STORMWATER CONTROL PLAN

for

HOME 2 SUITES

550 GATEWAY BOULEVARD

SOUTH SAN FRANCISCO, CA

December 22nd, 2017

Sri Krishna Enterprises
300 Gateway Boulevard
South San Francisco, CA 94080

prepared by:

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Attachment B: Worksheet for calculating Water Quality Design Volume

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Attachment E: Average Annual Precipitation, San Mateo County Eastern Part and San Francisco County

Attachment F: Stormwater Control Plan Exhibit

This Stormwater Control Plan was prepared using the template dated February 15, 2012.

I. PROJECT DATA

Table 1. Project Data

Project Name/Number	HOME 2 SUITES
Application Submittal Date	June 16th, 2017
Project Location	550 Gateway Boulevard South San Francisco, CA APN 015-023-270
Name of Developer	Sri Krishna Enterprise
Project Phase No.	N/A
Project Type and Description	Hotel
Project Watershed	N/A
Total Project Site Area (acres)	2 acres
Total Area of Land Disturbed (acres)	2 acres
Total New Impervious Surface Area (sq. ft.)	67,790 sf
Total Replaced Impervious Surface Area	0 sf
Total Pre-Project Impervious Surface Area	1,170 sf
Total Post-Project Impervious Surface Area	68,960 sf
50% Rule[*]	Does not apply
Project Density	
Applicable Special Project Categories [Complete even if all treatment is LID]	None
Percent LID and non-LID treatment	100% LID treatment
HMP Compliance [†]	Does not apply

[*50% rule applies if:
Total Replaced Impervious Surface Area > 0.5 x Pre-Project Impervious Surface Area]

[†HMP applies if:
(Total New Impervious Surface Area + Total Replaced Impervious Surface Area) ≥ 1 acre]

II. SETTING

II.A. Project Location and Description

The Gateway Hotel project (APN 015-023-270) is located 250' +/- northeast of Corporate Drive and southeast of Gateway Boulevard in South San Francisco, San Mateo County, California as shown in the vicinity map in Figure 1 below. The proposed project impacts the area of the site approximately 2 acres in size. The project includes construction of 155 rooms - 5 story hotel building, with a parking lot. The proposed project will introduce more than 7,000 sf of impervious surfaces. Therefore, per table 1-1 of the County's Stormwater C.3 Guidebook, this project is required to include treatment measures. The proposed project will create more than 1 acre of impervious area. Therefore, the project is subject to the Hydrograph Modification management (i.e. flow control) requirements of the MRP. Since the project is an HMP exempt area, HMP compliance does not apply for this project.

Figure 1: Vicinity Map

II.B. Existing Site Features and Conditions

The proposed project is 2 acres in size with a quadrilateral shape. The site is bounded by Gateway Boulevard on the northwest side, PG & E towers on the southwest side, and by commercial development. The site is very flat with a 3 feet elevation difference running north to south. Site has several trees along Gateway Boulevard and is vacant. The City of South San Francisco maintains a 36-inch diameter public storm drain system located on Gateway Boulevard. The site currently consists of pervious undeveloped, self-treating open land. The site has no existing hydrologic features, and consists of Type D soil per NRCS web soil survey. Soils in this group have moderately high runoff potential when thoroughly wet and water transmissions through the soil is somewhat restricted.

II.C. Opportunities and Constraints for Stormwater Control

The following are the constraints and opportunities affecting the selection of treatment and flow control facilities for the project.

Roof Drainage: The proposed building architecture does not incorporate a green roof. The proposed building roof will generate runoff and has to be treated by an IMP.

Access Driveway: Site plan proposes asphalt paved driveways for access roads for vehicle circulation within the property. Asphalt paved surface will generate significant runoff, which has to be treated by an IMP.

Landscaping: Site plan proposes extensive landscaping across property and along the areas in front of the building. Landscaping features are a critical components of site design.

Rain Cycle: Period between dry season and rainy season are long enough to make storage of rain water for reuse not feasible. San Francisco Bay Area Rain cycle hinders the opportunities for storage and reuse.

Group D Soil: As per NRCS web soil survey, the property has group D soils having high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted.

