SITES® v2 Site Maintenance Plan Worksheet

P8.1: PLAN FOR SUSTAINABLE SITE MAINTENANCE

PROJECT NAME

HP Inc. Boise, Idaho Campus

PROJECT ID#

567

INSTRUCTIONS:

1. Complete using an integrated design team, including the maintenance contractor or manager

Maintenance Plan Topics	Required actions to achieve 10-year desired outcome			10-year desired outcome
	Maintenance activities	Specialist required	Timeline/ Schedule	
WATER				
Stormwater features and BMPs effectiveness (Required component of P3.1, C3.3, C3.5) Describe the proper maintenance activities to ensure continued effectiveness of stormwater features and BMPs (e.g., replacement of vegetation, removal of accumulated sediment load).	Accumulated sediment will be removed from the ponds that decreases the capacity to store stormwater and irrigation system water. Pond inlets and outlets will be cleared of debris to prevent clogging.	There is currently not a specialists needed for this aspect. However, if there appears to be storage capacity issues in the future an engineer may be used to determine maintenance requirements.	Frequent monitoring (1/month for debris and 1/year for sediment accumulation) will take place to ensure the overall health of the ponds and stormwater conveyance system.	Maintain pond system in current condition over a 10-year period.
Water treatment (Required component of C3.3, C3.4, C3.5) Describe the process for treating water features, if present (e.g. avoiding chlorine or bromine).	Currently, the water that is running off into the contained, on-site storm drains is being treated naturally in the detention ponds through sedimentation and vegetative biofiltration. Over time, the vegetation might need to be replaced or have more types of biofiltration vegetation added to the system, but that will be addressed on an at-need basis.	There is currently not a specialists needed for this aspect. However, there might be a need for one in the future if needed.	Continual, frequent monitoring will continue to take place to ensure the overall health of the irrigation system and all components involved in watering the landscape.	HP will continue to not allow any chlorine or bromine into the outdoor water system. There will be treatment of water systems on the site over a 10-year period.
Water quality (Required component of C3.3, C3.4, C3.5, C3.6) Describe the appropriate maintenance activities designed to reduce the exposure to and the mobilization and transport of pollutants in runoff.	Stormwater from the parking areas run into the ponds onsite. This stormwater may carry motor oils and petroleum products into the ponds. Accumulated sediments in the ponds may contain hazardous materials.	An environmental specialist should be hired to test the pond water quality and sediment quality.	Water and sediment quality testing should be performed on an annual basis.	No increase in pollutants in water or sediment quality over a 10-year period.
Irrigation allotment and schedule (Required component of P3.2, C3.4) Describe the anticipated watering schedule (frequency and duration) that allows the site to meet annual volume requirements and restrictions.	The landscape contractor, Trautman Lawn and Landscape, will be monitoring the overall health of the native seed mix (as well as the rest of the campus). They will perform any maintenance needed to ensure the prescribed water allotment and schedule is being maintained.	Yes, the landscape maintenance contractors who are in charge of controlling the irrigation clock are considered specialists in their respective field.	Starting in the spring of 2017, the long-term maintenance plan will be to Irrigate the native grasses every 10 to 14 days, and adjust as necessary. A log of the irrigation allotment and schedule will be kept on a seasonal basis every year.	Over the course of a 10-year period the irrigation schedule will fluctuate with the induction of more native and low-water demanding grasses and plants. At the end of a 10-year period we are hoping to achieve a reduction in overall water consumption by 90% based on the amount of water that was initially in demand for the 'traditional' landscape that HP has had over the many daces of their presence in their Boise, Idaho location
Irrigation water source (Required component of P3.2, C3.4) Describe the process for maintaining non-potable water sources used for landscape irrigation (e.g. rainwater harvesting, graywater systems).	The water that is used to irrigate the landscape is being pulled from the exisiting stormwater ponds on site. All stormwater runoff is collected in an underground pipe drainage system. From here the water is directed into the detention ponds where it is then pumped into the existing irrigation system to water the landscape. Water is also collected from an irrigation canal to fill the ponds during the dry summer months.	There is not a specialist required for this, however, Truatuman Lawn and Landscape will be monitoring this system as part of their maintenance contract.	This system of irrigation has been in place and utilized for decades, and will continue to be the sole source of water for the irrigation on site.	The desired 10-year outcome is just to maintain the overall health of the natural holding ponds for the irrigation water, and the overall irrigation system. The irrigation water intake from the canal will be reduced with the change to xeric landscape vegetation.
Temporary Irrigation (Required component of C3.4) Describe the process for disconnecting/ removing temporary irrigation systems, if present, after the plant establishment period.	The existing irrigation system will remain in place. The overall runtime will be reduced to meet the new demands of the native, low-water requirement vegetation.	Yes, the landscape maintenance contractors who are in charge of controlling the irrigation clock are considered specialists in their respective field.	The establishment period for the vegetation is an adaptive 2-3 years. During the completion of the establishment period the water requirements should be reduced by 81% based on the calculations produced from the Water Budget Calculator.	Although a completely self-sustainable, waterless landscape might not be 100% obtainable, a very low use water landscape will be achieved through the further introduction of native, low-water use plants throughout the remainder of the site.

