

AURORA WATER DEPARTMENT

INTEGRATION PLANNING

June 2012

Purpose - This report provides an overview of Aurora Water's efforts to coordinate service provision with other city departments to provide excellent utility services. These integration activities have improved service coordination, improved efficiency and clarified inter-departmental responsibilities.

Current areas of departmental integration are briefly described to provide a status update. New initiatives are proposed in the second half of the report. If overlapping functions can be identified and reorganized, all departments will become more efficient.

Objective – Aurora Water will become better integrated with other City Departments to improve service delivery to citizens.

Existing Areas of Integration with other Departments

Aurora Water is a partner with other departments in providing many city services. Most of these relationships have been in place for many years and function well. The following list summarizes the key areas of cooperation.

1. Snow Removal – Aurora Water provides dump trucks, loaders and personnel to assist with all snow removal events. This is a combined resource effort with Public Works and Parks, Recreation and Open Space Departments to optimize the use of equipment and personnel during snowfall events. Aurora Water provides approximately 40% of the snow removal equipment and workforce. Operating, maintenance and personnel expenses are absorbed by the department, except for overtime payments.
2. Street Overlay – Aurora Water pays for or performs adjustments to water valves and manholes as necessary for the annual street overlay contract, managed by Public Works. Replacement of water and sewer lines is coordinated with the annual street overlay program to minimize cutting of newer pavements. Both departments compare long range maintenance plans annually to minimize conflicts. In addition, based on an MOU with

Public Works, Aurora Water pays an annual "street occupancy" fee of \$73,765 to cover permits and inspections for utility repairs and replacements.

3. Reservoir Recreation – Both Aurora Reservoir and Quincy Reservoir are managed to maintain the highest pool level possible to support fishing, boating and swimming activities. Aurora Water pays for a Parks employee, who provides direct coordination for any water projects that may affect recreation activities, park usage, or open space areas.
4. Legal Services – All attorney services are provided through the City Attorney's Office. This includes special water counsel, Duncan, Ostrander and Dingess, and Brownstein, Hyatt, Farber and Schreck. Fees and invoices for outside counsel are directly approved by the City Attorney's Office. In addition the department pays for two assistant City Attorneys to support department legal services.
5. Fleet Maintenance Services – All Aurora Water vehicles and equipment are maintained through the Fleet Services Division. Vehicle service and replacement schedules are coordinated through Fleet Services. Aurora Water's Fleet Coordinator reviews the department's equipment condition and future needs with Fleet Management annually. All new vehicles and heavy equipment are purchased through Fleet Management and outfitted with snow removal attachments at department expense.
6. Capital Project Design – Public Works engineering services are used for recurring annual projects, such as the sewer lining and water line replacement projects. Only those projects requiring additional outside expertise are assigned to outside consultants. Fees paid to Public Works for these services in 2011 were \$292,796.
7. Other Public Works service groups – During capital project planning and construction, Aurora Water regularly uses and pays for services from the Public Works Department groups, including Engineering Plans Review, Survey, Real Property, and the Materials Lab. Requests for assistance are sent to these groups first, and outside contracts are issued if Public Works does not have the resources available to accomplish the work in the requested timeframe. Fees paid to Public Works for these services in 2011 were \$227,276.
8. Stormwater Facility Maintenance – Operating memorandums have been mutually approved by Public Works and Aurora Water to clarify the responsibilities for maintenance of street drainage, storm sewers, and drainageways. An example agreement between Wastewater, PROS, and Public Works is attached. It clarifies maintenance responsibilities.

9. Street Sweeping – Street sweeping activities are partially funded by Aurora Water in 2012, as part of the stormwater management compliance plan for the City. While street sweeping traditionally has been a general fund expense, the national focus on water quality of storm runoff has shifted much of this expense to the Wastewater Fund. This activity will be fully funded by Aurora Water in 2013 in the amount of \$1.15 million.
10. Financial Management – Aurora Water pays for the services of a debt and finance administrator in the Finance Department to assure that all bonded indebtedness is properly reviewed and approved. Also, positions are funded in Internal Audit and Budget to review and approve budgets and contract expenditures. All payments are made by accounting and all revenues are received by the cashier.

Inter-fund loans have been made to support City projects, such as the Murphy Creek and Saddle Rock Golf Courses, the Gateway Interchange, and the 800 MHZ radio system.

11. Development Review – Aurora Water is part of the team of reviewers from various departments that work through Development Services to process new development applications and to review construction plans. Aurora Water Engineering staff reviews all water, sewer, and storm drainage improvements constructed within new developments. However, the general fund receives 100% of the fees charged to developers for plan review services.
12. All 4 Business Initiative - There are three subcommittees that are working to implement the All 4 Business action plan developed in late 2011. Those are “Customer Service”, “Streamline the Process”, and “Improve Access to and Quality of Information.” Pieter Van Ry has taken a lead role as “Customer Service” Co-Chair on both the All 4 Business Customer Service initiative and the City wide Customer Service initiative and is also a task lead on implementation. Cliff Stephens has taken on a substantial role on the “Streamline the Process” subcommittee and is working extensively on AMANDA process improvements as well as the overall process changes. Nicole Johnston is a member of the “Improve Access to and Quality of information” subcommittee and is a task lead on one of the action items.
13. Procurement – All supplies and services are procured through the Purchasing Services, following standard City procedures. Aurora Water pays for approximately three staff members in Purchasing to meet the needs for procurement and contracting for the department. These employees report directly to the Purchasing Manager.
14. Real Property Acquisition – The Public Works Department provides all leasing and land acquisition services for Aurora Water as described in APM 4-14. Appraisals,

environmental investigation, negotiations and contracts are managed by Real Property Services. Aurora Water contracts for part-time services with Lyman Ho, since the RPS division has not been staffed to provide timely services in this area for all department needs.

15. Fire Hydrant maintenance – Maintenance activities, including painting and valve operation, historically were a Fire Department expense. This work has now been absorbed by Aurora Water.
16. Pump Station operation/maintenance – The pump stations supplying water to Aurora Hills Golf Course, the Sports Park, Hutchinson greenbelt, and Saddle Rock Golf Course are maintained by Aurora Water.
17. Public Information – The NewsAurora citywide newsletter is printed and included in Water bills with the majority of cost absorbed by Aurora Water. Staff was closely involved in redesigning the City website to focus on topic-driven content.
18. Water Conservation – Staff works closely with Neighborhood Services to review landscaping violations and to schedule water conservation presentations. Planning and Water Conservation work together to develop Citywide water efficient landscaping standards. Event coordination with Parks, Recreation and Open Space includes the annual Tree Sale, Kidspre and Xeriscape demonstrations. Aurora Water maintains the Xeric Demonstration sites at City facilities.
19. I.T. Services – Aurora Water receives hardware acquisition and software maintenance services from the I.T. department similar to other departments. Aurora Water funds the salary of one I.T. employee to manage the HTE software for meter reading, billing, and data management.
20. Training Classes – Aurora Water Operations has a Training and Safety Specialist, who also teaches several citywide classes for external defibrillators, CDL testing, safety, and first aid. Our Specialist maintains the “Third Party CDL Testing Certificate” for the City.
21. Service Level Agreements – SLA’s are in place for many services provided between departments. Several examples are attached to this report and are listed below. The agreements include specifications for service standards and appropriate fees.
 - a. Integrated management plan for stream corridors
 - b. Operation and maintenance of irrigated turf. (\$114,165 paid to PROS in 2011)
 - c. Noxious weed maintenance (\$83,617 paid to PROS in 2011)
 - d. Landscape maintenance at water purification facilities (\$42,589 to PROS)

- e. SCADA WAN system (AW pays for outside services for I.T.)
 - f. Project management services for pavement restoration services (5% of annual patching contract amount is paid to Public Works – approx. \$24,522 in 2011)
22. Central Facilities Warehouse – The Warehouse is used primarily to provide materials for water system maintenance. Parts replacement services are also offered to PROS and Public Works for facilities maintenance, irrigation systems, and small equipment.
23. Irrigation Water for PROS – Aurora Water obtained a Water Court decree to allow reuse of irrigation runoff water for Parks, Open Space and Golf. Aurora Water has provided augmentation water with a value of \$478,000 to support this use and maintains the water accounting for the decree. Other water court actions for PROS are managed by Aurora Water Resources Division at no cost to them.
24. Shared Equipment – Specialized equipment is shared among departments. For example the Stormwater Division crane truck is often loaned to Facilities Maintenance to install equipment on rooftops. Shoring trailers are made available to the Fire Department for rescue operations involving excavations.
25. AEDC Support – Aurora Water provides financial support to Aurora Economic Development of \$200,000 annually in support of economic development activities.

Many additional examples were submitted by employees, describing daily interactions with other departments' staff, particularly in the operating divisions.

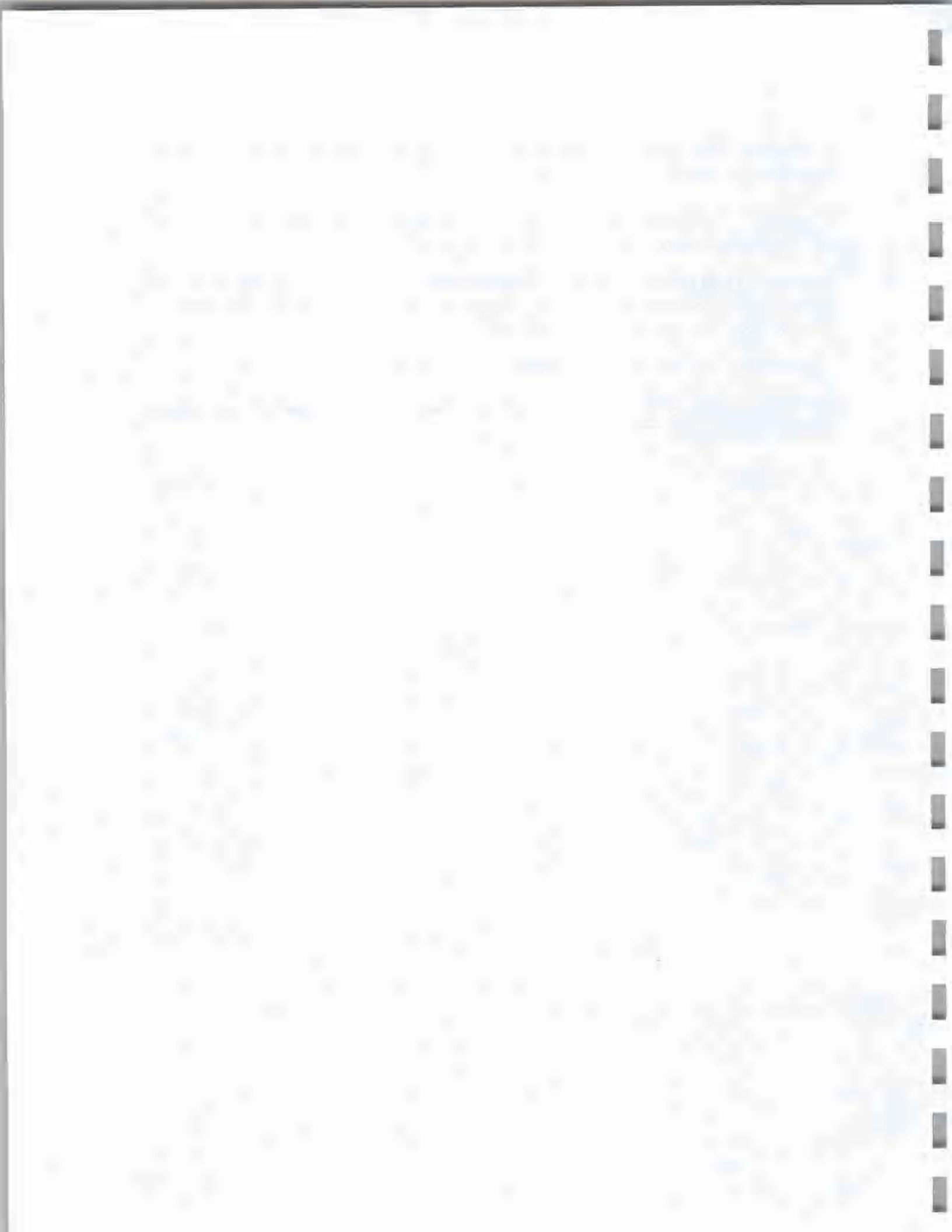
Opportunities for Further Integration with Other Departments

Aurora Water division managers and deputies have proposed a number of initiatives for expanding relationships and interactions with city departments. The proposals were rated in terms of benefit to city operations, visibility of interactions, and ability to implement in a timely manner. These proposed actions were specifically chosen to address interactions with other departments providing similar services. Each initiative which is approved for implementation by the Director and the Deputy City Manager will be expanded with further details, schedules and the addition of representatives from other departments, if necessary.

1. Objective: Work with the Golf Division to implement water conservation measures at public courses and to test drought tolerant grasses.
 - a. Take the lessons learned from turf testing and apply to parks and open spaces.

- b. Identify candidate projects for water conservation grants.
2. Objective: Provide backup for Communications Department staff during emergencies or extraordinary high volume periods.
3. Objective: Improve the Aurora Water capital budgeting process by providing better accuracy in long term project selection and scheduling.
 - a. Spread funding years for design and construction for major projects
 - b. Provide more flexibility in transferring funding among projects and providing supplemental funding.
 - c. Review all positions funded in other departments and verify continuing need
 - d. Propose procedural changes which will simplify project funding
4. Objective: Clarify the criteria for separate department funding of City Services versus the annual fund transfer.
5. Objective: Lead a citywide effort to create an asset management system
 - a. Form a task force of department representatives to identify current asset management practices and create a proposal for an integrated system
 - b. Test software capabilities to manage all types of assets, including utilities, buildings and equipment
6. Objective: Continue to integrate utility inspection procedures with Public Works procedures to provide uniform standards for new development.
 - a. Adopt uniform inspection scheduling procedures
 - b. Create an inspection documentation program cross referenced to AMANDA parameters
 - c. Review Tap Applications integration at Permits Center and consider additional opportunities to improve customer services
7. Objective: Confirm long term responsibilities and staffing for I.T. related functions
 - a. Resolve issues raised by I.T. Department regarding management of the G.I.S. program
 - b. Create a long term plan, approved by all departments

8. Objective: Coordinate with Public Works Engineering to plan annual needs for engineering design services, survey, and real property acquisition
9. Objective: Set expectations with Public Works regarding street sweeping frequency, which will maintain compliance with the City's stormwater permit
10. Objective: Evaluate the possibility of implementing an Environmental Management System throughout the City in accordance with the International Standards Organization's standards program in coordination with the Planning Department
11. Objective: Evaluate the feasibility of a Citywide Call Center
12. Objective: Expand the utilization of the Central Facilities Warehouse to serve the needs of other operating departments



APPENDIX

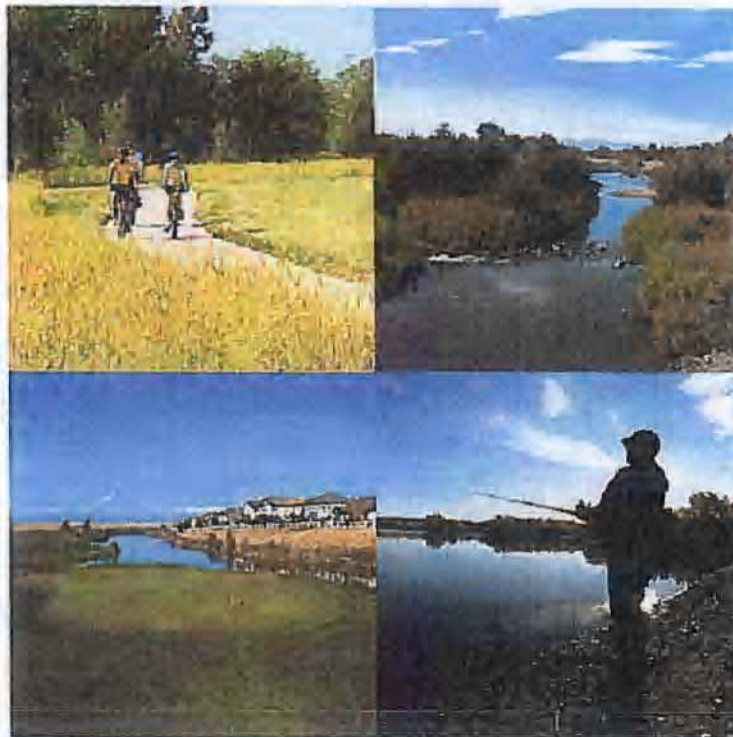
SAMPLE SERVICE LEVEL AGREEMENTS

1. Integrated Management Plan for Stream Corridors
(Public Works, PROS, Aurora Water)
2. Service Level Agreement for Operation and
Maintenance of Aurora Water Irrigated Turf
(PROS and Aurora Water)
3. Service Level Agreement for Noxious Weed
Management along Stream Corridors
(PROS and Aurora Water)
4. Service Level Agreement for Landscape Maintenance
at Wemlinger WPF, Sand Creek Water Reuse Facility,
and Peter Binney Water Purification Facility
(PROS and Aurora Water)
5. Service Level Agreement for Management and
Maintenance of Aurora Water SCADA WAN
(I.T. and Aurora Water)
6. Service Level Agreement for Project Management for
Pavement Restoration Contract
(Public Works and Aurora Water)

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Integrated Management Plan

For



Stream Corridors

Design • Development • Maintenance • Multi-Use Management

Acknowledgements:

Aurora Water Department
Parks, Recreation and Open Space Department
Public Works Department



Introduction

The City of Aurora is committed to protecting the health and safety of the community and preserving its natural resources. Providing a comprehensive approach to flood and stormwater management is critical to satisfying multiple community needs. This Integrated Management Plan (IMP or Plan) is guided by a regulatory framework and Best Management Practices (BMPs) to protect Aurora's citizens and property; reduce the severity of flooding during storm events; protect stream corridors from the impact of future development; and safeguard the City's natural resources and beauty.

