Engineers Planners Surveyors Landscape Architects Environmental Scientists

MASER CONSULTING P. A.

Stormwater Management Facility Operations & Maintenance Manual

FOR

Proposed Industrial Redevelopment

Block 70.01, Lots 1.01, 1.02, 4.02 & 4.03
Borough of Wallington
Bergen County, New Jersey

November 8, 2019

Prepared For

Umdasch Real Estate USA, Ltd.
214 Gates Road
Little Ferry, NJ 07643

Prepared By

Maser Consulting P.A.
50 Chestnut Ridge Road, Suite 101
Montvale, NJ 17645
845-352-0411

Jesse B. Cokeley, P.E.
New Jersey License No. 54006
MC Project # 14002631A

TABLE OF CONTENTS

PART I: PROJECT DETAILS

A. Introduction and Description of Facilities:

The subject property is located at 520 Main Avenue in Wallington, New Jersey, and is also known as Block 70.01, Lots 1.01, 1.02, 4.02, and 4.03 on the Borough of Wallington Tax Maps. The 26.10-acre site is currently comprised of several industrial buildings with appurtenant site improvements throughout and is primarily paved. The applicant proposes to demolish the existing buildings and construct three new buildings for warehousing and office with typical appurtenant site improvements.

Stormwater Facilities:

Due to the overall decrease in impervious coverage on site from the predevelopment to the post-development conditions, no stormwater detention systems are necessary, and no water quality systems are required for this project. However, there are proposed improvements to the stormwater conveyance system which includes pipes and inlets.

This manual consists of three parts. The first part includes the introduction, project description and a list of project contacts. The second part provides the operation and maintenance instructions for the facilities and equipment. The third part (appendix) provides information regarding the inspection and maintenance activities.

B. Project Contacts:

Borough of Wallington Building Department:

Address:	54 Union Boulevard, Wallington, NJ 07057
Attn:	Nick Melfi
Tel:	(973) 777-0318 ext. 7

Design Engineer:

Address:	Maser Consulting P.A., 50 Chestnut Ridge Road, Montvale NJ 07645
Attn:	Jesse Cokeley, P.E.
Tel:	(845) 352-0411

Party Responsible for Maintaining Stormwater Management Facility:

Property Owner:	Umdasch Real Estate USA, Ltd.
Attn:	Michael Lagace
Tel:	(201) 853-0551

PART II: INSPECTION AND MAINTENANCE:

A. Routine Inspection and Maintenance of the Stormwater Management Facilities:

All stormwater management facilities have been designed to control stormwater and reduce flooding and degradation of water quality. Without proper routine inspection and maintenance, the facilities may lose some or all of their capability to function to their full capacity. Lack of adequate maintenance at these facilities could lead to system failures.

A consulting Professional Engineer should perform regularly scheduled maintenance inspections of the stormwater facilities at least four (4) times each year. The primary purpose of these inspections is to ascertain the operational condition and safety of the facilities, particularly the condition of embankments, outlet structures, and other safety-related aspects. Inspections will also provide information on the effectiveness of regularly scheduled Preventative and Aesthetic Maintenance Procedures, and will help to identify where changes in the extent and scheduling of the procedures are warranted. Finally, the facility inspections should also be used to determine the need for and timing of Corrective Maintenance procedures.

Routine maintenance of these facilities should be separated into two (2) basic types: Functional Maintenance and Aesthetic Maintenance. Functional Maintenance is further broken down into two (2) categories: Preventative and Corrective. Aesthetic Maintenance, which is necessary to maintain the visual appeal and aesthetic quality of these facilities, should be incorporated in the same schedule as the preventative maintenance efforts. Listed below are the Preventative, Corrective and Aesthetic Maintenance Procedures to be performed on a routine basis:

1. <u>Preventative Maintenance Procedures</u>:

The purpose of Preventative Maintenance is to maximize the effectiveness of the stormwater management aspects of the facilities so that they remain operational and safe as often as practicable, and to minimize the need for emergency or corrective maintenance. These procedures are as follows:

a) Algae and Weed Growth:

Excessive algae growth can cause severe oxygen depletion, causing the development of anaerobic conditions. These low oxygen conditions will eventually result in the

emission of foul odors and other unpleasant side effects. Weeds associated with detention basins typically fall into three (3) categories: submergent, floating and emergent. All three (3) are typically found, to some extent, in a stormwater management system. However, excessive growth of any of these weeds can lead to problems. Submergent vegetation is the most difficult to detect and can cause the most significant problems with any water level control features.

Inlets should be evaluated regularly to determine whether excessive algae or plant growth is evident. Algae growth can often be attributed to the misuse of fertilizers on adjacent lands. A correction in the application of fertilizers can often solve these problems. Weeds, which have become a problem, should be cleared as necessary.

b) Removal and Disposal of Trash/Debris and Sediment:

All storm water management components expected to receive and/or trap debris and sediment must be inspected for clogging and excessive debris and sediment accumulation at least four times annually as well as after every storm exceeding one inch of rainfall. Such components may include bottoms, riprap or gabion aprons, trash racks and inflow points.

Removal of trash and debris will prevent possible damage to vegetated areas and eliminate potential mosquito breeding habitats. Debris and trash must be properly hauled off the site and transferred to an approved disposal site.