Ground Water Table: As per project geotechnical report, prepared by Krazan and Associates, dated November 12, 2007, groundwater table is between 10.75'± – 12.5'± deep.

III. LOW IMPACT DEVELOPMENT DESIGN STRATEGIES

III.A. Optimization of Site Layout

III.A.1. Limitation of development envelope

The site has slope varying from 2.5% slopes and constrained on most sides, allowing for minimal grading and drainage. Innovative measures need to be taken for the site to comply with the San Mateo County C.3 guidelines.

III.A.2. Preservation of natural drainage features

There are no existing natural drainage features which require preservation.

III.A.3. Setbacks from creeks, wetlands, and riparian habitats

There are no nearby creeks, wetlands and/or riparian habitats, which require a setback within or surrounding the site's boundaries.

III.A.4. Minimization of imperviousness

The site utilizes landscaped areas, to minimize the effects of the impervious surfaces through treatment and retention methods. This is a high density development that maximizes the use of the site. The site is a densely infill site, which maximizes the use of the existing streets and roads for access. Three bio-retention areas are designed onsite to retain and treat runoff.

III.A.5. Use of drainage as a design element

The improvements will be designed to drain to the water quality basin which is designed to be a bioretention facility.

III.B. Dispersal of Runoff to Pervious Areas

The majority of the site's impervious surfaces are conventional roofs that will generate quick runoff. The roof drains will be directed to splash blocks (or rocks) within the bioretention facilities either directly below the roof overhangs or with a sidewalk underdrain to the bioretention facilities. These facilities are designed to treat the runoff through filtration, decrease the time of concentration via evapotranspiration and percolation through engineered soil, and discharge the treated runoff into the storm drain system. Due to the potential lack of runoff infiltration with the underlying soil and the ample amounts of areas set aside for vegetation, the bioretention facility is the best type of IMP to employ with these existing conditions. See the detail on the Storm Water Control Plan exhibit for more information.

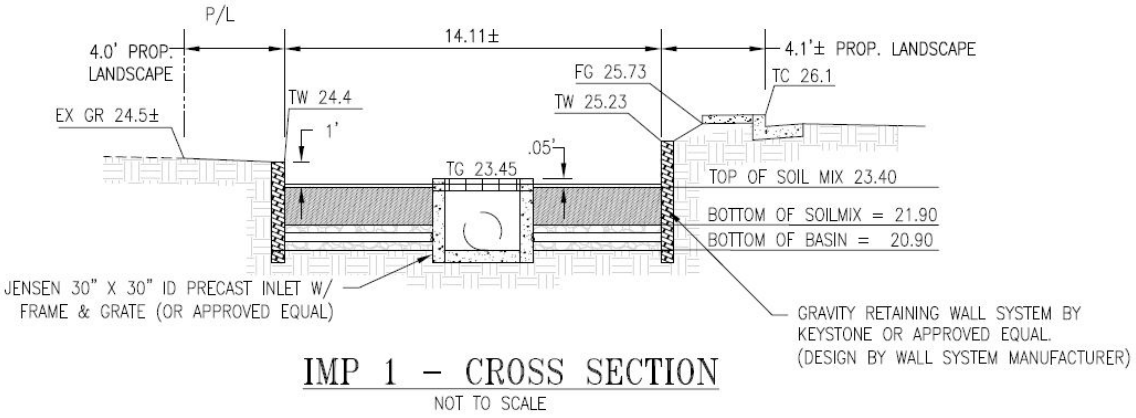
III.C. Feasibility Assessment of Harvesting and Use for Treatment and Flow-Control

Adoption of Order R2-2015-0049, effective January 1, 2016 eliminated the requirement to demonstrate infeasibility for full capture. Flow control is not required as the project is located in HMP exempt areas of the county.

