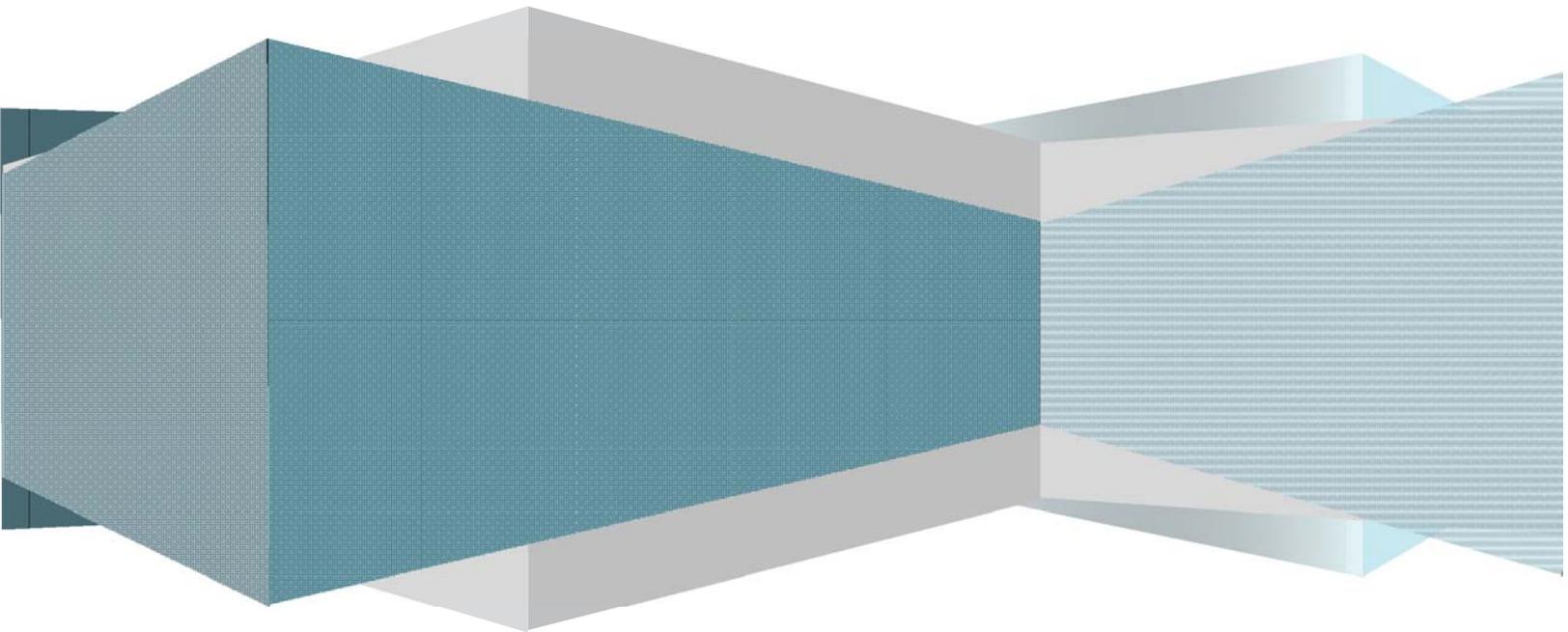


City of Orem

Storm Water Management Plan

2016 - 2021



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CITY OF OREM
Permit No. UTR090014

CITY OF OREM
STORM WATER MANAGEMENT PLAN
For the permit period of March 1, 2016 – February 28, 2021

Submitted to:

State of Utah
Department of Environmental Quality
Division of Water Quality

Submitted by:

City of Orem, Public Works Department

Revised
July 1, 2016

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SIGNATORY PAGE

Governmental Entity Name: City of Orem **Permit number:** UTR090014

Mailing Address: 1450 W 550 North

City: Orem **State:** Utah **Zip Code:** 84057

Storm Water Management Program Responsible Person(s):

Name: Chris Tschirki **Title:** Public Works Director

Telephone Number: 801-229-7501

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Name: Cody Steggell **Title:** Street & Storm Water Section Manager

Telephone Number: 801-229-7512

Certification

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Print Name: _____

Signature: _____ Date: _____

Title: _____

Duly Authorized Position(s):

“Letter already on file with the Division of Water Quality, Storm Water Section, identifying the Public Works Director as having the authority to sign this and future documents pertaining to the UPDES Permit Program.”

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**CITY OF OREM
STORM WATER MANAGEMENT PLAN**

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STORM WATER MANAGEMENT PLAN OVERVIEW

ACKNOWLEDGEMENT

This project would not have been possible without the support of many people. We take this opportunity to express gratitude to the people who have been instrumental in the successful completion of this project. In appreciation for their many hours of hard work and dedication in assembling this Storm Water Management Program Manual, we recognize the following people:

Chris Tschirki	Public Works Director
Neal Winterton	Water Resources Division Manager
Sam Kelly	City Engineer
Ryan Johnson	Storm Water Project Manager
Reed Price	Maintenance Division Manager
Rick Sabey	Public Works Field Supervisor
Stan Orme	Streets/Storm Water Section Manager
Cody Steggell	Streets/Storm Water Section Manager
Steve Johnson	Storm Water Engineer Specialist
Nathan Wright	Bowen Collins & Associates

And the many others who contribute their time and effort to contributing to the contents of this manual, Thank you!



STORM WATER MANAGEMENT PLAN OVERVIEW

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**CITY OF OREM
STORM WATER MANAGEMENT PLAN OVERVIEW**

PURPOSE

This document presents the City of Orem’s Storm Water Management Plan (SWMP). The City of Orem originally applied for coverage in 2003 and was granted permit number UTR090014. This management plan is a major revision meant to satisfy the requirements of the State for the period of 2016-2021. The plan has been updated to limit the discharge of pollutants, as much as is practical, to the City of Orem’s Storm Water System. This Plan was prepared to guide the City in planning, funding, and implementing a comprehensive program for addressing current and future regulatory and policy requirements for managing storm water runoff.

The purpose of the Storm Water Management Plan is to comprehensively address how to meet the many different but related regulations, adopt plans, programs, and policies that affect urban storm water runoff, flooding, and protect the environment, including water quality. The goal of the SWMP is to provide the City of Orem the basis for establishing effective rules, regulations, and guidelines that will reduce the potential for storm water damage to the environment, to the citizens of Orem, to public and private property, and to protect human, animal, and aquatic life.

Storm water regulations developed by the Utah Division of Water Quality require the operator of a regulated MS4 community to develop a program that:

- Prevents or reduces the amount of storm water pollution generated by municipal operations and conveyed into receiving waters by identifying and implementing appropriate control measures and setting measureable goals.
- Train employees on how to incorporate pollution prevention and good housekeeping techniques into municipal operations.

SWMP COORDINATION

Agency: City of Orem, Public Works Department
Contact: Mr. Christopher R. Tschirki, Public Works Director
UPDES Number: UTR090014

STAFFING AND RESOURCE ALLOCATIONS

Responsibility for implementation of the storm water management program is divided between different groups and organizations within the City. The group responsible for each task is stated in each section of this document.

Permit Requirement 2.3.2.2 MS4 Location Description and Map

The City of Orem (City) has a population of approximately 96,000 and encompasses approximately 18.5 square miles. The City is located in the center of Utah Valley, 40 miles south of Salt Lake City. It is surrounded by Provo to the south and east, Vineyard to the west, and Lindon to the north (see Figure 1-1). The City is situated between the Wasatch Mountains, the Provo River, and Utah Lake.



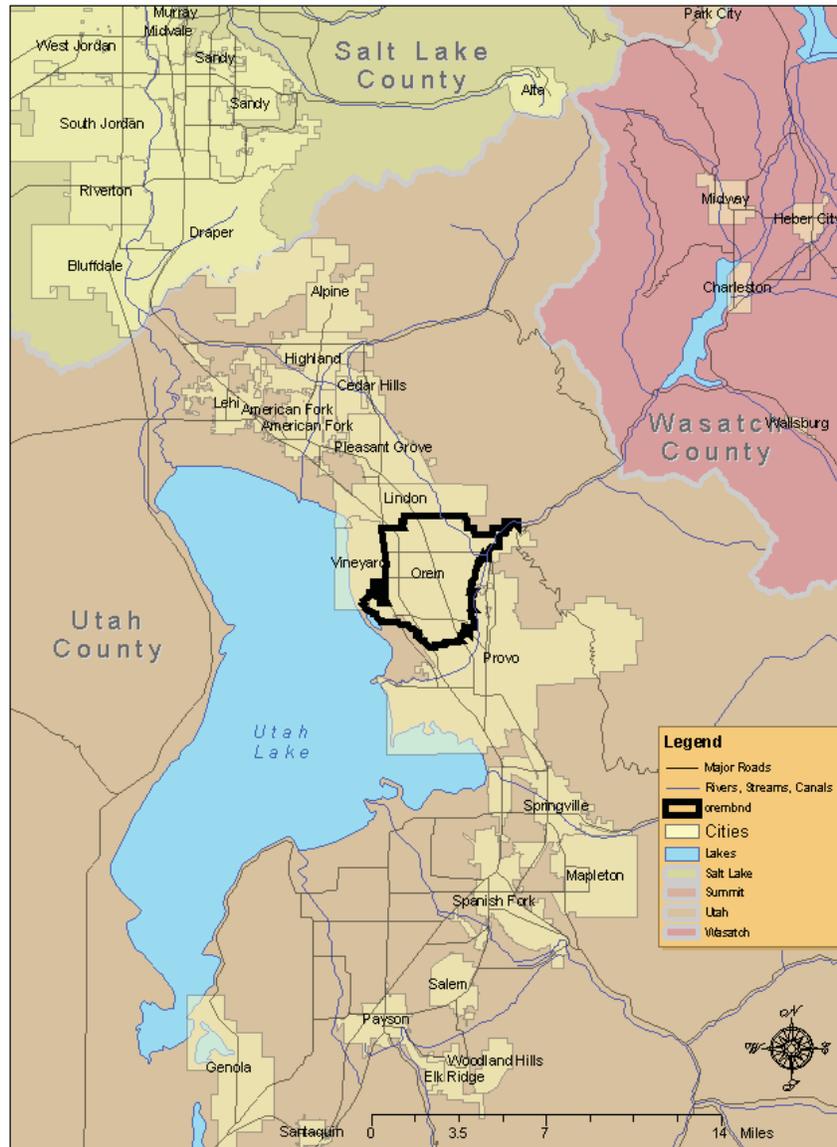


Figure 1-1: Map of Orem’s location

Permit Requirement 2.3.2.3 Water Quality Concerns

The City operates and maintains a municipal storm water system that consists of thousands of sumps (class v injection wells), several miles of pipe, and numerous detention basins. With these assets the City has some unique challenges as it addresses its storm drainage system. Most of the City is located on highly permeable sands and gravels that comprise the Orem bench. The City has taken advantage of the highly permeable soils for management of storm drainage and relies heavily upon sumps for storm drainage disposal.

There are currently more than 3, 600 sumps within the City, of which 1,762 are located on public property. Runoff is directed into these sumps, which discharge directly to the underlying soils. Even though the use of sumps is an acceptable method for runoff disposal, untreated storm drainage runoff



STORM WATER MANAGEMENT PLAN OVERVIEW

can eventually reach the underlying groundwater aquifers, which supplies the culinary water to the City and a number of other communities in Northern Utah County.

Concern about the impact of sumps on groundwater quality, long term maintenance of sumps, and areas with existing storm drainage problems has motivated the City to evaluate current storm drainage disposal practices and to create a long-term storm water master plan for the City.

STORM WATER POLLUTANT SOURCES AND ENVIRONMENTAL IMPACTS

The table below outlines the most common potential pollutants that any MS4 could generate. These pollutants can harm human health, degrade water quality, damage aquatic habitat, and seriously impair ecosystem functions.

Pollutant	Common Source	Impacts on Water Quality
Sediment	Construction sites, vehicle/boat washing, agricultural sites	Sediment is a common component of storm water. Sediment can be detrimental to aquatic habitat for fish and plants, transportation of attached oils, nutrients and other chemical contamination, and increased flooding. Sediment can transport other pollutants that are attached to it including nutrients, trace metals, and hydrocarbons. Sediment is the primary component of total suspended solids (TSS), a common water quality analytical parameter.
Nutrients (Phosphorus, Nitrogen, Potassium, Ammonia)	Fertilizers from agricultural operations, lawns and gardens; livestock and pet waste, decaying grass and leaves, sewer overflows and leaks.	Nutrients are often found in storm water. These nutrients can result in excessive or accelerated growth of harmful algal blooms, reduced oxygen in the water, changes in water chemistry and pH. In addition, un-ionized ammonia (one of the nitrogen forms) can be toxic to fish.
Hydrocarbons (Petroleum Products, Benzene, Toluene, Ethyl benzene, Xylene)	Vehicle and equipment fluid leaks, engine emissions, pesticides, equipment cleaning, leaking fuel storage containers, fuel spills, parking lot runoff	Oil and grease include a wide array of hydrocarbon compounds, some of which are toxic to aquatic organisms at low concentrations. Some of these pollutants are toxic to humans and wildlife at very low levels.
Heavy Metals	Vehicle brake and equipment wear, engine emissions, parking lot runoff, batteries, paint and wood preservatives, fuels and fuel additives, pesticides, cleaning agents	Metals including lead, zinc, cadmium, copper, chromium and nickel are commonly found in storm water. Metals are of concern as they are toxic to aquatic organisms, can bioaccumulate, and have the potential to contaminate drinking water supplies.
Toxic Chemicals (Chlorides)	Pesticides, herbicides, dioxins, PCBs, industrial chemical spills and leaks, deicers, solvents,	Pesticides have been repeatedly detected in storm water at toxic levels, even when pesticides have been applied in accordance with label instructions. As pesticide use has increased, so too have concerns about the adverse effect of pesticides on the environment and human health.



STORM WATER MANAGEMENT PLAN OVERVIEW

Pollutant	Common Source	Impacts on Water Quality
Debris/Litter/ Trash	Improper solid waste storage and disposal, abandoned equipment, litter	Typically resulting from an urban environment, industrial sites and construction sites, trash and floatables create an aesthetic eye sore in waterways. Risk of decay product toxicity. Risk of aquatic animal entrapment or ingestion and death.
Pathogens (Bacteria)	Livestock, human, and pet waste, sewer overflows and leaks, septic systems	Bacteria and viruses are common contaminants of storm water. There are human health risks due to disease and produces toxic contamination of aquatic life.

The following table lists some lesser known pollutants that can be found in most urban storm water runoff, yet are harmful to the environment.

Pollutant	Potential Health Effect	Source
Chlorine		Used as an additive to water to control microbes. Used in swimming pools, drinking water disinfection, etc.
Arsenic	Skin damage or problems with circulatory systems, and may have increased risk of cancer	Erosion of natural deposits; runoff from orchards, runoff from glass and electronics production wastes.
Beryllium		Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries.
Cadmium	Kidney damage	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paint.
2, 4-D	Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row crops.
PAHs (Polycyclic Aromatic Hydrocarbons)	Potential risk to aquatic life	Sources of PAHs are numerous and include municipal and industrial effluents and discharges. Combustion products from transportation, power generation, and coking processes are significant manmade sources. Other potential sources include manufactured gas plants, wood treatment facilities, and smelters as well as from coal-tar- based pavement sealants.



STORM WATER MANAGEMENT PLAN OVERVIEW

To reduce these pollutants the following six minimum control measures) in the areas of (1) public education and outreach, (2) public participation and involvement, (3) illicit discharge detection and elimination, (4) construction site runoff control, (5) long-term storm water management in new development and redevelopment (post-construction storm water management), and (6) pollution prevention and good housekeeping. Implementation of these 6 control measures is presented in subsequent chapters and includes Standard Operating Procedures (SOPs) and Best Management Practices (BMPs). The SOPs and BMPs are intended to meet the current needs of the City and will be changed as needed.

Permit Requirement 2.3.2.5 Modifications to City Ordinance

The City of Orem tracks changes to the City's ordinance. The date of the enactment of each ordinance along with dates associated with amendments to each ordinance can be found at the following link http://exe.orem.org/citycode/Chap_23.pdf.

Permit Requirement 3.1.1.1- 3.1.1.2 does the City Discharge to a 303(d) Waterbody?

Under Section 3.1 of the Small MS4 General UPDES Permit, Permit Number UTR090000, it states, "Permittees must determine whether storm water discharge from any part of the MS4 contributes to a 303(d) listed waterbody."

City of Orem currently discharges into Utah Lake which is listed on the 303(d) listing as an impaired waterbody. Total Dissolved Solids (TDS), total Phosphorous, and PCB in fish tissue are all concerns for Utah Lake. The status associated with these pollutants are low to medium. A draft TMDL was published in 2007, however the TMDL has not been adopted. Once adopted the City will implement regulations necessary to be in compliance with these standards.

Permit Requirement 3.2.1 Nutrient Reduction

In order to protect the receiving water bodies, design BMPs for new or redeveloped sites are required. Developers must design BMPs to treat storm water with a goal of reducing pollutants in the receiving water bodies. BMPs should address removal of phosphorous, total suspended solids, and other target pollutants. Proposed BMPs will be evaluated by City staff to verify selected BMP's are addressing pollutant removal.



Chapter 1

MCM 1: Public Education and Outreach on Storm Water Impacts

The permit requirements for Public Education and Outreach on Storm Water Impacts can be found in Section 4.2.1 of the permit. This section also incorporates tasks intended to meet the Nutrient Reduction Section of the permit found in Section 3.2. A copy of the permit can be found at <http://www.deq.utah.gov/Permits/water/updes/docs/2010/07Jul/2010SmallMS4GPfinal7-26-2010.pdf>. The permit outlines in general the following requirements:

1. The MS4 must promote behavior change of the public to reduce water quality impacts associated with pollutants in storm water runoff and illicit discharges. This is a multimedia approach targeted to specific audiences. The four audiences are: (1) residents, (2) institutions, industrial and commercial facilities, (3) developers and contractors (construction), and (4) MS4-owned or operated facilities. (4.2.1)
2. Target pollutants and pollutant sources and their potential impacts relating to storm water quality. (4.2.1.1)
3. Provide and document information given to the four focus audiences.
4. Provide documentation or rationale as to why particular programs were chosen for its public education and outreach program

The City of Orem has implemented tasks to meet the requirements of this MCM, which are summarized in this section:

PEO-1: Education and Outreach for General Public

PEO-2: Education and Outreach for Institutions, and Industrial and Commercial Facilities

PEO-3: Education and Outreach for Engineers, Construction Contractors, Developers, Development Review Staff and Land Use Planners

PEO-4: Education and Outreach for City Employees



PEO-1: Education and Outreach for General Public

Year Executed: 2000

Reference Regulation: 3.2.1.3; 4.2.1; 4.2.1.1; 4.2.1.2; 4.2.1.7; 4.2.1.8; 4.2.3.6; 4.2.3.7; 4.2.4.4.5

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: General Public

Description: The City uses several outlets to reach the general public. Among these are:

- *WaterWatch Newsletter:* This informational newsletter features articles that are generally targeted at residents living in the City of Orem. It generally is mailed quarterly; however, responses to the newsletter have declined through the years. We are evaluating making this a digital publication.
- *Information Booths at Community Events:* The City has participated in several community events and plans to do so in the future. Most notably the City has set up a booth at its annual Summerfest. Booths at these events have included two models. We also distribute literature and promotional items that discuss storm water quality issues and feature our storm water hotline number.
- *Storm Drain Markers:* The City has established a program to mark all public storm drain inlets with curb markers. Through the assistance of several Eagle Scout candidates' projects, the utility has marked all City-owned storm drain inlets. During the permit period between 3/1/2016 and 2/28/2021, all City storm water facilities will be inspected. At the time of inspection, storm drain inlets will be re-marked as necessary by stenciling or by replacement of storm drain markers. Maintenance of these markers will be scheduled as needed. This maintenance may be accomplished by City employees or by community volunteers.
- Many existing markers read: "Do not dump, drains to drinking water". Those installed in the future will have the City's Storm water Hotline posted on them.
- *Geocaches:* The City has established and maintains a series of five geocaches as a means to distribute publications and promotional items.
- *Social Media:* The City often uses Facebook, Twitter and YouTube to maintain a presence in social media. We will seek to include more messages related to storm water pollution prevention aimed at City residents.
- *Utah County Storm Water Coalition (UCSC) School Education Program:* During 2006-2007, the UCSC hired an instructor who has taken on the load of doing classroom presentations. As a participating member of the Coalition, we use this resource to educate students in our city. The City supports this effort by providing financial support and oversight in the form of membership on the Coalition's Education Subcommittee.
- *Storm Water Hotline:* This telephone number is 801-229-7577 and is publicized in most storm water educational materials and is used as an opportunity to educate both those that report problems and those that are investigated because of reports.



PUBLIC EDUCATION AND OUTREACH ON STORM WATER IMPACTS

- *Door Hangers:* When residents are reported as having engaged in behaviors that are potentially harmful to water quality, staff uses door hangers to inform residents of the issue and the solution to the issue. These can lead to actions under the IDDE program if not addressed.
- *City Website:* Many water quality topics are covered on the website.

These outlets are selected to reach a large number of people with messages that are meant to educate and inform the public about the potential for detrimental impacts of storm water discharges into public waters.

Purpose and Benefit: These outlets allow for discussion of many common activities that affect the amount of target pollutants exposed to storm water throughout the City. These activities include at a minimum:

- Maintenance of septic systems
- Outdoor activities such as lawn care including use of pesticides, herbicides, and fertilizers
- On-site infiltration of storm water
- Automotive repairs
- Car washing
- Proper disposal of swimming pool water
- Proper management of pet waste
- Building and equipment maintenance
- Use of salt and de-icing materials
- Proper storage of materials
- Proper solid waste management (dumpsters)
- Stockpile management, especially as it relates to landscaping activities
- Emphasis will be given to the hazards of illicit discharges

Measure of Success: The city tracks phone calls, emails and social media interactions received related to topics discussed in outreach efforts. In addition, with the publication of this revised SWMP, the City will maintain a log of General Public outreach efforts by date published, topic, format and public comment of response.

This task will be evaluated annually to ensure that messages are focused and effective for the general public. It will also be reviewed to see how well it is helping to achieve behavioral changes that lead to better water quality.

Responsible Staff: Storm Water Engineering Specialist

Funding: Storm Water Utility

Standard Operations Procedures: none

Supporting Documents:

Public Media Log (Available upon request)



PEO-2: Education and Outreach for Institutions, and Industrial and Commercial Facilities**Year Executed:** 1996**Reference Regulation:** 3.2.1.3; 4.2.1; 4.2.1.1; 4.2.1.3; 4.2.1.7; 4.2.1.8; 4.2.3.6; 4.2.3.7**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens**Audiences:** Institutions, and Industrial and Commercial Facilities**Description:** The City Uses three main activities to promote awareness of water quality issues related to storm water

The Storm Water Quality Credit Program: The City encourages commercial and industrial facilities in the City to participate in the Storm Water Quality Credit Program by publicity in the quarterly newsletter, on the city website, targeted letters, and through social media. It rewards businesses and institutions for utilizing Best Management Practices (BMPs) that affect storm water quality by given discounts on storm water utility fees. This allows the City to visit annually with major rate paying businesses to discuss the storm water management practices.

Printed Media in the Form of Targeted Mailers and Newsletters: The City will produce a series of pamphlets relating to specific industries and activities that the committee deems to have significant potential for harmful effects to storm water.

The following topics will be reviewed for inclusion in publications and presentations to commercial and industrial entities:

- Proper lawn maintenance including proper use of pesticides, herbicides and fertilizer
- Benefits of appropriate on-site infiltration of storm water
- Building and equipment maintenance including proper management of waste water
- Use of salt or other deicing materials including covering materials to prevent runoff to storm system and contamination to ground water
- Proper storage of materials to emphasize pollution prevention
- Proper management of waste materials and dumpsters
- Proper management of parking lot surfaces
- Proper reporting of spills
- Proper record-keeping of incidents
- Emphasis will be given to the hazards of illicit discharges
- Provide/Promote services for collection of household hazardous waste

Social Media: The City will use social media outlets such as Facebook, Twitter and YouTube to interact with Institutions, and Industrial and Commercial Facilities and encourage participation in The Storm Water Quality Credit Program

Purpose and Benefit: Institutions, and Industrial and Commercial Facilities often have a higher potential risk to water quality because of the chemicals used and stored on-site as well as

manufacturing activities that can come in contact with storm water. Reminding business owners and institutional operators about storm water is critical as it may be low on their list of priorities.

Measure of Success: Track participation in Storm Water Quality Credit Program and use a log to track the publication of media and responses to it.

This task will be evaluated annually to ensure that messages are focused and effective for the Institutions, and Industrial and Commercial Facilities. It will also be reviewed to see how well it is helping to achieve behavioral changes that lead to better water quality.

