

Supply

Florprufe 120		
Supplied in rolls	4 ft x 115 ft (1.2 m x 35 m)	
Roll area	460 ft² (42 m²)	
Roll weight	70 lbs (32 kg) approx.	
Ancillary Products		
Preprufe Tape is packaged in cartons containing 4 rolls that are 4 in. x 49 ft (100 mm x 15 m).		
Bituthene Liquid Membrane is supplied in 1.5 gal (5.7 L) pails.		

Physical Properties: Exceeds ASTM E1745 Class A rating

Property	Typical Value	Test Method
Color	White	
Thickness (nominal)	0.021 in. (0.5 mm)	ASTM D3767—method A
Water vapor permeance	0.03 perms	ASTM E96—method B1
Tensile strength	65 lbs/in.	ASTM E1541
Elongation	300%	ASTM D412
Puncture resistance	3300 gms	ASTM D17091
Peel adhesion to concrete	>4 lbs/in.	ASTM D903

1. Test methods that comprise ASTM E1745 standard for vapor retarders

Prepare substrate in accordance with ACI 302.1R, Section 4.1. Install Florprufe 120 over the leveled and compacted base. Place the membrane with the smooth side down and the plastic release liner side up facing towards the concrete slab. Remove and discard plastic release liner. End laps should be staggered to avoid a build up of layers. Succeeding sheets should be accurately positioned to overlap the previous sheet 2 in. (50 mm) along the marked lap line.

Laps

1. Mechanical fastening method—

To prevent the membrane from moving and gaps opening, the laps should be fastened together at 39 in. (1.0 m) maximum centers. Fix through the center of the lap area using 0.5 in. (12 mm) long washer-head, self-tapping, galvanized screws (or similar) and allowing the head of the screw to bed into the adhesive compound to self-seal. It is not necessary to fix the membrane to the substrate, only to itself. Ensure the membrane lays flat and no openings occur. (See Figure 1.) Additional fastening may be required at corners, details, etc. Continuity is achieved once the slab is poured and the bond to concrete develops.

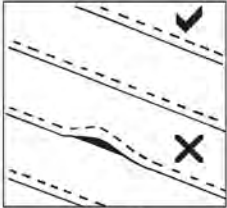


Figure 1

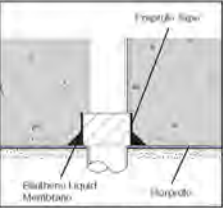


Figure 2

OR

2. Taped lap method—

For additional security use Grace Preprufe Tape to secure and seal the overlaps. Overband the lap with the 4 in. (100 mm) wide Preprufe Tape, using the lap line for alignment. Remove plastic release liner to ensure bond to concrete.

Penetrations

Mix and apply Bituthene Liquid Membrane detailing compound to seal around penetrations such as drainage pipes, etc. (See Figure 2 and refer to the Bituthene Liquid Membrane data sheet, BIT-230.)

Concrete Placement

Place concrete within 30 days. Inspect membrane and repair any damage with patches of Preprufe Tape. Ensure all liner is removed from membrane and tape before concreting.

www.graceconstruction.com

For technical assistance call toll free at 866-333-3SBM (3726)

Florprufe and Preprufe are registered trademarks of W. R. Grace & Co.—Conn.

We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the users' consideration, investigation and verification, but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our conditions of sale, which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright. W. R. Grace & Co.—Conn., 62 Whittemore Avenue, Cambridge, MA 02140. In Canada, Grace Canada, Inc., 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6.

This product may be covered by patents or patents pending.
PF-001G Printed in U.S.A. 3/07

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FA/L/11M

GRACE



Monolithic Membrane 6125®



THE ORIGINAL RUBBERIZED ASPHALT MEMBRANE

50 years of proven performance in the field.

Hydrotech's Monolithic Membrane 6125®, the original rubberized asphalt membrane, has been entrusted with keeping high profile structures across the country and around the globe watertight for 50 years. With more than two billion square feet of MM6125® installed, Hydrotech is recognized as the leader in the waterproofing industry.

Not satisfied to rest on our past successes, we have developed a full range of thermal and moisture protection products, drainage systems, The Ultimate Assembly for plazas, decks and roof terraces and the Garden Roof® Assembly for vegetated (green) roof applications.

We will continue to expand our product line to give architects and owners superior flexibility and design options for plazas, roofs, parking decks and critical waterproofing projects.



Jacobs Field - Cleveland, OH



Point of Americas II - Ft. Lauderdale, FL



J. Paul Getty Museum - Los Angeles, CA

MONOLITHIC MEMBRANE 6125®: BENEFITS AND FEATURES

Thermoplastic Material - one component, 100% solids, no solvents means no on-site cure failures, no two-part mixing and no VOC restrictions.

Dead Level Applications - can withstand and perform in submersed water conditions and is fully warrantable. The perfect membrane for no slope decks, water features, pools and vegetated roofs.

Monolithic Membrane - seamless, conforms to deck irregularities, and self-healing of minor construction damage. Since it is applied directly to the deck, water is restricted from migrating laterally between the substrate and the membrane.

Cold Weather Applications - can be applied to 0°F (-18°C) and is unaffected by adverse weather conditions immediately after installation.

Recycled Content - our environmental grade of Monolithic Membrane 6125®EV, can be formulated with up to 25% post-consumer recycled content.

High Viscosity Material - applied at 215 mils (5.5 mm) or 180 mils (4.5 mm), 2-3 times thicker than most other membranes, for better crack bridging, ease of flashing and substrate acceptability.

Superior Toughness/Tenacity - means excellent adhesion to substrate and cohesive strength. Also, superb elongation and low temperature flexibility ensure the membrane does not become brittle.

Acid Resistance - highly resistant to fertilizers, building washes, acid rain, methane and numerous wastes - unlike other rubberized asphalt products that use various forms of inexpensive calcium carbonate fillers.

Combined, these attributes make MM6125® a membrane that performs so well that it is rated by British Board of Agrément (BBA) as **"an effective barrier to the transmission of water...for the design life of the roof structure."**

- Agrément No. 90/2431 & 90/2432



Millennium Park - Chicago, IL

RIGOROUS QUALITY CONTROL

Monolithic Membrane 6125 is manufactured with rigid quality control under an ISO 9001:2000 certified quality management system. Besides earning the BBA Agrément Approval from the United Kingdom, MM6125 carries approvals from North America such as CGSB-37.50-M89, CCMC, National Defense, UL & ULC Class A Ratings and numerous international certifications and approvals. Local approvals include Dade County, Florida, City of Los Angeles and New York City's MEA. MM6125 is installed only by a network of authorized and trained installers, a key reason for the enormous success of the Hydrotech program.



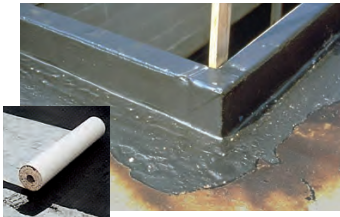
MEMBRANE ASSEMBLY COMPONENTS

Flashing/Reinforcement

Flex-Flash UN: An uncured neoprene flashing at exposed walls, curbs, penetrations, expansion joints and angle changes.

Flex-Flash F: A spun-bonded polyester fabric reinforcement for Monolithic Membrane 6125® detailing conditions such as changes in plane, construction joints and cracks. It is also used as the reinforcement in the MM6125-FR assembly (90 mils, fabric, 125 mils).

Flex-Flash MB: Modified Bitumen also available for exposed flashing. (not shown)



Separation and Protection Courses

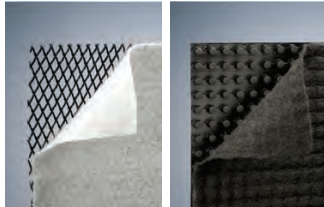
Hydroflex® Protection Sheet: A fiberglass reinforced, rubberized asphalt protection course. Hydroflex will not shrink or curl, reducing the likelihood of damage and stress on the membrane.

Permaboard: A superior quality, semi-rigid, waterproof protection board composed of a rubberized asphalt core, reinforced with a non-woven fiberglass mat and sandwiched between two protective polypropylene layers. (not shown)



Drainage Mediums

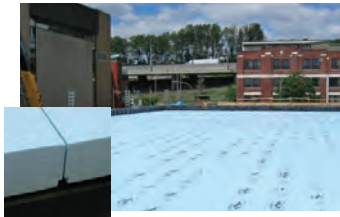
Hydrodrain® composite drainage products consist of either a three-dimensional “geonet” type a crush-proof polyethylene drainage core or a “dimple” type polystyrene drainage core. There are multiple variations of this product to meet particular project requirements with both horizontal and vertical applications.



Insulation

STYROFOAM® insulation board by The Dow Chemical Company for roofs, walls, and plazas. Available through and fully warranted by Hydrotech...

- Thermal stability - “R” value of 5 per inch
- Excellent for exposed applications
 - moisture resistant and dimensionally stable
- High-compressive strength - 25, 40, 60 or 100 psi (to fit the use)
- Environmentally friendly - CFC-free and recyclable



Other Products

Hydroguard® an integral ballast/insulation panel comprised of STYROFOAM topped with latex modified concrete.

Thermaflo® a protection, insulation and drainage panel comprised of STYROFOAM with horizontal and vertical channels on one side covered by spunbonded polyester fabric.

SECUROCK® a gypsum-fiber roof board with 95% recycled material made by USG Corporation, marketed by American Hydrotech, Inc.

MM7800® a single-component, cold applied rubberized asphalt membrane for foundation walls.

LM6090™ a cold two-part elastomeric asphalt membrane for pre-installation of flashing or as a waterproofing for small areas.

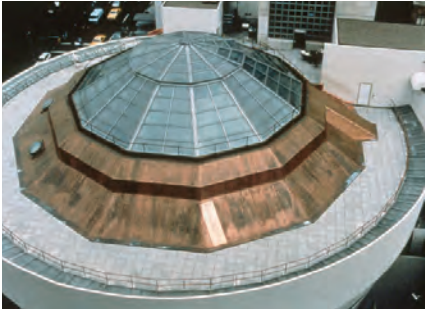
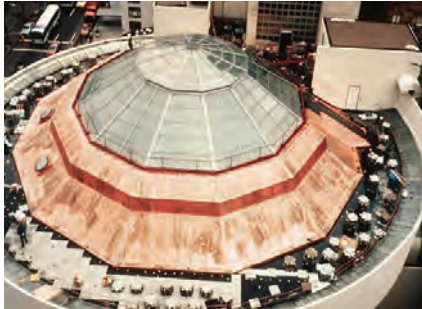
VM60™ a 60-mil (1.5 mm) thick self-adhering sheet waterproofing membrane for vertical below-grade substrates.

NEW CONSTRUCTION OR RENOVATION

While an excellent choice for new construction, Monolithic Membrane 6125® is also ideal for renovation projects. If you own a building that has roof and/or plaza decks in need of major repair, you are not alone. Deteriorating topping materials, serious leaks and loss of insulating value are some of the problems facing many owners. These problems may be symptomatic of improper design, construction errors, inadequate material specifications or use of a product with an unknown track record...or waterproofing membranes that have exceeded their “performance life.”

Monolithic Membrane 6125 is the ideal choice for renovation applications because it can easily handle:

- Rough concrete / spalled concrete
- Phased construction
- Difficult detailing conditions
- Little or no slope



Guggenheim Museum - New York, NY

SUSTAINABILITY / LEED®

Construction is no longer just about building and development: it’s about building smart. That entails limiting the impact of the construction process on the very environment that nurtures us, building for the long-term and catering to global needs and issues.

Hydrotech has developed products, systems and alliances that reflect and reinforce our commitment to environmental sustainability. As producers of one of the industry’s best-performing membranes, Hydrotech has also introduced some of the industry’s most sustainable waterproofing assemblies. For instance, our MM6125®EV (environmental grade formulation) is a hot-applied rubberized asphalt that can be formulated with up to 25% post-consumer recycled content.

Monolithic Membrane 6125, the foundation for all our waterproofing and roofing assemblies, also helps garner LEED points on projects around the country each and every day. Hydrotech assemblies feature recycled content in the membrane and reduced lifecycle costs due to product longevity (which also reduces its impact on landfills). In addition, The Ultimate Assembly® delivers energy savings through reflective pavers, while our Garden Roof® Assembly can assist you with stormwater management requirements to help meet a project’s BMP’s.

In short, Hydrotech has the solutions that fit the long-term sustainability strategies savvy building owners and operators are demanding of the products and assemblies they specify.

MM6125...
*performance
equals
sustainability*

LEED RATING SYSTEM CREDIT NC-2009 VERSION 2.2	MM6125 PMR Roof	Ultimate Assembly	Garden Roof Assembly
Stormwater Design	-	-	1-3
Urban Heat Island Effect	1	1	1-2
Project Site Development	-	-	1
Energy Performance	1+	1+	1+
Water Efficient Landscaping	-	-	1
Regional Materials	1-2	1-2	1-2
Recycled Content	1-2	1-2	1-2
Materials Reuse	1-3	1-3	1-3
Thermal Comfort Design	1-2	1-2	1-2
Life Cycle Assesment/Materials Disclosure	1-2	1-2	1-2
POTENTIAL POINTS	13	13	20

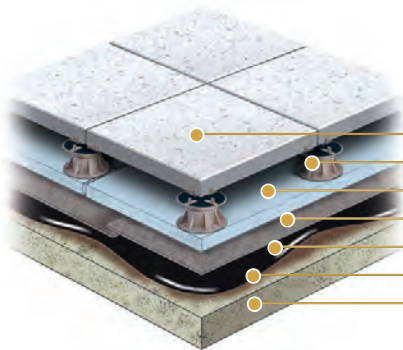
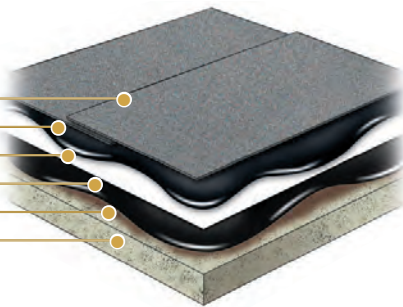
TYPICAL WATERPROOFING APPLICATIONS

Fabric Reinforced (FR) Assembly (215 mils thick – 5.5 mm)
(typical components depicted)

- Hydroflex® Protection Sheet or Permaboard
- Monolithic Membrane 6125® (125 mils)
- Flex-Flash F Reinforcement
- Monolithic Membrane 6125® (90 mils)
- Surface Conditioner (where required)
- Approved Substrate

Acceptable Substrate: cast-in-place concrete, composite deck, precast concrete ("T", double "T" or panel), wood plank, plywood or metal deck with approved substrate board

Not Acceptable: lightweight insulating or cellular concrete



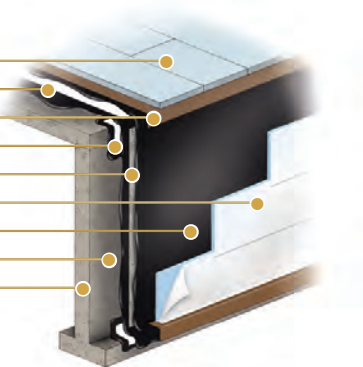
The Ultimate Assembly®
(typical components depicted)

- Architectural Paver
- Pedestal
- STYROFOAM® (minimum of 60 psi)
- Hydroflex®
- Monolithic Membrane 6125®-FR
- Surface Conditioner
- Approved Substrate

The Ultimate Assembly is not intended for vehicular traffic

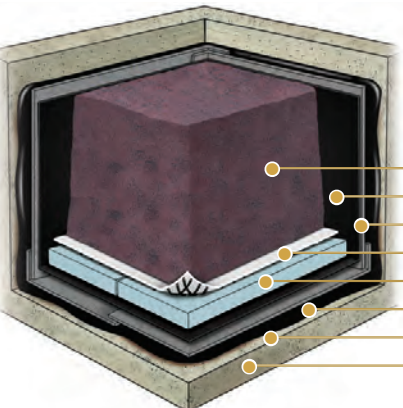
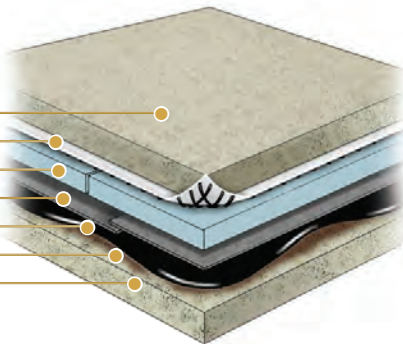
Vertical Waterproofing
(typical components depicted)

- STYROFOAM®
- Monolithic Membrane 6125®-FR
- Hydroflex® or Permaboard
- Flex Flash F
- Flex Flash FV
- STYROFOAM® - board, fanfold or ThermoFlo™ (depicted)
- Monolithic Membrane 6125®-FR
- Surface Conditioner
- Approved Substrate



Split Slab Construction
(typical components depicted)

- Concrete Topping Slab
- Hydrodrain®
- STYROFOAM®
- Hydroflex®
- Monolithic Membrane 6125®-FR
- Surface Conditioner
- Approved Substrate



Planter
(typical components depicted)

- Soil
- Root Barrier
- Hydroflex®
- Hydrodrain®
- STYROFOAM®
- Monolithic Membrane 6125®-FR
- Surface Conditioner
- Approved Substrate

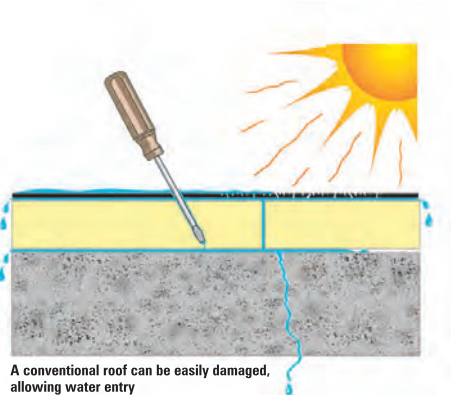
Current details and specifications for all Hydrotech's assemblies are available online at www.hydrotechusa.com

PROTECTED MEMBRANE ROOFING

CONVENTIONAL ROOFING DESIGN:

With a conventional roof assembly the roof membrane is typically placed on top of an insulation layer and structural deck. In this configuration the roof membrane is doing double duty...protecting the contents of the building as well as the insulation below from moisture. When most insulation gets wet it loses its ability to perform as a thermal barrier. And, because the roof membrane is fully exposed to the environment in this assembly, it is subjected to extreme conditions and stresses.

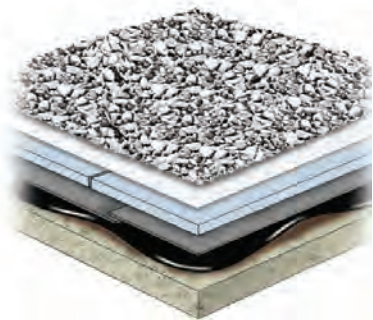
A conventional roof arrangement can leave the roof membrane vulnerable to sudden temperature changes, high summer roof temperatures, low winter temperatures, ice, ultraviolet rays, physical abuse from heavy foot traffic and routine maintenance. Exposure to all of these elements can weaken the integrity of the roof membrane and shorten its life expectancy.



THERE IS A BETTER WAY - PROTECT THE MEMBRANE!

A better way is possible because of Dow Chemicals STYROFOAM® brand insulation, a closed cell extruded polystyrene that can be placed in a wet environment. Placed on top of Hydrotech's Monolithic Membrane 6125®, it offers protection from the harsh conditions up on a rooftop.

UNCONVENTIONAL COMMON SENSE IN ROOFING



This arrangement of roofing materials (roof deck / roof membrane / moisture-resistant insulation) has been referred to for decades as an Insulated Roof Membrane Assembly (IRMA), although it is now most often referred to as a Protected Membrane Roof (PMR). With such roofs, the membrane's temperature range and rate of temperature change are drastically reduced. Neither Mother Nature nor physical abuse can easily affect it.

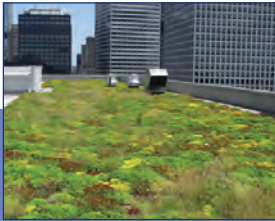
BY SIMPLY REVERSING THE INSULATION AND MEMBRANE PLACEMENT – INSULATION ON TOP OF THE MEMBRANE RATHER THAN BENEATH – THE CAUSE OF MANY ROOFING PROBLEMS CAN BE EASILY SOLVED.



Buck Institute for Age Research – Novato, CA



7 World Trade Center - New York, NY



550 W. Adams - Chicago, IL

PROTECTED MEMBRANE ROOFING (PMR) ASSEMBLY BENEFITS:

Monolithic Membrane 6125® - the foundation for Hydrotech's PMR assembly has a 50 year track record of keeping structures watertight. The membrane was originally developed as a waterproofing membrane that has been adapted for roofing applications. Advantages of MM6125 in a PMR assembly include:

- Seamless application
- Bond to substrate
- Self-healing characteristics
- Ease of flashing
- Recycled content
- Acid resistant

Physical Protection of Membrane - since the membrane is applied directly to the deck and covered by STYROFOAM® insulation and ballast, it is nearly impossible for the membrane to be damaged. A PMR is ideal where heavy foot traffic around photovoltaic panels is expected.

More Constant Temperature - fluctuations in temperature are minimized by having the membrane beneath STYROFOAM insulation.

Protection from UV - damaging UV rays never reach the membrane in a PMR assembly.

Ballast Options and Flexibility - once the membrane is installed owners and designers can take advantage of various ballast options (gravel, pavers and Garden Roof®) to suit a specific project's needs.

Bonded Directly to Substrate - applied directly to the deck, so water is restricted from moving laterally between the substrate and the membrane.

Single Source Warranty - removal and replacement of the overburden is provided for components that Hydrotech provides. Please contact Hydrotech for specifics.

"Hydrotech has taken proven waterproofing technology and placed it on the roof."



AT&T Corporate Center - Chicago, IL

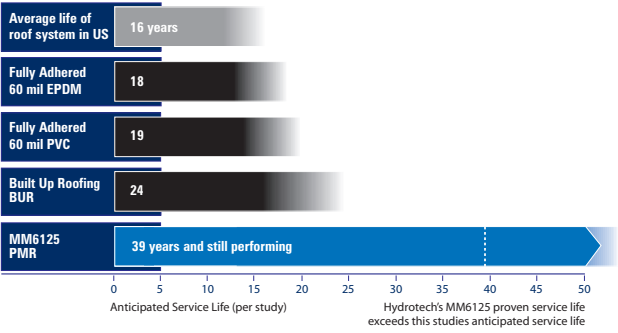
LIFE CYCLE BENEFIT

Monolithic Membrane 6125 utilized in a Protected Membrane Roof Assembly maximizes the lifecycle benefit to an owner, well beyond other options. Compare for yourself and see the clear difference.

Costs that must be considered are:

Initial Cost, Maintenance/Repair and Replacement Cost.

Ask to see the SmithGroup Life Cycle Cost study commissioned by Dow Chemical.

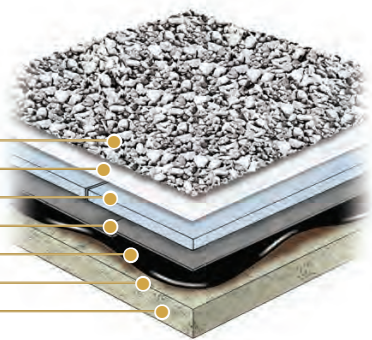


TYPICAL APPLICATIONS

Protected Membrane Roof (PMR)

(typical components depicted)

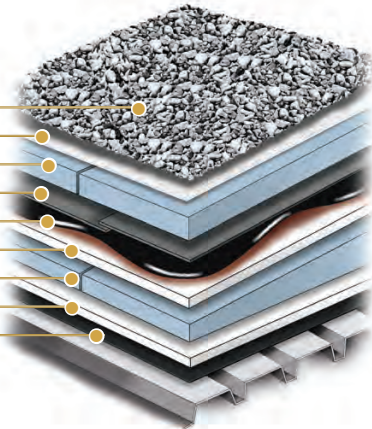
- Stone Ballast
- Stone Filter Fabric
- STYROFOAM®
- Hydroflex® Protection Sheet
- Monolithic Membrane 6125®-FR
- Surface Conditioner
- Approved Substrate



PMR Metal Deck

(typical components depicted)

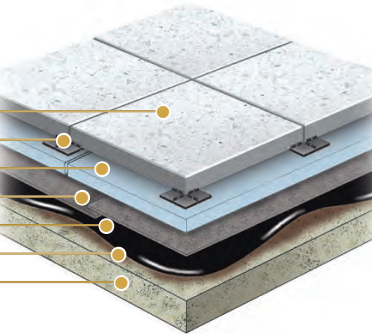
- Stone Ballast
- Stone Filter Fabric
- STYROFOAM®
- Hydroflex®
- Monolithic Membrane 6125®-FR
- Approved Substrate Board
- Tapered Insulation
- Approved Substrate Board
- Vapor Barrier (where needed)



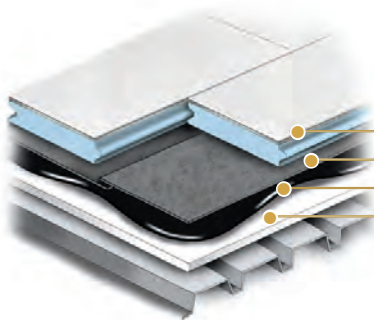
The Ultimate Assembly®

(typical components depicted)

- Architectural Paver
- Spacer Tab
- STYROFOAM®
- Hydroflex®
- Monolithic Membrane 6125®-FR
- Surface Conditioner
- Approved Substrate



The Ultimate Assembly is not intended for vehicular traffic



Hydroguard®

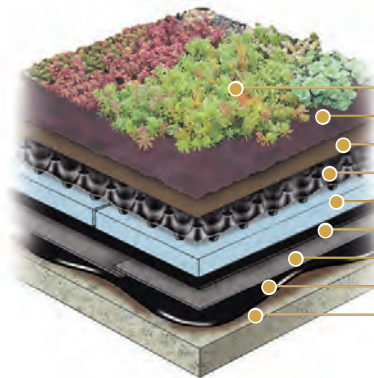
(typical components depicted)

- Hydroguard®
- Hydroflex®
- Monolithic Membrane 6125®-FR
- Approved Substrate

Extensive Garden Roof® Assembly

(typical components depicted)

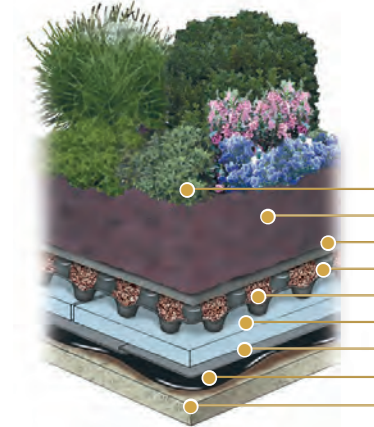
- Vegetation
- LiteTop® Growing Media
- Systemfilter
- Gardendrain GR15® or GR30®
- STYROFOAM®
- Root Stop
- Hydroflex 30®
- Monolithic Membrane 6125®EV-FR
- Surface Conditioner Over Approved Substrate



Intensive Garden Roof® Assembly

(typical components depicted)

- Vegetation
- LiteTop® Growing Media
- Systemfilter
- Gardendrain GR30® or GR50®
- LiteTop® Aggregate
- STYROFOAM®
- Hydroflex 30®/Root Stop HD or Hydroflex® RB II
- Monolithic Membrane 6125®EV-FR
- Surface Conditioner Over Approved Substrate



Current details and specifications for all Hydrotech's assemblies are available online at www.hydrotechusa.com



Stata Center, Massachusetts Institute of Technology - Cambridge, MA



Walt Disney Concert Hall - Los Angeles, CA

Much has changed since I started in our industry over 40 years ago, but the values that underpin our success have not: integrity, quality, trust, accountability and relationships based on respect for each other. At American Hydrotech we have talented and energetic people who have a passion for their work and who are committed to providing value at a fair price.