III.D. Integrated Management Practices

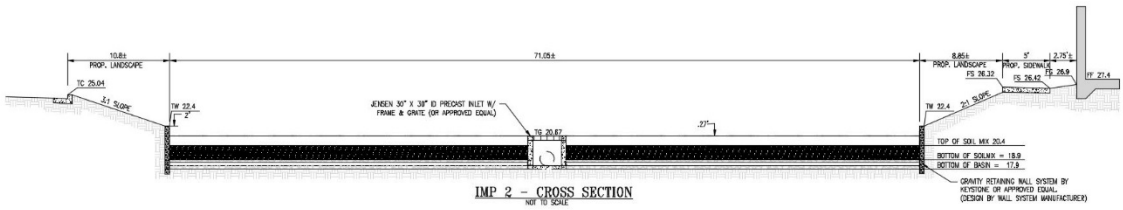
Bioretention facilities detain runoff in a surface reservoir, filter the runoff through plants roots and a biologically active soil mix, and then infiltrate it into the ground. When native soils are less permeable, an underdrain conveys treated runoff that does not infiltrate to a storm drain or to surface drainage. Three bioretention basins will be constructed to treat the runoff from rooftops of the building, access drive ways, etc.

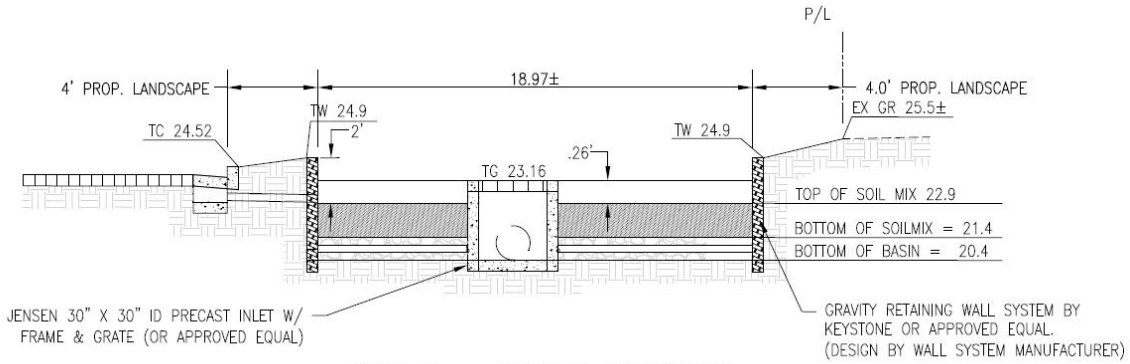
Figure 2: Bio-Retention Facility



IMP 1 – CROSS SECTION

NOT TO SCALE





IMP 3 – CROSS SECTION

NOT TO SCALE

IV. DOCUMENTATION OF DRAINAGE DESIGN

IV.A. Descriptions of each Drainage Management Area

IV.A.1. Table of Drainage Management Areas

Table 2. Drainage Management Areas (DMAs)

DMA NAME	SURFACE TYPE			TOTAL AREA (sf)	DRAINS TO	IMP TYPE	MIN. IMP SIZE (sf)	PROP. IMP SIZE (sf)
	Roof (sf)	Asphalt Concrete (sf)	Landscaping (sf)					
DMA 1	0	3,474	504	3,978	IMP 1	Bio-retention	141	137
DMA 2	19,423	42,896	8,192	70,511	IMP 2	Bio-retention	2,526	2,191
DMA 3	0	2,743	400	3,143	IMP 3	Bio-retention	111	97
DMA 4	0	254	248	502	-	Self-Treating	-	-
DMA 5	0	1,170	0	1,170	-	Offsite		
DMA 6	0	0	4,850	4,850	-	Self-Treating	-	-
DMA 7	0	0	130	130	-	Self-Treating	-	-
DMA 8	0	0	186	186	-	Self-Treating	-	-
TOTAL	19,423	50,537	14,510	84,470				

IV.A.2. Drainage Management Area Descriptions

DMA 1, totaling 3,978 square feet, asphalt concrete area of 3,474 sf, landscaped area of 504 sf that drains to IMP 1, a bioretention facility. See attached stormwater control plan for location.

DMA 2, totaling 70,511 square feet, conventional roof area of 19,423, asphalt concrete area of 42,896 sf, landscaped area of 8,192 sf that drains to IMP 2, a bioretention facility. See attached stormwater control plan for location.

DMA 3, totaling 3,143 square feet, asphalt concrete area of 2,743 sf, landscaped area of 400 sf that drains to IMP 3, a bioretention facility. See attached stormwater control plan for location.