The inlets should also be evaluated for excessive deposition of sediment. Accumulated sediment should be removed before it threatens the storage volume of the inlets or blocks pipe openings. Disposal of discharged water and sediment must comply with all local, county, state and federal regulations. Only suitable disposal sites should be utilized. If stable soil conditions exist on site, sediment deposition should not be an excessive maintenance issue. Should a recurrent stabilization situation develop, the inspector should identify the upstream sources of sediment and recommend required stabilization measures.

c) Elimination of Potential Mosquito Breeding Habitats:

The most effective mosquito control program is one that eliminates potential breeding habitats. Almost any stagnant pool of water can be attractive to mosquitoes, and may become the source of a large mosquito population. A maintenance program dedicated to eliminating potential breeding areas is preferable to chemical means of controlling mosquitoes. The most important maintenance functions, is removal of all obstructions to natural flow patterns before stagnant water conditions can develop.

d) Parking lot maintenance:

This management measure involves employing pavement cleaning practices, such as parking lot sweeping on a regular basis, to minimize pollutant export to the stormwater conveyance system and eventually the receiving waters. These cleaning practices are designed to remove sediment, debris, and other pollutants from access drive and parking lot surfaces that are a potential source of pollution impacting urban waterways. Mechanical machines that use vacuum assisted dry sweeping to remove particulate matter shall be utilized as these have the ability to remove finer sediment particles. Parking lots and access drives shall be swept/vacuumed at least once a month. The disposal of the swept material must be properly hauled off the site and transferred to an approved disposal site. Other parking lot maintenance features include the use of on-site trash receptacle. These receptacles should be located in strategic areas where the majority of the pedestrian traffic occurs. These receptacles should be emptied daily. The disposal of the solid waste must be properly hauled off the site and transferred to an approved disposal site.

2. <u>Corrective Maintenance Procedures:</u>

a) Removal of Debris and Sediment:

Sediment, debris and trash which threaten the discharge capacity of the facilities should be removed immediately and properly disposed. It is recommended that all water be evacuated from the facilities before any significant amount of sediment, settled debris or trash is removed. The lack of an available disposal site should not delay the removal of trash, debris and sediment. Temporary disposal sites should be utilized if necessary.

b) Structural Repairs:

Structural damage to inlet structures, manhole structures, grates, access hatches, and roadways as a result of vandalism, flood events, settlement or other causes must be repaired promptly. The urgency of the repairs will depend upon the nature of the damage and its effects on the safety and operation of the facility. The analysis of structural damage and the design and performance of structural repairs should only be undertaken by the consulting Professional Engineer.

c) Snow and Ice Removal:

Accumulations of snow and ice can threaten the functioning of the stormwater conveyance system. Provision of the equipment, material and personnel to monitor and remove snow and ice from critical areas will assure the function of the facility during the winter months.

3. Aesthetic Maintenance Procedures:

a) Graffiti Removal:

The timely removal of graffiti will restore the aesthetic quality of the facilities. Removal can be accomplished by paint or other cover, or removal with scrapers, solvents or cleansers. Timely removal is important to discourage further graffiti and other acts of vandalism.

b) Grass Trimming/Landscape Maintenance:

The lawn areas around the facilities shall be mowed on a regular basis as necessary to maintain the lawn at a height of 2 to 3-inches. These areas shall also be fertilized twice a year, once in the spring and once in the fall. Fertilizer for lawn areas shall be 10-20-10 applied at a rate of 11 lbs. per 1,000 sf. or as determined by a soil test. Any bare, dead or damaged lawn areas shall be re-seeded in accordance with the original procedures as outlined in the Soil Erosion and Sediment Control Plans using the same mix and seeding rates. Stabilization of bare or damaged areas shall be done in a timely fashion so as to avoid exposing the soil to erosion.

If season prevents the re-establishment of turf cover, exposed areas should be stabilized with straw or salt hay mulch as described in the Soil Erosion and Sediment Control Plans until permanent seeding can be done. Seeding can be done between March 15th and June 15th and between September 15th and December 1st, only if adequate water is provided.

The shrubs around the inlet areas should also be maintained in order to promote a neat appearance and healthy, vigorous growth. All shrubs should be allowed to grow together in masses as shown on the plans and not pruned into individual plants. The planting beds should be mulched with hardwood mulch every two (2) years in order to provide a suitable growing medium for the shrubbery and to retain moisture around the root zones.

Pruning of shrubs should also be done on a regular basis to maintain the shape and appearance of the shrub masses. The height of the shrubs may vary according to the plants natural growth habits, but should not exceed 6-feet. Pruning should be done as necessary throughout the year to remove dead branches and to control new growth. Any pruning, other than the removal of dead branches, should be done in either late winter/early spring or after the shrub has flowered in the spring.

In the event that a shrub should experience more than 2/3 die back, it should be replaced in kind as soon as possible in either the spring or fall planting season. The replacement shrub should be the same species as the original and installed at the size and condition as specified on the original landscape plans. If, for any reason, a substitution of species or size must be made, it shall be subject to the approval of the project Landscape Architect.