We have best-in-class brands that provide exceptional performance and owner value: Monolithic Membrane 6125®, our premium (flagship) waterproofing product has been successfully installed on the world's most prestigious structures in over 36 countries for 50 years.

Our thanks to all of you who have supported us over this great journey. Our goal is to continue to serve our customers with creativity and consistency to generate growth across all channels. May we assist you on your next project? Please give us a call.

David F. Spalding

David F. Spalding
President

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WORLDWIDE
World Wide Web: www.hydrotechusa.com

Cover Photo - The First Church of Christ, Scientist, Boston - MA (installed in 1970)
Scope of work included the reflecting pond waterproofing, plaza waterproofing and several Protected Membrane Roof (PMR) assemblies.

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STYROFOAM is a registered trademark of The Dow Chemical Company

The management system governing the manufacture of MM6125 is ISO 9001:2000 certified



The Ultimate Assembly®



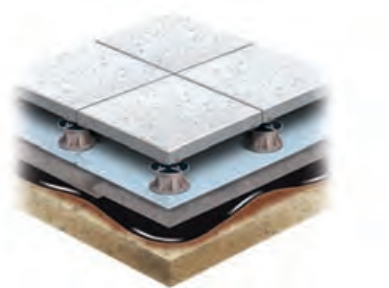
WATERPROOFING & OPEN JOINT PAVER ASSEMBLY FOR PLAZAS & ROOF DECKS

THE ULTIMATE ASSEMBLY

The Ultimate Assembly®, Hydrotech’s open joint architectural paver assembly, is the perfect single-source solution when optimal performance must be matched with superior aesthetics. Ideal for roof terraces, green roofs and plazas, The Ultimate Assembly begins at the substrate with Hydrotech’s premier waterproofing membrane, Monolithic Membrane 6125®, and carries through to the overburden of the architectural pavers. The assembly can accommodate insulation, extra drainage layers and a variety of job site conditions. And due to a special production process, Hydrotech’s architectural pavers offer high compressive strength, low moisture absorption, and a wide variety of colors and textures.

Open Joint System - open joints facilitate the flow of water below the paver surface to concealed drains, expediting the drying of the pavers while also decreasing ponding water and trapped moisture.

Access to Substructure - drains and all assembly components are accessible. If the need should arise, pavers



can simply be lifted and reset in place – no sand or mortar setting bed to struggle with so maintenance and future alterations are easily accomplished.

Installation Flexibility - pavers are set directly on spacer tabs or adjustable pedestals to an established grade and even leveled where a sloped deck exists – a simple, durable solution.



American General - Houston, TX



SEPTA Station – Philadelphia, PA Photo Credit: Hanover Architectural Pavers



Heber Wells Building - Salt Lake City, UT

TYPICAL INSTALLATIONS

Plazas and Promenades - a plaza finished with architectural pavers can greatly improve the look of a building exterior. As these areas often enclose occupied space or parking, watertightness is critical – which is why the Ultimate Assembly has been installed on thousands of plazas nationwide.

Roofs and Terraces - few roofing systems can match the integrity and beauty of The Ultimate Assembly. Since the layers above the MM6125® waterproofing act as a shield against UV rays and harsh weather, the roof structure is well protected. With architectural pavers as the finished surface, the design process gains creative flexibility, while the structure benefits from a high performance overburden.

Renovation - replacing old plaza surfaces is a task no owner or developer looks forward to. So when the time does arrive, few care to risk a system with a short or inconsistent performance record. The Ultimate Assembly removes that element of mystery with time tested MM6125 waterproofing, insulation and drainage (both optional), topped with exceptionally durable architectural pavers – and of course, warranted by American Hydrotech, Inc. Thanks to an open joint configuration, assembly maintenance is even remarkably simple.

The Ultimate Assembly is not intended for vehicular traffic.

SINGLE SOURCE WARRANTY

The Ultimate Assembly® warranty provides the owner with the enduring coverage provided by the assembly itself – all from the company that has set the standard of excellence in roofing and waterproofing for decades. This is a warranty only Hydrotech can offer and peace of mind only Hydrotech can give.

We cover each and every component provided – **so the burden of performance is on us.**

That warranty includes:

- Watertightness of membrane
- Thermal retention of the insulation
- Performance of the pavers
- Removal and replacement of overburden if a warranted repair to the membrane is needed

Please contact Hydrotech for specific warranty terms and conditions.



Trump International Hotel & Tower – Chicago, IL

Assembly Components

The Ultimate Assembly is a multi-layered, multi-purpose assembly – in many ways, a design tool that can be tailored to your specific project needs.

Monolithic Membrane 6125® - this membrane is the ideal base for The Ultimate Assembly. A fluid-applied, seamless, self-healing rubberized asphalt made of 100% solids, MM6125® bonds to the substrate with strength and durability that last.

Hydroflex® Protection Sheet - this heavy-duty fiberglass reinforced rubberized asphalt sheet helps to protect the membrane from construction traffic and topping materials, while also acting as a separation course between the membrane and insulation.

Hydrodrain® Drainage Medium - a durable prefabricated drainage panel composed of a high-density polyethylene core and filter fabric, Hydrodrain acts as an avenue for water to flow to substrate-level drains, thereby lessening unwanted moisture. (optional component)

Dow STYROFOAM® Insulation - a CFC-free, closed cell, extruded polystyrene board with high compressive strength, STYROFOAM® is moisture resistant and able to retain thermal value over the years. (optional component)

Architectural Pavers - Hydrotech’s architectural pavers are hydraulically pressed and exhibit high compressive strength, low moisture absorption and exceptional quality where aesthetics cannot be sacrificed. Available in a wide array of colors and finishes – including crushed granite, limestone and blue stone – standard sizes are 12”, 18”, 24”, 30” and 36” square, with thicknesses of 2” to 2 3/4”. Rectangular and custom sizes, colors and finishes are available.

The Ultimate Assembly Accessories - accessories help to create a finished assembly that is simple and reliable. Spacer tabs ensure joint uniformity, while facilitating expansion, drainage, and air circulation. Pedestals can telescope and can be used with other accessories to compensate for slope in the deck – so the paver surface is level.

Site Amenities - rock curbs and wall panels are available to compliment your project design. Contact Hydrotech for specific colors and finishes.





Artesa Winery - Alapa, CA



Gap Headquarters - San Francisco, CA



Cavalry Hospital - Bronx, NY



Constitution Center - Philadelphia, PA

Much has changed in our industry since I began my career over 40 years ago, but the values that underpin our success have not: integrity, quality, trust, accountability and relationships based on respect for each other. At American Hydrotech we have talented and energetic people who have a passion for their work and who are committed to providing value at a fair price.

In the 1980s Hydrotech recognized a need in the marketplace for architects and designers to have an architectural finish quality paver and watertightness on a variety of deck configurations backed by a single-source warranty. The Ultimate Assembly® was developed to address this need and expand the intrinsic benefit of the usable space solutions.

Our thanks to all of you who have supported us over this great journey. Our goal is to continue to serve our customers with creativity and consistency to generate growth across all channels. May we assist you on your next project? Please give us a call.



David F. Spalding
President

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Cover Photo - The Landings at Plymouth Court - LaGrange, IL
Photo Credit: Hanover Architectural Pavers

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STYROFOAM is a registered trademark of The Dow Chemical Company

The management system governing the manufacture of MM6125 is ISO 9001:2000 certified

Product Data Sheet
Edition: 02/2013
Version no.: 0003



Sarnafil® G410 EnergySmart Roof® Membrane

__48 __60 __72 __80 __Feltback

Overview:	The G410 EnergySmart Roof membrane is a heat-weldable membrane produced with an integral fiberglass mat reinforcement for excellent dimensional stability, for use in a Sika Sarnafil Adhered System.
Composition:	Sika Sarnafil's Energy Star qualified EnergySmart Roof color family consists of White, Tan, Light Gray, and Patina Green. The G410 EnergySmart Roof membrane is a high-quality, thermoplastic PVC membrane with a fiberglass reinforcement. The G410 roof membrane has a unique lacquer coating applied to the top of the membrane to reduce dirt pick up.
Features and Benefits:	<ul style="list-style-type: none">• Excellent dimensional stability• Meets EnergyStar/Title 24 Requirements for Cool Roofing (see pg. 2)• Meets LEED/Green Globe Requirements for Cool Roofing (see pg. 2)• Recycled content (see pg. 2)• Lacquer coated to reduce dirt pick up• Hot-air welded seams for long-term performance• Proven membrane performance
Codes and Approvals:	Sika Sarnafil's Adhered Systems using G410 PVC membranes are classified by Underwriters Laboratories, Inc., Underwriters Laboratories of Canada, FM Global, Miami-Dade and Florida Building Code. Sika Sarnafil membranes also meet the material requirements of the International building code. For more information, please visit the "technical downloads" section of our website.
Packaging:	The G410 roof membrane rolls are wrapped in a protective film and strapped to a wood pallet. EnergySmart white, tan and light gray are available as 10 ft. (3 meters) wide. EnergySmart patina green is available as 6.5 ft. (2 meters) wide. 6.5 ft. rolls weigh between 161 - 195 lbs and the 10 ft. rolls weigh between 265-375lbs. Weight is dependent on thickness of membrane and/or feltpacking.
Installation:	G410 is installed by a Sika Sarnafil Authorized Applicator. After proper preparation of the substrate, G410 is unrolled into Sarnacol adhesive in accordance with Sika Sarnafil's Technical requirements and then pressed into place with a minimum 100lb linoleum roller. The G410 is then heat-welded together by trained operators using Sika Sarnafil's hot-air welding equipment. Different Sarnacol adhesives require different application methods. Please consult Sika Sarnafil's Applicator Handbook for detailed installation procedures.
Availability:	The G410 roof membrane is available directly from Sika Sarnafil Authorized Applicators. Contact your Sika Sarnafil Regional Office or visit our website for further information.
Warranty:	Upon successful completion of the installed roof by the Sika Sarnafil Authorized Applicator, Sika Sarnafil can provide a Warranty to the Building Owner via the Authorized Applicator.
Maintenance:	The G410 roof membrane requires no maintenance. As a prudent preventative measure, Sika Sarnafil recommends that the Owner or that the Owner's designated representative inspect the installed roof system for damage, plugged drains, weathered sealants, etc. at least twice a year and after each storm.





RossDrulisCusenbery Architecture, Inc.
May 2015

Building Envelope and Waterproofing Systems
SONOMA HOTEL PROJECT - KENWOOD INVESTMENTS, LLC
Basis of Design Report

08-21

Technical Support: Sika Sarnafil provides technical support. Please contact your local technical representative or technical manager if you need assistance.

Technical Data (as manufactured):

Parameters	ASTM Test Method	ASTM Type II D-4434 Spec. Requirement		Typical Physical Properties			
		48	60	72	80		
Reinforcing Material	--	--	Fiberglass	Fiberglass	Fiberglass	Fiberglass	
Overall Thickness, mil	D638	45	48	60	72	80	
Thickness Above Scrim, mil	--	16	24	30	36	40	
Felt Weight oz/yd ²	--	--	9	9	9	9	
Tensile Strength, min., psi. (Mpa)	D638	1500psi (10.4)	1500	1575	1625	1675	
Machine Direction		1500psi (10.4)	1500	1550	1575	1625	
Cross Direction							
Elongation at Break, min.	D638						
Machine Direction %		250	250	250	250	250	
Cross Direction %		220	220	220	220	220	
Seam Strength, min., (% of original)*	D638	75	Pass	Pass	Pass	Pass	
Retention of Properties After Heat Aging	D3045						
Tensile Strength, min., (% of original)	D638	90	Pass	Pass	Pass	Pass	
Elongation, min., (% of original)	D638	90	Pass	Pass	Pass	Pass	
Tearing Resistance (M.D.), min., lbf (N)	D1004	10 (45.0)	15	17.5	20.5	22	
Low Temperature Bend, -40°F (-40°C)	D2136	Pass	Pass	Pass	Pass	Pass	
Accelerated Weathering Test (Flourescent Light, UV exposure)	G154	5,000 Hours	10,000 Hours	10,000 Hours	10,000 Hours	10,000 Hours	
Cracking (7x magnification)		None	None	None	None	None	
Discoloration (by observation)		Negligible	Negligible	Negligible	Negligible	Negligible	
Crazing (7x magnification)		None	None	None	None	None	
Linear Dimensional Change (C.D.), %	D1204	0.10% max.	-0.02	-0.02	-0.01	-0.01	
Weight Change After Immersion in Water, %	D570	± 3.0% max.	2.4	1.9	1.8	1.7	
Static Puncture Resistance, 33 lbf (15 kg)	D5602	Pass	Pass	Pass	Pass	Pass	
Dynamic Puncture Resistance, 7.3 ft-lbf (10 J)	D5635	Pass	Pass	Pass	Pass	Pass	
Recycled Content (10' & 5' sheet only)		9% Pre-Consumer / 1% Post-Consumer					

* Failure occurs through membrane rupture not seam failure.

EnergySmart Colors.	Initial Solar Reflectance	3 Year Reflectance	Initial Thermal Emittance	3 Year Thermal Emittance	Initial Solar Reflectance Index	3 Year Solar Reflectance Index
EnergySmart White *1	0.83	0.70	0.90	0.86	104	85
EnergySmart Tan *1	0.73	0.65	0.85	0.86	89	78
EnergySmart Light Grey *2	0.50	0.44	0.84	0.85	56	49
EnergySmart Patina Green *2	0.55	0.46	0.86	0.85	64	51

*1 Sika Sarnafil EnergySmart White and Tan membranes meet ENERGY STAR®, LEED, Green Globes and California's Title 24 criteria for Low and Steep Slope applications. *2 Sarnafil EnergySmart Light Grey and Patina Green membranes meet ENERGY STAR®, LEED and Green Globes criteria for Steep Slope applications. EnergySmart Light Grey meets California's Title 24 criteria for Steep Slope applications. EnergySmart Patina Green meets Title 24 criteria for steep slope applications with a 3 year calculated value of 0.445 when using Title 24's aged reflectance equation.

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ENERGY STAR for roofing products is only valid in the United States

PARADIENE 20 SA



Commercial Product Data Sheet

Product Description

Paradiene 20 SA is a high performance, self-adhesive, modified bitumen base ply designed for use in homogeneous multi-layer modified bitumen roof membrane systems. Paradiene 20 SA consists of a lightweight random fibrous glass mat impregnated and coated with high quality styrene-butadiene-styrene (SBS) modified bitumen. The back surface is coated with a self-adhesive bitumen layer specifically formulated for optimum adhesion in low-slope membrane applications, and it is lined with a high strength polyolefin release film.

Paradiene 20 SA is available with Siplast RoofTag RFID roof asset technology on a Special-Made-To-Order basis. See RoofTag Commercial Product Data Sheet for more information.

Product Uses

Paradiene 20 SA is designed to be used as a base ply for direct application to DensDeck Prime® and DuraGuard roof board products, and other approved substrates. Paradiene 20 SA is also used as a stripping ply for reinforcing details at metal flanges, walls, and curbed penetrations. Extending Paradiene 20 SA stripping ply onto the top surface of any Paradiene 20 layer requires either removal of the top film surfacing from a film-surfaced Paradiene 20, or priming a sand-surfaced Paradiene 20 using an approved primer.

Paradiene 20 SA is the first ply of all fully adhered Siplast Paradiene 20 SA/Paradiene 30 TG Systems. It is lapped 3 inches (7.6 cm) on sides and ends. End laps require heat welding. An alternative to the standard end lap method is seaming end joints using a 12-inch (30.4 cm) wide strip of Paradiene 20 TG. Paradiene 20 SA is designed for direct application to approved insulations, DensDeck Prime®, primed structural concrete decks, and other approved substrates. Paradiene 20 SA is used as a base ply in multi-layer roof systems with a torch applied finish layer of Paradiene TG, Veral, or Parafor. Prior approval from the Siplast Technical Department is required for SA membrane systems installed without a torch applied finish layer. All laps of the Paradiene 20 SA must be heat welded when the Paradiene TG or Parafor TG over-layer is not installed during the same day's application.

Product Approvals

Paradiene 20 SA is approved by FM Approvals (FM Standard 4470) for use in Siplast Paradiene 20/30, Paradiene 20/30 FR, and Paradiene 20/20 PR Class 1 insulated steel roof deck constructions and insulated and non-insulated concrete roof deck constructions, subject to FM conditions and limitations.

Paradiene 20 SA is classified by Underwriters Laboratories as an acceptable substitute for Paradiene 20 TG in all UL-US classification listings and assemblies.

Paradiene 20 SA meets or exceeds the requirements of ASTM D 6163 Type I, Grade S, for SBS-modified bituminous sheet materials using glass fiber reinforcements.

COMMERCIAL PRODUCT INFORMATION

Unit:	Roll		
Coverage:	1.0 Square	(9.3 m²)	
Coverage Weight Per Square:	Min:	72 lb	(3.5 kg/m²)
Roll Length:	Min:	33.5 ft	(10.21 m)
Roll Width:	Avg:	3.28 ft	(1.00 m)
Thickness:	Min:	98 mils	(2.5 mm)
	Avg:	102 mils	(2.6 mm)
Selvage Width:	Avg:	3.0 in	(76 mm)
Selvage Surfacing:	Polyolefin Release Tape		
Top Surfacing:	Sand		
Back Surfacing:	Polyolefin Release Film		

Packaging: Rolls are wound onto a compressed paper tube. The rolls are placed upright on pallets cushioned with corrugated cardboard and are adhered with adhesive at the labels. The top of the palletted rolls is covered with foiled Kraft paper. The palletted material is protected by a heat shrink polyethylene shroud.

Pallet: 41 in X 48 in (104 cm X 122 cm) wooden pallet
Number Rolls Per Pallet: 25
Number Pallets Per Truckload: 18
Minimum Roll Weight: 72 lb (32.7 kg)

Storage and Handling: All Siplast roll roofing products should be stored on end on a clean flat surface. Care should be taken that rolls are not dropped on ends or edges and are not stored in a leaning position. Deformation resulting from these actions will make proper installation difficult. All roofing should be stored in a dry place, out of direct exposure to the elements, and should not be double stacked. Material should be handled in such a manner as to ensure that it remains dry prior to and during installation.

Current copies of all Siplast Commercial Product Data Sheets are posted on the Siplast Web site at www.Siplast.com.

Rev 3/2014

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An Kopal Group Company

PARADIENE 20 SA

Physical and Mechanical Properties

Property (as Manufactured)	Values/Units	Test Method
Thickness (minimum)	98 mils (2.5 mm)	ASTM D 5147 section 6
Thickness (average)	102 mils (2.6 mm)	ASTM D 5147 section 6
¹ Peak Load @ 73°F (average)	30 lbf/inch (5.3 kN/m)	ASTM D 5147 section 7
¹ Peak Load @ 0°F (average)	75 lbf/inch (13.2 kN/m)	ASTM D 5147 section 7
¹ Elongation @ Peak Load, 73°F (average)	3%	ASTM D 5147 section 7
¹ Elongation @ Peak Load, 0°F (average)	3%	ASTM D 5147 section 7
¹ Ultimate Elongation @ 73°F (average)	50%	ASTM D 5147 section 7
¹ Tear Strength (average)	40 lbf (0.18 kN)	ASTM D 5147 section 8
Water Absorption (maximum)	1%	ASTM D 5147 section 10
Dimensional Stability (maximum)	0.1%	ASTM D 5147 section 11
Low Temperature Flexibility (maximum)	-15°F (-26°C)	ASTM D 5147 section 12
² Compound Stability (minimum)	250°F (121°C)	ASTM D 5147 section 16
Cyclic Fatigue	Paradiene 20 SA, bonded to an acceptable Paradiene 30, Paradiene 40 FR, or Parafor 50 LT cap sheet with an approved method of attachment, passes ASTM D 5849 both as-manufactured and after heat conditioning according to ASTM D 5147.	

1. The value reported is the lower of either MD or XD.
2. The High Temperature Stability of the self-adhesive bitumen coating is 212°F (100°C).

TERANAP - 1M FILM



Commercial Product Data Sheet

Product Description

Teranap 1M Film is a high performance modified bitumen waterproofing ply designed for use in homogeneous multi-layer modified bitumen plaza deck waterproofing membrane systems. Teranap consists of a fiberglass scrim/polyester mat composite impregnated and coated with high quality styrene-butadiene-styrene (SBS) modified bitumen. The surface of the sheet is protected by a polyester film.

Product Uses

Teranap 1M Film is the surface sheet in multi-layer plaza deck waterproofing systems, and is lapped 4 inches (10.2 cm) side and end. Teranap 1M Film is torch applied to approved substrates. Contact Siplast for specific approval on other product uses.

Product Approvals

Teranap ballasted roof systems are approved by FM Approvals for use over insulated and non-insulated concrete roof deck constructions, subject to FM conditions and limitations.

Teranap ballasted roof systems have been classified by Underwriters Laboratories as Class A roofing systems over insulated and non-insulated non-combustible roof decks.

Current copies of all Siplast Commercial Product Data Sheets are posted on the Siplast Web site at www.Siplast.com.

COMMERCIAL PRODUCT INFORMATION

Unit:	Roll		
Coverage:	0.75 Square	(7.0 m²)	
Weight Per Square:	Min:	113 lb	(5.5 kg/m²)
Roll Length:	Min:	26.0 ft	(7.92 m)
Roll Width:	Avg:	3.28	(1.00 m)
Thickness:	Avg:	157 mils	(4.0 mm)
	Min:	154 mils	(3.9 mm)
Selvage Width:	4 inches (100 mm)		
Selvage Surfacing:	Polyolefin Release Tape		
Top Surfacing:	Polyester Film		
Back Surfacing:	Silica Parting Agent		

Packaging: Rolls are wound onto a compressed paper tube. The rolls are placed upright in open topped crates cushioned with cardboard and polystyrene. The top of the palletted rolls is covered with foilized Kraft paper. The palletted material is protected by a heat shrink polyethylene shroud.

Pallet: 41 in X 48 in (104 cm X 122 cm) wooden pallet
Number Rolls Per Pallet: 25
Number Pallets Per Truckload: 18
Minimum Shipping Weight Per Roll: 85 lb (38.6 kg)

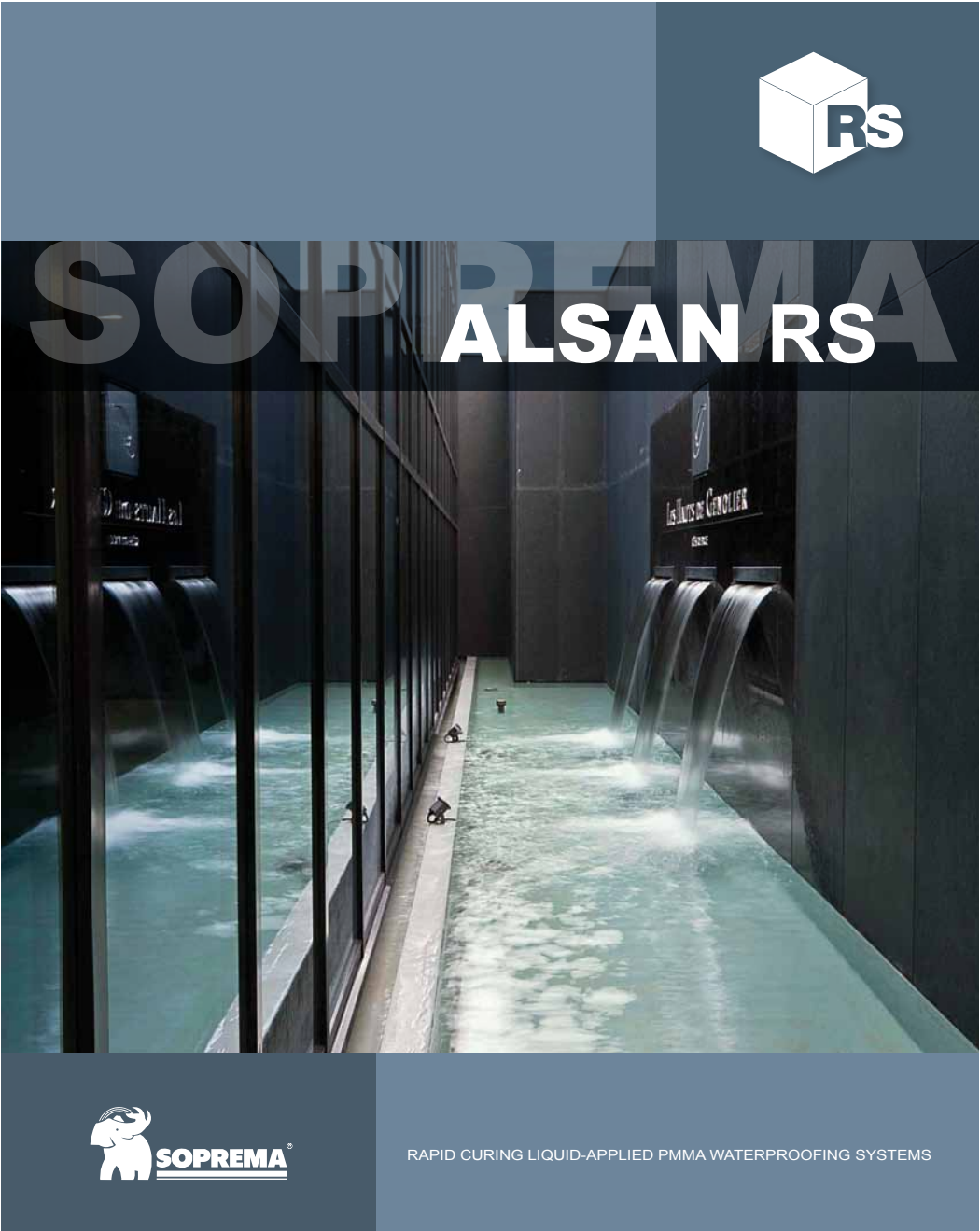
Storage and Handling: All Siplast roll waterproofing products should be stored on end on a clean flat surface. Care should be taken that rolls are not dropped on ends or edges and are not stored in a leaning position. Deformation resulting from these actions will make proper installation difficult. All waterproofing should be stored in a dry place, out of direct exposure to the elements, and should not be double stacked. Material should be handled in such a manner as to ensure that it remains dry prior to and during installation.

