Green Infrastructure Operations and Maintenance Plan for [SCHOOL NAME]

[ADDRESS]

The SFPUC and District agree to the following terms for the Operations and Maintenace of green infrastructure at **[SCHOOL NAME].**

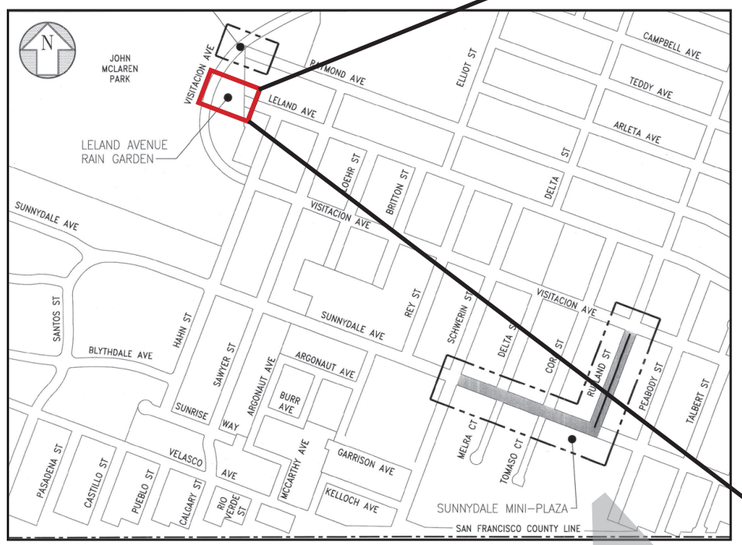
- Summary of agency responsibility for maintenance and proposed maintenance plan, including agreed upon level of service for each BMP type proposed
- Estimated labor hours and associated costs
- Formal start and end dates for the maintenance period
- Annual reporting requirements, if applicable

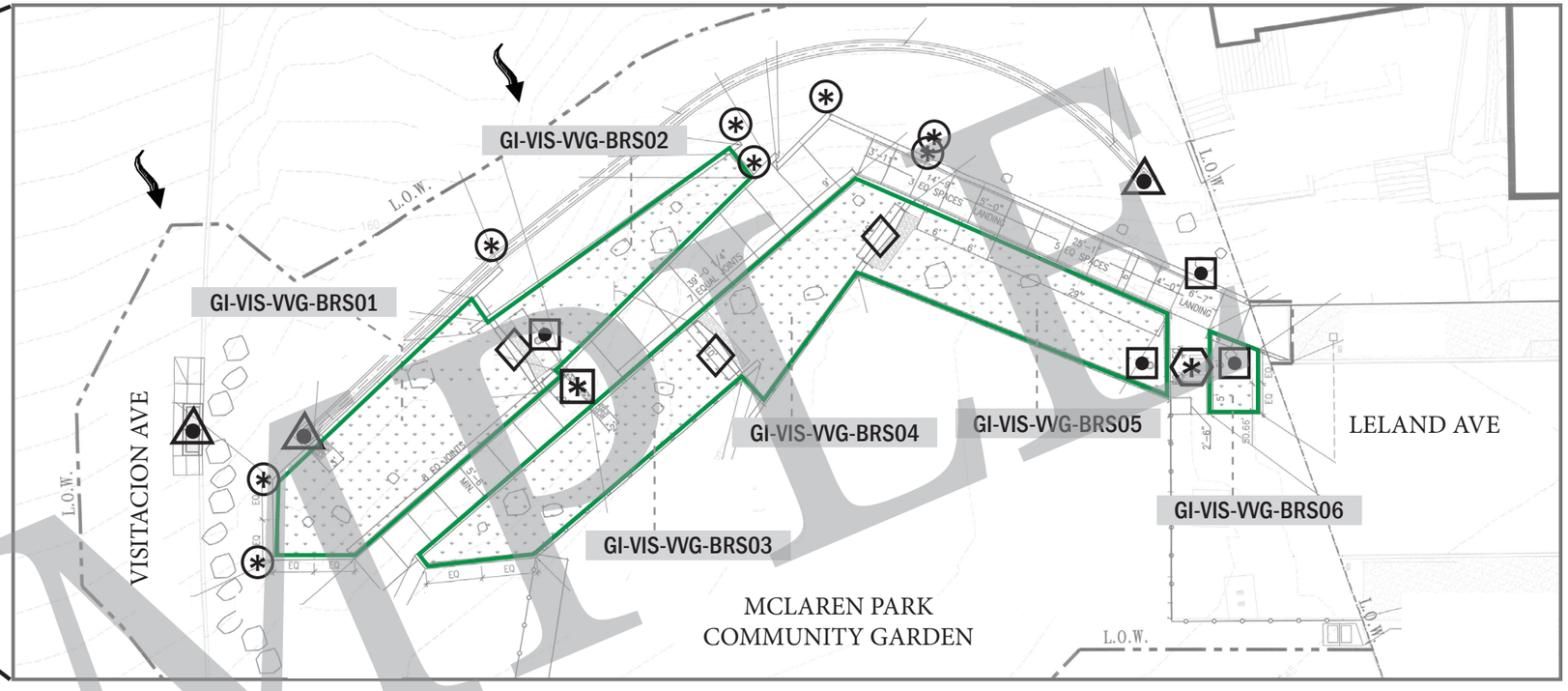
Maintenance Responsibility Table for Typical BMP Components

