLEAN AND TIDY AT ALL TIMES. SITE IMPROVEMENTS SHALL BE PROTECTED FROM DAMAGE OR BECOMING SOILED THROUGH SUITABLE TEMPORARY COVERING. SPILLED GROUT SHALL BE PROMPTLY PICKED UP AND MOVED TO AN APPROPRIATE WASTE STORAGE AREA. HOSES, DELIVERY LINES, AND OTHER ITEMS THAT ARE NOT IN IMMEDIATE USE SHALL BE NEATLY STORED IN A MANNER THAT WILL NOT IMPEDE THE ONGOING WORK. ALL TRASH, USED CEMENT BAGS, ETC., SHALL BE COLLECTED AND NEATLY STORED FOR DISPOSAL. AS SOON AS A REASONABLE QUANTITY OF SUCH WASTE MATERIAL HAS GATHERED, IT SHALL BE PROMPTLY REMOVED FROM THE SITE. WATER AND WASTE GROUT SHALL BE PROMPTLY COLLECTED AND DISPOSED OF. WATER SHALL NOT BE ALLOWED TO POND IN THE WORK AREA.

12.2 SITE RESTORATION
UPON COMPLETION OF THE WORK, ALL WASTE SHALL BE REMOVED FROM THE SITE AND THE SITE RESTORED TO AS NEAR ITS ORIGINAL CONDITION AS POSSIBLE. ANY REMNANTS OF DRILLING FLUID OR GROUT THAT HAVE SPLATTERED ON IMPROVEMENTS SHALL BE COMPLETELY REMOVED.

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DETAILS

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DATE 11-13-12
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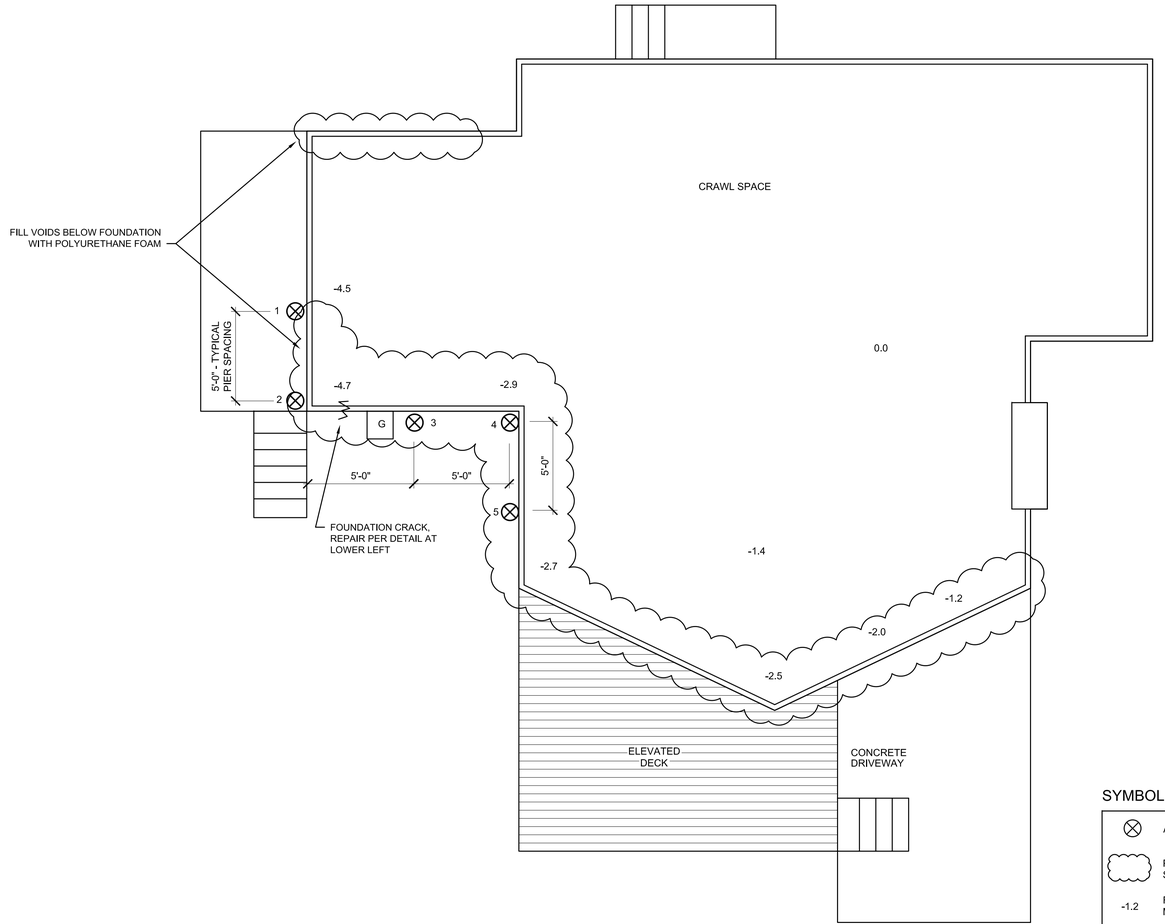
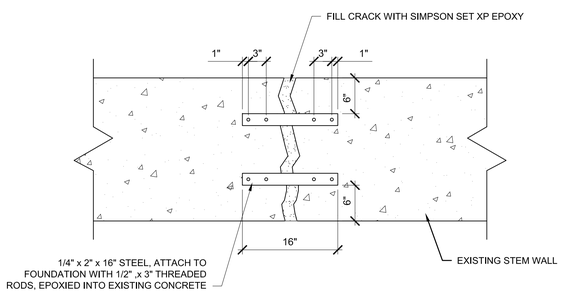