TERANAP - 1M FILM

Physical and Mechanical Properties

Property (as Manufactured)	Values/Units	Test Method
Thickness (minimum)	154 mils (3.9 mm)	ASTM D 5147 section 6
Thickness (average)	157 mils (4.0 mm)	ASTM D 5147 section 6
¹ Peak Load @ 73°F (average)	60 lbf/inch (10.5 kN/m)	ASTM D 5147 section 7
¹ Peak Load @ 0°F (average)	115 lbf/inch (20.1 kN/m)	ASTM D 5147 section 7
¹ Elongation @ Peak Load, 73°F (average)	65%	ASTM D 5147 section 7
¹ Elongation @ Peak Load, 0°F (average)	40%	ASTM D 5147 section 7
¹ Elongation at 5% Peak Load @ 73°F (average)	100%	ASTM D 5147 section 7
¹ Tear Strength (average)	100 lbf (0.45 kN)	ASTM D 5147 section 8
Water Absorption (maximum)	1%	ASTM D 5147 section 10
Dimensional Stability (maximum)	<0.5%	ASTM D 5147 section 11
Low Temperature Flexibility (maximum)	-15°F (-26°C)	ASTM D 5147 section 12
Compound Stability (minimum)	250°F (121°C)	ASTM D 5147 section 16

1. The value reported is the lower of either MD or XD.



SOPREMA ALSAN RS

A COMPLETE RANGE OF SYSTEM APPLICATIONS

The SOPREMA **ALSAN RS** System offers a complete range of products utilizing PMMA (polymethyl methacrylate) technology. It is an ultra-high performance, flexible, seamless, polyester reinforced cold liquid-applied roofing and waterproofing membrane system. All **ALSAN RS** Systems feature dramatically fast cure times that can accommodate tight construction schedules and provide durable applications that may be warranted for up to 20 years (contact Soprema for details). Systems include roofing, waterproofing, balconies, terraces, parking decks / ramp applications and many more.

ALSAN RS SYSTEM PRODUCT COMPONENTS:

PRIMER RESINS:

- **ALSAN RS 270** primer for concrete and wood surfaces
- **ALSAN RS 222** primer for asphaltic surfaces

MEMBRANE RESINS:

- **ALSAN RS 230 FIELD** horizontal/field grade resin reinforced with **ALSAN RS Fleece** to form waterproofing membrane
- **ALSAN RS 230 FLASH** vertical/flushing grade resin reinforced with **ALSAN RS Fleece** to form waterproofing membrane
- **ALSAN RS 260 LO FIELD** low-odor horizontal/field grade resin reinforced with **ALSAN RS Fleece** to form waterproofing membrane
- **ALSAN RS 260 LO FLASH** low-odor vertical/flushing grade resin reinforced with **ALSAN RS Fleece** to form waterproofing membrane

WEARING/SURFACING LAYER RESINS FOR PEDESTRIAN OR VEHICULAR TRAFFIC:

- **ALSAN RS 233 SELF-LEVELING MORTAR** wearing layer; (**ALSAN RS 210** resin mixed with **ALSAN RS 223** Powder filler)
- **ALSAN RS 263 LO SELF-LEVELING MORTAR** low-odor wearing layer; (**ALSAN RS 240** LO resin mixed with **ALSAN RS 223** Powder filler)
- **ALSAN RS 210** base resin mixed with **ALSAN RS 223** Powder filler used in wearing layer applications
- **ALSAN RS 240 LO** low-odor base resin mixed with **ALSAN RS 223** Powder filler used in wearing layer applications
- **ALSAN RS 220 POWDER** proprietary blended filler-component mixed with base resin used in wearing layer applications

FINISH / SEALER TOP COAT RESINS:

- **ALSAN RS 280 FINISH** pigmented sealer resin
- **ALSAN RS 281 FINISH** translucent sealer resin

COMPLEMENTARY RESINS & PRODUCTS:

- **ALSAN RS PASTE** patching mortar used in surface repairs
- **ALSAN RS DETALER** sealing resin combined with micro-fiber fleece reinforcement
- **ALSAN RS TEXTURED COATING** ramp surface textured slip-resistant coating with #2 size pre-mixed additive
- **ALSAN RS 260 TEXTURED FINISH** parking deck and balcony waterproofing slip-resistant coating with a premixed additive
- **ALSAN RS CATALYST** curing agent used to induce curing process with all regular **ALSAN RS** resins
- **ALSAN RS LO CATALYST** curing agent used to induce curing process with all low-odor **ALSAN RS** resins
- **ALSAN RS FLEECE** polyester based reinforcement used with all membrane resins (various sizes available)
- **ALSAN RS DECOR CHIPS** used as decorative broadcast medium with finish resin
- **ALSAN RS SURFACING AGGREGATE** used as a slip-resistant/protective and decorative broadcast medium with finish resin
- **ALSAN RS REPAIR MORTAR** high density, quick setting, resin based surface repair mortar

For additional products for special applications, please contact your local SOPREMA sales representative.

SYSTEMS

BALCONY

Fully and partially reinforced systems developed for cantilevered balcony spaces

PARKING

Fully and partially reinforced systems capable of withstanding heavy vehicular traffic

WATERPROOFING

Fully and partially reinforced systems constructed for waterproofing protection

GREASE PROTECTION

Fully reinforced systems designed to protect surfaces from exposure to harmful contaminants

FLASHING

Fully reinforced systems developed for flashings, walls, penetrations, curbs, drains, and difficult details

RECOVERY

Fully reinforced systems designed to extend the life of existing roof installations, limiting the need for tearoff

TRAFFICABLE

Fully and partially reinforced systems constructed to withstand consistent pedestrian traffic

OVERBURDEN

Fully reinforced systems designed for garden roofs, IRMA, paver and water feature installations

COOL ROOF

Fully and partially reinforced systems designed to meet industry standards for reflectivity and emissivity

ALSAN RS liquid applied applications offer the widest range of system possibilities in the industry today. **ALSAN RS** offers versatile solutions for all of your roofing and waterproofing needs.

SOPREMA ALSAN RS

AVAILABLE SYSTEMS

ALSAN RS Roofing/Waterproofing Reinforced System

1. Approved Substrate
2. **ALSAN RS 270/222** Primer
3. **ALSAN RS 230** Field
4. **ALSAN RS Fleece**
5. **ALSAN RS 230** Field

ALSAN RS Parking Deck / Balcony / Terrace System

1. Approved Substrate
2. **ALSAN RS 270/222** Primer
3. **ALSAN RS 230** Field
4. **ALSAN RS Fleece**
5. **ALSAN RS 230** Field
6. **ALSAN RS 233** Self Leveling Mortar
7. **ALSAN RS** Color Quartz
8. **ALSAN RS 280** Color Finish

*Quartz size will vary based on required slip-resistant values. Other colors available upon special order request.

ALSAN RS Parking Deck / Balcony / Terrace System

1. Approved Substrate
2. **ALSAN RS 270/222** Primer
3. **ALSAN RS 230** Field
4. **ALSAN RS Fleece**
5. **ALSAN RS 230** Field
6. **ALSAN RS 233** Self Leveling Mortar
7. **ALSAN RS 288** Color Finish

ALSAN RS Parking Deck / Balcony / Terrace / Road Coating Protective Non-Reinforced System

1. Approved Substrate
2. **ALSAN RS 270/222** Primer
3. **ALSAN RS 260** Textured Finish

RossDrulisCusenbery Architecture, Inc.
May 2015

Building Envelope and Waterproofing Systems
SONOMA HOTEL PROJECT - KENWOOD INVESTMENTS, LLC
Basis of Design Report

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SOPREMA ALSAN RS

FLATIRON BUILDING

NEW YORK CITY



The world famous Flatiron Building in New York City is protected by Soprema. In the dead of winter, with temperatures below freezing, **ALSAN RS** created an impenetrable liquid waterproofing membrane guaranteed for 20 years. Soprema's state of the art polymethyl methacrylate liquid waterproofing technology was used to completely waterproof the 8,500 square foot main roof and 21st floor set back of the building. The work was completed in difficult circumstances, with below freezing (25° F) temperatures and windy conditions. The main roof was a recovery application, which saved Newmart Knight Frank, the building's owner, the costly process of tearing off the aged granulated SBS membrane. **ALSAN RS** was applied directly over the existing membrane, creating a watertight surface. Of special interest were the numerous skylights and other difficult flashing challenges, including time-consuming penetrations, bulkheads and chimneys, many with peculiar angles due to the building's unique architecture.

KNOW HOW

PRACTICAL TRAINING FOR ALL APPLICATIONS

WORLDWIDE NETWORK OF APPROVED AND CERTIFIED APPLICATORS
To maintain the highest level of quality, SOPREMA **ALSAN RS** Systems are installed by fully certified and trained applicators. Each contractor must meet and maintain the high assessment criteria required by SOPREMA. Additionally, SOPREMA provides field technical assistance for certified applicators, architects, specifiers and property owners to ensure the highest quality standards and expertise. SOPREMA offers contractors highly specialized training courses at our Wadsworth, Ohio training center location. Seminars include both theoretical courses as well as hands-on training. Our reputation has been built on a high level of technical support before, during and after the installation. Our expertise lies in recommending the proper system that will exceed the performance requirements of any proposed project while working within the client's budgetary constraints.

SOPREMA SYSTEMS: TIME PROVEN AND FULLY GUARANTEED.
Whether a parking deck, a balcony or a flat roof, **ALSAN RS** Systems perfectly and fully seal the surface while providing long-term cost effective protection against moisture infiltration and other damage. SOPREMA developed this unique system based on fluid plastics and PMMA resins. **ALSAN RS** is a modern, highly reliable product that offers compelling advantages to the most demanding end users.







LIQUID APPLIED WATERPROOFING

The SOPREMA LIQUID GROUP offers cutting edge liquid applied waterproofing solutions for every situation. Today's commercial and industrial building industry is an ever changing landscape where the efficient thrive and the slow die. The SOPREMA LIQUID GROUP is a dynamic organization comprised of an industry leading team capable of constant innovation and quick action to capitalize on rapidly evolving market conditions.

With five product lines, including the state-of-the-art, third generation **ALSAN RS** line of PMMA (polymethyl methacrylate) technology, the SOPREMA LIQUID GROUP is recognized as a leader in the liquid applied waterproofing industry. When planning a liquid applied waterproofing project with SOPREMA, you are receiving a world of support. For over 100 years, SOPREMA has been known for its utilization of advanced research and development capabilities that do not follow trends, but set the mark for the competition to follow.



SOPREMA, Inc.
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Wadsworth, OH 44281

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ALSANRS-9-2011

Building Envelope and Waterproofing Systems

SONOMA HOTEL PROJECT - KENWOOD INVESTMENTS, LLC

Basis of Design Report

RossDrulisCusenbery Architecture, Inc.

May 2015



CIM 1000

HIGH PERFORMANCE COATINGS AND LININGS

OVERVIEW

- DESCRIPTION**
- CIM 1000 is a liquid applied urethane coating that cures in hours to form a tough elastomeric coating that adheres to most substrates, forming a chemical and abrasion resistant barrier for waterproofing, corrosion protection, and containment of water and most aqueous chemicals.
- ADVANTAGES**
- CIM 1000 has over 30 years of proven performance in demanding environments. It remains flexible and resilient and provides exceptional service in a broad range of applications.
 - Ideal for coating concrete.
 - Forms a tough elastomeric liner able to bridge cracks.
 - Tested to ANSI 118.10-199, “Standard Specification for Load Bearing, Bonded, Waterproof Membrane for Thin-Set Ceramic Tile and Dimension Stone Installation”.
 - Impervious to water and most aqueous chemicals, providing a long lasting tank and pond liner.
 - Asphalt extended urethane formula provides superior wear and weatherability for parking decks and containment areas.
 - Adheres to and bridges between common construction materials such as concrete, steel and other metals, asphalt pavement, glass, wood, and most coatings.
 - Environmentally sound, complying with the toughest VOC regulations.
 - Can be repaired when damaged.
 - Excellent abrasion resistance for severe wear applications.
 - UV stable.
 - Liquid, two-component urethane can be applied to complex shapes, multiple penetrations or to most geotextiles.

SURFACE PREPARATION

- GENERAL:

Substrates must be **clean and dry** with no oils, grease or loose debris. CIM Bonding Agent is recommended on all non-porous substrates. Perform adhesion tests to confirm adequacy of surface preparation. See C.I.M. Industries’ specific substrate Instruction Guide for specific guidelines.
- CONCRETE:

ICRI-CSP 4-6 surface profile exposing aggregate. Concrete must exhibit minimum 3,000 psi compressive strength and be free of release agents and curing compounds. The substrate must be clean and dry (see CIM Instruction Guide IG-2), and free of contaminates.
- STEEL:

Minimum 3 mil profile.
Immersion service – SSPC-SP10 / NACE No. 2 Near White Blast.
Non-Immersion service – SSPC-SP6 / NACE No. 3 Commercial Blast.
Use CIM Bonding Agent for greater adhesion.
- OTHER METALS:

SSPC-SP1 solvent clean and abrasive blast to roughen and degloss the surface. Use CIM Bonding Agent for greater adhesion.
- GLASS:

Thoroughly clean. CIM Bonding Agent must be used for increased adhesion. For immersion service roughen the surface.
- WOOD:

Substrate must be clean, dry and free of surface contamination.
- PREVIOUS COATINGS AND LININGS:

CIM 1000 may be applied over some existing coatings and linings and achieve acceptable performance. CIM Bonding Agent is recommended for greater adhesion. Finished system results vary due to a variety of project specific factors, including the service conditions to which the system is exposed. Therefore, C.I.M. Industries does not accept responsibility for determining the suitability of an existing coating and lining as a substrate for CIM products. Owner shall perform adhesion tests on any existing coating or lining to determine suitability.
- EARTH:

Use CIM Scrim.
- COLOR

CIM 1000 is initially shiny black, turning dull over 3 to 6 months when exposed to direct sunlight. For a colored or reflecting surface finish, see C.I.M Industries’ Instruction Guide, “Topcoats” (IG–7) for further instructions.
- SOLIDS BY VOLUME

88% (1413 dry mils x sq. ft./gal.)
- VOC

92 g/l (0.76 lb./gal.). CIM 1000 complies with the toughest VOC regulations.

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CIM 1000

HIGH PERFORMANCE COATINGS AND LININGS

All information presented in this publication is believed to be accurate, but it is not to be construed as a guarantee of minimum performance. Test performance results are obtained in a controlled laboratory environment using procedures that may not represent actual operating environments.

TYPICAL PROPERTIES

Abrasion Resistance–Wt. Loss, Taber Abraser CS–17 Wheel 1000 gr./1000 rev. ASTM D4060		1.2 mg. Loss	Liner Performance Crack Bridging 10 cycles @ -15°F After heat aging		greater than 1/8” greater than 1/4”
Adhesion to Concrete (dry) Elcometer		350 psi	Liner Weight (60 mil wet film thickness)		31 lbs./100 sq. ft.
Deflection Temperature ASTM D648		below -60°F	Mix Ratio Weight Volume		7:1 9:1
Density (Approx.) Premix Activator Mixed & Cured		8.0 lbs./gal. 10.1 lbs./gal. 8.3 lbs./gal.	Mullen Burst Strength ASTM D751, 50 mil		150 psi
Elastomeric Waterproofing ASTM C836 ASTM C957		exceeds all criteria exceeds all criteria	Permeability to Water Vapor ASTM E96 Method E, 100°F, 100 mil sheet		0.03 perms
Extension to Break ASTM D412		400%	Recovery from 100% extension: after 5 minutes after 24 hours		98% 100%
Flammability ASTM D2859		pass/combustible substrate	Salt Spray ASTM B117		pass 2000 hrs.
UL790		Class A ¹	Service Temperature		-60°F to 220°F
Flooring and Shower Lining UPC/IBC ANSI 118.10		Pass	Softening Point, Ring & Ball ASTM D36		>325°F
Green Roof Membrane/Root Barrier FLL, 2002		Pass	Tear Strength ASTM D624 (Die C)		150 lbs./in.
Hardness, Shore A ASTM D2240 @ 77°F		60	Tensile Strength ASTM D 412, 100 mil sheet		900 psi
Jet Fuel Resistance FS SS-S-200D		pass for joints	Weathering ASTM D822		pass 5000 hrs.

¹Contact C.I.M. Industries for details regarding UL fire ratings

CHEMICAL RESISTANCE

CIM 1000 is resistant to a broad range of acids and alkalis. Consult C.I.M. Industries for additional information regarding chemical resistance after reviewing CIM 1000 Chemical Resistance Chart.

THE INFORMATION PRESENTED IN THIS PUBLICATION IS SUBJECT TO CHANGE WITHOUT NOTICE.
CONTACT C.I.M. INDUSTRIES FOR CURRENT INFORMATION.
www.cimindustries.com

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CIM 1000

HIGH PERFORMANCE COATINGS AND LININGS

GENERAL APPLICATION INFORMATION

FOR PROFESSIONAL USE ONLY.

- PRECAUTIONS

Avoid contamination with water or moisture. Keep all pails and jugs tightly closed until ready for use. All equipment, air supplies, and application substrates must be **ABSOLUTELY DRY**. Do not apply in wet weather or when rain is imminent or when the CIM 1000 or the substrate may become wet within 4 hours after coating. Use caution when applying CIM 1000 in confined spaces. See C.I.M. Industries' Instruction Guide, "Applying CIM Within Confined Spaces" (IG-9).
- TEMPERATURE

Surface should be at least 50°F (10°C) and must be 5°F (3°C) above the dew point. **DO NOT APPLY WHEN THE SUBSTRATE OR AMBIENT TEMPERATURE IS RISING OR COATING IS IN DIRECT SUNLIGHT.** CIM 1000 should be at least 60°F (15°C) when mixed and applied. CIM 1000 may be preheated to facilitate application at low temperatures, but working time will be reduced. See C.I.M. Industries' Instruction Guide "Applying CIM Coatings in Cold Weather" (IG-11).
- EQUIPMENT

Spray equipment requires large diameter hose and air supplied mastic gun or plural component spray equipment. See "Spray Application of CIM" (IG-12) or contact C.I.M. Industries for specific recommendations. Roller, squeegee, and trowel may also be used.
- POT LIFE

About 30 minutes. Working time depends on temperature and method of application. Working time for spray application will be significantly shorter.
- PRIMING

Porous substrates such as wood and concrete may be primed with CIM 61BG Epoxy Primer to minimize outgassing. The maximum recoat window for CIM 61BG Epoxy Primer is 48 hours. See CIM 61BG Epoxy Primer Technical Data Sheet for additional information. Perform adhesion tests to confirm adequacy of adhesion to primer.
- MIXING

DO NOT THIN. DO NOT HAND MIX. Begin mixing each pail (4.5 gal.) of CIM 1000 Premix using a power mixer (e.g. ½" drill and an eight inch mud mixer). Do not draw air into the mix. While mixing, slowly add one jug (0.5 gal.) of CIM 1000 Activator to the pail. Once the CIM 1000 Activator has been added, mix thoroughly for **3 FULL MINUTES**. The proportions are premeasured. **DO NOT ESTIMATE.** Mixing Jigs and Timers from C.I.M. Industries help eliminate mixing errors and increase productivity on the job. See C.I.M. Industries' Instruction Guide, "Mixing CIM Premix and Activator" (IG-8).
- APPLICATION

Apply CIM 1000 directly to a clean and dry substrate. Vertical surfaces will require multiple coats. See C.I.M. Industries' specific substrate Instruction Guide for additional guidelines.
- RECOATING

CIM 1000 may be recoated in 1 hour and must be recoated soon after the coating no longer comes off on polyethylene (typically within 4 hours of mixing). If the liner has cured longer than this time, the surface must be severely abraded using surface grinder or other mechanical means, and be free of dust and debris. Use CIM Bonding Agent for better adhesion. For immersion conditions, all coats shall be applied within 4 hours of each other, except at joint lines.
- RECOMMENDED MINIMUM THICKNESS

Recommended minimum thickness of the coating is 60 wet mils. Contact C.I.M. Industries for detailed cure time information. Refer to CIM 1000 Coverage Chart for coverage rates.
- CURING TIME

CIM 1000 may be placed in service within 24 hours for non-aggressive service. Severe service applications may require a cure time of 72 hours or more. Contact C.I.M. Industries for specific recommendations.
- CLEAN-UP

Use mineral spirits for clean-up of uncured material. Spray equipment must be flushed regularly during application to prevent material from setting up in the hose and pump. Cured material is very difficult to remove. Soaking in solvent will soften the material and may assist in its removal.

CONTACT C.I.M. INDUSTRIES FOR SPECIFIC RECOMMENDATIONS AND INSTRUCTION GUIDES.
www.cimindustries.com



CIM 1000

HIGH PERFORMANCE COATINGS AND LININGS

SHIPPING, STORAGE AND SAFETY DATA

WARNING

Flammable. Use only in well ventilated areas. Do not store or use near open flame, sparks or hot surfaces. Keep tightly closed. Avoid contact with moisture or water. Keep out of reach of children.

SAFETY INFORMATION

This product contains petroleum asphalt, petroleum distillates, amine compounds and/or other chemical ingredients. Adequate health and safety precautions should be observed during the storage, handling, application and curing. Refer to C.I.M. Industries' Material Safety Data Sheets for further details regarding the safe use of this product.

PACKAGING

CIM 1000 is available in mixed units of 5 gallons. Each unit consists of a container of premix and a smaller container of activator. Quantities have been premeasured to provide the proper mixing ratio, leaving sufficient room in the premix container to facilitate adequate mixing. **Do not estimate proportions.**

SHIPPING	Premix	Activator
Weights		
5.0 gallon units	40 lb/pail	5.5 lb/jug (33 lb/case of 6)
Properties		
Flash Point	101°F	>400°F
Shipping Name	Coating Solution	Not Regulated
DOT Class	Class 3, UN1139, PG III	Not Regulated
STORAGE		
Temperature	20°F to 110°F	70°F to 95°F
Shelf Life	2 years	6 months
NFPA	Class II	Class III B

WARRANTY & LIMITATION OF SELLER'S LIABILITY

C.I.M. Industries Inc. (C.I.M.) warrants that for a period of five (5) years from the date of shipment to the initial purchaser, the products, when mixed in proper ratios for the proper length of time, (a) will not become brittle or crack and (b) will provide a water barrier. Due to application variables beyond C.I.M.'s control which may affect results, C.I.M. makes no warranty of any kind, expressed or implied, including that of merchantability, other than that the products conform to C.I.M.'s current quality control standards at time of manufacture. If breach of warranty is established, the buyer's exclusive remedy shall be repayment of the purchase price of the non-conforming CIM membrane product or, at C.I.M.'s option, resupply of conforming product to replace the non-conforming product. The buyer expressly waives any claim to additional damages, including consequential damages.

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Pedestrian Traffic Coatings



USES

- ## ADVANTAGES

- ## LIMITATIONS

- ## INSTALLATION

FIELD SAMPLE

5. Do not alter, move, or destroy field sample until work is completed and approved by Owner's representative.

TYPICAL PHYSICAL PROPERTIES

70410 Base Coat

7430 Wear Coat/Topcoat

The above test results are typical values. Individual lots may vary up to 10% from the typical value.

MATERIAL LIST

- ## COLORS & PACKAGING

- ## PROJECT CONDITIONS

- Prior to starting work, read and follow the Material Safety Data Sheet (MSDS) and container labels for detailed health and safety information.
- Do not proceed with application of materials when substrate temperature is less than 40°F, if precipitation is imminent, or to a damp, unclean or frosty surface. Ambient temperature should be a minimum 40°F and rising, and more than 5° above dew point. Special precautions are to be taken when ambient and/or substrate temperatures are approaching, at, or above 100°F and it may be necessary to limit material application to evening hours for exterior exposed decks.
- Coordinate waterproofing work with other trades. Applicator shall have sole right of access to the specified area for the time needed to complete the application and allow the pedestrian traffic coatings to cure adequately.
- Protect plants, vegetation or other surfaces not to be coated against damage or soiling.
- Keep products away from spark or flame. Do not allow the use of spark-producing equipment during application and until all vapors have dissipated. Post "No Smoking" signs.
- Maintain work area in a neat and orderly condition, removing empty containers, rags and debris daily from the site.

SUBSTRATE PREPARATION

- **Cleaning:** Surfaces contaminated with oil or grease shall be vigorously scrubbed with a stiff bristle broom and a strong non-susding detergent such as NEOGARD® 8500 BioDegradable Cleaner. Thoroughly wash, clean, and dry. Areas where oil or other contaminants penetrate deep into the concrete may require removal by mechanical methods.
- **Shot-Blasting:** Required surface preparation method for remedial construction is also the preferred method for new construction. Mechanically prepare surface by shot-blasting to industry standard surface texture ((ICRI's CSP3-4) without causing additional surface defects in substrate. Shot-blasting does not remove deep penetrating oils, grease, tar or asphalt stains. Proper cleaning procedures should be followed to ensure proper bonding of the deck coating.