Responsible Staff: Storm Water Engineering Specialist

Funding: Storm Water Utility

Standard Operations Procedures: None

Supporting Documents:

Storm Water Quality Credit Program (<http://orem.org/index.php/storm-sewer/storm-water-quality-credit-program>)

Storm Water Quality Credit Program Report (Available upon request)

Institutional, Industrial and Commercial Media Log (Available upon request)

PEO-3: Education and Outreach for Engineers, Construction Contractors, Developers, Development Review Staff and Land Use Planners

Year Executed: 1997

Reference Regulation: 3.2.1.3; 4.2.1; 4.2.1.1; 4.2.1.4; 4.2.1.6; 4.2.1.7

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: Engineers, Construction Contractors, Developers, Development Review Staff and Land Use Planners

Description: The City has held multiple trainings for developers, contractors and homebuilders covering topics like the specifics of developing Storm Water Pollution Prevention Plans (SWPPPs) for construction as well as BMPs relating to the importance of clean storm water and the effects of pollution. Information about the principles of Low Impact Development as well as the development of SWPPPs will be distributed. The Utah County Storm Water Coalition provides most aspects of this function currently, but the City will evaluate the usefulness of the City providing its own training.

Purpose and Benefit: Annual training keeps engineers, construction contractors, and developers up to date on critical issues associated with storm water quality.

Measure of Success: Report attendance at training. Analyze infractions to see if there is a lessening of issues.

This task will be evaluated annually to ensure that messages are focused and effective for the Engineers, Construction Contractors, Developers, Development Review Staff and Land Use Planners. It will also be reviewed to see how well it is helping to achieve behavioral changes that lead to better water quality.

Responsible Staff: Storm Water Engineering Specialist and Storm Water Project Manager

Funding: Storm Water Utility

Standard Operations Procedures: None

Supporting Documents:

Training Attendance Logs (Available upon request)

Meeting Flyers (Available upon request)

PEO-4: Education and Outreach for City Employees

Year Executed: 2001

Reference Regulation: 3.2.1.3; 4.2.1; 4.2.1.1; 4.2.1.5; 4.2.1.6; 4.2.1.7; 4.2.1.8; 4.2.3.6; 4.2.3.7; 4.2.3.8; 4.2.3.11; 4.2.4.5

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: City Employees

Description: The City trains its employees about storm water quality. Employees receive different training based on their contact or potential contact with issues that may affect water quality. Here is a summary of City Employees and the topics they receive training on:

All Employees:

- Recognizing and reporting IDDE situations
- Solid Waste Management (Dumpsters)
- Benefits of Street and Parking Lot Sweeping
- Spill Prevention and Cleanup Plans
- Disposal of Household Hazardous Waste

Public Works:

- Public Works Facilities SWPPP
- Equipment Inspection to ensure timely maintenance
- Proper Storage and Disposal of Chemicals
- Spill and Dumping Response Procedures
- Cleaning, Washing, Painting and Maintenance Activity SOPs

Fleet:

- Storage of Vehicles and Equipment

Traffic:

- Street Marking SOPs

Water:

- Proper Use of Salt and De-Icing Materials

Water Reclamation:

- Training is dictated by separate UPDES permit

Parks:

- Proper Use of Salt and De-Icing Materials
- Proper Application, Storage and Disposal of Fertilizer, Pesticides and Herbicides



- Sediment and Erosion Control
- Lawn Maintenance and Landscaping Activities SOPs Including Good Housekeeping for Open Spaces and Rights-of-Way
- Festival and Event Cleanup

Streets:

- Proper Use of Salt and De-Icing Materials
- Proper Maintenance of Parking Lot Surfaces
- Festival and Event Cleanup

Storm Water:

- Benefits of On-Site Infiltration
- Proper Maintenance of Parking Lot Surfaces
- Low Impact Development (LID) Practices
- Green Infrastructure Practices
- Construction Site Inspections
- SWPPP Review
- Site Plan Review including preferred BMPs
- Enforcement Procedures
- Long-Term Storm Water Management Through the Use of Structural and Non-Structural Control Methods
- Post Construction Plan Review
- Inspection, Cleaning and Repair of MS4 and Associated BMPs
- Street Sweeping Dewatering and Disposal

Development Services:

- Benefits of On-Site Infiltration
- Low Impact Development (LID) Practices
- Green Infrastructure Practices
- Construction Site Inspections
- SWPPP Review
- Site Plan Review
- Post Construction Plan Review
- Long-Term Storm Water Management Through the Use of Structural and Non-Structural Control Methods

Public Safety:

- Training SOPs
- Spill and Dumping Response Procedures

Storm water staff are trained upon hire and before commencing duties. All of this training is repeated at least annually. Employees are required to participate in this training or a similar training. It will be supplemented for those that have a change of duties relating to storm water related tasks.

Purpose and Benefit: Training is the key to an even approach to storm water management. It helps keep everyone on the same page and provides awareness of issues that may not be at the top of the priority list.

Measure of Success: Track attendance at training. City Employees to review reports for IDDE and Storm Water Construction programs.

Responsible Staff: Storm Water Engineering Specialist and Storm Water Project Manager

Funding: Storm Water Utility, Utah County Storm Water Coalition

Standard Operations Procedures: None

Training Program Matrix (Available upon request)

Attendance Logs (Available upon request)

Training Outlines and Presentation Materials (Available upon request)

Chapter 2

MCM 2: Public Involvement/Participation Program

The permit requirements for Public Participation and Involvement on Storm Water Impacts can be found in Section 4.2.2-4.2.2.4 of the permit. A copy of the permit can be found at <http://www.deq.utah.gov/Permits/water/updes/docs/2010/07Jul/2010SmallMS4GPfinal7-26-2010.pdf>. The permit outlines in general the following requirements. General Permit for Discharges from Small MS4s—UTR090000

1. Comply with applicable State, and local public notice requirements to involve interest groups and stakeholders for their input on the SWMP.
2. Make available to the public a current version of the SWMP document for review and input for the life of the permit. This should be posted on the City's website.

The City has identified the following target pollutants to be addressed by this Minimum Control Measure: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

The City of Orem has implemented tasks to meet the requirements of this MCM, which are summarized in this section:

PIP-1: Public Review of this Storm Water Management Plan

PIP-2: Volunteer Opportunity

PIP-3: Neighbor Committee Involvement

PIP-4: Public Notifications

PIP-5: Public Works Advisory Commission

PIP-1: Public Review of this Storm Water Management Plan

Year Executed: 2010

Reference Regulation: 4.2.2.1, 4.2.2.2, 4.2.2.3

Audiences: General Public

Description:

In 1995, the City formed a citizens' committee to study and make recommendations to the City Council about the formation of a Storm Sewer Utility. The formation of the utility was also brought to public hearing before the City Council in 1996. The Council accepted the ordinance establishing the Storm Sewer Utility shortly thereafter.

A 30-day period was provided for public comment regarding the original Storm Water Management Program (SWMP) before its initial adoption in 2003. During this time, copies of the management program were placed in the City of Orem's Public Library with comment forms. In addition, the City worked with the Utah Valley Home Builder's Association to address concerns before the revised storm water ordinance and this management program was implemented for the 2003 permitting period.

Annual reviews are made of this SWMP by City Staff. Major revisions have been undertaken in 2010 and 2016 in conjunction with the newly issued MS4 Storm Water permits issued by the State. A copy of the SWMP has been available through the City's website (stormwater.orem.org) for past permit cycles. This revision will be posted online by July 1, 2016 and updated versions will continue to be posted on the City's webpage throughout the duration of the permit. Notice of the ability to review this revised SWMP will be given to all residents via utility bills, on the City website, through social media and in newsletters. City staff will address public comments and make updates to SWMP as part of the annual review.

Purpose and Benefit: Local Government plans benefit from public and stakeholder buy-in. Allowing for public review will allow diverse opinions to be considered.

Measure of Success: Track phone calls, emails, and social media interactions received related to SWMP.

Responsible Staff: Storm Water Engineering Specialist

Funding: Storm Water Utility

Standard Operations Procedures: none

Available for review at stormwater.orem.org.



PIP-2: Volunteer Opportunity

Year Executed: 1998

Reference Regulation: 4.2.2

Audiences: General Public

Description: All storm drain inlets have been marked with a warning that reads “No Dumping: Drains to Drinking Water.” Ninety to ninety-five percent of all inlets were marked as a result of volunteer efforts by Boy Scouts and other community-minded citizens and groups.

The City plans to coordinate volunteer activities to maintain the integrity of the storm drain markers.

The City also employs a volunteer coordinator who can suggest service projects that have a benefit to the storm water utility to volunteer groups looking for service opportunities.

Purpose and Benefit: This activity allows the public to be involved and increases awareness of storm water issues.

Measure of Success: Track the number of markers placed, repaired or replaced.

Responsible Staff: Storm Water Field Supervisor and Volunteer Coordinator

Funding: Storm Water Utility and Parks Section Budgets

Standard Operations Procedures: Install Storm Drain Markers (Available upon request)

Supporting Documents:

Volunteer Tracking Sheet (Available upon request)

PIP-3: Neighborhood Committee Involvement

Year Executed: 1998

Reference Regulation: 4.2.2

Audiences: General Public

Description: The City coordinates volunteer activities with neighborhood communities and includes storm water activities in neighborhood cleanup programs. The City uses the Neighborhoods in Action Program.

The Storm Water Engineering Specialist is available to speak with neighborhood chairs about the importance of keeping gutters clear, reporting illegal dumping and proper disposal of household hazardous waste.

Purpose and Benefit: This activity allows the public to be involved and increases awareness of storm water issues.

Measure of Success: Track neighborhood cleanup activities.

Responsible Staff: Storm Water Engineering Specialist

Funding: Storm Water Utility

Standard Operations Procedures: None

Supporting Documents:

Neighborhood Committee Reports (Available upon request)

PIP-4: Public Notifications

Year Executed: 2003

Reference Regulation: 4.2.2; 4.2.2.1; 4.2.2.2; 4.2.2.3; 4.2.2.4;

Audiences: General Public

Description: The City follows all local public notice requirements.

Purpose and Benefit: This activity allows the public to be involved and increases awareness of storm water issues.

Measure of Success: Track Public Notices.

Responsible Staff: Storm Water Engineering Specialist and City Recorder

Funding: Storm Water Utility

Standard Operations Procedures: None

Supporting Documents:

Public Notice Procedures (Available upon request from the City Recorder's Office)

PIP-5: Public Works Advisory Commission

Year Executed: 2014

Reference Regulation: 4.2.2

Audiences: General Public, Institutional, Commercial Representatives

Description: On February 11, 2014, the Public Works Director recommended that the City Council, by ordinance, create a Public Works Advisory Commission (Commission) made up of citizens to assist the City in addressing Public Works issues. The Commission was officially formed on that date and has been functioning ever since. The Commission meets monthly and representatives attend City Council meetings and work sessions on a regular basis. The Commission consists of seven members appointed by the Mayor with the advice and consent of the City Council to act in an advisory capacity to the City Council and City Manager. Some of the primary responsibilities include:

1. Review and make recommendations to the City Council on Public Works issues brought to the Commission by the City Manager;
2. Review and make recommendations to the City Council on master plans. The recommendations may include a Capital Facilities Plan, a Financial Plan, supporting utility rates, and other relevant recommendations;
3. Meet, discuss, and review any other relevant issues associated with Water Supply and Distribution, Waste Water Collections and Treatment, Traffic Operations (i.e., Signals, Lighting, Fiber Optics, Signs, Striping, etc.), Streets (i.e., Asphalt, Curb, Gutter, Sidewalk, etc.), Storm Water (i.e., Piping, Detention, Injection, Treatment, etc.), Parks, Cemetery, Urban Forestry, Fleet, etc.;
4. Work toward the continuing education of citizens regarding Public Works issues in the community;
5. Plan and arrange for neighborhood meetings/open houses and attend such meetings to receive and review public input.

Purpose and Benefit: This committee provides advice for the storm water program from stakeholders outside of City staff.

Measure of Success: Minutes of meetings where storm water issues are discussed.

Responsible Staff: Public Works Director, Maintenance Division Manager, and City Recorder

Funding: Public Works Department

Standard Operations Procedures: None

Supporting Documents:

Agendas (Available at <http://orem.org/index.php/city-agendas>)

Minutes of Meetings with Storm Water Discussions (Available at <http://www.orem.org/index.php/meeting-minutes-2>)



Chapter 3

MCM 3: Illicit Discharge Detection and Elimination (IDDE)

The permit requirements for Illicit Discharge Detection and Elimination on Storm Water Impacts can be found in Section 4.2.3 of the permit.

This Section also incorporates the requirements of 5.3 and 5.4 analytical and non-analytical storm water monitoring.

A copy of the permit can be found at

<http://www.deq.utah.gov/Permits/water/updes/docs/2010/07Jul/2010SmallMS4GPfinal7-26-2010.pdf>. The permit outlines in general the following requirements:

1. Maintain a storm water system map of the MS4, showing the location of all outfalls and the names and location of all State waters that receive discharges from those outfalls.
2. Through an ordinance, or other regulatory mechanism, a prohibition (to the extent allowable under State, or local law) on non-storm water discharges into the MS4, and appropriate enforcement procedures and actions.
3. Develop and implement a plan to detect and address non-storm water discharges, including spills, illicit connections, and illegal dumping to the MS4.
4. Develop and implement Standard Operating Procedures (SOPs) for:
 - a. Tracing the source of an illicit discharge.
 - b. Characterizing the nature of, and the potential public or environmental threat posed by, any illicit discharges found or reported.
 - c. Ceasing the illicit discharge, including notification of appropriate authorities, property owners, and technical assistance for removing the source and follow-up inspections.
5. Inform public employees, businesses, and the general public about the hazards associated with illegal discharges and improper disposal of waste.
6. Promote or provide services for the collection of household hazardous waste.
7. Publicly list and publicize a hotline or other local number for public reporting of spills or other illicit discharges.
8. Develop a written spill/dumping response procedure, and a flowchart for internal use, including various responsible agencies and their contacts.
9. Adopt and implement procedures for program evaluation and assessment.
10. Train employees, at a minimum, annually on the IDDE program.
11. Analytical and non-analytical monitoring
12. Notify DEQ of dischargers to the MS4 that need a separate UPDES Permit (e.g., Industrial Storm Water Permit, Construction Storm Water Permit, or Dewatering Permit).

The city has identified the following target pollutants to be addressed by this Minimum Control Measure: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; and Pathogens.



The City of Orem has implemented tasks to meet the requirements of this MCM, which are summarized in this section.

IDDE-1: Maintain a Current Map of MS4

IDDE-2: Administrative Prohibition of Illicit Discharges

IDDE-3: Identification and Periodic Reclassification of High Priority IDDE Areas

IDDE-4: Outfall Verification and Screening

IDDE-5: Field Response to IDDE Events

IDDE-6: Compliance Assistance and Enforcement

IDDE-7: Employee Training about Illicit Discharges, Spills, Illicit Connections and Improper Disposal

IDDE-8: Publicize a Hotline for Public Reporting of Spills and Other Illicit Discharges

IDDE-9: Promote and Provide Services for the Collection of Household Hazardous Waste

IDDE-10: DEQ Notification Procedures

IDDE-1: Maintain a Current Map of MS4

Year Executed: 1996

Reference Regulation: 4.2.3.1

Audiences: MS4 Employees, General Public, Contractors, Developers, Planners

Description:

The Storm Water Utility has surveyed and mapped the current storm water system which identifies the location of all MS4 and drainage areas contributing to those outfalls that discharge from the City’s jurisdiction to a receiving water. The names and location of all State waters that receive discharges from those outfalls have been mapped and given an individual alphanumeric identifier. All mapping is done by GPS surveying. The MS4 map is found in Appendix A

Purpose and Benefit: Knowing the locations of storm water systems and the type of development near them is the first step in protecting it from pollution sources.

Measure of Success: The MS4 map.

Responsible Staff: Storm Water Engineering Specialist

Funding: Storm Water Utility

Standard Operations Procedures: none

Supporting Documents:

MS4 Facility Map (See Appendix A)



IDDE-2: Administrative Prohibition of Illicit Discharges

Year Executed: 1996, revised and amended 2008, 2015

Reference Regulation: 4.2.3.2-4.2.3.2.1

Audiences: MS4 Staff, Residents, Developers, Contractors, Engineers and Planners

Description:

The City enacted chapter 23 of the City code in 1996. This ordinance was updated in 2008 and 2015 to come into greater compliance with the General Permit for Discharges from Small MS4s. Beyond this chapter, there are numerous City Codes that prohibit activities that have a negative impact on storm water quality. A summary of City Ordinances which impact water quality can be found in Appendix B.

Purpose and Benefit: Codifying the requirements of the Permit and the SWMP allow for effective enforcement of necessary prohibitions to ensure storm water quality.

Measure of Success: Maintain a log of ordinance revisions.

Responsible Staff: City Attorney in coordination with Maintenance Division Manager and Streets and Storm Water Section Manager

Funding: Storm Water Utility

Standard Operations Procedures: none

Supporting Documents:

City Code (http://exe.orem.org/citycode/Chap_23.pdf)

City Code Water Quality Summary (Appendix B)

IDDE-3: Identification and Periodic Reclassification of High Priority IDDE Areas

Year Executed: 2011

Reference Regulation: 4.2.3.3; 4.2.3.3.1; 4.2.3.10

Audiences: MS4 Staff, Commercial, Industrial

Description:

The Storm Water Utility staff has identified and selected the highest priority areas likely to have illicit discharges. The selection process is based on the likelihood of problems and the significance of potential problems. The areas focused on are areas with older infrastructure, industrial or commercial use, areas with onsite sewage disposal systems, areas with older sewer lines or with a history of sewer overflows or cross connections, areas with a history of illicit discharges or illegal dumping in addition to areas upstream of sensitive water bodies. These priority areas will be updated annually to reflect changing priorities.

Purpose and Benefit: Focusing monitoring efforts will allow for better use of limited resources.

Measure of Success: Map hot spots for illicit discharges, as outlined in Appendix C, and compare how well these hot spots correspond to those expected.

Responsible Staff: Streets and Storm Water Section Manager and Storm Water Engineering Specialist.

Funding: Storm Water Utility

Standard Operations Procedures: Priority Area Identification Procedures (See Appendix C)

Supporting Documents:

Priority Area Map (In Process, to be available as part of Appendix C by August 1, 2016)

IDDE-4: Outfall Verification and Screening

Year Executed: 2011

Reference Regulation: 4.2.3.3.2-4.2.3.3.4

Audiences: MS4 Staff, General Public, Commercial, Institutional, Industrial

Description:

Field screening is necessary to identify the source(s) of the actual illicit discharges. The priority list of outfalls is the basis of screening and assessment activities. All outfalls should be inspected at least once every five years. Every outfall in priority areas will be screened at least once a year. Using the checklist, the staff designated to conduct field screening will go out into the priority areas and collect visual data. The screening will be conducted at least 72 hours after the last precipitation event.

Purpose and Benefit: Procedures for eliminating illicit discharges, direct sources of pollution in the MS4.

Measure of Success: Track reports of illicit discharges and the actions taken to remedy the discharges.

Responsible Staff: Streets and Storm Water Section Manager and Storm Water Field Supervisor

Funding: Storm Water Utility

Standard Operations Procedures: Reporting Illicit Discharges and Dry Weather Outfall Screening (Available upon request)

Supporting Documents:

Table of Outfall names and locations (See Appendix C)

Map of Outfalls (In Process, to be available as part of Appendix C by August 1, 2016)

Screening forms (See Appendix D)

IDDE-5: Field Response to IDDE Events

Year Executed: 2011

Reference Regulation: 4.2.3.4; 4.2.3.5; 4.2.3.5.1; 4.2.3.9.1; 4.2.3.12

Audiences: MS4 Staff, General Public, Commercial, Institutional, Industrial

Description:

There are several items addressed by the City’s Storm Water Field Staff in connection with illicit connections and illicit discharges and spills. The City has implemented SOPs to address items such as tracking illicit discharge reports, tracing the sources of illicit discharges and connections, removing illicit connections, eliminating illicit discharges, and proper maintenance of the MS4. The implementation of these practices is found in SOPs listed below.

Purpose and Benefit: Procedures for eliminating illicit discharges, direct sources of pollution in the MS4.

Measure of Success: Reports of tracing activities. Reporting to DEQ as necessary.

Responsible Staff: Storm Water Field Supervisor

Funding: Storm Water Utility

Standard Operations Procedures: Tracking an Illicit Discharge Report, Tracing Illicit Discharges which could include Manhole Inspection, Video Inspection and Dye Testing, and Preventing and Responding to Illegal Dumping and Spills (Available upon request)



IDDE-6: Compliance Assistance and Enforcement

Year Executed: 2011

Reference Regulation: 4.2.3.2.1; 4.2.3.6; 4.2.3.6.1; 4.2.3.9.1

Audiences: General Public, Commercial, Institutional, Industrial

Description: Enforcement measures are spelled out in City ordinances and City staff will use their own judgment about what mix of compliance assistance and enforcement actions is appropriate in a given situation. The City will respond to the discovery of an illegal connection in a graduated manner, beginning with efforts to obtain voluntary compliance and escalating to increasingly severe enforcement actions if compliance is not obtained.

Purpose and Benefit: Assistance and enforcement are powerful tools in helping residents, businesses, institutions and industrial facilities eliminate the sources of illicit discharges.

Measure of Success: Tracking of illicit discharges and follow up activities.

Responsible Staff: Storm Water Engineering Specialist and Storm Water Project Manager

Funding: Storm Water Utility

Standard Operations Procedures: Compliance Assistance and Enforcement Procedures, Ceasing Illicit Discharges, Spill Dumping Response Procedure (423-10-1) (Available upon request)

IDDE-7: Employee Training about Illicit Discharges, Spills, Illicit Connections and Improper Disposal

Year Executed: 1998

Reference Regulation: 4.2.3.7; 4.2.3.11

Audiences: MS4 Staff

Description: Many public employees can play an important role as partners in the detection and/or prevention of illicit discharges. For example, street/storm water staff who maintains catch basins can look for signs of illicit discharges. Municipal building inspectors/project managers can help ensure that illegal connections to the storm water system do not take place in construction and renovation projects. Public Safety officers, public works employees, and other municipal staff whose jobs keep them outside and mobile can help spot illegal dumpers. Public Safety personnel who respond to hazardous material spills can help keep these spills out of the storm water system and adjacent water bodies.

Purpose and Benefit: Annual training keeps staff up to date on critical issues associated with storm water quality.

Measure of Success: Training logs, Illicit Discharge Reports submitted by employees.

Responsible Staff: Storm Water Engineering Specialist

Funding: Storm Water Utility

Standard Operations Procedures: Reporting Illicit Discharges (Available upon request)

Supporting Documents:

Employee Training Lessons (Available upon request)

IDDE-8: Publicize a Hotline for Public Reporting of Spills and Other Illicit Discharges

Year Executed: 2011

Reference Regulation: 4.2.3.9; 4.3.9.1

Audiences: General Public, Businesses and Institutions

Description: The City has established a hotline number (801-229-7577) for reporting illicit discharges. This number is publicized in WaterWatch, on the City website, social media, etc. Recorded messages received at this number are forwarded to storm water personnel with a goal to respond to calls in a timely fashion.

Purpose and Benefit: The hotline allows City residents and business owners to become the eyes and ears of the storm water utility in its efforts to eliminate illicit discharges.

Measure of Success: Track phone calls with Illicit Discharge Hotline Incident Tracking Sheet.

Responsible Staff: Storm Water Project Manager under the direction of the Storm Water Field Supervisor and the Streets and Storm Water Section Manager

Funding: Storm Water Utility

Standard Operations Procedures: Illicit Discharge Hotline Incident Reporting and Spill/Dumping Response Procedure and Flow Chart (Available upon request)

IDDE-9: Promote and Provide Services for the Collection of Household Hazardous Waste

Year Executed: 1997

Reference Regulation: 4.2.3.8

Audiences: General Public, Commercial, Institutional, Industrial

Description: The city has established an oil and antifreeze recycling station as part of its fleet services division. The City promotes the oil and antifreeze recycling program in newsletters and on its website.

The City also has publicized the efforts of the Utah County Health Department and its Household Hazardous Waste collection events. It has done this through its website and through its social media outlets.

Purpose and Benefit: Eliminating the storage of unused or leftover chemicals and household hazardous waste lessens the potential for IDDE events.

Measure of Success: Oil and Antifreeze Recycling Tracking logs.

Responsible Staff: Fleet Services Division Manager and Storm Water Engineering Specialist

Funding: Storm Water Utility and Fleet Services Division

Standard Operations Procedures: None

Chapter 4

MCM 4: Construction Site Storm Water Runoff Control (CSR)

The permit requirements for Construction Site Storm Water Runoff Control can be found in Section 4.2.4 of the permit.