SYMBOL LEGEND

- ATLAS RESISTANCE PIERS
- POLYURETHANE FOAM STABILIZATION
- -1.2 FLOOR ELEVATION MEASUREMETS IN INCHES
- FOUNDATION CRACKS
- G GAS MAIN



FOUNDATION CRACK REPAIR

SCALE: 1" = 1'-0"'

FLOOR PLAN

SCALE: 1/4" = 1'-0"'

REVISIONS	BY
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REVISIONS 11-19-12	

FLOOR PLAN

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DATE 11-13-12
SCALE AS NOTED
DRAWN BY: MM
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OF

FOUNDATION DISTRESS REPORT

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WWW.SABERFOUNDATIONS.COM

SABER
Concrete & Foundation Leveling Solutions.

SERVING SAN BERNARDINO COUNTY FOR OVER 25 YEARS!

PREPARED October 22, 2012

Customer Initials

CONCLUSIONS

Findings

Engineering standard for an out-of-level home is 0.5" of settlement within 10', and is where cracking and/or damage to stucco, drywall and concrete will begin. The interior elevations show a maximum variance of 4.7 inches across the area measured with over 2.5" within 10'. The variance suggests that there is general foundation distress and that the present foundation and soil conditions have experienced settlement and is likely to continue without additional support that can be obtained by underpinning the foundation. Detailed explanations of underpinning and term definitions are provided on the web site www.saberfoundations.com.

The subject property is a two-story residence with wood constructed wall and wood siding, supported by a raised foundation with crawl space. The total line load of the foundation was calculated as follows:

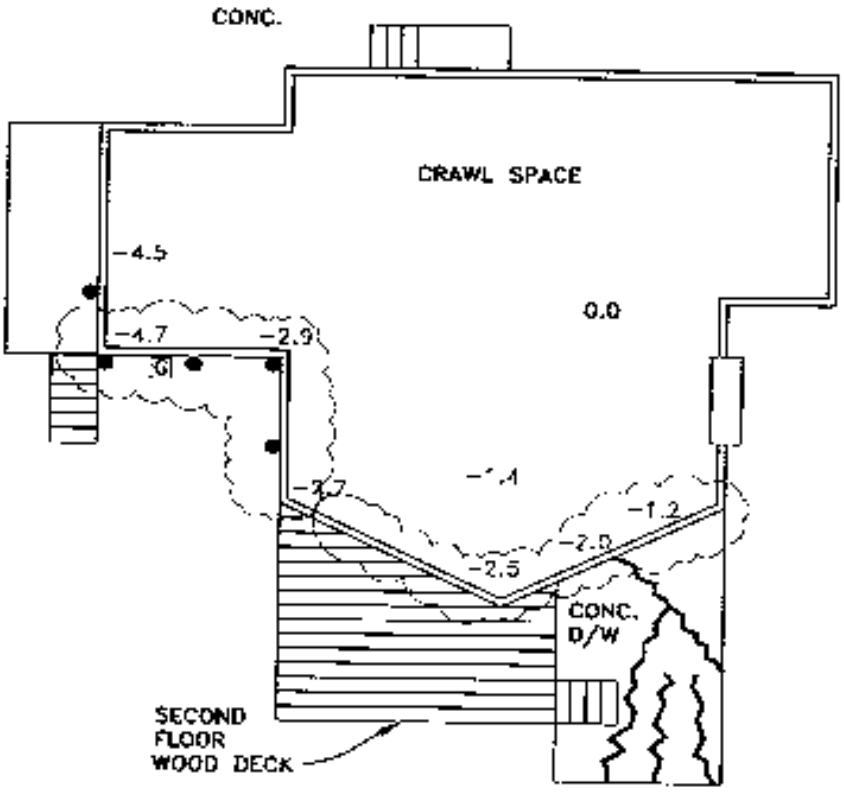
Dead Load	1324 lbs/ft
Live Load	600 lbs/ft
TOTAL	1924 lbs. per foot