Maintenance Plan Topics	Required actions to achieve 10-year desired outcome			10-year desired outcome
	Maintenance activities	Specialist required	Timeline/ Schedule	
SOIL STEWARDSHIP				
Soil amendments and fertilizers **(Required component of P4.1,C6.7, P7.3, C7.4, C8.4)** Describe the process for identifying soil deficiencies, including conducting soil test(s) prior to adding amendments and fertilizers. Specify use of the least harmful amendments (such as compost) when necessary.	A soils test was performed prior to the construction process and an additional soils test after the construction process. The results of the soils test provide a recommended rate of fertilizer based on the chemical	A soil scientist will be used to evaluate the health of the soil.	A monitoring plan will be in place to ensure the success of the overall project. The frequency of the soils test will be based on the monitoring plan.	Currently, the health of the soils on site are very well suited for vegetative growth. After a period of 10 years we would like to maintain or even improve the overall soil health.
Use of fertilizers **(Required component of P4.1, P4.2, C6.7, C8.4)** Describe the process for applying fertilizers (only if needed) to ensure that application is effective and prevents harm to environmental and human health.	The use of fertilizers will be administered by a licensed professional through the landscape contractor at a time and rate appropriate to the needs of the soil.	Yes, a licenses professional will administer the fertilizer.	This will be addressed on an at-need basis.	It is our hopes that at the end of a 10-year period that the native plantings will no longer require fertilizers or supplements.
Erosion and compaction **(Required component of P4.1, P7.3, C7.4)** Describe the process for alleviating soil erosion or compaction (due to site use or maintenance) that is detrimental to plant health.	There is no foreseeable soil erosion or compaction to take place on site that will disrupt the soil porosity for water infiltration.	No, If need be then a soil scientist will be brought in.	Any erosion that occurs on site will be addressed on an as-need basis. Due to the lack of topography on site, there are no foreseeable issues regarding erosion and compaction.	At the end of the 10-year period, we believe there will not be any erosion or compaction events.