The trees surrounding the inlet areas shall be maintained regularly to ensure good health and exhibit an attractive appearance. Their maintenance should include fertilization twice annually, with one application in the spring and another in early fall. The trees shall be pruned in the late winter or early spring. However, dead branches should be removed as soon as they are noticed. Care should be taken to avoid cutting off the central leader of a tree if one is present.

If a tree is severely damaged or experiences more than 2/3 die back, it should be replaced in either the spring or fall planting season, whichever comes first. The only exception to this is if the replacement tree has a fall transplanting hazard. Replacement trees should be planted at the same size and condition as specified on the landscape plans. Any tree or shrub maintenance, tree pruning or plant material substitution of species or size shall be subject to the approval of the project Landscape Architect.

c) *Control of Weeds:*

Although a regular grass maintenance program will minimize weed intrusion, some weeds will appear. Periodic weeding, either chemically or mechanically, will help to maintain a healthy turf, and keep grassed areas looking attractive.

The recording of all maintenance work and inspections provide valuable data on the facility's condition. Review of this information will also help to establish more efficient and beneficial maintenance procedures and practices. All recorded information should be directed to the owners of the stormwater facilities for review and subsequent follow-up on recommendations. Data obtained from informal inspections should be retained; however, this data does not have to be submitted to NJDEP.

4. Summary of Maintenance Procedures:

Preventative Maintenance

a) Algae and Weed Growth
b) Removal and Disposal of Trash/Debris and Sediment
c) Elimination of Mosquito Breeding Habitats
d) Parking Lot Maintenance

Corrective Maintenance

a) Removal of Debris and Sediment
b) Structural Repairs
c) Snow and Ice Removal

Aesthetic Maintenance

a) Graffiti Removal

b) Grass Trimming/Landscape Maintenance

c) Control of Weeds

B. Maintenance Equipment and Materials

1. Grass Maintenance Equipment

   a) Riding Mowers

   b) Hand Mowers

   c) Gas Powered Trimmers

   d) Gas Powered Edgers

   e) Seed Spreaders

   f) Fertilizer Spreaders

   g) De-Thatching Equipment

   h) Pesticide and Herbicide Application Equipment

   i) Grass Clipping and Leaf Collection Equipment

2. Vegetative Maintenance Equipment

   a) Saws

   b) Pruning Shears

   c) Hedge Trimmers

   d) Wood Chippers

   e) Aquatic Weed Harvester (owned/operated by subcontractor)

3. Transportation Equipment

   a) Trucks for Transportation of Materials

   b) Trucks for Transportation of Equipment

   c) Vehicles for Transportation of Personnel

4. Debris, Trash and Sediment Removal Equipment

   a) Loader

   b) Backhoe

   c) Grader

   d) Dredging Equipment

e) Portable Pump for Dewatering

f) Vacuum Truck for sediment removal within inlets & manholes

5. Miscellaneous Equipment

a) Shovels

b) Rakers

c) Picks

d) Wheel Barrows

e) Painting Equipment

f) Gloves

g) Hand Pushed Tilling Machine

h) Brooms

6. Standard Mechanics Tools

7. Tools for Maintenance of Equipment

8. Materials

a) Topsoil

b) Fill

c) Seed

d) Soil Amenities (Fertilizer, Lime, etc.)

e) Chemicals (Pesticides, Herbicides, etc.)

f) Mulch

g) Paint Removers

h) Spare Parts for Equipment

9. Parking Maintenance Equipment

a) Sweeping/Vacuuming Equipment

b) Trash Receptacles

c) Snow Plowing Equipment

d) Snow Shovels

C. Checklists and Logs

Appendices of this report contain sample checklists and logs regarding various aspects of the stormwater facilities maintenance and inspection. A brief description of the use of each form is listed below:

1. "Maintenance Work Order and Checklist" – a comprehensive form outlining both required and completed maintenance work.

2. "Maintenance Log" – a summary table for recording of all maintenance work at the site.

3. "Inspection Log" – a summary table for recording the results of all inspection of the basins and the dams.

D. Spill Prevention & Litter Control

All parties involved in the construction process, including but not limited to, truck drivers, laborers, foremen, and operators, will be informed of spill prevention and litter control practices and procedures herein prior to construction activity. The project superintendent will inspect the site daily, at a minimum for litter and debris throughout the site, and will specifically inspect storage areas prior to exiting site. Specific prevention and control measures on the site will be employed as follows:

Petroleum Products

All on-site vehicles will be monitored for leaks and will receive preventive maintenance to reduce the chance of leakage. Equipment and vehicles should be stored on impervious surfaces to manage spills where practical. No vehicle maintenance, handling, or storage of petroleum products will occur within 100 feet of a wetland, waterway, or drainage facility. Petroleum products will be stored in tightly sealed containers that are clearly labeled. Any asphalt substances used on-site will be applied according to manufacturer's recommendations. Storage facilities shall be located as far as practical from private residences, business, and public Right-of-Ways. Storage shall be located in an isolated location, where practical, and in accordance with all federal, state, and local regulations.

Hazardous Substances (Paints, Solvents, etc)

All containers will be tightly sealed and stored when not required for use. Excess materials will not be discharged to the storm sewer system, buried onsite, or disposed of in any other inappropriate fashion; but will be properly disposed according to manufacturer's instructions and/or state and local regulations (whichever is more stringent). No storage will occur within 100 feet of a wetland, waterway, or onsite drainage facility.