MIXING

Read product labels and application instructions prior to use. Products must be mixed due to settling and are formulated to be installed as manufactured, without thinning. If thinning is required, do not thin coating material more than 10% and only after materials are mixed. See compatible thinners and additional mixing instructions in the NEOGARD® Application Manual or contact NEOGARD Technical Service at techservice@neogard.com.

DETAILING

- **Cracks and Cold Joints:** Visible hairline cracks (less than 1/16" in width) in concrete and cold joints shall be cleaned, primed as required and treated with base coat material a minimum distance of 2" on each side of crack to yield a total thickness of 30 dry mils.

- Large cracks (greater than 1/16" in width) shall be routed and sealed with 70991 or 70995 sealant. Refer to Sealant product data sheet for proper use, application and joint design instructions. Sealant shall be applied to inside area of crack only, not applied to deck surface. Detail sealed cracks with base coat material a distance of 2" on each side of crack to yield a total thickness of 30 dry mils.
- Control Joints: Seal control joints equal to or less than 1" in width with 70995 urethane sealant. Install sealants in accordance with ASTM C 1193 and manufacturer's instructions. Detail sealed joints with base coat material a distance of 2" on each side of joint to yield a total thickness of 30 dry mils.
- Flashing Tape: Install 86218 flashing tape and 86220 reinforcing fabric where indicated on the drawings and/or where required by the manufacturer prior to the application of base coat.
- Surface Condition: Surface shall be clean and dry prior to coating.

APPLICATION

Factors That Affect Dry Film Thickness: Volume of solids, thinning, surface profile, application technique and equipment, overspray, squeegee, brush and roller wet out, container residue, spills and other waste are among the many factors that affect the amount of wet coating required to yield proper dry film thickness. To ensure that specified dry film thickness is achieved, use a wet mil gauge to verify actual thickness of wet coating applied, adjusting as needed for those factors which directly affect the dry film build.

Seed and Lock Method (Preferred)

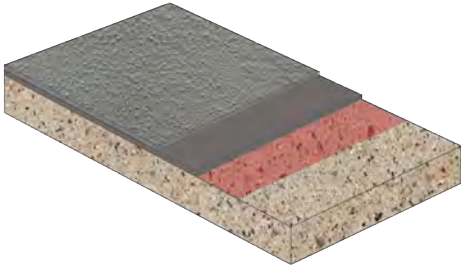
¹Aggregate is evenly broadcast into wet wear coat at the rate of 10 lbs/100 sf.

1. **Primer:** Thoroughly mix primer and apply at a rate of 300 sf/gal (0.33 gal/100 sf) to all concrete surfaces. Within 24 hours of application of primer, base coat must be applied. If base coat cannot be applied within 24 hours, inspect surface for contaminants, clean surface as necessary, and re-prime.
2. **Base Coat:** Thoroughly mix 70410 base coat material and apply at a rate of 66 sf/gal (1.5 gal/100 sf, 24 wet mils), to yield 18 dry mils.

Extend base coat over cracks and control joints which have received detail treatment.

3. Wear Coat: Thoroughly mix 7430 series wear coat material and apply at a rate of 200 sf/gal (0.5 gal/100 sf, 8 wet mils) to yield 6 dry mils, and immediately broadcast aggregate, evenly distributed, into wet coating at the rate of 10 lbs/100 sf. When dry, remove excess aggregate.
4. Topcoat: Thoroughly mix 7430 topcoat material and apply at a rate of 150 sf/gal (0.66 gal/100 sf, 10 wet mils) to yield 8 dry mils. Note: Standard system coating thickness is 32 dry mils exclusive of primer and aggregate.

Seed and Backroll Method



Summary Table @ Surface Prep Profile CSP 3-4

COAT	PRODUCT	MIX RATIO	COVERAGE	MILS DFT
Primer	Various	Various	300 sf/gal	N/A
Base	70410	N/A	60 sf/gal	20
Top ²	7430	N/A	100 sf/gal	12

¹Aggregate is evenly broadcast into wet topcoat at the rate of 10 lbs/100 sf.

1. **Primer:** Thoroughly mix primer and apply at a rate of 300 sf/gal (0.33 gal/100 sf) to all concrete surfaces. Within 24 hours of application of primer, base coat must be applied. If base coat cannot be applied within 24 hours, inspect surface for contaminants, clean surface as necessary, and re-prime.
 2. **Base Coat:** Thoroughly mix 70410 base coat material and apply at a rate of 60 sf/gal (1.66 gal/100 sf, 26 wet mils), to yield 20 dry mils. Extend base coat over cracks and control joints which have received detail treatment.
 3. **Topcoat:** Thoroughly mix 7430 topcoat material and apply at a rate of 100 sf/gal (1.0 gal/100 sf, 16 wet mils) to yield 12 dry mils. Immediately broadcast aggregate, evenly distributed, into wet coating at a rate of approximately 10 lbs/100 sf and backroll to encapsulate aggregate.
- Note:** System coating thickness is 32 dry mils exclusive of primer and aggregate.

CLEAN UP

Clean all mixing and application equipment immediately after use with 20653 xylene thinner, 7055 odorless reducer, toluene, or mineral spirits. Hardened material will require mechanical means of removal. Observe all fire and health precautions when handling or storing solvents.

STORAGE

Containers of deck coating material should be stored in a cool (70°F) area to ensure long shelf life. To prevent container rupture due to very high temperature, keep away from heat and/or open flames.

HEALTH AND SAFETY

Before using this product, carefully read the Material Safety Data Sheet (MSDS) and container labels for detailed health and safety information. This product is intended for industrial use by properly trained professional applicators only.

PROTECTION

After completion of application, do not allow traffic on coated surfaces for a period of at least 48 hours at 75°F. and 50% R.H., or until completely cured.

CREDENTIALS



OTHER RESOURCES

- Guide Specification
- Product Data Sheets
- Details
- Warranty Samples
- Maintenance Manual
- Application Manual
- Troubleshooting Manual
- Curing Charts
- Chemical Resistance Charts
- Color Cards

Project Information

Job Name: _____ System Installed: _____ Area: _____

Address: _____ City: _____ State: _____ Zip: _____

	Primer (Gals)	Base Coat (Gals)	Wear Coat (Gals)	Topcoat (Gals)	Aggregate (Pounds)
Product Number:					
Quantity:					
Batch Numbers:					

Occurrence Keys:

1 Change Order 2 Weather Related 3. Preparation 4. Primer 5. Base Coat 6. Wear Coat 7 Topcoat 8. Other

[illegible]

Manufacturer warrants that the physical property of the product reported above will meet the standards and deviations of the associated ASTM test method. **MANUFACTURER HEREBY EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY AND/OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.** Buyer must make its own determination of the suitability of any product for its use, whether such product is used alone or in combination with other materials. **To the extent this or any of Manufacturer's products is proven to be defective, Buyer's sole remedy shall be limited to the replacement of such defective product, exclusive of any costs of labor. MANUFACTURER SHALL NOT BE LIABLE OR OBLIGATED FOR ANY LOSS OR CONSEQUENTIAL OR OTHER DAMAGE INCURRED DIRECTLY OR INDIRECTLY BY BUYER OR ANY OTHER PERSON OR ENTITY THAT ARISES IN ANY WAY IN RELATION TO THIS OR ANY OF MANUFACTURER'S OTHER PRODUCTS.** Nothing contained herein shall be construed to constitute inducement or recommendation to practice any invention covered by any patent without authority of the owner of the patent. No Applicant is or should be viewed as an employee or agent of Manufacturer. Peda-GardSS_02172015

NEOGARD Div. of JONES-BLAIR

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Grace Construction Products

GRACE ULTRA™ Self-adhered roofing underlayment for the highest temperature applications

Product Description

Grace Ultra™ roofing underlayment is composed of two waterproofing materials—an aggressive butyl rubber based adhesive backed by a layer of high density cross laminated polyethylene.

The product is 30 mils (0.76 mm) thick making it easy to handle and apply. The unique, advanced adhesive formulation offers premium adhesion to the roof deck, high quality laps, superior seal around roofing fasteners, and outstanding high temperature stability.

The adhesive is backed by a protective plastic release liner that protects its adhesive quality. The release liner is easily removed allowing the adhesive to be bonded tightly to the roof deck.

The membrane comes in a 198 ft² (18.4 m²) roll, and measures 34 in. (864 mm) wide.

Features & Benefits

Easy to handle and apply—The membrane bonds firmly to the roof deck and forms high quality laps.

Self sealing—The membrane meets key building code standards for nail sealability of self-adhered roofing underlayments.

Heat resistance—The membrane is specially formulated to resist temperatures up to 300°F without degradation of the butyl adhesive.

Better Chemical Resistance— Compatible with low slope roofing materials such as EPDM and TPO

Slip resistant surface—The slip resistant surface maximizes traction for safety without compromising the water integrity of the laps.

Plastic release—Plastic is easy to remove and easy to dispose of.

Reroofable—Unlike some granular surfaced membranes, Grace Ultra™ underlayment will not adhere to the underside of the exposed roof covering making reroofing easier and less costly.

Grace expertise—Grace is the recognized leader in self-adhered roofing underlayments and is the manufacturer of Grace Ice & Water Shield® roofing underlayment.

Guidelines for Use

Grace Ultra™ membrane can be used as a sloped roof underlayment to help protect against leakage from water that builds up behind ice dams, or from wind-driven rain in applications where the membrane must withstand the highest in-service temperatures for extended periods of time.

High Temperature Applications

Grace Ultra™ membrane is the appropriate product for all applications where superior heat resistance is



needed. In addition, Grace Ultra™ underlayment is the appropriate product for use under certain types of metal roofs (those employing copper, zinc, or Cor-Ten® panels). These metal roofs tend to readily conduct heat to the underlayment making them more likely to expose the membrane to high temperatures. It is up to the contractor and specifier to decide what level of performance is required based on the guidelines provided.

Wind-Driven Rain

Sloped roofs are not waterproof. They protect structures by shedding rain water. Storm-driven winds can cause sloped roof coverings to lift. Rain can be easily driven under the roof covering directly to the unprotected deck where it causes leaks and damage to the interior of the structure. Grace Ultra™ membrane applied beneath the sloped roof covering helps prevent wind-driven rain from entering the structure. For wind-driven rain protection, full coverage with Grace Ultra™ underlayment is recommended. Since Grace Ultra™ underlayment is a vapor barrier, the roof construction must allow for proper ventilation in full roof coverage applications.

Ice Dams

For ice dam protection, Grace Ultra™ membrane should be adhered at the edge of the roof deck by the eaves. The membrane should be applied to a point on the roof deck above the highest expected ice dam. Several variables influence the height of ice dams and the membrane coverage required. Local building codes should be consulted for specific requirements. Variables influencing the height of ice dams include climate (particularly the annual snowfall), slope, overhang, valleys, how well the structure is insulated and ventilated, and exposure (sun vs. shade). In addition to placement along the eaves, Grace Ultra™ membrane can be used to help prevent roof leaks in a handful of danger zones like in valleys, at the rake edges, and around chimneys and skylights.

Installation Procedure

Surface Preparation

Install Grace Ultra™ membrane directly on a clean, dry, continuous structural deck. Some suitable deck materials include plywood, wood composition, wood plank, metal, concrete, or gypsum sheathing. For all other substrates, contact your local Grace representative. Remove dust, dirt, loose nails, and old roofing materials. Protrusions from the deck area must be removed. Decks shall have no voids, damaged, or unsupported areas. Repair deck areas before installing the membrane.

Prime concrete, masonry surfaces and DensGlass Gold® with Perm-A-Barrier® WB Primer. Prime wood composition and gypsum sheathing with Perm-A-

Use Grace Ultra™ underlayment on all of these critical areas



Barrier® WB Primer if adhesion is found to be marginal (refer to Technical Letter 12, *Use on Oriented Strand Board (OSB) Roof Sheathing*). Apply Perm-A-Barrier® WB Primer at a rate of 250–350 ft²/gal (6–8 m²/L). Priming is not required for other suitable surfaces provided that they are clean and dry.

Membrane Installation

Apply Grace Ultra™ membrane in fair weather when the air, roof deck, and membrane are at temperatures of 40°F (5°C) or higher. Apply roof covering material at temperatures of 40°F (5°C) or higher.

Cut the membrane into 10–15 ft (3–5 m) lengths and reroll loosely. Tack/secure the end of the roll with a nail. Peel back 1–2 ft (300–600 mm) of release liner, align the membrane, and continue to peel the release liner from the membrane. Press the membrane in place with heavy hand pressure. Side laps must be a minimum of 3.5 in. (90 mm) and end laps a minimum of 6 in. (150 mm). For valley and ridge application, peel the release liner, center the sheet over the valley or ridge, drape, and press it in place. Work from the center of the valley or ridge outward in each direction and start at the low point and work up the roof.

Alternatively, starting with a full roll of membrane, unroll a 3–6 ft (1–2 m) piece of membrane leaving the release liner in place. Align the membrane and roll in the intended direction of membrane application. Carefully cut the release liner on top of the roll in the cross direction being careful not to cut the membrane. Peel back about 6 in. (150 mm) of the release liner in the opposite direction of the intended membrane application exposing the black adhesive. Hold the release liner with one hand and pull the roll along the deck with the release liner, leaving the applied membrane behind. Use the other hand to apply pressure on the top of the

roll. Stop frequently to press the membrane in place with heavy hand pressure. When finished with the roll go back to the beginning, reroll and pull the remaining release paper from the material, finishing the installation.

Consistent with good roofing practice, install the membrane such that all laps shed water. Always work from the low point to the high point of the roof. Apply the membrane in valleys before the membrane is applied to the eaves. Following placement along the eaves, continue application of the membrane up the roof. The membrane may be installed either vertically or horizontally.

Use smooth shank, electroplated galvanized nails for fastening shingles. Hand nailing generally provides a better seal than power-activated nailing. If nailing of the membrane is necessary on steep slopes during hot or extreme cold weather, backnail and cover the nails by overlapping with the next sheet.

Extend the membrane on the roof deck above the highest expected level of water back-up from ice dams and above the highest expected level of snow and ice on the wall sheathing on vertical side walls (dormers) and vertical front walls for ice dam protection. Consider a double layer of membrane in critical areas, such as along the eaves or in valleys and in climates where severe ice dams are anticipated. Apply the membrane to the entire roof deck for wind-driven rain protection. Apply a new layer of Grace Ultra™ underlayment directly over the old Grace underlayment in retrofit applications following the standard membrane application procedure.

Precautions & Limitations

- Slippery when wet or covered by frost.
- Consistent with good roofing practice, always wear fall protection when working on a roof deck.
- Release liners are slippery. Remove from work area immediately after membrane application.
- Do not leave permanently exposed to sunlight. Maximum recommended exposure is 60 days.
- Place metal drip edge or wood starter shingles over the membrane.
- Place metal drip edges or wood starter shingles over the membrane (refer to Technical Letter 15, *Roof Eave Application*).
- Do not fold over the roof edge unless the edge is protected by a drip edge, gutter, or other flashing material.
- Do not install on the chamfered edges of wood plank.
- Do not install directly on old roof coverings.
- Check with the manufacturer of the metal roofing

system for any special requirements when used under metal roofing. Do not install directly under roof coverings especially sensitive to corrosion, such as zinc, without providing proper ventilation.

- Provide proper roof insulation and ventilation to help reduce ice dams and to minimize condensation. Grace Ultra™ underlayment is a vapor barrier.
- Repair holes, fishmouths, tears, and damage to membrane with a round patch of membrane extending past the damaged area 6 in. (150 mm) in all directions. If fasteners are removed leaving holes in the membrane, they must be patched. The membrane may not self-seal open fastener penetrations.
- Do not install fasteners through the membrane over unsupported areas of the structural deck, such as over the joints between adjacent structural panels.
- Due to its slight rubber-like odor, do not apply where the membrane is exposed to interior living space.
- Compatible with EPDMs (refer to Technical Letter 5, *Chemical Compatibility*). Also for use in tie-ins in EPDM with other Grace underlayments.
- Not compatible with polysulfides, flexible PVC or high concentrations of resin (pitch). For more information, refer to Technical Letter 5.

Standard Compliance

Grace Ultra™ meets the following standards:

- ICC ESR-1677 approval according to AC-48 Acceptance Criteria for Self-Adhered underlayments used as Ice Barriers
- Underwriters Laboratories, Inc. R13399 Class A fire classification under fiberglass shingles and Class C under organic felt shingles
- Underwriters Laboratories, Inc. Classified Sheathing Material Fire Resistance Classification Design Numbers P225, P227, P230, P237, P259, P508, P510, P512, P514, P701, P711, P717, P722, P723, P732, P734, P742, P824

Product Data

Roll length	70 ft (21.3 m)
Roll width	34 in. (864 mm)
Roll size	198 ft² (18.4 m²)
Packaging	Corrugated cartons
Roll weight	42 lbs (19.0 kg)
Rolls per pallet	25

Performance Properties

Property	Value	Test Method
Color	Gray-black	
Thickness, membrane	30 mil (0.76 mm)	ASTM D3767 method A
Tensile strength, membrane	250 psi (1720 kN/m²)	ASTM D412 (Die C modified)
Elongation, membrane	250%	ASTM D412 (Die C modified)
Low temperature flexibility	Unaffected @ -20°F (-29°C)	ASTM D1970
Adhesion to plywood	3.0 lbs/in. width (525 N/m)	ASTM D903
Permeance (max)	0.05 Perms (2.9 ng/m²s Pa)	ASTM E96
Material weight installed (max)	0.22 lb/ft² (1.1 kg/m²)	ASTM D461
Adhesive	Butyl based	

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For technical assistance call toll free at 866-333-3SBM (3726)

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Unlike other HT underlayments Grace Ice & Water Shield® HT provides the optimal balance of adhesion and thermal stability.

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GRACE

Ice & Water Shield HT

HT

180°F

- 30 years of proven performance
- Premium leak protection in areas prone to ice dams and wind-driven rain
- Compatible with all standard roof coverings

Excludes applications in high altitudes where copper, zinc or Cor-Ten roof coverings will be used.

260°F

- Premium performance in high temperature applications
- Optimal balance of adhesion and thermal stability
- 120 day exposure

300°F

- High in-service temperature applications
- Butyl rubber technology
- Suitable for high altitude applications
- Best choice under copper, zinc or Cor-Ten roof covering

All Grace underlayments feature the lap strength, adhesion, nail sealability and waterproofing trusted by professionals for more than 30 years.

No matter what the project – Be sure to Roof it Right® with Grace roofing underlayments.

*The above temperature for thermal stability does not take into account other design considerations that include, but are not limited to, roof covering, insulation and ventilation. Contact your local Grace Technical Representative if you have any questions.

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The Waterproofing Performance you Trust.



GRACE Ice & Water Shield **HT**

180°F Thermal Stability

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High Temperature applications demand an adhesive that will not run or degrade at 260°F that also provides premium waterproofing. The limitations of existing rubberized asphalt chemistry makes it nearly impossible to achieve both of these properties in one product. This forces you to compromise on the overall performance and sustainability of your roof design.

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Grace Ice & Water Shield HT's breakthrough adhesive technology delivers 260° F thermal stability and best in class adhesion all in one product.

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- ▲ 260°F Thermal Stability
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- ▲ Re-roofable
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- ▲ Slip Resistant Walking Surface
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- ▲ 120 days of exposure time delivers consistent performance over long, unpredictable construction cycles

The Waterproofing Performance You Trust

- ▲ Excellent deck adhesion and superior lap strength
- ▲ UV resistant film acts as a secondary water barrier
- ▲ Seals around nails

Dependability

- ▲ Avoid early re-roofs through temperature durability and waterproofing performance
- ▲ Designed to prevent oil bleed through – Keeps primary roof clean

Sustainability

- ▲ Incorporates post-consumer recycled product
- ▲ Contributes to LEED points

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GRACE Ice & Water Shield **HT**

180°F Thermal Stability

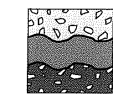


Product Data

Roll length	75 ft (22.9 m)	66.7 ft (20.3 m)
Roll width	36 in. (914 mm)	36 in. (914 mm)
Roll size	225 ft² (20.9 m²)	200 ft² (18.6 m²)
Packaging	Corrugated Cartons	Corrugated Cartons
Roll weight	58.5 lbs (26.5 kg)	52.5 lbs (23.8 kg)
Rolls/pallet	36 rolls	35 rolls

09

GEOTECHNICAL REPORT



PJC & Associates, Inc.
Consulting Engineers & Geologists

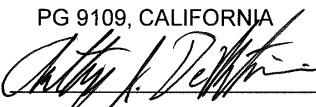
DESIGN LEVEL GEOTECHNICAL INVESTIGATION
PROPOSED NEW HOTEL
135 WEST NAPA STREET
SONOMA, CALIFORNIA

JOB NO. S927.01

JOB PREPARED FOR:

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MARCH 9, 2015

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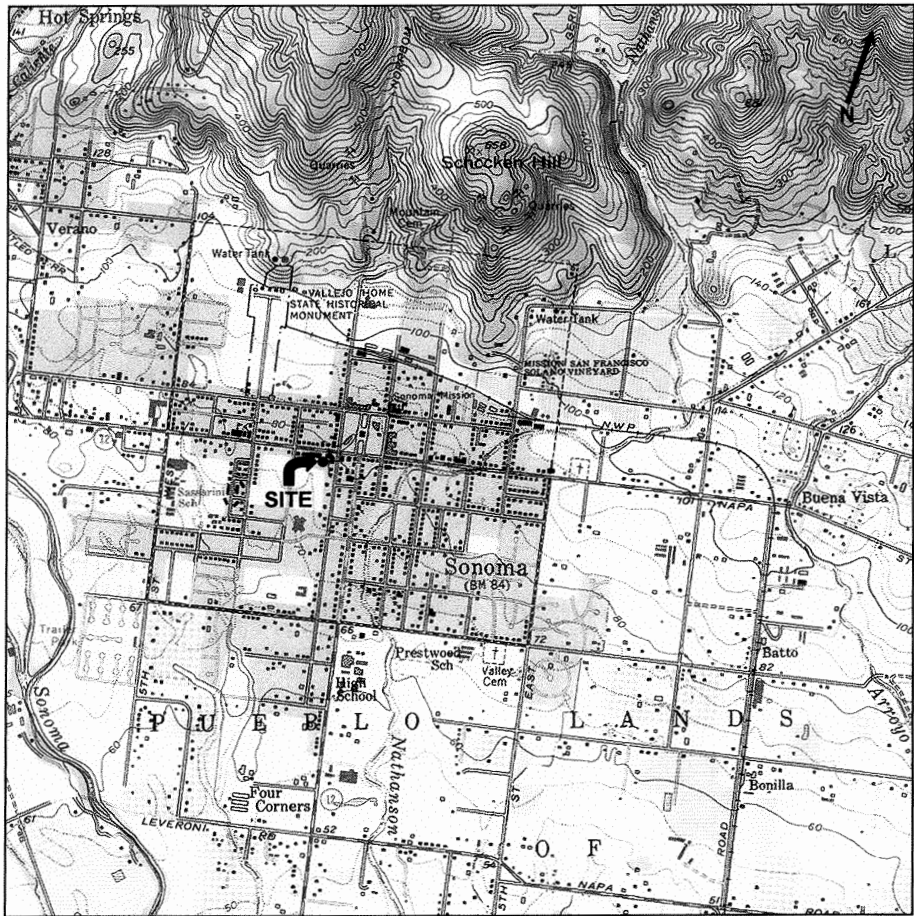
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SCALE: 1:24,000
REFERENCE: USGS SONOMA CALIFORNIA QUADRANGLE, DATED 1980.



PJC & Associates, Inc.
Consulting Engineers & Geologists

SITE LOCATION MAP
PROPOSED NEW HOTEL
135 WEST SPAIN STREET
SONOMA, CALIFORNIA

Proj. No: S927.01 Date: 3/15 App'd by: PJC

PLATE

1

1. INTRODUCTION

PJC & Associates (PJC) is pleased to submit the results of our design level geotechnical investigation for the proposed new hotel located at 135 West Napa Street in Sonoma, California. The approximate location of the site is shown on the Site Location Map, Plate 1. Our services were completed in accordance with our proposal for geotechnical services dated April 1, 2014. This report presents our engineering opinions and recommendations regarding the geotechnical aspects of the design and construction of the proposed project. Based on the results of this study, it is our opinion that the project site can be developed from a geotechnical engineering standpoint provided the recommendations presented herein are incorporated in the design and carried out through construction.

2. PROJECT DESCRIPTION

Based on the preliminary site drawings and information provided by RossDrulisCusenbery Architecture Inc., it is our understanding that it is proposed to demolish two of the existing buildings and renovating an additional building to construct a 59 room hotel on an assemblage of parcels at the southwest corner of Napa Street West and First Street West. We anticipate that the hotel will be comprised of a three story wood-frame structure with a subterranean parking garage. The underground garage will form a podium deck upon which the wood framed hotel building, swimming pool and associated courtyard and raised gardens will be constructed. We anticipate concrete slab-on-grade floors in the garage and at grade portions of the hotel.

Based on structural loading information provided by the project structural engineer, Mr. Bill Andrews, we anticipate that dead plus live continuous wall loads will be ten kips per lineal foot (plf) or less with dead plus live isolated column loads of 450 kips or less. If the loads vary significantly from the actual loads, we should be consulted to review the actual loading conditions and, if necessary, revise the recommendations of this report.

At the time of this report, a site grading plan or finished floor elevations were not available. Therefore, the amount of grading to be performed at the site is unknown at this time. However, we anticipate that the project will require significant cuts on the order of 10 feet and less to allow for construction of the subterranean parking garage and minor fills to achieve

the desired pad grades and to provide adequate gradients for site drainage.