Maintenance Category	Frequency	Maintenance Activities	BMP Component
(PM) Typical / Preventative Maintenance *PM is a set of maintenance activities performed on Green Infrastructure at predetermined intervals or according to prescribed criteria before the occurrence of a failure. These activities are intended to protect the installation, reduce the probability of failure and prevent or eliminate the degradation of the functions of the installation.*	**Quarterly**	Hand water, Prune & Trim	Planting
		Remove Weeds and Litter	Planting and Mulch
		Spot Mulch	Mulch
		Clean obstructing debris & sediment	Underdrain and cleanouts
			Bubbler structure
			Street inlet structure
			Splash pad / forebay
			Street curbcut inlet
			Street curbcut outlet
			Culvert/inlet pipe
(RM) Remedial Maintenance *RM is performed as required, on a scheduled or unscheduled basis in order to keep the installation in proper operating condition. This maintenance consists of a set of activities that are performed to eliminate an identified source of potential failure before that failure occurs. A type of remedial maintenance is condition-based predictive maintenance, which depends on continuous or periodic condition monitoring of the installation to detect and identify the signs of potential failure.*	**Annually**	Replace periodic dead plants	Planting
		Re-mulch	Mulch
		Shallow Aeration / Tilling	Soil media
		Snake or jet pipe	Underdrain, cleanouts & culvert
		Deep aeration	Soil media
		Replace missing or eroded material	Soil media and mulch
		Remove Contaminants / Spills	Planting, Mulch, Soil Media, Drain Rock
		Re-level if unwanted ponding occurs	Splash pad / forebay
(CM) Corrective Maintenance *CM is maintenance which is required when a portion or component of an installation begins to fail or has failed. Corrective maintenance keeps the installation in working order, or corrects a failure of a component of the installation that has occurred or is in the process of occurring. This activity may consist of repair, restoration or replacement of individual components of the installation, not the entire installation. A type of corrective maintenance is Emergency Maintenance- corrective maintenance carried out as fast as possible in order to bring failed components of an installation back to a safe and operationally efficient condition.*	**As-Needed**	Repair broken pipe	Culvert and Underdrain and cleanouts
		Repair damaged frame and/or grate	Bubbler structure
			Street inlet structure
			Cleanouts
		Repair concrete chips and cracks	Street curbcut inlet
			Street curbcut outlet
			Concrete splash pad / forebay
			Concrete curb walls
			Check dams
		Remove & replace clogged material	Aggregate rock storage layer
(R&R) Replacement and Rehabilitation *R&R is the reconstruction and replacement action performed on an installation after the occurrence of a failure of the entire installation. The goal of R&R is to rebuild the installation to its original condition and reestablish the designed performance levels of the installation. A type of R&R is breakdown maintenance, which is maintenance performed after the occurrence of an advanced catastrophic failure of the entire installation. R&R is different from Corrective Maintenance in that its activities affect the entire installation, not just components of the installation.*	**As-Needed**	Re-level concrete pad	Splash pad / forebay
		Replant entire system	Planting
		Excavate & replace entire component	Soil media
			Check dams
			Aggregate rock storage layer
			Underdrain and cleanouts
			Street curbcut inlet
			Street curbcut outlet
			Culvert/inlet pipe
			Concrete splash pad / forebay
			Concrete curb walls
			Bubbler structure
Custodial Maintenance	**Quarterly or As-Needed**	Remove Litter & Graffiti	Bioretention Planters
			Concrete Surfaces
			Signage & Accessories