This load is important in determining the repair options available to the foundation and the type and placement of the piers.

Customer Initials

Service Quote

To achieve foundation stabilization and raise the foundation to maximum practical recovery, SABER proposes to install 5 piers under the foundation as indicated in the CAD drawing below[2]:



SYMBOL KEY

● =RESISTANCE PIER

=POLYURETHANE INJECTION

EX. CRACKS (WALL/STEM WALL)

[2] The pier placement is only an estimate of the location of each pier. Once the work has begun, the on-site Job Foreman will make the final determinations as to the actual pier placement based on the condition of the foundation and obstructions.

Customer Initials _____

Repair Price Itemization:

Install 5 resistance piers, under foundation footing to load-bearing stratum to support foundation and to lift to maximum practical recovery[3] $8,750.00

Inject a structural polyurethane resin beneath existing footing.....$4,390.00

Remove concrete at stairs for pier placement.....$400.00

Repair existing crack in stem wall.....$2,160.00

Discount.....**-$400.00**

TOTAL ESTIMATE FOR SABER REPAIRS.....**$15,300.00**

IMPORTANT DISCLAIMERS AND JOB PREPARATION NOTES REGARDING THE ABOVE SERVICES ARE INCLUDED AS AN APPENDIX TO THIS REPORT. MAKE SURE YOU READ THE *DISCLAIMERS AND JOB PREPARATION* APPENDIX TO BECOME FAMILIAR WITH THE DETAILS OF THE ABOVE REFERENCE ITEMS.

A deposit of 10% of the TOTAL ESTIMATE FOR SABER REPAIRS or $1,000.00, whichever is less, is required to schedule the project for repairs. Additionally, if Saber engineering services are utilized, an additional $3,500.00 is required to begin the engineering process. 25% of the total job is required upon the commencement of work and delivery of material. 25% is required upon completion of the installation of piers/ anchors. The balance of the total job is due upon completion of all work and must be paid directly to the Job Foreman. Typically, projects can be started within 4–6 weeks of notification of approval.

SABER is a Specialty *D-30* Contractor licensed by the California State License Board for "Pile Driving" and "Foundation Pressure Jacking". The specialty contractor classifications are designed for contractors whose work requires specialized skill in a particular building trade or craft, such contractors are licensed only to do work which falls under the scope of their particular classification. The *D-30* license classification is required to perform this project. This is the type of project *SABER* specializes in to prevent further damage to your home and restore the property back to market value.

[3] Price includes depths up to 25 feet below grade. If soil conditions are not strong enough at this depth to support the structure and the piers installed deeper than 25 feet, an additional charge of $25 per foot will be added for each pier.

Customer Initials _____

This *Foundation Distress Report* also serves as a *Contract for Services*, along with the drawings and appendixes indicated below.

The following Appendixes have been included in this report:

- **Reference Lists**
- **Equipment Diagrams**
- **Warrantee**
- **Disclaimers & Job Preparations**
- **FAQ's**
- **Terms and Conditions**
- **License Information**
- **Legal Notifications**
- **Sample Post-Job Installation Summary**

CONTRACT FOR SERVICES APPROVAL

By signing below, I hereby authorize Saber to perform the repairs as outlined in this *Foundation Distress Report* and I hereby agree to all the terms and conditions herein.