Parks, Recreation and Open Space (PROS) and Aurora Water (AW) are responsible for land management within stream corridors and are stewards of these properties regardless of funding sources used for maintenance and capital improvements. The Departments will communicate and convey consistent maintenance concepts to limit impacts and disturbances within stream corridors and thus ensure efficient use of resources and enhance sustainability.

Purpose

This Plan meets the 2012 City Council goal of providing a well-managed and financially strong city by *maximizing efficiencies through a collective use of resources* while simultaneously *minimizing waste and duplication of efforts*. The purpose of this Plan is to collaboratively prioritize, manage and maintain Aurora's stream corridors.

This Plan contains components to assure regulatory compliance, influence future design, guide development and define goals and responsibilities for maintenance activities while considering the multi-use features Aurora's stream corridors provide.

AW and PROS both contribute to stream corridor design, development, management and maintenance, and share responsibilities within these areas.

For the purpose of this plan a stream corridor is defined as the stream, its floodplain, and a transitional upland fringe. A natural open space area is defined as land or water in an essentially undisturbed natural state or enhanced for the purpose(s) of resource preservation, conservation or recreation uses and shall be protected from any future re-development. Other areas covered by this IMP include golf courses, developed parks, 100-year floodplains, wetlands, trails, detention ponds and reservoirs.

Guidance

This Plan will balance Floodplain Management Principles with Open Space Objectives to protect our resources and enhance our quality of life.

Floodplain Management Principles recognize the benefits of floodplain occupation and the particular social, economic and ecological attributes of flood-prone land. It is the mission of AW to provide safe and dependable water services to citizens of Aurora and this Plan supports that mission. PROS and AW will manage the City's floodplains in an ecologically, economically and socially sustainable fashion.

GENERAL PRINCIPLES OF FLOODPLAIN MANAGEMENT¹

- The Federal Government has a fundamental interest in how the nation's floodplains are managed, but the basic responsibility for regulating floodplains lies with State and Local governments.
- Floodplains must be considered in the context of local, regional and national planning and management.
- Flood loss reduction should be a main component of floodplain management.
- Resource management and protection should focus specific resources, which may or may not occur entirely within the floodplain.
- Sound floodplain management embodies:
 - Goals (wise use, preservation and restoration, and development of resources);
 - Objectives (economic efficiency, environmental quality, and social well-being);
 - Consideration of future needs and the role of the floodplain;
 - Evaluation of alternative strategies;
 - Accounting for benefits, costs, and the impact of floodplain management actions;
 - Motivation of decision makers;
 - Coordination of agencies at all levels for all aspects of floodplain management and involvement of the community; and
 - Evaluation through continuous monitoring and reporting to the public.

While stream corridors serve a primary function of flood control and flood conveyance, they also provide important environmental resource functions. It is the mission of the Open Space & Natural Resources Division to be stewards of natural resources essential to Aurora's quality of life. This Plan supports this mission by incorporating the following Open Space Objectives below.

OPEN SPACE OBJECTIVES:

- Maintain the natural quality and processes of stream corridors by restoring, preserving, enhancing and protecting its natural systems;
- Restore and maintain the chemical, physical, and biological integrity of water resources;
- Remove pollutants from stormwater runoff;

¹ Adapted from *A Unified Program for Floodplain Management 1994*, a report prepared by The Federal Interagency Floodplain Management Task Force, Washington, D.C., June 1994.

- Reduce erosion and sediment from entering the stream;
- Provide buffer areas, visual breaks in the urban landscape
- Stabilize stream banks;
- Maintain the base flow of streams;
- Balance the organic matter that is a source of food and energy for the aquatic ecosystem;
- Provide and enhance the tree canopy to shade streams and promote desirable aquatic organisms;
- Provide riparian wildlife habitat and corridors;
- Create community and neighborhood amenities by enhancing scenic value and recreation opportunity; and
- Provide education on wise use and environmentally sound practices to protect wildlife, and preserve and enhance natural resources.

Regulatory Compliance

There are multiple regulatory agencies that develop and implement rules and regulations that protect life-safety, property, ensure water quality compliance and protect natural resources. Understanding the intent and reach of these laws not only helps prevent potential problems in the future, but also helps to conserve and protect natural resources.

The primary regulations governing the protection and management of Aurora's stream corridors are Federal Emergency Management Agency (FEMA), Clean Water Act (CWA), Migratory Bird Treaty Act (MBTA), Threatened and Endangered Species (T&E), Bald and Golden Eagle Protection Act (BEPA) and the State Historic Preservation Office (SHPO).

In addition to those above, the following agencies and regulations help define Aurora's BMPs. The Environmental Protection Agency (EPA), National Flood Insurance Program (NFIP), Colorado Division of Parks and Wildlife, National Pollution Discharge Elimination System (NPDES), United States Army Corps of Engineers (USACE), Colorado Water Conservation Board (CWCB), Colorado Department of Public Health and Environment (CDPHE), Colorado Department of Agriculture, US Fish and Wildlife, Urban Drainage and Flood Control District (UDFCD), Natural Resources Conservation Service, Soil Conservation District and City of Aurora floodplain rules and regulations. Please note the above list of regulators may not be all inclusive.

Stream Corridor Master Planning

All future stormwater conveyance systems e.g., channels and ponds, should be designed for the 100-year frequency storm and conform to criteria noted in the City of Aurora Design and Technical Criteria Manual, and be consistent with, or provide equivalent improvements to, the approved Outfall Systems Plan or Major Drainageway Plan (MDP) consistent with regulatory guidance (e.g., provided by UDFCD). Whenever practical, open channels shall have slow flow

characteristics, be wide and shallow, provide sufficient maintenance access, incorporate features to make it compatible with surrounding land uses, and be natural in appearance. Open channels will be designed to integrate recreation and aesthetic needs, support and enhance wildlife habitat, support plant populations, and allow for bicycle and pedestrian trails and maintenance access whenever possible. Designers (either contract or City design staff) will coordinate any access channel plans with the following departments:

- Aurora Water relative to flood maintenance requirements and permitting.
- PROS relative to trails and open space uses, habitat and vegetation.
- Planning & Development Services relative to site plan landscape requirements or master plan requirements as applicable.
- Public Works related to review and approval.

Stakeholders - Decision Making

Coordination in Master Planning efforts involving stream corridors is imperative for long term success of the IMP. Aurora Water and PROS will develop a planning committee consisting of representatives from the Public Works, PROS' Planning, Design and Construction Division and Open Space & Natural Resources Division, as well as Aurora Water's Capital Projects Division, Engineering Division and Wastewater/Stormwater Operations Division. This committee will convene in the early stages of project planning and members will have the ability to make key strategic decisions to guide the process and ensure future master planning and project-specific planning efforts are successful.

The committee will be involved in all stream corridor Master Planning efforts in which either Department has areas of responsibility, maintenance activity and/or interest. The committee will develop an escalation protocol to resolve any issues not resolved at the committee level.

The committee will utilize the **Project Generation Form**; *see appendices*, for all projects. The Project Generation Form is designed to enhance communication and coordination within the Departments. The Form is proactive in identifying key contacts, targeting specific or sensitive issues and recognizing schedule and budget impacts prior to implementation of any project.

All future projects will have a Project Generation Form, to be completed by the person initiating the project and returned to the IMP Coordinator. As the liaison, the IMP Coordinator will route the Form to all stated and potential stakeholders.

Mapping

PROS and AW will coordinate efforts to map all stream corridors with public open space connections utilizing GIS, or other mapping tools, to document and clarify areas of responsibility. A centralized mapping system is currently being developed to meet this need.

Stream Corridor Management

PROS and AW recognize and support life-safety, as well as protection of property and water quality, and protection of wildlife and natural resources are common goals that are fundamental to the Plan. Both Departments are committed to working together to bring about efficient land management within stream corridors. Best Management Practices (BMPs) have been developed and implemented in several stream corridors; these have provided a natural and beneficial asset to the community.

Typical stormwater conveyance systems, such as open channels and retention/detention ponds, are designed for a 100-year storm frequency. These systems are in place to protect the city, its people and property while complying with regulatory requirements. A conceptual design plan for a 100-year flood zone generally incorporates the adjacent floodway and floodplain, which is most often a combination of natural drainage and open space areas. Planning, development and design decisions within the floodplain and related watersheds should be jointly managed to ensure proper function and to maximize the unique natural value. Enhancing and promoting the efficient use of existing floodplains and watersheds is a common IMP goal, and is a cooperative effort with regards to planning and land use management and maintenance. It should also be a regional goal, coordinated with all stakeholders within a stream corridor, contributing towards resource protection and management.

All maintenance activities within the 100-year floodplain must be carefully managed to minimize or eliminate risk to people and property. Areas adjacent to, and exceeding, the 100-year floodplain are similarly managed to reduce risk and to support a transition zone from floodplain to natural open space lands. This transition zone should be seamless and integrated so that there is little to no differentiation between the respective areas with regard to environmental protection, vegetation and overall aesthetic quality.

Aurora Water will provide the lead to set appropriate maintenance activity levels and frequency for the portion of the stream corridor within the 100-year floodplain. AW implements Floodplain Management Principles that maintains drainage function as the primary purpose. However; the Department recognizes considerable flood protection is realized when Open Space Objectives are implemented to enhance drainage function.

PROS will provide the lead to set the appropriate maintenance activity levels and frequency for the portion of the stream corridor with adjacent open space outside of the 100-year floodplain. However, it is the goal of this Plan to balance Flood Management Principles and Open Space Objectives to ensure stream corridors are managed and maintained to serve multiple community needs.

Water Quality

Stream corridors provide a variety of critical environmental functions to protect Aurora's watershed. Implementation of proper maintenance and protection of our stream corridors is paramount. The effectiveness of stream corridors in buffering its streams, in an effort to maintain water quality, depends on the character (depth and width) of the stream as well as uses within or adjacent to the corridor. Properly planned and maintained vegetation within floodplains (buffer zone) can increase a stream's water quality effectiveness significantly.

Most stream corridor regulations allow activities within stream corridors; however, some activities (e.g., construction) can have huge impacts on water quality. Proper protection of stream corridors will eliminate some water quality problems by removing sediments, organic matter, and other pollutants from runoff and stormwater before it enters the stream. These impacts can be reduced by utilizing BMPs such as enforcing a buffer zone with vegetation between streams and activities. PROS and AW will ensure that BMPs will be implemented for water quality and erosion control. Strict BMPs will be required to limit pesticide usage along stream corridors. Proper protection of stream corridors is a critical component to maintain the health of the stream corridor and its surrounding natural environment and wildlife habitat.

Floodplains are low-lying areas adjacent to the stream corridors and are susceptible to flooding during seasonal or unexpected weather events. Floodplains can serve as buffer zones that enhance water quality by restoring the natural hydrology. These lands can also store floodwaters and serve to reduce damage caused by high velocity floods.

Efforts to improve Floodplain Management Principles also tend to be good watershed management practices. Wetland and riparian protection, increased stormwater mitigation and sustainable development techniques all help to improve water quality while supporting the primary function of floodplains.

Wetlands

Wetlands provide protection and habitat for wildlife and contribute substantially to improving water quality. Healthy wetlands support many floodplain management and open space principals that are important to the city. AW and PROS will implement a Wetlands Management Plan to allow for voluntary restoration and protection of the City's wetlands through inventory and analysis of existing wetlands, providing a mechanism to develop wetland banking, and describe methods which will enhance both wildlife habitat and water quality. This plan will be in accordance with all State and Federal requirements.

Sensitive Activities/Areas

The Departments recognize there are activities carried out to maintain Floodplain Management Principles and Open Space Objectives that are sensitive in nature and may trigger a citizen

response or complaint. These activities include noxious tree management, woody vegetation management, and wildlife management.

Some stream corridors and natural areas have a higher sensitivity level from a cultural resource perspective (e.g., historical viewpoint or artifacts). Often these areas have residents who reside in close proximity and who expect a higher level of protection.

The Departments will jointly develop a sensitive activity and area list with the intent being to determine which activities and areas require site specific Operations and Maintenance planning. Communication, education, planning and coordination are even more critical with regards to these activities/areas. Site specific communication tools like sandwich boards may be necessary to effectively communicate any operational work that is occurring to those living or recreating in the area.

Trees & Plantings

PROS and AW agree that tree mitigation and reconciliation is most effective and beneficial when it occurs prior to design of any project. Mitigation costs can be calculated and the value of the loss can then become the minimum expectations and/or the minimum design requirements of the new project. Especially significant tree specimens will be identified and preserved whenever possible. *See tree mitigation plan in the appendices.*

Trees and other woody vegetation provide significant wildlife habitat, as well as effective erosion control for stormwater conveyance systems. Woody vegetation will continue to be managed and standardized to provide for natural resources protection and drainage stabilization, without compromising Floodplain Management Principles.

Woody vegetation in the 100-year floodplain may be managed to a different standard than vegetation in adjacent open space areas. Woody vegetation, e.g., volunteer and noxious trees, requiring management within the low flow channel is exempt from City tree mitigation requirements. Noxious trees are exempt regardless of their location. *See woody vegetation management plan in the appendices.*

Volunteer tree and vegetation planting projects help to enhance and sustain natural environments and connect citizens with nature, instilling a sense of land stewardship. PROS and AW will collaborate on any efforts that utilize volunteer planting projects in stream corridors. This coordinated effort will mitigate the potential of tree plantings projects creating management issues in the future. Similarly, the Departments will partner to support other special events conducted in, or impacting areas along, stream corridors. Staff from PROS and AW will coordinate on special events including tree plantings, trash and debris clean-up events and other community service oriented projects.

PROS and AW staff will coordinate on final planting decisions prior to any new construction and/or improvement design and planning efforts. This will assure that plantings do not restrict future access for maintenance activities; appropriate landscape features and materials enhance and/or are compatible with drainage functions; and appropriate native species are used to compliment the surrounding natural area.