Fertilizers

Fertilizer will be applied only in the minimum amounts recommended by the manufacturer. Once applied, the fertilizer will be worked into the soil to limits exposure to storm runoff and wind. Storage will

be in a covered shed, and the contents of any partially used bags will be transferred into a sealable, plastic bin to avoid spills. No fertilizer storage shall occur within 100 feet of a wetland, waterway, or onsite drainage facility.

Debris & Litter Control

The Contractor shall provide covered dumpsters onsite and be placed in a practical location to promote use by all parties; this location should not interfere with site activity, ingress, and egress. Debris and litter shall be managed and placed in the onsite dumpsters to minimize unintended transport by the elements. This will reduce litter accumulation and improve worker safety. Dumpsters shall be emptied regularly by a licensed contractor to prevent overfilling and unsightly conditions and disposed of in accordance with federal, state, and local environmental regulations. All construction waste shall be placed in dumpsters following the completion of construction. No trash or construction waste will be buried onsite. No construction materials shall be stored for extended period's onsite, except for those to be used for construction taking place within seven (7) calendar days, or within a practical time frame.

Concrete Washout

Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water within 100 feet of a wetland, waterway, or into any drainage structure already installed. A specific concrete washout location will be identified by the superintendent and will be relocated as appropriate to remain practical as the project is phased.

Trucking Management (Dust & Sediment Control)

Concrete trucks shall not leave the project site except where directed. A stabilized construction entrance shall be installed and maintained and the specified entrance/exit location(s). The length of the stabilization blanket shall be extended if trucks leaving the site track sediment onto public Rights-of-Way. Crushed stone, as specified, shall be re-applied as necessary. A truck wash location shall be implemented and maintained, as necessary.

E. Materials Management Plan

A. Materials Covered

The following materials or substances are expected to be present onsite during construction:

Concrete/Additives/Wastes	Cleaning solvents
Detergents	Petroleum based products
Paints/Solvents	Pesticides
Acids	Fertilizers
Solid and construction wastes	Sanitary wastes
Soil stabilization additives	

B. Materials Management Practices

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff. The Contractor's Superintendent will be responsible for ensuring that these procedures are followed:

1. Good Housekeeping

The following good housekeeping practices will be followed onsite during construction:

a) An effort will be made to store only enough products required to do the job.
b) All materials stored onsite will be stored in a neat, orderly manner and, if possible, under a roof or in a containment area. The Contractor will be responsible for showing the location of all materials storage areas on the Site Map. At a minimum, all containers will be stored with their lids on when not in use. Drip pans shall be provided under all dispensers.
c) Products will be kept in their original containers with the original manufacturer's label in legible condition.
d) Substances will not be mixed with one another unless recommended by the manufacturer.
e) Whenever possible, all of a product will be used up before disposing of the container.
f) Manufacturer's recommendations for proper use and disposal will be followed.
g) The Contractor's Superintendent will be responsible for daily inspections to ensure proper use and disposal of materials.

2. Hazardous Substances

These practices will be used to reduce the risks associated with Hazardous Substances. Material Safety Data Sheets (MSDSs) for each product with hazardous properties that is used at the Project will be obtained and used for the proper management of potential wastes that may result from these products. An MSDS will be posted in the immediate area where such product is stored and/or used and another copy of each MSDS will be maintained in the job trailer at the Project. Each employee who must handle a Hazardous Substance will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

a) Products will be kept in original containers with the original labels in legible condition.
b) Original labels and MSDSs will be procured and used for each product.
c) If surplus product must be disposed manufacturer's and local/state/federal required methods for proper disposal must be followed.

3. Hazardous Waste

It is imperative that all Hazardous Waste be properly identified and handled in accordance with all applicable Hazardous Waste Standards, including the storage, transport and disposal of the Hazardous Wastes. The General Contractor's Superintendent is responsible for properly identifying and handling or seeking assistance in properly identifying or handling any Hazardous Waste. There are significant penalties for the improper handling of Hazardous Wastes. Hazardous Waste may include certain Hazardous Substances, as well as pesticides, paints, paint solvents, cleaning solvents, pesticides, contaminated soils, and other materials, substances or chemicals that have been discarded (or are to be discarded) as being out-of-date, contaminated, or otherwise unusable, and can include the containers for those substances; other materials and substances can also be or become Hazardous Wastes.. The Contractor's Superintendent is also responsible for ensuring that all site personnel are instructed as to these Hazardous Waste requirements and also that the requirements are being followed.

a) Separate hazardous or toxic waste from construction and domestic waste;
b) Store waste in sealed containers labeled in accordance with RCRA requirements;
c) Store all containers with appropriately sized secondary containment;
d) Dispose of hazardous or toxic waste in accordance with manufacturer's recommended method of disposal and in compliance with federal, state or local requirements; and

e) Clean up all wastes immediately using dry clean-up methods where possible, and dispose of used materials properly. Do not clean surfaces or spills by hosing area down. Eliminate the source of the spill to prevent a discharge.