Maintenance Plan Topics	Required actions to achieve 10-year desired outcome			10-year desired outcome
	Maintenance activities	Specialist required	Timeline/ Schedule	
VEGETATION				
Plant health care **(Required component of C3.5, C3.6, P4.3, C4.4, C4.5, C4.6, C4.7, C4.8, C4.9, C4.10, C4.11, C6.7, C8.3, C8.4)** Describe the process for maintaining vegetation, including food producing gardens, according to long-term plans for the site and adhering to recognized standards for professional horticultural practice. Describe the process for monitoring plant health to prevent problems. Provide a list (include common and scientific names) of potential appropriate, noninvasive plants that can be used for any plant replacement for replacing plants. When replacing plants, consider maintenance needs of plants and design style.	During the scheduled maintenance, the landscape contractor will be evaluating the overall health of the individual plants, grasses and trees on site. During the establishment period, there might be a need to re-seed the native grass mix in spot locations on site. In this event, the seed dispersal will be done through hand broadcasting. Any vegetation replaced will be replaced with the same species of vegetation.	Please consult with the landscape architect, Stack Rock Group, for any plant replacements.	The site will be monitored on a bi-annual basis (spring and fall) to determine the health of plants and if any replacement is required. For the native seed mix, each fall it will be mowed to a 4 to 6 inch stubble height. The native seeding should be irrigated each spring from mid-April to early June. Irrigate every 10 to 14 days and apply approximately ½ to ¾ inch of irrigation water per irrigation. Natural rainfall plus irrigation should total approximately 14 to 16 inches of total moisture.	At some point, year 3 or later, we may want to establish forb (wild flower) plants. This will probably require planting established plants in the early spring. At the end of the 10-year period we recognize that there might be a need to replace a plant every now and then, but our goal is to have a mature, sustained landscape that contributes towards the overall health of the ecosystem on campus.
Healthy plant material management **(Required component of C6.7, C8.3, C8.4)** Describe the process for managing excess organic plant material generated on site (e.g., composting, recycling). Plan and schedule for harvest of food producing gardens.	Trautman Lawn and Landscape retain all vegetative clippings and matter generated by site maintenance on site for composting. This compost is returned to the site in planter beds and other appropriate locations within the HP campus.	Trautman Lawn and Landscape are the on-site composting specialists for HP.	Every time landscape maintenance is performed on site, Trautman Lawn and Landscape compiles all the vegetative clippings into a designated location for the composting to take place. During the initial establishment period, the native grass mix will not be mowed to establish a mature root structure. After this establishment period, the native grass will be mowed infrequently and only on an at-need basis.	Due to the already sustainable nature of this composting practice, we do not foresee much change in the practice of vegetative composting at the HP Boise, Idaho campus.
Diseased and invasive plant disposal **(Required component of P4.2, C7.6, C8.3)** Identify the proper techniques for addressing dead, diseased, invasive, or pest-infested vegetation in a manner that does not increase the likelihood of spread.	During the scheduled maintenance, the landscape contractor will be evaluating the overall health of the individual plants, grasses and trees on site. This includes the identification of any plants that are not intended to be on site. Invasive plants with percentages over 20% in an area will be removed from the site.	In the event of an invasive plant species on site, Trautman Lawn and Landscape will spot treat each individual plant to ensure the localization of potential seed dispersal. Additionally, any pests identified on site will be removed from site.	The landscape will be monitored each month during the growing season by Trautman Lawn and Landscape.	At the end of the 10-year period HP intends to have retained their invasive plant policy of spot treating individual plants and pests.
Site safety **Required component of C4.11, C8.3, C8.4)** Describe the process for maintaining vegetation to ensure site safety and meet the needs of the intended uses of the site. Describe the process for managing vegetative biomass to reduce the risk of catastrophic wildfire. If prescribed fires are to be used, describe a burn plan that is similar in technique, frequencies and intensities to natural fire regimes in the ecosystem.	The planting plan was designed with plant maturity for their respective location. Trimming, pruning and mowing will take place as needed.	A specialist is not needed for this aspect of the Site Maintenance Plan.	Scheduled maintenance of the landscape is an important aspect to the overall happiness of the site users. Additionally, scheduled mowing, pruning and trimming of the vegetation helps to reduce any on-site fuels in the event of a fire.	Scheduled maintenance will continue to be in place at the end of the 10-year period.
Pest management **(Required component of P4.2, C6.7, C8.4)** Describe how pest, diseases, and any unwanted species of plants and animals will be controlled using Integrated Pest Management (IPM) techniques.	Pests are managed on site by the landscape contractor, Trautman Lawn & Landscape, and their certified professionals. Any pest that has been identified on site will first be removed with biological means before the use of chemicals, if necessary.	General Pest Licensed Professional through Trautman Lawn & Landscape Company.	Pest management will be addressed as needed through a collaborative process with Trautman Lawn & Landscape, the site facilities manager, and a licensed or certified profession in that respective field.	Although it is known that a complete elimination of pests on site at the end of a 10-year period is not totally realistic, it is within Trautman Lawn & Landscape's best efforts to create such a scenario.
Invasive species list **(Required component of P4.2)** Provide a list (include common and scientific names) of plant species identified in the area according to Regional lists, State Noxious Weeds laws, and Federal Noxious Weeds laws.	Those who maintain the site will be provided with a list and images of any invasive species that have been identified on site. This list will consist of weeds identified on the Idaho Noxious Weed Management and Control Program and any other weed species that would prevent native plants from surviving. From here, the landscape maintenance company will spot treat any invasive species to reduce the possibility of seed dispersal.	In the event of an invasive plant species on site, Trautman Lawn and Landscape will spot treat each individual plant to ensure the localization of potential seed dispersal.	The landscape will be monitored each month during the growing season by Trautman Lawn and Landscape. Weeds may be sprayed the second year using herbicides that will not kill grass (do not use Roundup or another equivalent herbicide).	At the end of the 10-year period HP intends to have retained their invasive plant policy of spot treating individual plants and pests.
Invasive Management Plan **(Required component of P4.2, C8.4)** Provide an active multi-year invasive species management plan for control and subsequent management of any plant species included in the row above, including: IPM strategies, procedure for identifying and monitoring for additional invasive species, procedure for adding new species, treatments, long-term control including monitoring, and methods to dispose of invasive plant materials.	The landscape contractor, Trautman Lawn and Landscape, will be monitoring the overall health of the native seed mix (as well as the rest of the campus) to ensure minimal opportunities for invasive species to exist on site. They will perform localized maintenance as needed to remove any invasive species once identified.	Yes, Trautman Lawn & Landscape company has certified professionals on staff that will identify any and all invasive species that are present.	Routine maintenance will provide opportunities for the removal of invasive species.	While it is recognized that a full elimination of invasive species might be completely realistic, the established seed mix will help to drastically reduce the opportunity for invasive species to exist on site. At the end of the 10-year period we hope to see a significant reduction in the number of invasive species identified and removed.