Vegetation Standards

The effective establishment of vegetation must be a key component for all AW and PROS project planning and design efforts. Vegetation establishment must be considered a significant asset to any given project. In an effort to establish a consistent vegetation strategy, the following measures will be implemented. *Note: For the purpose of this section the word vegetation includes: turf grass, native grasses and forbs.*

Regulatory Requirements: Changes to the Stormwater Management Plans (SWMP), or permit, include extending the permit close-out from 12 months to 36 months (30 months with potential 6 month extension) for areas requiring non-irrigated vegetation. In addition, the Aurora Water Utility Specifications chapter 30 revisions includes language that specifies, for channels and ponds, final acceptance will not be issued until vegetation has reached 70% of pre-construction vegetative density and the Storm Water Quality Discharge Permit is closed. Both of these regulatory controls will increase the opportunity for successful vegetation establishment.

Fiscal Security Requirement: Fiscal security serves as an insurance policy to the City in the event a contractor defaults on their contractual obligation(s) to restore the required vegetation to the requirements set forth in the Stormwater permit and other contract documents. Consistent application of fiscal security will be required on AW and PROS projects requiring site restoration with non-irrigated vegetation. The successful bidder, or Permittee, is required to submit a fiscal security in the amount of 25% of the total value of the Stormwater BMPs for the project as calculated by the design engineer and presented in the SWMP. The fiscal security will remain valid and in effect until a passing final closeout inspection is achieved. In the event that a contractor defaults on his obligation to provide adequate site restoration, the fiscal security will be used by the City for its costs to restore the site using staff or a third party.

Vegetation Establishment Requirements: The establishment of consistent vegetation standards will be divided into two parts: irrigated turf grass and non-irrigated (native grasses and forbs) areas. The percent of coverage will be based on the approved vegetative density as required in the approved SWMP narrative and design drawings. The percent of coverage will be considered the standard for all projects and applications. The City has the option to increase the percent of coverage expectation when warranted. In

the event the City requests an enhancement to the requirement it will be determined in the pre-design phase.

All vegetation areas will be subject to the following requirements for effective establishment of all desired vegetation. *See appendices for details.*

1. Pre-Design site inspection for noxious weeds/trees and/or other problematic site conditions.
2. Pre-Design soil testing.
3. Pre-Final grade soil testing. Prior to final grade or the addition of soil amendment, soil condition testing (to assure that soil conditions do not change from pre-design).
4. Compaction and/or de-compaction standards will be pre-determined and specified in project plans based on application (irrigated/non-irrigated).
5. Final Soil preparation.
6. Overall management (including mowing, weeds, prairie dogs, etc.) for the duration of vegetation establishment.

Percent of Coverage Requirements: All percent of coverage must be uniformly distributed. Percent of coverage for all projects based on application will be as follows: *See appendices for details.*

- SWMP compliance and permit close-out for non-irrigated native grasses (70%)
- Irrigated turf grasses must be (95%)

Seed mixes: City staff will develop appropriate seed mixes for appropriate applications. These mixes will be considered the standard mix for the application. The City has the option to change or require a specialty mix when warranted. In the event the City requests an enhancement to the seeding requirement it will be determined in the pre-design phase. *See appendices for details.*

Wildlife

Stream corridors support and protect wildlife habitat and its corridors. Mammals, birds, fish, amphibians and reptiles rely on natural areas within stream corridors to survive and thrive. Naturally vegetated riparian areas are vital for many of these species. PROS and AW will coordinate to ensure that best management practices are utilized within these corridors and, when necessary, implement wildlife management practices on a case-by-case or site specific basis.

If not properly managed, maintenance of water quality and stormwater management features in stream corridors can potentially be in conflict with wildlife protections outlined in the Migratory Bird Treaty Act (MBTA) and the Threatened and Endangered Species Act (T&E). PROS and AW will coordinate efforts to ensure regulatory compliance.

See wildlife management plan in the appendices.

See Colorado Division of Parks & Wildlife - MBTA Guidelines in the appendices.

Encroachment

Encroachments can impact the function and value of stream corridors and natural areas, such as a decline in water quality, increased risk of flooding, and loss of habitat and ecological processes. AW and PROS will define and standardize enforcement procedures regarding impacts caused by private property owners encroaching on areas owned and managed by the City of Aurora. An effective encroachment management plan will define how to manage and/or remove or restore existing areas of encroachment, including city projects encroaching on private property. The encroachment plan will also provide consistent enforcement practices that resolve encroachment issues in a fair, balanced and judicious manner. *See Encroachment Management Plan in the appendices.*

Stream Corridor Maintenance

PROS and AW will develop site specific Operations and Maintenance (O&M) plans that communicate and convey consistent maintenance concepts; assure an efficient coordination of resources; and serves as a sustainability tool to be utilized for all staff. The O&M plans will define responsibilities between AW and PROS so that each department is clear on respective activities and maintenance intervals. Routine maintenance activities may include invasive activities that impact stream corridors and require mitigation or restoration. These activities should be highlighted as *Potential Impacts* in a Project Generation Form and planned for well in advance. Activities having an impact on trails and stream corridors including closures, detours and mitigation plans should be conveyed as early in the planning stages as possible so all stakeholders are informed. *See Site Specific O&M Plans in the appendices.*

Maintenance Access

All planning, design and development of stream corridors in open space areas must provide for maintenance access. Maintenance access should be provided to the upstream and downstream of all drainage structures, sewer and water infrastructure (i.e. manholes, diversion structures, etc), and have appropriate turnarounds as needed.

Typically, maintenance access in stream corridors is accommodated by multi-use trails as part of the city's trail system. Design criteria for new trails are addressed in the Aurora Parks and Open Space Dedication and Development Criteria Manual. If a trail will be used as an access drive for maintenance activities, the design must be able to hold maximum weight of utility and/or fire vehicles and will vary from site to site depending on soils.

Trails

Trails are pathways for people. PROS and AW agree that an integrated trail network is a community asset essential to a healthier environment and community stewardship. Properly planned trail systems meet recreational needs and provide for necessary stream corridor and utility maintenance activities. Trails also become wildlife corridors, and protection of both the public and wildlife should be considered in management of trails.

Routine maintenance or repair of a damaged trail will be incurred by the Department whose function or responsibility was the known cause. If a maintenance activity, like sediment removal, causes damage to a trail then the cost of repairs would be incurred by AW. If the recreational trail requires maintenance due to normal wear and tear then the cost of maintenance and repairs would be incurred by PROS.

If any activity or responsible party (city or contractor) causes damage to a trail while performing routine maintenance activities or while engaged in construction activities, the responsible party or department would be liable for all repairs and/or restoration. Repairs and/or restoration would be made to the standards and specifications determined on a site by site basis. The operating department must approve these specifications. If a contractor damages a trail while performing routine maintenance activities or while engaged in construction activities, the cost to repair and/or restore the trail will be incurred by the responsible party or department(s) that hired the contractor.

Financial responsibility for the construction of trails or for maintenance access will be determined based on the following criteria:

- Soft surface trails that only provide for AW maintenance access will be paid for by AW.
- Hard surface trails that are part of an approved trail corridor will be considered an enhancement to the minimum requirement, and any enhancement costs will be negotiated between AW and PROS during the design phase.
- All trails have cost sharing potential, for both initial construction, installation and significant maintenance, as agreed upon by the Departments on a case by case basis and confirmed through a negotiated cost sharing agreement between AW and PROS.

All improved or upgraded trails within stream corridors will provide maintenance access for AW and PROS. Routine patrol and management of trails, notification and education of wildlife habitat and related protection will be PROS' responsibility. Cost for educational signs, community awareness and communication with the public, Division of Parks & Wildlife, etc will be paid for by PROS. AW will support PROS with respect to access limitation and construction schedules.

Bollards, Gates and other Barriers: PROS and AW agree bollards, gates, fences and other barriers create hazards for pedestrians, bicyclists and others utilizing the trail system. These

hazards outweigh the benefits provided by the barrier in restricting unauthorized access. Existing barriers and bollards will be phased out over time and will not be replaced. Cable gates and barriers may be used sparingly, on a case-by-case basis, with the approval from both PROS and AW.

Mowing

PROS and AW will partner annually to develop and implement a mowing strategy that achieves the goals of each department, while not compromising Floodplain Management Principles or Open Space Objectives. The goal is contiguous stream corridors and adjacent open space areas will have a similar look. This look and appeal will also be communicated with any outside contract work, i.e. UDFCD.

The Departments have developed Service Level Agreements (SLA) for PROS to provide noxious weed management, and turf and irrigation maintenance in drainage ways. The SLAs provide a consistent and efficient approach to resource management.

Pest Control

Both AW and PROS have a pest management plan that is utilized to systematically treat stream corridors and drainage infrastructure, i.e. ponds, stream corridors and open space areas. These efforts should be coordinated to ensure coverage and consistency and eliminate redundancy. AW contracts with a private contractor to systematically test and treat all stream corridors and other drainage infrastructure on a regular basis. PROS also systematically treat specific areas within park and open space sites. AW and PROS respond to citizen complaints related to mosquitoes and provides treatment on a case by case basis. *See pest management plan in the appendices.*

Summary

The City of Aurora is committed to protecting the health and safety of the community and preserving its natural resources. The intent of this Integrated Management Plan is to provide a comprehensive approach to flood and stormwater management while providing information and guidance for staff to preserve, protect and maintain stream corridors and open spaces throughout the City. Aurora Water and Parks, Recreation & Open Space agree that close coordination and reciprocal cooperation are necessary to ensure the Plan is successful.

By coordinating efforts and communicating goals, the Plan will promote sustainability by keeping the multiple functions and uses of stream corridors and open spaces at the forefront of planning, implementation and maintenance of these properties. This comprehensive approach is critical to the stewardship of city resources, whether human, financial or natural resources and serves to protect the community asset stream corridors provide.

Implementation Plan

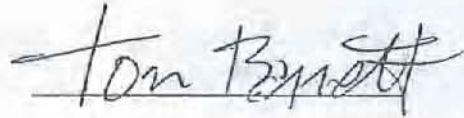
Upon Director approval, an implementation team of key managers from AW, PROS and other departments will use this high level guidance document to develop methods which their respective staff members can implement this plan on all projects, studies, maintenance activities which impact stream corridors, trails and open space areas.

This Plan will be reviewed annually. Revisions and amendments can be made during this annual review or as needed and approved by both Departments.



Dan Mikesell, Interim Director
Aurora Water

DATE: 6/4/12



Tom Barrett, Director
Parks, Recreation & Open Space

DATE: 6/4/12

Appendices:

Colorado Division of Wildlife recommendations (MBTA Guidelines)

Encroachment Plan (development in progress)

IMP Project Generation Form

Master Plans (on file)

Noxious Weed Mgmt (SLA)

O&M Plans (site-specific) (development in progress)

Pest Control Plan (development in progress)

Tree Mitigation Plan

Turf Mgmt (SLA)

Vegetation Plan (development in progress)

Wetlands Management Plan (development in progress)

Wildlife Management Plan (development in progress)

Woody Vegetation Management (development in progress)

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SERVICE LEVEL AGREEMENT (SLA)

between



and

**City of Aurora
Parks, Recreation & Open Space Department**

for

Operation and Maintenance

of

Aurora Water Irrigated Turf

January 2012



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Purpose

The purpose of this Service Level Agreement (SLA) is to formalize an arrangement between the Aurora Water Department (AW) and City of Aurora Parks, Recreation & Open Space Department (PROS) to operate and maintain, at an agreed-upon cost, irrigated turf areas currently owned, operated and maintained by Aurora Water's Stormwater Division.

This SLA provides details for operation and maintenance services and approved improvements to be provided by the Parks O&M Division.

Scope of Agreement

AW (through the Stormwater Division) currently maintains approximately 117 acres of irrigated turf located in various drainage tracts throughout the City. AW also operates and maintains the irrigation systems for these turf areas. A complete listing of the irrigated turf areas is presented in Appendix A.

PROS currently maintains in excess of 8,500 acres at various parks, golf courses and open space properties. Through the Parks O&M Division is 1250 acres of maintained and irrigated properties. It was determined that the most cost effective method of maintaining the irrigated turf areas within the drainage areas be accomplished by the Parks O&M Division along with all other city owned turf areas.

Services Covered Under This Agreement

The following services are to be provided by Parks O&M to Aurora Water:

1. Maintenance of Irrigated Turf Areas: Provide routine and periodic maintenance, including mowing, trimming, edging, weed control, insect and disease control, tree and shrub care, aeration, fertilization, trash removal, general cleanup, and other necessary maintenance to keep areas looking consistent with surrounding landscaping (i.e. similar to adjacent park or other landscaped area) Furnish all labor and materials to perform maintenance operations in accordance with the requirements stipulated herein. Specific services to be provided include the following:
 - a. Mowing and trimming/edging weekly for Westerly Creek, Hutchinson Channel and Cherry Creek Spillway areas.
 - b. Mowing twice per month at other sites or as needed.
 - c. Fertilization and aeration once annually at all sites except native areas.
 - d. Trash removal weekly at all sites.
 - e. Chemical control of weeds and insects on an as needed basis.
 - f. Pruning of deciduous and evergreen shrubs and trees on a routine basis or as needed for aesthetics and to maintain access.

- g. Weed removal in landscaped beds, including adding mulch as needed and fall cleanup after the growing season.
 - h. Leaf removal in fall.
 - i. Pet Waste bags to be replenished weekly in select areas.
2. Operation and Maintenance of Irrigation System: Provide operation of the irrigation system to keep turf areas sufficiently irrigated. Provide routine and periodic maintenance and repairs to keep irrigation system functional, including backflow assembly, testing and maintenance. Monitor irrigation system timers to prevent over/under irrigation. Also monitor irrigation system for leaks and missing heads and make timely repairs for optimum water conservation. Furnish all labor, materials, and equipment to perform maintenance operations in accordance with the requirements stipulated herein. Specific services to be provided include the following:
- a. Inspect and repair irrigation system at all sites on a continual basis throughout the entire year as weather and working conditions allow.
 - b. Test backflow assemblies annually as required by The State of Colorado and City of Aurora ordinances.
 - c. Modifications / enhancements to existing system will be completed in addition to the costs associated with providing basic maintenance services and based on authorization / approval by AW Department. The Parks O&M Division will provide a property analysis and inventory of anticipated projects and expenses prior to commencing on any task other than agreed upon maintenance services.
 - d. Hutchinson Channel: Parks O&M will irrigate channel to maximum system capacities. AW accepts the service level that this will provide.
3. Response to Complaints: Parks O&M will respond to all citizen and staff complaints associated with these irrigated turf areas within 24 hours of receipt of complaint. Emergencies such as water line breaks or malfunctions that impact the public will be addressed immediately. Complaints received by AW will be referred to the Parks O&M Division.

Services Not Covered Under This Agreement

The following services are to be provided by Aurora Water:

1. Payment for Water: AW will continue to pay for water used to irrigate turf areas.
2. Graffiti Removal: AW will be responsible for graffiti removal.
3. Pet Waste bags: AW will continue to pay for pet waste bags to be utilized at all AW areas.



4. Tree Removal and Replacement: AW will provide all new and replacement trees as required. AW will provide supplemental watering of trees for irrigated turf areas as necessary.
5. Hutchinson Pump Station: AW will operate and maintain the pump station. Parks O&M will be required to operate and maintain the irrigation controller.
6. Channel Maintenance: AW will provide debris, trash and sediment removal in the drainage channels. Any turf damage incurred while performing channel maintenance will be paid for by AW.

Payment for Services and Equipment

Payment

AW will pay Parks O&M annually for services provided. Parks will provide a monthly expenditure report showing labor hours, equipment hours and materials costs for each location to AW. Parks O&M will hire and pay all costs associated with providing labor for mowing and irrigation system maintenance. These costs will be reimbursed by AW as part of the annual payment in December of each year.