4. Product Specific Practices

The following product specific practices will be followed on the job site:

a) Petroleum Products

The following practices shall be followed in relation to petroleum products:

1. Inspections: All petroleum tanks and fueling areas shall be inspected at the inspection frequency. All onsite vehicles shall also be monitored for leaks at the inspection frequency and receive regular preventive maintenance to reduce the chance of leakage or spills.
2. Secondary Containment: Petroleum products will be stored in tightly sealed containers which are clearly labeled and provided with secondary containment.
    a. Any petroleum storage tanks stored onsite will be located within a containment area that is designed with an impervious surface between the tank and ground. Containment shall be sufficiently impervious to contain oil. Impervious surface shall be defined as a surface containing any spill for a minimum of 48 hours without penetration to any environmental media (soil, groundwater, etc…). All containment systems must be capable of containing oil and must be constructed so that any discharge from a primary containment system, such as a tank or pipe, will not escape the system before cleanup occurs.
    b. The secondary containment must be designed to provide a volume of 110% of the volume of the largest tank.
    c. Any mobile petroleum tank shall be parked in a vehicular service area surrounded by a berm, with an impervious surface between the tank(s) and ground that provides a containment volume equal to 110% of the largest tank.
    d. Accumulated rainwater in any secondary containment areas or other areas where petroleum is stored should be collected, inspected and/or tested so that it can be characterized properly and the rainwater can be properly and economically disposed or released on-site. Rainwater contaminated with fuel or spills from contaminated containment areas are to be promptly disposed of by a licensed hazardous waste transporter.
    e. Drip pans shall be provided for all dispensers. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations. Asphalt paving machines shall not be cleaned on the Project site.
    f. Secondary containment will not be required for oil-filled operational equipment if the Contractor inspects and complies with CWA CFR 40 Part 112.
    g. Spill diversion ponds and retention ponds will not be used for spill or secondary containment.
3. Location: Petroleum storage tanks shall be located at minimum 100 linear feet from drainage ways, inlets and surface waters to prevent surface drainage from reaching culverts, gutters, surface waters or other drainage systems.
4. Site Map: All fixed petroleum storage tanks shall be located on the Site Map.
5. Spill Kit: A petroleum spill kit shall be included on the site. The spill kit shall include: Personal Safety Wear (Apron (2), Shoe Booties (2), Chemical Goggles (2), Solvent Resistant Gloves (2)), Absorbents (Durasorb 40 lbs., 10' Booms (3), Static Resistant Pads (12 each), Sump Booms (2 each)), Clean Up Equipment (55 Gallon Steel Drum,

Drum Liner, Broom, Solvent Resistant, Shovel, Non-Spark and Solvent Resistant, Residue Bags (50 each)). The Spill Kit shall be located in the construction trailer and shall be accessible at all times by trained personnel. The Spill Kit provides an active countermeasure that will be quickly and immediately deployed after discovery of a small volume spill or any discharge of petroleum.

6. Petroleum Fueled Equipment (stationary non-self-propelled): Petroleum fueled equipment such as pumps and generators are to be provided with secondary containment for the entire footprint of the equipment sufficient to contain 110% of the volume of the largest tank serving the equipment. This requirement is for all stationary non-self-propelled equipment including hand-held equipment when not in use.

b) Fertilizers

Discharge of fertilizers containing nitrogen or phosphorus shall be minimized and application limited to the active growing season. Carefully review the plans and select only the slow release type of fertilizer specified. Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked in the soil to limit exposure to storm water. Avoid application during heavy rain and never apply to frozen ground. Application of fertilizer to stormwater conveyance channels or other storm water facilities where water will flow is not permitted. Follow all federal, state and local requirements regarding application. Storage of all fertilizers shall be in sealed containers or in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

c) Building Materials, Construction Wastes, Trash, Landscape Materials, Fertilizers, Pesticides, Herbicides, Detergents, and other Materials.

Minimize the exposure of building materials, construction wastes, trash, landscape materials (green waste), fertilizers, pesticides, herbicides, detergents and other materials present on the site to precipitation and to stormwater. Clean up and dispose of waste in designated waste containers and clean up immediately if containers overflow.

d) Stucco, Form Release Oils, Paints, Paint Solvents, and Cleaning Soaps and Solvents

All containers will be tightly sealed and stored when not in use. Slurry from stucco, form release oils, excess paint, paint solvents, cleaning soaps and solvents may not be discharged from the site and must be properly disposed of according to manufacturer's instructions or state and federal regulations.

e) Concrete Wastes

The Project may require the use of multiple concrete wash out areas. These concrete wash out areas are to be made available to all trades and subcontractors working on the Project. The Contractor may designate certain wash out areas for particular trades or subcontractors, but the Contractor is responsible for the management of all concrete washout areas on the Project. All concrete wash out areas will be located in an area where the likelihood of the area contributing to storm water discharges is negligible. If required, additional BMPs must be implemented to prevent concrete wastes from contributing to storm water discharges.

Concrete trucks will be allowed to wash out or discharge surplus concrete or drum wash water on the site, but only in specifically designated diked and impervious washouts which have been prepared to prevent contact between the concrete wash and storm water. Waste generated from concrete wash water shall not be allowed to be discharged into drainage ways, inlets, receiving waters or highway right of ways, or any location other than the designated concrete washout. Proper signage designating the "Concrete Washout" shall be placed near the facility. Concrete Washouts shall be located at minimum 100 linear feet from drainage ways, inlets and surface waters. Waste concrete may be poured into forms to make riprap or other useful concrete products.