Visitacion Valley Green Nodes

LELAND AVENUE RAIN GARDEN





SFPUC Green Infrastructure Assets

Total Area of LID	2,747 sq. ft.
Number of Bioretention Cells	6

Legend

GI-XXX-XXX-XXX##	Maximo Facility ID
▭	Bioretention System
⤳	Flow Direction
◇	Check Dam
▲	Inlet Structure
◉	Overflow Area Drain
✱	Underdrain Cleanout
✱	Trench Drain
✱	Sandtrap

N

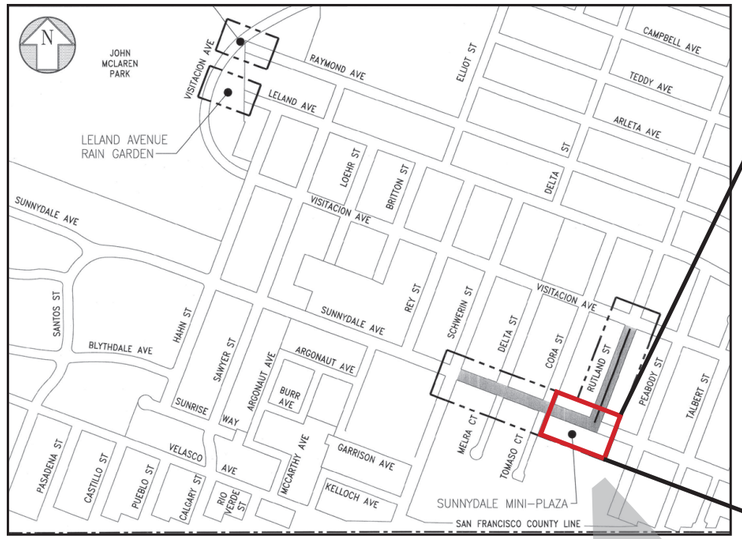
0 8 16 24 feet

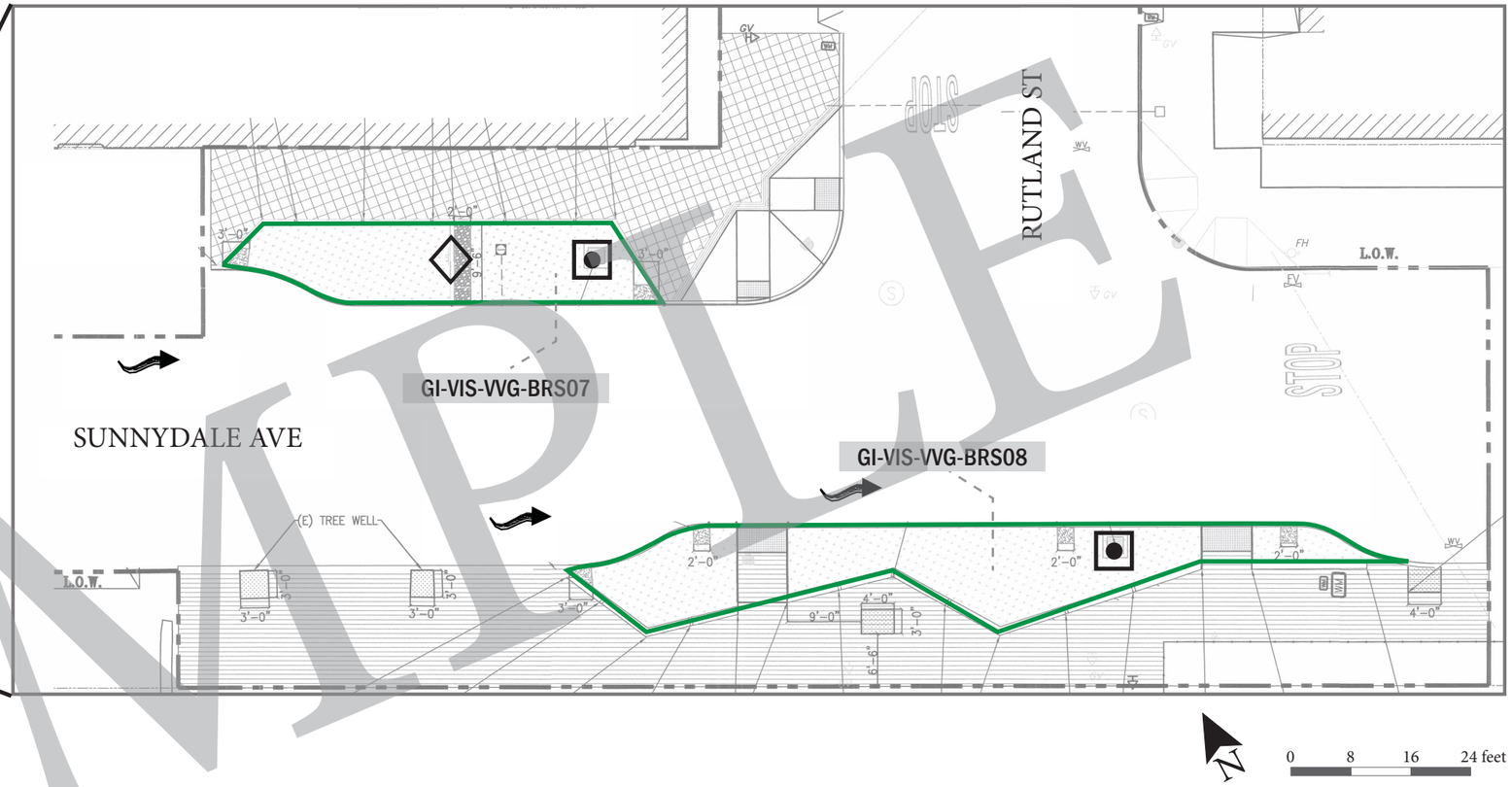
Leland Avenue Rain Garden GI Maintenance Requirements