Equipment

The two (2) capital trucks, #71301, #81294, that were included in the 2007 payment from AW to Parks O&M will be considered AW property until the SLA terminates in 12/31/2012. After that date these units will become general fund property and are subject to general fund replacement responsibility. If for any reason the SLA is terminated prior to the 12/31/2012 date the vehicles will remain AW property.

Repair and Maintenance

Repair, Maintenance and Fuel costs for the two capital vehicles and any Parks O&M equipment will be calculated as a percent of the total R&M and Fuel for the year for these units. This percentage is a ratio of total Parks turf acreage / stormwater turf acreage. This ratio / percentage will be reviewed on an annual basis to reflect increases in Parks O&M acreage.

Supplies

All supplies required to operate and maintain the irrigated turf areas included in this SLA will be at a net cost annually as noted in the Payment for Services and Equipment section.



Changes to Service Level Agreement (SLA)

Termination of Agreement

AW may terminate this agreement without penalty if Parks O&M repeatedly violates the terms of this agreement. In such an event AW shall give Parks O&M 30 days written notice of intent to terminate.

Amendment to Agreement

Additional locations may be added in the future. Any changes to this agreement will require the approval of AW and the PROS Administration. There will be an opportunity on an annual basis to make adjustments to this SLA provided that both parties agree to the changes.

SLA Funding Agreement

Billing for services provided under this agreement will be accomplished through interdepartmental transfer from AW to the PROS Department budgets by December 15th of each year.

Addenda

There are currently no addenda to this agreement. Any future addenda will be referenced in the Appendix.

General Terms and Conditions

Terms of Agreement

This agreement is in effect for year 2007 through 2012 and will automatically renew for 5 years, unless either party contacts the other notifying of intent to terminate, as stipulated in this agreement.

Organizations

This agreement is between AW and the PROS Department, as named on the cover of this agreement.



Key Contacts

Key contacts for AW and PROS follow:

Aurora Water	Parks
Mark Donelson, Wastewater/Stormwater Manager	Ron McCune, Manager - Parks
<i>Mark Donelson</i>	<i>Ron McCune 1-24-20</i>
Tom Ries, Interim Deputy Director, OPS/ENG/CPD <i>Tom Ries</i>	

Acceptance of Agreement

Accepted this 19th day of JANUARY, 2012

AURORA WATER

**AURORA PARKS, RECREATION
& OPEN SPACE DEPARTMENT**

BY: *[Signature]*
Dan Mikesell
Interim Director, Aurora Water

BY: *[Signature]*
Tom Barrett
Director, Parks, Recreation & Open Space

Appendix A

Irrigated Turf Areas

Location	Area (sq. ft.)	Area (Acres)
681 Sable (6th Ave. & Sable NW)	41,612	0.96
Jewell Wetlands (Wheeling Way)	56,192	1.29
19202 E. 22 nd . PL (East Park 70)	33,977	0.77
Big Muddy (Westerly Creek- Iliff to E. Pacific Cir.)	77,972	1.79
Westerly Creek (Mexico to Exposition)	738,774	16.96
Sand Creek-28th&30th Ave. Wheeling to Sable	192,032	4.41
2488 Chambers Rd. (Sand Creek)	59,408	1.36
2082 Airport Blvd. (Sand Creek)	46,030	1.06
13941 E. Arkansas Ave. (Arkansas Det. Pond)	14,501	0.33
562 Norfolk St. (6th Ave. & Norfolk)	280,091	6.43
Hutchinson Channel - Buckley to Iliff	408,592	9.38
Hutchinson Channel - Iliff to Pond	797,148	18.30
Hutchinson Channel -Pond to (south of) Hampden	891,673	20.47
Carson Pond	296,643	6.81
Mission Channel	382,900	8.79
2471 S. Kittridge (Cherry Creek Spillway)	218,235	5.01
17627 E. Loyola (Loyola & Mansfield)	37,897	0.87
Uravan Channel- (Fire Station 9 to Louisiana)	<u>499,197</u>	<u>11.46</u>
TOTAL	5,072,874	116.46



Date: 1/10/2012

Service Level Agreement (SLA)

between



and

**Aurora
Parks, Recreation and Open Space Department**

for

Noxious Weed Management along Stream Corridors

January 2012

Purpose

The purpose of this Service Level Agreement (SLA) is to formalize an arrangement between the Aurora Water Department and City of Aurora Parks, Recreation and Open Space Department, Open Space and Natural Resources Division (OSNR) to provide noxious weed management along city-owned stream corridors within open space and natural areas historically maintained by the Stormwater Division (SW). The results of this effort will improve efficiencies by coordinating efforts and give all city-owned open space and natural areas and stream corridors consistency of care and appearance and meet the city's obligation to treat state listed noxious weeds.

This SLA provides details for noxious weed management services to be provided by OSNR. These services will be performed on an as needed basis to control noxious weeds for all stormwater related conveyance systems, i.e. channels, detention and retention ponds. *See Appendix A site list.*

Scope of Agreement

Aurora Water (through the SW Division) currently maintains approximately 950 acres of land along stream corridors that in many cases are adjacent to open space and natural areas. Noxious weed management, in select areas along stream corridors, historically has been provided by a private contract and funded by SW, and supplemented by SW operational staff.

OSNR currently maintains over 6,000 acres of open space and natural areas, providing noxious weed control among other services. The goal of this SLA is to expand noxious weed management services to include all areas within stormwater conveyance systems in an effort to provide a systematic and efficient approach to noxious weed management. It has been determined that the most cost effective method of noxious weed management in stream corridors can be accomplished by OSNR concurrently while performing noxious weed management of other open space and natural areas OSNR currently maintains.

Services Covered

The following services are to be provided by OSNR.

1. Noxious Weed Control: Provide initial and periodic inspection of properties listed in Appendix A to determine infestations of noxious weeds as defined by the Colorado Department of Agriculture. Treatment plans will be executed utilizing an integrated pest management approach which will employ the most effective control measures at the most effective time. Control methods may include collecting seed heads, herbicide application, biological controls and any other available methods of control. Herbicide applications will be determined by

OSNR's noxious weed experts, based upon the proximity to waterways, time of year and type of weeds to be managed.

2. Response to Complaints: Citizen complaint calls associated with noxious weed management will be returned within three business days. Coordination and resolution of complaints will include an email communication with SW and OSNR staff detailing the actions taken.

Payment for Services and Equipment

Payment

OSNR will hire and pay all costs associated with providing services covered by this agreement.

Payment for services provided under this agreement will be accomplished through interdepartmental transfer on a quarterly basis. A quarterly expenditure report, documenting labor hours, equipment hours and material costs for each location, will be provided by OSNR to SW in advance of payment. Expenditure reports will be provided to SW by the 1st. and payment made to OSNR by the 15th. of each April, July, August with a final payment by December 20th.

Equipment

SW equipment, #81027 and a 100 gallon sprayer, will continue to be reassigned to OSNR from the effective date of the term of this agreement. OSNR will be responsible for all repairs and fuel related to the above said equipment. The reassigned equipment will be considered SW property until 12/31/2012. After 12/31/2012, this equipment will become general fund property and transferred to OSNR. At that time this equipment will be subject to general fund replacement responsibility. If for any reason the SLA is terminated, prior to the 12/31/2012 date, this equipment will remain SW property.

Changes to Service Level Agreement (SLA)

Termination of Agreement

SW and OSNR agree that either party may terminate this agreement for any reason. In such an event, the terminating party shall give the other 60 days written notice of intent to terminate.

Amendment to Agreement

Additional locations may be added in the future. Any changes to this agreement will require the approval of SW, and OSNR. Adjustments may be made to this SLA provided that both parties agree to the changes. This SLA may be extended annually if agreed to by both parties.

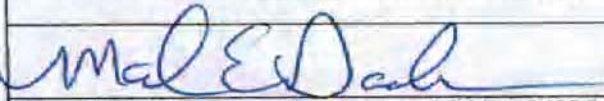
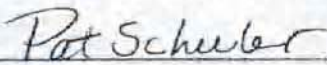
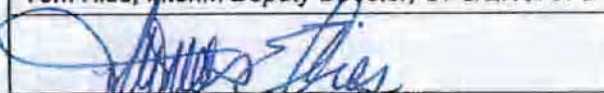
General Terms and Conditions

Terms of Agreement

This agreement is in effect through 12/31/2012 and will require formal renewal annually.

Key Contacts

Key contacts for Aurora Water and Parks, Recreation and Open Space:

Aurora Water	Parks, Recreation and Open Space
Mark Donelson, Wastewater/Stormwater Manager	Patricia Schuler, Open Space and Natural Resources Division Manager
	
Tom Ries, Interim Deputy Director, OPS/ENG/CPD	
	

Acceptance of Agreement

Accepted this 19th day of JANUARY, 2012

Aurora Water Department

Aurora, Parks, Recreation and Open Space Department

By: 
Dan Mikesell
Interim Director, Aurora Water

By: 
Tom Barrett
Director Parks, Recreation & Open Space



Service Level Agreement



Service Level Agreement (SLA)

between

Aurora Water Department

and

**Aurora
Parks, Recreation and Open Space Department**

for

**Landscape Maintenance at Wemlinger WPF,
Griswold WPF, Sand Creek Water Reuse Facility, and
Peter Binney Water Purification Facility**

January 2012

Purpose

The purpose of this Service Level Agreement (SLA) is to formalize an arrangement between the Aurora Water Department, Water Treatment Division (AW) and City of Aurora Parks, Recreation and Open Space Department, Open Space and Natural Resources Division (OSNR), and Parks Operations & Management (O&M) to provide landscape maintenance at Wemlinger WPF, Griswold WPF, Sand Creek Water Reuse Facility, and Peter Binney Water Purification Facility as outlined in the Scope of Agreement. The result of this effort will improve efficiencies by coordinating efforts and give all Aurora Water treatment facilities consistency of care and appearance while providing site security and protecting water sources and treatment processes.

Scope of Agreement

Landscape maintenance at the water treatment facilities includes maintenance of native grass areas, turf, and planting beds (*site maps attached in appendix A*). Maintenance also includes the inspection, maintenance and repair of irrigation systems at all four treatment facilities. Historically landscape maintenance at the treatment facilities has been provided by private contracts, Aurora Water Conservation Division, OSNR and Parks O&M. It has been determined that the most cost effective method of landscape maintenance at Aurora Water treatment facilities can be accomplished by OSNR and Parks O&M.

Services Covered

The following services are to be provided by OSNR and Parks O&M:

Item	Area	Description	Basis	Quantity	Unit Price
Binney 1	B	Mowing	54 Acres/Cycle	1	\$960
Binney 2	C	Mowing	17 Acres/Cycle	1	\$1,440
Binney 3	D	Mowing	30 Acres/Cycle	1	\$720
Binney 4	E	Mowing	22 Acres/Cycle	1	\$600
Binney 5	F	Mowing	50 Acres/Cycle	1	\$960
Binney 6	G	Mowing	31 Acres/Cycle	1	\$720
Binney 7	H (Robertsdale)	Mowing	13 Acres/Cycle	1	\$600
Binney 8	I (Marina)	Mowing	13 Acres/Cycle	1	\$600
Binney 9	J	Mowing	55 Acres/Cycle	1	\$960
Binney 10	Quincy Yard	Mowing	5 Acres/Cycle	1	\$300
Binney	Control Building	Aeration	Seasonal	1	\$250
Binney	Planting Beds	Hand Weeding	Monthly	6	\$1,000 ea
Binney	Seeded Planting Beds	Hand Weeding	Monthly	6	\$1,000 ea
Binney	Planting Beds	Shrub Maintenance	Monthly	6	\$415 ea
Binney	Control Building	Hand Weeding	Monthly	6	\$667 ea

Item	Area	Description	Basis	Quantity	Unit Price
Binney	Irrigation	Spring Startup and Inspection	Seasonal	1	\$360
Binney	Irrigation	Winterization	Seasonal	1	\$360
Binney	Irrigation	Hourly Rate to Repair Issues	Hourly	1	\$45
Binney	Irrigation	Inspections	6 Times per season	6	\$270 ea
Binney	All Areas	Reseeding (as directed)	Per Acre	1	\$950
Binney	All Areas	Fertilization (as directed)	Per Acre	1	\$760
Sand Creek	Grass Area	Mowing	3.5 Acres/Cycle	1	\$258
Sand Creek	Grass Areas	Aeration	Seasonal	1	\$258
Sand Creek	Irrigation	Spring Startup and Inspection	Seasonal	1	\$135
Sand Creek	Irrigation	Winterization	Seasonal	1	\$180
Sand Creek	Irrigation	Hourly Rate to Repair Issues	Hourly	1	\$45
Sand Creek	Irrigation	Inspections	6 Times per season	6	\$135 ea
Sand Creek	All Areas	Fertilization (as directed)	Per Acre	1	\$286
Sand Creek	Planted beds	Hand Weeding	Monthly	6	\$172 ea
Sand Creek	Rock beds	Weed spraying	2 times per season	2	\$198 ea
Sand Creek	Planted beds	Shrub Maintenance	Monthly	6	\$172 ea
Griswold	Area 1	Mechanical weed control, hand pull large weeds in small parking islands, no Canadian thistle, knap weed or yellow clover. Allow natural vegetation, chemicals prohibited due to potential drainage to water source.	Monthly	6	\$1,056 ea
Griswold	Area 2	Shrub Maintenance	Monthly	6	\$144 ea
Griswold	Area 2	Weed control, chemical permitted	Monthly	6	\$144 ea
Griswold	Area 3	Shrub and plant maintenance	Monthly	6	\$144 ea
Griswold	Area 3	Weed control, chemical permitted	Monthly	6	\$144 ea
Griswold	Area 4	Shrub Maintenance	Monthly	6	\$144 ea
Griswold	Area 4	Weed control, chemical permitted	Monthly	6	\$144 ea

Item	Area	Description	Basis	Quantity	Unit Price
Griswold	Irrigation	Spring Startup and Inspection	Seasonal	1	\$90
Griswold	Irrigation	Winterization	Seasonal	1	\$90
Griswold	Irrigation	Hourly Rate to Repair Issues	Hourly	1	\$45
Griswold	Irrigation	Inspections	6 times per season	6	\$90
Wemlinger	Planting Beds	Hand Weeding	Monthly	6	\$102 ea
Wemlinger	Planting Beds	Shrub Maintenance	Monthly	6	\$528 ea
Wemlinger	Planting Beds 3 east side and 4 east side	Weed Spraying	2 times per season	2	\$192 ea
Wemlinger	Irrigation	Spring Startup and Inspection	Seasonal	1	\$90
Wemlinger	Irrigation	Winterization	Seasonal	1	\$90
Wemlinger	Irrigation	Hourly Rate to Repair Issues	Hourly	1	\$45
Wemlinger	Irrigation	Inspections	6 times per season	6	\$90 ea

(*Note: Maintenance of Irrigated Turf Areas at Wemlinger WPF is covered under a separate agreement with Parks O&M Division.)