The hardened residue from the concrete wash out diked areas will be disposed of in the same manner as other non-hazardous construction waste materials or may be broken up and used on site as deemed appropriate by the Contractor. Maintenance of the washout is to include removal of hardened concrete. Facility shall have sufficient volume to contain all the concrete waste resulting from washout and a minimum freeboard of 12 inches. Facility shall not be filled beyond 95% capacity and shall be cleaned out once 75% full unless a new facility is constructed. The Contractor's Superintendent will be responsible for seeing that these procedures are followed.

Saw-cut Portland Cement Concrete (PCC) slurry shall not be allowed to enter storm drains or Watercourses. Any saw-cut PCC mixed with stormwater may not be discharged from the site. Saw-cut residue should not be left on the surface of pavement or be allowed to flow over and off pavement. Residue from saw-cutting and grinding shall be collected by vacuum and disposed of in the concrete washout facility.

f) Equipment and Vehicle Washing

Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge.

5. Solid and Construction Wastes

All waste materials will be collected and stored in an appropriately covered container and/or securely contained metal dumpster rented from a local waste management company which must be a licensed solid waste management company. The dumpster will comply with all local and state solid waste management regulations.

All trash and non-recyclable construction debris from the site will be deposited in the dumpster. Construction debris that will undergo source separation as part of a construction waste management plan shall be placed in appropriately marked dumpsters or bins. Once building construction has commenced, dumpsters will be emptied when 95% full, or more often if necessary to prevent over-flow and the trash will be hauled to a landfill. Source separated recyclable construction debris will be hauled to a materials recovery or recycling facility. No construction waste materials will be buried on site. All personnel will be instructed by the Qualified Inspector regarding the correct procedures for waste disposal or waste materials recycling procedures.

6. All waste dumpsters and roll-off containers will be located in an area where the likelihood of the containers contributing to storm water discharges is negligible. Solid waste containers shall be located no less than 50 feet from any storm inlet, drainage way, or surface water. If required, additional BMPs must be implemented, such as gravel bags, wattles, Dikes,

berms, and fences around the base, to prevent wastes from contributing to storm water discharges. The location of waste dumpsters and roll-off containers must be identified on the Site Map by the Contractor once the locations have been determined.

A minimum of one portable sanitary unit will be provided for every ten (10) workers on the site. All sanitary waste will be collected from the portable units a minimum of one time per week by a licensed portable facility provider in complete compliance with local and state regulations.

All sanitary waste units will be located in an area where the likelihood of the unit contributing to storm water discharges is negligible. Additional containment BMPs must be implemented, such as gravel bags or specially designed plastic skid containers around the base, to prevent wastes from contributing to storm water discharges. Assure sanitary waste units are secure and will not be tipped or knocked over. The location of sanitary waste units must be identified on the Site Map by the contractor once the locations have been determined

7. Contaminated Soils

Any contaminated soils (resulting from spills of Hazardous Substances or Oil or discovered during the course of construction) which may result from Construction Activities will be contained and cleaned up immediately in accordance with applicable state and federal regulations. Contaminated soils not resulting from Construction Activities, or which pre-existed Construction Activities, but which are discovered by virtue of Construction Activities, should be reported in the same manner as spills, but with sufficient information to indicate that the discovery of an existing condition is being reported. If there is a release that occurs by virtue of the discovery of existing contamination, this should be reported as a spill, if it otherwise meets the requirements for a reportable spill.

C. Spill Prevention and Response Procedures

The Contractor will train all personnel in the proper handling and cleanup of spilled Hazardous Substances or Oil. No spilled Hazardous Substances or Oil will be allowed to come in contact with storm water discharges. If such contact occurs, the storm water discharge will be contained on site by measures such as, but not limited to absorbents, booms, static resistant pads, sump booms and other clean up equipment (see Spill Kit contents) until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated storm water. It shall be the responsibility of the Contractor's Superintendent to be properly trained, and to train all personnel in spill prevention and clean up procedures.

1. In order to prevent or minimize the potential for a spill of Hazardous Substances or Oil to come into contact with storm water, the following steps will be implemented:

   a) All Hazardous Substances or Oil (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) will be stored in a secure location, with their lids on, preferably under cover, when not in use.
   b) The minimum practical quantity of all such materials will be kept at the Project.
   c) A spill control and containment kit will be provided at the storage site.
   d) Manufacturer's recommended methods for spill cleanup will be clearly posted inside the job trailer wall and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.

e) It is the Contractor's responsibility to ensure that all Hazardous Waste discovered or generated at the Project site is disposed of properly by a licensed hazardous material disposal company. The Contractor is responsible for not exceeding Hazardous Waste storage requirements mandated by the EPA or state and local authority.

2. The Contractor's Superintendent will be the spill prevention and response coordinator. He will designate the individuals who will receive spill prevention and response training. These individuals will each become responsible for a particular phase of prevention and response. The names of these personnel will be posted in the material storage area and in the office trailer onsite.