A copy of the permit can be found at

<http://www.deq.utah.gov/Permits/water/updes/docs/2010/07Jul/2010SmallMS4GPfinal7-26-2010.pdf>. The permit outlines in general the following requirements:

1. Through an ordinance, or other regulatory mechanism, require compliance with UPDES Storm Water General Permit for Construction.
2. Documentation of enforcement activities including a written enforcement strategy and Standard Operating Procedures (SOPs) related to ceasing violations.
3. Develop and implement a plan for the pre-construction review of Storm Water Pollution Prevention Plans (SWPPPs).
 - a. Review BMPs
 - b. Include a checklist to evaluate water quality impacts as explained in the drainage design manual.
 - c. Encourage the use of low impact design (LID) and green infrastructure
 - d. Identify priority construction sites, especially those that directly discharge impaired waters to high quality waters as identified by the State
4. Develop and implement procedures for construction site inspection and enforcement of SWPPP control measures.
5. Track the preconstruction review, regular inspections, permit violations, and permit termination of construction sites of one acre or larger and those sites smaller than one acre that are part of a common plan of development.
6. Publicly list and publicize a hotline or other local number for public reporting of storm water violations observed on construction sites. Track calls made to this number as well as the responses made to these calls.
7. Train employees, at a minimum, annually on the construction storm water program.

The City of Orem has implemented tasks to meet the requirements of this MCM, which are summarized in this section.

CSR-1: City of Orem Ordinances

CSR-2: SWPPP Review Procedures

CSR-3: Construction Site Inspection Procedures

CSR-4: Documentation, Enforcement Strategies and Procedures to respond to Violation of Ordinance

CSR-5: Tracking of Preconstruction and Construction Storm Water Activities

Tasks in other Minimum Control Measures

PEO-1: Education and Outreach for General Public (4.2.4.4.5)

PEO-4: Education and Outreach for City Employees (4.2.4.5)



CSR-1: City of Orem Ordinances

Year Executed: 1996, revised and amended 2008, 2015

Reference Regulation: 4.2.4.1; 4.2.4.1.1; 4.2.4.1.2; 4.2.4.1.3

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: MS4 Employees, General Public, Engineers, Construction Contractors, Developers and Planners

Description:

City of Orem ordinances include code about the use of erosion and sediment control practices at construction sites disturbing greater than or equal to one acre and to construction projects of less than one acre that are part of a larger common plan of development. These projects are governed by the State’s General Construction Storm Water Permit. Sites that are smaller than this are governed by the City’s Land Disturbance Permit.

City ordinances require construction operators to prepare a Storm Water Pollution Prevention Plan (SWPPP) and apply sediment and erosion control BMPs as necessary to protect water quality, reduce the discharge of pollutants, and control waste in accordance with the SWPPP requirement set forth in the UPDES Storm Water General Permit for Construction Activities. Additionally, the ordinances address compliance with the UPDES General Storm Water Permit for Construction Activities Connected with Single Lot Housing Projects. The ordinance shall include a provision for access by qualified personnel to inspect construction storm water BMPs on private properties that discharge to the MS4.

Purpose and Benefit: Ordinance supporting the City’s storm water programs is vital to ensure the success of programs that governs and protects the public.

Measure of Success: Evaluate the ordinance revision and draw connections to positive outcomes.

Responsible Staff: Storm Water Project Manager, Maintenance Division Manager and City Attorney

Funding: Storm Water Utility

Standard Operations Procedures: none

City Ordinance References

Storm Water Ordinances available online on the city’s website. If a hard copy is needed, please contact the Storm Water Utility at 801-229-7500.

Chapter 17

Chapter 23

City Ordinance Summary (See Appendix B)



Supporting Documents

UPDES Storm Water General Permit for Construction Activities

(<http://www.deq.utah.gov/Permits/water/updes/stormwatercon.htm#forms>)

General Storm Water Permit for Construction Activities Connected with Single Lot Housing Projects (<http://www.deq.utah.gov/Permits/water/updes/stormwatercon.htm#forms>)

City of Orem Land Disturbance Permit Application (Available at

<http://orem.org/index.php/public-works/mcm-4-construction-site-stormwater-runoff>)

CSR-2: SWPPP Review Procedures**Year Executed:** 1996**Reference Regulation:** 4.2.4.3-4.2.4.3.3**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens**Audiences:** Engineers, Construction Contractors, Developers and Planners**Description:**

The City has developed and implemented procedures for pre-construction Storm Water Pollution Prevention Plan (SWPPP) review and for keeping records for construction sites that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, to ensure plans are complete and in compliance with State and Local regulations. The City also has procedures in place for sites that are smaller than one acre through its land disturbance permit.

The City conducts pre-construction SWPPP reviews which include a review of the site design, the planned operations at the construction site, planned BMPs during the construction phase, and the planned BMPs to be used to manage runoff created after development.

These procedures consider potential water quality impacts and use a checklist. Priority construction sites shall consider soil erosion potential, site slope, project size and type, sensitivity of receiving waterbodies, proximity to receiving waterbodies, and non-storm water discharges and past record of non-compliance by the operators of the construction site. The review also identifies priority construction sites such as those sites that discharge directly into or immediately upstream of waters that the State recognizes as impaired (for sediment) or as high quality.

Purpose and Benefit: Creating procedures and checklists allow for uniform review of sites based on agreed upon objective criteria. This consistency should lead to better compliance as contractors, developers and engineers are able to recognize patterns applicable to sites throughout the City.

Measure of Success: Maintain a log of SWPPP reviews, deficiencies discovered by these reviews and the actions taken to remedy these deficiencies.

Responsible Staff: Storm Water Project Manager, Storm Water Field Supervisor and City Planner

Funding: Storm Water Utility

Standard Operations Procedures: Preconstruction SWPPP Review (Available upon request)

Other References

Subdivision/Site Plan Checklist (See Appendix E)

Storm Water BMPs (See Salt Lake County's BMPs at <http://slco.org/pweng/stormwater/html/guide.html>)



CSR-3: Construction Site Inspection Procedures

Year Executed: 2003

Reference Regulation: 4.2.4.4-4.2.4.4.4

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: MS4 Employees

Description:

The City has developed and implemented a program for inspecting construction sites for compliance with storm water regulations. Those sites that disturb an area larger than one acre or that are part of a common plan of development that disturbs more than one acre are governed by procedures that are defined by the UPDES Storm Water General Permit for Construction Activities and are carried out using the State's Construction Storm Water Inspection Form (Checklist). Those smaller than one acre are governed by the City's Land Disturbance Permit.

Purpose and Benefit: Creating procedures and checklists allow for uniform review of sites based on agreed upon objective criteria. This consistency should lead to better compliance as contractors, developers and engineers are able to recognize patterns applicable to sites throughout the City.

Measure of Success: Maintain a log of SWPPP reviews, deficiencies discovered by these reviews and the actions taken to remedy these deficiencies.

Responsible Staff: Storm Water Project Manager

Funding: Storm Water Utility

Standard Operations Procedures: Construction Site Inspection for Storm Water Regulation Compliance (Available upon request)

Other References

UDEQ Construction Storm Water Inspection Form



CSR-4: Documentation, Enforcement Strategies, and Procedures to respond to Violation of Ordinance

Year Executed: 2003

Reference Regulation: 4.2.4.2; 4.2.4.2.1; 4.2.4.2.2; 4.2.5.2-4.2.5.2.1

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: MS4 Employees

Description:

The City has developed a program to track enforcement actions related to compliance with regulations governing storm water discharges from construction sites. This includes a series of escalating actions that are meant to increase the probability of compliance. The system is identified in the Enforcement Strategy SOP and includes actions ranging from verbal warnings to civil and criminal penalties.

Purpose and Benefit: Creating procedures and checklists allow for uniform review of sites based on agreed upon objective criteria. This consistency should lead to better compliance as contractors, developers and engineers are able to recognize patterns applicable to sites throughout the City.

Measure of Success: Maintain a log of SWPPP reviews, deficiencies discovered by these reviews and the actions taken to remedy these deficiencies.

Responsible Staff: Storm Water Project Manager, Storm Water Field Supervisor and City Planner

Funding: Storm Water Utility

Standard Operations Procedures: Criminal and Civil Enforcement Strategy (Available upon request)

City Ordinance References

Storm Water Ordinances available online on the city's website. If a hard copy is needed, please contact the Storm Water Utility at 801-229-7500.

Chapter 23

City Ordinance Summary (See Appendix B)

Other References:

Storm Water Pollution Prevention Management tracking program (See Appendix F)

CSR-5: Tracking of Preconstruction and Construction Storm Water Activities

Year Executed: 2003

Reference Regulation: 4.2.4.6

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: MS4 Employees, Engineers, Construction Contractors, Developers and Planners

Description:

The City has developed a program to track preconstruction and construction storm water activities. The Development Tracking program developed by the City's IT Department tracks site plan reviews. The Storm Water Pollution Prevention Management tracking program developed by the City's IT Department tracks SWPPPs, inspections and enforcement.

Purpose and Benefit: Tracking preconstruction and construction storm water activities allows for consistent enforcement of storm water regulations. It also allows for review of items such as common violations.

Measure of Success: Reviews of the development tracking and SWPPP tracking program reports.

Responsible Staff: Storm Water Project Manager, Storm Water Field Supervisor and City Planner

Funding: Storm Water Utility

Standard Operations Procedures: Criminal and Civil Enforcement Strategy (Available upon request)

Storm Water Pollution Prevention Management tracking program (See Appendix F)

Chapter 5

MCM 5: Long-Term Storm Water Management in New Development and Redevelopment (Post-Construction Storm Water Management)

The permit requirements for Long-Term Storm Water Management in New Development and Redevelopment (Post-Construction Storm Water Management) can be found in Section 4.2.5 of the permit.

A copy of the permit can be found at

<http://www.deq.utah.gov/Permits/water/updes/docs/2010/07Jul/2010SmallMS4GPfinal7-26-2010.pdf>. The permit outlines in general the following requirements:

1. Develop and adopt an ordinance that requires long-term post-construction storm water controls at new development and redevelopment sites that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale. The ordinance or other regulatory mechanism shall require BMP selection, design, installation, operation and maintenance standards necessary to protect water quality and reduce the discharge of pollutants to the MS4.
2. Document enforcement activities including a written enforcement strategy and Standard Operating Procedures (SOPs) related to ceasing violations which is covered in MCM 4.
3. Documentation on how the requirements of the ordinance or other regulatory mechanism will protect water quality and reduce the discharge of pollutants to the MS4. Documentation shall include:
 - a. How long-term storm water BMPs were selected;
 - b. The pollutant removal expected from the selected BMPs; and
 - c. The technical basis which supports the performance claims for the selected BMPs.
4. Develop and implement standards to ensure that any storm water controls or management practices for new development and redevelopment will prevent or minimize impacts to water quality. This should include encouraging non-structural BMPs.
5. Require the evaluation of Low Impact Development (LID) to encourage infiltration, evapotranspiration, and storm water harvesting and Green Infrastructure controls. Require documentation of why LID and Green Infrastructure was selected on a case by case basis.
6. Track the preconstruction review, regular inspections, permit violations, and permit termination of construction sites of one acre or larger and those sites smaller than one acre that are part of a common plan of development
7. Develop a retrofit plan that incorporates LID and Green Infrastructure. Priority Areas should be identified in the plan.
8. Specify a hydrologic method to be used in calculation of runoff values.
9. Implement procedures for site plan review that includes preferred design specifications tailored to different development types. These design specifications should be made available to design professionals on a regular basis.
10. Conduct site inspections during construction and annually after site completion
11. Maintain a database of long-term storm water management structures and maintain a catalog of inspections done on these structures.

MCM 5

LONG-TERM STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT (POST-CONSTRUCTION STORM WATER MANAGEMENT)

The City of Orem has implemented tasks to meet the requirements of this MCM, which are summarized in this section.

LTM-1: City of Orem Ordinances

LTM-2: Water Quality Protection Documentation

LTM-3: Post Construction Plan Review

LTM-4: Retrofit Plan

LTM-5: Hydrologic Method

LTM-6: Site Plan Review Procedures

LTM-7: Site Inspection for Post-Construction Storm Water Management Compliance

LTM-8: Post-Construction Storm Water Management Structure Inventory

Tasks in other Minimum Control Measures

CSR-4: Documentation, Enforcement Strategies and Procedures to respond to Violation of Ordinance (4.2.5.5.2-4.2.5.5.2.1)

PEO-4: Education and Outreach for City Employees (4.2.5.6)



LTM-1: City of Orem Ordinances

Year Executed: 1996, revised and amended 2008, 2015

Reference Regulation: 4.2.5.1; 4.2.5.5.1; 4.2.5.5.3

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: MS4 Employees, General Public, Engineers, Construction Contractors, Developers and Planners

Description:

City of Orem ordinances include code about the use of BMPs needed to protect water quality on all new development and re-development sites within the City of Orem. These City ordinances govern the selection, design, installation, operation and maintenance of long term/post-construction BMPs. It encourages the use of non-structural BMPs by reference to a City approved BMP manual. It also encourages the use of a Low Impact Development (LID) approach for handling storm water. It requires documentation of the green infrastructure and other BMPs considered and the reasons for choosing the practices or explanations of what prevents the use of green infrastructure and LID for each development or re-development project. Ordinance also requires annual inspection and maintenance of long term storm water management structures as needed and provides provision for maintenance agreements so that property owners can be held to account for keeping BMPs in good working order.

Purpose and Benefit: Ordinance supporting the City’s storm water programs is vital to ensure the success of programs that governs and protects the public.

Measure of Success: Evaluate the ordinance and draw connections to positive outcomes.

Responsible Staff: Storm Water Project Manager, Storm Water Field Supervisor, Maintenance Division Manager and City Attorney

Funding: Storm Water Utility

Standard Operations Procedures: Encouraging the use of LID and Green Infrastructure (Available upon request)

City Ordinance References

Storm Water Ordinances available online on the city’s website. If a hard copy is needed, please contact the Storm Water Utility at 801-229-7500.

Chapter 17

Chapter 23

City Ordinance Summary (See Appendix B)

Supporting Documents

Sample maintenance agreement (see Appendix G)



LTM-2: Water Quality Protection Documentation**Year Executed:** 2016**Reference Regulation:** 4.2.5.2.2**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens**Audiences:** City Staff, Engineers, Construction Contractors, Developers, Planners**Description:**

Selecting specific long-term storm water BMPs for recommendation has been a challenge due to the lack of data on the effectiveness and pollutants removal rates from studies that have been completed in Utah. The City of Orem has chosen to rely on the data contained in Salt Lake County's BMP manuals found at the following website <http://slco.org/pweng/stormwater/html/guide.html>. The International Storm Water BMP Database, and the EPA factsheet are additional resources which can be found at the following websites, <http://www.bmpdatabase.org/> or <https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#edu>. The preceding web sites list expected removal rates from a variety of BMPs and the technical basis and studies which supports these performance claims. In order to protect the receiving water bodies, design BMPs for new or redeveloped sites are required. Developers must design BMPs to treat storm water with a goal of reducing pollutants in the receiving water bodies. BMPs should address removal of phosphorous, total suspended solids, and other target pollutants. Proposed BMPs will be evaluated by City staff to verify selected BMPs are addressing pollutant removal.

Purpose and Benefit: Creating procedures and checklists allow for uniform review of sites based on agreed upon objective criteria. This consistency should lead to better compliance as contractors, developers and engineers are able to recognize patterns applicable to sites throughout the City.

Measure of Success: Maintain a log of SWPPP reviews, deficiencies discovered by these reviews and the actions taken to remedy these deficiencies.

Responsible Staff: Storm Water Project Manager, Storm Water Field Supervisor and City Planner

Funding: Storm Water Utility

Standard Operations Procedures: None

Supporting Documents:

Storm Water BMP Manual (See Salt Lake County's BMPs at <http://slco.org/pweng/stormwater/html/guide.html>)



LTM-3: Long-Term Storm Water Management Plan Review

Year Executed: 2003

Reference Regulation: 4.2.5.4-4.2.5.4.3

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: MS4 Employees

Description:

Development can alter landscapes by increasing imperviousness (i.e. roofs, driveways, parking lots) and changing drainage patterns, thereby increasing the volume and velocity of runoff from the site. Increased volume leads to degradation of receiving waters and increases in the occurrence of flooding. Storm water from developed impervious areas can also contain a variety of pollutants that are detrimental to water quality, such as sediment, nutrients, road salts, heavy metals, pathogenic bacteria, and petroleum hydrocarbons.

Considering water quality impacts early in the design process can provide long-term water quality benefits. New development projects on undeveloped land offer many opportunities to reduce storm water runoff from the site. Redevelopment projects, which replace an existing development and are typically in more urban areas, usually have less land area available for storm water controls.

The City of Orem as a Phase II regulated municipality has developed ordinances which require property owners and operators to include a combination of structural and non-structural BMPs and ensure adequate long-term operation and maintenance of BMPs. To do this, the City needs to thoroughly review development plans and supporting documents to ensure that they minimize water quality impacts from the site after construction is complete.

Depending on the development type and location, different BMPs may apply. Salt Lake County has established a list of BMPs with associated matrices to help developers select BMPs that apply to specific development types. BMPs have been outlined for Commercial, Municipal, and Industrial use for easy access to those BMPs which provide protection for different uses. The City will guide developers and contractors to Salt Lake County's webpage, <http://slco.org/pweng/stormwater/html/guide.html>, for selection of BMPs. The City will review the County's BMPs annually to verify BMPs still meet the City's goals.

The City will keep a record on hand of those materials which are provided to design professionals. If mass mailings are distributed to design professionals, the date and list of recipients will be recorded.

Purpose and Benefit: Plan review allows for the evaluation of selected BMPs and guidance for developers from planning to construction to long-term maintenance.

Measure of Success: Maintain a log of site plan and subdivision reviews, deficiencies discovered by these reviews and the actions taken to remedy these deficiencies.

Responsible Staff: Storm Water Field Supervisor



Funding: Storm Water Utility

Standard Operations Procedures: Long-Term Storm Water Management Plan Review
(Available upon request)

Supporting Documents:

Storm Water BMP Manual (See Salt Lake County's BMPs at
<http://slco.org/pweng/stormwater/html/guide.html>)

LTM-4: Retrofit Plan

Year Executed: 2016

Reference Regulation: 4.2.5.3.3

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: MS4 Employees

Description:

The City will develop a program to retrofit existing developed sites that are adversely impacting water quality on a case-by-case basis. It will emphasize infiltration, evapotranspiration and harvesting and reuse of storm water. The program will rank the measures based on pollutant removal expectation. The plan will analyze impact to sites based on proximity to water bodies, protection status of water bodies as defined by DEQ, hydrologic conditions of water bodies, proximity to sensitive ecosystems and the impact of future sites.

Purpose and Benefit: Evaluating sites that are already adversely affecting water quality for the removal of polluted discharges will lead to cleaner water.

Measure of Success: Document the number of sites evaluated and the measures used to address the issues with these sites.

Responsible Staff: Storm Water Project Manager, Storm Water Field Supervisor and City Planner

Funding: Storm Water Utility

Standard Operations Procedures: Adverse Site Evaluation (Available upon request)

City Ordinance References

Storm Water Ordinances available online on the city's website. If a hard copy is needed, please contact the Storm Water Utility at 801-229-7500.

Chapter 17

Chapter 23 (23-4-2 and 23-4-3 regarding illegal discharges and illicit connections)

City Ordinance Summary (See Appendix B)

Supporting Documents:

Retrofit Plan (To be completed by September 1, 2016)

LTM-5: Hydrologic Method

Year Executed: 2016

Reference Regulation: 4.2.5.3.4

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: MS4 Employees, Engineers, Construction Contractors, Developers and Planners

Description:

The use of hydrologic analysis in the design of storm water facilities for new developments and redevelopment sites has been a part of the preconstruction process for many years at the City of Orem. The standards used have been selected by the Development Services section under the direction of the City Engineer. The Storm Water Utility is providing guidance in the process ensuring that UPDES standards of the management/retention of the 90th percentile rainfall event. The review of plan designs will require the technical rationale should this standard be unachievable for a given site. An exemption for the requirement of retaining the 90th percentile rainfall event can be obtain if retention is not feasible due to site constraints, pore percolation, high groundwater levels, etc. The City Engineer will use engineering judgement to determine if the exemption request be accepted or denied on a case by case basis. If an exemption is accepted, developers will be required to provide a plan identifying the means by which water quality will be protected to the City Engineer for his approval.

Purpose and Benefit: Reducing runoff from sites and encouraging the infiltration, evapotranspiration and/or reuse of storm water allows for groundwater recharge and minimizes potentially adverse impacts to downstream waters.

Measure of Success: Document the number of sites evaluated and the measures used to address the issues with these sites.

Responsible Staff: Storm Water Field Supervisor, City Planner and City Engineer

Funding: Storm Water Utility

Standard Operations Procedures: Post-Construction Plan Review (Available upon request)

Supporting Documents:

Design Standards Manual (Available upon request)

LTM-6: Site Plan Review Procedures

Year Executed: 1996

Reference Regulation: 4.2.5.3; 4.2.5.3.1; 4.2.5.3.2

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: MS4 Employees, Contractors, Developers, Engineers

Description:

The City reviews site plans to ensure that any storm water controls or management practices for new development and redevelopment will prevent or minimize impacts to water quality. This process involves the technical development review with engineering, public works and public safety. It promotes non-structural BMPs such as minimizing disturbance areas, preserving areas deemed important for water quality benefits, implementing flood control and protecting natural resources. It also requires the evaluation of LID and green infrastructure to implement infiltration, evapotranspiration and storm water harvesting in accordance with state regulations. If LID is determined not to be feasible, documentation explaining site limitations must be submitted to City personnel for review and approved prior to construction. BMPs will be reviewed to ensure that they will address anticipated pollutants from the developed site. Additionally this process of preconstruction and review meetings is a time to review maintenance agreements.

Purpose and Benefit: The best way to integrate long term storm water quality measures into a site is during planning and review.

Measure of Success: Document the number of sites evaluated and the measures used to address the issues with these site plans.

Responsible Staff: Storm Water Field Supervisor, City Planner and City Engineer

Funding: Storm Water Utility

Standard Operations Procedures: Site Plan Reviews, Post-Construction Plan Review (Available upon request)

Supporting Documents

City of Orem Construction Standards (<http://orem.org/PDF/DS/Specifications-2011.pdf>)

Utah Division of Water Rights Rainwater Harvesting Registration
(<http://www.waterrights.utah.gov/forms/rainwater.asp>)

Storm Water BMP Manual (See Salt Lake County's BMPs at
<http://slco.org/pweng/stormwater/html/guide.html>)

Subdivision and Site Plan Checklist (See Appendix E)



LTM-7: Site Inspection for Post-Construction Storm Water Management Compliance

Year Executed: 2016

Reference Regulation: 4.2.5.5; 4.2.5.5.2; 4.2.5.5.3

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: MS4 Employees, Business Owners

Description:

The City has a program to verify the proper installation and maintenance of long-term storm water management controls. This program includes an inspection during installation and annual inspections after site completion. The installation inspection is to be completed by the storm water project manager or a building inspector with annual inspections being completed by qualified inspectors from the property developer/owner. The City will inspect these sites at a minimum of once every five years.

Purpose and Benefit: Properly installed and maintained storm water controls ensure long-term benefits from measures are extended to the full life expectancy of the measures.

Measure of Success: Document the number of sites evaluated and the measures used to address the issues with these sites.

Responsible Staff: Storm Water Field Supervisor, City Planner and City Engineer

Funding: Storm Water Utility

Standard Operations Procedures: Post-Construction Measure Installation Inspection, Post-Construction Measure Annual Inspection Procedures, and Post-Construction Measure Maintenance Inspection 5-year Review. (Available upon request)

Sample Maintenance Agreement (See Appendix G)

LTM-8: Post-Construction Storm Water Management Structure Inventory

Year Executed: 2016

Reference Regulation: 4.2.5.7; 4.2.5.7.1; 4.2.5.7.2

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: MS4 Employees

Description:

The City will review its current inventory of post-construction storm water management structures and collect information on all such existing structures. A GIS map with related databases will track the description, maintenance requirements and inspection information regarding each LTM. This GIS and related database will be reviewed frequently to update necessary information.

Purpose and Benefit: A database allows for the proper tracking of the maintenance and inspections of long term management structures and ensures greater compliance with maintenance expectations.

Measure of Success: Maps and reports on structures and related maintenance and inspection activities.

Responsible Staff: Storm Water Field Supervisor and Storm Water Engineering Specialist

Funding: Storm Water Utility

Standard Operations Procedures: Post-Construction Measure Annual Inspection Procedures, Post-Construction Measure Maintenance Inspection 5-year Review. (Available upon request)

Supporting Documents:

Sample Maintenance Agreement (See Appendix G)

Chapter 6 (CSR)

MCM 6: Pollution Prevention and Good Housekeeping for Municipal Operations

The permit requirements for Pollution Prevention and Good Housekeeping for Municipal Operations can be found in Section 4.2.6 of the permit.