- Griswold has a total of 0.55 acres (23725 ft²) of planting beds.
- Wemlinger has a total of 0.585 acres (25943 ft²) of planting beds.
- Sand Creek Planting Beds are 7418 ft²
- Sand Creek Rock Beds are 10,257 ft²

Seeding and Fertilization

- A. Fertilization: The contractor will be required to fertilize according to Aurora Specification at the request of the Project Manager. The Contractor shall use Biosol Mix (7-2-3) all purpose fertilizer consisting of fungal and bacterial biomass and water available from Rocky Mountain Bio-Products, 1-888-696-8960. Although fertilization is not anticipated at these sites, the contractor shall provide a cost per acre for fertilization.
- B. Reseeding (Binney only): reseed using project seed mix using drill seed techniques in areas where seed does not establish sufficient cover the upland seed mix is as follows:

Common Name	Scientific Name	% of Mix	PLS lb/acre
Blue Gama	Bouteloua gracilis "Hachita	20	1
Bottlebrush Squirrel tail	Elymus elymoides "Sand Hollow"	7.5	1.7
Buffalo grass	Buchloe dactyloides "Cody"	15	11.5
Green Needle grass	Nassella viridula "Lodorm"	5	1.5

Common Name	Scientific Name	% of Mix	PLS lb/acre
Prairie June grass	Koeleria cristata "Boerke"	7.5	1.5
Sand Dropseed	Sporobolus cryptandrus	10	.1
Sideoats Grama	Boteloua curtipemdula "Vaughn"	5	1.1
Western Wheat grass	Pascopyrum smithii "Arriba"	20	7.9
Slender Wheat Grass	Elymus trachycaulus "Pryor"	10	2.5
Total			27.44

The damp or low areas seed mix is as follows:

Common Name	Scientific Name	% of Mix	PLS lb/acre
Blue Gama	Bouteloua gracilis "Hachita	10	.5
Buffalo grass	Buchloe dactyloides "Cody"	15	11.5
Switch grass	Panicum vigatum "Dacotah"	5	.5
Inland Salt grass	Distichlis stricta	2.5	.2
Alkali sacaton	Sporobolus airoides "Salado	7.5	.18
Sideoats Grama	Boteloua curtipemdula "Vaughn"	5	1.1
Western Wheat grass	Pascopyrum smithii "Arriba"	25	9.9
Slender Wheat Grass	Elymus trachycaulus "Pryor"	10	2.5
Prairie Cord grass	Spartina pectinata	15	3.3
Wooly sedge	Carex lanuginose	1.6	.22
Nebraska Sedge	Carex nebrascensis	1.6	.13
Baltic rush	Juncus balticus	1.6	.006
Total			30.04

Payment for Services and Equipment

Payment

OSNR and Parks O&M will hire and pay all costs associated with providing services covered by this agreement.

Payment for services provided under this agreement will be accomplished through interdepartmental transfer on a quarterly basis. A quarterly expenditure report, documenting labor hours, equipment hours and material costs for each location, will be provided by OSNR and O&M Division of PROS Department to AW Treatment Division in advance of payment. Expenditure reports will be provided to AW Treatment Division by the 10st and payment made to OSNR and O&M by the 25th of each April, July, August, with a final payment by December 20th.

Equipment

OSNR and Parks O&M will use their existing equipment to complete these services.

Changes to Service Level Agreement (SLA)

Termination of Agreement

AW and OSNR and Parks O&M agree that either party may terminate this agreement for any reason. In such an event, the terminating party shall give the other 60 days written notice of intent to terminate.

Amendment to Agreement

Additional locations or tasks may be added in the future. Any change to this agreement will require the approval of AW and OSNR and Parks O&M. Adjustments may be made to this SLA provided all parties agree to the changes. The SLA may be extended annually if agreed by all three parties.

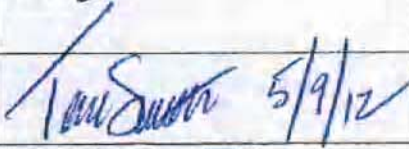
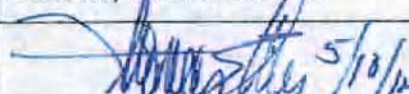
General Terms and Conditions

Terms of Agreement

This agreement is in effect through 12/31/2012 and will require formal renewal annually. The Unit Price for all services provided by OSNR and O&M will be updated annually and agreed upon by all parties prior to renewal.

Key Contacts


Key contacts for Aurora Water and Parks, Recreation and Open Space and Parks O&M:

Aurora Water	Parks, Recreation and Open Space	Parks Operations & Management
Tim Smith, Treatment Division Manager	Patricia Schuler, Open Space and Natural Resources Division Manager	Ron McCune, Parks Operations & Management Division Manager
 5/9/12		
Tom Ries, Interim Deputy Director, OPS/ENG/CPD		
 5/10/12		

Acceptance of Agreement

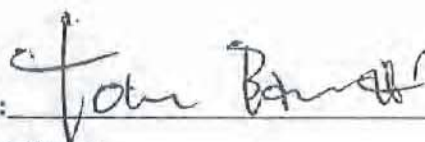
Accepted this 14 day of May, 2012

Aurora Water Department

By: 

Dan Mikesell
Interim Director, Aurora Water

**Aurora, Parks, Recreation and Open
Space Department**

By: 

Tom Barrett
Director Parks, Recreation & Open Space

Appendix A (Site Maps)

GRISWOLD WPF



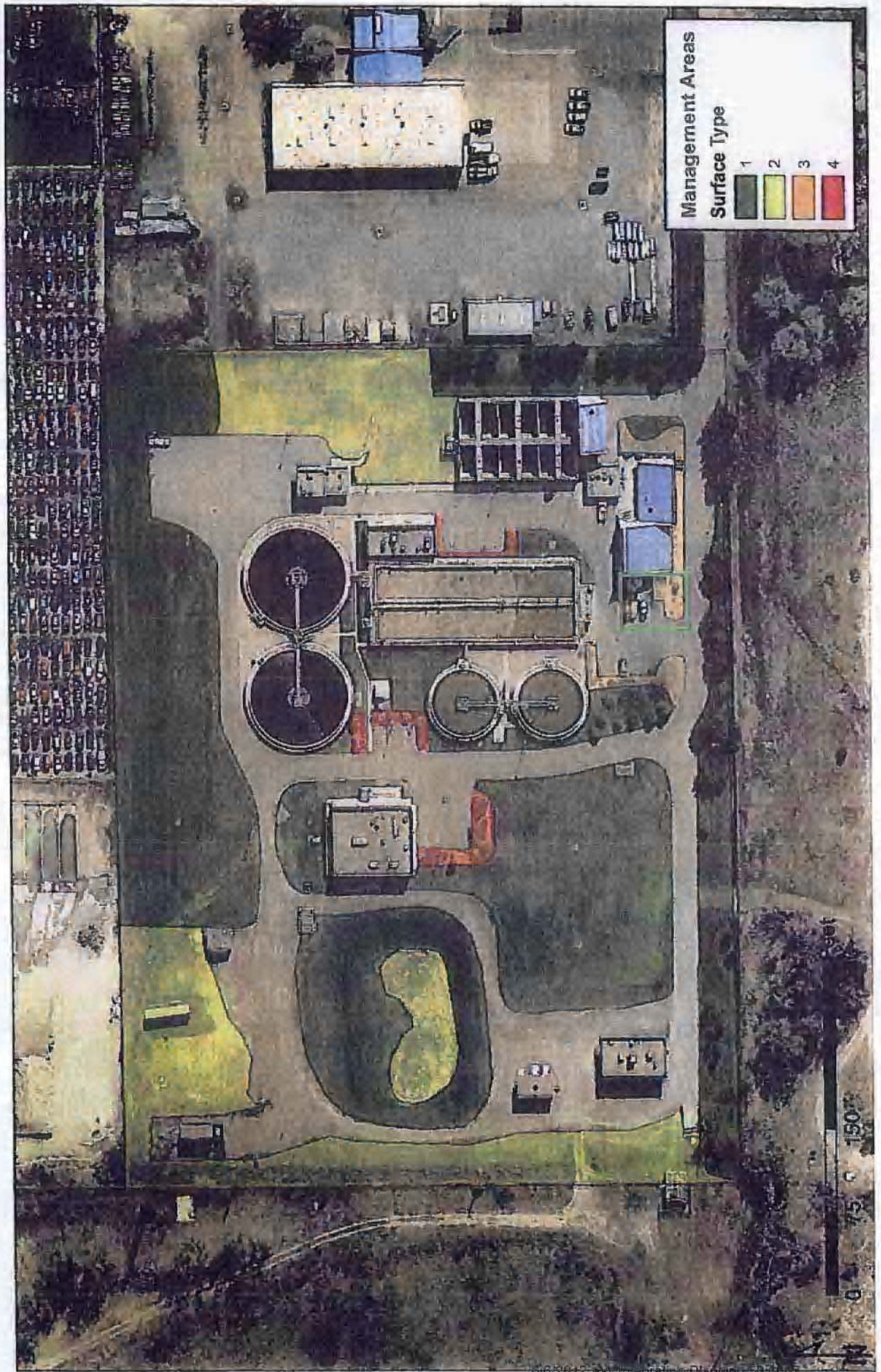
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WEMPLINGER WPF