3. SCOPE OF SERVICES

The purpose of this study is to provide geotechnical criteria for the design and construction of the proposed project. Specifically, the scope of our services consisted of the following:

- a. Drill five exploratory boreholes to depths between 11.0 and 40.5 feet below the existing ground surface to observe the soil and groundwater conditions. Our project geologist was on site during the exploration to log the materials encountered in the boreholes and to obtain representative samples for visual classification and laboratory testing.
- b. Laboratory observation and testing were performed on representative samples obtained during the course of the field investigation to evaluate the appropriate engineering characteristics of the soils underlying the site.
- c. Review seismological and geologic literature on the site area, discuss site geology and seismicity, and evaluate potential geologic hazards and earthquake effects (i.e., liquefaction, ground rupture, settlement, lurching and lateral spreading, expansive soils, etc.).
- d. Perform engineering analyses to develop geotechnical recommendations for site preparation and earthwork, foundation type(s) and design criteria, lateral earth pressures, retaining wall design criteria, site drainage, slabs-on-grade and construction considerations.
- e. Preparation of this report summarizing our work on this project

4. SITE CONDITIONS

- a. General. The site is located in a commercial area of downtown Sonoma. The site is bounded by commercial properties to the west and south, First Street West to the east and East Napa Street to the north. At the time of our investigation the site was occupied by existing commercial buildings, and asphalt paved parking areas.
- b. Topography and Drainage. The site is located on nearly level topography. According to the United States Geological Survey (USGS) Sonoma, California, 7.5 Minute Quadrangle Map (Topographic), the site is situated near an elevation of 80 feet

above mean sea level (MSL). No creeks or seasonal drainage channels pass through the site. The site drainage generally consists of sheet flow and surface infiltration. Regional drainage is provided by storm drains which likely drain to the southwest into Nathanson Creek, which is located approximately one-quarter mile southeast of the site.

5. GEOLOGIC SETTING

The site is located in the Coast Ranges Geomorphic Province of California. This province is characterized by northwest trending topographic and geologic features, and includes many separate ranges, coalescing mountain masses and several major structural valleys. The province is bounded on the east by the Great Valley and on the west by the Pacific Ocean. It extends north into Oregon and south to the Transverse Ranges in Ventura County.

The structure of the northern Coast Ranges region is extremely complex due to continuous tectonic deformation imposed over a long period of time. The initial tectonic episode in the northern Coast Ranges was a result of plate convergence which is believed to have begun during late Jurassic time. This process involved eastward thrusting of oceanic crust beneath the continental crust (Klamath Mountains and Sierra Nevada) and the scraping off of materials that are now accreted to the continent (northern Coast Ranges). East-dipping thrust and reverse faults were believed to be the dominant controlling structures.

Right lateral, strike slip deformation was superimposed on the earlier structures beginning mid-Cenozoic time, and has progressed northward to the vicinity of Cape Mendocino in Southern Humboldt County (Hart, Bryant and Smith, 1983). Thus, the principal structures south of Cape Mendocino are northwest-trending, nearly vertical faults of the San Andreas system.

According to published geologic literature, the soils underlying the site comprise alluvial fan deposits (Q_{of}). These deposits are described as consisting of moderately sorted fine sands and silts, with gravel becoming more abundant toward the fan heads. These deposits likely extend to great depths below the site.

6. FAULTING

Geologic structures in the region are primarily controlled by northwest trending faults. No known active fault passes through the site. The site is not located in the Alquist-Priolo Earthquake Fault Studies Zone. Based on our research, the three closest known potentially active faults to the site are the Rodgers Creek, the West Napa, and the Green Valley. The

Rodgers Creek fault is located four miles to the southwest, the West Napa fault is located seven miles to the northeast, and the Green Valley fault is located 16 miles northeast of the site. Table 1 outlines the nearest known active faults and their associated maximum magnitude and peak site acceleration.

TABLE 1
CLOSEST KNOWN ACTIVE FAULTS

Fault Name	Distance from Site (Miles)	Maximum Earthquakes (Moment Magnitude)	Peak Site Acceleration (g)
Rodgers Creek	4	7.0	0.42
West Napa	7	6.5	0.24
Green Valley	16	6.9	0.17

7. SEISMICITY

The site is located within a zone of high seismic activity related to the active faults that transverse through the surrounding region. Future damaging earthquakes could occur on any of these fault systems during the lifetime of the proposed project. In general, the intensity of ground shaking at the site will depend upon the distance to the causative earthquake epicenter, the magnitude of the shock, the response characteristics of the underlying earth materials, and the quality of construction. Seismic considerations and hazards are discussed in the following subsections of this report.

8. SUBSURFACE CONDITIONS

- a. Soils. The subsurface conditions at the project site were investigated by drilling five exploratory boreholes (BH-1 through BH-5) in the proposed construction areas to depths between 11.0 and 40.5 feet below the existing ground surface. The approximate borehole locations are shown on the Borehole Location Plan, Plate 3. The subsurface exploration was used to perform standard penetration tests (SPT), to observe the soil and groundwater conditions, and obtain samples for visual examination and laboratory testing. The drilling and sampling procedures and descriptive logs are included in Appendix A of this report. The laboratory procedures are included in Appendix B.

The exploratory boreholes generally encountered artificial fill overlying alluvial type soil deposits. Underlying the existing pavement sections at BH-1, BH-2, BH-3 and BH-5, our exploration encountered deposits of artificial fill consisting of sandy clays, sandy silts and clayey gravels that extended to depths between three and seven feet below the existing ground surface. The fine-

grained artificial fill soils appeared moist to very moist, loosely to moderately compacted, and exhibited low plasticity characteristics. The coarse-grained artificial fill soils appeared very moist, moderately compacted and fine to coarse grained. Underlying the existing pavements and artificial fill, our exploration encountered discontinuous alluvial deposits of sandy silts, sandy clays, clayey sands, and clayey gravels that extended to the maximum explored depths. The fine-grained deposits appeared moist to saturated, soft to hard and exhibited low to medium plasticity characteristics. The coarse-grained deposits appeared moist to saturated, dense to very dense and fine to coarse grained.

- b. Groundwater. Groundwater was encountered during the drilling at BH-1 and BH-2 at a depth of nine feet below the existing ground surface on May 22, 2014. After the groundwater level was allowed to equalize in BH-1, the groundwater level rose to a depth of eight feet below the existing ground surface. Groundwater was also encountered in BH-3 at a depth of seven feet below the existing ground surface on May 23, 2014. After the groundwater level was allowed to equalize, the groundwater level rose to a depth of five feet below the existing ground surface at BH-3. Groundwater was not encountered in the other boreholes. However, groundwater levels can fluctuate by several feet throughout the year due to seasonal rainfall and other factors.

9. SEISMIC CONSIDERATIONS & GEOLOGIC HAZARDS

The site is located within a region subject to a high level of seismic activity. Therefore, the site could experience strong seismic ground shaking during the lifetime of the project. The following discussion reflects the possible earthquake effects which could result in damage to the proposed structures.

- a. Fault Rupture. Rupture of the ground surface is expected to occur along known active fault traces. No evidence of existing faults or previous ground displacement on the site due to fault movement is indicated in the geologic literature or field exploration. Therefore, the likelihood of ground rupture at the site due to faulting is considered to be low.
- b. Ground Shaking. The site has been subjected in the past to ground shaking by earthquakes on the active fault systems that traverse the region. It is believed that earthquakes with significant ground shaking will occur in the region within the next several decades. Therefore, it must be assumed that the site will be subjected to strong ground shaking during the design life of the project.

- c. Liquefaction. Our exploration encountered discontinuous alluvial strata of clayey gravels and clayey sands that extended to the maximum explored depth of 40.5 feet below the existing ground surface where auger refusal was encountered. Select granular samples were retained and washed through the #200 sieve to determine the fines content, further grain-size analysis was also performed on some of the samples. The blow counts of the Standard Penetration testing were then corrected for hammer efficiency, overburden pressure and other parameters based on Skempton, 1986. Table 2 outlines the granular strata and their corresponding corrected blow counts and fines contents.

**TABLE 2
NORMALIZED BLOW COUNTS**

Borehole	Depth (Feet)	Description	Blow Counts (N ₁) ₆₀	Fines Content %
BH-1	10.0	Brown Clayey Gravels (GP-GC)	62	10
BH-2	20.0	Moderate Brown Clayey Sand (SC)	63	9
	25.0		39	
BH-2	35.0	Dark Brown Clayey Sand (SC)	50	9
	40.0		59	
BH-3	8.0	Dark Gray Clayey Sand (SP-SC)	50	6
	9.5		96	
	14.5		53	
BH-4	6.0	Brown Clayey Gravel (GC)	97	15*
	8.5		58	

*Estimated based on visual classification.

We performed liquefaction analyses on the granular strata encountered in the boreholes. Deposits with normalized blow counts of 35 and greater are not considered susceptible to soil liquefaction. Therefore, based on our analyses, the granular deposits encountered are not prone to soil liquefaction. Therefore, it is judged that liquefaction is not likely to occur at the site.

- d. Lateral Spreading and Lurching. Lateral spreading is normally induced by vibration of near-horizontal alluvial soil layers adjacent to an exposed face. Lurching is an action which produces cracks or fissures parallel to streams or banks when the earthquake motion is at right angles to them. There are no exposed faces or a creek embankment adjacent to the building envelope. Therefore, we judge that the potential for lateral spreading and lurching at the site is low.

- e. Expansive Soils. Based on visual observations and Atterburg limits testing (PI=5, 10, 12, 13, 14 & 17), the fine grained soils are judged generally to have a low expansion potential.

10. CONCLUSIONS

Based on the results of our investigation, it is our professional opinion that the project is feasible from a geotechnical standpoint provided the recommendations contained in this report are followed. The primary geotechnical considerations in design and construction is the presence of artificial fill, weak and compressible surface soils, the potential high groundwater conditions.

Our exploration encountered artificial fill deposits that extended to depths between three and seven feet below the existing ground surface. However, we believe that the deeper deposit of existing artificial fill is likely isolated to the environmental remediation previously performed at the site. Although these materials may have been present for some time, they appear to be of variable composition and density. These soils are not suitable for support of fills and foundations. Therefore, the artificial fill should be completely removed from structural areas and replaced as compacted engineered fill.

As previously mentioned, the surface and near surface soils are weak and compressible, and are not suitable for support of fills or foundations. These soils could experience significant differential settlement under loads generated by new construction. Below the weak soils are firm native soils that would be suitable for foundation support. It is our understanding that the portions of the hotel will be constructed at or near existing grade. Therefore, the weak soils should be upgraded by subexcavation and recompaction. Based on our exploratory boreholes, we anticipate that the depth of subexcavation to generally extend to approximate depths between four and five feet below the existing ground surface. The actual depth of subexcavation should be determined by the geotechnical engineer in the field during grading. Provided the weak surface soils are upgraded by subexcavation and recompaction, conventional concrete slabs-on-grade and shallow footings may be used for the at grade portions of the hotel.

As previously mentioned, the project will include a subterranean parking garage below portions of the hotel. We anticipate that grading will remove the weak and compressible surface soils and expose firm, native soils. Therefore, the structure may be adequately supported by a spread footing foundation extending into the underlying, firm native soils. Based on our exploratory work and our experience with our other projects in the area, we judge that the subterranean parking garage floor elevation will extend

below the groundwater table. Therefore, it will be necessary to design the basement structure to resist hydrostatic uplift pressures on the basement walls. As an alternative, a subsurface drainage system and backdrains could be implemented under the garage floor and behind the basement walls.

In this system, the groundwater will be drained to sumps pumps, thereby preventing hydrostatic pressures from developing under the basement slab and behind the walls. Sump failure will not be expected to cause hydrostatic uplift because the sump will always be open to the atmosphere. The likely consequence of pump failure is filling and possible overflow of the pump. Backup pumps are commonly installed in basement sumps to handle such a possibility and should be considered for this project.

It is expected that dewatering will be needed to control groundwater so that the basement excavation can be completed. Depending on the time of year of the excavation, it is conceivable that construction groundwater control could be accomplished by open pumping from sumps. The contractor should determine the depth of the groundwater before the excavation begins and determine if open pumping from sumps is feasible. We can assist the contractor on this task upon request.

If the groundwater control from open pumping from sumps is determined to be ineffective, it may be necessary to dewater the excavation using a system of relatively shallow wells or well points with a combination of ditches or french drains and sump pumps to intercept lateral seepage into the excavation area. The final selection, design, installation and operation of groundwater control systems are usually the responsibility of the contractor. However, it is recommended that the contractor submit his proposed dewatering scheme for review and approval by the geotechnical engineer prior to installation.

In designing and operating the dewatering system, care should be taken to prevent the pumping of soil and development of subsurface erosion. Unpredictable settlement of the surrounding ground surface could result. Graded filter materials and/or geotextile filter fabric should be installed between the native soils and the pumping system to prevent this from happening. If the pumped water is noticed to contain soil fines, pumping should be stopped until the situation is corrected.

The soils expected at the bottom of the excavation are primarily sandy clays, sandy silts, clayey sands and clayey gravels. These materials are very dense and hard. However, depending on the time of year of construction, they could be saturated and unstable and pump and rut under construction traffic. This could create a difficult working

environment. The contractor should be aware of this potential problem so that he can take measures to mitigate the problem. We can provide recommendations if this condition develops at the time of construction.

The following sections present geotechnical recommendations and criteria for design and construction.

11. GRADING AND EARTHWORK

We anticipate site grading will probably consist of significant cuts on the order of 10 feet and minor fills to achieve the desired pad grades and to provide adequate gradients for site drainage.

- a. Stripping & Demolition. Existing structures to be removed should be completely demolished and removed off site. Structural areas should be stripped of the surface vegetation, old fills, debris, underground utilities, etc. These materials should be moved off site; some of them, if suitable could be stockpiled for later use in landscape areas. If underground utilities pass through the site, we recommend that these utilities be removed in their entirety or rerouted where they exist outside an imaginary plane sloped two horizontal to one vertical (2H:1V) from the outside bottom edge of the nearest foundation element. Voids left from the removal of utilities or other obstructions should be replaced with compacted engineered fill under the observation of the project geotechnical engineer.
- b. Excavation and Compaction. The weak and compressible soils should be removed to their full depth within the building pads. The actual depth of subexcavation should be determined by the geotechnical engineer in the field during construction. Based on our subsurface exploration, we anticipate the subexcavation for the northern hotel building will generally extend to a depth of four to five feet below the existing ground surface. However, isolated areas of deeper subexcavation may be required, if the excavation encounters the thicker fill deposits from the environmental remediation. The lateral extent of the subexcavation should be a minimum of five feet beyond all foundations.

After subexcavation, the exposed subgrade scheduled to receive fill should be scarified to minimum depth of eight inches, moisture conditioned to near optimum moisture content, and recompacted to at least 90 percent of relative maximum dry density as determined by ASTM D-1557 test procedures. All fill material should be placed and compacted in accordance to the recommendations presented in Table 3. It is recommended that any import fill to be used on site

be of a low to non-expansive nature and should meet the following criteria:

Plasticity Index	less than 12
Liquid Limit	less than 35
Percent Soil Passing #200 Sieve	between 10% and 35%
Maximum Aggregate Size	4 inches

The existing on-site soils, free of organics and rocks larger than four inches in dimension, are suitable for use as compacted engineered fill. All fills should be placed in lifts no greater than eight inches in loose thickness and compacted to the general recommendations provided for engineered fill.

In areas where pumping subgrade conditions or rutting occur, it may be necessary to stabilize the weak materials using bridging material. In this case, it is recommended that the unstable subgrade areas be "bridged" using a combination of Mirafi 500X (or equivalent) stabilization fabric covered by a layer of coarse angular bridging material. The bridging material should consist of a reasonably well graded mixture of gravel and cobble sized rock fragments conforming to the following gradation and material requirements.

Sieve Size (inches)	Percent Passing
6	100
2	0-50
3/4	0-10

Durability Index – 25 minimum

After the stabilization fabric has been placed on the subgrade surface, the bridging material should be track-walked into place over the fabric. It is estimated that an 18-inch thick layer of bridging material will probably be needed. Rubber tired equipment should not be permitted to traverse pumping areas until the placement of the stabilization fabric and bridging material have been completed. The need for subgrade stabilization using this technique and the final limits and thickness of the bridging material should be approved by the geotechnical engineer in the field during construction.

TABLE 3
SUMMARY OF COMPACTION RECOMMENDATIONS

Area	Compaction Recommendations*
General Engineered Fill (Import)	In lifts, a maximum of eight inches loose thickness, compact to a minimum of 90 percent relative compaction near optimum moisture content.
General Engineered Fill (Native)	In lifts, a maximum of eight inches loose thickness, compact to 90 percent relative compaction and conditioned to near optimum moisture content.
Trenches**	Compact to at least 90 percent relative compaction near optimum moisture content.
Pavement Areas	Compact the top eight inches of subgrade to 95 percent relative compaction near optimum moisture content.

*All compaction requirements stated in this report refer to dry density and moisture content relationships obtained through the laboratory standard described by ASTM D-1557-91
**Depths below finished subgrade elevations

A representative of PJC should observe all site preparation and fill placement. It is important that during the stripping, grading and scarification processes, a representative of our firm be present to observe whether any undesirable material is encountered in the construction area.

Generally, grading is most economically performed during the summer months when on site soils are usually dry of optimum moisture content. Delays should be anticipated in site grading performed during the rainy season or early spring due to excessive moisture in the on-site soils. Special and relatively expensive construction procedures should be anticipated if grading must be completed during the winter and early spring.

- c. Temporary Construction Slopes. The excavation for the parking garage may be achieved by conventional heavy earth moving equipment. Based on our stability analysis and presuming that the site is properly dewatered, temporary construction cut slopes not subjected to traffic or foundation surcharges are expected to stand at inclinations of ¾ H:1V. However, excessive groundwater seepage could have a destabilizing effect and sloughing and localized failures could occur. This and adjacent traffic and foundation surcharges will probably necessitate that the excavation walls be braced. It is recommended that the geotechnical engineer be retained to review the conditions as they are exposed during construction.

12. FOUNDATIONS-SPREAD FOOTINGS

- a. Vertical Loads (At Grade). The structures constructed at or near existing grade may be adequately supported by spread footings founded at least 30 inches into compacted, engineered fill. All footings should be reinforced. The recommended soil bearing pressures, depths of embedment and minimum width of spread footings are presented in Table 4. The bearing values provided have been calculated assuming that all footings bear on compacted engineered fill.

TABLE 4
FOUNDATION DESIGN CRITERIA

Footing Type	Bearing Pressure (psf)*	Minimum Embedment (in)**	Minimum Width (in)
Continuous Wall	2000	30	12
Isolated Column	2800	30	18

*Dead plus live load
** Below lowest adjacent grade

The allowable soil bearing pressures are net values. The weight of the foundation and backfill over the foundation may be neglected when computing dead loads. Allowable soil bearing pressures may be increased by one-half for transient applications such as wind and seismic loads.

- b. Lateral Loads (At Grade). Resistance to lateral forces may be computed by using friction or passive pressure. A friction factor of 0.35 is considered appropriate between the bottom of the concrete structures and the engineered fill. A passive pressure equivalent to that exerted by a fluid weighing 350 pounds per square foot per foot of depth (psf/ft) is recommended. Unless restrained at the surface, the upper six inches should be neglected for passive resistance.
- c. Modulus of Subgrade Reaction (At Grade). For compacted engineered fill, a maximum modulus of subgrade reaction value of 100 pounds per cubic inch (pci) is recommended.
- d. Vertical Loads (Parking Garage). Provided the weak and compressible surface soils are removed during excavation, the subterranean parking garage may be adequately supported by spread footings extending at least 18 inches into the underlying, firm native soils. All footings should be reinforced. The recommended soil bearing pressures, depths of embedment and minimum width of spread footings are presented in Table 2. The

bearing values provided have been calculated assuming that all footings uniformly bear on firm native soils.

**TABLE 5
FOUNDATION DESIGN CRITERIA**

Footing Type	Bearing Pressure (psf)*	Minimum Embedment (in)**	Minimum Width (in)
Continuous Wall	4000	18	18
Isolated Column	4500	18	18

*Dead plus live load

** Below lowest adjacent grade and into firm native soils

The allowable soil bearing pressures are net values. The weight of the foundation and backfill over the foundation may be neglected when computing dead loads. Allowable soil bearing pressures may be increased by one-third for transient applications such as wind and seismic loads.

- e. Lateral Loads (Parking Garage). Resistance to lateral forces may be computed by using friction or passive pressure. A friction factor of 0.40 is considered appropriate between the bottom of the concrete structures and the firm native soils. A passive pressure equivalent to that exerted by a fluid weighing 400 pounds per square foot per foot of depth (psf/ft) is recommended. Unless restrained at the surface, the upper six inches should be neglected for passive resistance.
- f. Modulus of Subgrade Reaction (Parking Garage). Based on the properties of the supporting firm native soils, a maximum modulus of subgrade reaction value of 150 pounds per cubic inch (pci) is recommended.
- g. Settlement. Total settlement of individual foundations will vary depending on the width of the foundation, the supporting material and the actual load supported. Foundation settlements have been estimated based on the loading information provided by the project structural engineer, the bearing values provided and the supporting materials. Maximum settlements of shallow foundations designed and constructed in accordance with the preceding recommendations are estimated to be on the order of one and one-quarter inch. Differential settlement between adjacent footings are expected to be on the order of one-half of one inch. The majority of the settlement is expected to occur during construction and placement of dead loads.

Footing concrete should be placed neat against engineered fill or firm native soils. Footing excavations should not be allowed to dry before placing concrete. If shrinkage cracks appear in the footing excavations, the soil should be thoroughly moistened to close all cracks prior to concrete placement. The geotechnical engineer should observe the bearing surfaces of the spread footings after the cleaning and prior to placement of concrete and steel to assess the conditions of the foundation bearing materials.

13. SLAB-ON-GRADE

Slabs-on-grade for the hotel buildings will be supported on the concrete deck of the basement garage or on compacted engineered fill. If compacted engineered fill is used, slab subgrade should be firm and unyielding and compacted to at least 90 percent relative compaction. All slabs should be supported on at least four inches of clean gravel or crushed rock to provide a capillary moisture break and provide uniform support for the slab. The rock should be graded so that 100 percent passes the one inch sieve and no more than five percent passes the No. 4 sieve.

We recommend that the gravel be placed as soon as possible after compaction of the subgrade to prevent drying of the subgrade soils. If the subgrade is allowed to dry out prior to slab-on-grade construction, the subgrade soils should be moisture conditioned by sprinkling prior to concrete placement.

We recommend that slabs be at least five inches thick and designed and reinforced as determined by the project structural engineer. Slabs should be provided with control joints at regular intervals to induce and control cracking. Special care should be taken to insure that reinforcement is placed at the slab mid-height.

For slabs-on-grade with moisture sensitive surfacing, we recommend that an impermeable membrane be placed over the rock to prevent migration of moisture vapor through the concrete slab. To induce and control cracking, we recommend that expansion and control joints be provided.

14. RETAINING WALLS

- a. Lateral Earth Pressures. Restrained, rigid walls of the parking garage should be designed to resist an "at rest" equivalent fluid pressure of 50 pcf. Retaining walls free to rotate on the top and supporting a level backfill may be designed to resist an active equivalent fluid pressure of 35 pcf. A live load surcharge from traffic, equal to at least two feet of soil, should be applied to the

retaining walls when traffic comes within a distance of one-half the height of the wall.

- b. Drainage Material. In order to prevent the buildup of hydrostatic pressures, drainage should be provided behind all walls, or the walls should be designed for full hydrostatic pressures. Drainage can be provided by using four inch diameter perforated pipe running along the base of the walls.

The drainage material should consist of Caltrans Class II permeable material, or equivalent, surrounding the pipe and extending at least 12 inches horizontally away from the back face of the walls. The drainage material should extend approximately two feet from the top of the wall and should be compacted to approximately, but not substantially more than, 70 percent relative density determined in accordance with ASTM D2049-69. The top of the drainage material should be capped with two feet of impervious, non-expansive soil compacted to at least 90 percent of the maximum dry density determined by ASTM D1557; native soil, if approved by the geotechnical engineer, may be used for this purpose.

- c. Native Backfill. Approved on-site soils may be used to backfill the excavation beyond the limits of the drain material, provided they are approved by the geotechnical engineer and compacted to at least 90 percent of the maximum dry density as determined by ASTM D1557. Excessive compaction in the backfill could result in large pressures being exerted on the wall. All backfill materials, including the drain material, should be placed and compacted by mechanical means only. No jetting should be used.

15. RETAINING WALLS-SEISMIC LOADING

PJC has performed analysis to estimate the anticipated dynamic load due to seismic shaking on retaining walls at the site. Based on our pseudostatic analysis, the walls should be designed for a dynamic lateral force equivalent to a uniform point load, P_e , as determined by the following equation:

$$P_e=7.8\cdot H^2$$

Where:

H = height of retaining wall in feet

P_e = pseudostatic seismic loading in lbs/ft

The pseudostatic force, P_e should be applied at a distance of $(2/3)\cdot H$ above the base of the retaining wall.

16. SEISMIC DESIGN

Geologic structures in the region are primarily controlled by northwest trending faults. No known active fault passes through the site. The site is not located in the Alquist-Priolo Earthquake Fault Studies Zone. Based on the data reviewed, it is concluded that the project site could be subjected to seismic shaking resulting from earthquakes on the active faults primarily in the Coast Ranges. For design, a site class type D, spectral accelerations of S_s of 1.50 g and S_1 of 0.60 g are recommended.

17. UTILITY TRENCHES

Shallow excavations for utility trenches can be readily made with either a backhoe or trencher; larger earth moving equipment should be used for deeper excavations. We expect the walls of trenches less than five feet deep, excavated into engineered fill or native soils, to remain in a near vertical configuration during construction provided no equipment or excavated soil surcharges are located near the top of the excavation. Where trenches extend deeper than five feet, the excavation may become unstable. All trenches regardless of depth, should be evaluated to monitor stability prior to personnel entering the trenches. Shoring or sloping of any deep trench wall may be necessary to protect personnel and to provide stability. All trenches should conform to the current CAL-OSHA requirements for worker safety.

We recommend trenches be backfilled with native soil or granular import fill and compacted to at least 90 percent of maximum dry density. The moisture content of compacted backfill soils should be within two percent of optimum moisture content. Jetting should not be used.

Special care should be taken in the control of utility trench backfilling in pavement areas and slab-on-grade areas. Poor compaction may cause excessive settlements resulting in damage to the pavements and concrete slabs-on-grade. In pavement areas, the top eight inches of trench backfill should be compacted to at least 95 percent relative compaction.

18. DRAINAGE

All final grades should be provided with positive gradients away from foundations to provide rapid removal of surface water runoff to an adequate discharge point. No ponding of water should be allowed on the building pad or adjacent to foundations.

The use of continuous roof gutters is recommended to reduce the possibility of soil saturation adjacent to the building. Downspouts from gutters should be discharged onto an impermeable surface such as pavement or into a closed conduit discharging a minimum of eight feet away from the structures.