A copy of the permit can be found at

<http://www.deq.utah.gov/Permits/water/updes/docs/2010/07Jul/2010SmallMS4GPfinal7-26-2010.pdf>. The permit outlines in general the following requirements:

1. Develop and keep current a written inventory of Permittee-owned or operated facilities and storm water controls. Permittees shall assess this written inventory for their potential to discharge to storm water typical urban pollutants. The Permittee must identify as "high-priority" those facilities or operations that have a high potential to generate storm water pollutants. The Permittee shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP) or similar type document for each "high-priority" facility.
2. Conduct the following inspections at "high priority" facilities:
 - a. Weekly visual inspections
 - b. Quarterly comprehensive inspections
 - c. Quarterly visual observation of storm water discharges
3. Develop and implement Standard Operating Procedures for offices, police and fire stations, pools, parking garages, and other Permittee-owned or operated buildings or utilities. They must address
 - a. Storage and disposal of chemicals
 - b. Spill prevention and cleanup plans
 - c. Dumpsters and other waste management
 - d. Sweeping parking lots
 - e. Keeping areas surrounding the facilities clean
 - f. Material storage areas
 - g. Heavy equipment storage and maintenance areas
 - h. Parks and open space
 - i. Vehicles and Equipment
 - j. Roads, highways and parking lots
4. Maintain an inventory of all floor drains inside all Permittee-owned or operated buildings. The inventory must be kept current. The Permittee must ensure that all floor drains discharge to appropriate locations.
5. Assess the effectiveness of flood management structural controls for water quality and hydrologic performance and make improvements to these structures when they prove to make significant improvements to water quality.
6. Assure that City construction projects follow the requirements of the General UPDES Permits for Storm Water Discharges Associated with Construction Activities.
7. Train City employees responsible for the construction, operation or maintenance of facilities, structures, vehicles or equipment likely to affect storm water quality.



MCM 6

POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

The City of Orem has implemented tasks to meet the requirements of this MCM, which are summarized in this section.

PPGH-1: City of Orem Facility Inventory

PPGH-2: High Priority Facility Inspections

PPGH-3: Standard Operating Procedures for Good Housekeeping and Municipal Operations

PPGH-4: Floor Drain Inventory

PPGH-5: Flood Management Control Assessment

PPGH-6: Public Construction Project Compliance

PPGH-7: Oversight of Contractors Performing Municipal Maintenance

Tasks in other Minimum Control Measures

PEO-4: Education and Outreach for City Employees (4.2.6.10)



PPGH-1: City of Orem Facility Inventory

Year Executed: 2002

Reference Regulation: 4.2.6; 4.2.6.1; 4.2.6.2; 4.2.6.3; 4.2.6.4

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: MS4 Employees

Description:

The City maintains a list of all City owned and operated facilities including City Buildings (offices), Equipment Storage and Maintenance Facilities, Landscape Maintenance Facilities, Parking Lots, Golf Course, Swimming Pool, Drinking Water Wells, and Sewer Lift Stations.

Regular assessments are made of the impact of each facility on storm water quality based on the presence of potential pollutants. Through these assessments, the City has determined that its Public Works yard should be considered a “high priority” area. The City has developed a Storm Water Pollution Plan to help manage the facility’s potential impacts on storm water quality.

Purpose and Benefit: This inventory will ensure that City operations are regularly reviewed to minimize adverse impacts of City operations on storm water quality.

Measure of Success: Evaluate the ordinance and draw connections to positive outcomes.

Responsible Staff: Storm Water Project Manager, Storm Water Field Supervisor, Maintenance Division Manager and City Attorney

Funding: Storm Water Utility

Standard Operations Procedures: Facility Inventory Assessment (Available upon request)

Supporting Documents:

City of Orem Facility Inventory (See Appendix H)

City of Orem Public Works Facility Storm Water Pollution Prevention Plan (See Appendix I)



PPGH-2: High Priority Facility Inspections

Year Executed: 2002

Reference Regulation: 4.2.6.5; 4.2.6.5.1; 4.2.6.5.2;

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: City Staff

Description:

The City conduct the following inspections in accordance with the permit and the Public Works Facility SWPPP

1. Weekly Visual inspections to look for evidence of spills that could come in contact with precipitation runoff
2. Quarterly Comprehensive Inspections to review all storm water controls, waste storage areas, dumpsters, material handling areas and similar pollutant generating areas.
3. Quarterly Visual Observation of Storm Water Discharges where discharges are observed for irregularities (discoloration, foam, sheen, turbidity) that may indicate polluted runoff.

Purpose and Benefit: Regular inspections of areas that have the potential to lead to polluted runoff can minimize the potential of polluted discharges.

Measure of Success: Inspection reports including follow up actions.

Responsible Staff: Storm Water Engineering Specialist

Funding: Storm Water Utility

Standard Operations Procedures:

Weekly Visual Inspection (Available upon request)

Quarterly Comprehensive Inspection (Available upon request)

Quarterly Visual Observation of Storm Water Discharges (Available upon request)

Follow-up Procedures (Available upon request)

PPGH-3: Standard Operating Procedures for Good Housekeeping and Municipal Operations

Year Executed: 2010

Reference Regulation: 4.2.6.6; 4.2.6.6.1; 4.2.6.6.2; 4.2.6.6.3; 4.2.6.6.4; 4.2.6.6.5; 4.2.6.6.6; 4.2.6.6.7

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: City Staff

Description:

The City has developed and implemented Standard Operating Procedures (SOPs) to address storm water concerns in the following areas of municipal operations:

1. Buildings and facilities
 - a. Storage and Disposal of Chemicals
 - b. Spill Prevention and Cleanup Plans
 - c. Dumpsters and Waste Management
 - d. Cleaning and Washing Activities
 - e. Painting and Maintenance Activities
2. Storage and Maintenance Areas
3. Parks and Open Space
 - a. Application, Storage and Disposal of Fertilizer, Pesticides and Herbicides
 - b. Sediment and Erosion Control
 - c. Lawn Maintenance and Landscaping Activities
 - i. Disposal of Lawn Clippings and Vegetation
 - ii. Selection of Alternative Landscaping Materials
 - d. Trash Containers
 - e. Pet Wastes
 - f. Building Exterior and Equipment Cleaning
 - g. Other Pollution Prevention and Good Housekeeping Practices
4. Vehicles and Equipment
 - a. Storage of Vehicles Awaiting Repair
 - b. Washing of Vehicles
5. Roads, Highways and Parking Lots
 - a. Street and Parking Lot Sweeping

- b. Asphalt and Concrete Maintenance
 - i. Pothole Repairs
 - ii. Pavement Marking
 - iii. Sealing and Repaving
 - c. Cold Weather Operations
 - i. Plowing
 - ii. Sanding
 - iii. Deicing Compounds
 - iv. Snow Disposal Area Maintenance
 - d. Right-of-Way Maintenance (see Lawn Maintenance in Parks Section)
 - e. Event Management (Summerfest, Freedom Festival, Timpanogos Storytelling Festival)
6. Storm Water Collection and Conveyance System
- a. Inspections
 - b. Cleaning
 - c. Repairs
 - d. Other Pollution Prevention and Good Housekeeping Practices
 - e. Prioritizing Maintenance
 - f. Structural BMPs
 - i. Swales
 - ii. Detention Basins
 - g. Disposal of materials removed from catch basins and detention basins, and by street sweeping operations
7. Other Facilities and Operations
- a. Public Safety Training Activities

Purpose and Benefit: SOPs lead to standard applications of policies

Measure of Success: Facility Inspection reports

Responsible Staff: Storm Water Field Supervisor

Funding: Storm Water Utility

Standard Operations Procedures: See list above. (Available upon request)



PPGH-4: Floor Drain Inventory

Year Executed: 2010

Reference Regulation: 4.2.6.6.1

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: MS4 Employees

Description:

The City maintains an inventory of all interior floor drains. All drains have been tested to make sure that they drain to sanitary sewer. Those that do not will be re-plumbed to drain to sanitary sewer wherever possible.

Purpose and Benefit: Floor drains could be direct conduits for pollutants to enter storm drain systems if not properly plumbed

Measure of Success: Maintain current inventory and log of any re-plumbing activities carried out.

Responsible Staff: Maintenance Division Manager

Funding: Storm Water Utility

Standard Operations Procedures: None

Supporting Documents:

Floor Drain Inventory (Available upon request)

PPGH-5: Flood Management Control Assessment**Year Executed:** 2016**Reference Regulation:** 4.2.6.8; 4.2.6.8.1**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens**Audiences:** MS4 Employees, Engineers, Construction Contractors, Developers and Planners**Description:**

Successful implementation of any BMP is dependent on the following:

- Effective training of municipal employees working in both fixed facilities and field programs.
- Regular inspections of fixed facilities, field programs, and treatment controls.
- Maintenance of treatment controls as needed to ensure proper functioning.
- Periodic evaluation/monitoring of BMP performance consistent with the UPDES permit requirements.
- Correct deficiencies in BMP implementation noted during inspections.
- Keeping accurate records of inspections, training, monitoring, and BMP maintenance.

Maintenance of treatment controls and drainage conveyance systems (e.g. detention basins, sumps, catch basins, etc.) including regular inspections as needed to maintain efficient pollutant reduction. If treatment control BMPs are not properly maintained, BMP effectiveness is reduced and water quality deteriorates. The following are steps to be taken to ensure that new and existing BMPs work properly.

- Special attention will be directed toward ensuring proper maintenance procedures are implemented.
- Regular inspections of facilities or programs include compliance with BMP maintenance requirements.
- Visual monitoring will occur quarterly at key outfalls and at selected conveyance system structures to assess long-term BMP effectiveness. Should any observed problems be identified (e.g., color, foam, sheen, turbidity) that can be associated with pollutant sources, then analytical testing will be conducted to determine the cause of the problem and the potential source identified.
- Developing and enforcing ordinances, procedures, and mechanisms that maintain the effectiveness of BMPs will be implemented.

Purpose and Benefit: Reducing runoff from sites and encouraging the infiltration, evapotranspiration and/or reuse of storm water allows for groundwater recharge and minimizes potentially adverse impacts to downstream waters.

Measure of Success: Document the number of sites evaluated and the measures used to address the issues with these sites.



Responsible Staff: Storm Water Field Supervisor, City Planner and City Engineer

Funding: Storm Water Utility

Standard Operations Procedures: Post-Construction Plan Review (Available upon request)

Supporting Documents:

Design Standards Manual (Available upon request)

PPGH-6: Public Construction Project Compliance

Year Executed: 2002

Reference Regulation: 4.2.6.9

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: City Staff

Description:

The City ensures that construction projects that the City manages and controls follow the same practices as those undertaken by private entities. See MCM 5 for details.

Purpose and Benefit: The City seeks to set the proper example for contractors, engineers and developers in their compliance with storm water construction regulations.

Measure of Success: Track City Projects in programs used to track construction projects.

Responsible Staff: Storm Water Field Supervisor, City Planner and City Engineer

Funding: Storm Water Utility

Standard Operations Procedures:

Refer to MCM 5

PPGH-7: Oversight of Contractors Performing Municipal Maintenance

Year Executed: 2016

Reference Regulation: 4.2.6.7: 4.2.6.10

Target Pollutants: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

Audiences: City Staff, Contractors

Description:

The City contracts with private providers for items such as maintenance of the golf course and janitorial items in City buildings. The City ensures that these contractors are trained on issues relating to their jobs and the potential for exposure of storm water runoff to pollutants. These contractors will be held to the same requirements as the City.

Purpose and Benefit: Contractors working for the City should be held to the same standards as City staff.

Measure of Success: Document the training and oversight of contractors employed by the City.

Responsible Staff: Various City Staff and Maintenance Division Manager

Funding: Storm Water Utility

Standard Operations Procedures: None

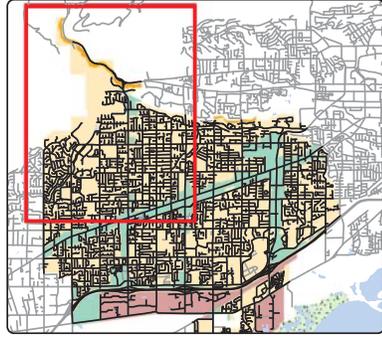
APPENDIX A
MS4 MAP

Orem Stormwater Map

Northeast Quadrant

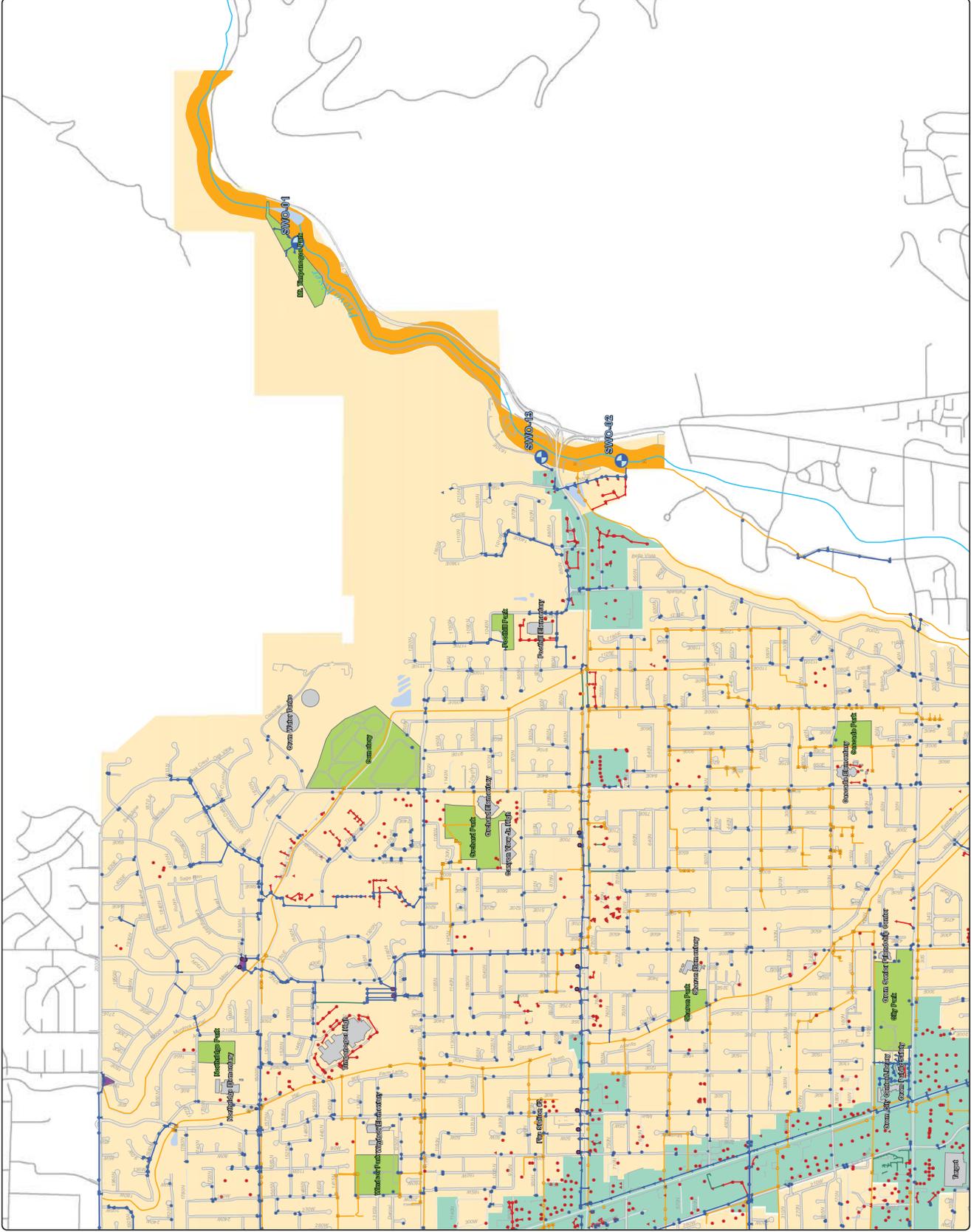
Legend

City of Orem System	Groundwater System
Drain Inlet	Manhole
Sump	Diversion Structure
Manhole	Outfall
Bubble-Up	
Diversion Structure	
Outfall	
Stormwater Outfall	
Conveyance	
Undefined Conveyance	
Private System	Detention
Drain Inlet	In-Flow
Sump	Outfall
Manhole	Detention Basin
Bubble-Up	
In-Flow	
Outfall	
Conveyance	
Zones	Landmarks
Industrial	Orem Boundary
Commercial	Railroad
Provo River Buffer	Road
	Water Body
	River
	Drainage
	Building
	Park
	Wetland



Scale: 1:18,000
1000 Ft.

Map Created: 11/1/2010

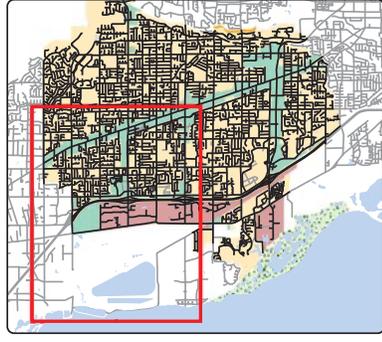


Orem Stormwater Map

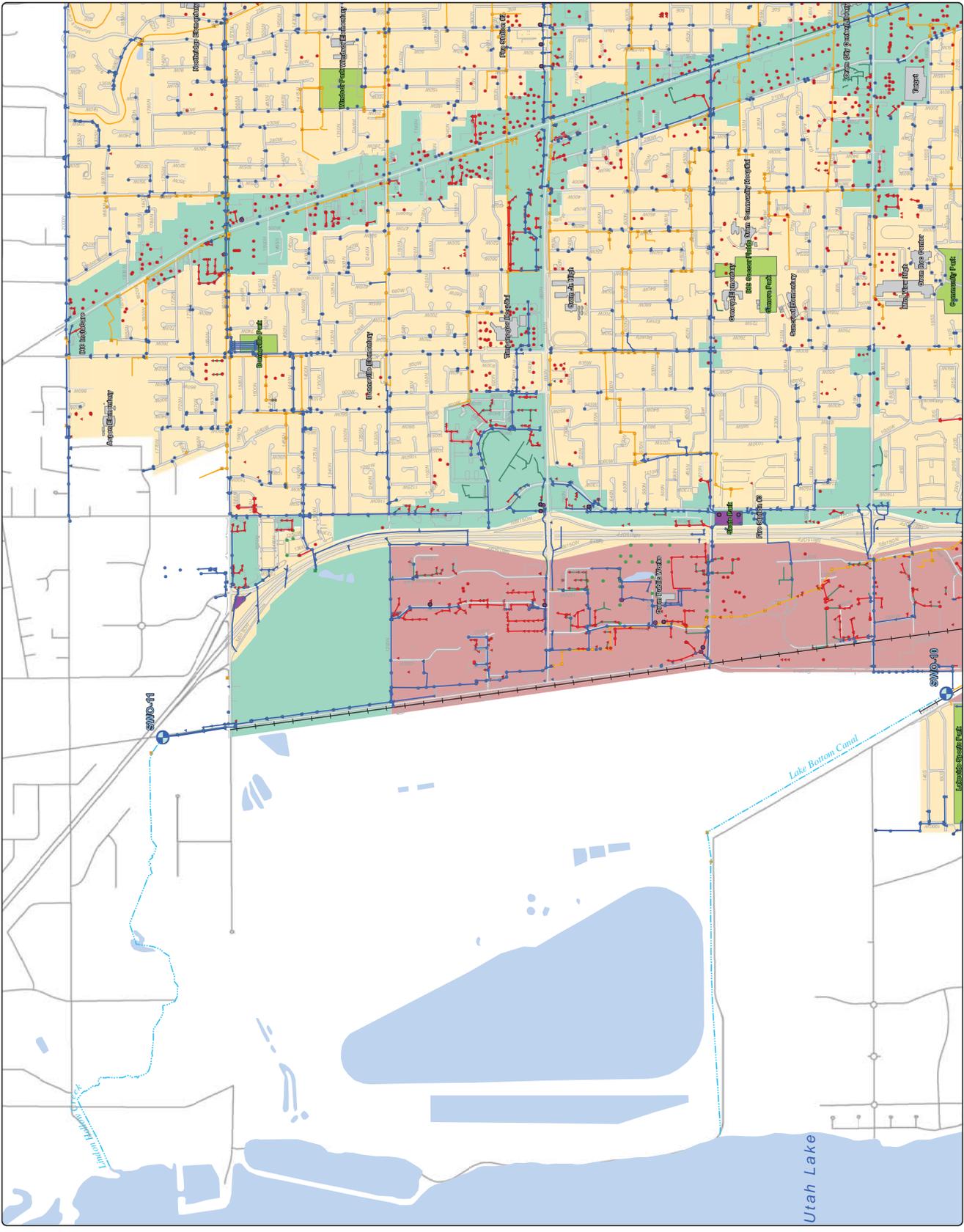
Northwest Quadrant

Legend

City of Orem System	Groundwater System
Drain Inlet	Manhole
Sump	Division Structure
Manhole	Outfall
Bubble-Up	Drain Inlet
Division Structure	Manhole
Outfall	Bubble-Up
Stormwater Outfall	Division Structure
Conveyance	Outfall
Undefined Conveyance	Conveyance
Private System	Detention
Drain Inlet	In-Flow
Sump	Outfall
Manhole	Detention Basin
Bubble-Up	Landmarks
In-Flow	Orem Boundary
Outfall	Railroad
Conveyance	Road
Zones	Water Body
Industrial	River
Commercial	Drainage
Provo River Buffer	Building
	Park
	Wetland



Scale: 1:18,000
 1000 Ft.
 Map Created: 11/1/2010

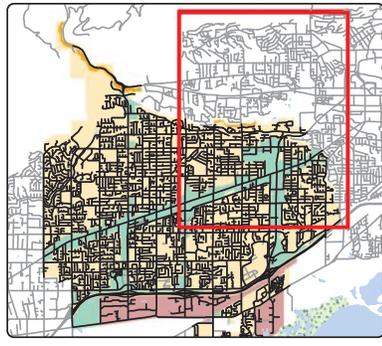


Orem Stormwater Map

Southeast Quadrant

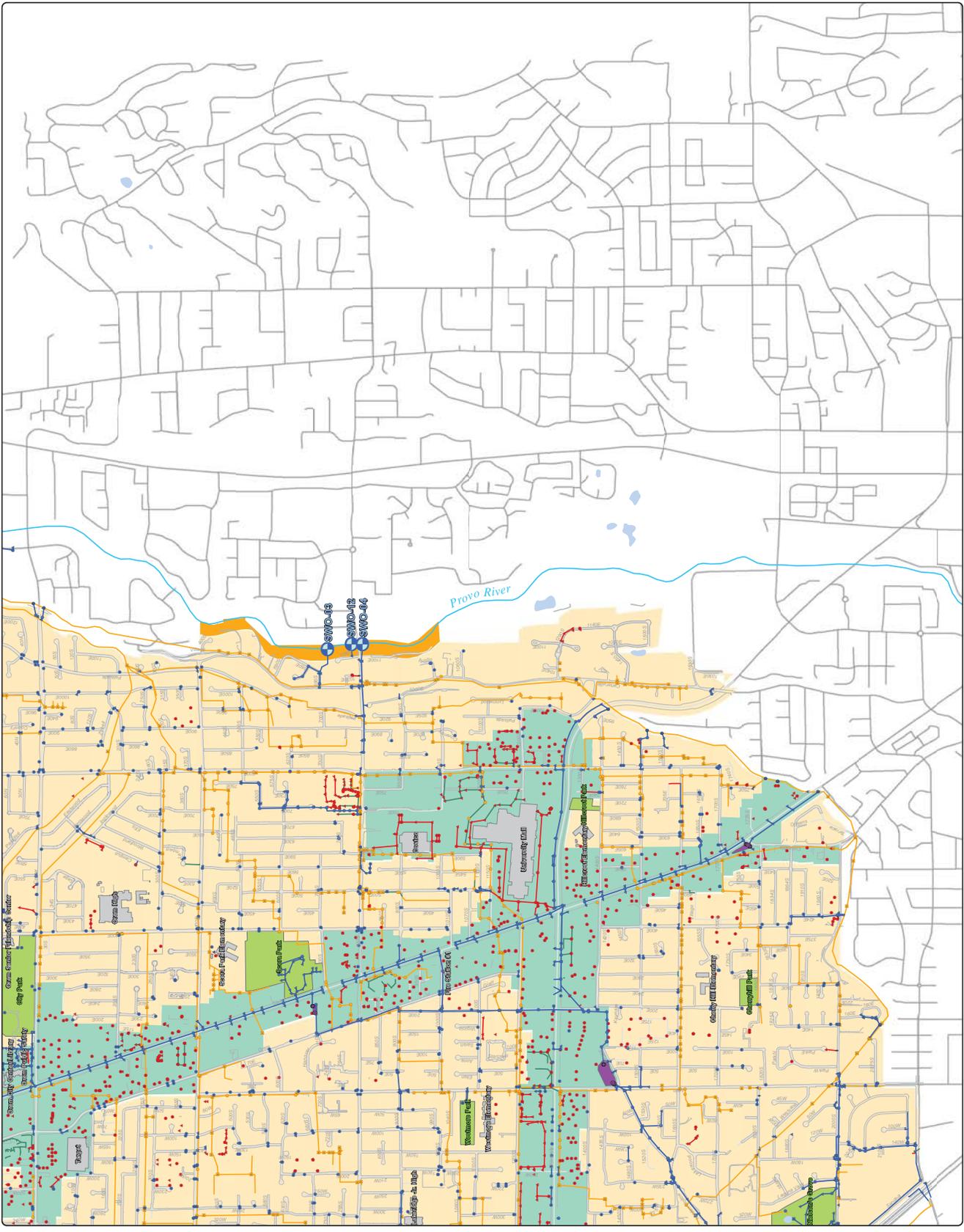
Legend

City of Orem System	Groundwater System
Drain Inlet	Manhole
Sump	Division Structure
Manhole	Outfall
Bubble-Up	
Division Structure	Irrigation System
Outfall	Drain Inlet
Stormwater Outfall	Manhole
	Bubble-Up
Conveyance	Division Structure
Undefined Conveyance	Outfall
	Conveyance
Private System	Detention
Drain Inlet	In-Flow
Sump	Outfall
Manhole	Detention Basin
Bubble-Up	
In-Flow	Landmarks
Outfall	Orem Boundary
Conveyance	Railroad
	Road
Zones	Water Body
Industrial	River
Commercial	Drainage
Provo River Buffer	Building
	Park
	Wetland



Scale: 1:18,000
 1000 Ft.