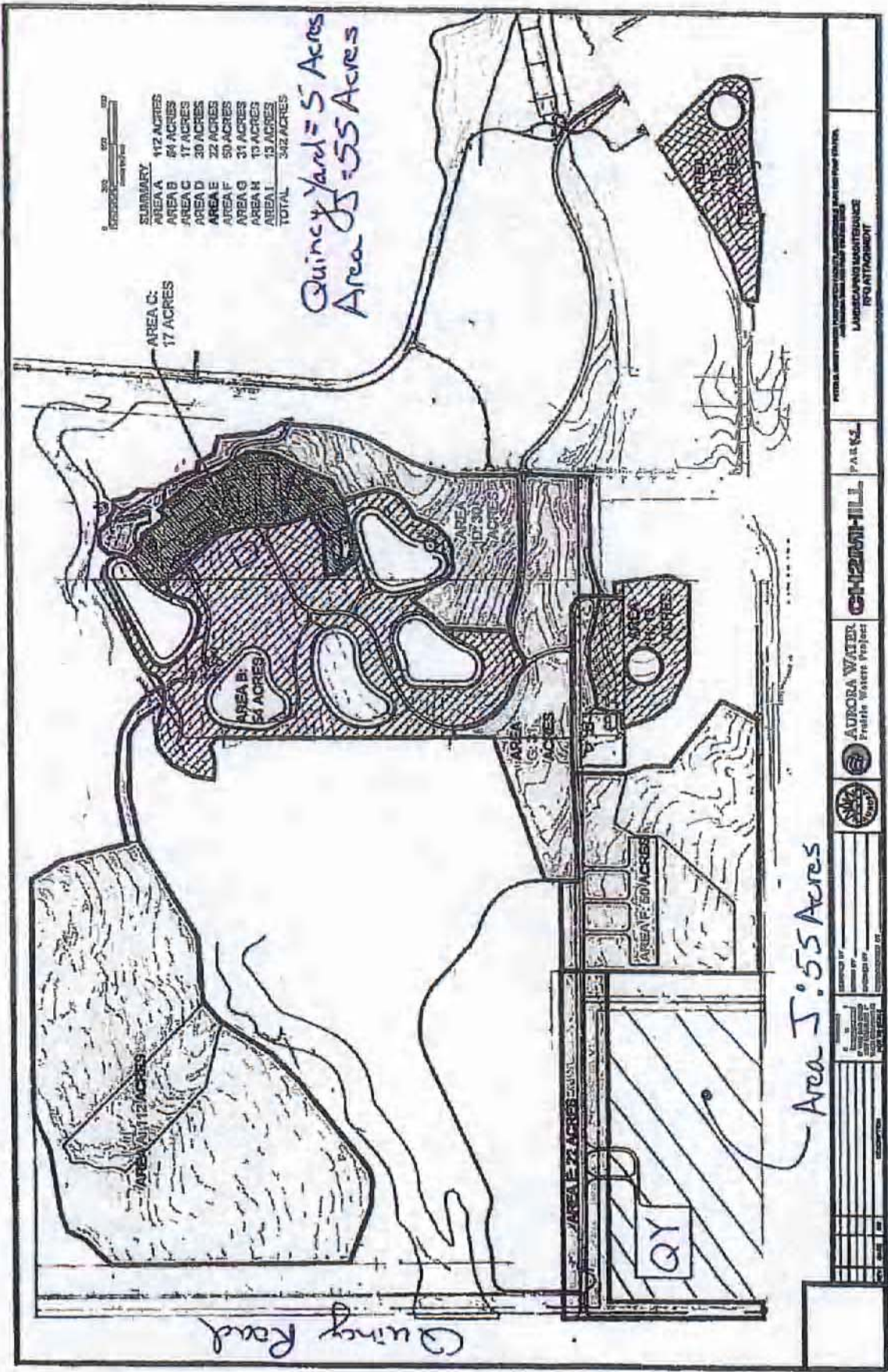


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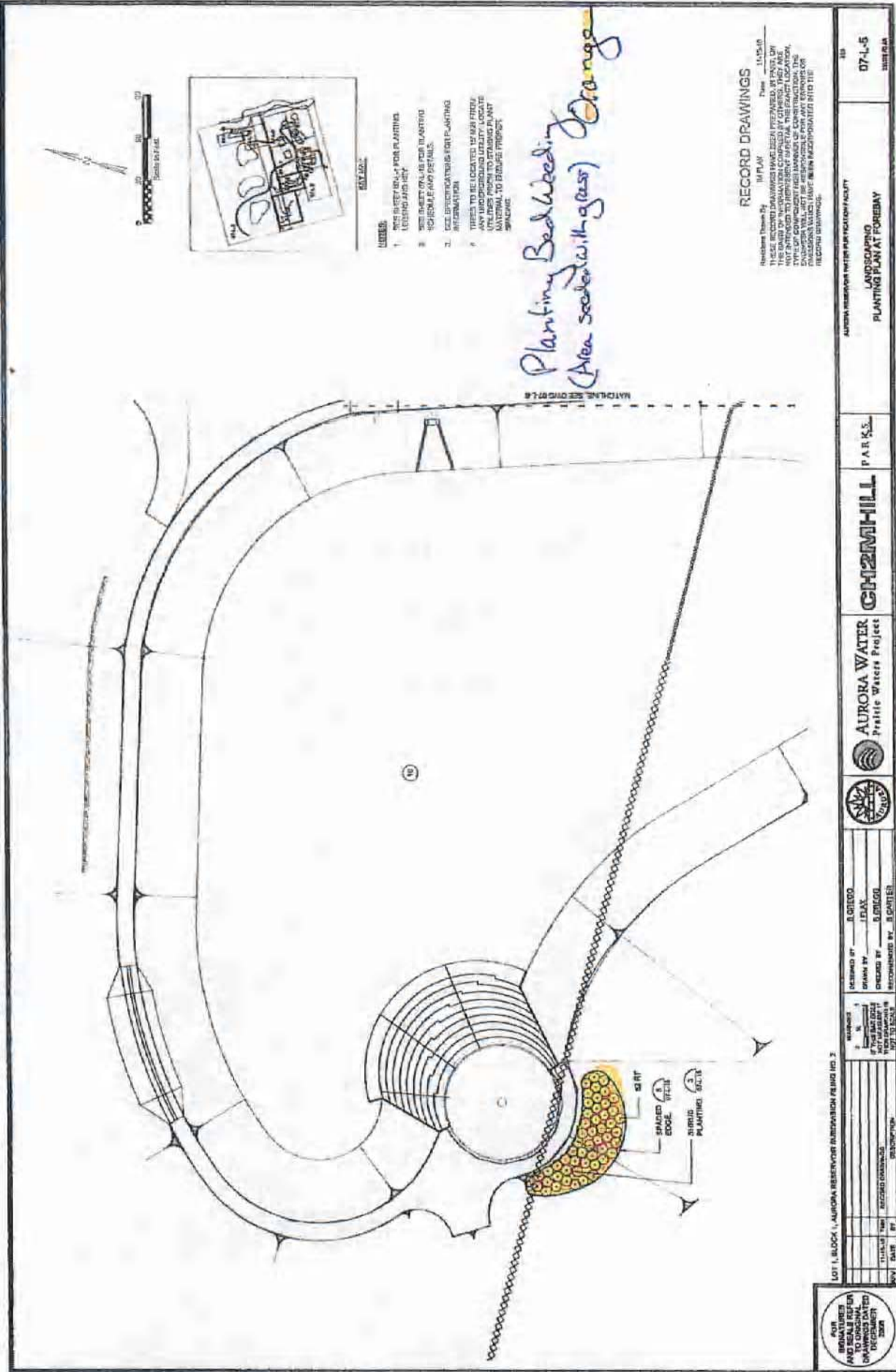
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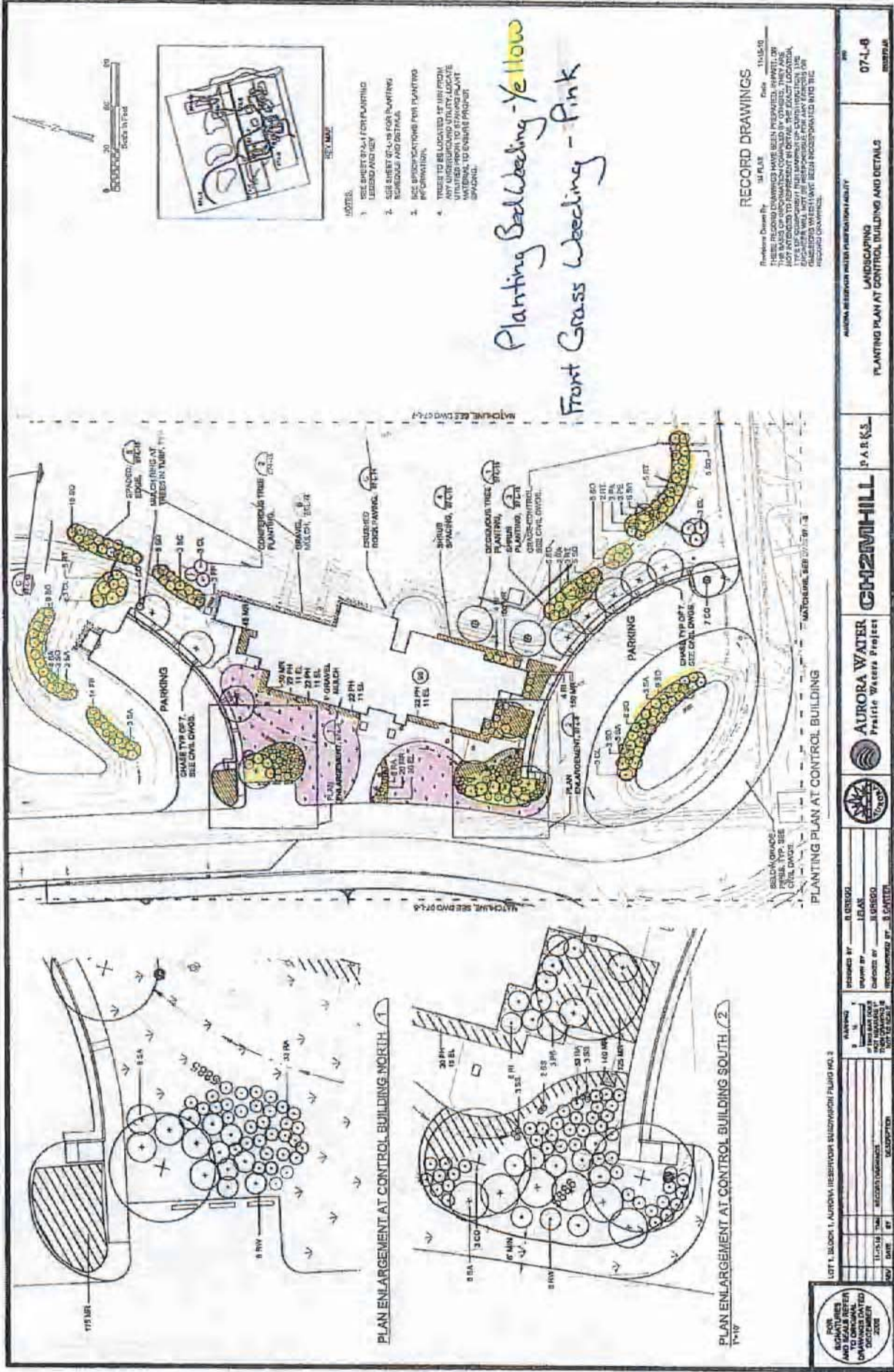
- NOTES:**
1. SEE SECTION 4 FOR PLANTING LEGEND AND KEY.
 2. SEE SCHEDULE FOR PLANTING SCHEDULE AND DETAILS.
 3. SEE SPECIFICATIONS FOR PLANTING INFORMATION.
 4. VERIFY THE LOCATION FOR ANY TREE ANY UNDISCLOSED UTILITIES LOCATE MATERIAL TO STABILIZE PLANT SPACING.

*Planting Bed (bedding) Oranges
(Area scaled with grass) Oranges*

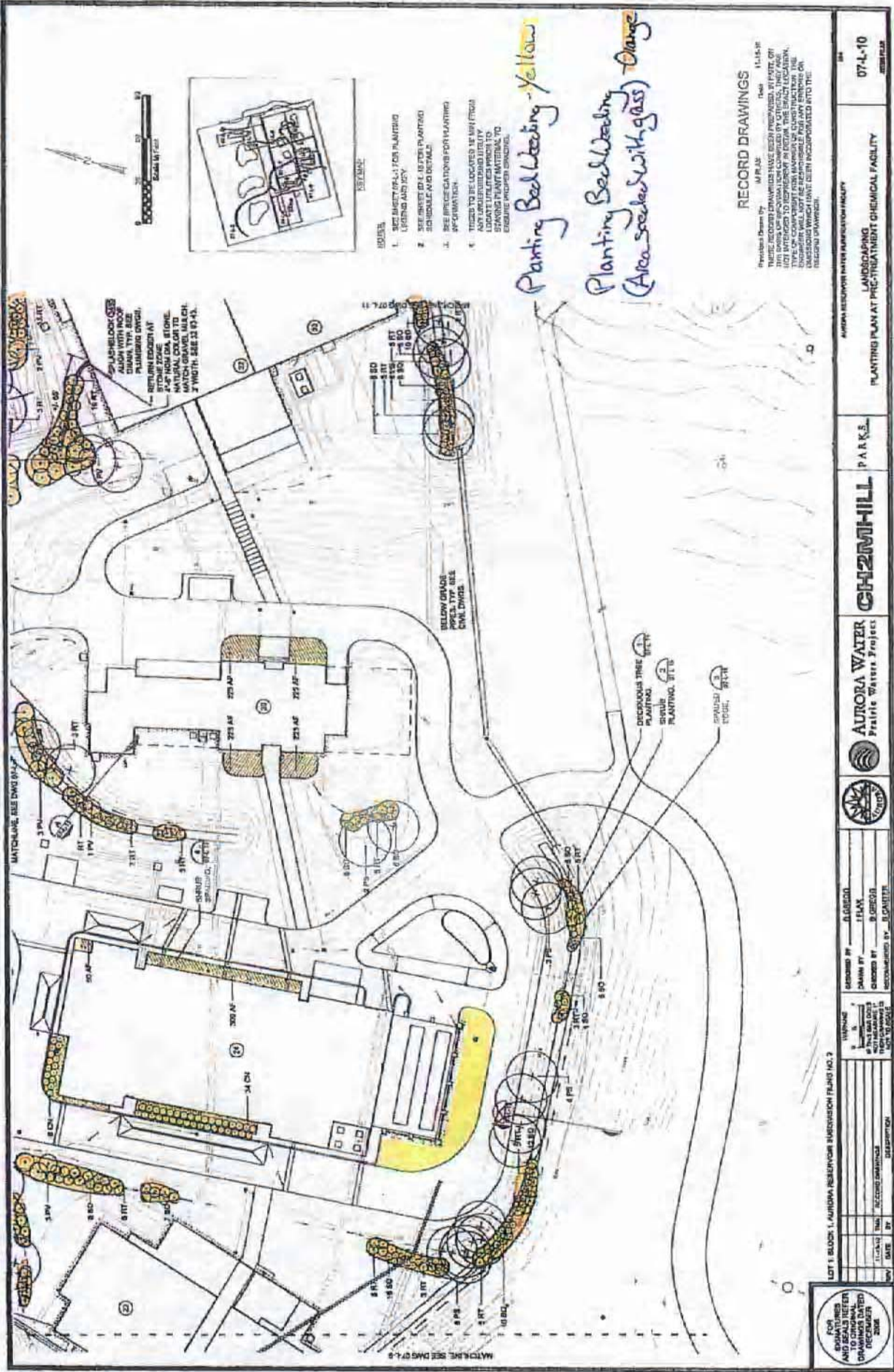
RECORD DRAWINGS
 IN PLAN
 Date: 11/15/10
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	AURORA WATER Prairie Waters Project	CHENMILL	P.A.R.K.S.	LANDSCAPING PLANTING PLAN AT FOREBAY	07-L-5	SHEET NO. 14
DESIGNED BY: R. GLEBOV DRAWN BY: J. DAX CHECKED BY: S. BERGOL RECOMMENDED BY: R. CARTER	APPROVED BY:	DATE:	SCALE:	SHEET NO.	PROJECT NO.	SHEET NO.

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SP. SHELDOCK CREEP
 RETURN EDGE OF
 STONE TO BE
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 MATCH GRAVEL IN LCH
 MATCH GRAVEL IN LCH
 2" WIDTH. SEE S 13-13.

- NOTES
1. SEE SHEET P-1 FOR PLANTING SCHEDULE AND SCHEDULE AND DETAIL.
 2. SEE SHEET P-1 FOR PLANTING SPECIFICATIONS FOR PLANTING APPLICATION.
 3. SEE SHEET P-1 FOR PLANTING SPECIFICATIONS FOR PLANTING APPLICATION.
 4. THESE ARE THE LARGEST TREES THAT CAN BE PLANTED IN THIS SPACE. THEY ARE TO BE PLANTED IN THE SPACES SHOWN TO MATCH THE PLANTING MATERIAL TO THE EXISTING PROPOSED DESIGN.

Planting Bed Weeping - Yellow
 Planting Bed Weeping - Orange
 (Area seeded with grass)

RECORD DRAWINGS
 PROJECT NO. 11-15-10
 THESE RECORD DRAWINGS HAVE BEEN PROVIDED BY THE CLIENT. THE CLIENT IS RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED. THE CLIENT WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS THAT MAY BE IDENTIFIED IN THESE RECORD DRAWINGS.

LOT 1 BLOCK 1, AURORA RESURFACING SUBDIVISION TRACT NO. 2

FOR SIGNATURES AND SEALS OF ARCHITECTS AND ENGINEERS TO ORIGINAL DRAWINGS DATED 11/11/10

NO.	DATE	BY	REVISION	DESCRIPTION
1				

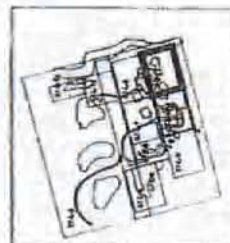
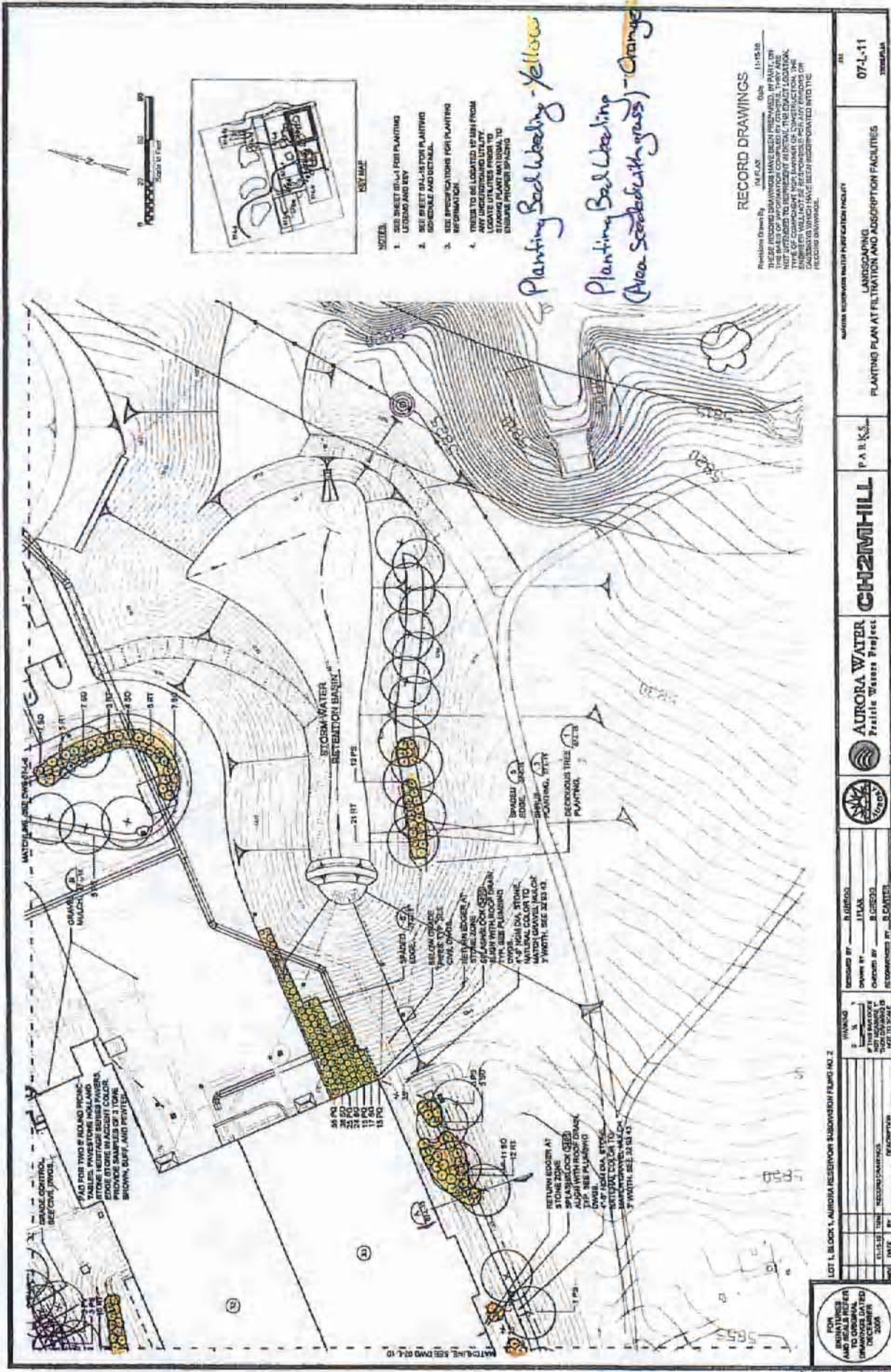
DESIGNED BY: J. GIBSON
 DRAWN BY: J. FLAY
 CHECKED BY: J. GIBSON
 RECOMMENDED BY: J. GIBSON

CH2MHILL PARKS
 AURORA WATER
 Prairie Water Projects

LANDSCAPING
 PLANTING PLAN AT PRE-TREATMENT CHEMICAL FACILITY

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- NOTES**
1. SEE SHEET 07-11 FOR PLANTING LEGEND AND KEY
 2. SEE SHEET 07-11 FOR PLANTING SCHEDULE AND DETAIL.
 3. SEE SPECIFICATIONS FOR PLANTING APPLICATIONS.
 4. TREES TO BE LOCATED 12' MIN FROM EXISTING AND PROPOSED UTILITY LOCATIONS. LOCATE UTILITIES PRIOR TO STAKING PLANT MATERIALS TO ENSURE PROPER SPACING.

Planting Bed Weeding - Yellow

Planting Bed Weeding (Area Seeded with grass) - Orange

RECORD DRAWINGS

Prepared by: D.A.F.A.T. Date: 11.15.10

These drawings have been prepared on the basis of information supplied by others. They are not intended to represent a final or exact location. The contractor shall verify all dimensions and locations with the field and shall be responsible for any errors or omissions which may be identified into the field drawings.

LOT 1, BLOCK 1, AURORA RESERVOIR SUBDIVISION PART NO. 2

FOR BIDDING AND SEAL OFFER

UNAPPROVED DATED DECEMBER 2008

REVISIONS:

NO.	DATE	BY	REVISION/DESCRIPTION

DESIGNED BY: B. JORDON
 CHECKED BY: J. TAN
 DRAWN BY: B. GREGG
 REVISIONS BY: B. GREGG

AWRWD
 AURORA WATER
 Prairie Waters Project

P.A.R.K.S.