ACTIVITY	monthly	semi-annually	annually		as needed APPROX. 3-5 YEARS
	• Remove litter. • Remove weeds. • Trim vegetation as needed to maintain desired appearance.	• Remove debris from inlets and outlets. • Remove sediment/silt accumulations. • Add mulch to bare areas.	• Replace dead or diseased plants. • Regrade soil surface if erosion, scouring or settling has occurred. • Prune vegetation that inhibits line of sight at intersections. • Prune or remove vegetation that interferes with facility O&M.	• Test to ensure proper irrigation system function and sprinkler head adjustment-make appropriate repairs (at end of rainy season). • Repair any rodent borrowing damage and eradicate rodents.	• Aerate soil to ensure proper drain time. • Re-mulch.

Visitacion Valley Green Nodes

SUNNYDALE AVENUE MINI-PLAZA





SFPUC Green Infrastructure Assets

Total Area of LID	998 sq. ft.
Number of Bioretention Cells	2

Legend

GI-XXX-XXX-XXX##	Maximo Facility ID
	Bioretention System
	Flow Direction
	Overflow Structure
	Check Dam

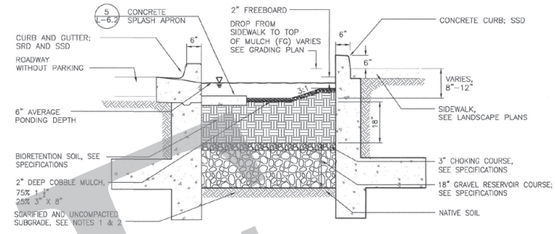
Sunnydale Mini-Plaza GI Maintenance Requirements

	monthly	semi-annually	annually		as needed APPROX. 3-5 YEARS
ACTIVITY	• Remove litter. • Remove weeds. • Trim vegetation as needed to maintain desired appearance.	• Remove debris from inlets and outlets. • Remove sediment/silt accumulations. • Add mulch to bare areas.	• Replace dead or diseased plants. • Regrade soil surface if erosion, scouring or settling has occurred. • Prune vegetation that inhibits line of sight at intersections. • Prune or remove vegetation that interferes with facility O&M.	• Test to ensure proper irrigation system function and sprinkler head adjustment-make appropriate repairs (at end of rainy season). • Repair any rodent borrowing damage and eradicate rodents.	• Aerate soil to ensure proper drain time. • Re-mulch.