 Map Created: 11/1/2010

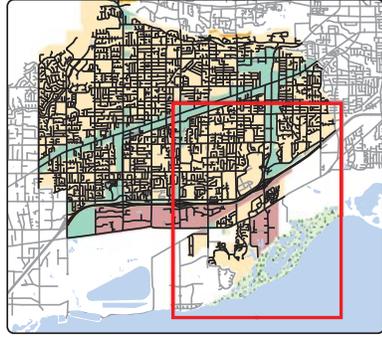


Orem Stormwater Map

Southwest Quadrant

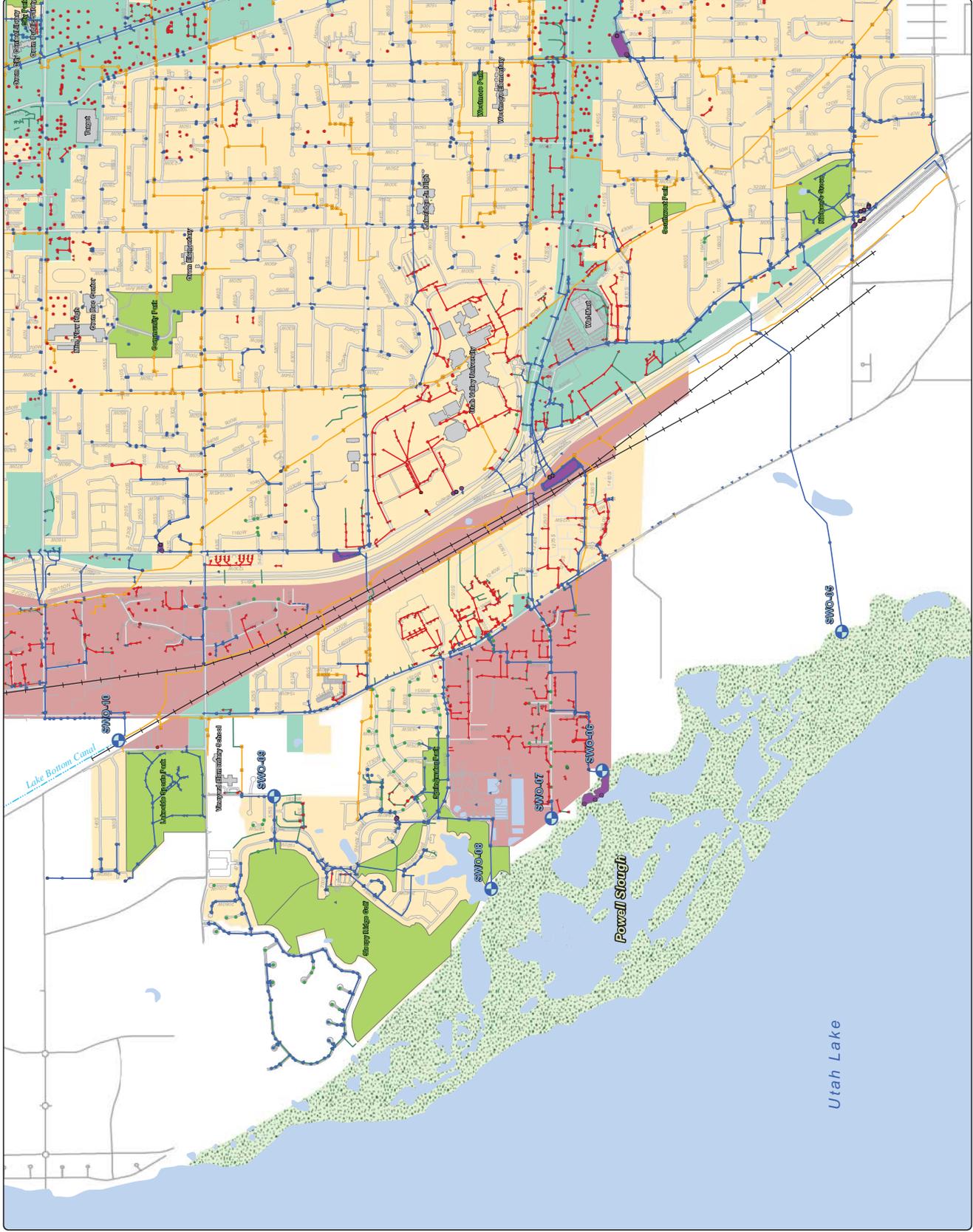
Legend

City of Orem System	Groundwater System
▲ Drain Inlet	● Manhole
● Sump	■ Diversion Structure
● Manhole	○ Outfall
■ Bubble-Up	
■ Diversion Structure	
○ Outfall	
● Stormwater Outfall	
— Conveyance	
— Undefined Conveyance	
Private System	Detention
▲ Drain Inlet	● In-Flow
● Sump	● Outfall
● Manhole	■ Detention Basin
■ Bubble-Up	
● In-Flow	
● Outfall	
— Conveyance	
Zones	Landmarks
■ Industrial	— Orem Boundary
■ Commercial	— Road
■ Provo River Buffer	— Railroad
	— Water Body
	— River
	— Drainage
	— Building
	— Park
	— Wetland



Scale: 1:18,000
 1000 Ft.

Map Created: 11/17/2010



**APPENDIX B
SUMMARY OF CITY
STORM WATER ORDINANCES**

City Code that affects storm water beyond chapter 23

All of the following impact the storm water system:

Chapter 22 (most of these requirements are found throughout chapter 22 depending on the type of development)

Buffered sidewalks : OCC 22-6-8.B.

Open space requirements: PRDs OCC Article 22-7 and found throughout Article 22-11 through 18

Open space zones: Article 22-10 – allows clustered development

50% Landscaping requirement: Article 22-10 and found throughout Article 22-11 PD Zones, 22-7-12.D.

40% Landscaping requirement: 22-17-8

Storm Water Runoff Plan: 22-7-14.V. PRDs must have a storm Water Runoff Plan to accommodate a 25-year storm and a detention system w/ max allowable discharge rate of 60 g.p.m/ac; PD-21, 23, 30, 31, 33, 34, 37, 38, 39, 40, student housing developments, ASH zone must have 25 year storm plan; 22-11-23.B.17 25-year plan, all PD-15, 16, 17, must have 50-year plan.

Landscaped berms: 22-8-9, 22-8-9, 22-8-10, 22-8-13, 22-11-13 PD Zones, 22-14-19 Residential Zones, 22-17-8 High Density Apartments

Landscaped islands: 22-8-10 Commercial, 22-11-13 PD Zones (found throughout), 22-15-9 Off-street parking [How to improve: maybe do away with the concrete curb so that water can drain]

Setback requirements: found throughout Chapter 22

Limited size of accessory buildings to 8% of the lot area in residential zones: 22-6-8.D.

Piping irrigation ditches: 22-7-13 – PRDs, 22-11 required in various PDs

All areas not covered by buildings must be landscaped in newer PDs Article 22-11

Front yard landscaping requirement: 22-14-7.B.1.

No waste or trash accumulation: 22-14-7.B.3.

General landscaping requirements on all developed lots: 22-14-13

Site plan landscaping requirements: 22-14-20.H.

Chapter 17

Subdivision preliminary plats: 17-4-3.B.13. storm water drainage plan 25-year

Subdivision Regulations & Design Standards: 17-7-6 system must be designed to handle all runoff generated by the subdivision

Chapter 20

Limit what can be put in public sewers: 20-2

Chapter 21

Protection of drinking water: 21-2-2

Chapter 11

Nuisance of waste accumulates: 11-1-3

Chapter 15

Solid waste prohibitions: Chapter 15

Chapter 16

Clean up of public streets: 16-1

**APPENDIX C
PRIORITY AREA
IDENTIFICATION AND MAP**

Identifying and Periodic Reclassification of High Priority IDDE Areas

Annually, the City will undertake a process to review areas designated as high priority for IDDE.

The Storm Water Utility staff has identified and selected the highest priority areas likely to have illicit discharges. The selection process is based on the likelihood of problems and the significance of potential problems.

The following items are used as criteria in delineating High Priority IDDE Areas

- Areas with older infrastructure
- Area of industrial or commercial use
 - Geneva Road Corridor
- Areas with a history of illicit discharges or illegal dumping
 - Business Park
- Areas upstream of sensitive water bodies.
 - The Provo River has been designated as a High Quality Water

The Storm Water Utility staff has identified and selected the highest priority areas likely to have illicit discharges. The selection process is based on the likelihood of problems and the significance of potential problems. The areas focused on are areas with older infrastructure, industrial or commercial use, areas with a history of illicit discharges or illegal dumping in addition to areas upstream of sensitive water bodies. These priority areas will be updated annually to reflect changing priorities.

Land Use	Generating Site	Activity that Produces Indirect Discharges
Residential	<ul style="list-style-type: none"> • Apartments • Multi-Family • Single Family Detached 	<ul style="list-style-type: none"> • Car Washing • Driveway Cleaning • Dumping /Spills • Equipment Wash-downs • Lawn /Landscape Watering • Swimming Pools
Commercial	<ul style="list-style-type: none"> • Car Dealers/Rental Cars • Car Washes • Commercial Laundry/Dry Cleaning • Gas Stations/Auto Repair • Nurseries/Garden Center • Oil Change Shops • Restaurants • Storage Units 	<ul style="list-style-type: none"> • Building Maintenance (power washing) • Dumping/Spills • Landscaping /Ground Care • Outdoor Fluid Storage • Vehicle Fueling • Vehicle Maintenance/Repair • Vehicle Washing • Wash-down of equipment/grease traps
Industrial	<ul style="list-style-type: none"> • Auto Wrecking/Recyclers • Construction Vehicle Washouts • Food Processing • Garbage Truck Washouts • Metal Plating Operations • Petroleum Storage • Printing • Counter Top Cutting 	<ul style="list-style-type: none"> • Industrial Process Water/Rinse Water • Loading/Unloading Area Wash-downs • Outdoor Material Storage
Municipal	<ul style="list-style-type: none"> • Landfills • Maintenance Depots • Municipal Fleet Storage • Public Works/UDOT Yards 	<ul style="list-style-type: none"> • Building Maintenance (power washing) • Dumping/Spills • Outdoor Fluid Storage • Road Maintenance • Vehicle Fueling • Vehicle Maintenance/Repair • Vehicle Washing

Priority Outfalls	Alphanumeric Identifier
Timpanogos Park	SWO-01
Provo River (800 North)	SWO-02
River Breeze (700 South)	SWO-03
Provo River (800 South)	SWO-04
Taylor Drain	SWO-05
Powell Slough-Kent Drain	SWO-06
Business Park West	SWO-07
Springwater	SWO-08
Sleepy Ridge (575 South)	SWO-09
Lake Bottom Canal	SWO-10
Lindon Hollow Creek	SWO-11
Provo River (1080 East)	SWO-12
Commuter Parking (800 North)	SWO-13

**APPENDIX D
DRY WEATHER
SCREENING PROCEDURES**

FIELD SCREENING AND ASSESSMENT ACTIVITIES

Field screening is necessary to identify the source(s) of the actual illicit discharges. The priority list of outfalls is the basis of screening and assessment activities. Twenty percent of the priority areas are field assessed each year. Every outfall in the priority area will be screened at least once a year. Using the checklist, the staff designated to conduct field screening will go out into the priority areas and collect visual data. The screening will be conducted at least 72 hours after the last precipitation event.

Key Observations:

- Presence of Flow
- Odors
- Colors/Clarity
- Stains/Deposits on the bottom of the storm water structure
- Oil sheen, scum or foam on standing water

The person conducting the field screening discovers a dry-weather flow and key observations are made then they will collect a sample of that flow for analysis.

Storm Drain Outfall Characteristic Form

Location Information: Date: _____ Inspector: _____

Time: _____

Outfall ID: _____ Outfall Location: _____

Receiving Waterbody: _____

Photo Taken: Yes No Photo ID: _____

Weather: Clear Cloudy Approximate Temp: _____

Wind Present: Yes No

Precipitation (past 3 days): Yes No if Yes, inches: _____

Dry Weather Inspection Form Used: Yes No-No Discharge No-No Dry Weather No-Other

Pipe Flow: None Trickle Steady ¼ pipe flow or more

Seepage Flow: None Trickle Steady ¼ pipe flow or more

Outfall Description (Select all that are applicable, fill in as necessary)

Submerged in water: No Partially Fully

Type: RCP CMP Dimension (inches): _____

Open Pipe- PVC HDPE Circular Box Steel Other: _____
Elliptical Other: _____

Open Drainage- Concrete Trapezoidal Depth (inches): _____

Earthen Parabolic Top Width (inches): _____

Riprap Other: _____ Bottom Width (inches): _____

Other: _____

Additional Information

Sediment Condition: Open ¼ Full ½ Full ¾ Full Plugged

Structure Condition: Excellent Good Fair Poor

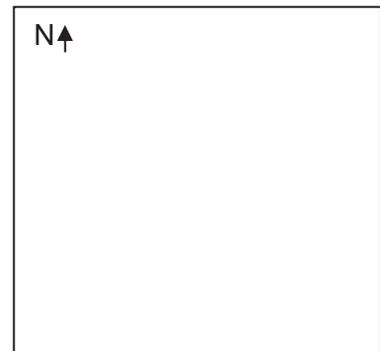
Trash/Litter Present: Yes No

Yard Waste Observed: Yes No

General Comments: _____

Actions Taken: _____

Follow-up Required: Yes No



APPENDIX E
SUBDIVISION SITE PLAN CHECKLIST



Subdivision/Site Plan Review Checklist

Development Services Department
56 North State Street Orem,
Utah 84057, 801-229-7183/ www.orem.org

Initial Steps Prior to Application

- Initial Review with City Planning and Engineering Staff
- Check the Street Connection Master Plan for required road connections
- <http://orem.org/index.php/transportation/street-connection-master-plan-maps>
Hold a Neighborhood Meeting (if required)
- Provide written minutes of the Neighborhood Meeting to Staff

Subdivision Review Process

The process may vary for different types of subdivisions. Please consult with the assigned City Planner to discuss additional requirements pertaining to your particular application. If a zone change is not required there are at least two (2) processes to follow to receive approval to construct a subdivision:

- **Preliminary Plat Approval** (see attached checklist)
- **Final Plat Approval** (see attached checklist)
- **Site Plan Approval (if needed)** (see attached checklist)

A Preliminary Plat must be approved for a parcel before a Final Plat can be approved. An applicant may request simultaneous Preliminary and Final Plat approval, but bears the risk of having either or both rejected. Simultaneous Site Plan approval can also be requested, but again the applicant bears associated risks. Expect a review and correction process after a complete submittal is made for each phase of the Subdivision Approval Process

Disclaimer: This information is an abridged version of the City of Orem Subdivision Ordinance as stated in the City Development Code. This information is for the benefit of the developer/applicant to help follow the required review and approval process for your project. This checklist does not release the developer/applicant from the responsibility of reading and following all provisions listed in the Subdivision Ordinance Section of the latest edition of the City Development Code.

Preliminary Plat Approval Process

The Planning Commission approves all preliminary plats. Note: Applications and plans will not be accepted unless the submittal is complete. Make sure the following items are provided to insure that your submittal is complete:

- Payment of non-refundable Application Fee
- Completed Development Review Committee (DRC) Application Form.
- Checklist with applicable items checked off
- Property Plat of parcel(s) to be subdivided from the County Recorder's Office.
- Proposed Preliminary Subdivision Plat - showing all of the following information:
- Submit two (2) full size copies and one PDF on a computer disk or emailed to the City of each sheet of the Preliminary Plat.
- Preliminary Plat drawn to a scale of no smaller than 1" = 60', on standard drafting medium, the dimensions of which shall not exceed twenty-four inches by thirty-six inches (24" x 36").
- North Arrow on each sheet. Vicinity Map (reduced to scale) and Legend of line-types, symbols and hatches.
- The proposed name of the subdivision with public or private streets identified.
- Names and addresses of the property owner(s), the developer and the engineer or surveyor of the proposed subdivision.
- Contours drawn at 2' intervals.
- Boundary lines of the parcel(s) to be subdivided and a description of the proposed outside boundary of the property contained within the preliminary plat that is referenced to two section corner monuments and is prepared by a licensed land surveyor. The section corner monuments and the point of beginning shall indicate computed "State Plane Coordinates."

Subdivision/Site Plan Review Checklist

Development Services Department
56 North State Street Orem,
Utah 84057, 801-229-7183/ www.orem.org

- Dimensions and locations of existing and proposed improvements, structures, easements, and topographical features within the parcel to be subdivided and within two hundred feet (200') of the proposed subdivision boundaries. All existing and proposed sewer or storm drains must show proposed and existing grades with rim and flow line elevations at all manholes and catch basins.
- For each lot, the location and dimensions of existing and proposed irrigation systems and easements.
- Final grade elevations. Minimum Public Street grade is .5%. Minimum asphalt slopes must be between 2% and 4%.
- Where the preliminary plat covers only a part of a larger unsubdivided or undeveloped area, the plat shall show the location of the subdivision as it forms part of the larger area, and shall include a sketch proposing a future street system of the unsubdivided or undeveloped area.
- A storm water drainage plan, approved by the City Engineer, that is designed to accommodate the water generated by a "twenty-five year storm" within the proposed site with a discharge rate of no more than 60 GPM/acre. All sites must retain the first .30 inch of precipitation. Orem Standard Pre-treatment Sumps may be used in areas that are not in a well head protection zone as shown on details SD-15 or in a "poor percolation area" as shown on detail SD 14. A soils report with percolation rates and groundwater depths must be submitted for every development. Sumps may be used in a poor percolation area if the applicant submits a soils report that addresses percolation rates and the rate is approved by the City Engineer. All storm water drainage plans must include the following:
 - General description of the property, area, existing site conditions including all existing onsite drainage and irrigation facilities such as ditches, canals, washes, swales, structures, storm drains, springs, historic water flows, detention, and any proposed modifications to drainage facilities.
 - Include an assessment of post construction storm water impacts upon downstream and upstream properties
 - General description of off-site drainage features and characteristics upstream and downstream of the site and any known drainage problems and plan to mitigate problems.
 - Pre-development hydrology report to include maps, hydrologic calculations, soil types, etc. Include storm water runoff information including but not limited to maximum historical flow from site and total volume historically leaving site during design storm event.
 - Include an assessment of post construction storm water impacts upon downstream and upstream properties.
 - At a minimum, has the preferred list of LID's been considered where appropriate for various locations throughout the site. Other LID's may be considered. Provide narrative why or why not each considered LID was or was not chosen.
 - Has the chosen BMP's/LID's been matched to the expected pollutant load for the specific site area.
 - Proposed post-development hydrology report to mirror pre-development report to the maximum extent practicable including peak flows and total discharge.
 - The evaluation and use of at least one non-structural storm water treatment practices is required on all new and redeveloped sites. Non-structural BMPs include design approaches and practices that are used for their ability to prevent the occurrence of storm water runoff and reduce pollutant loads. Utilizing non-structural BMPs during site development is much more efficient and cost-effective than attempting to correct problems after development has occurred. The use of additional non-structural storm water treatment practices is encouraged in order to minimize the reliance on structural practices. These non-structural practices include practices found in the Storm Water Credit Program Manual found at stormwater.orem.org as well as in numerous manuals, pamphlets, booklets, etc. that discuss LID's for development sites.

Subdivision/Site Plan Review Checklist

Development Services Department
56 North State Street Orem,
Utah 84057, 801-229-7183/ www.orem.org

- Show flow path through/from development for 100 year storm event. Note any potential downstream problems areas for storm events up to and including a 100 year storm event.
- All storm water runoff generated from new development or redevelopment sites shall not discharge untreated storm water directly into any wetland or waters of the State of Utah including the storm sewer system without treatment to the maximum extent practical. Treatment type shall match expected pollutants from specific areas from the site.
- Detailed runoff calculations for the design storm. See Section 3 for design criteria.
- Contains stamped statement:

"This report for the drainage design of [NAME OF DEVELOPMENT] was prepared by me (or under my direct supervision) in accordance with the provisions of City of Orem Storm Drainage Systems Design and Management Manual, and was designed to comply with the provisions thereof. I understand that the City of Orem does not and will not assume liability for drainage facilities design.

- No development or redevelopment activity will commence or no approvals or permits will be given on any site subject to this Section until a Long Term Storm Water Management Plan detailing in concept how storm water runoff and associated water quality impacts resulting from the development or redevelopment will be controlled or managed. Is concept plan included with initial submittal? Completed and approved Final Long Term Storm Water Management plan required at recording and it must include a maintenance agreement submitted on a form provided by the City.

- Provide the elevation of the lowest habitable floor space.
- General description of current and planned masterplan drainage facilities on or adjacent to the lot and proposed drainage features and how the development and proposed drainage facilities conform to the storm water master plan. Current City of Orem Storm Water Masterplan can be found at stormwater.orem.org.
- The location of any areas of potential flood hazard, as defined in Chapter 10 of the City Code, within the subdivision boundaries or within 200 feet of the subdivision boundaries.
- The location of any known fault lines located within 1,000 feet of any part of the subdivision as determined from the Utah County Hazards Map and any other source.
- The location of existing structures within the preliminary plat boundaries (buildings, monument signs, fences, walls, etc.) and a notation as to whether the existing structures will remain or be demolished.
- All projects within 300 feet of an Orem sewer system must connect to the sewer system where practical. No septic systems may be installed within a wellhead protection zone (see detail SD 15).
- The layout and location of required public streets. Street connections shall be made to street connection points as shown in the Street Connection Master Plan.
- A note indicating that no driveway or drive access may be located within twenty-five feet (25') of an existing fence which is greater than three feet (3') in height
- Preliminary title report prepared by a title company licensed to practice in the State of Utah which shows that the owner/applicant owns or represents the owner(s) of all of the property contained within the preliminary plat. The City may require that the owner/developer resolve any boundary overlaps, gaps or other title discrepancies before approval of the preliminary plat.
- Building envelopes of each lot.
- All existing and proposed improvements (shown in distinctly different line types).

Subdivision/Site Plan Review Checklist

Development Services Department
56 North State Street Orem,
Utah 84057, 801-229-7183/ www.orem.org

Final Plat Approval Process

Final plats may be approved by the Planning Commission of Staff, depending on the nature of the request.

Note: Applications and plans will not be accepted unless the submittal is complete. Make sure the following items are provided to insure that your submittal is complete:

- Payment of non-refundable Application Fee.
- Completed Development Review Committee (DRC) Application Form.
- Two (2) full size copies and one PDF on a computer disk or emailed to the City of each sheet of the Final Plat.
- Proposed Final Subdivision Plat - showing all of the following information:
 - Final Plat drawn to a scale of no smaller than 1" = 60', on standard drafting medium, the dimensions of which shall not exceed twenty-four inches by thirty-six inches (24" x 36").
 - North Arrow on each sheet. Vicinity Map (reduced to scale) and Legend of line-types, symbols and hatches.
 - The proposed name of the subdivision with public or private streets identified.
 - Boundary lines of the parcel(s) to be subdivided and a description of the proposed outside boundary of the property contained within the final plat that is referenced to two section corner monuments and is prepared by a licensed land surveyor. The section corner monuments and the point of beginning shall indicate computed "State Plane Coordinates."
 - Dimensions and square footage of each proposed lot.
 - Dimensions and locations of existing and proposed easements.
 - A note indicating that no driveway or drive access may be located within twenty-five feet (25') of an existing fence which is greater than three feet (3') in height
 - A "Certificate of Survey" with a metes and bounds description, the signature of a land surveyor licensed in the State of Utah, and the land surveyor's seal.
 - The "Owner's Dedication" and all property owner's signatures acknowledged by a notary public as required by the Utah County Recorder's Office. All plats must contain the Notary Commission Number, when the Commission expires, the signature of the Notary Public and the printed name of the Notary Public directly below the signature. Plats with this information do not have to be stamped by the Notary.
 - Include the following notary acknowledgement language: The foregoing instrument was acknowledged before me this ___ day of ____, 20__, by _____ and _____ who represented that they are the owners of the above described property and have the authority to execute this instrument.
 - A notice of covenants, conditions, and other restrictions if applicable.
 - An "Acceptance by the City of Orem" approval block with date for the signature of the City Engineer and City Recorder.
 - An "Approval as to Form" signature block with date for the City Attorney.
 - A lined block in the lower right hand corner above the title block of the first sheet in substantial the following form:

CONDITIONS OF APPROVAL

Subdivision/Site Plan Review Checklist

Development Services Department
56 North State Street Orem,
Utah 84057, 801-229-7183/ www.orem.org

Site Plan Approval Process

Note: Applications and plans will not be accepted unless the submittal is complete. The Planning Commission approves all site plans. Make sure the following items are provided to insure that your submittal is complete:

- Payment of non-refundable Application Fee
- Completed Development Review Committee (DRC) application and SWPPP.
- Property Plat of parcel(s) to be subdivided from the County Recorder's Office.
- Proposed Preliminary Site Plan - showing all of the following information:
 - Submit two (2) full size copies and one PDF on a computer disk or emailed to the City of each sheet of the Preliminary Plat.
 - Preliminary Plan drawn to a scale of no smaller than 1" = 60', on standard drafting medium, the dimensions of which shall not exceed twenty-four inches by thirty-six inches (24" x 36").
 - North Arrow on each sheet. Vicinity Map (reduced to scale) and Legend of line-types, symbols and hatches.
 - The proposed name of the development with public or private streets identified.
 - Names and addresses of the property owner(s), the developer and the engineer or surveyor of the proposed subdivision
 - Tabulation table in the following format:

	Square Footage	Acreage	Percent
Total Area			
Total Building Area			
Total Impervious Area			
Total Landscaped Area			
Total Parking Spaces			

- Names and addresses of the current owners of all parcels immediately adjoining the proposed subdivision, and the boundary lines of such parcels.
- Contours drawn at 2' intervals.
- Boundary lines of the parcel(s) to be developed that is referenced to two section corner monuments and is prepared by a licensed land surveyor. The section corner monuments and the point of beginning shall indicate computed "State Plane Coordinates."