Karen West	Karen West	10/23/2012
Customer Name	Customer Signature	Date Signed

Customer Initials KW

SABER
Concrete & Foundation Leveling.
Phone (800) 922-2488 / Fax (800) 474-6332

Please remit payment to:
SABER
18345 Pasadena Street
Lake Elsinore, CA 92530

Date	10/23/12
Invoice No.	11610
Job Number	46765-1

Invoice

Bill To
Karen West
661 Modoc Drive
Big Bear Lake, CA

Property Address
Karen West
661 Modoc Drive
Big Bear Lake, CA

Description	Terms Accounting	Amount
Piering Service- 5 Resistance Piers	$ 8,750.00	
Poly Resin	$ 4,390.00	
Remove Concrete	$ 400.00	
Repair Crack in Stem Wall	$ 2,160.00	
Discount	- 400.00	
Amount of Contract	$15,300.00	
Piering Service- Initial Deposit		1,000.00
Engineering Services- Deposit		3,500.00
	Total	**$4,500.00**

Please reference the Job Number or
the Invoice Number on your payment.

Invoice may not reflect any balance owed to engineers and/or special inspectors not yet received by our office. Once received, an additional invoice will be forwarded to you for payment.

Past Due Fees will be added to your account each month for amounts not received in our office within 30 days of our Invoice Date above. Past due Fees are calculated on the amount due. Our minimum Past Due Fee is $50.00.

SABER
Concrete & Foundation Leveling.
Phone (800) 922-2488 / Fax (800) 474-6332

Please remit payment to:
SABER
18345 Pasadena Street
Lake Elsinore, CA 92530

Date	01/24/13
Invoice No.	12045
Job Number	46765-1

Invoice

Bill To
Karen West
661 Modoc Drive
Big Bear Lake, CA

Property Address
Karen West
661 Modoc Drive
Big Bear Lake, CA

	Terms	Due on Receipt
Description	**Accounting**	**Amount**
Contract Amount	$15,300.00	
Engineering Services	$ 3,500.00	
Permit Fees	$ 228.17	
Total Amount	$18.800.00	
Deposit Received	- 4,500.00	
Due at Signing- $1000.00		
Due to Engineer- $3,500.00		
Deposit Upon Mobilization- 25%	$ 4,500.00	4,500.00
	Total	**$4,500.00**

Please reference the Job Number or
the Invoice Number on your payment.

Invoice may not reflect any balance owed to engineers and/or special inspectors not yet received by our office. Once received, an additional invoice will be forwarded to you for payment.

Past Due Fees will be added to your account each month for amounts not received in our office within 30 days of our Invoice Date above. Past due Fees are calculated on the amount due. Our minimum Past Due Fee is $50.00.

City of Big Bear Lake
PO Box 10,000
Big Bear Lake, CA 92315

Phone: 909-866-5831
Fax:

Due Invoice Summary

DATE	12/12/2012

ACCOUNT:

Saber Foundation Repair
18345 Pasadena St
Lake Elsinore CA 92530

Phone: 800 922 2488

PERMIT NUMBER	12-00666

661 Modoc Dr
Big Bear Lake, CA 92315

Date	Reference Number	Invoice Number	FeeCat	Description	Status	Amount
12/12/2012	12-00666	2012-01909	S-00100	Building Plan Review	Due	227.71

Total Due 227.71

SABER Resistance Pier Installation Log

JOB NAME: Big Bear
INSTALLER: Eddie Rachin

JOB NUMBER:
PIER LOG #: 1 OF 1
DATE:

Cylinder Effective Area
Drive Cylinder: 8.29 Sq. In.
Lifting Jack: 5.15 Sq. In.

SECTION LENGTH = 3.5'

PIER #	1	PIER #	2	PIER #	3	PIER #	4	PIER #	5
SECTION	PSI	SECTION	PSI	SECTION	PSI	SECTION	PSI	SECTION	PSI
1	3400	1	3000	1	2500	1	3400	1	3300
2		2		2		2		2	
3		3		3		3		3	
4		4		4		4		4	
5		5		5		5		5	
6		6		6		6		6	
7		7		7		7		7	
8		8		8		8		8	
9		9		9		9		9	
10		10		10		10		10	
11		11		11		11		11	
12		12		12		12		12	
13		13		13		13		13	
14		14		14		14		14	
15		15		15		15		15	
16		16		16		16		16	
17		17		17		17		17	
18		18		18		18		18	
19		19		19		19		19	
20		20		20		20		20	
21		21		21		21		21	
Depth Below Grade	12"	Depth Below Grade	12"	Depth Below Grade	12"	Depth Below Grade	14"	Depth Below Grade	6"
Total Pier Length	3½	Total Pier Length	3½	Total Pier Length	3½	Total Pier Length	3½	Total Pier Length	3½
Last Pier Length		Last Pier Length		Last Pier Length		Last Pier Length		Last Pier Length	
Total Pier Depth	4½	Total Pier Depth	4½	Total Pier Depth	4½	Total Pier Depth	4½	Total Pier Depth	9½