Maintenance Plan Topics	Required actions to achieve 10-year desired outcome			10-year desired outcome
	Maintenance activities	Specialist required	Timeline/ Schedule	
MATERIALS MANAGEMENT				
Materials replacement **(Required component of P5.1, C5.4, C5.5, C5.6, C5.7, C5.8, C5.9, C5.10, C6.8, C8.5)** Provide a list of preferred characteristics for replacement materials (e.g., materials from local and regional sources, recycled content materials, certified wood, energy-efficient lighting)	Any material that needs to be replaced will be done at the advice of Stack Rock Group, Trautman Lawn and Landscape and HC Company, respectively.	Please consult with the landscape architect, Stack Rock Group, for any plant replacements.	This will be addressed on an at-need basis.	At the end of the 10-year period, the overall health and vitality of individual plants, grasses and trees will be self-sustaining. Attempts to reduce any plant causalities will be done through continual monitoring from the landscape contractor.
Functionality and extended use **(Required component of C5.2, C5.3, C5.4, C5.8)** Describe the process for repairing and maintaining structures and paving in a way that reduces harm to environmental and human health (e.g. use of low-emitting adhesives) and ensures the effectiveness of the material (e.g., clean pervious surfaces)	All maintenance activities will be done to minimize the need for major repairs or renovations and taken care of as soon as possible so all systems function properly. The buildings are all designed with pre-cast concrete, metal panels and stucco to be low maintenance. Parking lots will be kept clean to decrease vehicular debris out of the storm drains.	No	Any maintenance to all structures and hardscapes on site will be addressed as needed and as each issue arises.	No major issues are to occur in the foreseeable, 10-year future.
Site safety **(Required component of C5.2, C6.2, P8.2, C8.3, C8.4)** Describe the process for repairing and maintaining structures and paving that reduces harm to environmental and human health and ensures site safety and that meets the needs of the intended uses of the site. Describe the process for properly disposing of harmful materials.	Repairing and maintaining structures and paving will be done by means in which there are no ways for debris to contaminate the surrounding areas, water ways and air. Hazardous materials will be labeled as needed and properly disposed of based on the type of material in acceptable facilities.	No	Site safety is monitored daily by the site facilities manager. If there is something that is compromising the safety of site users, then it will be addressed and corrected immediately.	No maintenance or repairs have in any way affected the environment or detracted from the intended use of the site.
Historic buildings, structures, objects and cultural landscapes **(Required component of C4.5, C5.2, C6.1)** Describe the process for maintaining the integrity of historic buildings and structures and cultural landscapes. Process to include detailed specifications related to the repair or replacement of features and any maintenance work to be documented for records. Describe the process for determining how conflicts between historic and environmental concerns will be addressed.	There are currently no historic buildings, landscape or otherwise on site.	No	NA	NA
Recyclable materials **(Required component of P8.2)** Describe the process for managing and recycling all paper, glass, plastics, and metals that will be generated on site.	Waste receptacles are located all over the site for gathering recyclable materials. The site facilities and maintenance team continually monitors these containers and disposes of the materials with various vendors for recycling based on the type of materials.	No, the recyclable products will be collected by Republic Services and recycled off site.	This service will be provided on an continual basis.	Increase the amount of materials being diverted from the landfill to decrease the amount of waste as much as possible.
On-site food waste **(Required component of C6.7, C8.3)** For sites that generate food waste, describe the process for on-site collection of compostable organics to prevent them from entering the municipal solid-waste stream.	Currently, the on-site food waste is not in place.	No, if they decide to compost the food waste on site, the landscape contractor will be responsible for this, unless otherwise expressed.	There currently isn't any system in place to accommodate for on-site food waste to be composed. There might be a demand for this in the future, in which HP will address the functional needs of this program to set it in place.	In the past, HP has attempted to run a successful food waste composting program. However, they were unsuccessful for various reasons. At the end of this 10-year period, HP would like to have this program back in place with all of the previous issues worked out.