Subdivision/Site Plan Review Checklist

Development Services Department
56 North State Street Orem,
Utah 84057, 801-229-7183/ www.orem.org

- Dimensions and square footage of lot(s).
- Dimensions and locations of existing and proposed improvements, structures, easements, and topographical and within two hundred feet (200') of the proposed development. All existing and proposed sewer or storm drains must show proposed and existing grades with rim and flow line elevations at all manholes and catch basins.
- For each lot, the location and dimensions of existing and proposed irrigation systems and easements.
- Final grade elevations. Minimum Public Street grade is .5%. Minimum asphalt slopes must be between 2% and 4%.
- A storm water drainage plan, approved by the City Engineer, that is designed to accommodate the water generated by a "twenty-five year storm" within the proposed subdivision with a discharge rate of no more than 60 GPM/acre. Orem Standard Pre-treatment Sumps may be used in areas that are not in a well head protection zone as shown on detail SD-15 or in a "poor percolation area" as shown on detail SD 14. Sumps may be used in a poor percolation area if the applicant submits a soils report that addresses percolation rates and the rate is approved by the City Engineer.
- Provide sewer and water demand of project
- Incorporate components of Low Impact Development (LID) where applicable throughout the site
- The location of any areas of potential flood hazard, as defined in Chapter 10 of the City Code, within the subdivision boundaries or within 200 feet of the subdivision boundaries.
- The location of any known fault lines located within 1,000 feet of any part of the subdivision as determined from the Utah County Hazards Map and any other source.
- The location of existing structures within the preliminary plat boundaries (buildings, monument signs, fences, walls, etc.) and a notation as to whether the existing structures will remain or be demolished.
- All projects within 300 feet of an Orem sewer system must connect to the sewer system where practical. No septic systems may be installed within a wellhead protection zone (see detail SD 15).
- The location of any known fault lines located within 1,000 feet of any part of the subdivision as determined from the Utah County Hazards Map and any other source.
- The location of existing structures within the preliminary plat boundaries (buildings, monument signs, fences, walls, etc.) and a notation as to whether the existing structures will remain or be demolished.
- All projects within 300 feet of an Orem sewer system must connect to the sewer system where practical. No septic systems may be installed within a wellhead protection zone (see detail SD
- The layout and location of required public streets. Street connections shall be made to street connection points as shown in the Street Connection Master Plan.
- Show parking striping, traffic lanes, loading areas and docks, et
- A note indicating that no driveway or drive access may be located within twenty-five feet (25') of an existing fence which is greater than three feet (3') in height
- Preliminary title report prepared by a title company licensed to practice in the State of Utah which shows that the owner/applicant owns or represents the owner(s) of all of the property contained within the preliminary plat. The City may require that the owner/ developer resolve any boundary overlaps, gaps or other title discrepancies before approval of the preliminary plat.
- Building envelopes of each lot
- All existing and proposed improvements (shown in distinctly different line types).

Subdivision/Site Plan Review Checklist

Development Services Department
56 North State Street Orem,
Utah 84057, 801-229-7183/ www.orem.org

Conversion to Condominiums

- See Article 22-16, Conversion to Condominiums or Townhomes, of the City of Orem Code for complete submittal requirements. Additional fees from the Building Safety Division may apply.

Standard Notes Required on ALL Site Plans and Preliminary Plats:

The following notes shall be placed on the first sheet of any preliminary plat, site plan, or final construction drawing as per (see Section 22-14-20F):

1. The fire protection items (fire hydrants, water mains, access roads, etc.) shown on this site plan are preliminary only. Detailed fire protection plans shall be submitted with the building plans. Plan reviews by the City of Orem Fire Prevention Bureau shall be completed prior to the issuance of a building permit. The plan reviews by the City of Orem Fire Prevention Bureau may identify additional fire protection requirements mandated by the International Fire Code. Fire hydrant foot valves shall be installed at the connection point with the main water lines. the connection point with the main water lines.
2. All landscaped areas shall have an automatic, underground sprinkling system which includes a back-flow device to the building. Back-flow devices shall be installed and tested in accordance with Section 21-1-14 of the Orem City Code. Water meter sizes shall be determined by the City of Orem Building Division at the time of building permit approval or when there is a request to change the water meter size. Water meters shall be located at the back of sidewalk or curb in an area that is accessible for reading and servicing. Water meters shall not be located within areas enclosed with fences or within ten feet (10') of any existing or proposed structure.
3. If required by Chapter 20 of the Orem City Code or by the applicant's Permit for Industrial Wastewater Discharge, a sampling manhole and fat and oil separator/grease trap shall be installed in accordance with the City of Orem Standards and Specifications.
4. All signage shall comply with the requirements of the Orem City Code.
5. All utilities, including water and sewer laterals, water and sewer mains, storm water drains, storm water sumps, sewer manholes, water valves, etc., Water laterals or mains shall not be located under covered parking areas and shall be installed according to Chapter 21 of the Orem City Code.
6. All roof drainage shall be routed through on-site storm water management facilities.
7. At the time of construction, the City of Orem may determine based on professional experience and judgment and at its sole discretion, the need for the Owner/Developer to pay for, remove, and replace any existing substandard improvements such as curbs, gutters, sidewalks, drive approaches, driveways, decorative concrete, wheelchair ramps, etc., or any unused drive approaches.
8. All construction shall conform to the City of Orem construction standards and specifications unless the improvement is within the UDOT right-of-way, in which case the construction shall conform to UDOT construction standards and specifications.

Post-Approval

Pre-construction Meeting: Schedule for a pre-construction meeting after the site plan has been approved by the Planning Commission or City Council and all bonds and fees have been paid. This meeting is required and must be completed prior to obtaining a building permit (Section 22-14-20(M)). Seven copies and a PDF of the approved site plan and construction drawings must be submitted to Lori Merritt (229-7183) in order to be scheduled for the pre-construction meeting. The item will be scheduled for review and will typically be two weeks after the application is made. The meetings are held on Wednesday mornings.

Building Permit Application: A building permit application can be made after approvals have been granted from the approving authority (i.e. Planning Commission or City Council). Exceptions must be cleared through the building division manager.

Bonds and Fees: The applicant will receive a letter from the Development Services Department (Private Development Engineering Section) pertaining to bonds and fees. Bonds and applicable fees must be submitted to the City prior to commencing any site work or obtaining a building permit.

Subdivision/Site Plan Review Checklist

Development Services Department
56 North State Street Orem,
Utah 84057, 801-229-7183/ www.orem.org

City Contacts and Phone Numbers

<u>Jason Bench, Planning Division Manager</u>	<u>(801) 229-7238</u>
<u>Sam Kelly, City Engineer</u>	<u>(801) 229-7328</u>
<u>David Stroud, Planner (south of Center Street)</u>	<u>(801) 229-7095</u>
<u>Clint Spencer, Planner (north of Center Street)</u>	<u>(801) 229-7267</u>
<u>Rick Sabey, Storm Water</u>	<u>(801) 229-7545</u>
<u>Steve Johnson, Storm Water</u>	<u>(801) 229-7556</u>
<u>Ryan Johnson, Storm Water Pollution Prevention</u>	<u>(801) 229-7573</u>
<u>Paul Goodrich, Transportation Engineering</u>	<u>(801) 229-7320</u>
<u>Cliff Peterson, Engineering</u>	<u>(801) 229-7198</u>
<u>Loren Willes, Pre-treatment</u>	<u>(801) 229-7491</u>
<u>Bret Larsen, Fire Marshall</u>	<u>(801) 229-7323</u>
<u>Sullivan Love, Backflow</u>	<u>(801) 229-7558</u>
<u>Jim Yeoman, Plans Examiner</u>	<u>(801) 229-7185</u>

APPENDIX F
SWPPP MANAGEMENT PLAN

EXHIBIT A

{Include this EXHIBIT with this Storm Water Maintenance Agreement document to be recorded. The text below that does not apply will need to be deleted along with this instruction text.}

{For properties that are not a part of a residential or commercial subdivision, provide the parcel number and a legal description for the property.}

Replace this text with the parcel #
Replace this text with the legal description

OR

{For properties that are a LOT in a commercial subdivision, provide the LOT and parcel number and refer to the newly recorded subdivision by the title it is recorded by in the Utah County Recorder's Office.}

Replace this text with the parcel #
Replace this text with the LOT #
Replace this text with the plat title and the township and range as it is recorded on the plat

OR

{For properties that are a private residential subdivision, refer to the newly recorded subdivision by the title it is recorded by in the Utah County Recorder's Office.}

Replace this text with the plat title and township and range as it is recorded on the plat

Long Term Storm Water Maintenance Plan
for:

Insert Development Name

Address

City, State, Zip Code

CONTENTS

- SECTION 1: PURPOSE AND RESPONSIBILITY
- SECTION 2: POLLUTANT SOURCES
- SECTION 3: DESCRIPTION OF SITE SYSTEMS, OPERATIONS AND POLLUTION CONTROLS
- SECTION 4: TRAINING
- SECTION 5: RECORDKEEPING
- SECTION 6 APPENDICES

SECTION 1: PURPOSE AND RESPONSIBILITY

As required by the Clean Water Act and resultant local regulations, including City of Orem's Municipal Separate Storm Sewer Systems (MS4) Permit, those who develop land are required to build and maintain systems to minimize contaminants in runoff that pollute waters of the State.

The purpose of this Long Term Storm Water Management Plan (LTSWMP) is to manage operations at INSERT PROPERTY NAME, _____ in order to minimize pollutants in both storm water and non-storm water runoff, and to minimize litter from blowing off the site. This LTSWMP describes the systems, operations and the minimum standard operating procedures (SOPs) necessary to accomplish this purpose. Any other activities or site operations at this property that contaminate water entering waters of the state must be prohibited, unless SOPs are written to manage those activities or operations, and this LTSWMP is amended to include those SOPs.

Instructions:

—Property owner is ultimately responsible for managing compliance, monitoring, and required reporting of the Long Term Storm Water Management Plan. However, this LTSWMP plan may propose individual SOPs for each prospective tenant Identify responsibility when multiple tenants are involved in one property. Identify how the operations of each tenant will be managed. Will the PLAN have separate SOPs for each tenant or will SOPs be written for the whole property? Yes No

Please explain each SOP for each tenant. Property owner is ultimately responsible for managing compliance, monitoring, and required reporting of the Long Term Storm Water Management Plan. However, this LTSWMP plan may propose individual SOPs for each prospective tenant."

SECTION 2: POLLUTANTS AND SOURCES

Instructions:

- List site operations that can pollute the storm water.
- List site infrastructure that, when unmaintained, can pollute the storm water.
- Identify the pollutants typical with each site operation and site infrastructure.
- The list below is a guide only. Add and remove items as necessary that are applicable to your site.
- Special instruction language to Owner, staff and sub-contractors may need to be included in **Section 2** to ensure specific operations are always conducted indoors in controlled conditions. Reference operations required by other regulatory agencies or operations that warrant special direction to ensure those operations do not get exposed to the environment such as waste that must be contained, collected indoors and transferred to hazardous wastes facilities. Typically this will be waste that is prohibited from the site's outside dumpster and operations that must be performed indoors. Include this instruction in paragraph form before or after the table.

POLLUTANTS AND SOURCES

Pollutant Sources	Sediment	Nutrients	Heavy Metals	pH (acids and bases)	Pesticides & Herbicides	Oil & Grease	Bacteria & Viruses	Trash, Debris, Solids	Other pollutant	Notes
Spills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Landscaping Maintenance Operations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Waste Management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Storm Water Systems and Maintenance Operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Parking & other Paved Areas & Maintenance Operations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Building Utility Systems & Maintenance Operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Inventory and Storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Equipment Storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Outdoor Activities(tent sales, fund raisers etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Enter More Here If Needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Enter More Here If Needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Enter More Here If Needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

SECTION 3: DESCRIPTION OF SITE SYSTEMS AND OPERATIONS AND THEIR CONTRIBUTION OR PREVENTION OF POLLUTANTS

The site infrastructure and operations described in Section 3 are limited to controlling and containing pollutants and if managed improperly can contaminate the environment. The Long Term Storm Water Maintenance Plan includes standard operating procedures (SOPs) that are intended to compensate for the limitations of the site infrastructure. The responsible party must use good judgment and conduct operations appropriately, doing as much as possible indoors and responsibly managing operations that must be performed outdoors. The drawings describing the infrastructure are included in Appendix A.

Instructions:

- Describe site infrastructure, structural controls and any low impact designs (LIDs) that are included to control and contain pollutants. Identify the limitations of the infrastructure at controlling and containing pollutants.
- Describe operations both business functions and maintenance that will generate pollutants.
- Briefly identify the need for SOPs that are necessary to compensate for the limitations of the site infrastructure and operations. Create SOPs that will govern the site functions, and maintenance operations.

[Describe, site infrastructure, and operations in relation to their contribution or prevention of pollutants generated on this site. The listed infrastructure is typical for most sites, however, the designer is required to add the unique site infrastructure needing controls and may also remove any of standard infrastructure listed that does not apply. Generally most sites will have the following infrastructure and how it is operated and maintained will affect runoff:]

Impervious Areas, Parking, Sidewalk and Patio

[Describe the impervious infrastructure and how its presence and maintenance impacts water quality. When paved surfaces are designed to include LID infrastructure, describe the benefits. Incorporating LID infrastructure can reduce the level of controls necessary for SOPs.

Landscaping

[Describe the vegetative or xeriscape infrastructure and how its presence and maintenance impacts water quality. When the landscape design includes LID infrastructure, describe the benefits. Incorporating LID designs into landscape infrastructure that can reduce the level of controls necessary for SOPs.

Waste Management

[Describe the solid waste system infrastructure and how its presence and maintenance impacts water quality. When the waste control design includes LID infrastructure, describe the benefits. Incorporating LID into waste control infrastructure can reduce the level of controls necessary for the SOP.

Storm Water Management

[Describe the storm water system including surface impoundment, conveyance system and structural water quality infrastructure and how its presence and maintenance impacts water quality. Incorporating LID and structural water quality device designs into storm water infrastructure can reduce the level of controls necessary for SOPs.

Building Utility System

[Describe the utility infrastructure and how its presence and maintenance impacts water quality. Incorporating LID into the building utility infrastructure can reduce the level of controls necessary for SOPs.

Snow and Ice Removal Management

[Describe the necessary snow and ice operation and how its necessity and maintenance impacts water quality. Incorporating LID designs into snow and ice removal infrastructure can reduce the level of controls necessary for SOPs.

Equipment Storage

[Describe any outside storage infrastructure or operations and how its necessity and maintenance impacts water quality. Incorporating LID designs into equipment storage infrastructure can reduce the level of controls necessary for SOPs.

Yard Sale Events, Fund Raisers or Related Outdoor Functions

[Describe and outside operations and how the activities and management impacts water quality. Incorporating LID designs into planned outside event infrastructure can reduce the level of controls necessary for SOPs.

Site Infrastructure Relevant to Preventing the Affects of Spills

[Describe infrastructure limitations at controlling and containing spills. Incorporating LID design into the infrastructure intended to minimize spills reaching waterways can reduce the level of controls necessary for SOPs.

Add functions or operations necessary to protect water quality
[Describe any business policies or functions. Identify the necessary SOPs]

SECTION 4: TRAINING

The owners of this property shall ensure that the property operators know and understand their responsibility to train subcontractors that their employees and subcontractors know and understand the SOPs that are necessary to effectively maintain the property, in order to contain pollutants associated with operations related to the site. This training record is kept in Training Logs .

SECTION 5: RECORDKEEPING AND SITE INSPECTIONS

The owners of the property shall require a records to be kept. Operation activities in accordance with SOPs written specifically for this property. Mail a copy of the record to the Orem City Storm Water Section annually. (Attention to: Storm Water Project Manager 1450 W 550 N Orem UT, 84057 or E-mail a copy to swmp@orem.org)

SECTION 6: APPENDICES

Instructions:

- Include all drawings, details, SOPs and other supporting information referenced in Sections 1-5, the information specified by the Appendix titles and any other specifics necessary to complete this Long Term Storm Water Management Plan.
- Ensure the LTSWMP is updated with any site plan as-built differences prior to releasing the project and Notice of Intent (NOI)

Section 1. Appendix A- Site Drawings and Details

Section 2. SOPs

Section 3. Recordkeeping Documents

APPENDIX A - SITE MAP, BMP LOCATIONS

[Insert Site Drawings or Details]

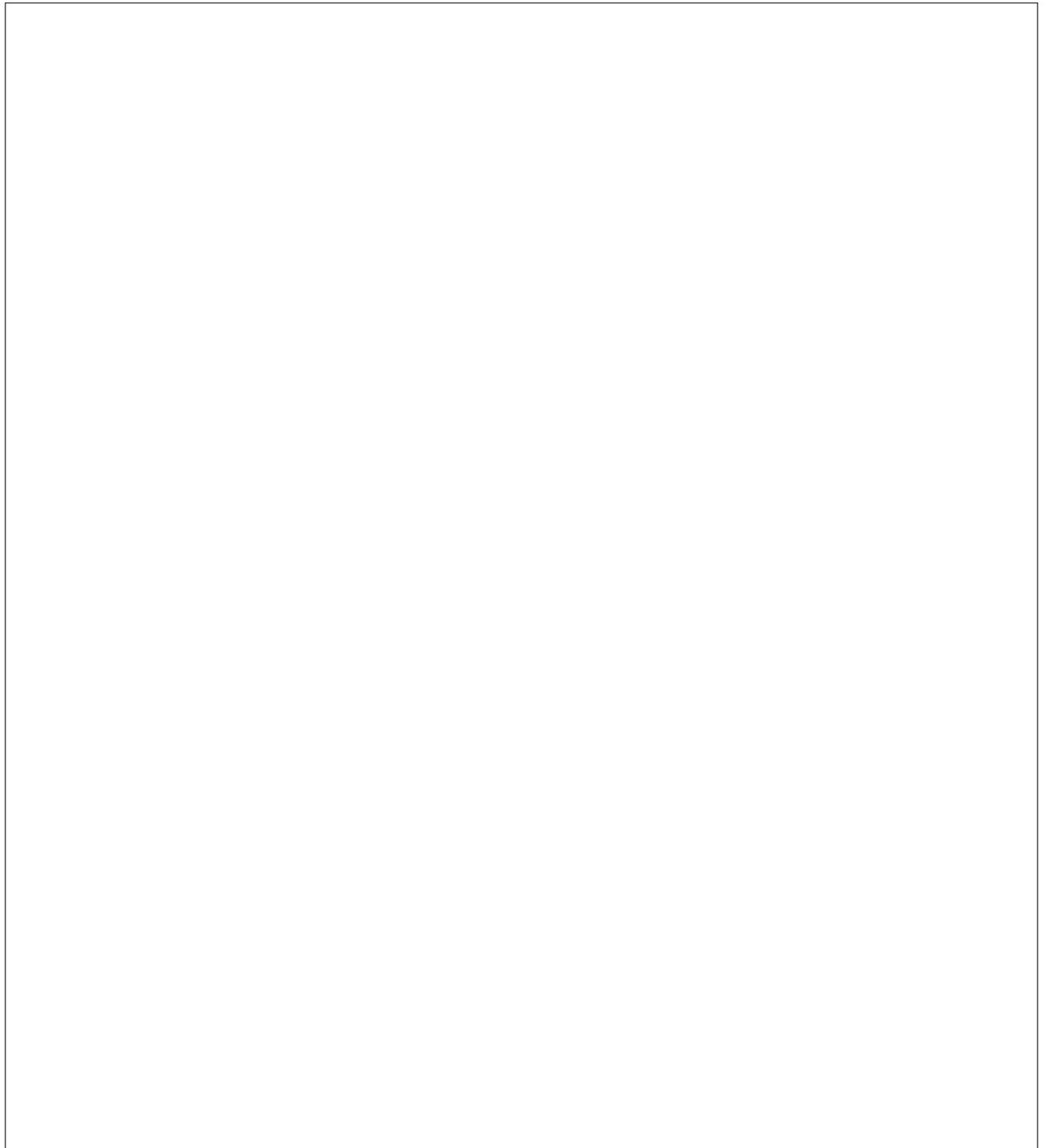
Description: _____



APPENDIX A - SITE FACILITY DETAILS

[Insert Site Drawings or Details]

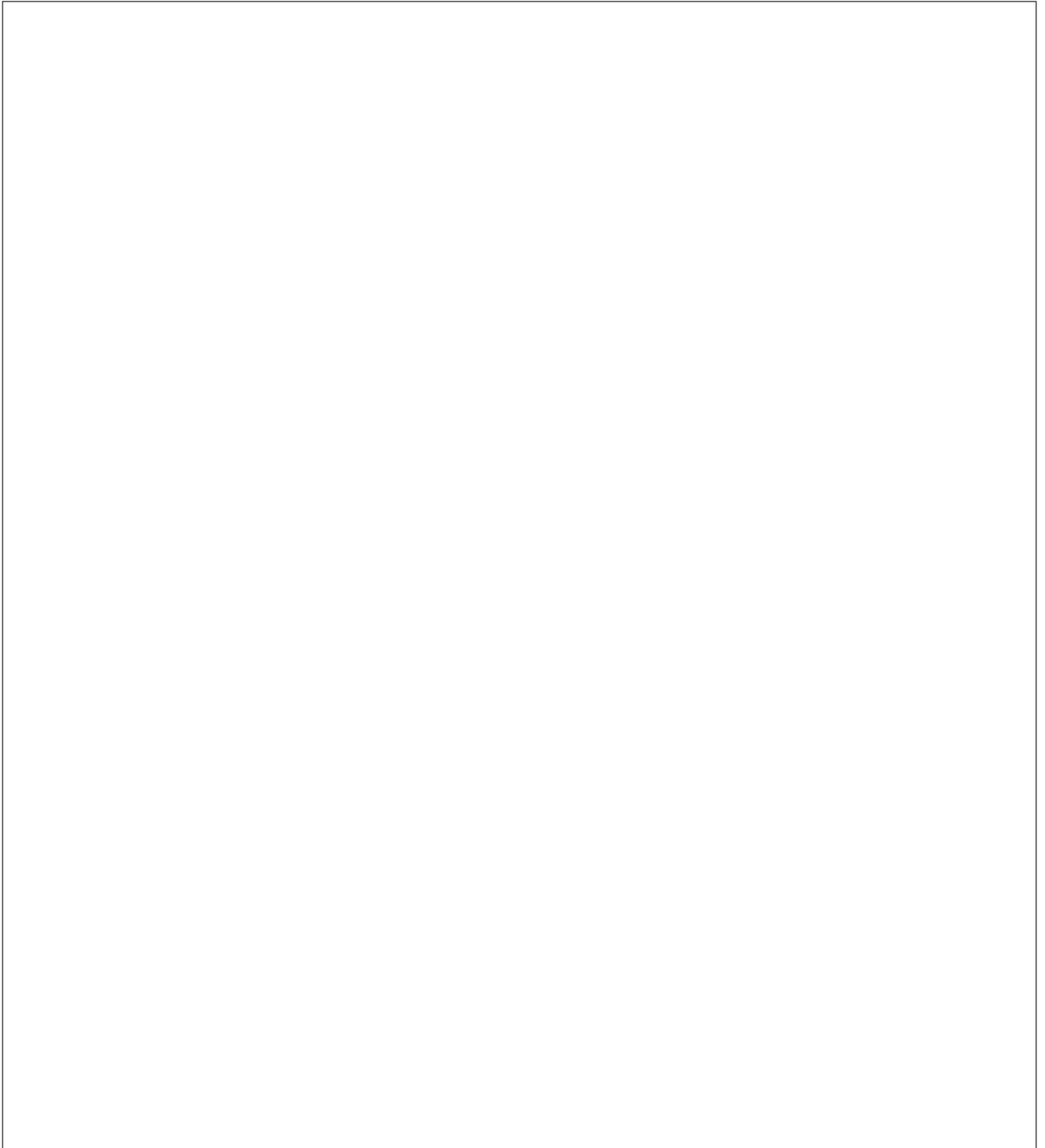
Description: _____



APPENDIX A - SITE FACILITY DETAILS

[Insert Site Drawings or Details]