APPENDIX

MAINTENANCE WORK ORDER & CHECKLIST FOR STORMWATER MANAGEMENT FACILITIES

MAINTENANCE WORK ORDER AND CHECKLIST
FOR STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY _____
LOCATION _____ DATE _____
CREW _____ WORK STARTED _____
EQUIPMENT _____ WORK COMPLETED _____
WEATHER _____ TOTAL MANPOWER OF WORK _____

A. PREVENTATIVE MAINTENANCE

WORK ITEMS	ITEMS REQUIRED	ITEMS DONE	COMMENTS AND SPECIAL INSTRUCTIONS
1. GRASS CUTTING			
A. BOTTOMS			
B. EMBANKMENTS AND SIDE SLOPES			
C. PERIMETER AREAS			
D. ACCESS AREAS AND ROADS			
E. OTHERS			
2. GRASS MAINTENANCE			
A. FERTILIZING			
B. RE-SEEDING			
C. DE-THATCHING			
D. PEST CONTROL			
E. OTHERS			
3. VEGETATIVE COVER			
A. FERTILIZING			
B. PRUNING			
C. PEST CONTROL			
D. OTHERS			
4. TRASH AND DEBRIS REMOVAL			
A. BOTTOMS			
B. EMBANKMENTS AND SIDE SLOPES			
C. PERIMETER AREAS			
D. ACCESS AREAS AND ROADS			
E. INLETS			
F. OUTLETS AND TRASH RACKS			
G. OTHERS			
5. SEDIMENT REMOVAL			
A. INLETS			
B. OUTLETS AND TRASH RACKS			
C. BOTTOM			
D. OTHERS			
6. ELIMINATION OF POTENTIAL MOSQUITO BREEDING HABITATS			
7. UNDERGROUND BASIN MAINTENANCE			
A. BOTTOMS			
B. OUTLETS AND TRASH RACKS			
C. ACCESS HATCHES			
D. OTHERS			
8. INFILTRATION BASIN - TILING BOTTOM SAND LAYER			
9. OTHER PREVENTIVE MAINTENANCE			
A. PARKING LOT SWEEPING			
B. EMPTYING TRASH RECEPTACLES			

MAINTENANCE WORK ORDER AND CHECKLIST
FOR STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY _____
LOCATION _____ DATE _____
CREW _____ WORK STARTED _____
EQUIPMENT _____ WORK COMPLETED _____
WEATHER _____ TOTAL MANPOWER OF WORK _____

B. CORRECTIVE MAINTENANCE

WORK ITEMS	ITEMS REQUIRED	ITEMS DONE	COMMENTS AND SPECIAL INSTRUCTIONS
1. REMOVAL OF DEBRIS AND SEDIMENT			
2. STRUCTURAL REPAIRS			
3. EMBANKMENTS AND SIDE SLOPES			
4. DEWATERING			
5. BASIN MAINTENANCE			
6. CONTROL OF MOSQUITOES			
7. EROSION REPAIR			
8. FENCE REPAIR			
9. SNOW AND ICE REMOVAL			
10. OTHER			

C. AESTHETIC MAINTENANCE

WORK ITEMS	ITEMS REQUIRED (X)	ITEMS DONE (X)	LOCATION AND COMMENTS
1. GRAFFITI REMOVAL			
2. GRASS TRIMMING			
3. WEEDING			
4. OTHERS			

REMARKS (REFER TO ITEM NO. IF APPLICABLE) _____

WORK ORDER PREPARED BY: _____

MAINTENANCE LOG FOR STORMWATER MANAGEMENT FACILITIES

MAINTENANCE LOG
FOR STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY _____
LOCATION _____ DATE _____
CREW _____ WORK STARTED _____
EQUIPMENT _____ WORK COMPLETED _____
WEATHER _____ TOTAL MANPOWER OF WORK _____

A. PREVENTATIVE MAINTENANCE

WORK ITEMS	ITEMS REQUIRED	DATE REQUIRED	ITEMS DONE	DATE DONE	COMMENTS AND SPECIAL INSTRUCTIONS
1. GRASS CUTTING					
A. BOTTOMS					
B. EMBANKMENTS AND SIDE SLOPES					
C. PERIMETER AREAS					
D. ACCESS AREAS AND ROADS					
E. OTHERS					
2. GRASS MAINTENANCE					
A. FERTILIZING					
B. RE-SEEDING					
C. DE-THATCHING					
D. PEST CONTROL					
E. OTHERS					
3. VEGETATIVE COVER					
A. FERTILIZING					
B. PRUNING					
C. PEST CONTROL					
D. OTHERS					
4. TRASH AND DEBRIS REMOVAL					
A. BOTTOMS					
B. EMBANKMENTS AND SIDE SLOPES					
C. PERIMETER AREAS					
D. ACCESS AREAS AND ROADS					
E. INLETS					
F. OUTLETS AND TRASH RACKS					
G. OTHERS					
5. SEDIMENT REMOVAL					
A. INLETS					
B. OUTLETS AND TRASH RACKS					
C. BOTTOM					
D. OTHERS					
6. ELIMINATION OF POTENTIAL MOSQUITO BREEDING HABITATS					
7. UNDERGROUND BASIN MAINTENANCE					
A. BOTTOMS					
B. OUTLETS AND TRASH RACKS					
C. ACCESS HATCHES					
D. OTHERS					
8. OTHER PREVENTIVE MAINTENANCE					
A. PARKING LOT SWEEPING					
B. EMPTYING TRASH RECEPTACLES					