19. RIGID PAVEMENTS-PARKING GARAGE

The subgrade of the parking garage excavation will be disturbed during construction. It is important that the subgrade be properly prepared prior to the placing of the concrete pavement. The exposed surface at the subgrade of the excavation supporting pavements should be scarified to a depth of approximately eight inches and compacted to at least 95 percent of the maximum dry density determined by ASTM D1557. The surface of the compacted subgrade should be finished with a smooth drum steel roller. Water will invariably collect beneath the basement floor slab and underdrains should be used, or the slab should be designed for hydrostatic uplift pressures. Plate 2 provides schematic details of slab underdrains. We recommend that a minimum of eight inches of compacted gravel or crushed rock be placed over the subgrade of the excavation. A material such as one-half to three-quarter inch drain rock or Class II permeable material would be suitable for this purpose. The aggregate beneath the slab should be tied to a sump or other suitable discharge point. Additional recommendations can be provided when structural details regarding the construction of the parking garage become available

Based on our general knowledge of the subsurface soils, We recommend that a modulus subgrade reaction (K value) of 100 pounds per square inch (psi) be used in the design of the rigid pavements for the parking garage.

20. LIMITATIONS

The data, information, interpretations and recommendations contained in this report are presented solely as bases and guides to the geotechnical design of the proposed New Hotel located at 135 West Napa Street in Sonoma, California. The conclusions and professional opinions presented herein were developed by PJC in accordance with generally accepted geotechnical engineering principles and practices. No warranty, either expressed or implied, is intended.

This report has not been prepared for use by parties other than the designers of the project. It may not contain sufficient information for the purposes of other parties or other uses. If any changes are made in the project as described in this report, the conclusions and recommendations

contained herein should not be considered valid, unless the changes are reviewed by PJC and the conclusions and recommendations are modified or approved in writing. This report and the figures contained herein are intended for design purposes only. They are not intended to act by themselves as construction drawings or specifications.

Soil deposits may vary in type, strength, and many other important properties between points of observation and exploration. Additionally, changes can occur in groundwater and soil moisture conditions due to seasonal variations or for other reasons. Therefore, it must be recognized that we do not and cannot have complete knowledge of the subsurface conditions underlying the subject site. The criteria presented is based on the findings at the points of exploration and on interpretative data, including interpolation and extrapolation of information obtained at points of observation.

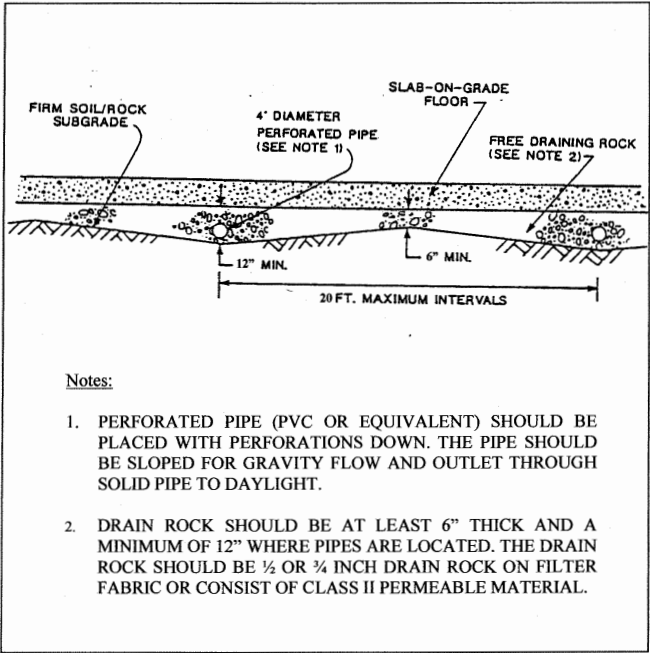
21. ADDITIONAL SERVICES

Upon completion of the project plans, they should be reviewed by our firm to determine that the design is consistent with the recommendations of this report. Observation and testing services should also be provided by PJC to verify that the intent of the plans and specifications is carried out during construction; these services should include observing the foundation excavations, field density testing of fill and installation of the subsurface drainage facilities.

These services will be performed only if PJC is provided with sufficient notice to perform the work. PJC does not accept responsibility for items we are not notified to observe.

APPENDIX A
SKEMATIC DETAILS

1



PJC & Associates, Inc.
Consulting Engineers & Geologists

SLAB UNDERDRAIN SYSTEM
PROPOSED NEW HOTEL
135 WEST NAPA STREET
SONOMA, CALIFORNIA

PLATE

2

Proj. No: S927.01 Date: 3/15 App'd by: PJC

APPENDIX B
FIELD INVESTIGATION

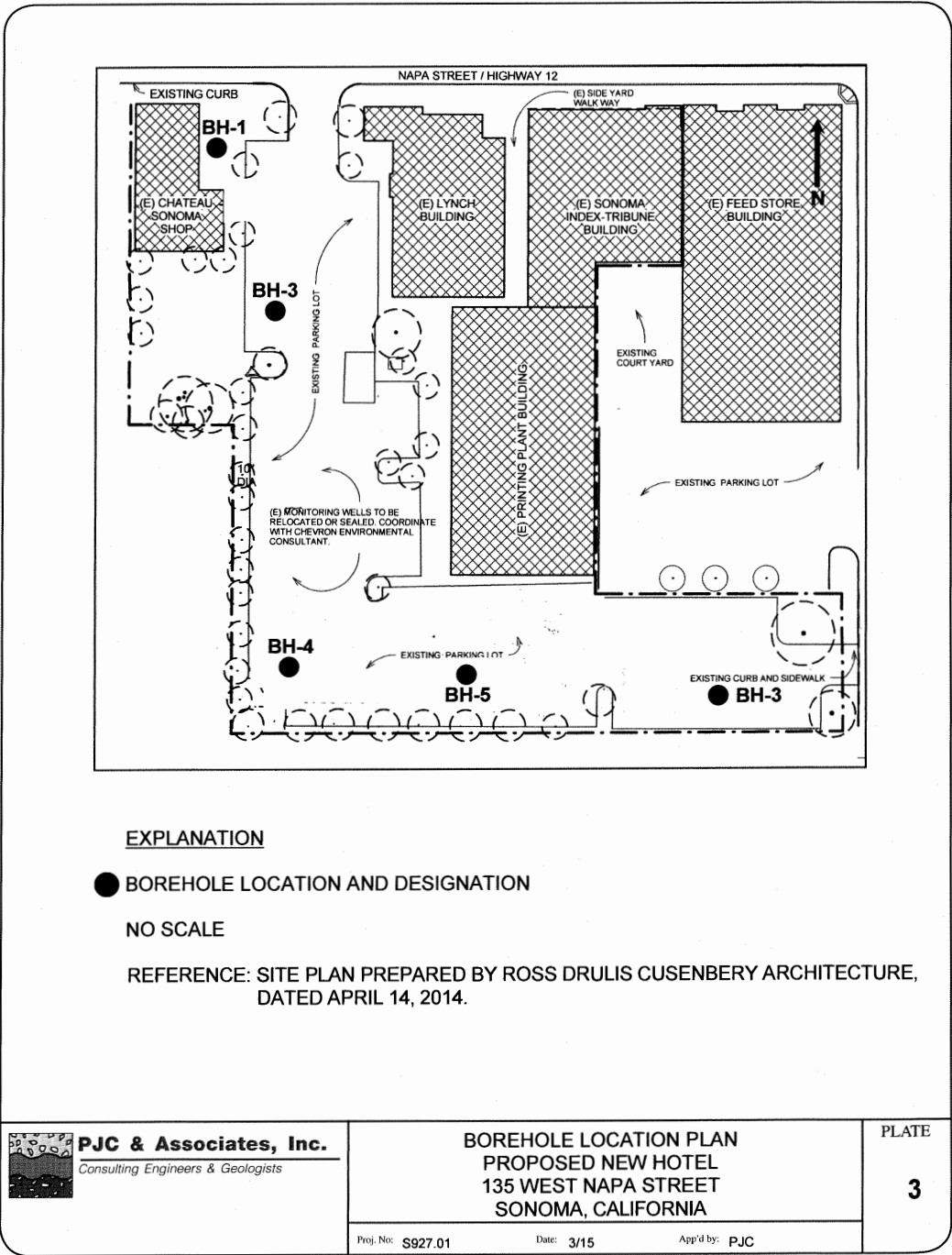
1. INTRODUCTION

The field program performed for this study consisted of drilling five exploratory boreholes (BH-1 through BH-5) in the vicinity of the proposed structures. The explorations were completed on May 22, 2014 and May 23, 2014. The borehole locations are shown on the Borehole Location Plan, Plate 3. Descriptive logs of the boreholes are presented in this appendix as Plates 4 through 8.

2. BOREHOLES

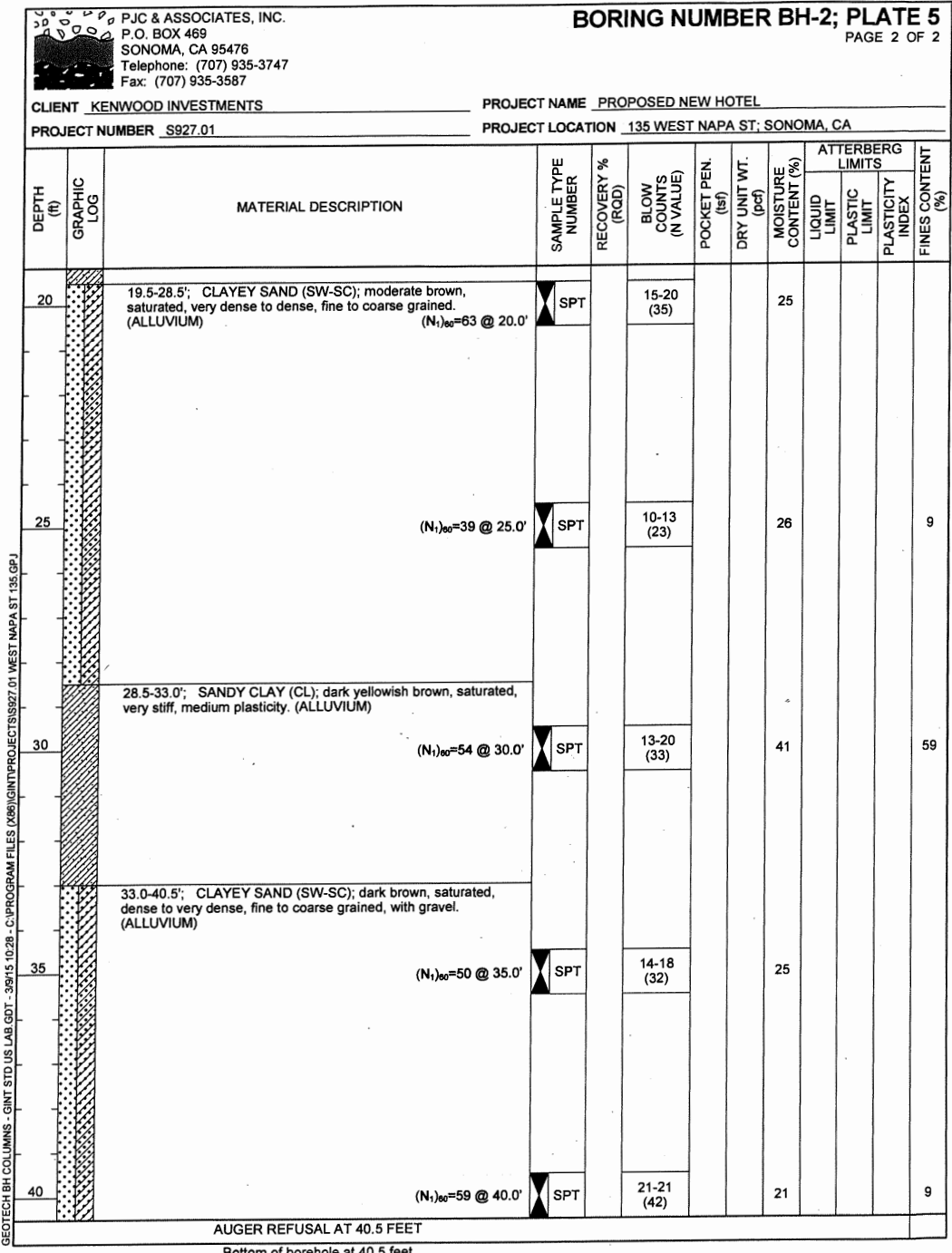
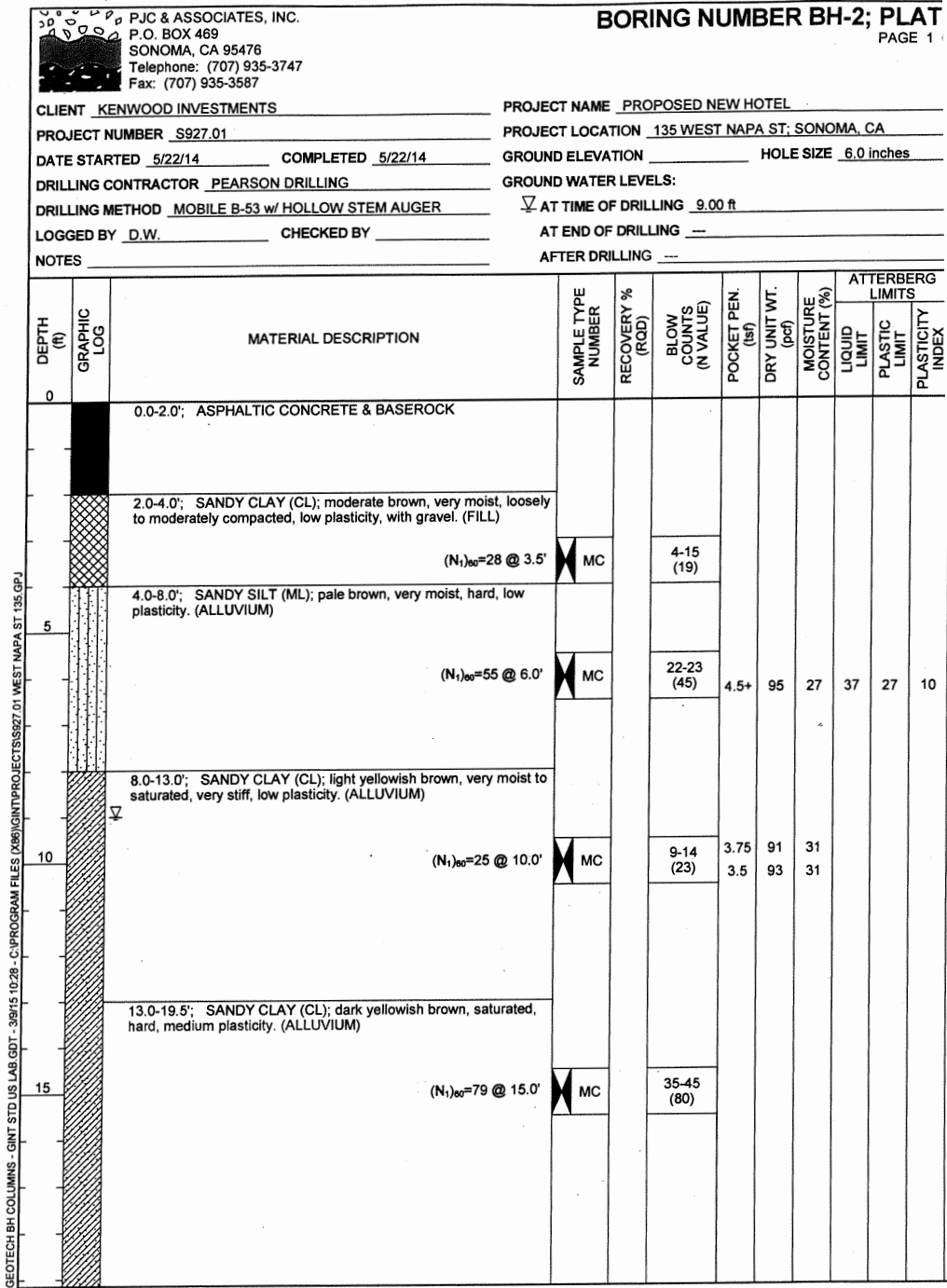
The boreholes were advanced using a truck mounted Mobile B-53 drill with hollow stem augers. The drilling was performed under the observation of a project geologist of PJC who maintained a continuous log of soil conditions and obtained samples suitable for laboratory testing. The soils were classified in accordance with the Unified Soil Classification System, as explained in Plate 9.

Relatively undisturbed and disturbed samples were obtained from the exploratory boreholes. A 2.43 in I.D. California Modified Sampler, or a 1.5 in I.D. Standard Sampler, was driven into the underlying soil using an automatic trip hammer with a 140 pound hammer falling 30 inches to obtain an indication of the density of the materials and to allow visual examination of at least a portion of the soil column. Samples obtained with the split-spoon sampler were retained for further observation and testing. The number of blows required to drive the sampler at six-inch increments was recorded on each borehole log. All samples collected were labeled and transported to PJC's office for examination and laboratory testing.



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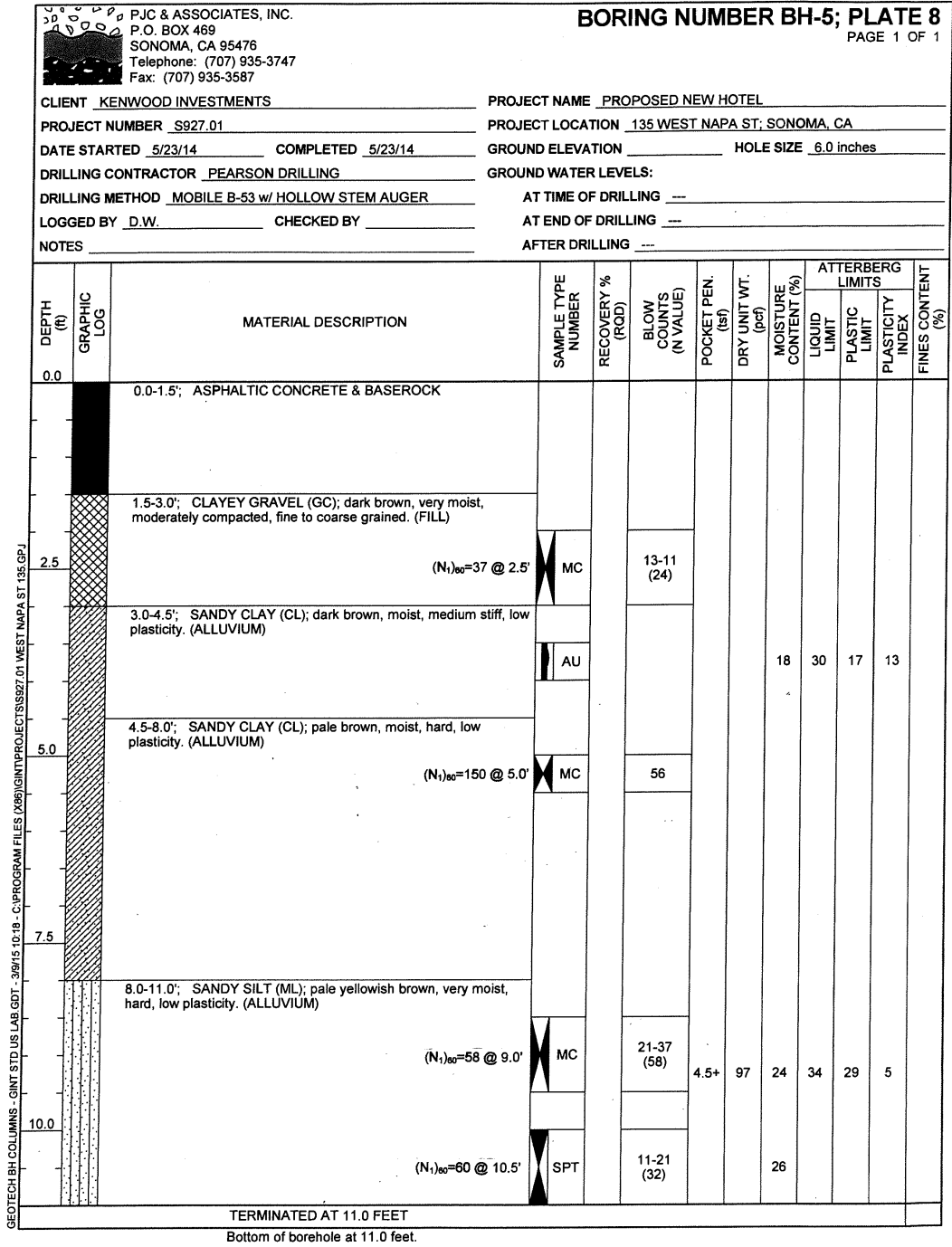


CLIENT <u>KENWOOD INVESTMENTS</u>	PROJECT NAME <u>PROPOSED NEW HOTEL</u>
PROJECT NUMBER <u>S927.01</u>	PROJECT LOCATION <u>135 WEST NAPA ST. SONOMA, CA</u>
DATE STARTED <u>5/23/14</u> COMPLETED <u>5/23/14</u>	GROUND ELEVATION _____ HOLE SIZE <u>6.0 inches</u>
DRILLING CONTRACTOR <u>PEARSON DRILLING</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>MOBILE B-53 w/ HOLLOW STEM AUGER</u>	<u>▽</u> AT TIME OF DRILLING <u>7.00 ft</u>
LOGGED BY <u>D.W.</u> CHECKED BY _____	<u>▽</u> AT END OF DRILLING <u>5.00 ft</u>
NOTES _____	AFTER DRILLING <u>---</u>

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS		
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0.0		0.0-2.0'; ASPHALTIC CONCRETE & BASEROCK									
2.5		2.0-7.0'; SANDY CLAY (CL); yellowish brown, slightly moist to saturated, moderately to loosely compacted, low plasticity, with gravel. (FILL)	(N ₁) ₆₀ =25 @ 3.0'	MC	8-9 (17)	4.5+	115	13			
5.0			(N ₁) ₆₀ =11 @ 5.0'	MC	3-5 (8)	3.5	99	15			
7.5		7.0-15.0'; CLAYEY SAND (SP-SC); dark gray, saturated, very dense, fine to coarse grained, with gravel. (ALLUVIUM)	(N ₁) ₆₀ =50 @ 8.0'	MC	13-19 (32)						
10.0			(N ₁) ₆₀ =96 @ 9.5'	SPT	14-28 (42)			12			
15.0			(N ₁) ₆₀ =53 @ 14.5'	SPT	12-15 (27)			20			
<p style="text-align: center;">TERMINATED AT 15.0 FEET</p> <p style="text-align: center;">Bottom of borehole at 15.0 feet.</p>											

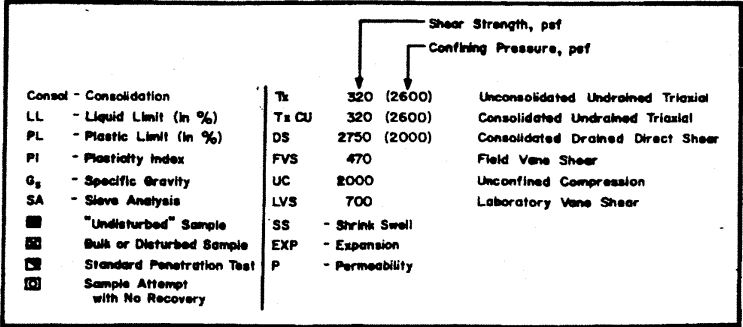
CLIENT <u>KENWOOD INVESTMENTS</u>	PROJECT NAME <u>PROPOSED NEW HOTEL</u>
PROJECT NUMBER <u>S927.01</u>	PROJECT LOCATION <u>135 WEST NAPA ST, SONOMA, CA</u>
DATE STARTED <u>5/23/14</u> COMPLETED <u>5/23/14</u>	GROUND ELEVATION _____ HOLE SIZE <u>6.0 inches</u>
DRILLING CONTRACTOR <u>PEARSON DRILLING</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>MOBILE B-53 w/ HOLLOW STEM AUGER</u>	AT TIME OF DRILLING <u>---</u>
LOGGED BY <u>D.W.</u> CHECKED BY _____	AT END OF DRILLING <u>---</u>
NOTES _____	AFTER DRILLING <u>---</u>

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS				
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (%)	
0.0		0.0-1.5'; ASPHALTIC CONCRETE & BASEROCK											
2.5		1.5-3.0'; SANDY CLAY (CL); moderate brown, medium stiff, low plasticity. (ALLUVIUM)											
		(N ₁) ₆₀ =12 @ 2.5'	MC		4-38 (42)	1.75	93	26	43	29	14		
		3.0-3.5'; SANDY SILT (ML); gray, very moist, stiff, low plasticity. (ALLUVIUM) (N ₁) ₆₀ =112 @ 3.0'											
		3.5-9.0'; CLAYEY GRAVEL (GC); brown, moist, very dense, fine to coarse grained. (ALLUVIUM)											
5.0			SPT		19-25 (44)			11					
7.5													
		(N ₁) ₆₀ =97 @ 6.0'											
		(N ₁) ₆₀ =58 @ 8.5'	MC		28-25 (53)	4.5+	110	16					
10.0		9.0-13.0'; SANDY CLAY (CL); pale yellowish brown, moist, hard, medium plasticity. (ALLUVIUM) (N ₁) ₆₀ =50 @ 9.0'											
12.5			MC		50	4.5+	108	21	41	24	17		
AUGER REFUSAL AT 13.0 FEET													
Bottom of borehole at 13.0 feet.													



MAJOR DIVISIONS			TYPICAL NAMES	
COARSE GRAINED SOILS <small>MORE THAN HALF IS LARGER THAN #200 SIEVE</small>	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS, GRAVEL - SAND MIXTURES
			GP	POORLY GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, POORLY GRADED GRAVEL - SAND - SILT MIXTURES
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL - SAND - CLAY MIXTURES
			SW	WELL GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SP	POORLY GRADED SANDS, GRAVELLY SANDS
FINE GRAINED SOILS <small>MORE THAN HALF IS SMALLER THAN #200 SIEVE</small>	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		SM	SILTY SANDS, POORLY GRADED SAND - SILT MIXTURES
			SC	CLAYEY SANDS, POORLY GRADED SAND - CLAY MIXTURES
			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
HIGHLY ORGANIC SOILS		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
		OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
		PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	

UNIFIED SOIL CLASSIFICATION SYSTEM



KEY TO TEST DATA



PJC & Associates, Inc.
 Consulting Engineers & Geologists

PROPOSED NEW HOTEL
 135 WEST NAPA STREET
 SONOMA, CALIFORNIA

PLATE

9

Proj. No: S927.01

Date: 3/15

App'd by: PJC

APPENDIX C LABORATORY INVESTIGATION

1. INTRODUCTION

This appendix includes a discussion of test procedures and results of the laboratory investigation performed for the proposed project. The investigation program was carried out by employing currently accepted test procedures of the American Society of Testing and Materials (ASTM).