PLAN CHECK/BUILDING PERMIT APPLICATION

Date 11/29/12 **Plan Check/Permit #**_____

Job Address 1661 MODOC, BIG BEAR LAKE
Assessor's Parcel Number 0308-076-02

Project Description: FOUNDATION STABILIZATION

Property Owner
Name: KAREN WEST
Mailing Address: 539-C VIA ESTRADA
City, State, Zip Code: LAGUNA WOODS, 92637
Telephone #: (949) 583-9081

Architect/Engineer
Name: ~~N/A~~ STEVE HELFRICH
Mailing Address: 30640 KRISTIN COURT
City, State, Zip Code: REDLANDS, CA 92373
Telephone: (909) 389-7316
License #: 040046

Contractor
Name: SOUTH COAST PIERING INC, dba SABER
Mailing Address: 18345 PASADENA STREET
City, State, Zip Code: LAKE ELSINORE CA 92530
Telephone: (800) 922-2488
City Business Lic. No.: _____ Finance Dept OK_____
State License Class and No.: 826234 D06
Worker's Comp Carrier: PRAETORIAN Policy No. EQB0100540-12 Exp. Date: 01/01/13

Applied for by: MARK COOK
(Print Name)
***Signature:** Mark A Cook

RESIDENTIAL PERMIT FEE WORKSHEET

			Square Footage		Valuation
Habitable Area	$104.00	x	1,860	=	$193,440
Garage	$ 51.99	x		=	
Covered Deck	$ 21.68	x		=	
Uncovered Deck	$ 21.68	x		=	
Retaining Wall	$ 15.00	x		=	
Other	$____	x		=	

****Flat Rate (Time and Materials for reroofs, residing, general rehab.)=** _____

CITY OF BIG BEAR LAKE

BUSINESS LICENSING - CONTRACTORS

According to our City's Municipal Code, Section 5.02.290 A2, which states

"Each contractor, including owner builders, shall furnish the Tax Collector with a list of each sub contractor under his control or direction... Under penalty of perjury.",

we are requesting the following information:

Please complete Section "A" and list the names of all sub-contractors in Section "B." We will need this information prior to your final inspection.

Section "A"

Building Permit Application Information

Name: South Coast Piering, Inc. dba Saber
Address: 18345 Pasadena Street, Lake Elsinore CA 92530
Phone #: (800) 922-2488

Lynn Brandt
(Signature)

Section "B"

Sub-Contractors	B/L#	Verified (OFFICE USE ONLY)
N/A		

SABER
Concrete & Foundation Leveling Solutions

WARRANTY TRANSFER DOCUMENT FOR LIMITED LIFETIME WARRANTY

Property Address:	Date of Repairs:
661 Modoc Drive	Don't Know
Big Bear Lake CA 92315	exact date

I, the undersigned, state that I am the previous owner of the above referenced Property. I certify that I have given the new owner the following information concerning the foundation repair work at my home.

Copies of:

- ☐ Foundation Failure Report with all Appendixes
- ☐ Limited Lifetime Warranty

Karen West

Previous Owner (print name and sign and date)

I, the undersigned, state that I am the new owner of the above referenced property, purchased on 6/5/2013. I acknowledge that I have received copies of the above information regarding the foundation repair on the home I have purchased and agree to all terms and conditions of the entire contract and Limited Lifetime Warranty. I'm not sure I have received all documents and copies. Please send.

9/15/2013.

New Owner (print name and sign and date)

Peter M. Sanchez
4965 Irvine Avenue
Valley Village, CA 91601

NOTE: The New Owner is required to provide this executed document to SABER along with any required transfer fees before the warranty is considered transferred to the New Owner.