Maintenance Plan Topics	Required actions to achieve 10-year desired outcome			10-year desired outcome
	Maintenance activities	Specialist required	Timeline/ Schedule	
SENSITIVE SITE FEATURES				
Conserve aquatic ecosystems (Required component of P1.2, P1.3, C3.5, C3.6) Indicate the maintenance techniques and describe the monitoring activities that will ensure proper aquatic ecosystem function remains.	The aquatic systems on site do not support aquatic life. There is little maintenance that is required for the ponds, and comes in the form of general evaluations of the irrigation pump.	There isn't a need for a regular biologist on site to monitor the ponds due to their lack of ability to support aquatic life. If this changes, then a biologist will be brought on to provide recommendations and best management practices for the aquatic life.	Trautman Lawn and Landscape will visually monitor the health of the detention ponds.	In the event of an introduction of aquatic life to the detention ponds, HP and their landscape contractor will provide the necessary environment to secure the health of the aquatic life.
Conserve habitats for threatened and endangered species (Required component of P1.4, C4.7) Describe the process for avoiding impacts during site maintenance to threatened and endangered species and their habitats.	There are currently no threatened or endangered species on site. However, if they are any that become identified then the appropriate steps will be taken to provide habitats necessary for their survival.	There is a potential for a biologist to be brought in in the event of the identification of any threatened or endagered species.	This will be addressed on an at-need basis.	The monitoring of threatened and endangered species will continue. By the end of the 10-year period if there are any threaten or endangered species that are present on site, their habitats will be preserved from any activity.
Maintain Vegetation and Soil Protection Zones (Required component of P1.1, P1.2, P1.3, P1.4, P2.3, P4.1, C4.4, C4.5, C4.6, C4.7) Describe ongoing management activities to protect the integrity of vegetation and soil protection zones.	The 'Prime Farmland' will remain as farmland and free of any type of development. The 'Special Status Vegetation' will remain on site with continual monitoring of their individual health. Pruning of the special status vegetation will be done as needed by an arborist.	A botanist might need to be brought in to help evaluate any special status vegetation that shows any signs of declining health. Pruning of the special status vegetation will be done as needed by an arborist.	The special status vegetation will be monitored as part of the maintenance contract on a bi-annual (spring and fall) basis. All pruning will be done by an arborist as needed.	At the end of the 10-year period, HP hopes to retain all the special status vegetation on site. Although we realize that this might be beyond our control, continual monitoring and maintenance of the vegetation will help to reduce any mature tree casualties. The prime farmland on site will continue to produce food for local livestock.