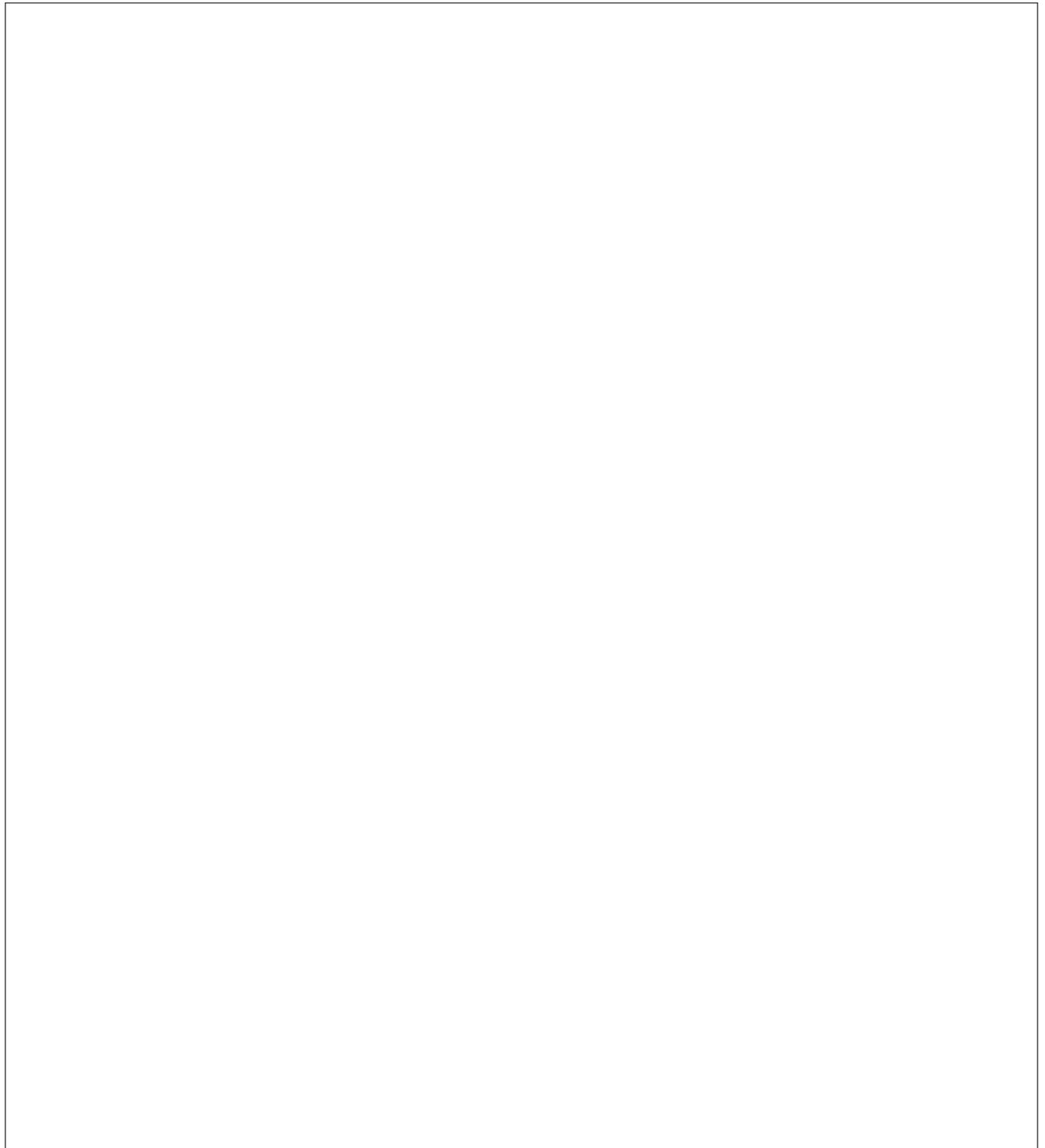
Description: _____



APPENDIX A - SITE FACILITY DETAILS

[Insert Site Drawings or Details]

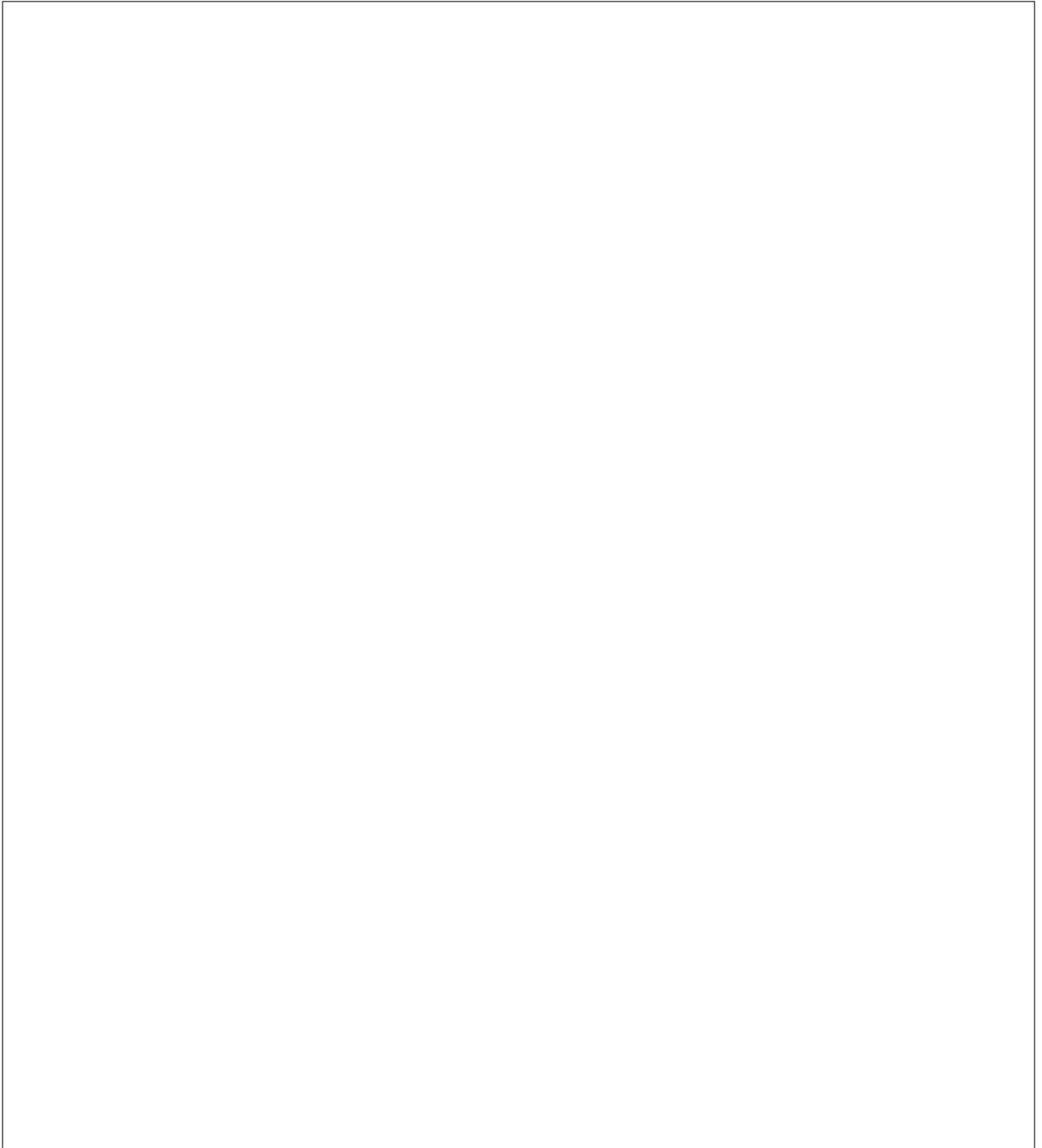
Description: _____



APPENDIX A - SITE FACILITY DETAILS

[Insert Site Drawings or Details]

Description: _____



APPENDIX A - SITE FACILITY DETAILS

[Insert Site Drawings or Details]

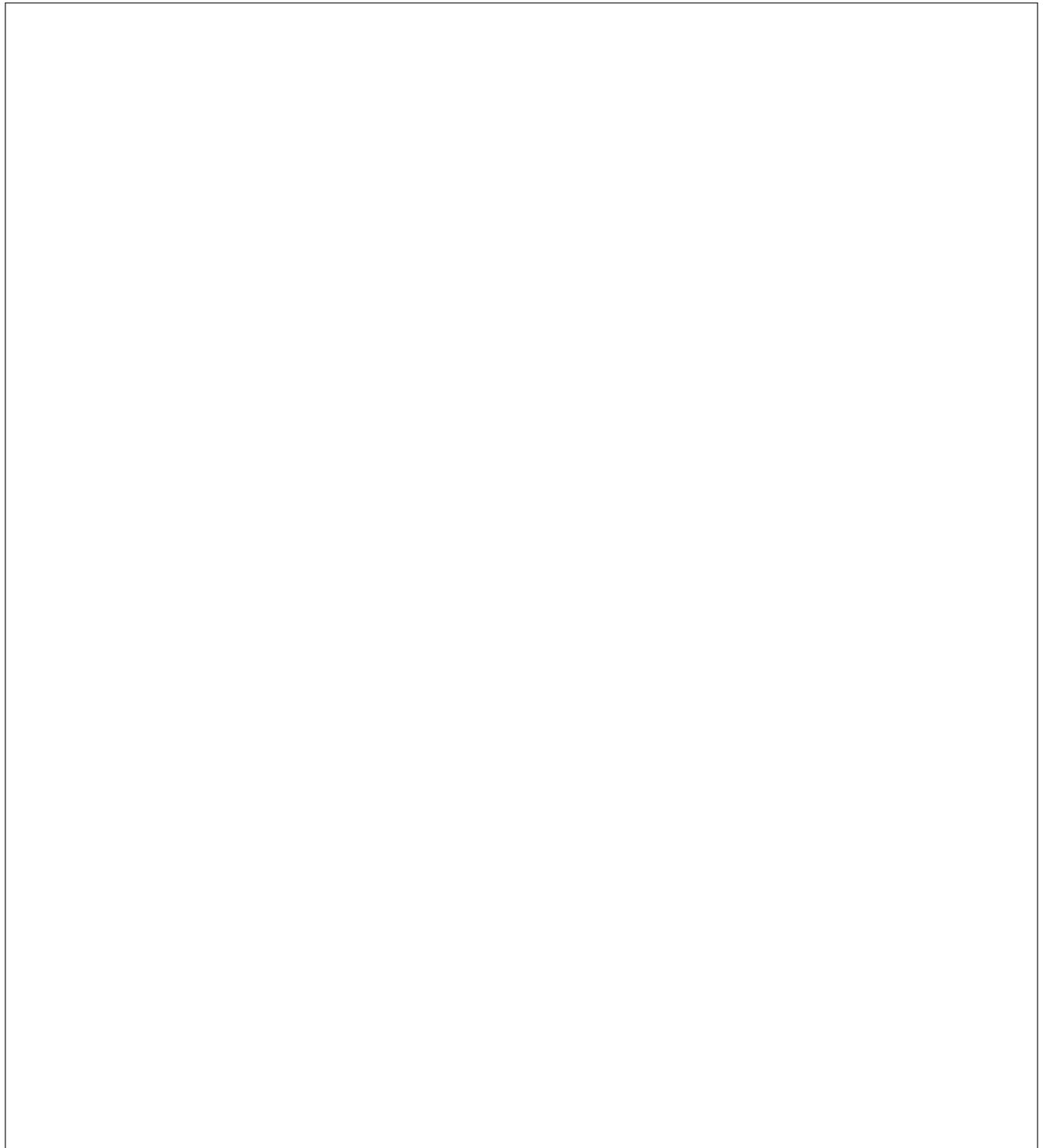
Description: _____



APPENDIX A - SITE FACILITY DETAILS

[Insert Site Drawings or Details]

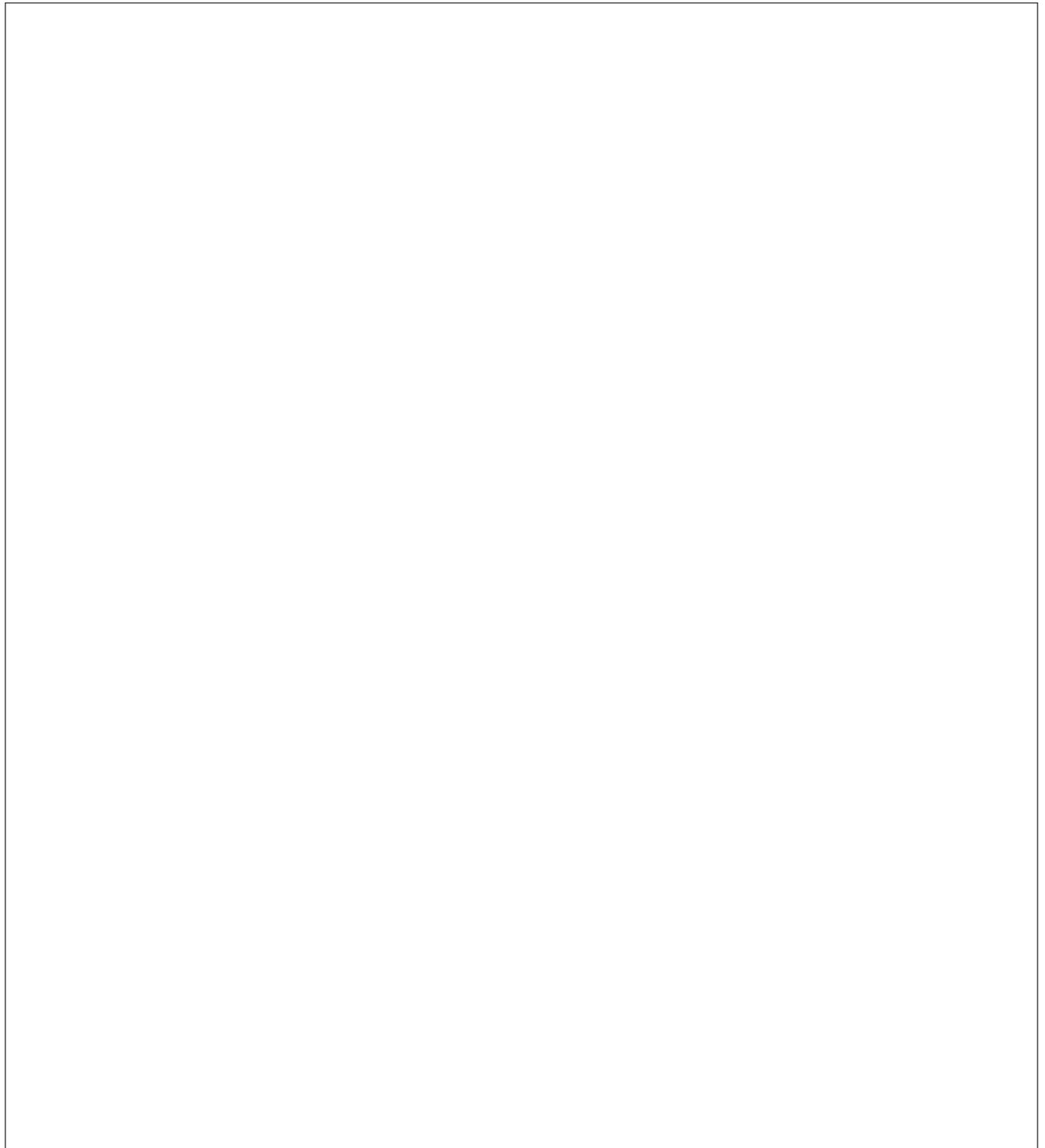
Description: _____



APPENDIX A - SITE FACILITY DETAILS

[Insert Site Drawings or Details]

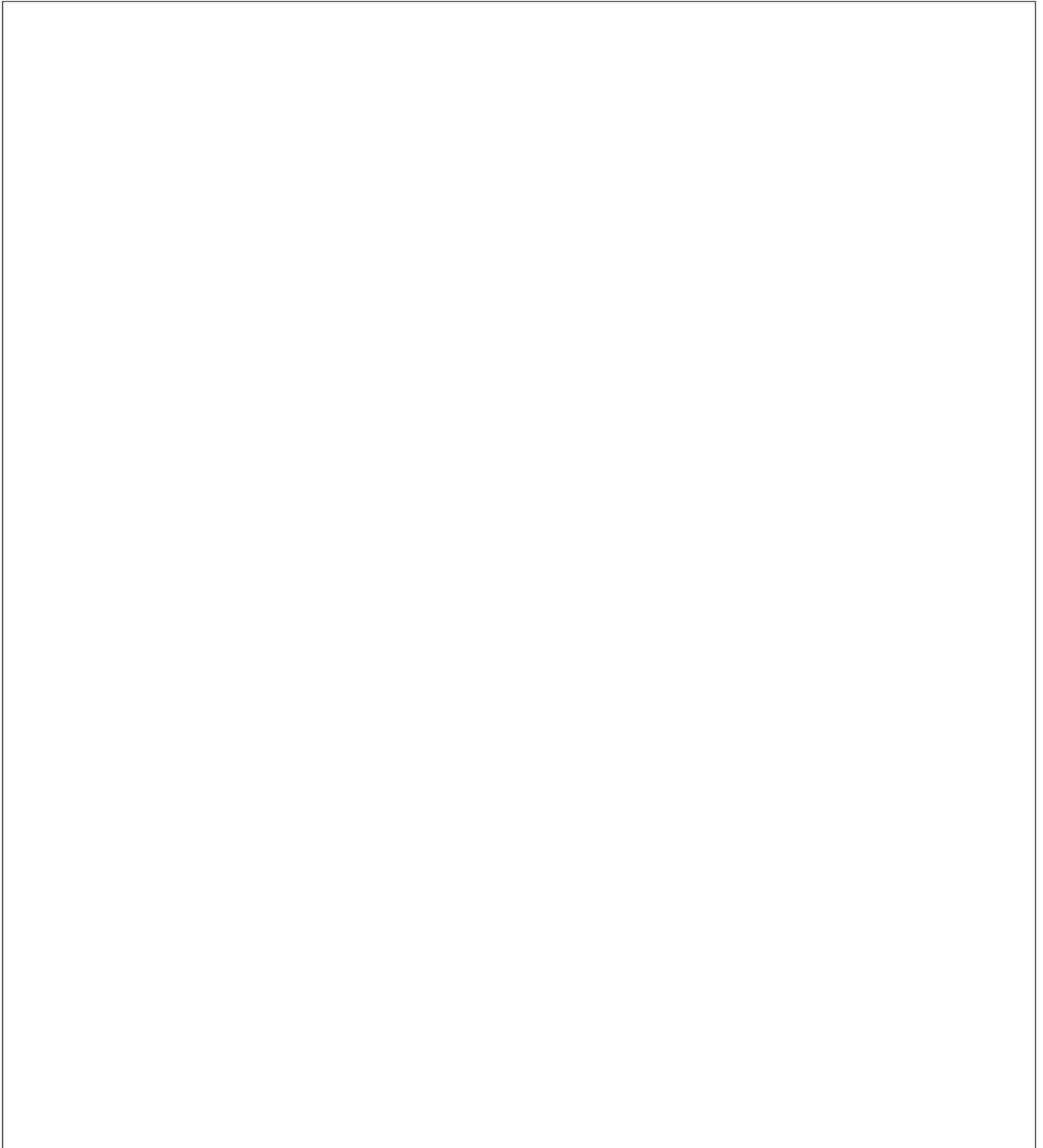
Description: _____



APPENDIX A - SITE FACILITY DETAILS

[Insert Site Drawings or Details]

Description: _____



APPENDIX A - SITE FACILITY DETAILS

[Insert Site Drawings or Details]

Description: _____



<p>Click to add logo</p>	<p>STANDARD OPERATING PROCEDURE</p> <p>PROGRAM:</p> <p><u>Landscaping Maintenance Operations</u></p>	<p>SOP NUMBER:</p> <hr/>	<p>ISSUE DATE:</p> <hr/>
--------------------------	--------------------------------------------------------------------------------------------------------------------	---------------------------------	---------------------------------

<p>LTSWMP REQUIREMENT:</p> <ol style="list-style-type: none"> 1. Provide instruction for the prevention and removal of landscape materials that fall on impervious surfaces and be washed to storm sewer systems by precipitation, non-storm water sources or other liquid including but not limited to: grass clippings, mulch, granular or liquid fertilizers, herbicides and pesticides, spoil, stock piling... 2. Provide instruction that directs the property owner to ensure maintenance staff and subcontractors dispose of the waste at licensed facilities. 3. Provide instruction that directs the property owner to document inspections, establish maintenance frequency and determine effectiveness as a function of the inspection observation. 	<p>TARGETED POLLUTANTS:</p> <ul style="list-style-type: none"> Nutrients Heavy Metals Toxic Materials Organics Oil & Grease
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

GENERAL:
Provide general description of SOP

1. RATIONALE:

2. PROCESS:

3. CLEAN UP:

<p>Click to add logo</p>	<p align="center">STANDARD OPERATING PROCEDURE</p> <p align="center">PROGRAM:</p> <p align="center"><u>Waste Management Operations</u></p>	<p>SOP NUMBER:</p> <hr/>	<p>ISSUE DATE:</p> <hr/>
--------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------	---------------------------------

<p>SMP REQUIREMENT:</p> <ol style="list-style-type: none"> 1. Provide instruction to prevent waste material from draining or blowing out of dumpsters. 2. Prevent prohibited waste specified by the receiving licensed facility and how to dispose other specified hazardous waste if any. 3. Provide instruction that directs the property owner to ensure maintenance staff and subcontractors dispose of the waste at licensed facilities. 4. Provide instruction that directs the property owner to document inspections, establish maintenance frequency and determine effectiveness as a function of the inspection observation. 	<p>TARGETED POLLUTANTS:</p> <ul style="list-style-type: none"> Nutrients Heavy Metals Toxic Materials Organics Oil & Grease
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

GENERAL:
Provide general description of SOP

1. RATIONALE:

2. PROCESS:

3. CLEAN UP:

<p>Click to add logo</p>	<p>STANDARD OPERATING PROCEDURE</p> <p>PROGRAM:</p> <p><u>Emergency Response Plan</u></p>	<p>SOP NUMBER:</p> <hr/>	<p>ISSUE DATE:</p> <hr/>
--------------------------	---------------------------------------------------------------------------------------------------------	---------------------------------	---------------------------------

<p>SMP REQUIREMENT:</p> <ol style="list-style-type: none"> 1. Provide specific instruction unique to the site infrastructure and operations. 2. Local emergency contacts for spills exceeding the capability of the onsite spill prevention and containment SOP. 3. Provide contact information for all public and private entities serving the site. 	<p>TARGETED POLLUTANTS:</p> <p>Nutrients Heavy Metals Toxic Materials Organics Oil & Grease</p>
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

GENERAL:
 Provide general description of SOP

1. RATIONALE:

2. PROCESS:

3. CLEAN UP:

Recorded Documents

Recordkeeping forms following this page]

INSPECTION, MAINTENANCE AND CORRECTION REPORT

(THIS REPORT MUST HAVE A METHOD OF IDENTIFYING PROBLEMS AND SHOW THE MAINTENANCE RECORDS FOR EACH OPERATION OR SYSTEM THAT HAS A POTENTIAL TO POLLUTE THE ENVIRONMENT. YOU MAY USE THIS TEMPLATE OR USE ONE OF YOUR OWN BUT IT MUST INCORPORATE THE ABOVE MINIMUM REQUIREMENTS. SUBMIT THIS REPORT TO THE CITY ANNUALLY.)