MAINTENANCE LOG
FOR STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY _____
LOCATION _____ DATE _____
CREW _____ WORK STARTED _____
EQUIPMENT _____ WORK COMPLETED _____
WEATHER _____ TOTAL MANPOWER OF WORK _____

B. CORRECTIVE MAINTENANCE

WORK ITEMS	ITEMS REQUIRED	DATE REQUIRED	ITEMS DONE	DATE DONE	COMMENTS AND SPECIAL INSTRUCTIONS
1. REMOVAL OF DEBRIS AND SEDIMENT					
2. STRUCTURAL REPAIRS					
3. EMBANKMENTS AND SIDE SLOPES					
4. DEWATERING					
5. BASIN MAINTENANCE					
6. CONTROL OF MOSQUITOES					
7. EROSION REPAIR					
8. FENCE REPAIR					
9. SNOW AND ICE REMOVAL					
10. SAND LAYER REPLACEMENT					
11. OTHER					

C. AESTHETIC MAINTENANCE

WORK ITEMS	ITEMS REQUIRED	DATE REQUIRED	ITEMS DONE	DATE DONE	COMMENTS AND SPECIAL INSTRUCTIONS
1. GRAFFITI REMOVAL					
2. GRASS TRIMMING					
3. WEEDING					
4. OTHERS					

REMARKS (REFER TO ITEM NO. IF APPLICABLE) _____

WORK PERFORMED BY: _____

INSPECTION LOG FOR STORMWATER MANAGEMENT FACILITIES

INSPECTION LOG
FOR STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY _____
LOCATION _____
DATE _____
WEATHER _____

A. PREVENTIVE MAINTENANCE

FACILITY ITEM	ITEMS REQUIRED	ITEMS DONE	COMMENTS AND SPECIAL INSTRUCTION
1. GRASS CUTTING			
A. BOTTOMS			
B. EMBANKMENTS AND SIDE SLOPES			
C. PERIMETER AREAS			
D. ACCESS AREAS AND ROADS			
E. OTHERS			
2. GRASS MAINTENANCE			
A. FERTILIZING			
B. RE-SEEDING			
C. DE-THATCHING			
D. PEST CONTROL			
E. OTHERS			
3. VEGETATIVE COVER			
A. FERTILIZING			
B. PRUNING			
C. PEST CONTROL			
D. OTHERS			
4. TRASH AND DEBRIS REMOVAL			
A. BOTTOMS			
B. EMBANKMENTS AND SIDE SLOPES			
C. PERIMETER AREAS			
D. ACCESS AREAS AND ROADS			
E. INLETS			
F. OUTLETS AND TRASH RACKS			
G. OTHERS			
5. SEDIMENT REMOVAL			
A. INLETS			
B. OUTLETS AND TRASH RACKS			
C. BOTTOM			
D. VORTECHNIC UNITS			
E. OTHERS			
6. ELIMINATION OF POTENTIAL MOSQUITO			
7. OTHER PREVENTIVE MAINTENANCE			
A. PARKING LOT SWEEPING			
B. EMPTYING TRASH RECEPTACLES			

INSPECTION LOG
FOR STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY _____
LOCATION _____
DATE _____
WEATHER _____

B. CORRECTIVE MAINTENANCE

FACILITY ITEM	ITEMS REQUIRED	ITEMS DONE	COMMENTS AND SPECIAL INSTRUCTION
1. REMOVAL OF DEBRIS AND SEDIMENT			
2. STRUCTURAL REPAIRS			
3. EMBANKMENTS AND SIDE SLOPES			
4. BASIN MAINTENANCE			
5. CONTROL OF MOSQUITOES			
6. EROSION REPAIR			
7. FENCE REPAIR			
8. SNOW AND ICE REMOVAL			
9. BASIN DRAIN TIME			
10. OTHER			

C. AESTHETIC MAINTENANCE

FACILITY ITEM	ITEMS REQUIRED	ITEMS DONE	COMMENTS AND SPECIAL INSTRUCTION
1. GRASS TRIMMING			
2. WEEDING			
3. OTHERS			

REMARKS (REFER TO ITEM NO. IF APPLICABLE) _____

(1) ITEMS CHECKED ARE IN GOOD CONDITION, AND THE MAINTENANCE PROGRAM IS ADEQUATE.
(2) ITEMS CHECKED REQUIRE ATTENTION, BUT DOES NOT PRESENT AN IMMEDIATE THREAT TO THE FACILITY FUNCTION OR OTHER FACILITY COMPONENTS.
(3) THE ITEMS CHECKED REQUIRES IMMEDIATE ATTENTION TO KEEP THE FACILITY OPERATIONAL OR TO PREVENT DAMAGE TO OTHER FACILITY COMPONENTS.
(4) PROVIDE EXPLANATION AND DETAILS IF COLUMNS 2 OR 3 ARE CHECKED.
REMARKS (REFER TO ITEM NO. IF APPLICABLE)

INSPECTOR: _____