CH2MHILL

AURORA WATER PURIFICATION FACILITY

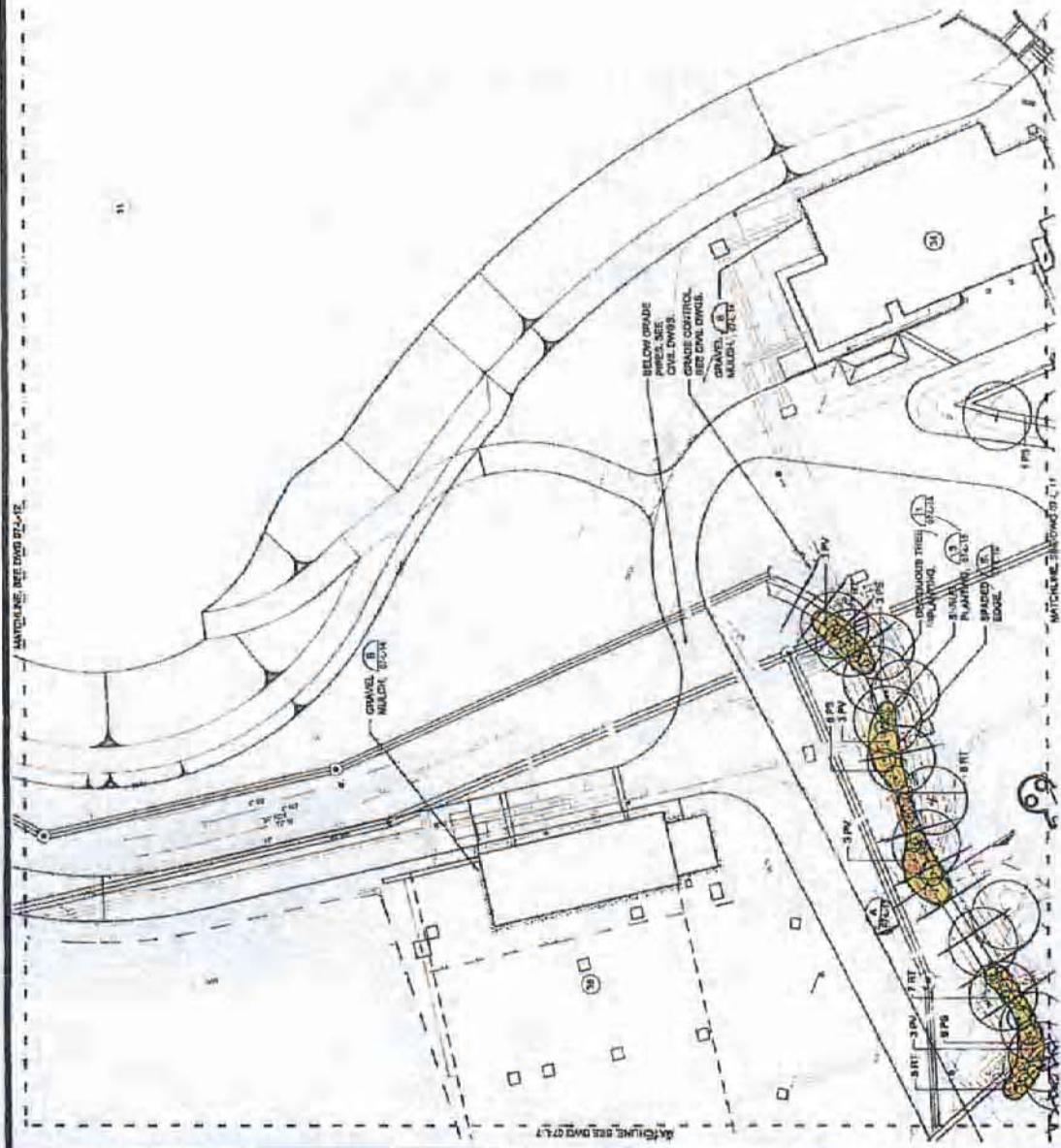
LANDSCAPING

PLANTING PLAN AT FILTRATION AND ADSORPTION FACILITIES

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2. SET BUCKET OF 4.0 LBS FOR PLANTING REFERENCE AND NOTES.
3. SEE SPECIFICATIONS FOR PLANTING INFORMATION.
4. TREES TO BE LOCATED AS SHOWN FROM ANY UNDESIRABLE UTILITY. LOCATE ANY UNDESIRABLE UTILITY BEFORE ANY MATERIAL TO BE LAYED DOWN OR SPANNED.

Planting Bed (seedling (Area seeded with grass) - Orange)

RECORD DRAWINGS

Revised Drawn By: JH FLANCK Date: 11-15-10
 THESE RECORD DRAWINGS HAVE BEEN PREPARED BY PWT, INC. AND ARE NOT TO BE USED FOR ANY OTHER PROJECT. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL HEALTH DEPARTMENT AND LOCAL GOVERNMENT. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL GOVERNMENT.

SEE SIGNATURES AND SEAL & REGISTER INFORMATION DATED OCTOBER 2008

LOT 1, BLOCK 1, AURORA RESIDENCE SUBDIVISION PLNG NO. 2

DATE	BY	REVISION
11-15-10	JH FLANCK	RECORD DRAWINGS
		DESIGN/CHK



AURORA WATER
 Public Works Project

CH2MHILL

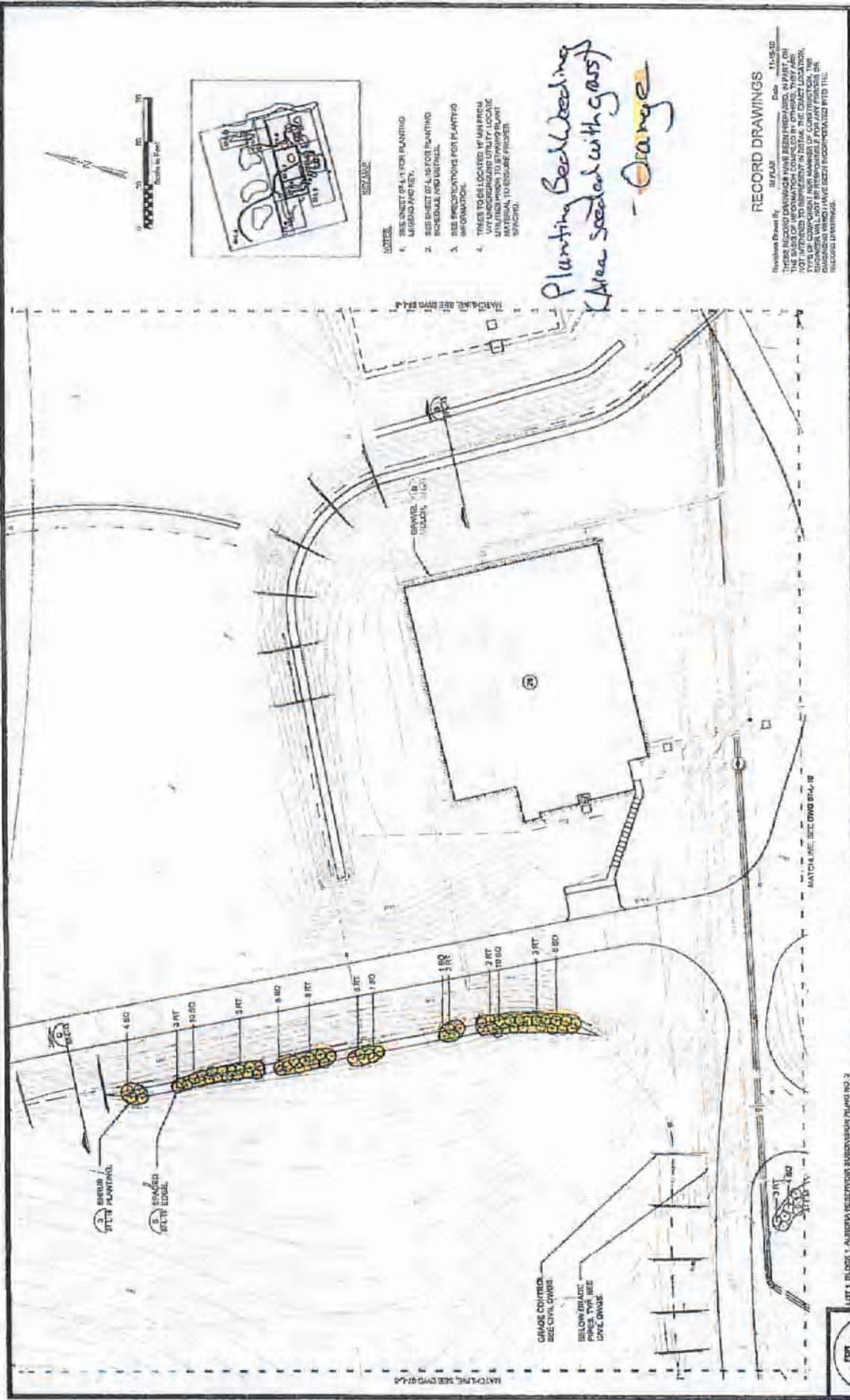
PARK

LANDSCAPING
 PLANTING PLAN AT CLEANWELL PUMP STATION

07-1-8

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- NOTES:**
1. SEE SHEET 07-A FOR PLANTING LEGEND AND KEY.
 2. SEE SHEET 07-A FOR PLANTING SCHEDULE AND DETAILS.
 3. SEE SPECIFICATIONS FOR PLANTING INFORMATION.
 4. TREES TO BE LOCATED AT LEAST FROM THE UNDERGROUND UTILITY LOCATE SURVEY AND PRIOR TO ANY PLANTING MATERIAL TO ENSURE PROPER SPACING.

*Planting Beed Seeding
Area Seeded with grass
- Orange*

RECORD DRAWINGS
 Drawn By: [Blank] Date: 11-05-10
 THESE RECORD DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION COMPILED BY OTHERS. THEY ARE NOT TO BE CONSIDERED AS WARRANTIES OF CONSTRUCTION. THE DRAWING WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS THAT MAY OCCUR IN THE CONSTRUCTION OF THE PROJECT.
 RECORD DRAWING

FOR SIGNATURES AND SEALS REFER TO DRAWINGS DATED DECEMBER 2008

PROJECT: PLANTING 64

LOT 1, BLOCK 1, AURORA RESERVOIR SUBDIVISION PHASE 2

DESIGNED BY: ELIZABETH [Blank]
 DRAWN BY: JEFF [Blank]
 CHECKED BY: B. GREGG
 RECOMMENDED BY: B. CARTER

DATE: [Blank] BY: [Blank]

PROJECT DESCRIPTION: [Blank]

AURORA RESERVOIR WATER PURIFICATION FACILITY

LANDSCAPING

PLANTING PLAN AT FLOCCULATION/SEDIMENTATION BASIN

CH2MHILL
 P. A. S.S.

AURORA WATER
 Precise Wastewater Project

07-L-7
 STANDARD

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SERVICE LEVEL AGREEMENT (SLA)

Between

Aurora Water

And

City of Aurora Information Technology Department

For

**Management and Maintenance of Aurora Water SCADA
WAN**

October 5, 2007

Final

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Purpose

The purpose of this Support Service Level Agreement (SLA) is to define a program for maintenance, management and support services at an agreed upon cost for the City of Aurora Water Supervisory Control and Data Acquisition Wide Area Network (hereinafter, Aurora Water SCADA WAN). This documents formalizes the arrangement between The City of Aurora Water (hereinafter, Aurora Water) and the City of Aurora Information Technology Department (hereinafter, Aurora IT). This SLA is intended to provide details of the provision of maintenance, management and support services by Aurora IT through vendor contracts managed by Aurora IT.

Aurora IT will provide the provisioning of qualified suppliers for the maintenance and management of the microwave system and will manage the maintenance contracts as they become effective after the initial warranty periods expire. This document will define the basic elements required for that service.

The SLA will be reviewed and updated quarterly in the first year and then annually in the following years. Adjustments will be made with agreement of both Aurora IT and Aurora Water.

Scope of Agreement

The following equipment and services are provided in response to the procurement of the Aurora Water SCADA WAN Microwave Radio System and the need to provide management and maintenance of the Aurora Water SCADA WAN system.

It is important to note that the SCADA WAN equipment will be co-located with existing Public Safety network equipment at some sites. Public Safety systems operations have to be protected. No equipment can be installed in these sites that interfere with or impact the existing operations.

All new services or equipment proposed for the Public Safety sites will be subject to site analysis, at the expense of the requesting party, to ensure Public Safety operations are not affected.

The Public Safety sites will be operated to the best interest of the Public Safety systems and at the necessary levels to ensure operations continue unaffected. Every effort will be made to accommodate SCADA WAN operations and new equipment while recognizing the critical importance of Public Safety systems communications on these tower sites.

Services and Requests Covered Under This Agreement

The following services are provided to Aurora Water through vendor supplied maintenance contracts managed by Aurora IT except where explicitly noted:

1. Microwave Radio Equipment:

This is all-inclusive of equipment, maintenance, parts, and upgrades to the Microwave Radio Equipment utilized by the Aurora Water SCADA WAN system. Vendors will provide reports on system activity and performance as defined in the service agreements by Aurora Water.

2. Microwave Radio Transmission Status Monitoring System:

This is all-inclusive of the Microwave Radio Transmission Status Monitoring System Server and Client Work Stations Networks, User Level Access, Microwave Radio Alarming Definitions, Microwave Radio Performance Alarming.

3. Network Equipment:

This is all-inclusive of equipment utilized by the SCADA WAN. The equipment includes Routers/Switches, Modems, Software Licensing, Software Upgrades, Security, and Microwave Radio Transmission Status Monitoring System.

4. Aurora Water SCADA WAN Maintenance:

This is all-inclusive of the tasks, personnel, equipment and budgetary provisions required to maintain Aurora Water SCADA WAN Microwave Radio Equipment, Microwave Radio Transmission Status Monitoring System, Network equipment, Equipment Life Cycle Replacement and related Microwave Radio System WAN testing equipment. Aurora IT will monitor data transmissions for the SCADA WAN network communication. Aurora IT will provide management services for the maintenance of the SCADA WAN to ensure the system operates according to manufacturer's specifications.

(The Aurora Water SCADA WAN Microwave Radio make and type will have to be identified in order to determine network testing criteria and acceptable metrics.)

5. Aurora Water SCADA WAN Equipment Life Cycle Replacement:

This is all-inclusive of the equipment, tasks, personnel, and budgetary provisions to ensure the Aurora Water SCADA WAN equipment life cycle replacement. Life Cycle replacement durations for hardware and software will be determined by Aurora IT. Life Cycle replacement budgetary provisions for hardware, software and system test equipment will be scheduled and provided by Aurora Water. An annual review of maintenance costs and recommended equipment replacement will be conducted between Aurora IT and Aurora Water to determine these costs.

Proposed Life Cycle Replacement Schedule

- **5 Years on Terminal Equipment**
Terminal Equipment includes network switches, network routers, and Personal Computers
- **7 Years on Active Infrastructure**
Active Infrastructure includes MW Base Station Equipment, MW Antenna Dishes, MW Indoor Units, MW Outdoor Units and MW Cabling.
- **15 Years on Buildings & Towers**
Buildings and Towers includes MW Base Station Buildings and MW Radio Antenna Towers.

6. Notification procedures and response times for Aurora IT:

Aurora Water staff will generate response requests through the existing Aurora IT notification procedures. During normal business hours Monday-Friday, 7:00 AM - 5:00 PM, Help Desk response requests will be submitted via the Aurora IT Virtual Help Desk following the current procedures outlined by Aurora IT. After hour requests, including weekends and holidays, will be generated through the Aurora IT Help Desk Call In system following the current Help Desk procedures outlined by Aurora IT.

Aurora IT will respond to outage notices within 1 hour. The actual problem evaluation and issue will determine time to resolution.