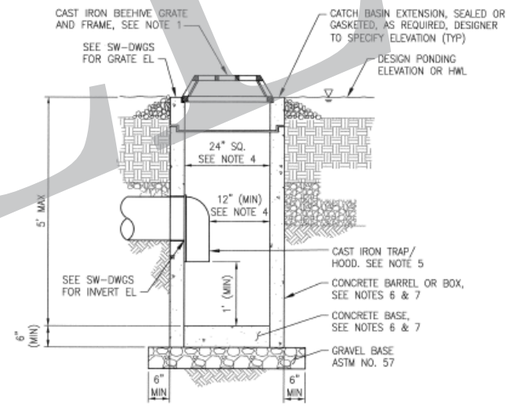
Bioretention System Maximo Asset ID

Asset Type	GI-VIS-VVG-BRS01	GI-VIS-VVG-BRS02	GI-VIS-VVG-BRS03	GI-VIS-VVG-BRS04	GI-VIS-VVG-BRS05	GI-VIS-VVG-BRS06	GI-VIS-VVG-BRS07	GI-VIS-VVG-BRS08
Checkdam	CKDM-0126	--	CKDM-0127	CKDM-0128	--	--	CKDM-0129	--
Aggregate	DAGM-0066	DAGM-0067	DAGM-0068	DAGM-0069	DAGM-0070	DAGM-0071	DAGM-0072	DAGM-0073
Distribution Pipe	EQDP-0022	EQDP-0023	--	--	EQDP-0024	EQDP-0025 to 28	--	--
Inlet Structure	INLS-0014, -0015	--	--	--	--	INLS-0016, -0017	--	--
Irrigation	IRRG-0041	IRRG-0042	IRRG-0043	IRRG-0044	IRRG-0045	IRRG-0046	IRRG-0047	IRRG-0048
Media	MDIA-0065	MDIA-0066	MDIA-0067	MDIA-0068	MDIA-0069	MDIA-0070	MDIA-0071	MDIA-0072
Overflow Structure	--	OVFS-0013	--	--	OVFS-0014	OVFS-0015	OVFS-0016	OVFS-0017
Trench Drain	--	--	TRDR-0015	--	--	--	--	--
Underdrain	UNDR-0023	UNDR-0024	UNDR-0025	UNDR-0026	UNDR-0027	--	--	--
Sand Trap	--	--	--	--	--	SDTP-0001	--	--
V-Ditch	--	--	--	--	--	VDCS-0001	--	--
Backflow Preventer	--	--	--	--	--	BFPR-8015	BFPR-8014	--

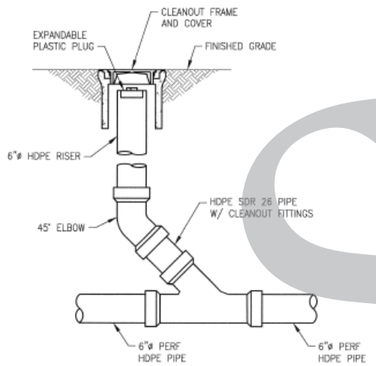
Sunnydale Avenue Bioretention Cross-Section



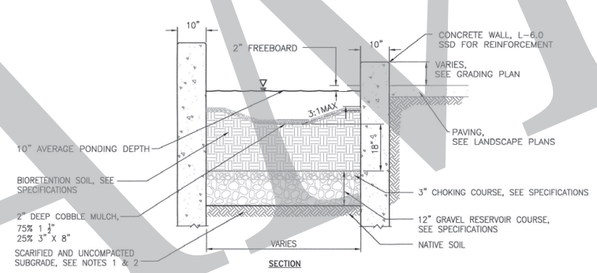
Sunnydale Avenue Overflow Structure



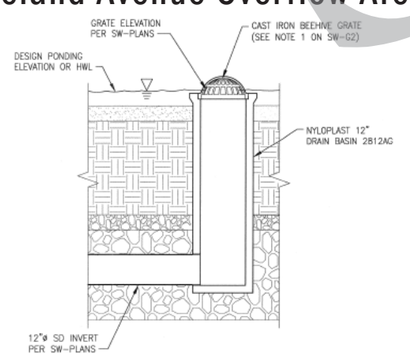
Leland Avenue Cleanout



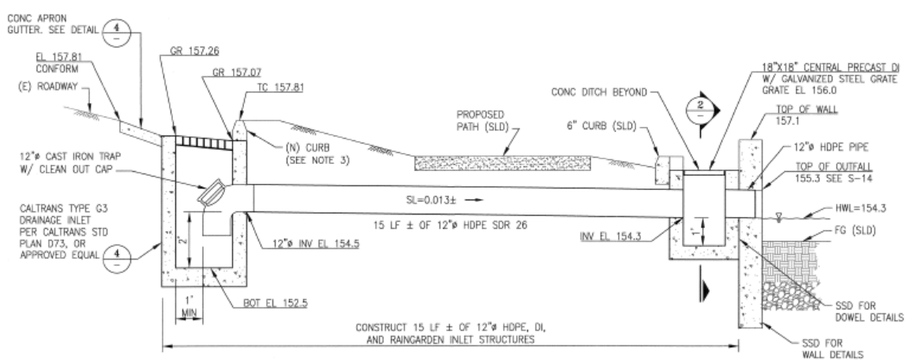
Leland Avenue Bioretention Cross-Section



Leland Avenue Overflow Area Drain



Leland Avenue Inlet Structure Cross-Section



Leland Avenue Sandtrap