Disturbed samples used in the laboratory investigation were obtained during the course of the field investigation as described in Appendix A of this report. Identification of each sample is by borehole number and depth.

2. INDEX PROPERTY TESTING

In the field of soil mechanics and geotechnical engineering design, it is advantageous to have a standard method of identifying soils and classifying them into categories or groups that have similar distinct engineering properties. The most commonly used method of identifying and classifying soils according to their engineering properties is the Unified Soil Classification System described by ASTM D-2487-83. The USCS is based on a recognition of the various types and significant distribution of soil characteristics and plasticity of materials.

The index properties tests discussed in this report include the determination of natural water content and dry density, Atterburg limits, grain-size distribution and pocket penetrometer tests.

- a. Natural Water Content and Dry Density. Natural water content and dry density of the samples were determined on selected undisturbed samples. The samples were extruded, visually classified, trimmed to obtain a smooth flat face, and accurately measured to obtain volume and wet weight. The samples were then dried, in accordance with ASTM D-2216-80, for a period of 24 hours in an oven maintained at a temperature of 100 degrees C. After drying, the weight of each sample was determined and the moisture content and dry density calculated. The water content and dry density results are summarized on the borehole and test pit logs, Plates 4 through 8.
- b. Atterburg Limits Determination. The liquid and plastic limits of a selected fine-grained soil samples were determined by air drying and breaking down the sample. The results of the limits are shown on Plate 10.

- c. Grain-Size Distribution. The gradation characteristics of a selected sample were determined in accordance with ASTM D422-63. The sample was soaked in water until individual soil particles were separated and then washed on the No. 200 mesh sieve. That portion of the material retained on the No. 200 mesh sieve was oven-dried and then mechanically sieved. The grain-size distribution test is presented on Plate 11.
- d. Pocket Penetrometer. Pocket Penetrometer tests were performed on cohesive stratus encountered during excavation. The test estimates the unconfined compressive strength of a cohesive material by measuring the materials resistance to penetration by a calibrated, spring-loaded cylinder. The maximum capacity of the cylinder is 4.5 tons per square foot (tsf). The results of these tests are indicated on the borehole logs.

3. ENGINEERING PROPERTIES

The engineering properties testing consisted of unconfined compression testing.

- a. Unconfined Compression Test. Unconfined compression tests were performed on intact samples obtained from the boreholes. In the unconfined compression test, the shear strength is determined by axial loading the sample under a slow constant strain rate until failure is obtained. Failure stress is defined as the maximum stress at ten percent strain. The results of these tests are presented on Plate 12.

PJC & ASSOCIATES, INC.
P.O. BOX 469
SONOMA, CA 95476
Telephone: (707) 935-3747
Fax: (707) 935-3587

GRAIN SIZE DISTRIBUTION

PLATE 11a

CLIENT KENWOOD INVESTMENTS

PROJECT NUMBER S927.01

PROJECT NAME PROPOSED NEW HOTEL

PROJECT LOCATION 135 WEST NAPA ST; SONOMA, CA

U.S. SIEVE OPENING IN INCHES U.S. SIEVE NUMBERS HYDROMETER

COBBLES

GRAVEL

coarse fine

SAND

coarse medium fine

SILT OR CLAY

BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
○ BH-1	10.0	BROWN CLAYEY GRAVEL w/SAND (GP-GC)				3.34	88.06
⊗ BH-2	10.0	LIGHT YELLOWISH BROWN SANDY CLAY (CL)					
△ BH-2	25.0	MODERATE BROWN CLAYEY SAND (SW-SC)				1.57	11.55
★ BH-2	30.0	DARK YELLOWISH BROWN SANDY CLAY (CL)					
⊙ BH-2	40.0	DARK BROWN CLAYEY SAND w/GRAVEL(SW-SC)				1.81	17.66

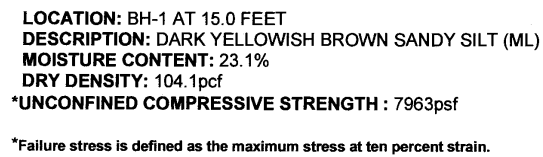
BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
○ BH-1	10.0	25	6.879	1.339	0.078	47.0	43.2	9.8	
⊗ BH-2	10.0	2.36				0.0	22.1	77.9	
△ BH-2	25.0	25	1.014	0.374	0.088	14.6	76.4	9.0	
★ BH-2	30.0	0.075						59.1	
⊙ BH-2	40.0	19	1.539	0.494	0.087	17.0	74.0	9.0	

GRAIN SIZE - GINT STD US LAB GDT - 29/15 10/24 - C:\PROGRAM FILES\X2B\GINT\PROJECTS\S927.01 WEST NAPA ST 135.GPJ

UNCONFINED COMPRESSION TEST
PROPOSED NEW HOTEL
135 WEST SPAIN STREET
SONOMA, CALIFORNIA

App'd by: PJC

12



APPENDIX D REFERENCES

1. "Foundations and Earth Structures" Department of the Navy Design Manual 7.2 (NAVFAC DM-7.2), dated May 1982.
2. "Soil Dynamics, Deep Stabilization, and Special Geotechnical Construction" Department of the Navy Design Manual 7.3 (NAVFAC DM-7.3), dated April 1983.
3. Geologic Map of the Santa Rosa Quadrangle, Scale: 1:250,000, compiled by D.L Wagner and E.J. Bortugno, 1982.
4. Geology for Planning in Sonoma County, Special Report 120, California Division of Mines and Geology, 1980.
5. Geologic Map of the Sonoma 7.5-Minute Quadrangle, Sonoma and Napa Counties, California, by David L. Wagner, Kevin B. Clahan, Carolyn E. Randolph-Loar, and Janet Sowers, 2004.
6. "Soil Mechanics" Department of the Navy Design Manual 7.1 (NAVFAC DM-7.1), dated May 1982.
7. USGS Sonoma California Quadrangle 7.5-Minute Topographic Map, photorevised 1980.
8. McCarthy, David. Essential of Soil Mechanics and Foundations. 5th Edition, 1998.
9. Bowels, Joseph. Engineering Properties of Soils and Their Measurement. 4th Edition, 1992.
10. California Building Code (CBC), 2007 edition.
11. "Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada," California Department of Conservation Division of Mines and Geology, Dated February 1998.
12. Blake, T.F. (2000), EQFAULT version 3.0 software program.
13. Leyendecker, Frankel, and Rukstales (2007), Seismic Hazard Curves and Uniform Hazard Response Spectra version 5.0.8 software program.
14. "Minimum Design Loads for Buildings and Other Structures" American Society of Civil Engineers, 2005.
15. Kramer, Steven L. Geotechnical Earthquake Engineering, 1996.
16. Youd, T.L. and Idriss, I.M., eds., Proceeding of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils, National Center for Earthquake Engineering Research, December 31, 1997.
17. R.B. Seed, K.O. Cetin, R.E.S. Moss, A.M. Kammerer, J. Wu, J.M. Pestana, M.F. Riemer, R.B. Sancio, J.D. Bray, R.E. Kayen, and A. Faris; Recent Advances in Soil Liquefaction Engineering: A Unified and Consistent Framework; American Society of Civil Engineers, 2003 p.71.
18. Preliminary Site Plan, Sheet X1.1, prepared by RossDrulisCusenbery Architecture, dated April 14, 2014.
19. Preliminary Site Drawings, 6 Sheets, provided by RossDrulisCusenbery Architecture, undated.
20. Report titled, "Design Level Geotechnical Investigation, Proposed Sonoma Lofts II Residential Project, 649 First Street West, Sonoma, California," prepared by PJC & Associates, dated October 10, 2000.

MIDSTATE CONSTRUCTION
Proposed Construction Activity Mitigation Plan
Hotel Project Sonoma, Sonoma CA

As the leading general building contractor in Northern California, Midstate Construction has been directly involved with numerous construction projects adjacent to, and within existing, occupied, businesses and residences for nearly 80 years. Through that experience we have learned two principles that are true with every project:

- 1) Construction operations will disrupt the normal day to day activities of individuals and businesses adjacent to the construction work; and
- 2) Midstate Construction must take responsibility to mitigate and minimize that disruption!

Those two principles will definitely apply from the first day of construction on the Hotel Project Sonoma. Grading, shoring, waterproofing, concrete, framing, roofing, exterior finishes, interior work, and final finishes will all contribute to fulfilling the first principle outlined above; however, it is Midstate’s dedicated staff, committed planning efforts, and consciences approach to your project that will fulfill the more important second principle outlined above. To that end, Midstate proposes the following outline to convey our intent to mitigate and minimize the disruption due to construction activities:

- Provide written notification of construction commencement to all businesses immediately adjacent to the Hotel Project Sonoma property 3 days prior to beginning work on site;
- Post, in a prominent location on the site, the name and emergency contact information of Midstate Construction’s Vice President of Safety and Labor to be contacted in the event of an emergency;
- Post and enforce 7:00 am to 5:00 pm working hours Monday thru Friday and (only as necessary) 8:00 am to 4:00 pm working hours Saturdays.
- Provide and monitor dust control measures on a daily basis, such measures to include wetting down disturbed soils, covering stockpiled soils, minimizing dust producing activities, etc.;
- Pre-planning and coordination with adjacent property owners for all temporary access requirements that may be required including material deliveries, maintenance of temporary sound mitigation wall, and scaffolding;

- Provide a minimum 48 hour written notification to adjacent property owners of any need to gain access to the their property for construction related activities;
- Repair or replacement in kind of all damage to adjacent properties directly caused by construction activities;
- Availability of Midstate Construction Project Manager on a once a month basis during normal business hours to discuss and address adjacent property owner’s concerns;
- Provide reasonable modification of this plan as necessary.

With our long history of work in Sonoma County and our commitment to being a continued contributor to the community of Sonoma, Midstate Construction will provide unparalleled service to Hotel Project Sonoma and their neighbors.

1180 Holm Rd – Petaluma, CA 94954 – (707) 762-3200 – FAX (707) 762-0700 – Lic. #089455, www.midstateconstruction.com

10 GENERAL CONSTRUCTION INFORMATION

*Please verify/edit assumptions below and provide requested information below if known. Indicate either "unknown" or "not applicable" for each line item where appropriate.

General Info

Total Project Site Acreage:	1.24	acres
		building square
Hotel (59 guest rooms)	59,772	feet (BSF)
1st Floor	16,446	BSF
2nd Floor	21,938	BSF
3rd Floor	21,388	BSF
Restaurant	7,161	BSF
Subtotal	66,933	BSF
Subterranean Parking Garage	36,359	BSF
Parking (95 stalls)	30,620	
Storage	5,739	

Development Phasing

Hotel developed in one phase?	Yes
If no, how many development phases?	

Pavement and Hardscape

Total Surface Lot (20 parking stalls) to be Paved:	4,479	square feet
Total Non-Parking Asphalt (e.g., internal circulation) to be paved:		select unit
Total Ground floor Hardscape (e.g., concrete curb, pool area, plazas, etc...) to be laid:	22,483	square feet
Courtyard	2,246	square feet
Hotel Plaza	8,632	square feet
Pool Deck	5,096	square feet
Ramp	2,230	square feet
Ramp	1,672	square feet
South Garden	1,306	square feet
Spa Plaza	1,301	square feet

Demolition Building Debris

Will demolition of the existing buildings occur in one phase prior to any grading and building construction activities?	Yes	
Total BSF to be demolished (all bldgs)	14,250	BSF
153 West Napa Street Building (Chateau Sonoma)	14,250	BSF
123 West Napa Street (Print Building)	0	BSF
Total building debris hauled offsite	356	cubic yards (CY)
No. of one-way debris haul:	5	trip ends per day
One-way haul distance:	21	miles OR
Location of debris dumpsite:		
Debris haul truck capacity:	20	tons
Will building debris be recycled/reprocessed?	Yes	
If yes, how much?	300	CY
If yes, will recycling/reprocessing occur onsite?	No	
Duration of activity	1	week(s)

Demolition of Existing Asphalt Debris

Will demolition of the existing asphalt (e.g., surface lots) occur in one phase prior to any grading and building construction activities?	Yes	
Tonnage of AC to be demolished:	205	tons
Tonnage of AC debris to be hauled offsite	205	tons
No. of one-way debris haul:	8	trip ends per day
One-way haul distance:	5	miles OR
Location of debris dumpsite:	4343 Stage Gulch Rd, Sonoma	

Debris haul truck capacity:	<div><div>13</div></div>	tons
Will AC debris be recycled/reprocessed?	<div><div>Yes</div></div>	
<i>If yes, how much?</i>	<div><div>40</div></div>	tons
<i>If yes, will recycling/reprocessing occur onsite?</i>	<div><div>No</div></div>	
Duration of activity	<div><div>2</div></div>	day(s)

Soil Haul

Will all site preparation and grading activities occur in one phase and prior to any building construction activities?	<div><div>Yes</div></div>
--	---------------------------

Site Preparation

Import Volume:	<div><div>-</div></div>	cubic yards (CY)
Number of total one-way haul:	<div><div></div></div>	trip ends/day
Haul Travel Distance:	<div><div></div></div>	miles
Import/Export Facility Location:		
Haul Truck Capacity:	<div><div></div></div>	cubic yards

Export Volume:	<div><div>16,000</div></div>	CY
Number of total one-way haul:	<div><div>120</div></div>	trip ends/day
Haul Travel Distance:	<div><div>5</div></div>	miles
	1800 8th Street East,	
Import/Export Facility Location:	Sonoma	
Haul Truck Capacity:	<div><div>13</div></div>	cubic yards

Rough Grading

Import Volume:	<div><div></div></div>	cubic yards (CY)
Number of total one-way haul:	<div><div></div></div>	trip ends/day
Haul Travel Distance:	<div><div></div></div>	miles
Import/Export Facility Location:		
Haul Truck Capacity:	<div><div></div></div>	cubic yards

Export Volume:	<div><div></div></div>	CY
Number of total one-way haul:	<div><div></div></div>	trip ends/day
Haul Travel Distance:	<div><div></div></div>	miles
Import/Export Facility Location:		
Haul Truck Capacity:	<div><div></div></div>	cubic yards

Fine Grading

Import Volume:	<div><div>148</div></div>	cubic yards (CY)
Number of total one-way haul:	<div><div></div></div>	trip ends/day
Haul Travel Distance:	<div><div>5</div></div>	miles
	4343 Stage Gulch Road,	
Import/Export Facility Location:	Sonoma	
Haul Truck Capacity:	<div><div></div></div>	cubic yards
Export Volume:	<div><div></div></div>	CY
Number of total one-way haul:	<div><div></div></div>	trip ends/day
Haul Travel Distance:	<div><div></div></div>	miles
Import/Export Facility Location:		
Haul Truck Capacity:	<div><div></div></div>	cubic yards

Work Week (mark one)

5-day Work Week	<div><div></div></div>
6-Day Work Week	<div><div>x</div></div>

Overlapping Construction Activities

Would equipment be shared for construction activities that overlap?	<div><div>No</div></div>
---	--------------------------

Architectural Coating

Percentage of Hotel Exterior Area Painted:	<div><div>20</div></div>	percent
Percentage of Hotel Interior Area Painted:	<div><div>70</div></div>	percent
Will the interior walls of the subterranean parking structure be painted?	<div><div>No</div></div>	
<i>If yes, please provide the percentage of the interior wall area to be painted.</i>		percent

Other/Misc

Pile Driving:	<div><div>No</div></div>
If yes	
Location of Activity:	
Start Date:	<div><div></div></div>
End Date:	<div><div></div></div>
Equipment (#, type, tier rating, model)	

Rock Blasting:

<div><div>No</div></div>	
If yes	
Location of Activity:	
Start Date:	<div><div></div></div>
End Date:	<div><div></div></div>
Equipment (#, type, tier rating, model)	

Rock Crushing/Processing:

<div><div>No</div></div>	
If yes	
Location of Activity:	
Start Date:	<div><div></div></div>
End Date:	<div><div></div></div>
Equipment (#, type, tier rating, model)	

10 CONSTRUCTION ACTIVITIES AND SCHEDULE ASSUMPTIONS

* Please include the start/end dates and duration for each activity.

[illegible][illegible]

GENERAL CONSTRUCTION INFORMATION

* Please provide construction equipment mix. Leave cell blank for requested items that are unknown.

General Construction Hours: 8 hours between 7:00 AM to 4:00 PM

** Please add row(s) for additional pieces of equipment as necessary	Construction Equipment Details					
Equipment	# of Equip.	Model	HP	Tier Rating	Hrs/Day	Total Days

Building Demolition (include any equipment that would be used for onsite debris recycling/reprocessing)

Hitachi 200 excavator	1	200	132		8	15

Asphalt Demolition (include any equipment that would be used for onsite debris recycling/reprocessing)

Hitachi 200 Excavator	1	200	132		8	5

Site Preparation

Peterbuilt 367 Superdump	4	367	525		8	10

Rough Grading

Catepillar 930K Loader	1	930K	154		8	40

Fine Grading

Catepillar 930K Loader	1	930K	154		8	5

Utility Trenching

Case 580 backhoe	1	580	70		4	20
Cat 307 Midi Excavator	1	307	55		4	20

Building Construction

Architectural Coating

Paving

Cat 650 paver	1	AP650B	121		4	1
Cat pavement roller	1	CB24B	33		4	1

Finishing/Landscaping

Additional Construction Subphase If Necessary

HOTEL PROJECT SONOMA

KENWOOD INVESTMENTS, LLC



PROJECT DIRECTORY	DRAWING INDEX			
DEVELOPER KENWOOD INVESTMENTS LLC, SONOMA, CA				
ARCHITECT ROSS DRULIS CUSENBERY ARCHITECTURE, INC., SONOMA, CA				
DESIGN COLLABORATOR KEITH WICKS, ARTIST, SONOMA, CA				
CIVIL ENGINEER HUFFMAN ENGINEERING & SURVEYING, SANTA ROSA, CA				
STRUCTURAL ENGINEER WALTER P. MOORE AND ASSOCIATES, SAN FRANCISCO, CA				
PRECONSTRUCTION SERVICES MIDSTATE CONSTRUCTION CORPORATION, PETALUMA, CA				
MECHANICAL / PLUMBING ENGINEER: 15000 INC, SANTA ROSA, CA				
ELECTRICAL ENGINEER: SILVERMAN & LIGHT INC, EMERYVILLE, CA				
BUILDING ENCLOSURE ENGINEER: SIMPSON GUMPERTZ & HEGER INC, SAN FRANCISCO, CA				
PARKING CONSULTANTS: AMPCO SYSTEM PARKING, SAN FRANCISCO, CA				
WATER CONSERVATION CONSULTANTS J CROWLEY GROUP, SACRAMENTO, CA				
GEO TECHNICAL ENGINEER PJC AND ASSOCIATES, INC., ROHNERT PARK, CA				
	A0.00	COVER SHEET	S2.03	THIRD FLOOR FRAMING PLAN
	A0.01	CODE ANALYSIS AND FAR CALCULATIONS	S2.03a	THIRD FLOOR SHEAR WALLS PLAN
	A1.00	NEIGHBORHOOD CONTEXT DIAGRAM	S2.04	ROOF FRAMING PLAN
	A1.01	EXISTING SITE PLAN	S3.00	BUILDING SECTIONS
	A1.02	PROPOSED SITE ROOF PLAN	S3.01	BUILDING SECTIONS
	A2.00	BASEMENT PLAN	S3.02	BUILDING SECTIONS
	A2.01	FIRST FLOOR PLAN	S3.03	BUILDING SECTIONS
	A2.02	SECOND FLOOR PLAN	S3.04	TYPICAL PODIUM SLAB SECTION
	A2.03	THIRD FLOOR PLAN	M0.01	GARAGE VENTILATION PLAN
	A3.00	CONCEPTUAL RENDERINGS	M0.02	GROUND FLOOR CORE VENTILATION PLAN
	A3.01	EXTERIOR ELEVATIONS - NORTH / EAST	M0.03	SECOND FLOOR CORE VENTILATION PLAN
	A3.02	EXTERIOR ELEVATIONS - SOUTH / WEST	M0.04	THIRD FLOOR CORE VENTILATION PLAN
	A3.51	BUILDING SECTIONS	M0.05	HVAC ROOF PLAN
	A3.52	BUILDING SECTIONS	P0.01	BASEMENT SANITARY SEWER COORDINATION
	CSK1	FIRST FLOOR UTILITIES	P0.02	SANITARY SEWER COORDINATION
	CSK2	GARAGE / BASEMENT UTILITIES	P0.03	DOMESTIC WATER COORDINATION
	S2.00	FOUNDATION PLAN	P0.04	PLUMBING ROOF PLAN
	S2.01	FIRST FLOOR PODIUM PLAN	E5.00	ELECTRICAL ONE LINE A
	S2.01a	FIRST FLOOR SHEAR WALLS PLAN	E5.01	ELECTRICAL ONE LINE B
	S2.02	SECOND FLOOR FRAMING PLAN		
	S2.02a	SECOND FLOOR SHEAR WALLS PLAN		

RossDrulisCusenbery

18294
Sonoma Highway
Sonoma
CA 95476

TEL 707 996 8448
FAX 707 996 8542

ARCHITECTURE

HOTEL PROJECT
SONOMA

Sonoma, CA

Kenwood
Investments LLC

REVISIONS		
No	Description	Date
△		
△		
△		
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BASIS OF DESIGN
REPORT

Sheet Title

COVER SHEET

Drawn By: Author

Checked By: Checker

Scale:

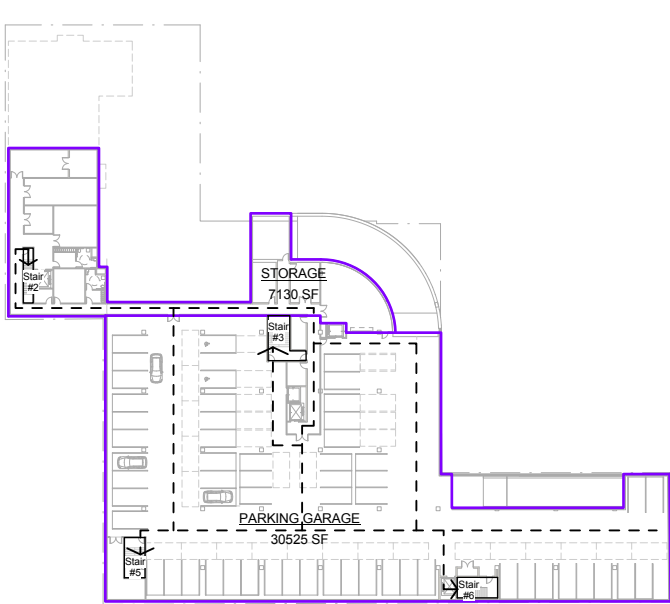
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2015 / 04 / 10

Project No: Project Number

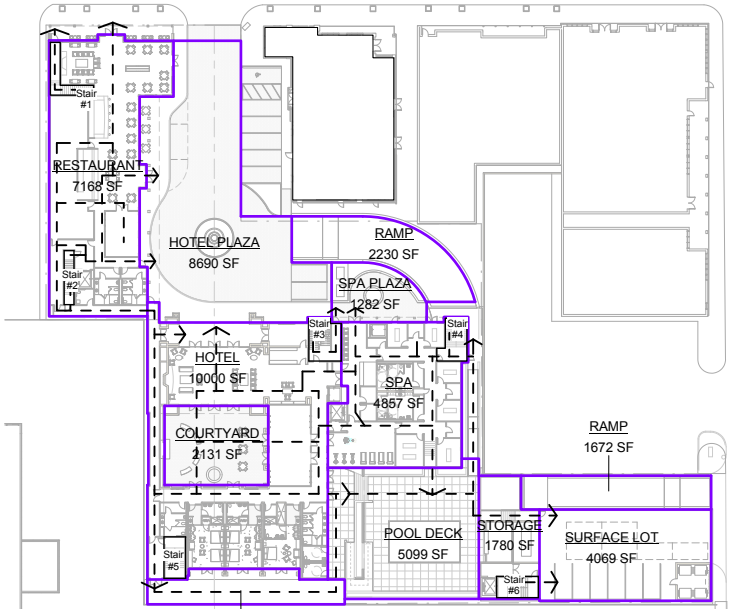
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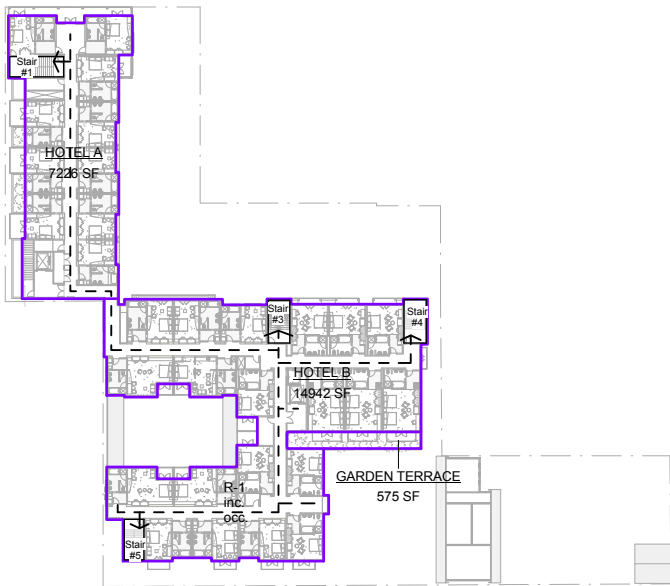
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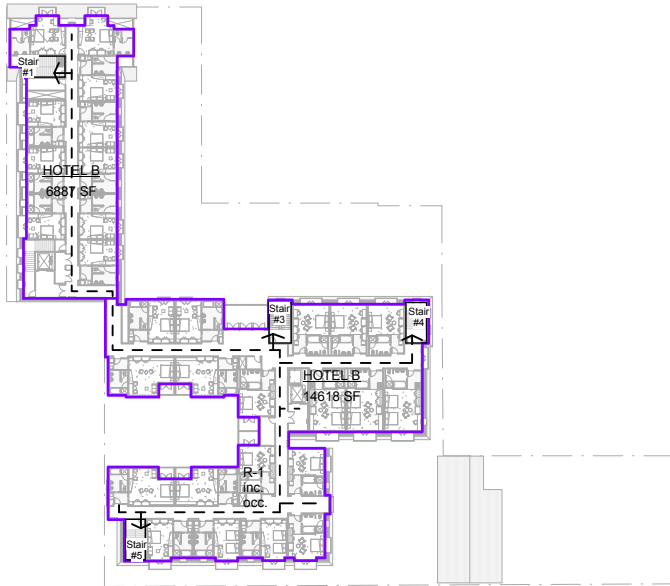
BASEMENT