Levels of System Failure and Response:

- **Complete System Outage:**
Definition: System Failure
Response Time: 1 Hour
- **System Momentary Outage:**

Definition: System Self Corrected Error and system is operable, but suffers loss of redundancy.

Response Time: Next Day Scheduled

- System Performance Degradation:

Definition: See Item #8

Response Time: 1 Hour (If Non-Redundant)
: Next Day (If Redundant)

- System Maintenance:

Definition: Scheduled or required to maintain integrity of the system.

Response Time: As Detected or As Scheduled

7. Aurora Water SCADA WAN Network Security:

This is all inclusive of the Aurora Water SCADA WAN radios, network equipment and servers/workstation installed at the tower sites and at IT maintenance locations. Network security will include control of physical access to the equipment and user access to maintenance and management software. Data security will include system backup, recovery and backup storage of the Microwave Radio Network Management System Server. Access to the Microwave Radio Network Management System shall be limited to authorized personnel and the appropriate access level required as agreed upon by Aurora IT and Aurora Water SCADA management staff.

8. Aurora Water SCADA WAN Metrics Reporting:

Test equipment will be used to chart a comprehensive set of statistics and measure the baseline throughput of the SCADA WAN Microwave Backbone.

System Performance metrics will be established once the Aurora Water SCADA WAN Microwave Radio System equipment has been installed, tested and commissioned in order to determine a baseline from which all system performance metrics will be measured.

9. Aurora Water SCADA WAN Management of System Changes:

This process is all inclusive of any changes or upgrades made to the SCADA WAN system. Changes to equipment, equipment location, system or network configuration, system reporting, emergency reporting, and emergency support are to be communicated to the leading principals of the Aurora Water and Aurora IT

SCADA program and may be subject to further assessment within each department. Aurora IT will be responsible for identifying upgrades to SCADA WAN Microwave System software and hardware and coordinate those changes with Aurora Water. Aurora Water will identify upgrades to the SCADA WAN that require new equipment or software to be intergraded into the existing system. Aurora Water and Aurora IT will coordinate to schedule recommended system upgrades and changes. Upon the joint approval of Aurora Water and Aurora IT, system changes will be scheduled.

Changes to Service Level Agreement (SLA)

1. Dispute Resolution

Aurora Water and Aurora IT currently enjoy a successful interdepartmental relationship. Aurora Water and Aurora IT will extend its relationship to cover disputes that may arise in relation to the Aurora Water SCADA WAN Service Level Agreement. All disputes will be resolved using the current relationships between Aurora Water and Aurora IT. Regularly scheduled meetings of principals from Aurora Water and Aurora IT will be held to ensure continued communication takes place regarding the state of the system.

Dispute resolution may consist of:

- Interdepartmental Meeting
- Email or Telephone Correspondence
- Semiannual Meeting Resolution
- Other

2. Amendment to Agreement

Any amendment to the Terms and Conditions of this agreement will require the approval of both Aurora Water and Aurora IT. The amendment of the agreement will take place through an addendum to this agreement.

There will be an opportunity on a request basis to make adjustments to this SLA. Aurora Water and Aurora IT will determine the severity and impact of requested changes. Implementation of any change to the SLA is subject to Aurora Water and Aurora IT approval.

3. New Applications or Devices

New applications, software revisions and hardware are covered under "Scope of Agreement" section above. Changes to the inventory of applications and equipment supported will be reviewed on a semiannual basis, and if needed, changes to the SLA will follow the process as described in the "Amendment to Agreement" section above. Changes made to the system may require a special session to address the impact to the SLA.

Processes and Procedures Related to This Agreement

1. Call Management Process

The City of Aurora IT Help Desk system will be used by all support personnel to request, record and track all support requests. This provides Aurora IT and Aurora Water with the ability to track Help Desk submittals and responses with regard to this SLA. Aurora IT Help Desk process is described in Item 6: *Notification procedures* section above.

2. SLA Funding Agreement

Billing for services provided under this agreement will fall under interdepartmental procurement processes already in place for Aurora Water and Aurora IT.

3. Addenda

Any future addenda will be referenced in the "Scope of Agreement" through an "Addendum Log" in Appendix A.

4. Metrics Reporting

Regular Metrics reporting on system performance will be provided on a semiannual basis by Aurora IT to Aurora Water. At the request of either Aurora Water or Aurora IT, additional metrics reporting meetings may be required and will be determined on a situational basis.

(System Performance metrics will be established once the Aurora Water SCADA WAN Microwave Radio System equipment has been installed, tested and commissioned in order to determine a baseline from which all system performance metrics will be measured.)

General Terms and Conditions

1. Term of Agreement

This agreement is in effect upon the date of acceptance of this agreement.

2. Organizations

This agreement is between the Aurora Water and Aurora IT, as named on the cover of this agreement.

3. Approvals

In order to make this agreement operational, approval as per "*Appendix B – The Parties to This Agreement*" must be in place.

4. Key Contacts

Key contacts are shown in "*Appendix B – Roles and Responsibilities*".

5. Dependence on Other Organizations

Aurora Water is dependent on other internal groups within the Aurora IT. Aurora IT Radio Shop will direct all services related to the support of the Microwave Radio System including Radio Tower Mounted Equipment and Microwave Radio Equipment. Aurora IT will manage the relationships to those suppliers of the Microwave Radio Equipment as it relates to the provision of services under this agreement.

The Aurora IT Networking group will monitor and manage the IP network infrastructure. They will manage relationships with those suppliers of the IP networking infrastructure as it relates to the provisioning of services under this agreement.

Appendix A – Addendum Log

Appendix B – Roles and Responsibilities

City of Aurora Information Technology

City of Aurora IT

The City of Aurora IT has the following general responsibilities under this agreement:

A. Management:

- Personnel management: Direct daily IT and any consultant activities, monitor task progress, escalate issues, and seek additional support in completion of duties.
- Project Management: Actively participate in projects. Complete project timelines and budgets, assign resources to tasks, update progress, prepare project statuses, measure risk, and provide alternatives for issues.

B. Aurora IT Network Services Staff:

Provide support for a network Up-time of 99.99%.

- Configuration, maintenance and support of data network infrastructure.
- 24X7 monitoring with on-call after hour support.
- Network Security.
- Provide reports on network performance including up and down time.
- Provide a Staff Roster for personnel that will be supporting the SCADA WAN network for use in configuring required system access.
- Provide notice of Aurora IT Staff changes that relate to SCADA WAN support.

C. Aurora IT Radio Shop Staff:

Provide support for a Microwave infrastructure Up-time of 99.99%.

- Configuration, maintenance, upgrade and support of the Microwave infrastructure. 24X7 monitoring with on-call after hour support.
- The Aurora IT Radio Shop shall request and provide notice of modifications in accordance with Item 9 "Aurora Water SCADA WAN Metrics Reporting" under Aurora Water SCADA WAN Management of System Changes above.

- Changes made to the SCADA WAN Network including but not limited to changes to radio configuration, T1 pipes, and allocation of SCADA network resources.
- Manage tower site security.
- Provide and manage maintenance for the towers and peripheral equipment including batteries, generators, HVAC, security systems, lighting, fencing, etc.

City of Aurora Water Department

City of Aurora Water Department

As the owner of the Aurora Water SCADA WAN, the Aurora Water staff has the following general roles and responsibilities under this agreement.

A. Management:

Management resources(s) will be provided to complete the following tasks:

Maintain open communication with Aurora IT management on issues and/or projects related to the SCADA network.

- Project Management: Actively participate in projects. Complete project timelines and budgets, assign resources to tasks, update progress, prepare project statuses, measure risk, and provide alternatives for issues.
- Provide oversight of Aurora Water SCADA staff.
- Participate in semiannual review of SLA and dispute resolutions.
- Participate in budget planning for Equipment Life Cycle Replacement.
- Provide Aurora IT with details on equipment proposed for use in the SCADA WAN II.
- Aurora Water shall request and provide notice of modifications in accordance with "*Aurora Water SCADA WAN Metrics Reporting*" under "*Aurora Water SCADA WAN Management of System Changes*" above. Changes made to the SCADA WAN Network including but not limited to changes to radio configuration, T1 pipes, and allocation of SCADA network resources.

B. SCADA Staff:

SCADA staff resource(s) will be provided to complete the following tasks:

- Coordinate with Aurora IT for access to SCADA WAN sites.
- Report suspected system outages or performance issues to Aurora IT.

- Manage Firewalls and Access Lists for the SCADA portion of the network.
- Provide Aurora IT with Staff Roster for work coordination.

The parties to this Agreement

City of Aurora Water and City of Aurora Information Technology.

Signed for and on behalf of The City of Aurora Water By _____ _____	Signed for and on behalf of The City of Aurora IT By _____ _____
In the Presence of _____	In the Presence of _____
Name _____	Name _____
Date _____	Date _____

Index of Abbreviations

dB– Decibels

IDU – Microwave Indoor Unit

IP – Internet Protocol

MW – Microwave

ODU – Microwave Outdoor Unit

SCADA – Supervisory Control and Data Acquisition

SLA – Service Level Agreement

T1 – DS1 or Digital Signal 1; a standard voice and data communication protocol.

WAN – Wide Area Network



SERVICE LEVEL AGREEMENT (SLA)

Between

Aurora Water

And

City of Aurora Public Works Department

For

Project Management Services

Related to the

Pavement Restoration Contract

March 1, 2010



Purpose

The purpose of this memorandum is to detail an agreement between Aurora Water (AW) and Public Works (PW) for project management services related to pavement restoration required as a result of repairs to water facilities within City right of way or paved AW easements. Under the terms of this memorandum, PW agrees to provide project and contract management services for an annual contract for asphalt patching needed as a result of AW in-house crew repair activities. These services will be provided by Public Works Operations (PWO) and Public Improvement Inspections (Inspections).

Background

Aurora Water in house crews maintain existing water, wastewater and storm water infrastructure within City right of way or within established utility easements. Maintenance includes point repairs to main water lines, service laterals, wastewater collection lines, and storm water lines. AW in house crews may also replace sections of mains and laterals as deemed necessary and appropriate.

The typical maintenance repair consists of excavating existing ground to expose damage; removal of damaged pipe or valve; installation of new pipe or valve; backfill trench area to previous elevation; and restoration of paved surface as necessary. Historically, all work, except restoration of paved surface, has been completed by AW in-house crews. Pavement restoration has historically been performed by outside contractors through a construction contract administered by AW and/or Inspections.

Proposal

Under this Memorandum of Understanding, PWO agrees to provide the following project and contract management services through its Capital Projects section (Project Manager):

1. Preparation of Bid Documents including specifications and drawings as appropriate.
2. Coordination with City of Aurora Purchasing agents (Purchasing) to advertise and award a contract to provide utility patching repair as required due to AW in-house crew maintenance efforts.
3. Project management throughout the duration of the contract including, but not limited to:
 - a. Coordination with Inspection personnel for materials testing and determination of repair area limits;
 - b. Coordination with Contractor and Purchasing to process pay requests;
 - c. Coordination with Contractor on areas to be repaired;



- d. Coordination with Contractor, Inspections and Purchasing to close the contract including issuance of Notices of Substantial Completion and Acceptance;
- e. Coordination with AW to include regular status reports on construction progress and funding.
- f. Provide weekly repairs costs per location tracked via spreadsheet with report details determined by AW and PWO.

Under this Memorandum of Understanding, Public Improvement Inspections agrees to provide the following services with respect to the subject contract:

1. Inspection and approval of backfill material and placement performed by AW.
2. Determination of limits of patch or trench repair, in conjunction with Project Manager.
3. All typical inspection and observation duties related to City construction contracts, Roadway Standards and Specifications and City permits.
4. Coordination with Project Manager to process requests for payment and Notices of Substantial Completion and Acceptance.

PWO agrees to provide these services with the following understanding:

1. PWO is providing project and contract management services only. PWO assumes no responsibility for funding the contract or for site conditions prior to Contractor's presence on-site.
2. AW is to provide all funding needed to fully fund a contract for pavement restoration following AW in-house crew repairs to existing water mains, service laterals, wastewater collection mains and services, and storm water mains and laterals. AW will approve and make final payment on all expenditures.
3. AW will determine the amount of contract funding available. At AW's request, PWO can assist in determining that amount.
4. PWO will transmit repair locations to Contractor until work totaling 90% of the contract funding has been reached. At that point, Project Manager will coordinate with AW to determine if additional funds are needed to complete repairs.
5. AW and PWO will collaborate on revisions to current specifications and contract documents with the goal of developing a contract to secure the lowest contract pricing possible.



6. PWO may, at the request of AW, provide management services beginning with funding authorizations, bid preparation, advertisement and award.
7. Any change orders to the contract for any reason will be administered by PWO with approval from AW.
8. All work completed in conjunction with the scope of work of the contract shall be done so in compliance with all City of Aurora Standard Specifications, general contract provisions and special contract conditions.
9. Aurora Water will periodically transmit a list of completed utility repair locations to Project Manager. Upon review of the list and determination of pavement repair limits, the locations will be formed into job lists and transmitted to Contractor.
10. PWO will provide to AW a detailed breakdown of cost per repair location, patch date, and patch quantities for tracking and reporting purposes.
11. An annual review of the contract and project will be conducted and any changes to the contract or established procedures will be mutually agreed upon.
12. Aurora Water will not have direct contact with Contractor except in an emergency. In an emergency, Aurora Water agrees to contact Project Manager or Inspections at the earliest opportunity.
13. Any issues regarding the contractor's work will be addressed through the Project Manager or Inspections.
14. Final patching dimensions will be determined by Inspections and Project Manager.
15. Excavation of existing driving surface will be limited to bid depth of asphalt patch unless additional backfill stabilization is required, in which case additional excavation beyond bid patch depth will be limited to six inches. If the backfill cannot be stabilized within that depth, AW in-house crews may be called to repair and compact the backfill material. In that event, AW will begin backfill repairs within two days of receiving notice from Project Manager and/or Inspections, or as mutually agreed upon between Project Manager, Inspections, AW and Contractor.
16. If mill and overlay work is required pursuant to Section 36 of the Roadway Specifications, such work will be included in the subsequent year's Street Overlay Program contract and AW will provide sufficient funding for the work. The Project Manager will coordinate with AW on limits and quantities for this work.



17. In consideration for providing these services to AW, AW will provide a 5% overhead payment of the total contract to PW for the administration of this contract. Payment will be made through an interfund transfer during the last month of the contract duration.

Changes to Service Level Agreement (SLA)

1. Dispute Resolution

Aurora Water and Aurora Public Works currently enjoy a successful interdepartmental relationship. Aurora Water and Aurora PW will extend their relationship to cover disputes that may arise in relation to the Aurora Project Management Services Service Level Agreement. All disputes will be resolved using the current relationships between Aurora Water and Aurora Public Works.

Dispute resolution may consist of:

- Interdepartmental Meeting
- Email or Telephone Correspondence
- Semiannual Meeting Resolution
- Other

2. Amendment to Agreement

Any amendment to the Terms and Conditions of this agreement will require the approval of both Aurora Water and Aurora PW. The amendment of the agreement will take place through an addendum to this agreement.

There will be an opportunity on a request basis to make adjustments to this SLA. Aurora Water and Aurora PW will determine the severity and impact of requested changes. Implementation of any change to the SLA is subject to Aurora Water and Aurora PW approval.

General Terms and Conditions

1. Term of Agreement

This agreement is in effect upon the date of acceptance of this agreement.

2. Organizations

This agreement is between the Aurora Water and Aurora PW, as named on the cover of this agreement.



3. Approvals

In order to make this agreement operational, approval as per "The Parties to This Agreement" must be in place.

The parties to this Agreement

City of Aurora, Aurora Water and City of Aurora, Public Works Department

Signed for and on behalf of The City of Aurora, Aurora Water	Signed for and on behalf of The City of Aurora, Public Works Department
By _____ Director, Aurora Water Department	By _____ Director, Public Works Department
Date _____	Date _____