DMA 4, totaling 502 square feet, asphalt concrete area of 254 sf, landscaped area of 248 sf, is a self-treating facility. See attached stormwater control plan for location.

DMA 5, totaling 1,170 square feet of asphalt concrete, located offsite the project. See attached stormwater control plan for location.

DMA 6, totaling 4,850 square feet of landscape area, a self-treating facility. See attached stormwater control plan for location.

DMA 7, totaling 130 square feet of landscape area, a self-treating facility. See attached stormwater control plan for location.

DMA 8, totaling 186 square feet of landscape area, a self-treating facility. See attached stormwater control plan for location.

IV.B. Tabulation and Sizing Calculations

IV.B.1. Information Summary for IMP Design

Table 3. Summary Information for IMP Design

Total Project Area (Square Feet)	87,120
Mean Annual Precipitation	20 in
IMPs Designed For:	Treatment only

IV.B.2. Self-Treating Areas

Table 4. Self-Treating Areas

DMA 6, DMA 7, and DMA 8.

IV.B.3. Self-Retaining Areas

Table 5. Self-Retaining Areas

None

IV.B.4. Areas Draining to Self-Retaining Areas

Table 6. Areas Draining to Self-Retaining Areas

None

V. SOURCE CONTROL MEASURES

V.A. Site activities and potential sources of pollutants

Pollutants that accompany traditional residential and limited agriculture facilities can be expected at this Site, such as pesticides or other unwanted pollutants draining into the on-site storm drain inlets without being pre-treated.

V.B. Source Control Table

Table 7. Sources and Source Control Measures

Potential source of runoff pollutants	Permanent source control BMP's	Operational source control BMP's
On-Site Storm Drain Inlets.	Inlets that could be accessed from sidewalks and driveways will be marked with a "**No Dumping—Drains to Bay**" or similar message.	Inlet markings will be inspected annually and replaced or renewed, as needed. Swales and related structures and features will be inspected and maintained as specified in the BMP Operation and Maintenance Plan (to be developed and submitted for approval.)
Interior Floor Drains and elevator shaft sump pumps.	In the event that interior floor drains and/or elevator shaft sump pumps will be installed, they are to be plumbed to the sanitary sewer.	Drains will be regularly inspected and maintained to prevent blockages and overflow.
Interior Parking Garages.		No interior parking garage onsite.
Need for Future Indoor and Structural Pest Control.	Standard building design minimizes potential needs for future pest control.	Buyers will receive integrated pest management information.
Landscape/Outside Pesticide Use.	Any native trees, shrubs, and ground cover on the site will be preserved to the maximum extent possible. Landscaping will be designed to minimize irrigation and runoff, to promote surface infiltration, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. Plants that are tolerant to saturated soil conditions will be used for landscaped Self-Retaining and Self-Treating areas. Where possible, pest-resistant plants will be selected, especially for locations adjacent to hardscape. Plants will be selected appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions to insure successful establishment.	Buyers will receive integrated pest management (IPM) information. All open space landscaping is to be maintained by a professional landscaping contractor. All landscaping will be maintained using the minimum amount of pesticides possible.
Pools, spas, ponds, decorative fountains, and other water features.	Public pools must be plumbed to the sanitary sewer; connection will be made according to the County Department of Environmental Health Guidelines and any other local requirements.	All applicable BMP operations, as stated in Fact Sheet SC-72, "Fountain and Pool Maintenance," in the CASQA Stormwater Quality Handbooks found at www.cabmphandbooks.com, will be followed. Water hardness and pH will be managed to minimize copper pipe corrosion. No copper-based algaecides will be used.