Maintenance Plan Topics	Required actions to achieve 10-year desired outcome			10-year desired outcome
	Maintenance activities	Specialist required	Timeline/ Schedule	
LANDSCAPE MAINTENANCE EQUIPMENT				
Equipment maintenance **(Required component of P4.2, C8.7)** List the types of equipment (manual, electric, low-emitting, or gasoline powered) used on site. Describe the process for maintaining equipment. Include a description of the process for cleaning equipment to remove invasive species to prevent transport to other sites.	All landscape equipment will be maintained per manufacture's specifications.	A mechanic will be used when any piece of equipment malfunctions. This will be addressed on an at-need basis.	All maintenance equipment that is used to maintain the landscape is stored onsite. This reduces the risk of any kind of invasive species from being transported into the site. Equipment will be hand cleaned on an as-need basis.	Equipment maintenance standards might increase in a 10-year period due to increases in technology. This lends itself to the assumption that the landscape maintenance equipment will also be updated as aging equipment becomes less functional overtime.
Site user experience **(Required component of C6.4, C8.4, C8.7)** Describe the maintenance schedule that minimizes users' exposure to noise, localized air pollution, and other disturbances.	The campus landscape will be maintained during business hours when practically all site users will be in their respective buildings. A schedule of the landscape maintenance will be made public to reduce their exposure to the noise and equipment emissions.	There is not a specialist required for this, however, Truatuman Lawn and Landscape will be monitoring this as part of their maintenance contract.	All landscape maintenance, regardless of the season, will take place during times which will not affect the site users health or contribute negatively to their experience; such as pollutants from landscape maintenance equipment.	The maintenance portion of the site might change and develop over the next 10 years as the landscape evolves from a 'traditional' high-water usage landscape into a native low-water usage landscape. With more turf grass being removed over time the user experience will also change. Ideally, the site users experience will be one that is more grounded in nature.
SNOW AND ICE				
Managing snow/ice (for sites receiving snow/ice) **(Required component of P1.2, P1.3, P1.4, P3.1, C3.3, C3.5, C3.6, C6.2)** Describe the process for managing snow/ice in ways that limit degradation of water quality and surrounding plants and soil health. Also, describe the process for stockpiling areas and managing any snow-melt that will be used as a water source on site.	Trautman Lawn and Landscape maintains the campus throughout all seasons. During the snowy, winter month the snow is plowed to an open parking lot and left to melt. The snowmelt is returned to the detention ponds where it will either return to the water table, evaporate or remain into the spring where it will be used to irrigate the campus.	There is not a specialist required for this, however, Truatuman Lawn and Landscape will be monitoring this system as part of their maintenance contract.	Snow removal and ice safety will be addressed on an at-need basis.	We do not foresee much change in the maintenance practices of snow and ice removal after a 10-year period.
ADAPTIVE MANAGEMENT				
Update Site Maintenance Plan **(Required component of P8.1)** Describe the process for reevaluating the maintenance plan on an annual basis, and revising as needed to adapt to future conditions and unforeseen changes.	The site maintenance plan was developed during a round-table discussion with all individuals who have been involved in the HP Sustainable SITES Initiative.	The specialists are considered to be those who have been working on the HP Sustainable SITES Initiative and will be involved in any revisions to the site maintenance plan, respectively.	The team has decided to evaluate the site maintenance plan on an annual basis. This is especially important for the first 3 years as the establishment period comes to an end.	At the end of the 10-year period, the site maintenance plan should be well established without much change due to the annual evaluation throughout the years.
OTHER MAINTENANCE-RELATED TOPICS				
Other Maintenance-Related Topics				