THE CITY AND EPA EXPECTS IS THAT PROPERTY OWNERS EFFECTIVELY CONTAIN POLLUTANTS AND TO FIX PROBLEMS WHEN THEY ARE DISCOVERED

Facility Operation and Maintenance Inspection Report for Storm Water Management Facilities

Inspector Name: _____ Facility Name & Address: _____ Inspection Date: _____

Frequency of inspection Weekly Monthly Annually Quarterly Storm Event

Storm water system

	Item Inspected	Maintenance Needed?	Observations and Remarks
1. Remove sediment from catch basins	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
2. Cleaning storm drain pipes	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
3. Maintenance of drainage swales	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
4. Remove sediment from manholes	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
5. Remove sediment from sumps	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
6. Repair oil/water separator	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
7. Repair sand filters	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	

Parking lot and roads maintenance

	Item Inspected	Maintenance Needed?	Observations and Remarks
1. Sweeping of parking lot	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
2. Sweeping of streets	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
3. Cleaning of garbage enclosure	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
4. Cleaning of non-hazardous spills	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
5. Managing fertilizer use	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
6. Managing pesticide use	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
7. Management of landscaping wastes (grass clippings, leaves, etc.)	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	

Detention Facilities

	Item Inspected	Maintenance Needed?	Observations and Remarks
1. Landscaping maintenance	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
2. Remove sedimentation	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
3. Remove debris	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
4. Repair side slopes	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
5. Repair rip-rap protection	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
6. Repair control structure	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
7. Cleaning of outfall	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
8. Removal of floatable debris	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
9. Maintenance of inlets	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
10. Maintenance of outlets	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information provided is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Inspector Signature: _____

Date: _____

**APPENDIX G
SAMPLE
MAINTENANCE
AGREEMENT**



City of Orem

Department of Public Works

INSPECTION & STORM WATER MAINTENANCE AGREEMENT

Project Name and Address:

Parcel No(s): _____

Lot No(s) (if applicable): _____

This Agreement is executed in duplicate this ___ day of _____, 20____, by and between the CITY OF OREM, a municipal corporation and political subdivision of the State of Utah, with its principal offices located at 56 North State Street, Orem, Utah 84057 (hereinafter referred to as the "CITY") and _____, a _____, with its principal offices located at/residing at _____ (hereinafter referred to as "OWNER").

RECITALS

WHEREAS, OWNER is the owner of real property described as:

_____.

_____. Said property is located at the Orem street address of _____ (hereinafter called the "Property").

WHEREAS, the CITY is authorized and required to regulate and control the disposition of storm and surface waters within the CITY, as set forth in the City of Orem's Storm Water Utility Ordinance, as amended ("Ordinance"), adopted pursuant to the Utah Water Quality Act, as set forth in Utah Code §§ 19-5-101, *et seq.*, as amended ("Act"); and

WHEREAS, the OWNER desires to build or develop the Property and/or to conduct certain regulated construction activities on the Property which will alter existing storm and surface water conditions on the Property and/or adjacent lands; and

WHEREAS, in order to accommodate and regulate these anticipated changes in existing storm and surface water flow conditions, the OWNER desires to build and maintain at OWNER's expense a storm and surface water management facility or improvements ("Storm Water Facilities"); and

WHEREAS, the Storm Water Facilities are more particularly described and shown in the final site plan or subdivision approved for the Property and related engineering drawings, and any amendments thereto, which plans and drawings are on file with the CITY and are hereby incorporated herein by this reference; and

WHEREAS, summary description [WHAT DOES THIS LOOK LIKE?] of all Storm Water Facilities, details and all appurtenance draining to and affecting the Storm Water Facilities and establishing the standard operation and routine maintenance procedures for the Storm Water Facilities, and control measures installed on the Property, ("Long-Term Storm water Maintenance Plan" or "Plan") more particularly shown in Exhibit "A" and,

WHEREAS, a condition of development approval, and as required as part of the CITY's Small MS4 UPDES General Permit from the State of Utah, OWNER is required to enter into this Agreement establishing a means of documenting the execution of the Plan; and

WHEREAS, the CITY and the OWNER, its successors and assigns, including any homeowners association, agree that the health, safety, and welfare of the residents of Orem, Utah require that on-site Storm Water Facilities be constructed and maintained on the Property; and

WHEREAS, the CITY requires that Storm Water Facilities as shown on the Plan be constructed and adequately maintained by the OWNER, its successors and assigns, including any homeowners association.

COVENANTS

NOW, THEREFORE, in consideration of the foregoing promises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. The Storm Water Facilities shall be constructed by the OWNER, its successors and assigns, in accordance with the plans and specifications identified in the Plan.
2. The OWNER, its successors and assigns, including any homeowners association, shall, at its own expense adequately maintain the Storm Water Facilities in accordance with the approved operation and maintenance guidelines set forth for each facility. This includes all pipes and channels built to convey storm water, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the storm water. Adequate maintenance is herein defined as good working condition so that these facilities are performing their design functions.
3. The OWNER, its successors and assigns, shall ensure the Storm Water Facilities are inspected by a qualified professional and shall submit an inspection report to the CITY. The inspection report shall be due annually thirty (30) days from the date of the final structural storm water management facilities construction inspection and as-built plans submitted. The purpose of the inspection is to assure safe and proper functioning of the facilities. The inspection shall cover the entire facilities, berms, outlet structure(s), pond/detention areas, access roads, etc. Deficiencies shall be noted in the inspection report.
4. The OWNER, its successors and assigns, hereby grant permission to the CITY, its authorized agents and employees, to enter upon the Property and to inspect the Storm Water Facilities whenever the CITY deems necessary. The purpose of inspection is to follow-up on reported deficiencies and/or respond to citizen complaints. The CITY shall provide the OWNER, its successors and assigns, copies of the inspection findings and a directive to commence with the repairs if necessary.
5. This Agreement hereby grants to the CITY any and all maintenance easements set forth herein or in the Plan as required to access and inspect the Storm Water Facilities.
6. In the event the OWNER, its successors and assigns, fails to maintain the Storm Water Facilities in good working condition acceptable to the CITY, the CITY may enter upon the Property and take whatever steps necessary to correct deficiencies identified in the inspection report and to charge the costs of such repairs to the OWNER, its successors and assigns. This provision shall not be construed to allow the CITY to erect any structural storm water management facilities. It is expressly understood and agreed that the CITY is under no obligation to routinely maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the CITY.
7. The OWNER, its successors and assigns, will perform the work necessary to keep these facilities in good working order as appropriate. In the event a maintenance schedule for the Storm Water Facilities (including sediment removal) is outlined on the approved plans, the schedule will be followed.

8. In the event the CITY, pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the OWNER, its successors and assigns, shall reimburse the CITY upon demand, within thirty (30) days of receipt thereof for all actual costs incurred by the CITY hereunder. After said thirty (30) days, such amount shall be deemed delinquent and shall be subject to interest at the rate of ten percent (10%) per annum. OWNER shall also be liable for collection costs, including attorneys' fees and court costs, incurred by the CITY in collection of delinquent payments.
9. This Agreement imposes no liability of any kind whatsoever on the CITY and the OWNER agrees to hold the CITY harmless from any liability in the event the Storm Water Facilities fail to operate properly.
10. This Agreement shall be recorded among the land records of Utah County, Utah, and shall constitute a covenant running with the land, and shall be binding on the OWNER, its administrators, executors, assigns, heirs and any other successors in interests, including any homeowners association. Whenever the Property shall be held, sold, conveyed or otherwise transferred, it shall be subject to the covenants, stipulations, agreements and provisions of this Agreement which shall apply to, bind and be obligatory upon the OWNER hereto, its successors and assigns, and shall bind all present and subsequent owners of the Property described herein.
11. The parties represent that each of them has lawfully entered into this Agreement, having complied with all relevant statutes, ordinances, resolutions, bylaws and other legal requirements applicable to their operation.
12. This Agreement shall be interpreted pursuant to the laws of the State of Utah.
13. Time shall be of the essence of this Agreement.
14. In the event that either party should be required to retain an attorney because of the default or breach of the other or to pursue any other remedy provided by law, then the non-breaching or non-defaulting party shall be entitled to a reasonable attorney's fee, whether or not the matter is actually litigated.
15. The invalidity of any portion of this Agreement shall not prevent the remainder from being carried into effect. Whenever the context of any provision shall require it, the singular number shall be held to include the plural number, and vice versa, and the use of any gender shall include the other gender. The paragraphs and section headings in this Agreement contained are for convenience only and do not constitute a part of the provisions hereof.
16. No oral modifications or amendments to this Agreement shall be effective, but this Agreement may be modified or amended by written agreement.
17. Should any provision of this Agreement require judicial interpretation, the Court interpreting or construing the same shall not apply a presumption that the terms hereof shall be more strictly construed against one party, by reason of the rule of construction that a document is to be construed more strictly against the person who himself or through his agents prepared the same, it being acknowledged that both parties have participated in the preparation hereof.

- 18. This Agreement shall be binding upon the heirs, successors, administrators and assigns of each of the parties hereto.
- 19. Subordination Requirement. If there is a lien, trust deed or other property interest recorded against the Property, the trustee, lien holder, etc., shall be required to execute a subordination agreement or other acceptable recorded document agreeing to subordinate their interest to the Agreement.

SIGNED and ENTERED INTO this _____ day of _____, 20_____.

OWNER

(Owner)

(Print Name)

STATE OF UTAH)

:ss.

COUNTY OF SALT LAKE)

The above instrument was acknowledged before me by _____, this _____ day of _____, 20_____.

Notary Public

Residing in: _____

My commission expires: _____

CITY

MAINTENANCE DIVISION MANAGER

FOR CITY USE ONLY

Property description verified: _____ Date: _____

Long-Term Storm Water Maintenance Plan: Approved _____ Date: _____

Agreement Reviewed & Approved by Storm Water Staff: _____ Date: _____

EXHIBIT A

Plan

**APPENDIX H
CITY OF OREM
FACILITY INVENTORY**

Inventory of Municipal Facilities

Under the DWQ Small MS4 General UPDES permit, certain facilities, either owned or operated by the City of Orem, fall under the permit guidelines. These facilities include:

- All City buildings
 - City Center
 - Libraries – Main & Children’s
 - Public Safety
 - Justice Court
 - Fire Stations 1, 2, & 3
 - Senior Friendship Center
 - Fitness Center
 - Public Works
 - Waste Water Treatment Plant
 - Scera Park Pool
 - Sleepy Ridge Golf Course Clubhouse
 - Sleepy Ridge Golf Course Restrooms
 - Various City Park Restroom and Storage Building and other Outbuildings (Wells and Lift Stations)

- Equipment Storage and Maintenance Facilities
 - Public Works
 - Waste Water Treatment Plant
 - Fire Stations 1, 2 & 3

- Landscape Maintenance Facilities
 - 23 City Parks
 - Bonneville, Canyon Cove, Cascade, Cherapple, Cherryhill, City, Community, Foothill, Geneva, Hillcrest, Lakeside, Mt. Timpanogos, Nielson Grove, Northridge, Orchard, Palisade, Scera, Sharon, Skate, Southwest, Springwater, Westmore, Windsor,
 - City Buildings Grounds

- 37 Public Parking Lots
 - City Buildings
 - City Center, Libraries, Public Safety, Public Works, Fire Stations, Senior Friendship Center, Fitness Center, Scera Park Pool, Golf Courses, etc.
 - 22 City Parks, several with multiple parking lots
 - 2 Commuter Parking Lots
 - 790 North 1200 West

- 1200 West Center Street

- 2 Public Golf Courses
 - Sleepy Ridge Golf Course
 - Cascade Golf Course

- Public Swimming Pools
 - Scera Park

- 9 Public Drinking Water Wells

- Sewer Lift Stations
 - Carterville
 - 1600 North Geneva Road
 - Sandhill Road
 -

- Storm Water Control System
 - 1713 Class V Injection wells (sumps)
 - 27 Detention Basins
 - 2 Wetlands
 - Lindon Hollow
 - Kent Drain
 - 2441 Catch Basins
 - Piping

An inventory of fixed facilities will be conducted annually with changes to the inventory submitted with the Annual Report to the State.

**APPENDIX I
PUBLIC WORKS
BUILDING SWPPP**



Storm Water Pollution Prevention Plan
City of Orem Department of Public
Works 1450 W 550 North
Orem, UT 84057



This storm water pollution prevention plan was prepared in accordance with the State of Utah Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activities, Group 1, Sector P and is for the permit period of 1/1/04-12/31/08.

Pollution Prevention Team

Chris Tschirki

Director of the Public Works
Department

Signatory Authority

Reed Price

Maintenance Division Manager

Neal Winterton

Water Division Manager

Thayne Carter

Fleet and Facilities Section Manager

Keith Larsen

Traffic Section Manager

Lane Gray

Water Section Manager

Jim Orr

Parks Section Manager

Cody Steggell

Streets and Storm Water Section
Manager

Rick Sabey

Storm Water Field Supervisor

Ryan Johnson

Storm Water Project Manager

Steve Johnson

Storm Water Engineering Specialist

Introduction

The City of Orem Public Works Complex (referred to as “the complex”) was completed in February of 2007. This Storm Water Pollution Prevention Plan will identify the potential pollutants that are kept or used on site as well as the best management practices in place to ensure that the potential for these pollutants affecting storm water is diminished to the maximum extent practicable.

Facility Location

The complex is located at 1450 W 550 North in the Bunker Business Park Subdivision. The property is owned by the City of Orem. It is bounded on the north by the Utah Department of Transportation, Region 8 headquarters and AA Alpine Storage. To the east is Interstate 15. To the south is Mity Lite Industries, Simtek Fence, United Body Works and a private residence. To the west is Maple Mountain, American Crafts, Christensen Oil and RAM Excavation. A location map is included as Figure 1.



Figure 1: The complex location

Facility Description

The complex houses the operations for the Streets, Water, Parks, Traffic and Fleet and Facilities Sections. It contains 54,823 square feet of shop space, 29,177 square feet of office space and storage and 16.6 acres of yard. This is a total of 20.44 acres. Activities performed at this site include vehicle and equipment repair and maintenance, vehicle and equipment washing, chemical storage and handling, raw material stockpiling, salt storage, scrap material storage and sign manufacturing. The entire site is secured with fencing and walls including gates that are locked during non-working hours.

Figure 2 is a site map that identifies building locations, drainage patterns, storm water infrastructure, and potential pollutant sources.

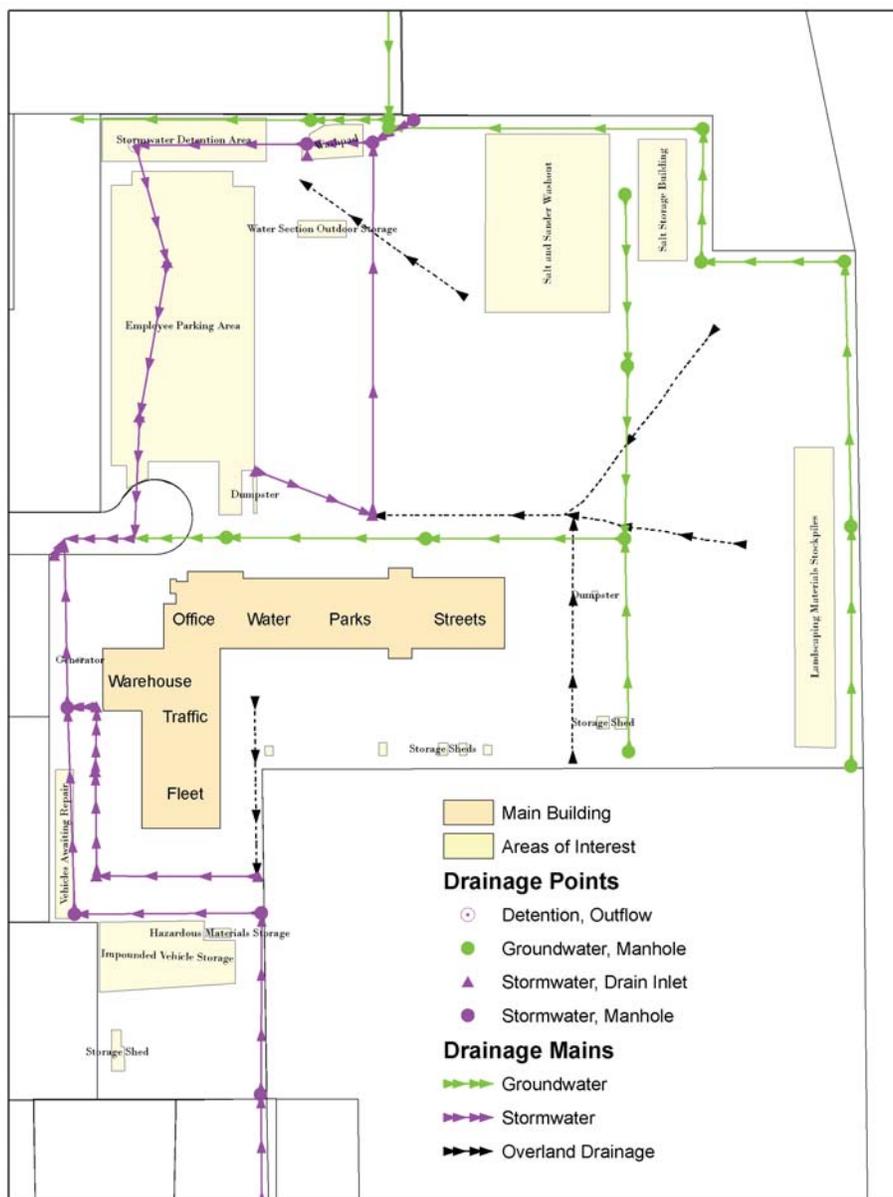


Figure 2: Site Plan

Potential Pollutant Sources

The complex has the following industrial activities:

Fleet Maintenance

Vehicle and equipment maintenance is done in this area. Activities include changing equipment fluids, washing vehicle parts, storage of vehicles and equipment awaiting repair and maintenance, washing vehicles, and temporary storage of wastes such as used oil and batteries.

Hazardous Materials Storage

A Hazardous Materials storage building is provided just to the south of the Fleet Maintenance shop. This building currently houses paints for the Traffic section, form oil and similar chemicals for the Streets section and some assorted chemicals for the Fleet Maintenance section. This Hazardous Materials storage building is designed with secondary containment in the floor.

Raw Materials Stockpiles

The complex houses stockpiles of topsoil, rock, bark, mulch, cold mix asphalt, ball field clay and other landscaping materials as well as salt for snow removal.

Salt Storage Building

This building was completed in 2008 and is intended to house all snow removal materials.

Sweepings Decant Area

This is a walled area on impervious surface designed to house debris from street sweepers that allows the debris to dry prior to disposal.

Facility Activities

The following describes different areas of the complex and the activities that take place there.

Yard Areas

Activities in the yard include equipment and materials storage including raw materials stockpiles, pipe storage, vehicle wash pad, snow removal preparation and vehicle parking. The area is mostly gravel with pavement under the vehicle wash pad and the snow removal preparation area. There is also an area designated for the storage of impounded vehicles.

Streets Shop

Vehicle and equipment storage and maintenance of street sweepers, jet rodder vac trucks, dump trucks and vehicles used for snow removal as well as lawn maintenance equipment.

Some welding and grinding activities are housed in the Streets Shop. In addition, tack oil, soaps, asphalt and kerosene are stored in this shop.

Parks Shop

Vehicle and equipment storage and maintenance of lawn maintenance equipment and Parks Section vehicles. Fertilizer and other lawn maintenance chemicals are also stored in the shop. Lawn equipment fluids are changed as well.

Water Shop

Vehicle and equipment storage for all activities associated with the Water Division. Activities include manufacturing activities such as welding and cutting. Soaps, chlorine and antifreeze are stored here.

Streetlight Shop

Storage and maintenance of streetlights and signals.

Traffic Shop

Storage of equipment and vehicles related to pavement and curb markings.

Sign Shop

Manufacturing of street signs including metal cutting and vinyl application. Also houses street marking equipment and provides storage for small amounts of paint.

Carpentry Shop

This shop houses activities such as woodworking and other small projects. It has been locked since the discontinuance of the carpentry position.

Warehouse

This area is a storage and distribution facility. Activities include unloading, cataloging and distributing commonly used items. It contains new and spent automotive batteries and some automotive and cleaning fluids.

Fleet Maintenance Shop

This area is used for maintenance of vehicles and equipment. There are parts washing machines with solvent reservoirs as well as storage for many other automotive fluids such as used oil, used antifreeze, batteries, window washing fluid, transmission fluid, hydraulic fluid, etc. It includes an oil and fluid storage room with secondary containment in the floor.

Hazardous Materials Storage Building

This building contains paint, form oil and other hazardous chemicals. It is equipped with secondary containment in the floor. It is secured by lock and key.

Salt Storage Building

This building stores salt for snow removal activities.

Administrative Areas

Offices throughout the complex house administrative staff and have offices with computers.

Site Drainage/Management of Runoff

The complex is located on a sandy soil base. The main building is surrounded by an asphalt apron. Areas north and east of the main building and the southeast portion of the employee parking lot are drained by a series of catch basins that are connected by a piped system that empties into a dry detention basin on the northwest corner of the property. Discharge from the detention basin as well as runoff from the remainder of the employee lot is conveyed underground to an oil/water separator before entering the main City Storm Sewer located in 550 North. The south side of the building is drained by a separate system that starts just southwest of the southernmost portion of the main building. This runoff is conveyed underground to an oil/water separator unit in the warehouse loading dock before being discharged into the main City Storm Sewer just to the west. Runoff from the complex facility travels west and then north through the City's storm water system. It eventually makes outfall into Utah Lake via Lindon Hollow to the north and west of the site.

The snow removal area of the North Yard is drained to a lined evaporation pond. No storm water is discharged from this area.

The portion of the site not covered by the asphalt apron is covered by a gravel/slag base that allows storm water to percolate without running off.

The site has two groundwater drain lines that flow under the site. In addition, a portion of the City Storm Sewer infrastructure flows northward from the south property line to 550 North.

Exposed Materials

There are minimal materials that are exposed to rainfall and storm water runoff. Landscaping stockpiles of topsoil and rock of various sizes are stored on the east end of the property. They are stored in lined bins and runoff from these piles is directed to gravel areas.

Spill History

There have been no significant spills or leaks at this location since it began operation in January 2007.

Sampling Data

At the time that this plan was created, there had been no storm water runoff samples taken or analyzed.

Measures and Controls

Good Housekeeping

The following Best Management Practices (BMPs) assure that the complex will be kept in a clean orderly manner

General Cleanliness

- Trash and litter are to be picked up from work areas daily.
- Weekly the yard will be walked to pick up and dispose of litter.
- The asphalt apron around the main building is swept by regenerative air sweepers every two weeks, weather permitting.

Vehicle and Equipment Storage Areas

- An area has been delimited for vehicles awaiting repair to the south and west of the Fleet Maintenance Shop.
- All vehicles awaiting repair are visually inspected to determine if there are any fluid leaks.
- If any leaks are discovered, a drip pan is provided to collect fluids until the vehicle is serviced.
- Any leaks or spills that do wind up on the pavement are cleaned by applying absorbent, sweeping up when dried, and disposing of in garbage dumpsters.

Material Storage Areas

- All materials that may adversely affect storm water runoff are stored indoors with the exception of some drums of oil used to lubricate drinking water wells in the north yard area. These drums are stored under a cover and containment pallets are provided.
- Hazardous materials are stored in a hazardous materials building located to the south of the main building.
- Automotive fluids are stored inside the Fleet Maintenance Shop. The fluid storage room has secondary containment provided in the floor.
- All shop buildings are drained with floor drains that are connected to the sanitary sewer. This minimizes the potential for outside exposure.

Vehicle and Equipment Cleaning Areas

- All major washing is done on a wash pad in the northwest corner of the property. This is where muddy equipment and street sweepers are washed out. This wash pad is equipped with a sedimentation basin and an oil/water separating inlet that treats water before it is released into the site's detention basin.
- Minor washing is done inside shops which drain to the sanitary sewer.

- Snow removal equipment is washed out at the salt and sander racks. This area drains to an asphalt lined retention area.
- Employees are encouraged to wash at commercial car wash facilities in inclement weather.
- The City is also looking into options for moving all washing activities inside.

Vehicle and Equipment Maintenance Areas

- Activities such as parts washing, vehicle cleaning, changing of automotive fluids are done inside the shop.
- New oil and automotive fluids are stored in an oil storage room with secondary containment in the floor. Waste oil is stored in a double walled containment system.
- All spills and drips are contained with drip pans and cleaned with dry cleanup practices.

Preventative Maintenance

- All storm water management infrastructure will be inspected annually and serviced as necessary.
- Equipment that is stored outside will be inspected prior to use to make sure that all drips are contained and/or repaired.

Spill Prevention and Response Procedures

Each work area will be supplied with a spill response kit. All employees that handle hazardous materials will be trained in proper hazardous materials handling procedures. Spills of significant amounts will be reported to supervisors for each section who will in turn file an incident report with The Storm Water Engineering Specialist. If the spill is deemed large enough, it will be reported

Inspections

The Storm Water Engineering Specialist will conduct quarterly inspections of all shop areas, all parking areas, all storage areas, the wash pad, raw materials storage bins and the hazardous materials building. For each inspection a report will be made available to each member of the SWPPP committee. Each section will be given one week to take any necessary corrective actions. All inspections and follow up actions will be documented and kept with this SWPPP.

Employee Training

All Public Works employees will receive training regarding the SWPPP at least annually. This training will cover the subjects of spill response, good housekeeping and materials management. More specifically all employees will receive a summary of this SWPPP, management of used oil, management of used solvent, spill prevention, response and control, good housekeeping, proper painting procedures, and used battery management.

Recordkeeping and Internal Reporting Procedures

Incidents, inspections and maintenance activities are to be documented and kept with this SWPPP. These records will be maintained by the Storm Water Engineering Specialist. A sample inspection report form is attached to this SWPPP

Sediment and Erosion Control

Due to the gentle slope and ground cover at the complex, there is no need for sediment and erosion control.