		All water will be discharged into the sanitary sewer system. Backflow will be prevented by maintaining an "air gap" between the discharge line and sewer line. Drip pans or buckets will be provided below drain pipe connections to catch leaks. Filters should be cleaned in an area where runoff flows to the sanitary sewer or remains on soil area that does not lead to the storm drain system. All filters and hazardous material shall properly be disposed of.
Refuse Areas—Dumpster Storage	The storage facility for the dumpster will consist of a concrete pad, graded with a drainage inlet leading to the sanitary sewer system to prevent infiltration to the storm drain and surrounding soil. Berms will prevent run-on and runoff from the concrete pad. A structure, consisting of walls, latching doors, and a roof, will prevent rain runoff and unwanted intruders from accessing the dumpsters. Signs will be posted on or near the dumpsters and trash receptacles with the words "**Do not dump hazardous materials here**" or similar. Trash receptacles will be placed in common meeting areas and locations where litter is most probable to occur.	All material to be stored in dumpster until onsite pickup occurs will be bagged and sealed to prevent leaks and loose debris. Trash compactors will be used to compact trash. Dumpsters will remain covered at all times. All trash receptacles will be inspected annually for holes and cracks to prevent leaks and loose debris. Damaged trash receptacles will be repaired or replaced immediately. Trash receptacles will remain covered at all times. Litter will be picked-up daily and spills cleaned immediately. Spill control materials will be available on site at all times.
Vehicle and Equipment Cleaning		Onsite car washing will be prohibited.
Vehicle Maintenance		Onsite vehicle maintenance or repair will be prohibited.
Fire Sprinkler Test	Fire sprinkler test valves will be equipped with a means to divert test water to the sanitary sewer.	
Rooftop Equipment	Rooftop mounted equipment will be covered to prevent pollutants from contaminating the runoff.	
Roofing, Gutters and Trim	Roofing, gutters, and trims made of copper or unprotected metals that may leach into runoff will be avoided.	
Plazas, Sidewalks, and Parking Lots		Plazas, sidewalks, and parking lots will be swept regularly to prevent the accumulation of litter and debris. Debris from pressure washing will be collected and washwater containing any cleaning agent or

		degreaser will be discharged to the sanitary sewer to prevent entry into the storm drain system.

VI. STORMWATER FACILITY MAINTENANCE

VI.A. Ownership and Responsibility for Maintenance in Perpetuity

All stormwater treatment facilities in this plan will be maintained by the owner. The owner accepts full responsibility for interim operation and maintenance of the facilities until such time as this responsibility is formally transferred to a subsequent owner.

VI.B. Summary of Maintenance Requirements for Each Stormwater Facility

- Examine downspouts from rooftops or sheet flow from paving to ensure that flow to the porous pavement is unimpeded. Remove any debris and repair any damaged pipes. Check splash blocks or rocks and repair, replace, or replenish as necessary.
- Examine the overflow pipe to make sure it can safely convey excess flows to a storm drain. Repair or replace any damaged or disconnected piping.
- Check the underdrain piping to make sure it is intact and unobstructed.
- Check that the soil is at the appropriate depth to allow a reservoir above the soil surface and is sufficient to effectively filter stormwater. Remove any accumulation of sediment, litter, and debris. Till or replace soil as necessary. Confirm that soil is not clogging and that the planter will drain within 3-4 hours after a storm event.
- Determine whether the vegetation is dense and healthy. Replace dead plants. Prune or remove any overgrown plants or shrubs that may interfere with planter operation. Clean up fallen leaves or debris and replenish mulch. Remove any nuisance or invasive vegetation.

VII. CONSTRUCTION PLAN C.3 CHECKLIST

Table 8. Construction Plan C.3 Checklist

Stormwater Control Plan Page #	BMP Description	See Plan Sheet #s
5	The bioretention facilities will be designed to treat runoff and decrease the time of concentration before discharging to the storm drain system.	
7-9 (Source Control Table)	On-site drain inlets to be marked with "No Dumping" message.	
7-9 (Source Control Table)	Preservation (if any) of native trees, shrubs or ground cover.	
7-9 (Source Control Table)	Plant selection to minimize irrigation and use of fertilizer and pesticides—pest-resistant.	
7-9 (Source Control Table)	Storage structure for the dumpster and concrete pad graded with inlet connected to the SS systems.	
7-9 (Source Control Table)	Enclosures for all rooftop mounted equipment to prevent pollutant contamination of runoff.	
7-9 (Source Control Table)	Roofing, gutters, or trim made of copper or unprotected metals that may leach into the runoff will not be permitted.	

VIII. CERTIFICATIONS

The selection, sizing, and preliminary design of stormwater treatment and other control measures in this plan meet the requirements of Regional Water Quality Control Board Order R2-2015-0049, NPDES Permit No. CAS612008.

Sharatchandra Bandugula

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