FIRST FLOOR



SECOND FLOOR



THIRD FLOOR

Area Schedule - Basement		
Name	Occupancy	Area
PARKING GARAGE	S-2, PARKING GARAGE, ENCLOSED	30525 SF
STORAGE	S-1, STORAGE	7130 SF

Basement Building Area = 37,655 SF

Area Schedule - 1st Floor		
Name	Occupancy	Area
COURTYARD	-	2,131 SF
HOTEL	R-1, HOTEL, ROOMS, SPA AND SERVICES	10,000 SF
HOTEL PLAZA	-	8,690 SF
POOL DECK	-	5,099 SF
RAMP	-	2,230 SF
RAMP	-	1,672 SF
RESTAURANT	A-2, RESTAURANT	7,168 SF
SOUTH GARDEN	-	1,579 SF
SPA	R-1, HOTEL, ROOMS, SPA AND SERVICES	4,857 SF
SPA PLAZA	-	1,282 SF
STORAGE	S-1, STORAGE	1,780 SF
SURFACE LOT	-	4,069 SF

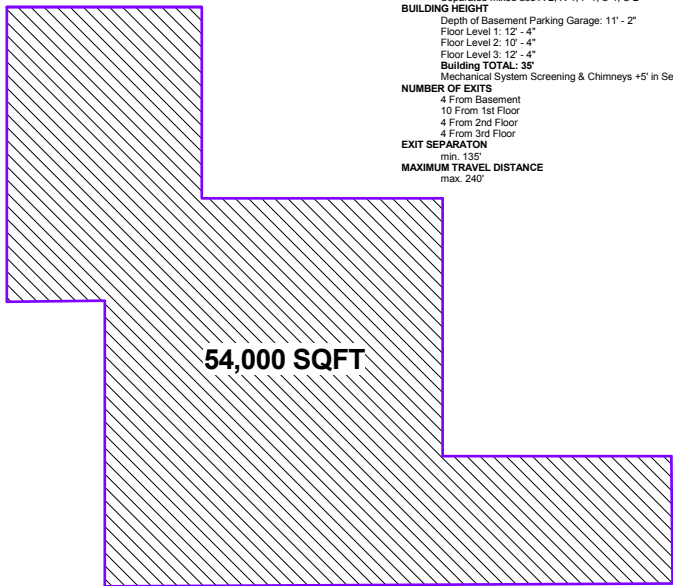
1st Floor Building Area = 23,805 SF

Area Schedule - 2nd floor		
Name	Occupancy	Area
GARDEN TERRACE	-	575 SF
HOTEL A	R-1, HOTEL, ROOMS AND SERVICES	7,226 SF
HOTEL B	R-1, HOTEL, ROOMS AND SERVICES	14,942 SF

2nd Floor Building Area = 22,168 SF

Area Schedule - 3rd floor		
Name	Occupancy	Area
HOTEL B	R-1, HOTEL, ROOMS AND SERVICES	14,618 SF
HOTEL B	R-1, HOTEL, ROOMS AND SERVICES	6,887 SF

3rd Floor Building Area = 21,505 SF



LOT AREA

CODE ANALYSIS - New Sonoma Hotel

SUMMARY:
TOTAL LOT AREA: 54,000
BUILDING COVER AREA: 23,805
ALLOWABLE LOT COVERAGE: 100 %
ACTUAL LOT COVERAGE: 44.1 %
ALLOWABLE FAR: Lot Area x 2.0 = 108,000 SF
ACTUAL BUILDING AREA: 67,478 SF (Excludes Basement Areas) = FAR Compliant

BUILDING AREA PER STORY
1st floor: 23,805 SF
2nd floor: 22,168 SF
3rd floor: 21,505 SF
Total: 67,478 SF

OPEN SPACE: Exterior Courtyards and Patio Areas: 24,076 (Approx. 45% of Site Area)

BASEMENT PARKING GARAGE: 37,655 SF

GUEST ROOM COUNT

1st Floor	
ADA Guest Rooms	3
2nd Floor	
Standard Guest Rooms:	23
Suites:	4
Double Queen:	3
Sub Total	30
3rd Floor	
Standard Guest Rooms:	22
Suites:	4
Double Queen:	3
Sub Total	29
TOTAL GUESTROOMS	62

PARKING

Basement	
Standard Spaces:	57
Valet Spaces:	29
Van Spaces:	2
Auxiliary Spaces:	6
Sub Total	94
1st Floor Surface Parking	
Standard Spaces:	8
Staff Spaces:	6
Valet Spaces:	7
Sub Total	21
TOTAL PARKING	115

APPLICABLE REGULATIONS

City of Sonoma Development Code, February 2005
2013 CALIFORNIA BUILDING CODE
2013 CALIFORNIA MECHANICAL CODE
2013 CALIFORNIA PLUMBING CODE
2013 CALIFORNIA ELECTRIC CODE
2013 CALIFORNIA ENERGY CODE
2013 CALIFORNIA FIRE CODE

APPLICABLE STANDARDS

SMACNA - FIRE, SMOKE & RADIATION DAMPER INSTALLATION GUIDE FOR HVAC

TYPE OF CONSTRUCTION:
Podium: Type I/A (rated, non-combustible) Podium: Type I/A (rated, non-combustible)

protected CIP concrete podium
3hr horizontal separation between podium and 2nd floor

2nd and 3rd floors: Type V/A (rated, combustible) 2nd and 3rd floors: Type V/A (rated, combustible) protected wood frame gravity

FIRE PROTECTION

Fire Alarm System and Fire Sprinkler System Throughout

MECHANICAL SHAFTS and ELEVATOR SHAFT

2hrs rated

EXIT STAIRS

Stair #1: interior enclosed, 2 HR enclosed (From 1F to 3F)

Stair #2: interior enclosed, 2 HR enclosed (From Basement to 3F)

Stair #3: interior enclosed, 2 HR enclosed (From Basement to 3F)

Stair #4: interior enclosed, 2 HR enclosed (From 1F to 3F)

Stair #5: interior enclosed, 2 HR enclosed (From Basement to 3F)

Stair #6: interior enclosed, 2 HR enclosed (From Basement to 1F)

BUILDING OCCUPANCY

Separated mixed use A-2; R-1; F-1; S-1; S-2

BUILDING HEIGHT

Depth of Basement Parking Garage: 11' - 2"

Floor Level 1: 12' - 4"

Floor Level 2: 12' - 4"

Floor Level 3: 12' - 4"

Building TOTAL: 35'

Mechanical System Screening & Chimneys +5' in Selected Areas

NUMBER OF EXITS

4 From Basement

10 From 1st Floor

4 From 2nd Floor

4 From 3rd Floor

EXIT SEPARATION

min. 135'

MAXIMUM TRAVEL DISTANCE

max. 240'

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HOTEL PROJECT
SONOMA

Sonoma, CA

Kenwood
Investments LLC

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BASIS OF DESIGN
REPORT

Sheet Title

CODE ANALYSIS AND
FAR CALCULATIONS

Drawn By: Author

Checked By: Checker

Scale:

As Indicated

Date:

2015 / 04 / 10

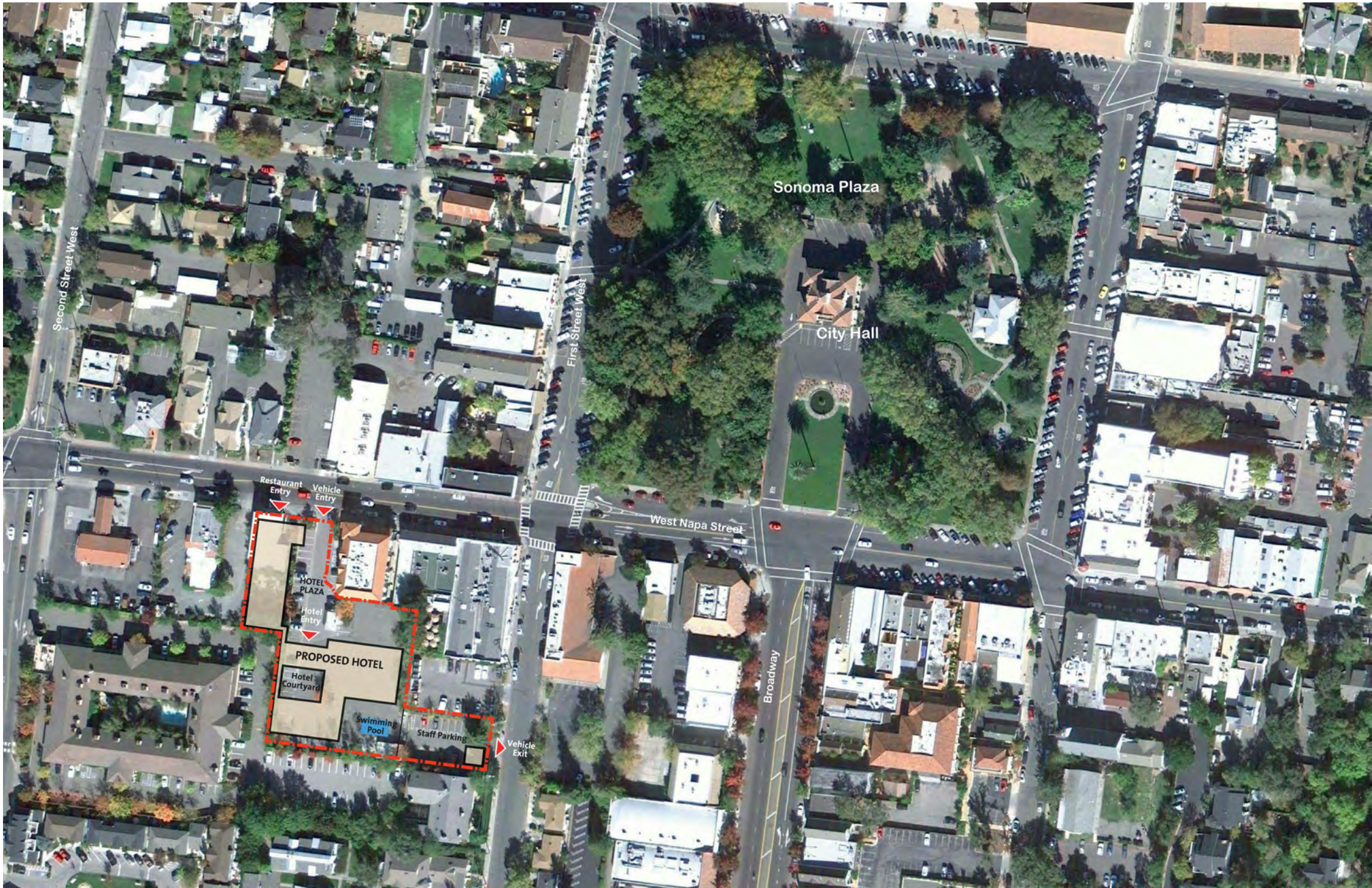
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CONTEXT MAP

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**BASIS OF DESIGN
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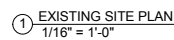
Sheet Title
**NEIGHBORHOOD
CONTEXT DIAGRAM**

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Project Number:

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A compass rose diagram with a vertical line pointing upwards labeled 'TRUE'. A curved line below it is labeled 'PROJECT NORTH'. An arrow points to the left, labeled 'W'.

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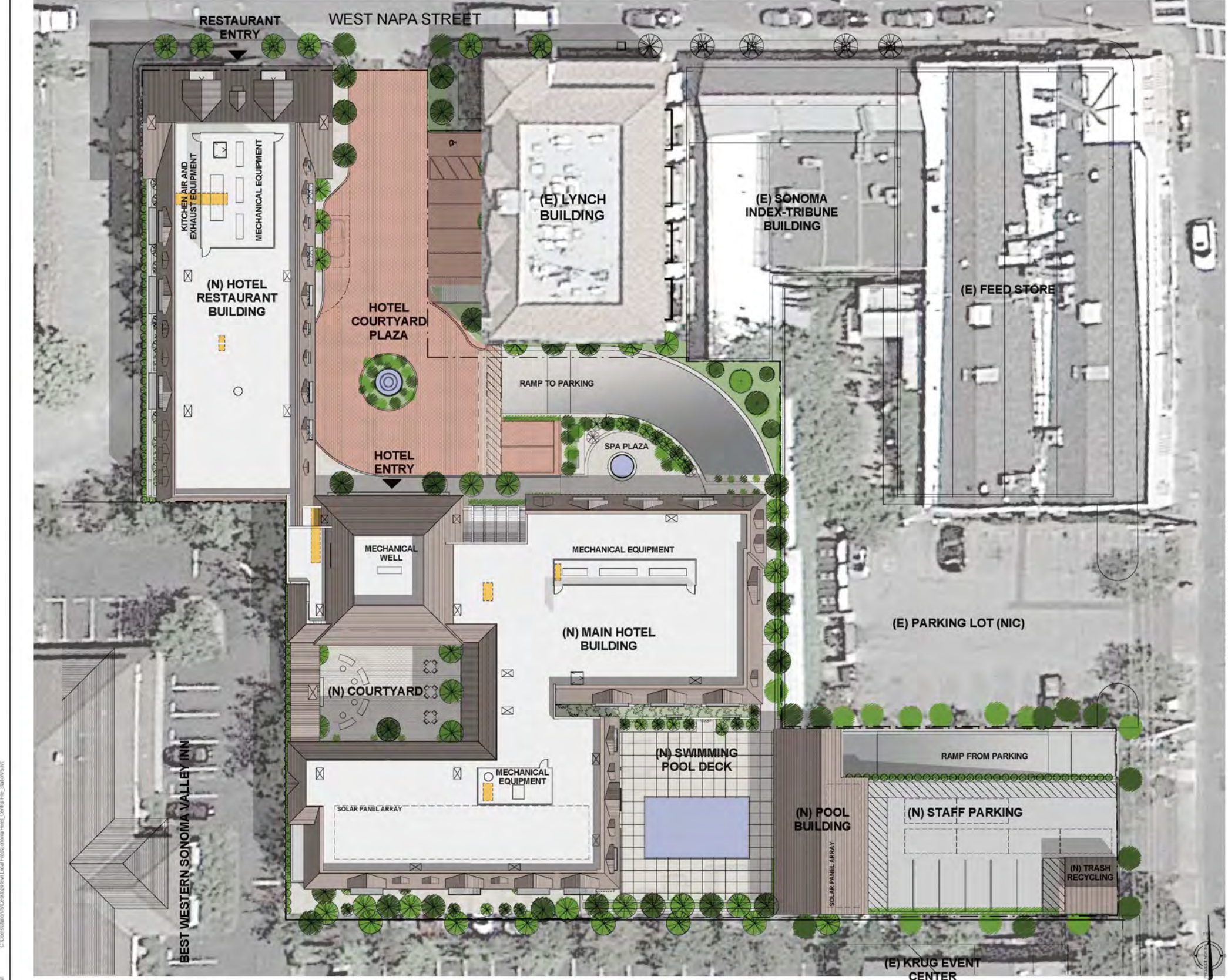
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Sheet Title

EXISTING SITE PLAN

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② FIRST FLOOR PLAN
1/16" = 1'-0"

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PROPOSED SITE ROOF
PLAN

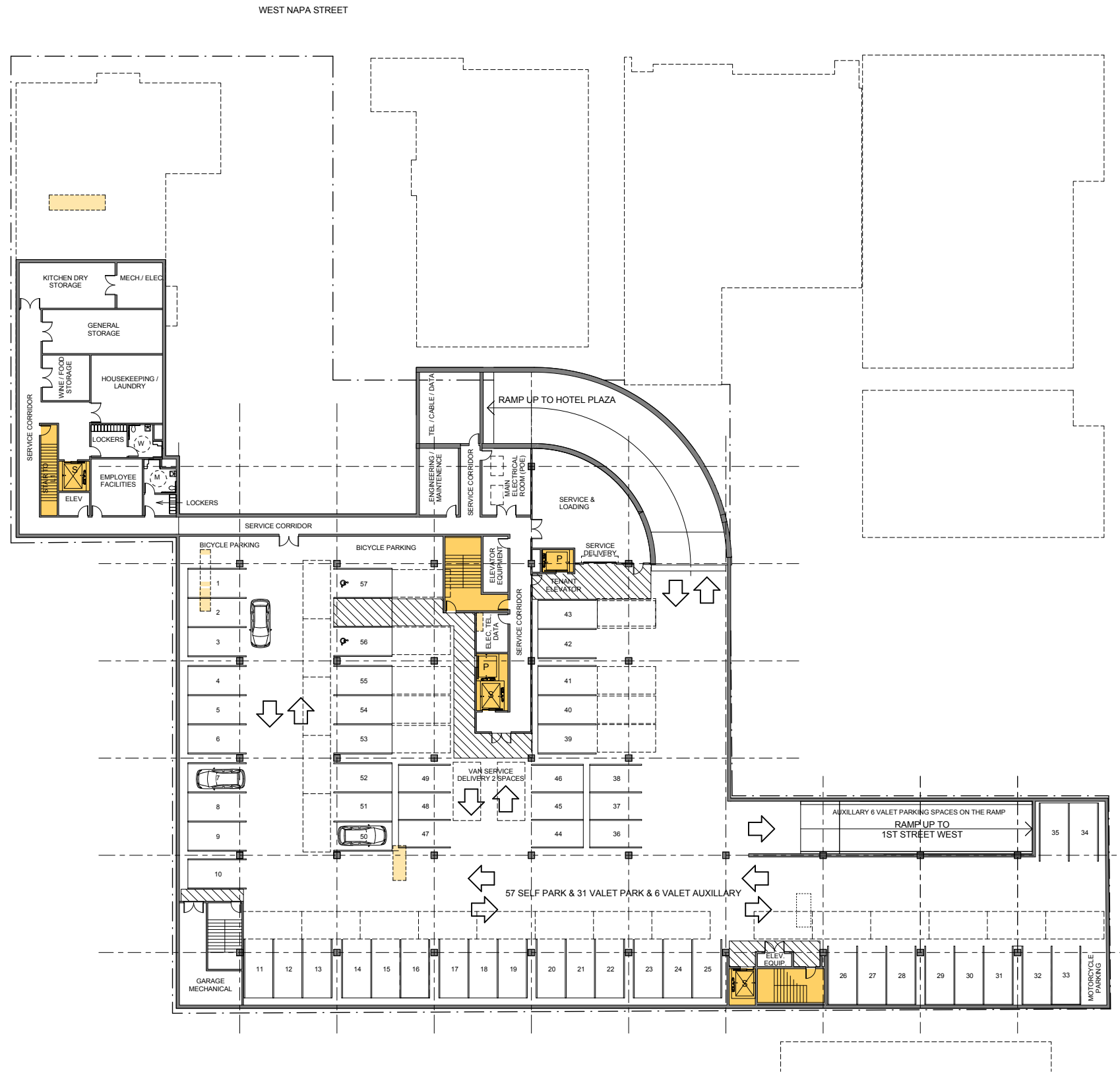
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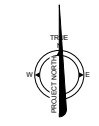
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FIRST STREET WEST

PARKING CALCULATION

Basement	
Standard Spaces:	57
Valet Spaces:	29
Van Spaces:	2
Auxiliary Spaces:	6
Sub Total	94
1st Floor Surface Parking	
Standard Spaces:	8
Staff Spaces:	6
Valet Spaces:	7
Sub Total	21
TOTAL PARKING	115



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Sheet Title

BASEMENT PLAN

Drawn By: Author Checked By: Checker

Scale:
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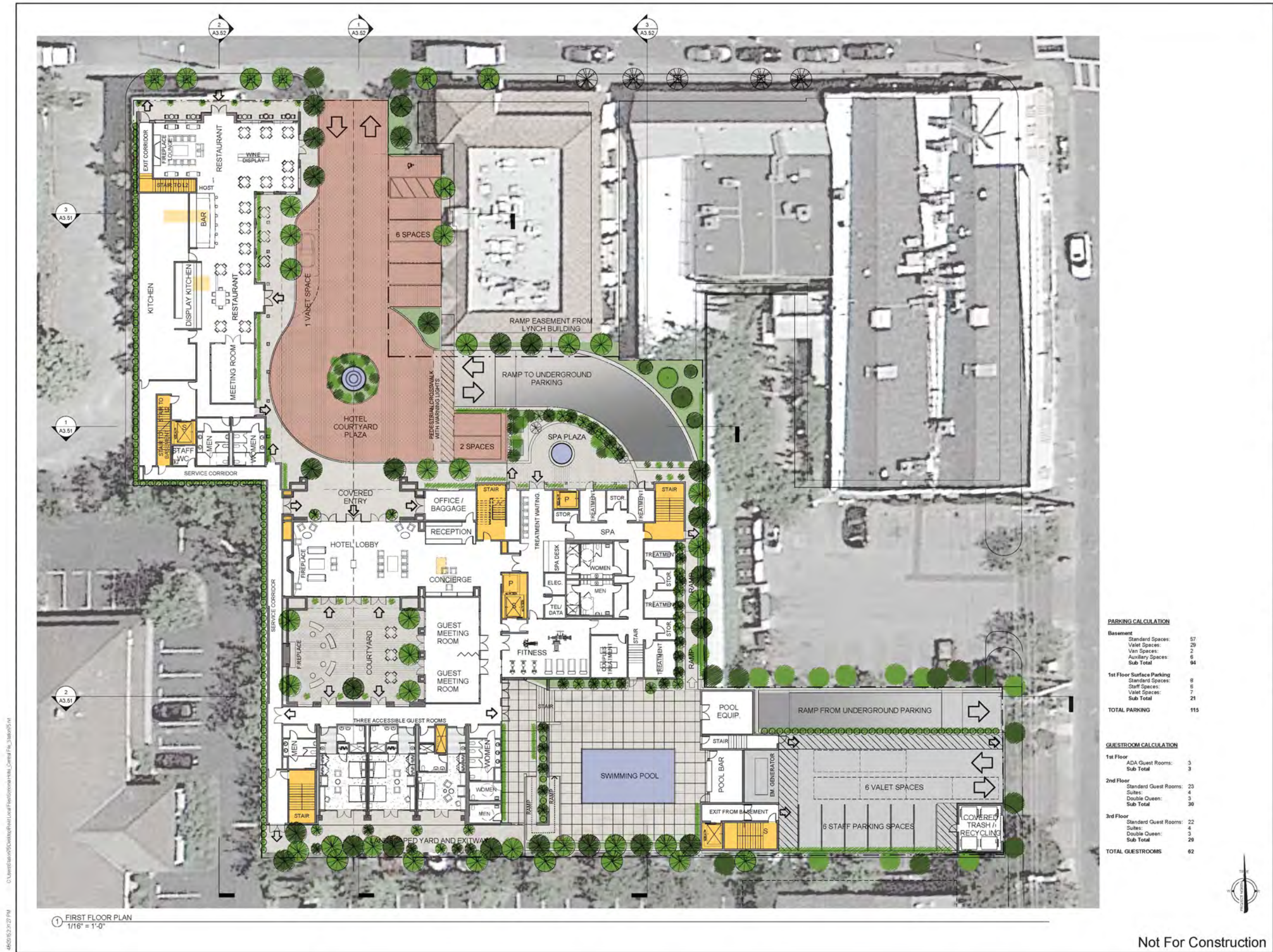
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Project No. Project Number

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**BASIS OF DESIGN
REPORT**

FIRST FLOOR PLAN

PARKING CALCULATION

Basement	Standard Spaces:	57
	Valet Spaces:	29
	Van Spaces:	2
	Auxiliary Spaces:	6
	Sub Total	94
1st Floor Surface Parking	Standard Spaces:	8
	Staff Spaces:	6
	Valet Spaces:	7
	Sub Total	21
TOTAL PARKING		115

GUESTROOM CALCULATION

1st Floor	ADA Guest Rooms:	3
	Sub Total	3
2nd Floor	Standard Guest Rooms:	23
	Suites:	4
	Double Queen:	3
	Sub Total	30
3rd Floor	Standard Guest Rooms:	22
	Suites:	4
	Double Queen:	3
	Sub Total	29
TOTAL GUESTROOMS		62



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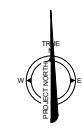
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1 SECOND FLOOR PLAN
1/16" = 1'-0"

GUESTROOM CALCULATION

1st Floor	
ADA Guest Rooms:	3
Sub Total	3
2nd Floor	
Standard Guest Rooms:	23
Suites:	4
Double Queen:	3
Sub Total	30
3rd Floor	
Standard Guest Rooms:	22
Suites:	4
Double Queen:	3
Sub Total	29
TOTAL GUESTROOMS	62



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**BASIS OF DESIGN
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Sheet Title
SECOND FLOOR PLAN

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BASIS OF DESIGN
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Sheet Title
THIRD FLOOR PLAN

GUESTROOM CALCULATION		
1st Floor:		
ADA Guest Rooms:	3	
Sub Total	3	
2nd Floor		
Standard Guest Rooms:	23	
Suites:	4	
Double Queen:	3	
Sub Total	30	
3rd Floor		
Standard Guest Rooms:	22	
Suites:	4	
Double Queen:	3	
Sub Total	29	
TOTAL GUESTROOMS	62	



A2.03

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1 THIRD FLOOR
1/16" = 1'-0"

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VIEW FROM WEST NAPA STREET



HOTEL RESTAURANT BUILDING



MAIN HOTEL BUILDING

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ARCHITECTURE

KEITH WICKS
Concept & Design

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**CONCEPTUAL
RENDERINGS**

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1 NORTH ELEVATION
3/32" = 1'-0"



2 EAST ELEVATION
3/32" = 1'-0"

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EXTERIOR ELEVATIONS -
NORTH / EAST

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A3.01
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